AS-Interface—Your Wiring Replacement Solution

Simple by design

If you're looking for a simple way to enhance your wiring systems, Pepperl+Fuchs has an AS-Interface solution for you. The genius of AS-Interface is its simplicity—you don't have to be an expert in bus systems and communication protocols to use it.

AS-Interface is non-proprietary and works with virtually any brand of sensor, actuator, or bus system and is backed by a lifetime warranty. And like everything we make, Pepperl+Fuchs manufactures AS-Interface products according to the most stringent ISO 9001 standards. This obsession with quality assures you'll have peace of mind long after your system is up and running.

As excited as we are about the possibilities of this powerful wiring system, Pepperl+Fuchs is more than just AS-Interface. We have a rich history of excellence—over a half-century as a leader in factory automation products. Today we're the premiere manufacturer of sensors, cordsets and ID systems and are 100% committed to our tradition of providing the finest quality products and technical support.

We hope this catalog stimulates ideas on how AS-Interface can work for you. Want to know more? Call us at (330) 425-3555 or email us at sales@us.pepperl-fuchs.com. You can also find a complete listing of all P+F products on our website at www.am.pepperl-fuchs.com.

USA Headquarters
Pepperl+Fuchs, Inc.
1600 Enterprise Parkway
Twinsburg ,Ohio 44087-2245
Tel. (330) 425-3555
FAX (330) 405-4710
sales@us.pepperl-fuchs.com

World Headquarters
Pepperl+Fuchs GmbH
Königsberger Allee 87
68307 Mannheim
Tel. (06 21) 7 76-0
FAX (06 21) 7 76-1 00
info@de.pepperl-fuchs.com

Argentina
Dipl.-Ing. G. Bruno Schillig S.R.L.
Arenales (Dipl. Ortiz) 4030
1602 Florida
Buenos Aires
Tel. (11) 47 30 11 00
FAX (11) 47 61 72 44
schillig@schillig.com.ar

Austria
Pepperl+Fuchs Ges.m.b.H.
Industriestraße B 13
2345 Brunn am Gebirge
Tel. (22 36) 3 34 41
FAX (22 36) 3 16 82
glinhart@at.pepperl-fuchs.com

Belgium
Pepperl+Fuchs N.V./S.A.
Metropolstraat 11
2900 Schoten
Tel. (3) 6 44 25 00
FAX (3) 6 44 24 41
sales@be.pepperl-fuchs.com

Brazil
Pepperl+Fuchs Ltda.
Avenida Kennedy, 164-4°Andar
Jardim do Mar
CEP 09726-250
Sao Bernardo do Campo
Tel. (11) 41 22 32 33
FAX (11) 41 25 73 29
vendas@br.pepperl-fuchs.com

Colombia
Alfatecnica S.A.
Cll 37 No. 19-75
Santafé de Bogotá D.C.
Tel. (1) 5 30 08 08
FAX (1) 53 83 88
importac@latino.net.co

Czech Republic
FCC Prumyslove Systemy s.r.o.
SNP8
400 11 Usti Nad Labem
Tel. (47) 2 77 41 73
FAX (47) 2 77 21 15
usti@fccps.cz

FCC Prumyslove Systemy s.r.o.
Vinarská 1a
603 00 BRNO
Tel. (5) 41 15 86 26 / 43 21 56 54
FAX (5) 43 21 56 55
brno@fccps.cz

FCC Prumyslove Systemy s.r.o.
U Slovanky 8
182 00 Praha 8
Tel. (2) 60 05 20 99
FAX (2) 6 88 08 19
praha@fccps.cz

Denmark
Pepperl+Fuchs A/S
Stamholmen 173, 2650 Hvidovre
Tel. 36 77 13 00
FAX 36 77 24 14
mail@pepperl+fuchs.dk

Pepperl+Fuchs A/S
Havrevanget 27 Agard
6040 Egtved
Tel. 75 55 40 96
FAX 75 55 44 99
hoff@post10.tele.dk

Ecuador
Alfatecnica S.A.
Cala 37 No. 14-68
Santafe de Bogota D.C.
Columbia
Tel. (1) 3 20 31 66 / 2 88 76 11
FAX (1) 2 85 76 10 / 2 85 98 75 /
7 81 05 43

El Salvador
PROYECT Asesoria Industrial
Av. Los Diplomáticos 1318
San Salvador
Tel. 2 70 17 31 / 2 80 22 21 /
2 70 72 17
FAX 2 70 17 31 / 2 25 71 65

Egypt
Pepperl+Fuchs Egypt (LLC)
9 Abd Al Hamied Lotfy Street,
Zone 8, Nasr City
Cairo
Tel. (2) 2 72 10 97 / 2 87 00 71
FAX (2) 2 75 60 96
mesmat@eis1.com.eg

Finland
SensoNor Oy
Kartanontie 20
00330 Helsinki
Tel. (9) 4 77 72 00
FAX (9) 47 77 20 20
joel.patrikka@sensonor.fi

SensoNor Oy
Suvantopolku 2
37550 Lempäälä
Tel. (3) 3 42 60 00
FAX (3) 3 75 26 49
kari.tanner@sensonor.fi

SensoNor Oy
Puijonkatu 26
70100 KUOPIO
Tel. (17) 3 64 44 00
FAX (17) 3 64 44 14
petri.poimaa@sensonor.fi

France
Pepperl+Fuchs SARL
12 Avenue des Tropiques
91955 Courtaboeuf Cedex
Tel. (1) 60 92 13 13 / 69 07 09 12
FAX (1) 60 92 13 25
commercial@fr.pepperl+fuchs.com

Germany
Pepperl+Fuchs
Füllstandstechnik GmbH
Postfach 24 05 63
68197 Mannheim
Tel. (6 21) 8 10 09-0
FAX (6 21) 8 10 09-99
Telex 462258

Germany
Hohner Elektrotechnik
Föhrenstraße 31 - 33
78532 Tuttlingen
Tel. (74 61) 92 98-0
FAX (74 61) 92 98-22

Germany
Pepperl+Fuchs Kolleg GmbH
Königsberger Allee 87
68307 Mannheim
Tel. (6 21) 7 76-0
FAX (6 21) 7 76-14 00

Great Britain
Pepperl+Fuchs (GB) Ltd.
77 Ripponden Road
Oldham OL1 4EL, Lancs.
Tel. (161) 6 33 64 31
FAX (161) 6 28 31 14
sales@gb.pepperl-fuchs.com

Greece
Uteco A.B.E.E.
16 Mavromichali Street
185 38 Piraeus
Tel. (1) 4 29 07 10 / 4 29 06 85 /
4 29 09 91
FAX (1) 4 29 07 70

Guatemala and Honduras
PROYECT Asesoria Industrial
8a. Avenida 33-10, Zona 11
Guatemala C.A.
Tel. (4) 76 74-33 to 38
FAX (4) 76 74 39

Hungary
Kontroll-Technika
Meres-es Iranyitastechniai Kft.
Gyali u. 37B ep. 23
1097 Budapest
Tel. (1) 2 80 25 19
FAX (1) 2 80 25 19

Plamet Kft.
Kisto Utca 16-18
8200 Veszprem
Tel. (88) 59 01 00
FAX (88) 59 01 32

Iceland
Tölvusalan ehf.
Suourlandsbraut 20
P. O. Box 8960, IS-128 Reykjavik
Tel. (5) 50 04 50 / 50 04 54
FAX (5) 50 04 02
mk@islandia.is

Iran
Farayand PAS
5th Floor - No. 104
Africa Express Way,
Corner of Golshahr
19697 Tehran
Tel. (21) 2 05 43 41 / 2 05 25 83 /
2 05 25 89
FAX (21) 2 05 43 88
Farayandpas@neda.net

Israel
Kama Ltd.
20 Hametsuda St.
58 190 Azor
Tel. (3) 5 56 77 47
FAX (3) 5 56 75 48
Kama@netvision.net.il

Italy
Pepperl+Fuchs S.r.L.
Via Cesare Cantù, 11
20092 Cinisello Balsamo (Milano)
Tel. (2) 61 86 81
FAX (2) 66 01 61 67
segret@it.pepperl-fuchs.com

Mexico
Pepperl+Fuchs México, S.A. de C.V.
Blvd. Xola 613, P.H.
Col. Del Valle
03100 México, D.F.
Tel. (5) 6 39 47 08 / 6 39 42 12 /
6 39 19 51
FAX (5) 6 39 88 65
pfmexico@mpsnet.com.mx

Pepperl+Fuchs México, S.A. de C.V.
Santos Degollado 631, 2.° - Piso
Col. Obispado
64060 Monterrey, N.L.
Tel. (8) 3 45-20 90
FAX (8) 3 45-20 91

Pepperl+Fuchs México, S.A. de C.V.
Pino Suárez 271-R
Col. Ninos Heroés
76010 Queretaro, Qto.
Tel. (42) 16 28 54
FAX (42) 15 88 54

Pepperl+Fuchs México, S.A. de C.V.
Calle Simona Barba 5110, Local 33
Col. Partido Escobedo
32330 Ciudad Juarez, Chihuahua
Tel. (16) 11 23 45
FAX (16) 11 23 45

Pepperl+Fuchs México, S.A. de C.V.
Calle de Lagos 108
Facc. Loma Bonita
86050 Villahermosa, Tobasco
Tel. (93) 15 32 07
FAX (93) 15 32 07

Netherlands
Pepperl+Fuchs B.V.
Het Wielsem 10
5231 BW's-Hertogenbosch
Tel. (73) 6 40 93 88
FAX (73) 6 44 47 49
sales@nl.pepperl-fuchs.com

Nigeria
Laantaf Nigeria Limited
Eku House • Warri/Sapele Road
P.O. Box 1405
Effurun - Warri, Delta State
Tel. (53) 25 32 92
FAX (53) 25 46 42 / 25 10 35 / 23 10 53

Norway
Elteco A/S
Postboks 96
Floodmyrveien 24
3900 Porsgrunn
Tel. 35 57 38 00
FAX 35 57 38 49
firmapost@elteco.no

Pakistan
Techno-Commercial
Engineers-Representatives
24-Farid Plaza, 65 Shadman
G.P.O. Box 937
Lahore
Tel (42) 48 43 90
FAX (42) 7 58 17 71

Haji Ahmad Brothers Ltd.
G.P.O. Box 130
Karachi-1
Tel (21) 87 71 / 87 72 / 87 78

Poland
INTEX SP. zo.o.
ul. W. Pola 16
44-100 Gliwice
Tel. (32) 2 30 75 16
FAX (32) 2 30 75 17
intex@silesia.pik-net.pl

Portugal
F. Fonseca Ltda.
Estrada de Taboeira
Esgueira-Apartado 30 03
3800-997 Aveiro
Tel. (234) 30 39 00
FAX (234) 3 039 10
ffonseca@ffonseca.com

South Africa
P & F Products cc
P.O. Box 2809 60, Fourth Ave.
Edenvale 1610
Tel. (11) 6 09 81 88
FAX (11) 4 52 20 26
pandf@pandf.co.za

Spain
Pepperl+Fuchs, S.A.
Txori-Erri Etorbidea 46
Pol. Izarza
48150 Sondika (Vizcaya)
Tel. (4) 4 53 50 20
FAX (4) 4 53 51 80
sov@es.pepperl-fuchs.com

Pepperl+Fuchs, S.A.
Edif. Espacio, Pta. 1a, Modulo 9
Avda. Innovación, s/n
Pol. Aeropuerto
41020 Sevilla
Tel. (5) 4 25 85 04
FAX (5) 4 25 85 07

Pepperl+Fuchs, S.A.
L'Avenir No. 39-41
08021 Barcelona
Tel. (3) 2 40 51 06 / 2 00 41 87
FAX (3) 2 40 28 84

Pepperl+Fuchs, S.A.
Virgen de las Vinas, 3, Escl. 3 8°B
28031 Madrid
Tel. (1) 3 31 68 64
FAX (1) 3 31 68 64

Sweden
Pepperl+Fuchs AB
Stockholmsvaegen 116 Box 1203
18312 Taeby
Tel. (8) 56 20 11 00
FAX (8) 7 92 06 54
pepperl-fuchs@gycom.se

Gycom Automation AB
Stockholmsvaegen 116 Box 1203
18312 Taeby
Tel. (8) 56 20 11 00
FAX (8) 7 92 06 54
info@gycom.se

Switzerland
Digitrade AG
Sägeweg 7
2557 Studen/Biel-Bienne
Tel. (32) 3 73 51 64
FAX (32) 3 73 34 70
digitrade@digitrade.ch

Turkey
Onur Mühendislik Otomasyon
Sti. Yildirim Sk, No. 23
Kucukyali
Istanbul
Tel. (216) 3 88 95 90
FAX (216) 4 089 60 20
info@onurmuh.com.tr

United Arab Emirates
Pepperl+Fuchs (M.E.) FZE
P.O. Box 61398
Jebel Ali Free Zone
Dubai
Tel. (4) 81 70 16
FAX (4) 81 69 35
pfme@emirates.net.ac

Venezuela
DIASA
Distruidora Industrial
de Automatismo S.A.
Calle 8 con Calle 6
Edificio Coesma, Piso 2
La Urbina
Tel. (2) 242-21-22, 242-05-22
FAX (2) 242-20-74

Asia Pacific Headquarters
Pepperl+Fuchs Pte. Ltd.
P+F Building
18 Ayer Rajah Crescent
Singapore 139942
Tel. 7 79 90 91
FAX 8 73 16 37 / 8 73 16 29
sales@sg.pepperl-fuchs.com

Australia
Pepperl+Fuchs Australia Pty. Ltd.
Unit 7/72-74 Chifley Drive
Preston, Victoria 3072
Tel. (3) 94 84 08 88
FAX (3) 94 84 63 66
pfa@au.pepperl-fuchs.com

Bangladesh
Cosmos Energy Services (Pvt.) Ltd.
Cosmos Centre
69/1, New Circular Road
Malibagh, Dhaka - 1217
Tel. (2) 9 33 08 59 / 40 51 52 /
41 15 64 / 83 20 24
FAX (2) 83 46 02
cosmos@citecho.net

Brunei
Joffren Omar Co SDN BHD
Lot No 23, G-25 Area,
Simpang 81-4,
P.O. Box 105
Seria 7001
Negara Brunei Darussalam
Tel. (3) 22 68 08/9/10
FAX (3) 22 33 09
josks@pso.brunet.bn

China
Pepperl+Fuchs Shanghai
No. 9, Lane 163 Tan Jia
Qiao Road
Shanghai, 200070
Tel. (21) 56 52 76 32 / 56 52 76 34 /
56 52 59 89 / 56 52 66 63 /
56 52 39 77 / 56 52 39 78
FAX (21) 56 52 71 64
pefusha@public.sta.net.cn

Pepperl+Fuchs Pte Ltd (PA)
Shanghai Representative Office
No. 218 Tian Mu Xi Road
Kerry Everbright City Tower 1
Room 33308
Shanghai, 200070
Tel. (21) 63 54 29 10
FAX (21) 63 54 65 36
pefusha@public.sta.net.cn

Pepperl+Fuchs Beijing Rep. Office
Flat 315-7-K Building
Hulyuan Apartments
Beijing, 100101
Tel. (10) 64 95 50 33 / 64 98 53 08 /
64 98 53 09
FAX (10) 64 99 23 15
pfshapa@public8.sta.net.cn

China/Guangdong
Foober (H.K.) Co., Ltd
Room 2408 Hopewell Centre
183 Queen's Road East
Wanchai Hong Kong
Tel. 28 27 18 80
FAX 28 27 21 29
fooberhk@hkstar.com

China/Guangzhou
Pepperl+Fuchs Guanzhou Office
Building 1 Jia Yi Yuan
13th Floor / Room G
Tianhe District
510630 Guangzhou
Tel. (20) 38 80 51 59
FAX (20) 38 80 85 05
pfgzoo@public8.guangzhou.gd.cn

Hong Kong
Foober (H.K.) Co., Ltd.
Room 2408 Hopewell Centre
183 Queen's Road East
Wanchai Hong Kong
Tel. (2) 8 27 18 80
FAX (2) 8 27 21 29
fooberhk@hkstar.com

India
Pepperl+Fuchs India Pvt Ltd
305 Ansal Chamber II
Bhikaji Cama Place
New Delhi 110 066
Tel. (11) 6 17 02 07 / 6 18 86 12
FAX (11) 6 17 02 07
pepperl@del2.vsnl.net.in

Pepperl+Fuchs India Pvt Ltd
Plot 10, 3rd Main. 1st Stage
Peenya Ind. Est.
Bangalore 560 058
Tel. (80) 8 37 80 30
FAX (80) 8 37 80 31
pepperl@blr.vsnl.net.in

Pepperl+Fuchs India Pvt Ltd
Radhika Business Point
Plot No. 6A, II Floor
Kalyangram Society, V.P. Road
Andheri (W)
Mumbai 400 058
Tel. (33) 6 71 95 67
FAX (33) 6 71 95 80
pepperl@bom3.vsnl.net.in

Pepperl+Fuchs India Pvt Ltd
Block No. 122, 1st Floor "Lords"
7/1, Lord Sindha Road
Calcutta 700 071
Tel. (33) 2 82 85 39
FAX (33) 2 82 87 77
pepperl@cal2.vsnl.net.in

Indonesia
PT Himalaya Everest Jaya
Jin Daan Mogot 10, No. 151
Pesing Polgar
Jakarta Barat (11710)
Tel. (21) 5 44 89 56 / 5 44 89 65
FAX (21) 6 19 46 58 / 6 19 19 25
himalaya@indosat.net.id

PT Binakarya Sentosaprima
Citra Garden 1 Block C-2/24
Jakarta 11840
Tel. (21) 5 45 11 36/37
FAX (21) 5 40 36 47
ptbina@cbn.net.id

Japan
Pepperl+Fuchs K.K.
German Industry Center 401
18-2 Hakusan 1-Chome, Midori-Ku
Yokohama 226-0006
Tel. (45) 9 39 78 02/03
FAX (45) 9 39 78 04
sales@jp.pepperl-fuchs.com

Japan (FA)
Koyo Electronics Industries Co. Ltd.
171, 1-Chome, Tenjin-Cho
Kodaira, Tokyo 187
Tel. (423) 41 77 11
FAX (423) 41 31 18

Korea
Pepperl+Fuchs Korea Ltd.
Goun Building
646-18 Yeoksam-dong Kangnam-Ku
Seoul
Tel. (2) 5 38 60 13
FAX (2) 34 73-60 29
info@pepperl-fuchs.co.kr

Malaysia (FA)
Industrial Automation (M) Sdn Bhd
30-3 & 30-4, Jalan Loke Yew
55200 Kuala Lumpur
Tel. (3) 2 21 05 11
FAX (3) 2 22 22 99

Industrial Automation (M) Sdn Bhd
No. 29, Jalan Molek 1/12
Taman Molek
81100 Johor Bahru
Johor Darul Takzim
Tel. (7) 3 52 83 88
FAX (7) 3 52 83 89

Malaysia (PA)
Regeltec Engineering (M) Sdn Bhd
21, Jln 3.23A Taman Danau Kota
Off Jln Genting Kelang, Setapak
53000 Kuala Lumpur
Tel. (3) 4 12 51 99
FAX (3) 4 12 81 99
zaimuhd@tm.net.my

New Zealand
Unilink Automation Ltd.
P.O. Box 12142
15 Olive Road, Penrose
Auckland
Tel. (9) 5 25 70 02
FAX (9) 5 25 70 11
sales@unilink.co.nz

Philippines (FA)
Jaylan Mill Trades, Inc.
Room 203, Comfoods Building
Sen. Gil J. Puyat Avenue
Makati, Metro Manila
Tel. (2) 8 44 63 26 / 8 43 17 42 /
8 44 56 61
FAX (2) 8 93 22 02

Philippines (PA)
H.J. Franklin, Inc.
26 Rose Avenue
Pilar Village
Las Pinas
Metro Manila
Tel. (2) 8 02 40 18 / 8 02 40 94 /
8 06 79 96
FAX (2) 8 05 57 35 / 8 01 60 24
hjfincph@mnl.sequel.net

Process Enhancement Products Corp.
6364 Camia Street
Guadalupe Viejo
Makati City
Tel. (2) 8 90 12 72
FAX (2) 8 90 12 72

Sri Lanka (FA)
Nikini Automation Systems (Pvt) Ltd
247 High Level Road, Kirulapone
Colombo 5
Tel. (1) 82 68 94
FAX (1) 82 62 52 / 50 05 44
upendra@mail.slt.lk

Taiwan
Pepperl+Fuchs PTE LTD
(Taipei Representative Office)
TWTC Exhibition Hall
Room 7C16, 7FL, No. 5
Sec. 5, Hsin-Yi Road
Taipei
Tel. (2) 87 80 38 38
FAX (2) 27 23 88 11
tkyeo@mail.net.tw

Taiwan (PA)
Globe Royal Cavalier Corp.
6th Floor, 23 Jen Ai Road, Sec. 3
Taipei 106
Tel. (2) 27 71 82 46 / 27 71 82 47
FAX (2) 27 51 90 32
grcc@ms19.hinet.net

Taiwan (FA)
Kawa Kami Enterprise Corp.
6F, No. 3, 26 Lane
Kuang Fu North Road
Taipei
Tel. (2) 25 78 12 61
FAX (2) 25 78 43 48
kawakami@tpts5.seed.net.tw

Thailand (FA)
Industrial Electrical Co., Ltd.
85/3 Soi Sot Phin San
Rang Nam Road, Rajthevee
Bangkok 10400
Tel. (2) 6 42 78 87 / 6 42 67 00
FAX (2) 6 42 42 50
iecl@ie.co.th

Thailand (PA)
Delta Corporation Limited
70, 72, 74, 76, Soi Pattanakarn 53
(Muangthong 2/3)
Pattanakarn Road, Suanluang
Bankog 10250
Tel. (2) 3 22 54 23 / 3 22 54 30
FAX (2) 3 22 17 62 / 3 22 22 67
deltabkk@loxinfo.co.th

Vietnam
Thien Nghi Trading Pte
210 Nguyen Thai Binh St. Ward 12
Tan Binh Dist
Ho Chih Minh City
Tel. (8) 8 11 54 76
FAX (8) 8 11 54 75
thiennghi@hcm.vnn.vn

Page

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Page

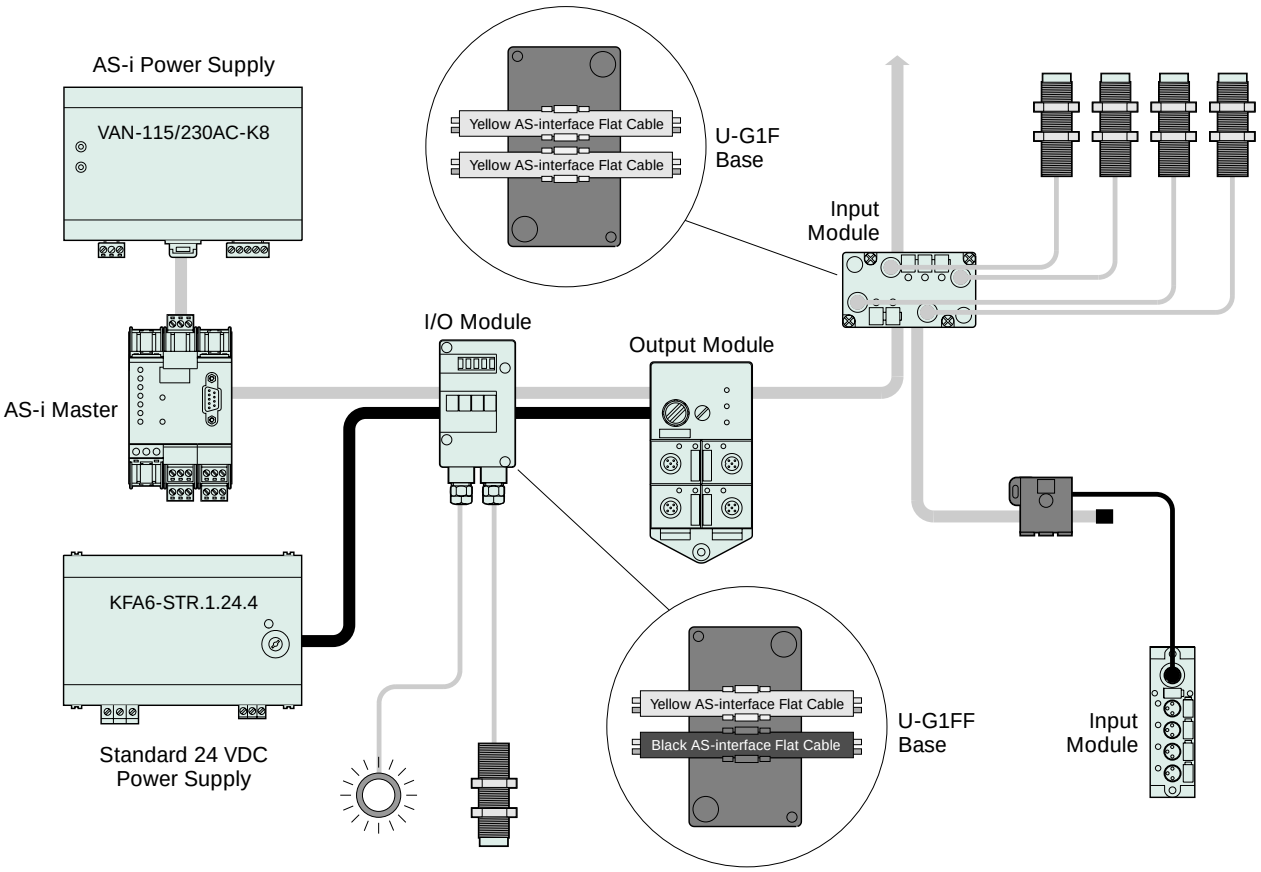
INTRODUCTION

What is AS-Interface?
Actuator Sensor Interface (AS-Interface) is a wiring replacement system that connects discrete devices to a PC, PLC or DCS. Due to its single-cable design, AS-Interface simplifies wiring and reduces installation costs by an average of forty percent. Commonly linked discrete devices include sensors, limit switches, indicator lights, relays, solenoids and other low-level apparatus typically found in control systems.

Easy to Use
AS-Interface is simple. While most bus systems require steep learning curves and specific hardware and software, AS-Interface requires just a single cable to connect I/O modules from any manufacturer. AS-Interface users need no knowledge of bus systems or communication protocols. And unlike most networks, AS-Interface doesn't use shielded interface cables and terminating resistors. If you already have a bus system, make it even better by linking to an AS-Interface gateway.

Easy to Expand
Expansion is easy—just snap on a module, address it then connect the cable. Verify the power LED is on and you're ready for the next device. AS-Interface accepts any topology (the arrangement of connected modules) so you can connect modules in a ring, from a single point or any combination in-between for up to 100 meters. Or, add repeaters to expand the system to 300 meters—nearly 1000 feet. AS-Interface makes end-of-run lines simpler because it does not use terminating resistors.

Hot Swappable
Replacement modules are even simpler because the master automatically addresses them for you. AS-Interface is a 24 VDC system so maintenance personnel can safely change modules while power is on.



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Lightning-fast
AS-Interface is fast: data transfers in less than 5 ms for a fully loaded system with all 31 slaves connected. AS-Interface is deterministic, that is you can calculate system response time by knowing the number of modules connected to the master. Each slave adds a mere 150 µs to the scan time.

Saves Money
AS-Interface typically reduces wiring and installation costs by forty percent. The single, flat cable eliminates the multitude of wires that plague systems with discrete devices linked by conventional means, and fewer wires reduce the need for cabinet space, conduit and cable trays. Savings in labor can be enormous because fewer wires to pull significantly reduces labor costs, and its inherent simplicity decreases design time.

Nonproprietary
AS-Interface configures and installs with no need for vendor-specific software or device-level configuration files. Developed in 1990 by a consortium of eleven manufacturers, AS-Interface suppliers have grown to over two hundred manufacturers with more than two million modules installed around the world. As one of the original consortium members, Pepperl+Fuchs is experienced in every phase of AS-Interface and offers an extensive selection of I/O modules, masters, power supplies and accessories.

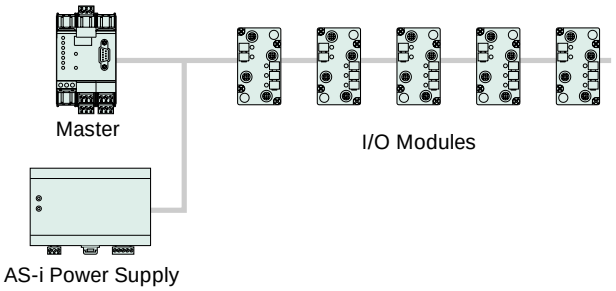
Low Maintenance
Despite its simplicity, AS-Interface offers diagnostic capabilities such as lead breakage and short circuit protection that minimize downtime. A single AS-Interface system of 31 addressable I/O blocks controls 124 inputs and 124 outputs.

Superior Quality
Before any product bears the AS-Interface logo, it undergoes a rigorous certification process by an independent laboratory. This certification guarantees the highest quality and compatibility of products, regardless of the manufacturer.

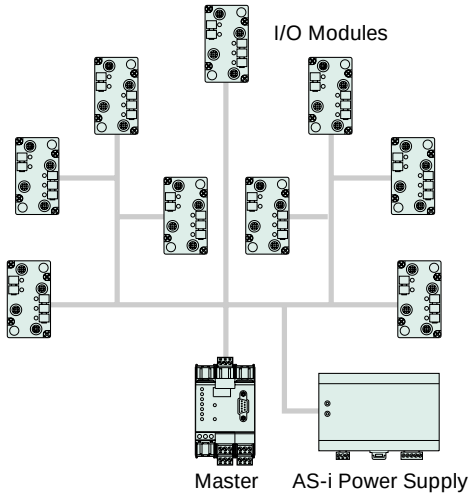
Topologies

The topology of AS-Interface is completely open enabling the user to install the system in a layout that best fits the application. The two-wire, unshielded cable does not use termination and the power supply can be placed anywhere in the segment. The only consideration is that the total AS-Interface cable length must be 100 meters or less. Repeaters and Extenders can be used to lengthen the system up to a maximum of 300 meters (see page 9). A few possible topologies are shown below.

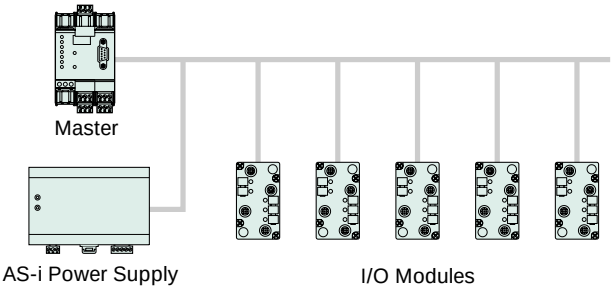
In-line Topology



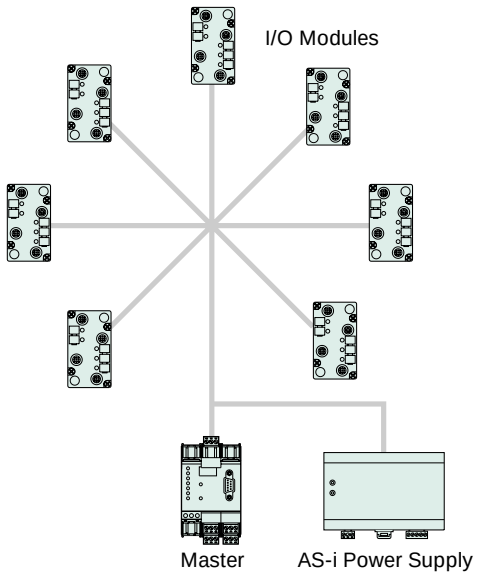
Mixed Topology



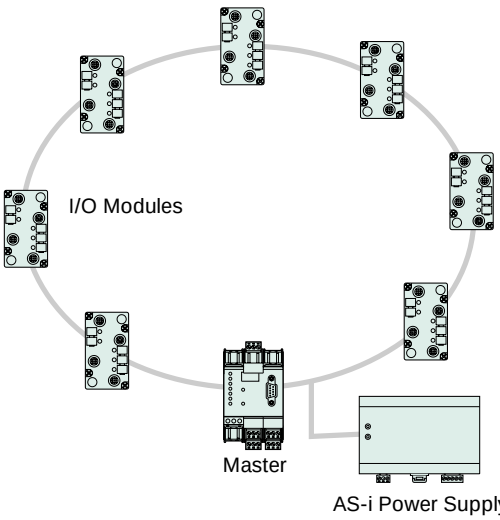
Trunkline/Dropline Topology



Star Topology



Ring Topology

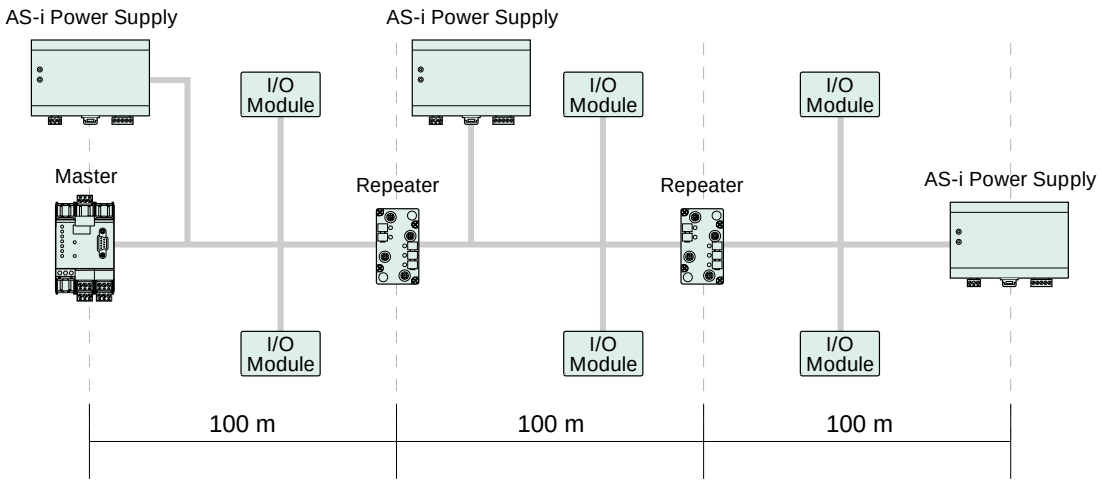


PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Repeaters and Extenders

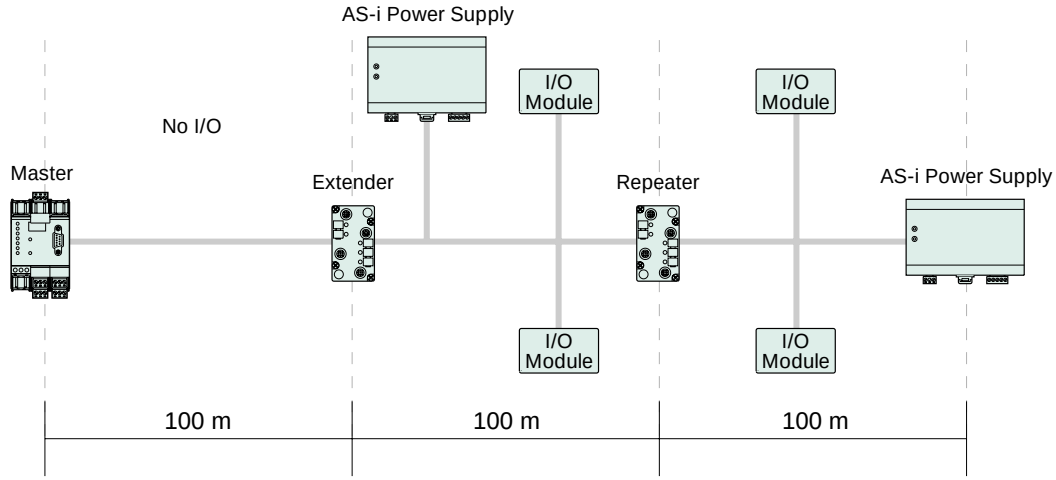
Repeaters

The cable length of AS-Interface can be increased an additional 100 meters through the use of a repeater. Since repeaters galvanically isolate the connected network segments, an AS-Interface power supply must reside in both segments. A maximum of 2 repeaters can be used in a single cable run resulting in an overall length of 300 meters. When using repeaters, I/O modules can be placed anywhere in all of the cable segments. Regardless of the cable length and number of repeaters, a maximum of 31 I/O modules per master can be placed on AS-Interface.



Extenders

The cable length of AS-Interface can be increased an additional 100 meters through the use of an extender. The advantage of an extender is that a 200 meter AS-Interface system is possible using only one power supply. The power supply must be located in the second segment and unlike a repeater, I/O modules can not be placed in the 1st 100 meter segment between the extender and master. A maximum of one extender and one repeater can be used in a single cable run resulting in an overall length of 300 meters. Regardless of the cable length and use of repeaters and extenders, a maximum of 31 I/O modules per master can be placed on AS-Interface.



Sizing the AS-Interface Power Supply

Power supply current ratings at 30.5 VDC

2.8 A Power Supplies	Page no.
VAN-115/230AC-K8	pg. 57
VAN-115/230AC-K6	pg. 58
VAN-24DC-K9	pg. 63
VAN-115/230AC-K7-CN	pg. 61

3 A (Class 2) Power Supply	Page no.
VAN-115/230AC-CL2-S	pg. 62

4 A (Double Network) Power Supply	Page no.
VAN-115/230AC-K7-DN	pg. 60

8 A Power Supply	Page no.
VAN-115/230AC-K7	pg. 59

Calculation of the Supply current for your AS-Interface Network

Current on the Network = SUM the currents of:
(Master/Gateway operating current)
+ (I/O module operating current x the number of I/O modules)
+ (8 mA x the number of AS-Interface powered inputs)
+ (Operating current of 3 wire devices x the number of 3-wire inputs)

Example Calculation using AS-Interface components and P+F sensors

Part and descriptions

Quantity	Description	Part no.	Page no.
1	RS232 Serial AS-I master	VAM-CTR-KF-R2	pg. 20
20	G2 style I/O module	VAA-4EA-G2-ZE/E2	pg. 122
20	G2 bases	U-G2FF	pg. 235
31	P+F 3-wire Photoelectric sensor	OBS6000-F10-E5-V1	Sensors catalog
40	Contact closure inputs	—	

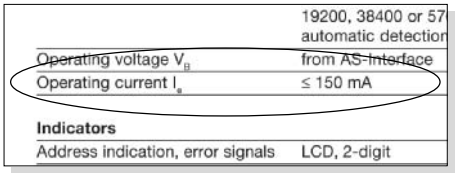
Note: Outputs are powered externally and have no affect on AS-i power consumption

Calculation

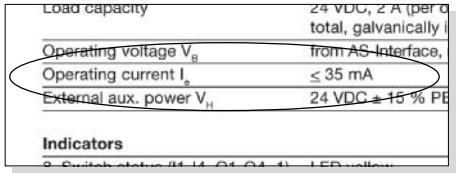
Master/Gateway operating current ..... 150 mA
I/O module operating current x the number of I/O modules (35 mA x 20) ..... 700 mA
8mA x the number of AS-i powered inputs [8 mA x (31+40)] ..... 568 mA
Operating current of 3 wire devices x the number of 3 wire inputs (20 mA x 31) ..... 620 mA
Total 2.04 Amps

The network has a total current consumption of 2.04 A so any of the power supplies in the 2.8 A column will work.

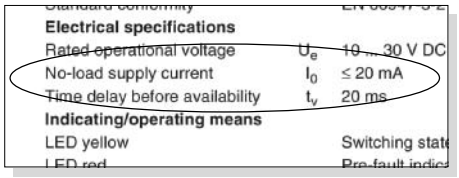
VAM-CTR-KF-R2



VAA-4EA-G2-ZE/E2



OBS6000-F10-E5-V1



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Key to Model Numbers

General Product Identification

V□□-...

AS-i Specification
- **A** - Spec 2.04
- **B** - Spec 2.1

Product Type
- **A** - I/O Module (see below)
- **P** - Programmer
- **N** - Power Supply (see below)
- **Z** - Accessory
- **M** - Master (see below)
- **G** - Gateway (see below)
- **E** - Extender
- **R** - Repeater

I/O Modules

V□A-□-□-□-□

AS-i Specification
- **A** - Spec 2.04
- **B** - Spec 2.1

Inputs/Outputs
- **2EA** - 2 inputs/2 outputs
- **4E** - 4 inputs
- **4A** - 4 outputs
- **4EA** - 4 inputs/4 outputs
- **2E/1A** - 2 inputs/1 outputs
- **LT2** - Lighted pushbutton
- **2*2E** - Antivalent inputs

Housing style
- **G1** - Standard module
- **G2** - Flat module
- **G4** - Field module
- **G6** - Compact module
- **K2** - Junction box module
- **K3** - Junction box module
- **KF** - Enclosure module
- **KF2** - Enclosure module
- **CB** - Circuit board

I/O connection
- **ZE0** - 2 or 3-wire NPN input
- **ZE** - 2 or 3-wire PNP input
- **Z** - 2-wire PNP input
- **N** - 2-wire NAMUR input (non-hazardous locations)
- **ZA** - 2-wire antivalent PNP input
- **WS** - 82-132 VAC input
- **AE** - 2 or 3-wire antivalent PNP input
- **ZE/R** - 2 or 3-wire PNP input w/relay output
- **R** - Relay output
- **E2** - 24 VDC sourcing output
- **ZE/E2** - 2 or 3-wire PNP input w/24 VDC sourcing output
- **ZE/P** - 2 or 3-wire PNP input w/pneumatic output
- **E0** - 24 VDC sinking output
- **WS/R** - 82-132 VAC input w/relay output
- **ZE0/E0** - 2 or 3-wire NPN input w/24 VDC sinking output

Options
- **LG** - Logic module

Power Supplies

VAN-□-□-□

Voltage range
- **115/230AC**
- **24VDC**

Housing style
- **K6**
- **K7**
- **K8**
- **K9**
- **CL2**

Special features
- **DN** - Double network
- **CN** - Combination supply

Gateways and Masters

V□□-□-□-□

AS-i Specification
- **A** - Spec 2.04
- **B** - Spec 2.1

Product Type
- **G** - Gateway
- **M** - Master

Network
- **CTR** - Stand alone controller
- **CAN** - CANopen
- **DN** - DeviceNet
- **IBS** - INTERBUS
- **MOD** - Modbus
- **MOD+** - Modbus Plus
- **PB** - PROFIBUS
- **TCP/IP** - Ethernet
- **RIO** - A-B Remote I/O

Housing style
- **KHD2**
- **KF**
- **K5**
- **PCI**
- **PC104**
- **PC2**
- **K1**
- **G4F**

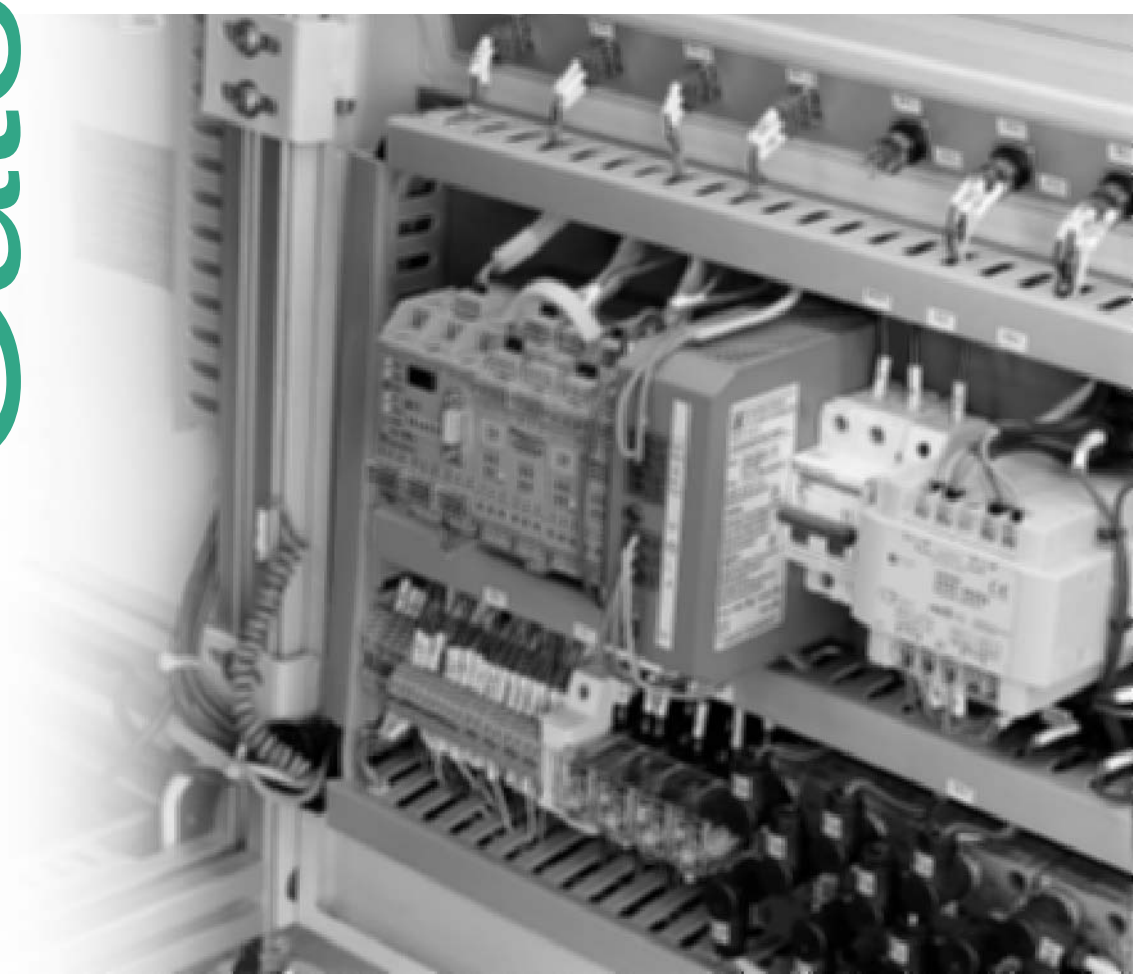
Connection
- **R2** - RS 232
- **R3** - RS 422
- **R4** - RS 485
- **FB** - Remote Bus
- **RJ45** - RJ45 connector

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Masters and Gateways

Masters and Gateways



Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

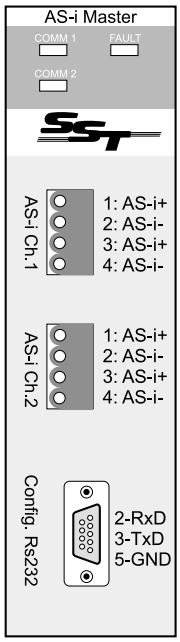
Masters and Gateways

AS-Interface masters/gateways are the core of the wiring system. Both masters and gateways connect AS-Interface to upper level controllers such as PLCs, PCs or high-level bus systems such as PROFIBUS-DP or DeviceNet. Masters and gateways handle the complete data transfer, cyclically polling (master/slave) all participants connected to the wiring system.

The AS-Interface master/gateway can be placed anywhere in the AS-Interface segment. One master/gateway can handle 124 inputs and 124 outputs over 31 addressable I/O modules. No configuration software is required for AS-Interface because the system can be managed and maintained using the two push buttons on the front of the master. For direct PLC masters and gateways, setup is accomplished through the setup tools for the respective system.

SLC-500 Dual Master

Front of AS-i Scanner



Model Number

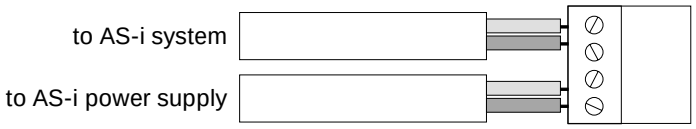
SST-ASI-SLC

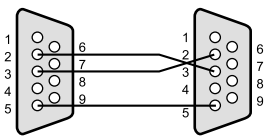
Connects an Allen Bradley SLC 5/03 (or higher) processor to two AS-Interface systems

Features

- One module scans two independent AS-Interface systems
- Multiple SST-ASI-SLC modules can be used in one SLC rack
- Follows AS-Interface M1 full master profile
- AS-Interface configuration can be stored on the card or in the PLC
- AS-Interface data is mapped into I and O files
- Status information is mapped into M0 and M1 files

Connection





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	SST-ASI-SLC
Connections	
AS-Interface	4-pin Phoenix connectors
PC configuration	9-pin serial configuration port
Operating voltage	5 VDC
Operating current I_e	≤ 500 mA
Indicators	
Power ON (power)	LED green
Configuration error (config err)	LED red
Operating temperature t_b	0 to +60°C (+32 to +185°F)
Storage temperature t_l	-40 to +85°C (-40 to +140°F)
Humidity	5-95% noncondensing
Processor	Intel 80C188
I/O max.	32 words in (I file) 32 words out (O file) 40 words in (M0 file) 40 words in (M1 file)
I/O modules	31 max. (per channel)
Memory	
RAM	128K
Flash memory	512K, sectored for storage of scanner firmware and configuration data

Description

The SST-ASI-SLC scanner connects a SLC 5/03, SLC 5/04 or SLC 5/05 processor to two AS-Interface systems: one module can scan two independent AS-Interface systems. The SST-ASI-SLC follows the AS-Interface M1 full master profile and features flash memory storage for an AS-Interface master I/O configuration.

The SST-ASI-SLC maps AS-Interface I/O data to the I and O files, while status information is mapped into the M0 and M1 files. The unique design of the unit enables multiple modules to slide easily into a single SLC rack.

Software

Hyperterminal - used to configure AS-Interface through the 9-pin serial port.

- Included with Microsoft Windows™

G File Wizard - used to configure AS-Interface through the G file in the PLC.

- Download from www.am.pepperl-fuchs.com
- Contact Pepperl+Fuchs directly

Microsoft Windows is a trademark of the Microsoft Corporation

References

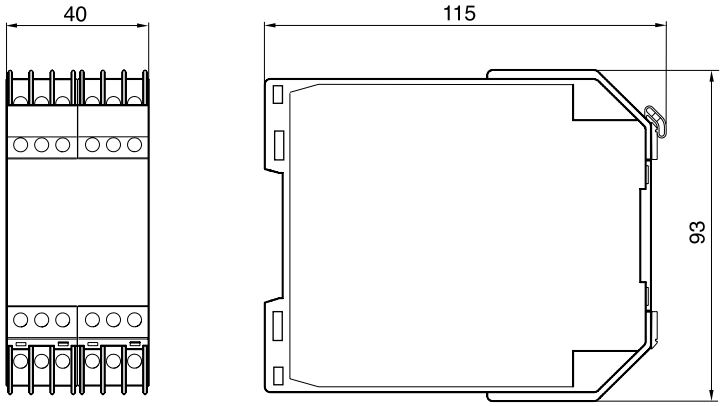
Manual: SST-ASI-SLC User's Manual.

The documentation is included with the unit.

Accessories

None required

Remote I/O Node Adapter



Model Number

VBG-RIO-KHD2-R2

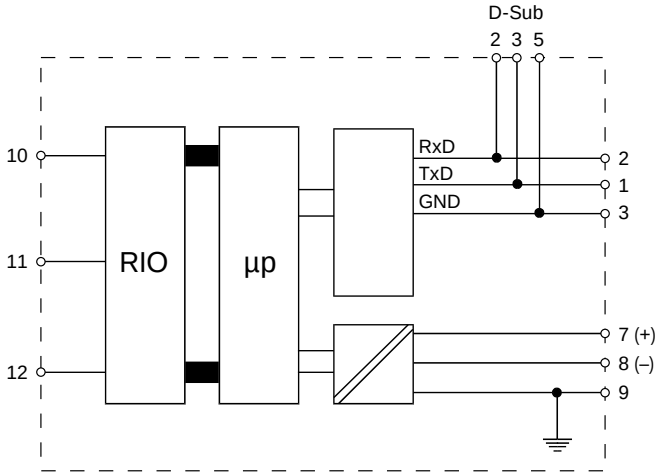
AS-Interface to Allen Bradley Remote I/O

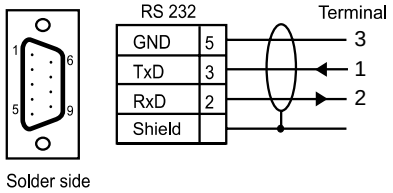
IP20

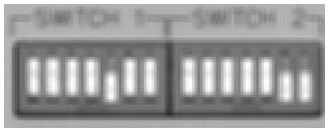
Features

- Compatible with Allen Bradley Remote I/O
- LEDs for power and RIO status
- Requires AS-Interface serial master VAM-CTR-KF-R2
- 1/2, 3/4 and full rack configurations
- Easily configured via DIP switches
- Diagnostic information available using Block transfers

Connection







Dip switches set the rack size, address, start quarter and baud rate.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Numbers	VBG-RIO-KHD2-R2
Connections	
Serial to AS-i master	9-pin D-sub or terminals
Remote I/O	terminals
RIO Baud rate	57.6, 115.2, 230.4 kbps
Operating voltage V_B	21-27 VDC
Operating current I_e	≤ 100 mA
Indicators	
Power ON (power)	LED green
RIO active	LED yellow
Mounting	35 mm Din rail or screw through tabs
Rack size	1/2, 3/4, full
Start quarter	1st, 2nd, 3rd
Operating temperature t_b	0 to +60°C (+32 to +140°F)
Storage temperature t_l	-25 to +85°C (-14 to +185°F)
Humidity	max 90% humidity
Protection (IEC)	IP20

Description

Using Allen-Bradley's Universal Remote I/O link along with AS-Interface instead of direct wiring a long distance to a local I/O chassis reduces installation, start-up and maintenance costs by placing the I/O modules closer to the sensors and actuators. The low-cost, simple wiring and wide selection of harsh environment I/O modules for AS-Interface coupled with strength of Remote I/O, offers an unbeatable solution for our customers.

Pepperl+Fuchs' VBG-RIO-KHD2-R2 node adapter directly maps input and output data from AS-Interface into the I/O image of an A-B Remote I/O PLC/PC. There is no software or configuration tools required and because the information is directly mapped, messy block transfers and timing problems are eliminated. This configuration eliminates the need for special cabling, additional communication cards in the PLC, setup and programming of serial communications and additional network gateways, all of which add to the overall cost of a system.

The VBG-RIO-KHD2-R2 node adapter was developed using the Remote I/O node adapter chipset from Allen-Bradley Company, LCC. The node adapter chip set provides seemless compatibility with Allen-Bradley Remote I/O applications. The interface module is a remote I/O rack capable of being configured as a remote 1/2, 3/4 or full rack.

Software

No software is required.

References

Manual: The VBG-RIO-KHD2-R2 User's Manual.

The documentation is included with the unit.

Accessories

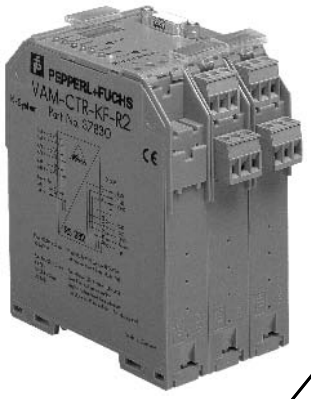
VAM-CTR-KF-R2
Serial interface with integrated PLC functionality.

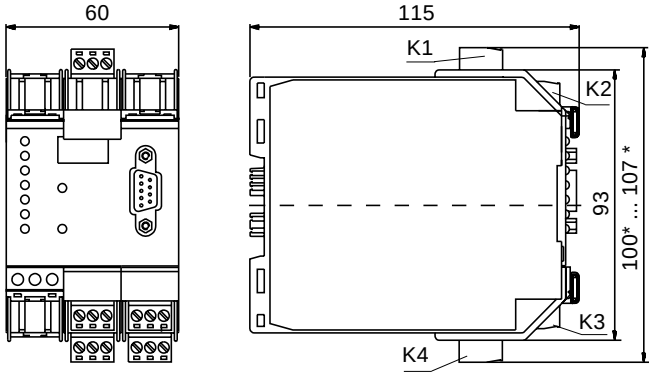
VAZ-RIO-CABLE
Remote I/O cable, 100 ft., Blue Hose

VAZ-R2-STRT
Serial cable to connect VBG-RIO-KHD2-R2 to the VAM-CTR-KF-R2, 2 m in length.

Note: 0.5 m cable included with unit.

AS-Interface Serial Master





Model Number

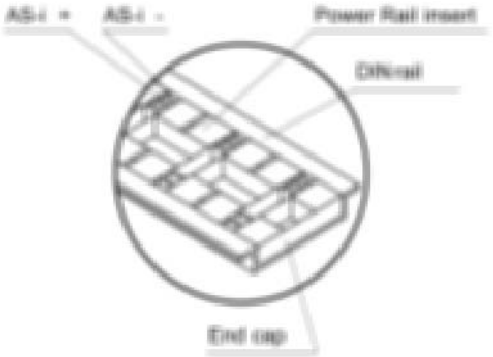
VAM-CTR-KF-R ☐

Serial AS-Interface master with integrated PLC functionality

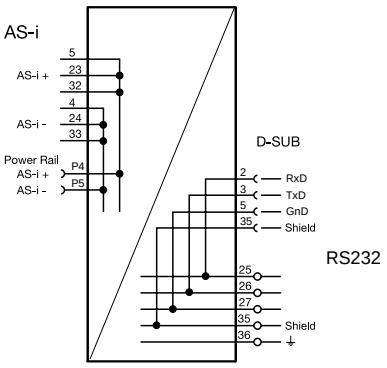
IP20

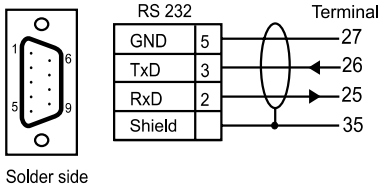
Features

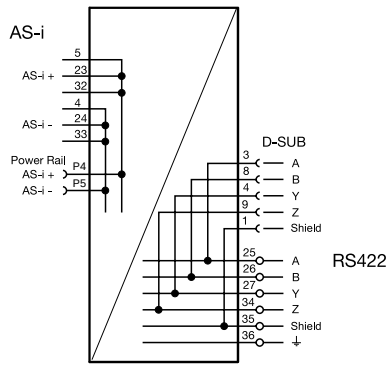
- Stand-alone master with integrated PLC functionality
- 2-digit LCD
- Powered via AS-Interface
- Automatic baud rate detection
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- Programming and monitoring software
- Power Rail connection

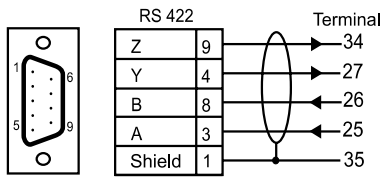


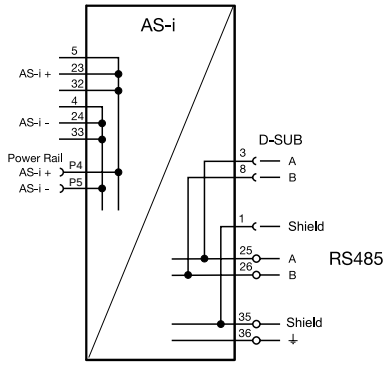
Connection

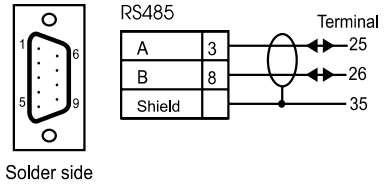












PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Numbers	**VAM-CTR-KF-R2** (with RS232-Interface) **VAM-CTR-KF-R3** (with RS422-Interface) **VAM-CTR-KF-R4** (with RS485-Interface)

Connections

AS-Interface	terminals
Serial	9-pin D-sub or terminals
Baud rate	1200, 2400,4800, 9600, 19200, 38400 or 57600 baud, automatic detection
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 150 mA

Indicators

Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
Serial communications active (ser aktiv)	LED green
Configuration error (config err)	LED red
AS-Interface voltage OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity 3, EC 801/2-4
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	0 to +55°C (+32 to +131°F)
Protection (IEC)	IP20

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: OPC and other drivers available. Contact P+F for further details.

References

Manual: VAM-CTR-KF-R ☐ User's Manual

The documentation and software are included with the unit.

Description

The VAM-CTR-KF-R ☐ is a stand-alone master with integrated PLC functionality. Only 60 mm wide, the space-saving design with an IP20 rating is ideal for use in an enclosure. The VAM-CTR-KF-R ☐ master offers all the advantages of the KF housing, such as Power Rail connections and removable terminals. The connection to the AS-Interface power supply and network is established through these removable terminals. The serial connection is established through a 9-pin Sub D connector or through the mechanically-keyed, removable terminals.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface slave. There are seven LEDs on the front panel used for diagnostics.

PLC Functionality

The VAM-CTR-KF-R ☐ has 16 K program storage, 8 K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through the serial interface. The program processing time is 2 ms per one thousand commands. The programming language is a structured text format (instruction list).

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

VAZ-R4-R2
RS232 to RS485 converter for the direct connection of the VAM-CTR-KF-R4 to an RS232 port.

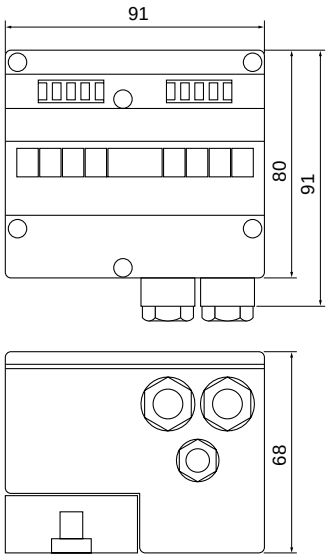
VAZ-R2-STRT
2 m serial cable for R2, R3 and R4 masters.

UPR05
Continuous Power Rail including aluminum DIN rail and cover, 2 m long.

UPR E
End cap for UPR 05.

PR05
Snap-on Power Rail, 0.5 m long.

AS-Interface Serial Master



Model Number

VAM-CTR-G4F-R4

Serial AS-Interface master with integrated PLC functionality

IP65

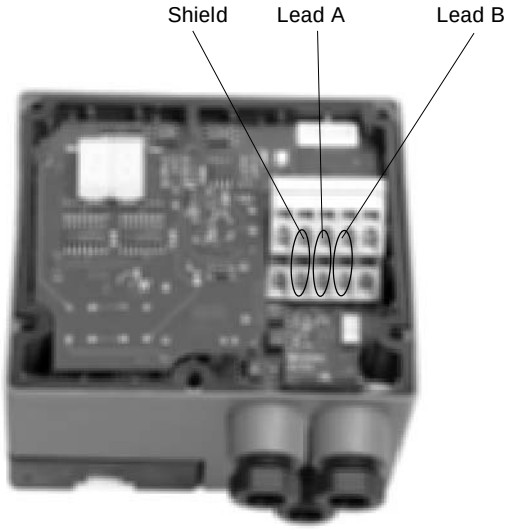
Features

- Stand-alone master with integrated PLC functionality
- 2-digit LCD
- Powered via AS-Interface
- IP67
- Automatic baud rate detection
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- Programming and monitoring software
- Uses standard AS-Interface flat or round cable mounting bases

Connection

Includes flat cable base. Round cable base can be ordered separately.

U-G1P
Base for connection of two AS-Interface round cables.



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	**VAM-CTR-G4F-R4** (with RS485-interface)
Connections	
AS-Interface	yellow flat cable or round cable
RS 485-Interface	PG9 cord grip and cage tension spring terminals
Baud rate	1200, 2400, 4800, 9600, 19,200, 38,400 or 57,600 baud, automatic detection
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 150 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
Interface active (ser aktiv)	LED green
Configuration error (config err)	LED red
AS-Interface voltage OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC-classification	Severity 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_i	-25 to +70°C (-13 to +158°F)
Protection (IEC)	IP65

Description

The VAG-CTR-G4F-R4 is a stand-alone master with integrated PLC functionality in an IP67 rated housing for use in the field. In applications where the AS-Interface master must be mounted in an enclosure, valuable lengths of network cable are consumed in getting to the field. The VAG-CTR-G4F-R4 offers the advantage of installing the master directly in the field, thus eliminating this problem. The master can be either mounted on DIN rail according to EN 50 022 or through the use of mounting holes on the gateway.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface slave. There are seven LEDs on the front panel used for diagnostics.

The G4 housing uses PG glands and cage tension spring terminals for easy connection to the gateway. The connection to the AS-Interface flat cable is made through the standardized EMS interface (AS-Interface flat cable using the cable piercing technique). The RS 485 interface allows for cable lengths of up to 1,200 m between the AS-Interface master and the host as well as multidropping up to 31 AS-Interface masters. Therefore, all 31 AS-Interface networks can be administered with one PLC or PC serial port.

PLC Functionality

The VAM-CTR-G4F-R4 has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through the serial interface. The program processing time is 2 ms per one thousand commands. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: OPC and other drivers available. Contact P+F for further details.

References

Manual: VAM-CTR-G4F-R4 User's Manual.

The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
The full version of the AS-Interface Control Tools.

U-G1P
Base for connection of two AS-Interface round cables.

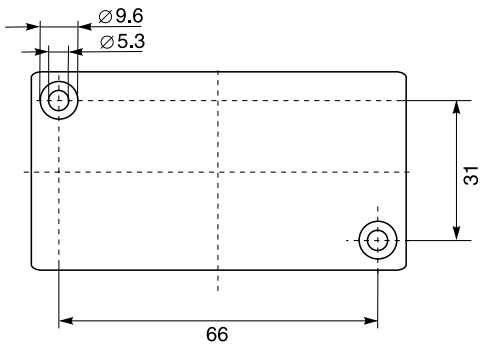
VAZ-R4-R2
RS232 to RS485 converter for the direct connection of the VAM-CTR-KF-R4 to an RS232 port.

VAZ-R2-STRT
2 m serial cable for R2, R3 and R4 masters.

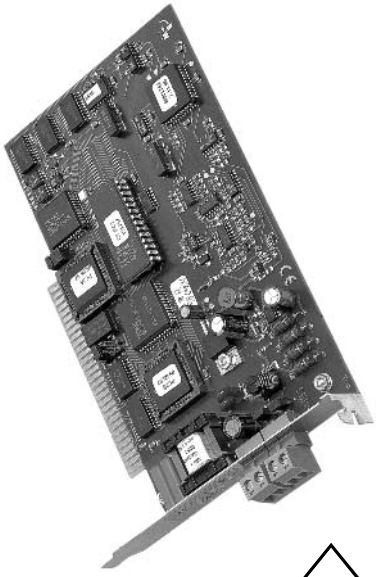
VAN-24DC-K9
IP65 power supply.

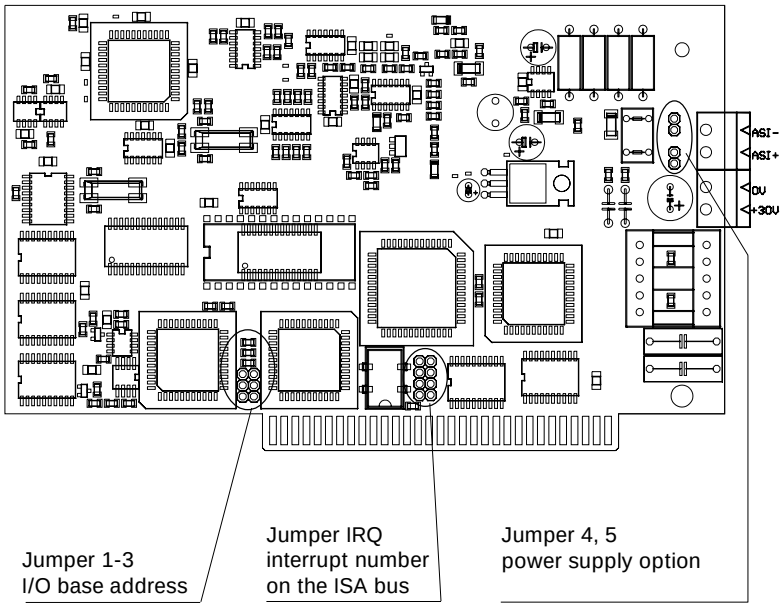
VAZ-G4-B
Plugs.

Mounting hole dimensions for bases



AS-Interface ISA Master





Model Number

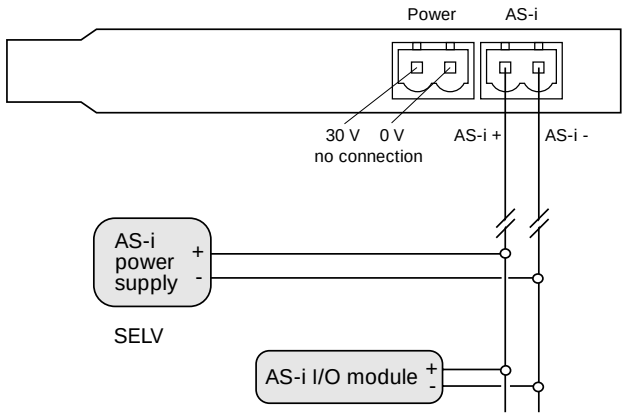
VAM-CTR-PC2

ISA master with integrated PLC functionality

Features

- Stand-alone master with integrated PLC functionality
- Connection to a standard 8-bit ISA slot
- Easy installation
- PLC functionality independent of PC
- Does not require interrupts
- Up to 8 VAM-CTR-PC2 per PC
- Watchdog monitors dual port RAM access

Connection



Power supplied with
AS-Interface power supply

Note: Remove jumpers 4 and 5

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAM-CTR-PC2
Connections	
AS-Interface	terminals
PC	8-bit ISA slot
Operating voltage	5 VDC (from PC) and AS-Interface voltage
Operating current I_e	≤ 200 mA from ISA slot, ≤ 70 from AS-Interface
Jumper 1, 2, 3	adjustment of the I/O Adresses
Jumper 4,5	*closed:* supply of AS-Interface through standard power supply; *open:* supply of AS-Interface with AS-Interface power supply
IRQ Jumper	adjustment of the ISA-bus interrupt number
Isolation voltage V_i	≥ 500 V
EMC classification	per EN 50 081, EN 50 082
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +70°C (-13 to +158°F)
Type	short AT card

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: OPC and other drivers available. Contact P+F for further details.

References

Manual: VAM-CTR-PC2 User's Manual.

The documentation and software are included with the unit.

Description

The VAM-CTR-PC2 is an AS-Interface master with integrated PLC functionality designed for operation on a standard 8-bit ISA slot. The PC2 card does not require any processing power from the PC because the card has its own processor capable of running a control program. The VAM-CTR-PC2 occupies only 3 bytes of the ISA bus I/O area for data exchange. This enables as many as 8 VAM-CTR-PC2s to be operated on a single PC. The PC2 card offers a considerable advantage in I/O area usage since most PC cards typically use 2 K. Fast access to the AS-Interface data is guaranteed through the dual port RAM (DPRAM).

The VAM-CTR-PC2 can be operated with an AS-Interface power supply as well as with a standard power supply (24 VDC). A standard power supply is useful for test configurations with few modules and short cable lengths. When using a standard power supply, jumpers 4 and 5 are used to connect the isolation coils on the card to the AS-Interface network.

When using the "Stand-Alone" capability of the card, an error on the VAM-CTR-PC2 uses an interrupt on the ISA bus and immediately displays an error message on the monitor. A watchdog can be activated to monitor communications between the AS-Interface master and the PC. In the case of a PC system crash, the AS-Interface master goes "off-line" and all outputs return to their unenergized state. Windows 3.x, Windows 95 and Windows NT drivers are available.

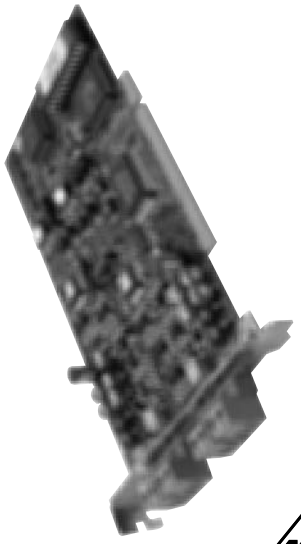
PLC Functionality

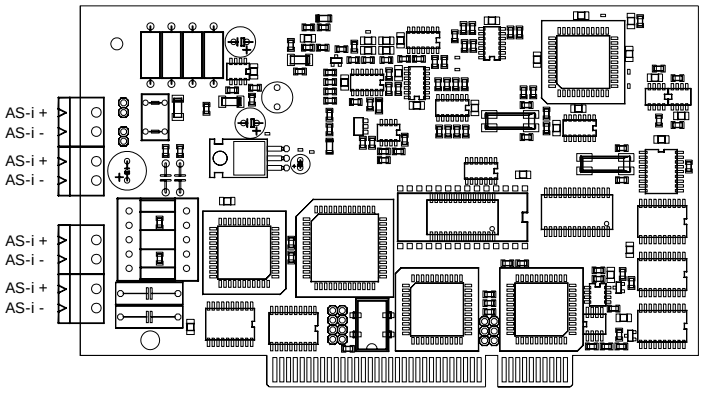
The VAM-CTR-PC2 has 16K program storage, 8K RAM, 15 counters and 15 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through dual port RAM from the PC. The program processing time is 2 ms per one thousand commands. The programming language is a structured text format (instruction list).

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

AS-Interface PCI Dual Master





Model Number

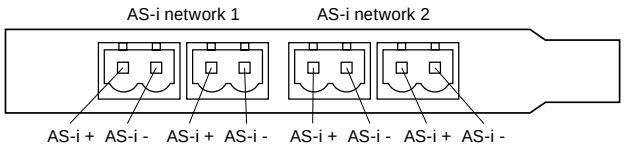
VBM-CTR-PCI-DM

Dual PCI master with integrated PLC functionality for two AS-Interface systems

Features

- Dual stand-alone masters with integrated PLC functionality
- Connection to a standard 16-bit PCI slot
- Easy "Plug and Play" installation
- PLC functionality independent of PC
- Capable of generating an interrupt on the PCI bus
- Up to 4 VBM-CTR-PCI-DM per PC
- Watchdog monitors dual port RAM access

Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VBM-CTR-PCI-DM
Connections	
AS-Interface	terminals
PC	16-bit PCI slot
Operating voltage	5 VDC (from PC) and AS-Interface voltage
Operating current I_e	≤ 200 mA from PCI slot, ≤ 70 from AS-Interface
Isolation voltage V_i	≥ 500 V
EMC classification	per EN 50 081, EN 50 082
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +70°C (-13 to +158°F)
Type	short AT card

Description

The VBM-CTR-PCI-DM is a dual AS-Interface master with integrated PLC functionality designed for operation on a standard 16-bit PCI slot. The PCI card does not require any processing power from the PC because the card has its own processor capable of running a control program. The VBM-CTR-PCI-DM is "Plug and Play" compatible and up to four cards can be used in the same PC. Fast access to the AS-Interface data is guaranteed through the dual port RAM (DPRAM).

When using the "Stand-Alone" capability of the card, an error on the VBM-CTR-PCI-DM uses an interrupt on the PCI bus and immediately displays an error message on the monitor. A watchdog can be activated to monitor communications between the AS-Interface master and the PC. In the case of a PC system crash, the AS-Interface master goes "off-line" and all outputs return to their unenergized state. Windows 3.x, Windows 95 and Windows NT drivers are available.

PLC Functionality
Both AS-Interface networks can be controlled using the integrated PLC. The VBM-CTR-PCI-DM has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through the PC. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available in dual port RAM. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: OPC and other drivers available. Contact P+F for further details.

References

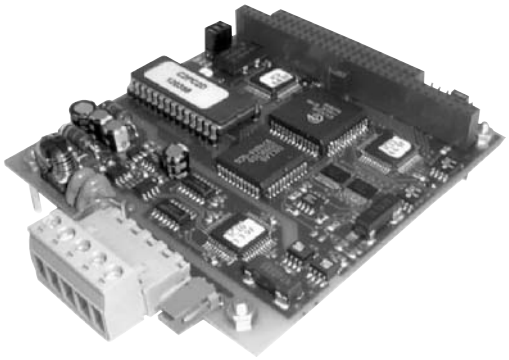
Manual: VBM-CTR-PCI-DM User's Manual.

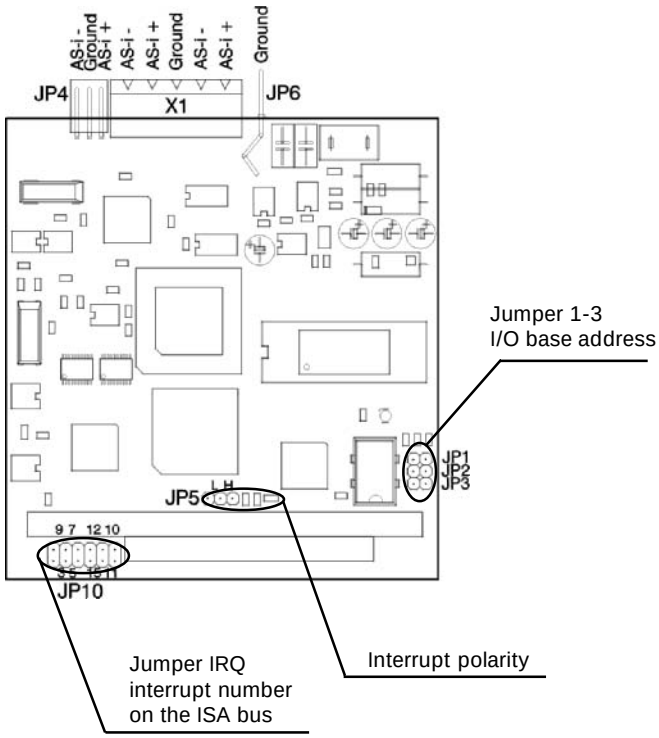
The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

AS-Interface PC104 Master





Model Number

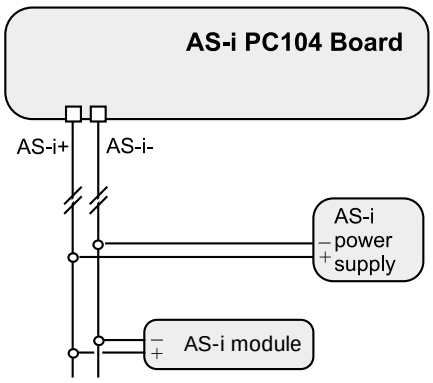
VAM-CTR-PC104

PC104 master with integrated PLC functionality

Features

- Stand-alone master with integrated PLC functionality
- Connection to a standard PC104 ISA bus
- Easy installation
- PLC functionality independent of PC
- Can share an interrupt with other AS-i PC104 cards
- Up to 8 VAM-CTR-PC104 per PC
- Watchdog monitors dual port RAM access

Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAM-CTR-PC104
Connections	
AS-Interface	terminals
PC	PC104 ISA bus
Operating voltage	5 VDC (from PC) and AS-Interface voltage
Operating current I_e	≤ 200 mA from ISA slot, ≤ 70 from AS-Interface
Jumper 1, 2, 3	adjustment of the I/O addresses
Jumper 5	selects the interrupt polarity
Jumper 10	selects the interrupt
IRQ Jumper	adjustment of the ISA-bus interrupt number
Isolation voltage V_i	≥ 500 V
EMC classification	per EN 50 081, EN 50 082
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +70°C (-13 to +158°F)
Type	PC104

Description

The VAM-CTR-PC104 is an AS-Interface master with integrated PLC functionality designed for operation in a standard PC104 ISA slot. The PC104 card does not require any processing power from the PC because the card has its own processor capable of running a control program. The VAM-CTR-PC104 occupies only 3 bytes of the ISA bus I/O area for data exchange. This enables as many as eight VAM-CTR-PC104s to be operated on a single PC. The PC104 card offers a considerable advantage in I/O area usage since most PC cards typically use 2 K. Fast access to the AS-Interface data is guaranteed through the dual port RAM (DPRAM).

When using the "Stand-Alone" capability of the card, an error on the VAM-CTR-PC104 uses an interrupt on the ISA bus and immediately displays an error message on the monitor. A watchdog can be activated to monitor communications between the AS-Interface master and the PC. In the case of a PC system crash, the AS-Interface master goes "off-line" and all outputs return to their unenergized state. Windows 3.x, Windows 95 and Windows NT drivers are available.

PLC Functionality
The VAM-CTR-PC104 has 16K program storage, 8K RAM, 15 counters and 15 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through dual port RAM from the PC. The program processing time is 2 ms per one thousand commands. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: OPC and other drivers available. Contact P+F for further details.

References

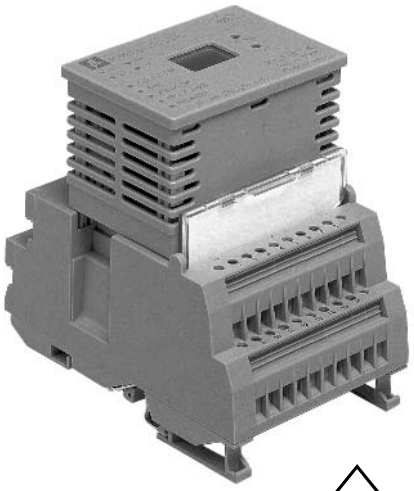
Manual: VAM-CTR-PC104 User's Manual.

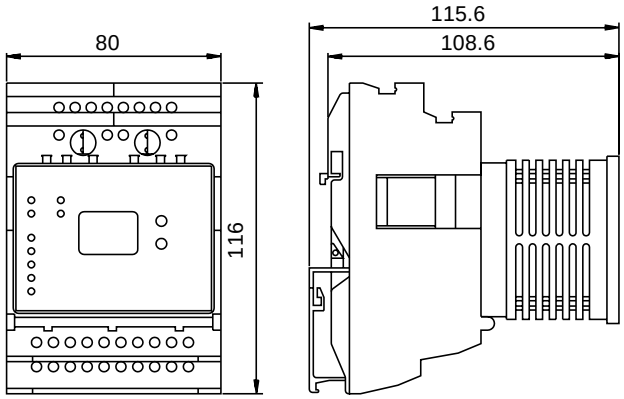
The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

INTERBUS Gateway





Model Number

VAG-IBS-K1

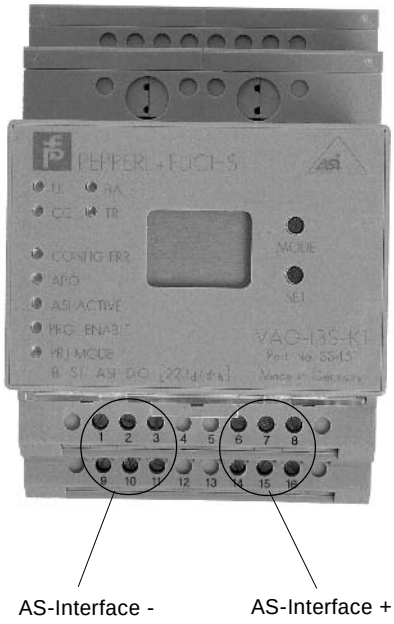
INTERBUS gateway, peripheral bus

IP20

Features

- 2-digit LCD
- Powered via bus terminals
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- Interchangeable electronic components
- Connects to the peripheral bus

Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-IBS-K1
Connections	
AS-Interface	terminals
INTERBUS	terminals
Operating voltage V_B	Power supply via bus terminal
Operating current I_e	≤ 200 mA from INTERBUS ≤ 100 mA from AS-Interface
Indicators	
Address indication, error signals	LCD, 2-digit
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U ASI)	LED green
Configuration error (config err)	LED red
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
INTERBUS operation normal	LED green
Connection monitoring	LED green
PMS activity	LED green
INTERBUS voltage OK	LED green
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-15 to +70°C (+5 to +158°F)
Protection (IEC)	IP20

Description

INTERBUS is a bus system based on a ring topology which can be enhanced by the AS-Interface/INTERBUS gateway. In contrast to INTERBUS, AS-Interface is topology independent and offers a very fast cycle time ≤ 5 ms.

The VAG-IBS-K1 is a coupler between INTERBUS and AS-Interface. Both systems are galvanically isolated from each other. The VAG-IBS-K1, as a peripheral bus I/O device, is an absolute INTERBUS slave. It uses 16 words and makes output data available for communications. The bus terminals that connect to INTERBUS (i.e. VSB-ST24BKT) also provide power for the gateway. The bus terminal enables the connection of 8 peripheral bus I/O devices. The VAG-IBS-K1 offers full AS-Interface master functions and parameters can be transmitted across the 1-word PCP channel to the AS-Interface module.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics, while 4 LEDs indicate the communications on INTERBUS.

Software

No additional software is necessary for installation and monitoring since AS-Interface Control Tools is completely integrated in the installation software for INTERBUS (CMD Software).

References

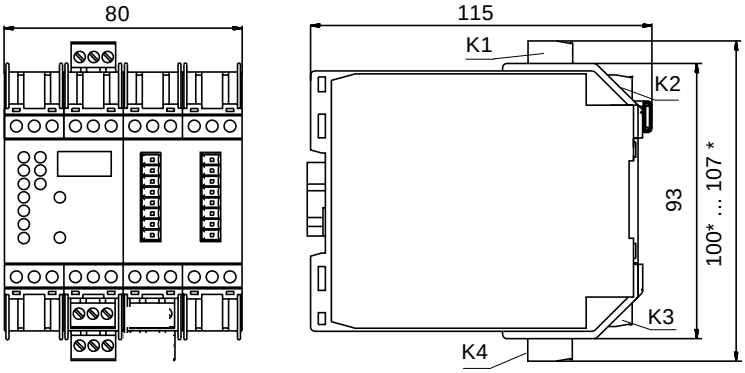
Manual: VAG-IBS-K1 User's Manual.

The documentation is included with the unit.

Accessories

VSB-ST24BKT
Bus terminal for connection to the remote bus.

INTERBUS Gateway



Model Number

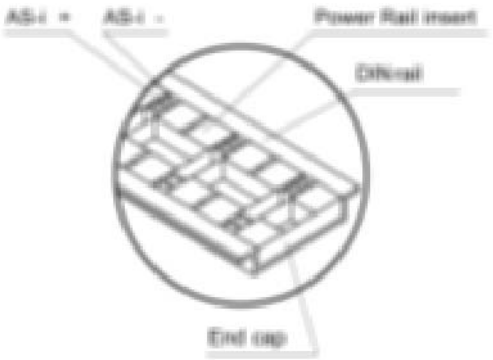
VAG-IBS-KF-FB

INTERBUS gateway, remote bus

IP20

Features

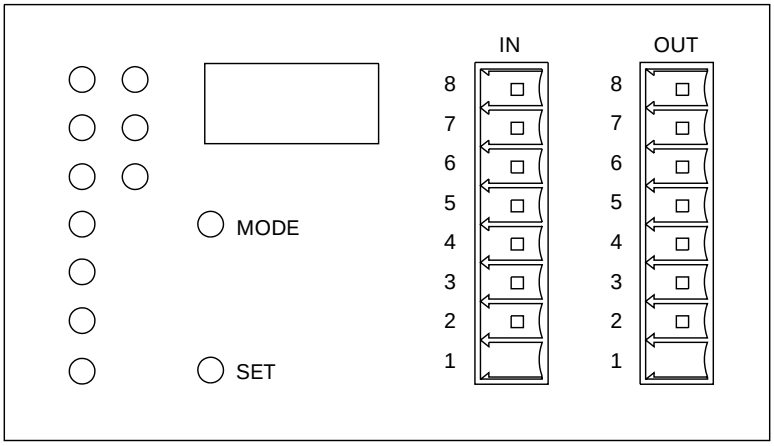
- Connects to the remote bus of INTERBUS
- Powered via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- Mechanically-keyed, removable terminals
- Integrated into INTERBUS "CMD-Tools" software
- Power Rail connection



Connection

Terminal Assignment

Pin	REMOTE IN Connector	REMOTE OUT Connector
1	Shield	Shield
2	DO	DO
3	DO	DO
4	DI	DI
5	DI	DI
6	Mass	Mass
7	Open	RBST
8	Shield	Shield



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-IBS-KF-FB
Connections	
AS-Interface	terminals
INTERBUS	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current, I_e	≤ 200 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U ASI)	LED green
Configuration error (config error)	LED red
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
INTERBUS active (BA)	LED green
Operating voltage on the INTERBUS side (UL)	LED green
PCP activity (TR)	LED green
Cable Check (CC)	LED green
Connection lost to the remote bus	LED red
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature	0 to +55°C (+32 to +131°F)
Storage temperature	-15 to +70°C (+5 to +158°F)
Protection (IEC)	IP20

Description

INTERBUS is a bus system based on a ring topology which can be enhanced by the AS-Interface/INTERBUS gateway. In contrast to INTERBUS, AS-Interface is topology independent and offers a very fast cycle time ≤ 5 ms.

The VAG-IBS-KF-FB is a coupler between INTERBUS and AS-Interface. Both systems are galvanically isolated from each other. The VAG-IBS-KF-FB is an absolute INTERBUS slave that uses 16 words and makes output data available for communications. Bus terminals, like those connecting to a peripheral bus are not required. The VAG-IBS-KF-FB offers full AS-Interface master functions and parameters can be transmitted across the 1-word PCP channel to the AS-Interface module.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics, while 4 LEDs indicate the communications on INTERBUS.

Software

No additional software is necessary for installation and monitoring since AS-Interface Control Tools is completely integrated in the installation software of INTERBUS (CMD Software).

References

Manual: VAG-IBS-KF-FB User's Manual.

The documentation is included with the unit.

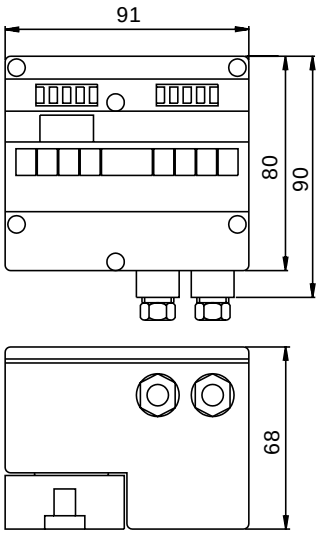
Accessories

UPR05
Continuous power rail including aluminum DIN rail and cover, 2 m long.

UPR E
End cap for UPR 05.

PR05
Snap-on power rail, 0.5 m long.

INTERBUS Gateway



Model Number

VAG-IBS-G4F-FB

INTERBUS gateway

IP65

Features

- Connection of the INTERBUS to the remote bus
- Powered via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- IP67
- Integrated "CMD-Tools" INTERBUS software
- Uses standard AS-Interface flat or round cable mounting bases

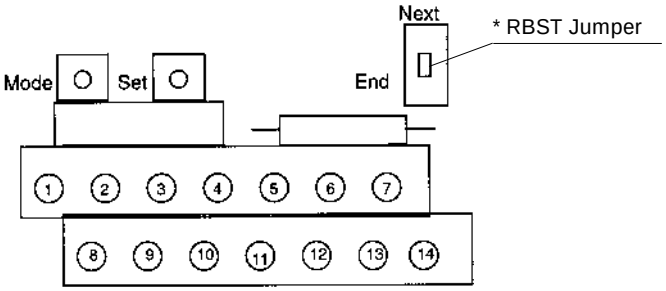
Connection

Includes flat cable base. Round cable base can be ordered separately.

U-G1P
Base for connection of two AS-Interface round cables.

1	/DI2
2	DI2
3	Shield
4	FE
5	Shield
6	DO1
7	/DO1
8	/DO2
9	DO2
10	GND_D2
11	
12	GND_D1
13	/DI1
14	DI1

Terminal Block



DIP switches for the jumper as the last module
Delivery status: Next
Last IBS-I/O: End

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-IBS-G4F-FB
Connections	
AS-Interface	yellow flat cable or round cable
INTERBUS	PG9 cord grip and cage tension spring terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current, I_e	≤ 200 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U ASI)	LED green
Configuration error (config error)	LED red
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
INTERBUS active (BA)	LED green
Operating voltage on the INTERBUS side (UL)	LED green
PCP activity (TR)	LED green
Cable Check (CC)	LED green
Connection lost to the remote bus	LED red
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature	0 to +55°C (+32 to +131°F)
Storage temperature	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP65

Description

INTERBUS is a bus system based on a ring topology which can be enhanced by the AS-Interface/INTERBUS gateway. In contrast to INTERBUS, AS-Interface is topology independent and offers a very fast cycle time ≤ 5 ms.

The VAG-IBS-G4F-FB is a coupler between INTERBUS and AS-Interface. The G4 housing is rated IP67 and enables the gateway to be mounted directly in the field. Both systems are galvanically isolated from each other. The VAG-IBS-G4F-FB is an absolute INTERBUS slave that uses 16 words and makes output data available for communications. Bus terminals, like those connecting to a peripheral bus are not required. The VAG-IBS-G4F-FB offers full AS-Interface master functions and parameters can be transmitted across the 1-word PCP channel to the AS-Interface module.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics, while 4 LEDs indicate the communications on INTERBUS.

Software

No additional software is necessary for installation and monitoring since AS-Interface Control Tools are completely integrated into the installation software of INTERBUS (CMD Software).

References

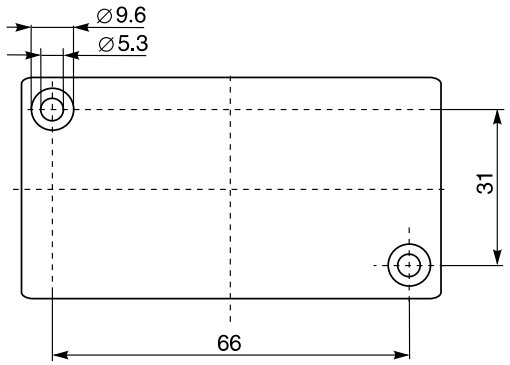
Manual: VAG-IBS-G4F-FB User's Manual.

The documentation is included with the unit.

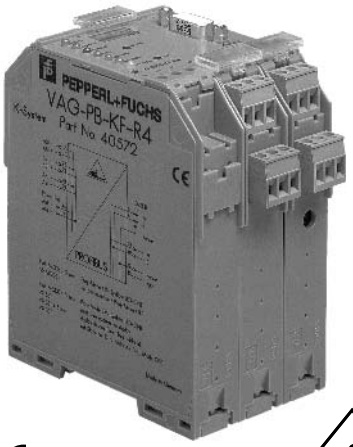
Accessories

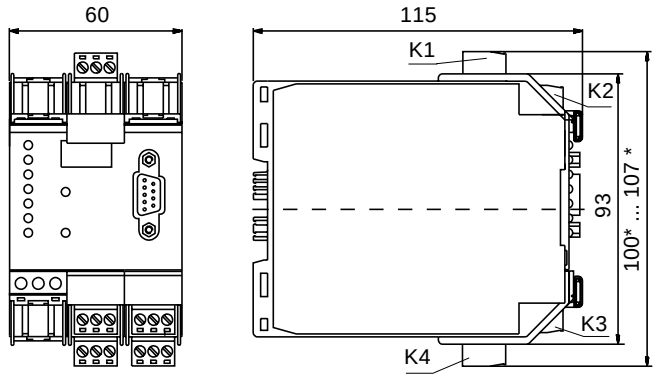
U-G1P
Base for connection of two AS-Interface round cables.

Mounting hole dimensions for bases



PROFIBUS Gateway





Model Number

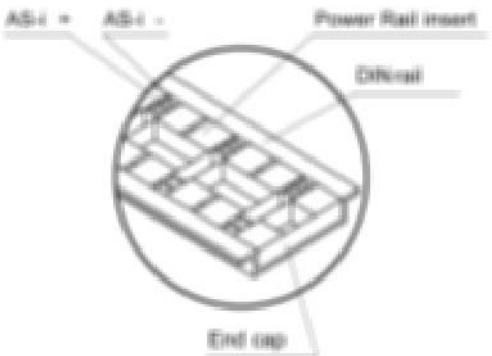
VAG-PB-KF-R4

PROFIBUS gateway

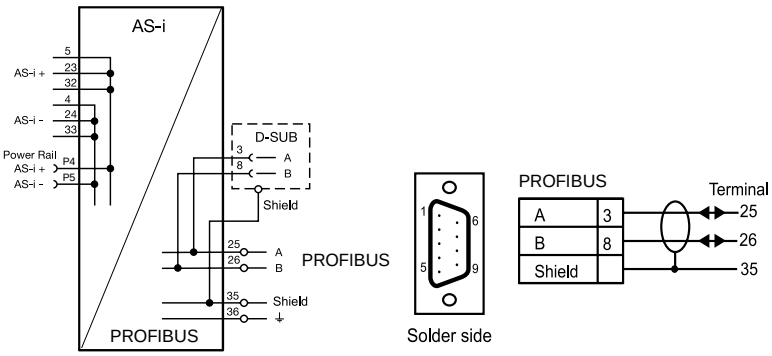
IP20

Features

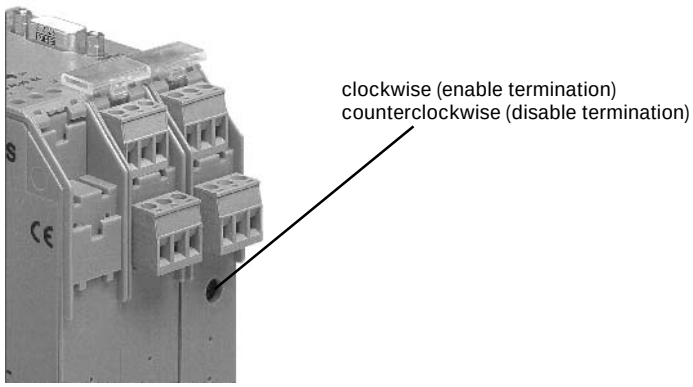
- Connects to PROFIBUS-DP
- Configuration without PROFIBUS communications
- All AS-Interface functions available through PROFIBUS
- Integrated PLC functionality
- Powered via AS-Interface
- Mechanically-keyed, removable terminals
- Error diagnostics via LEDs and LCD
- Programming and monitoring software
- Power Rail connection



Connection



Termination



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-PB-KF-R4
Connections	
AS-Interface	terminals
PROFIBUS	9-pin D-sub or terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 180 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
PROFIBUS/Control program running (ser aktiv)	LED green
Configuration error (config err)	LED red
AS-Interface voltage is OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-15 to +75°C (+5 to +167°F)
Protection (IEC)	IP20

Description

The VAG-PB-KF-R4 is a PROFIBUS slave with an IP20 rating designed for use in enclosures. This PROFIBUS gateway offers all the advantages of the KF housing such as power rail connections and removable terminals.

Two operating modes are available for the exchange of data across PROFIBUS-DP: standard and expanded. In standard mode, the gateway uses a fixed I/O configuration. In expanded mode, the user defines the data size sent to the PROFIBUS master. Since the master can be configured to transmit data from only active AS-Interface nodes, less I/O space is required in the PLC.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

PLC Functionality
The VAG-PB-KF-R4 has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through PROFIBUS. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available in expanded mode for PROFIBUS. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

References

Manual: VAG-PB-KF-R4 User's Manual.

The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

VAZ-PB-SIM
PROFIBUS Master Simulator

VAZ-PB-CABLE
Purple PROFIBUS cable, 100 ft.

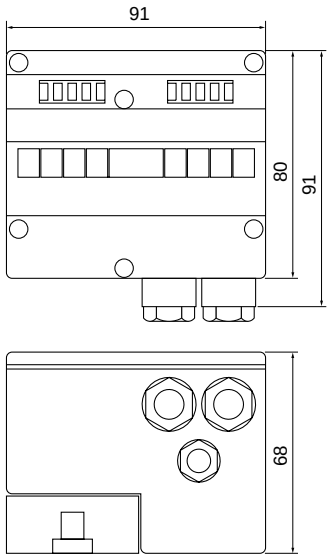
VAZ-PB-DB9-W
Right angle PROFIBUS D-sub connector

UPR05
Continuous power rail including aluminum DIN rail and cover, 2 m long.

UPR E
End cap for UPR 05.

PR05
Snap-on power rail, 0.5 m long.

PROFIBUS Gateway



Model Number

VAG-PB-G4F-R4

PROFIBUS gateway

IP65

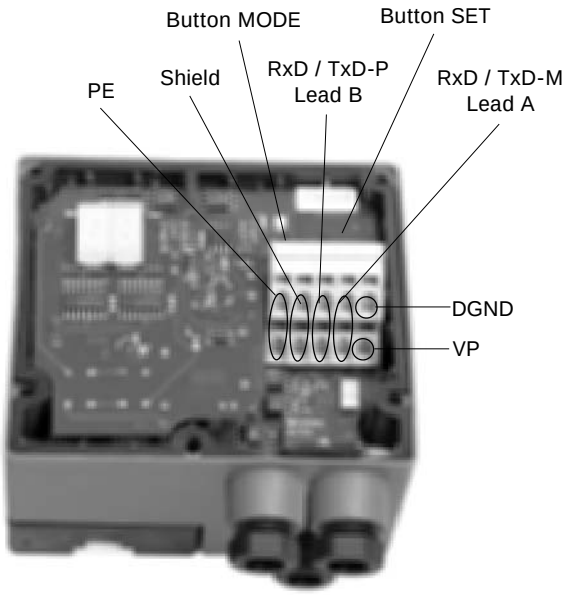
Features

- Connection to PROFIBUS-DP
- Configuration without PROFIBUS communications
- All AS-Interface functions can be called up through PROFIBUS
- Integrated PLC functionality
- Powered via AS-Interface
- IP65
- Error diagnostics via LEDs and LCD
- Programming and monitoring software
- Uses standard AS-Interface flat or round cable mounting bases

Connection

Includes flat cable base. Round cable base can be ordered separately.

U-G1P
Base for connection of two AS-Interface round cables.



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-PB-G4F-R4
Connections	
AS-Interface	yellow flat cable or round cable
PROFIBUS	PG9 cord grip and cage tension spring terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 180 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
PROFIBUS/Control program running (ser aktiv)	LED green
Configuration error (config err)	LED red
AS-Interface voltage is OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-15 to +75°C (+5 to +167°F)
Protection (IEC)	IP65

Description

The VAG-PB-G4F-R4 is a PROFIBUS slave with an IP67 rating designed for use in the field. In applications where the AS-Interface master must be mounted in an enclosure, valuable lengths of network cable are consumed in getting to the field. The VAG-PB-G4F-R4 offers the advantage of installing the master directly in the field, thus eliminating this problem. The master can be either mounted on DIN rail according to EN 50 022 or through the use of mounting holes on the gateway.

Two operating modes are available for the exchange of data across PROFIBUS-DP: standard and expanded. In standard mode, the gateway uses a fixed I/O configuration. In expanded mode, the user defines the data size sent to the PROFIBUS master. Since the master can be configured to transmit data from only active AS-Interface nodes, less I/O space is required in the PLC.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

PLC Functionality

The VAG-PB-G4F-R4 has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through PROFIBUS. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available in expanded mode for PROFIBUS. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

References

Manual: VAG-PB-G4F-R4 User's Manual.

The documentation and software are included with the unit.

Accessories

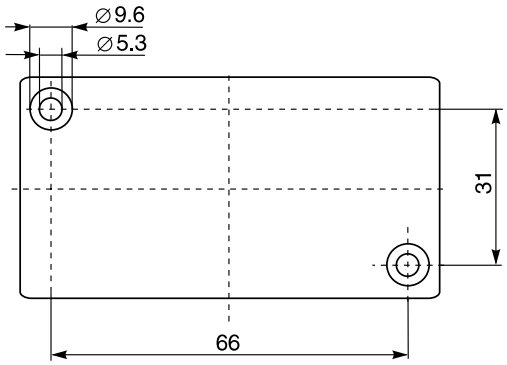
VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

VAZ-PB-SIM
PROFIBUS Master Simulator

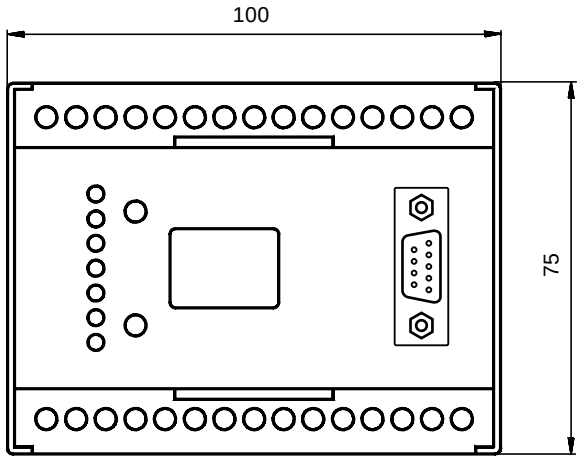
VAZ-PB-CABLE
Purple PROFIBUS cable, 100 ft.

U-G1P
Base for connection of two AS-Interface round cables.

Mounting hole dimensions for bases



PROFIBUS Gateway, Dual Master



Model Number

VAG-PB-K5-R4-DM

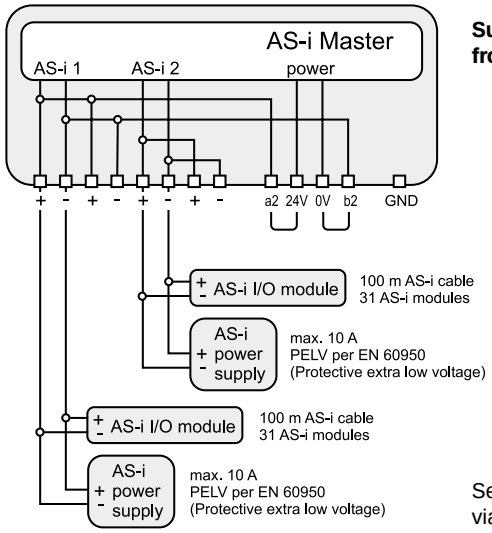
PROFIBUS gateway, dual master
for two AS-Interface systems

IP 20

Features

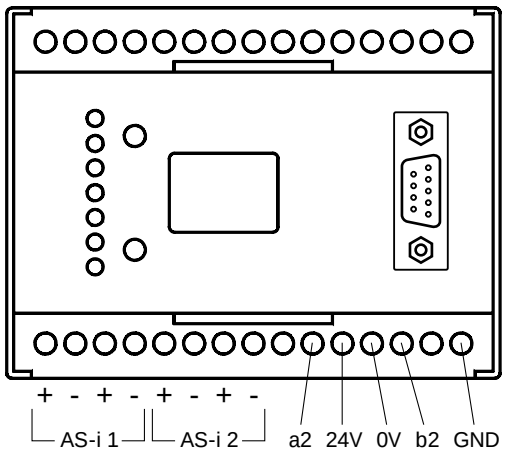
- Connection to PROFIBUS-DP
- Configuration without PROFIBUS communications
- All AS-Interface functions available through PROFIBUS
- Integrated PLC functionality
- Powered via AS-Interface
- Error diagnostics via LEDs and LCD
- 2 AS-Interface systems
- 1 PROFIBUS address

Connection



Supply to the master from AS-i circuit 1

Setting is carried out via plug-in jumpers



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-PB-K5-R4-DM
Connections	
AS-Interface	terminals
PROFIBUS	9-pin D-sub or terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 180 mA
Indicators	
Address indication, error signals	LCD, 4-digit
Power ON (power)	LED green
LCD displaying AS-i 2 data (AS-i 2)	LED green
Configuration error (config err)	LED red
AS-Interface voltage is OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-15 to +75°C (+5 to +167°F)
Protection (IEC)	IP20

Description

The VAG-PB-K5-R4-DM is a PROFIBUS gateway for two parallel AS-Interface systems. This means the data from the AS-Interface networks can be transmitted from one PROFIBUS slave.

The gateway is rated IP20 and is designed for use in enclosures. Two operating modes are available for the exchange of data across PROFIBUS-DP: standard and expanded. In standard mode, the gateway uses a fixed I/O configuration. In expanded mode, the user defines the data size sent to the PROFIBUS master. Since the master can be configured to transmit data from only active AS-Interface nodes, less I/O space is required in the PLC.

In configuration mode, all detected AS-Interface modules from both networks are displayed on the 4-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

PLC Functionality
Both AS-Interface networks can be controlled using the integrated PLC. The VAG-PB-K5-R4-DM has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through PROFIBUS. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available in expanded mode for PROFIBUS. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

References

Manual: VAG-PB-K5-R4-DM User's Manual.

The documentation and software are included with the unit.

Accessories

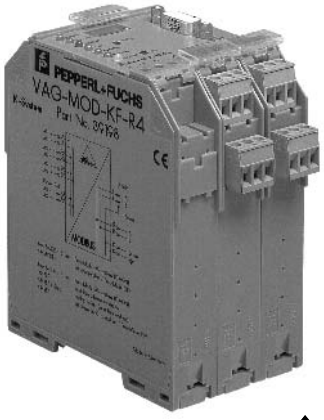
VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

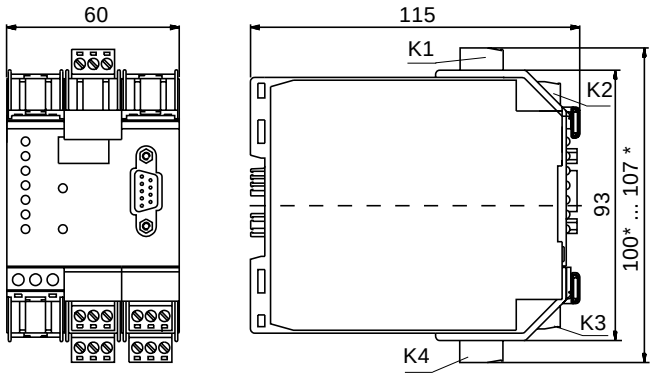
VAZ-PB-SIM
PROFIBUS Master Simulator

VAZ-PB-CABLE
Purple PROFIBUS cable, 100 ft.

VAZ-PB-DB9-W
Right angle PROFIBUS D-sub connector

Modbus Gateway





Model Number

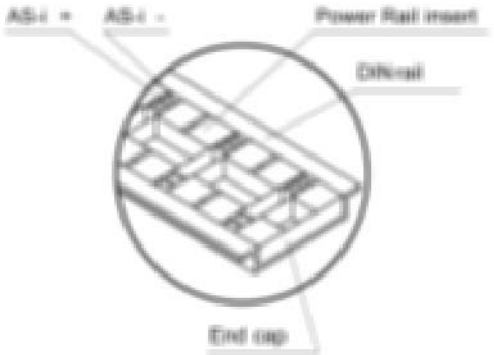
VAG-MOD-KF-R4

Modbus gateway

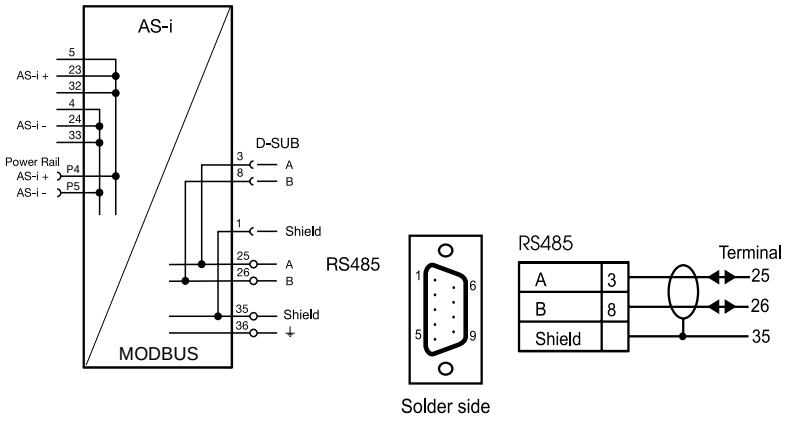
IP20

Features

- 2-digit LCD
- Powered via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD
- Integrated PLC functionality
- Mechanically-keyed, removable terminals
- Power Rail connection



Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-MOD-KF-R4
Connections	
AS-Interface	terminals
Modbus	9-pin D-sub or terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U AS-Interface)	LED green
Configuration error (config err)	LED red
Automatic addressing possible	LED green
Projected mode active	LED yellow
Modbus active	LED green
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-15 to +70°C (+5 to +158°F)
Protection (IEC)	IP20

Description

The VAG-MOD-KF-R4 is a Modbus slave with an IP20 rating designed for use in enclosures. This Modbus gateway offers all the advantages of the KF housing such as power rail connections and removable terminals.

The AS-Interface data can be accessed in a binary format (functions 1, 2, 5, and 15) or through the registers (functions 3, 4, 6 and 16). Important AS-Interface data is in the binary coils and available either packed or unpacked by means of the registers.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

PLC Functionality
The VAG-MOD-KF-R4 has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through MODBUS. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available through MODBUS. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: ModScan and other software simulation available. Contact P+F for further details.

References

Manual: VAG-MOD-KF-R4 User's Manual.

The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of AS-Interface Control Tools.

VAZ-R4-R2
RS232 to RS485 converter for the direct connection of the VAG-MOD-KF-R4 to an RS232 port.

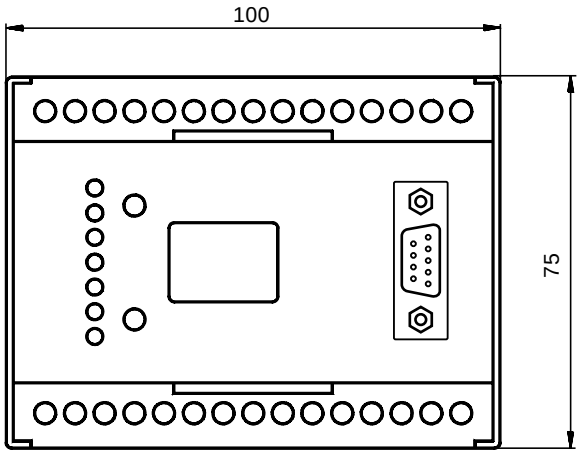
VAZ-R2-STRT
2M serial cable for R2, R3 and R4 masters.

UPR05
Continuous power rail including aluminum DIN rail and cover, 2 m long.

UPR E
End cap for UPR 05.

PR05
Snap-on power rail, 0.5 m long.

Modbus Plus Gateway



Model Number

VAG-MOD+-K5-R4

Modbus Plus gateway

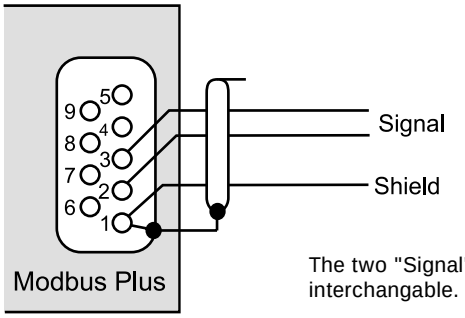
IP20

Features

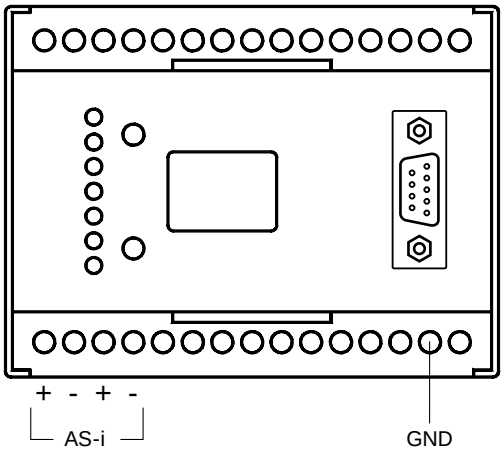
- 2-digit LCD
- Power supplied via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD

Connection

The Modbus Plus interface is designed as a 9-pin Sub D connector (female) according to the Modbus Plus specifications and is found on the right side of the faceplate.



The two "Signal" connections are interchangable.



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-MOD+-K5-R4
Connections	
AS-Interface	terminals
Modbus Plus	9-pin D-sub or terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 180 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
Network indicator (Modbus Plus)	LED green
Configuration error (config error)	LED red
AS-Interface voltage OK (U ASI)	LED green
Normal AS-Interface operation (ASI aktiv)	LED green
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage	≥ 500 µs
EMC classification	per EN 50 082, EN 50 081
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Description

The VAG-MOD+-K5-R4 is a coupler between the AS-Interface and a Modbus Plus network. The VAG-MOD+-K5-R4 is a slave to the upper level Modbus Plus network and is a complete M1 AS-Interface master. The gateway provides a 248-bit I/O module for Modbus Plus.

The mode/set buttons on the face of the gateway are used for programming the addresses of the AS-Interface modules and storing the desired network configuration. The LCD displays all detected module addresses during configuration in the projected mode. Configuration of the AS-Interface network can also be accomplished through Modbus Plus.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

Software

No software is required because all AS-Interface functions are available through Modbus Plus.

References

Manual: VAG-MOD+-K5-R4 User's Manual.

The documentation is included with the unit.

Routing Path

Modbus Plus requires a 5 byte routing path for communications. For the VAG-MOD+-K5-R4 gateway, a path must also be defined after the gateway address. For example, assuming the gateway address is 15, the routing path would be:

15.1.0.0.0

where 1 is a non-zero path command.

DeviceNet Gateway

Model Number

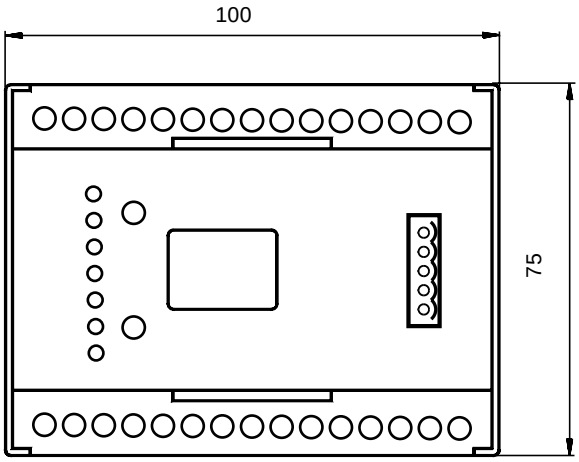
VAG-DN-K5

DeviceNet gateway

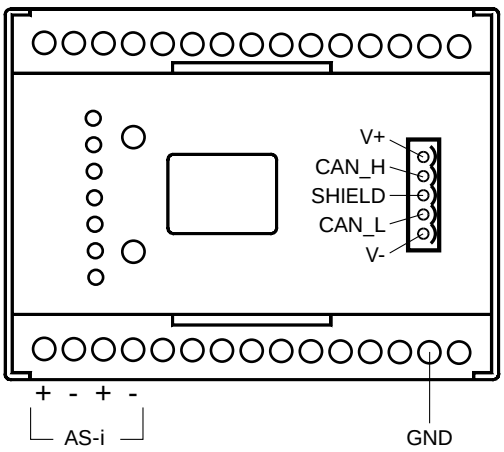
IP20

Features

- 2-digit LCD
- Powered via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD



Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-DN-K5
Connections	
AS-Interface	terminals
DeviceNet	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U ASI)	LED green
Configuration error (config error)	LED red
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
Module/Net status (MNS)	LED green/red
Power ON (POWER)	LED green
Pushbuttons	2 (mode/set)
Isolation voltage	≥ 500 V
EMC classification	per EN 50 082, EN 50 081
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Description

The VAG-DN-K5 is a gateway to DeviceNet and was developed by Pepperl+Fuchs in cooperation with Allen-Bradley. The gateway is a 100% DeviceNet slave (Group 2 slave) and can be configured using DeviceNet Manager or RSNetworx. Used in conjunction with the EDS file, the gateway is listed in the device libraries of the configuration software. The gateway is completely integrated with the DeviceNet software and can be easily connected to an existing DeviceNet network.

The AS-Interface master is connected to DeviceNet with a 5-pin Phoenix Contact connector in accordance with the DeviceNet specifications.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

Note: All AS-Interface functions are available through DeviceNet. The EDS file and icon are included with the unit.

References

Manual: VAG-DN-K5 User's Manual.

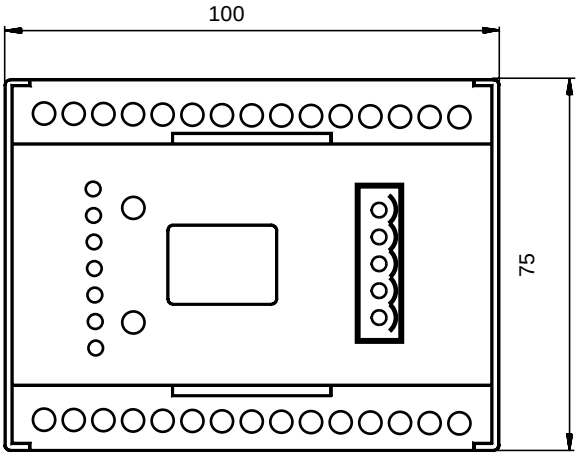
The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of AS-Interface Control Tools.

VAZ-DN-SIM
DeviceNet master simulator

CANopen Gateway



Model Number

VAG-CAN-K5

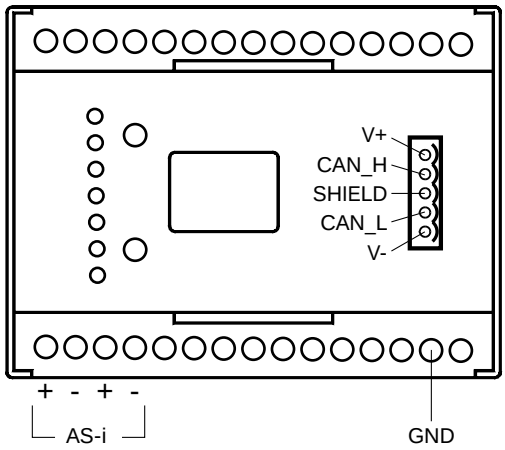
CANopen gateway

IP20

Features

- 2-digit LCD
- Powered via AS-Interface
- Programs addresses via mode/set buttons
- Display of detected modules
- Error diagnostics via LEDs and LCD

Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-CAN-K5
Connections	
AS-Interface	terminals
CANopen	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Normal AS-Interface operation (ASI aktiv)	LED green
AS-Interface voltage OK (U ASI)	LED green
Configuration error (config error)	LED red
Automatic addressing possible (prg enable)	LED green
Projected mode active (prj mode)	LED yellow
Module/Net status (MNS)	LED green/red
CAN voltage OK	LED green
Pushbuttons	2 (mode/set)
Isolation voltage	≥ 500 V
EMC classification	per EN 50 082, EN 50 081
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Housing	Terminal rail housings, LDG-A-30
Protection (IEC)	IP20

Description

The VAG-CAN-K5 is a gateway to a CANopen network. The gateway acts as a 248-bit digital I/O module. All mandatory functions such as interrupts and 8-bit groups are implemented. An emergency message can be activated in the case of an AS-Interface configuration error.

The AS-Interface master is connected to CANopen with a 5-pin Phoenix Contact connector in accordance with the CANopen specifications.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

Software

No software is required.

References

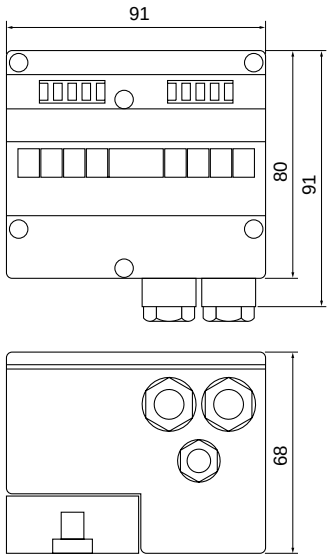
Manual: VAG-CAN-K5 User's Manual.

The documentation is included with the unit.

Accessories

VAZ-CAN-SIM
CANopen master simulator

CC-Link Gateway



Model Number

VAG-CCL-G4F

Mitsubishi CC-Link

IP65

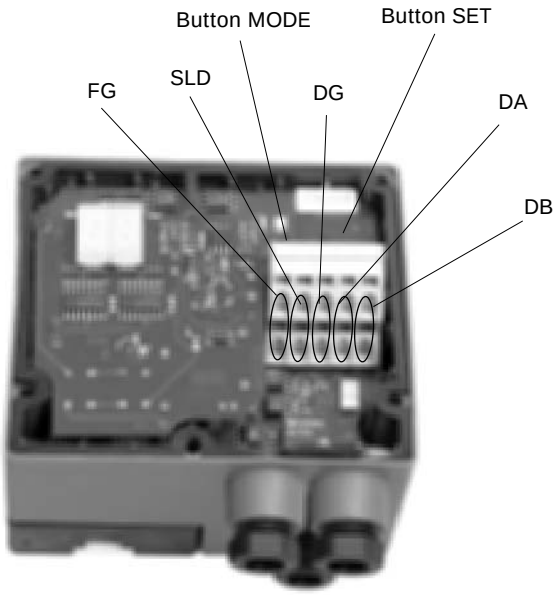
Features

- Connection to CC-Link
- Configuration without CC-Link communications
- All AS-Interface functions can be called up through CC-Link
- Integrated PLC functionality
- Powered via AS-Interface
- IP65
- Error diagnostics via LEDs and LCD
- Supports baud rates from 156 kbps to 10 Mbps
- Uses standard AS-Interface flat or round cable mounting bases

Connection

Includes flat cable base. Round cable base can be ordered separately.

U-G1P
Base for connection of two AS-Interface round cables.



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAG-CCL-G4F
Connections	
AS-Interface	yellow flat cable or round cable
CC-Link	PG9 cord grip and cage tension spring terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 200 mA
Indicators	
Address indication, error signals	LCD, 2-digit
Power ON (power)	LED green
CC-Link run (L RUN)	LED green
CC-Link error (L ERR)	LED red
CC-Link send data (SD)	LED green
CC-Link receive data (RD)	LED green
Configuration error (config err)	LED red
AS-Interface voltage is OK (U AS-Interface)	LED green
Normal AS-Interface operation (AS-Interface aktiv)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP65

Description

The VAG-CCL-G4F occupies three CC-Link stations and exchanges data by remote word registers. With an IP65 rating, the CC-Link gateway is designed for use in the field. In applications where the AS-Interface master must be mounted in an enclosure, valuable lengths of network cable are consumed in getting to the field. The VAG-CCL-G4F offers the advantage of installing the master directly in the field, thus eliminating this problem. The master can be either mounted on DIN rail according to EN 50 022 or through the use of mounting holes on the gateway.

In configuration mode, all detected AS-Interface modules are displayed on the 2-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are LEDs on the front panel used for diagnostics.

PLC Functionality
The VAG-CCL-G4F has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through CC-Link. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available through CC-Link. The programming language is a structured text format (instruction list).

Software

No software is required because all AS-Interface functions are available through Modbus Plus.

References

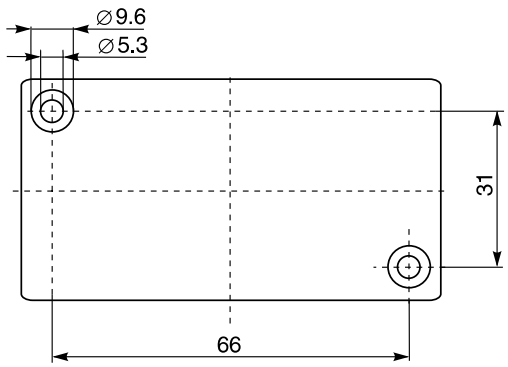
Manual: VAG-CCL-G4F User's Manual.

The documentation is included with the unit.

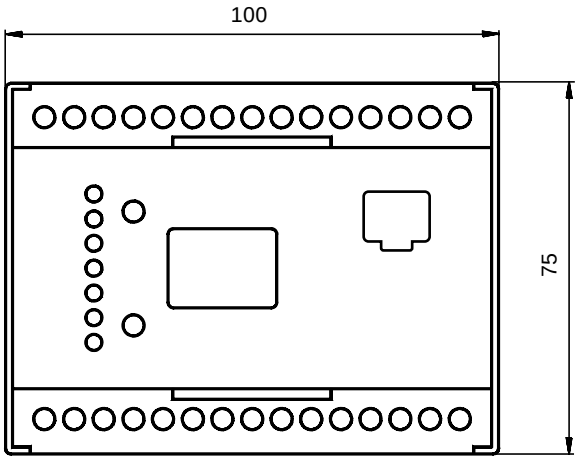
Accessories

U-G1P
Base for connection of two AS-Interface round cables.

Mounting hole dimensions for bases



Ethernet Gateway, Dual Master



Model Number

VBG-TCP/IP-K5-RJ45-DM

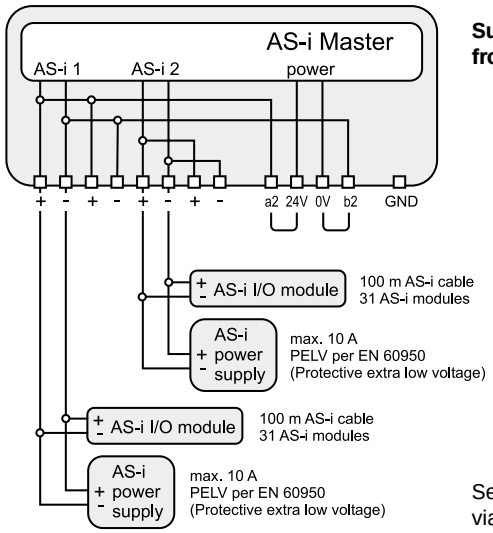
Ethernet gateway, dual master
for two AS-Interface systems

IP20

Features

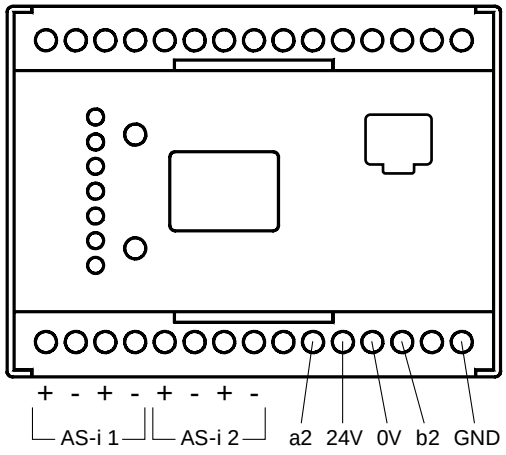
- Connection to Ethernet TCP/IP
- 1 IP address set using Bootp
- 10 Mbps
- 10BaseT (RJ-45 connection)
- Modbus application layer
- All AS-Interface functions available through Ethernet
- Powered via AS-Interface
- Error diagnostics via LEDs and LCD
- 2 AS-Interface systems

Connection



Supply to the master from AS-i circuit 1

Setting is carried out via plug-in jumpers



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VBG-TCP/IP-K5-RJ45-DM
Connections	
AS-Interface	terminals
Ethernet	RJ-45
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 200 mA
Indicators	
Address indication, error signals	LCD, 4-digit
Power ON (power)	LED green
LCD displaying AS-i 2 data (AS-i 2)	LED green
Configuration error (config err)	LED red
AS-Interface voltage is OK (U AS-Interface)	LED green
Ethernet active (ser activ)	LED green
Automatic addressing possible	LED green
Projected mode active	LED yellow
Pushbuttons	2 (mode/set)
Isolation voltage V_i	≥ 500 V
EMC classification	Severity level 3, IEC 801/2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +85°C (-13to +185°F)
Protection (IEC)	IP20

Description

The VBG-TCP/IP-K5-RJ45-DM is an Ethernet gateway for two parallel AS-Interface systems. This means the data from the AS-Interface networks can be transmitted from one IP address. Each Ethernet gateway is shipped with a unique MAC ID. Using the MAC ID and Bootp, the user is able to set the IP address of the gateway.

The gateway is rated IP20 and is designed for use in enclosures. In configuration mode, all detected AS-Interface modules from both networks are displayed on the 4-digit LCD. In normal operation, the LCD is blank unless the master detects a faulty AS-Interface module. There are 7 LEDs on the front panel used for diagnostics.

PLC Functionality
Both AS-Interface networks can be controlled using the integrated PLC. The VBG-TCP/IP-K5-RJ45-DM has 16K program storage, 8K RAM, 1,024 counters and 1,024 timers for the PLC functionality. The master can be operated in "Stand-Alone" mode using the integrated PLC functionality, or can be controlled through Ethernet. The program processing time is 2 ms per one thousand commands. The AS-Interface controller functions (upload, download, start, stop, read and write internal memory) are available for Ethernet. The programming language is a structured text format (instruction list).

Software

The software performs the addressing, programming and monitoring of the AS-Interface network. In addition, it contains an editor that creates programs for the integrated PLC functionality. The software also performs a syntax test to ensure the programming commands are correct.

VAZ-SW-ACT

- AS-Interface Control Tools

A demonstration version of the AS-Interface Control Tools is included with the unit.

References

Manual: VBG-TCP/IP-K5-RJ45-DM User's Manual.

The documentation and software are included with the unit.

Accessories

VAZ-SW-ACT
Full version of the AS-Interface Control Tools.

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Power Supplies & Repeaters

Power Supplies and Repeaters

AS-Interface Power Supplies

With AS-Interface, one cable carries both power and communications. The current modulated data is transferred along the power line at a frequency of 167 kbps. AS-Interface power supplies contain internal data separation coils so that the capacitive filtering of the supply does not destroy the communications. Every connected element must have a separation of data and power, as well as stable inductance for clean data signals. Because of this required isolation, only AS-Interface devices and power supplies can be connected to the AS-Interface wiring system. I/O modules provide the necessary isolation to enable the connection of standard input and output devices.

High noise and interference immunity on AS-Interface without a shielded cable is one of the strongest features of AS-Interface. The communication signal is symmetrically transmitted on AS-Interface(+) and AS-Interface(-). This communication method uses the isolation coils for data separation to eliminate all noise and interference. AS-Interface power supplies have an additional data isolation coil between the voltage transformer and the output so that the data signals are isolated from line noise.

As with all AS-Interface products, each power supply must undergo a rigorous certification test before the logo can be applied to the product. To gain certification by the AS-Interface association, a power supply must be tested for the following characteristics:

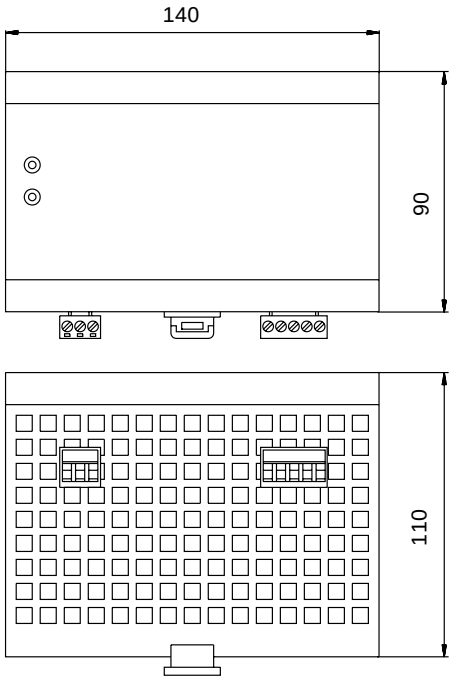
- Symmetry of AS-Interface (+) and AS-Interface (-)
- Coupling of bursts to AS-Interface (+) and AS-Interface (-)
- Electromagnetic emission/ripple
- Turn-on timing
- An inductance value of 100 mH
- Operation in reference application

The following characteristics are covered by the manufacturers' declaration for Certification:

- EMC Tests according to IEC 801, Part 1, 2, 3 (Level 3)
- Intrusion Protection & Safety
- Isolation input to AS-Interface
- Electromagnetic emission according to EN 55011
- Input Voltage Range

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Power Supply



Model Number

VAN-115/230AC-K8

AS-Interface power supply

Features

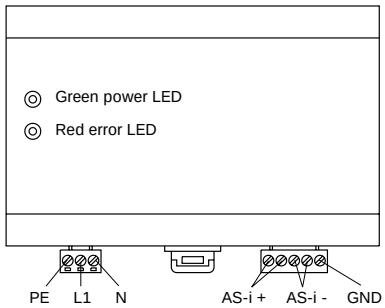
- 115/230 VAC
- 2.8 A
- AS-Interface integrated coil isolation
- Power "ON" LED
- Power factor correction

This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 2.8 A.

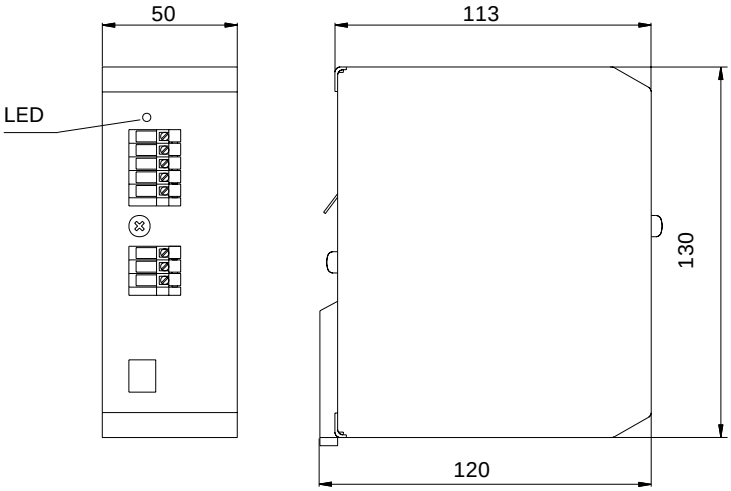
Technical Data:

Model Number	VAN-115/230AC-K8
Output current	2.8 A
Operating voltage	115/230 VAC
Input voltage range	98-265 VAC
Input frequency	47-63 Hz
Input current	0.4-1.2 A
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-25 to +85°C (-13 to +185°F)
Operating temperature	0 to +70°C (+32 to +158°F)
Output voltage	29.5 to 31.6 VDC
Power ON	LED green
Overload	LED red
Weight	500 g

Terminal connections



AS-Interface Power Supply



Model Number

VAN-115/230AC-K6

AS-Interface power supply

Features

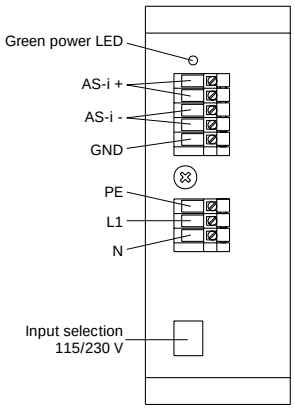
- 115/230 VAC
- 2.8 A
- AS-Interface integrated coil isolation
- Power "ON" LED
- Power factor correction

This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 2.8 A.

Technical Data:

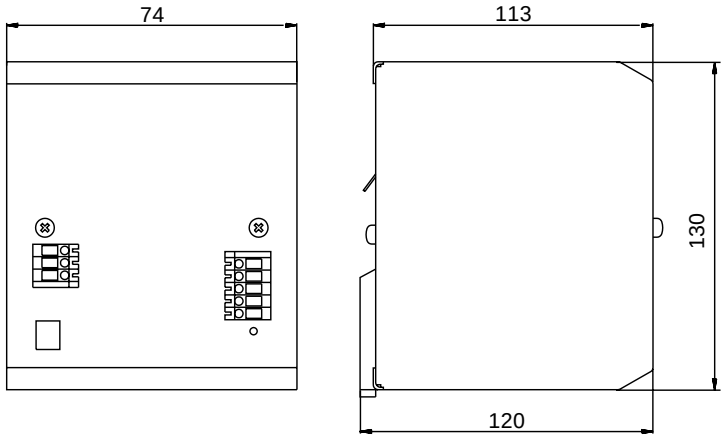
Model Number	VAN-115/230AC-K6
Output current	2.8 A
Operating voltage	115/230 VAC, selectable
Input voltage range	88-132/187-264 VAC
Input frequency	47-63 Hz
Efficiency	87%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-20 to +100°C (-4 to +212°F)
Operating temperature	-10 to +70°C (+14 to +158°F)
Output voltage	29.5 to 31.6 VDC
Start-up delay	42 ms
Input power loss override	46 ms
Power ON	LED green
Weight	460 g

Terminal connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Power Supply



Model Number

VAN-115/230AC-K7

AS-Interface power supply

Features

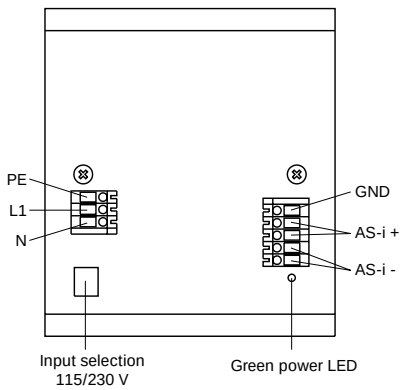
- 115/230 VAC
- 8 A
- AS-Interface integrated coil isolation
- Power "ON" LED
- Power factor correction

This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 8 A.

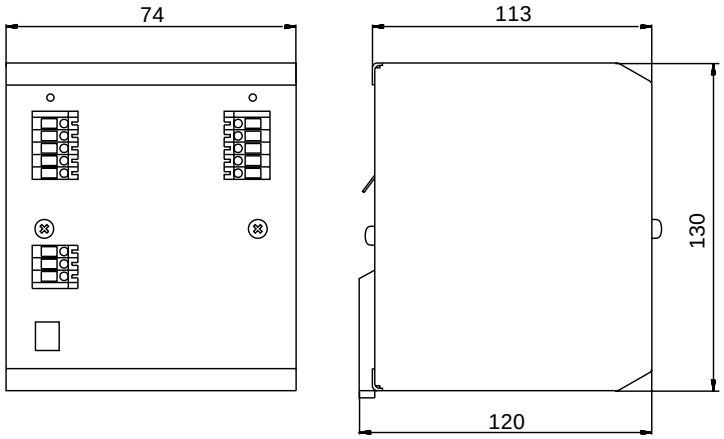
Technical Data:

Model Number	VAN-115/230AC-K7
Output current	8 A
Operating voltage	115/230 VAC, selectable
Input voltage range	88-132/187-264 VAC
Input frequency	47-63 Hz
Efficiency	88%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-20 to +100°C (-4 to +212°F)
Operating temperature	-10 to +70°C (+14 to +158°F)
Output voltage	29.5-31.6 VDC
Start-up delay	30 ms
Input power loss override	46 ms
Power ON	LED green
Weight	1150 g

Terminal connections



Dual AS-Interface Power Supply



Model Number

VAN-115/230AC-K7-DN

Dual power supply for two AS-Interface systems

Features

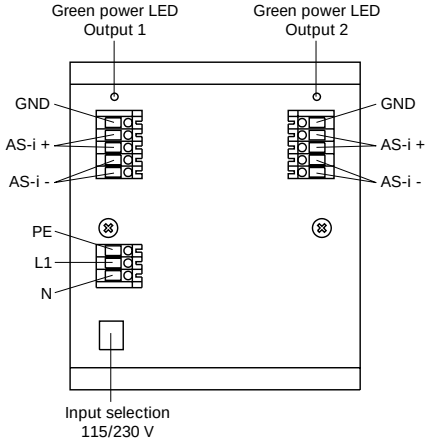
- 115/230 VAC
- Two isolated outputs at 4 A
- AS-Interface integrated coil isolation
- Power "ON" LED
- Power factor correction

This AS-Interface supply powers two fully loaded AS-Interface systems with a maximum output current of 4 A each.

Technical Data:

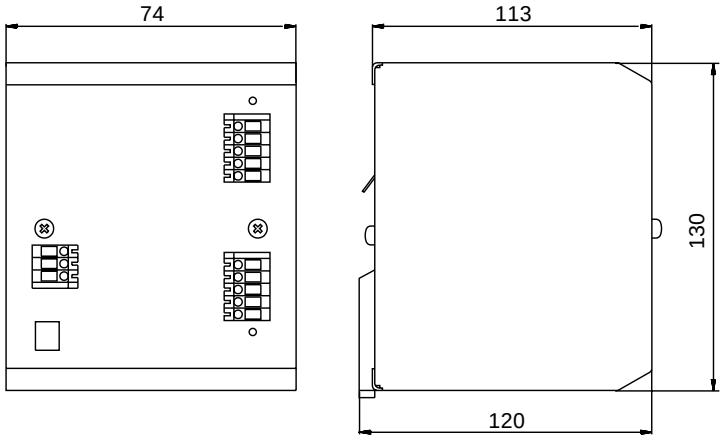
Model Number	VAN-115/230AC-K7-DN
Output current	4 A (per output)
Operating voltage	115/230 VAC, selectable
Input voltage range	88-132/176-264 VAC
Input frequency	47-63 Hz
Efficiency	89%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-20 to +100°C (-4 to +212°F)
Operating temperature	-10 to +70°C (+14 to +158°F)
Output voltage	29.5-31.6 VDC
Start-up delay	30 ms
Input power loss override	46 ms
Power ON	LED green
Weight	1150 g

Terminal connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Combination AS-Interface Power Supply



Model Number

VAN-115/230AC-K7-CN

Combination power supply

Features

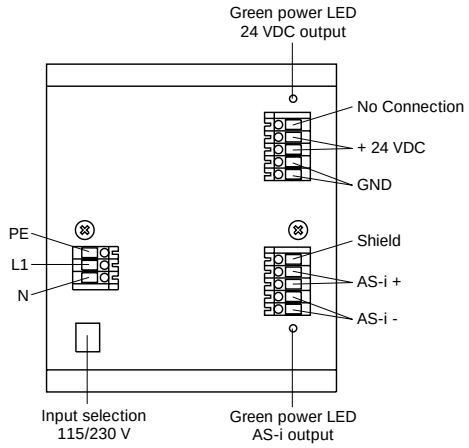
- 115/230 VAC
- 2.8 A AS-Interface supply and 6 A 24 VDC supply
- AS-Interface integrated coil isolation
- Power "ON" LED
- Power factor correction

This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 2.8 A and an external 24 VDC supply rated at 6 A.

Technical Data:

Model Number	VAN-115/230AC-K7-CN
Output current	2.8 A (AS-Interface) 6 A, 24 VDC
Operating voltage	115/230 VAC, selectable
Input voltage range	88-132/176-264 VAC
Input frequency	47-63 Hz
Efficiency	88%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-20 to +100°C (-4 to +212°F)
Operating temperature	-10 to +70°C (+14 to +158°F)
Output voltage	29.5-31.6 VDC
Start-up delay	30 ms
Input power loss override	46 ms
Power ON	LED green
Weight	1150 g

Terminal connections



AS-Interface Power Supply

Model Number

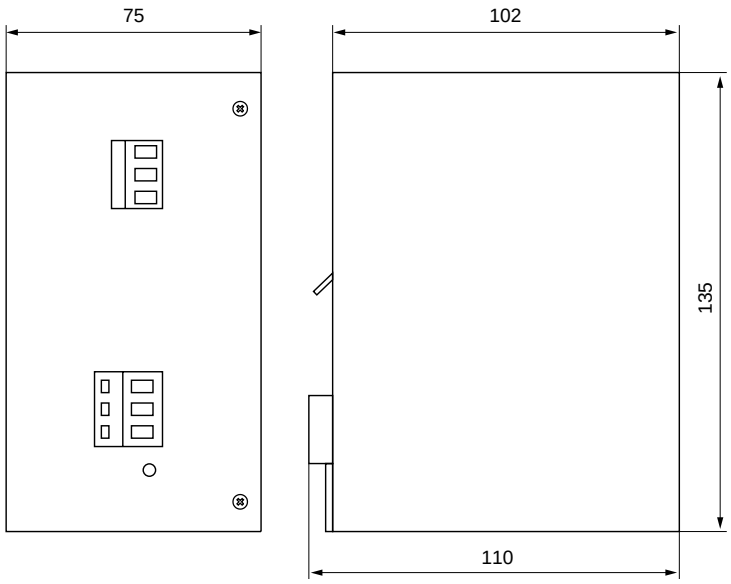
VAN-115/230AC-CL2-S

AS-Interface Class 2 power supply

Features

- 115/230 VAC
- 3 A
- AS-Interface integrated coil isolation
- Power "ON" LED
- UL Class 2 approved

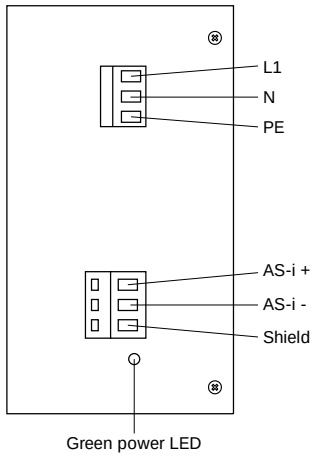
This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 3 A.



Technical Data:

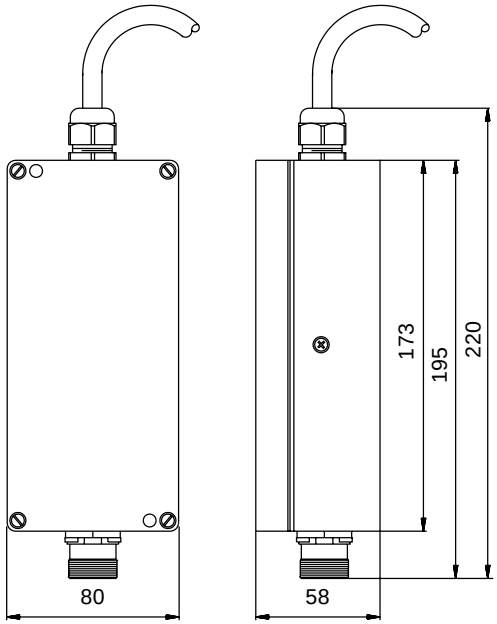
Model Number	VAN-115/230AC-CL2-S
Output current	3 A
Operating voltage	115/230 VAC, selectable
Input voltage range	88-132/187-264 VAC
Input frequency	47-63 Hz
Efficiency	85%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Storage temperature	-45 to +80°C (-49 to +176°F)
Operating temperature	-45 to +55°C (-49 to +131°F)
Output voltage	29.5 to 30 VDC
Input power loss override	20 ms
Power ON	LED green
Weight	800 g

Terminal connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Power Supply



Model Number

VAN-24DC-K9

AS-Interface power supply

Features

- Input voltage 24 VDC
- Output current 2.8 A
- Power "ON" LED
- Mounting hardware included
- IP65

This AS-Interface supply powers a fully loaded AS-Interface system with a maximum output current of 2.8 A.

Requires VAZ-V8-6 connector for the 24 VDC connection.

Accessories

U-G1P
Base connection of two round cables for AS-Interface communications

VAZ-DK-G1
Protective cover for AS-i mounting bases

Accessories included:

1 two-pole terminal strip

2 VAZ-PG11-FKD, flat cable grommet

1 Pg11 round cable grommet

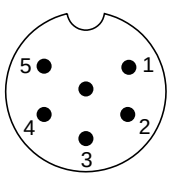
2 Mounting screws, washers and nuts

Technical Data:

Model Number	VAN-24DC-K9
Output current	2.8 A
Derating	I_{max} = 2.8 A at 45°C (113°F) I_{max} = 2.6 A at 50°C (122°F) I_{max} = 2.4 A at 55°C (131°F)
Operating voltage	24 VDC, +20/-15%
Reverse polarity protection	yes
Peak power up current	$I_{max} \leq$ 40 A, t < 3 ms
Housing material	Aluminum
Protection (IEC)	IP65
Storage temperature	-25 to +85°C (-13 to +185°F)
Operating temperature	0 to +70°C (+32 to +158°F)
Output voltage	29.5 to 31.6 VDC
Power ON	LED green
Short-circuit/overload	Current limited at 2.85 A
Weight	1000 g

Connections

24 VDC Connection Face view - male



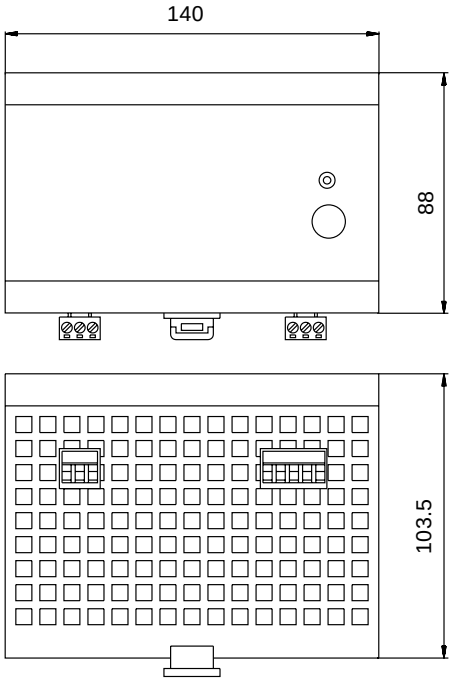
1 PE
2 24 VDC (+)
3 (-)
4 n.c.
5 n.c.

Requires VAZ-V8-6 connector for the 24 VDC connection.

AS-Interface Connection

AS-i +	Red
AS-i -	Blue
GND	Black

Standard 24 VDC Power Supply



Model Number

KFA6-STR.1.24.4

Standard 24 VDC power supply

Features

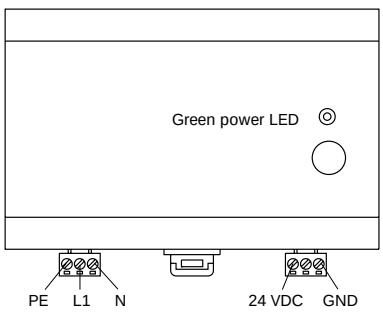
- 115/230 VAC
- 24 VDC output
- 4 A
- Power "ON" LED
- Removable terminals and power rail compatible

This standard 24 VDC supply is used for auxillary power and can supply a maximum current of 4 A.

Technical Data:

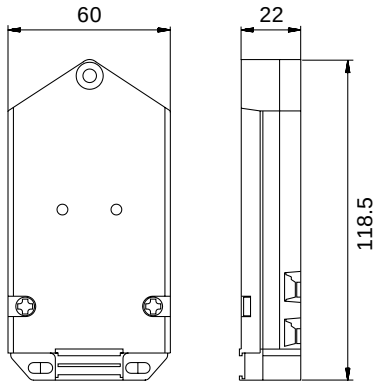
Model Number	KFA6-STR.1.24.4
Output current	4 A
Operating voltage	115/230 VAC
Input voltage range	92-265 VAC
Input frequency	47-63 Hz
Efficiency	87%
Housing material	Aluminum
Protection (IEC)	IP20
Connection	Terminals, 2.5 mm² (14 AWG)
Operating temperature	-20 to +60°C (-4 to +140°F)
Output voltage	29.5 to 31.6 VDC
Power ON	LED green
Fault signal	LED red
Weight	800 g

Terminal connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Repeater



Model Number

VAR-G3F

Repeater

IP65

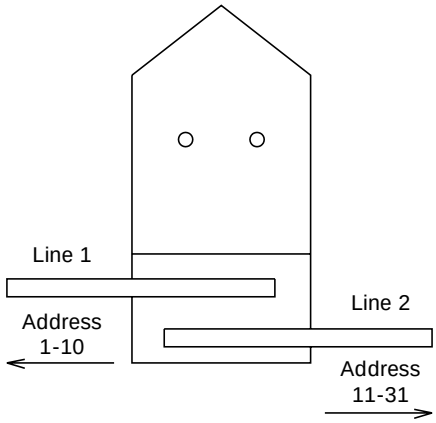
Features

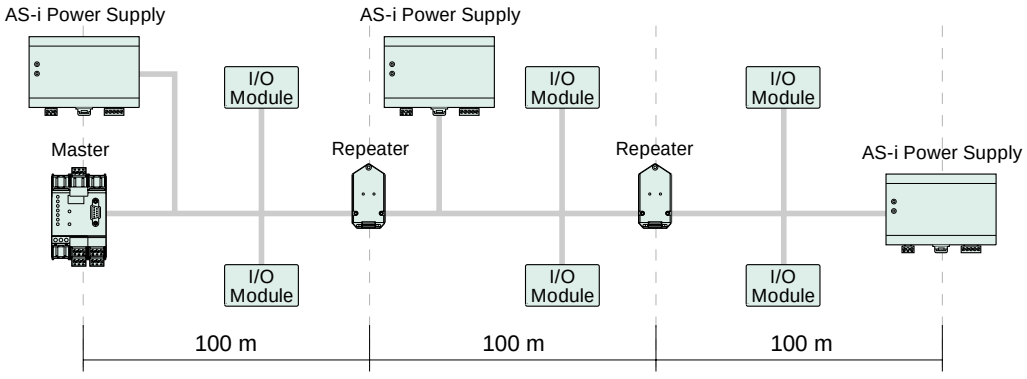
- Extends AS-Interface an additional 100 m
- Electrically isolates segments
- LED indication for correct voltage of each segment
- Requires two AS-Interface supplies
- I/O modules can be placed in both segments
- Two repeaters can be used in series (max. 300 M trunk line)
- Does not require an address (passive)

Technical Data:

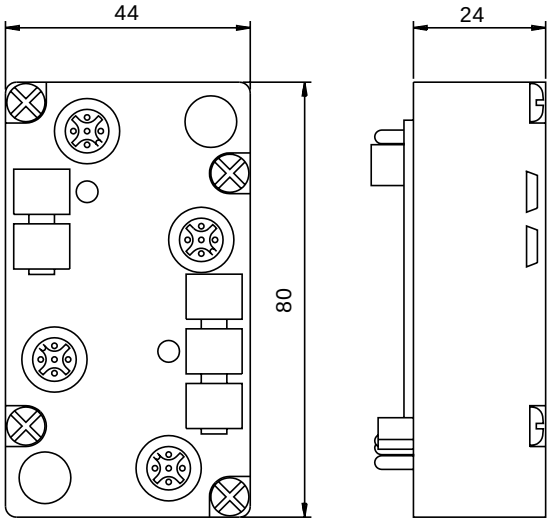
Model Number	VAR-G3F
Connections	AS-Interface flat cable
Operating voltage V_B	From AS-Interface
Operating current I_e	60 mA (per network segment), 120 mA (total)
EMC classification	Severity level 3, IEC 801.2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +75°C (-13 to +167°F)
Housing material	Plastic
Protection (IEC)	IP65
Interference protection	Per slave specifications

Connection





AS-Interface Repeater



Model Number

VAR-G1-S

Repeater

IP67

Features

- Extends AS-Interface an additional 100 m
- Electrically isolates segments
- LED indication for correct voltage of each segment
- Requires two AS-Interface supplies
- I/O modules can be placed in both segments
- Two repeaters can be used in series (max. 300 m trunk line)
- Does not require an address (passive)

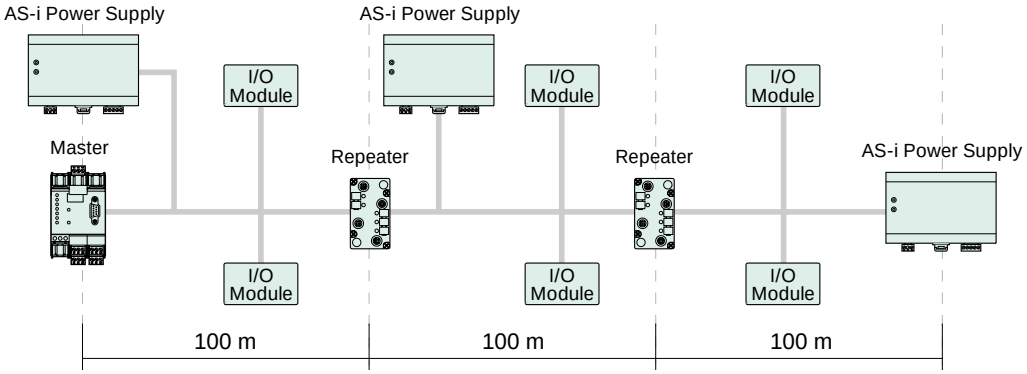
Technical Data:

Model Number	VAR-G1-S
Connections	AS-Interface flat or round cable
Operating voltage V_B	From AS-Interface
Operating current I_e	60 mA (per network segment), 120 mA (total)
EMC classification	Severity level 3, IEC 801.2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +75°C (-13 to +167°F)
Housing material	Plastic
Protection (IEC)	IP67
Interference protection	Per slave specifications

Connections

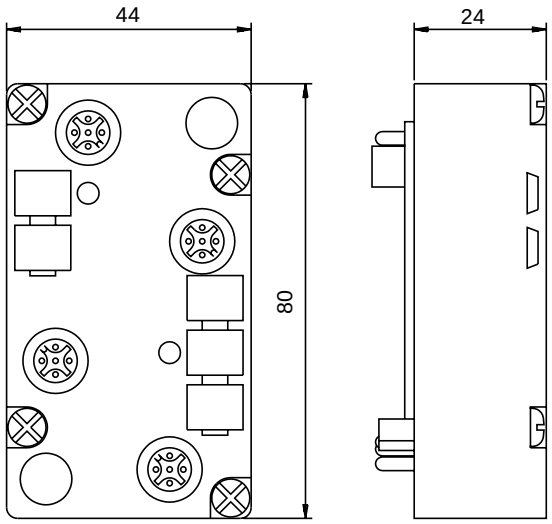
Includes flat cable base or the round cable base can be ordered separately.

U-G1PP
Base for connection of AS-Interface and 24 VDC round cables



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Extender



Model Number

VAE-G1-S

Extender

IP67

Features

- Extends AS-Interface an additional 100 m
- LED indication for correct voltage of each segment
- Requires one AS-Interface supply for 200 M
- I/O modules can only be placed in the segment after the extender
- Can be used in combination with one repeater (max. 300 m trunk line)
- Does not require an address (passive)

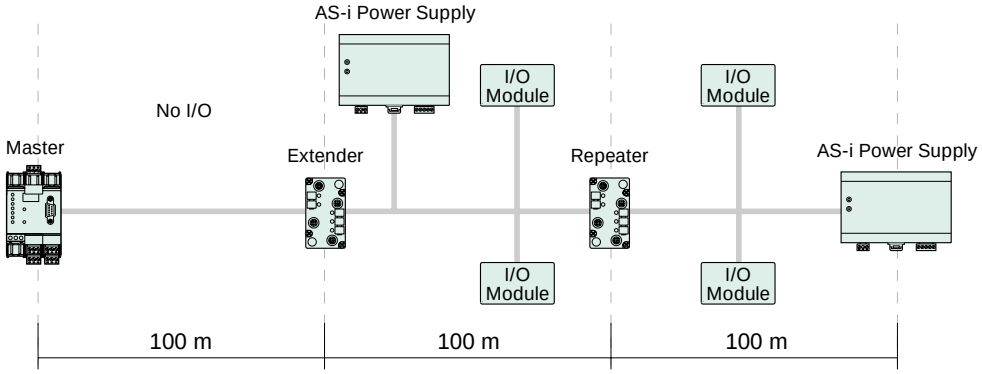
Technical Data:

Model Number	VAE-G1-S
Connections	AS-Interface flat or round cable
Operating voltage V_B	From AS-Interface
EMC classification	Severity level 3, IEC 801.2-4
Operating temperature t_b	0 to +55°C (+32 to +131°F)
Storage temperature t_l	-25 to +75°C (-13 to +167°F)
Housing material	Plastic
Protection (IEC)	IP67
Interference protection	Per slave specifications

Connections

Includes flat cable base or the round cable base can be ordered separately.

U-G1PP
Base for connection of AS-Interface and 24 VDC round cables

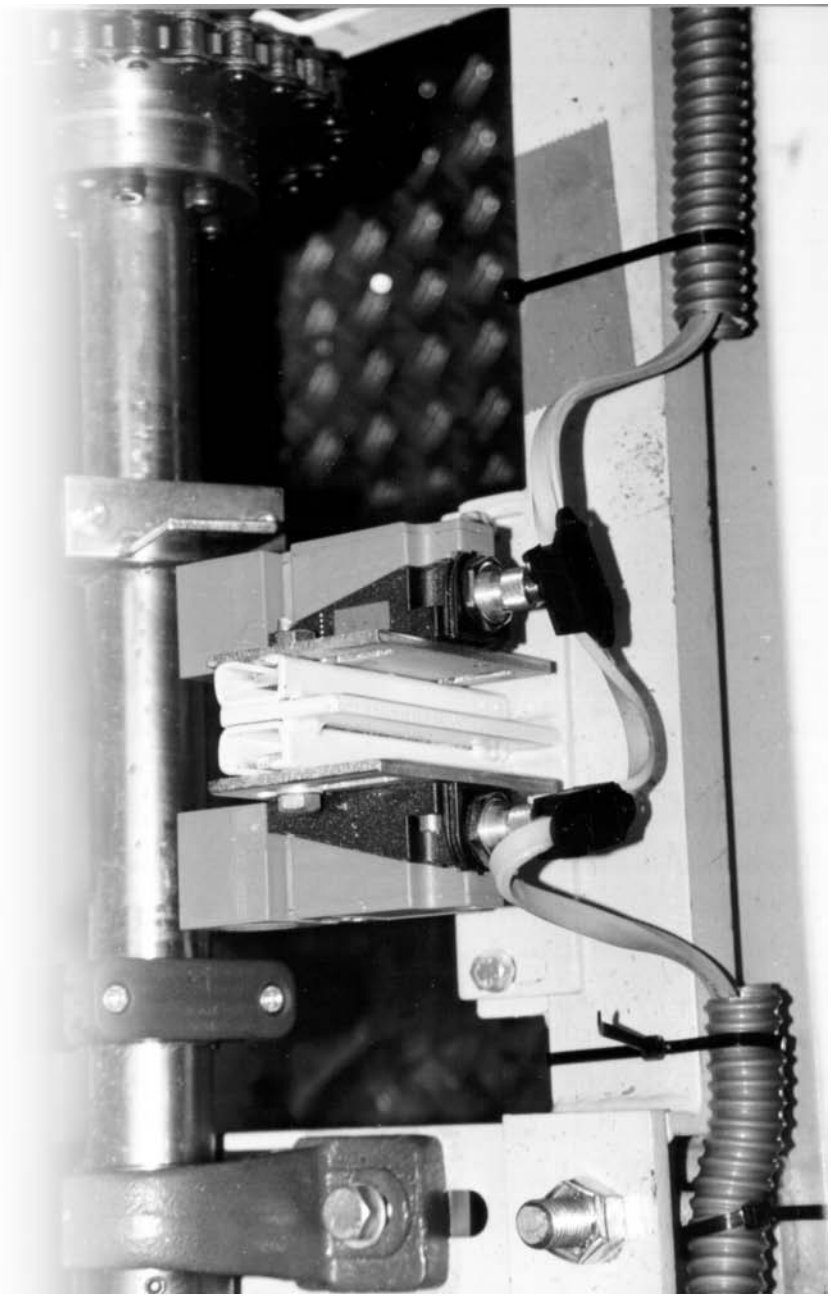


Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Intelligent Inductive Sensors

Intelligent Inductive Sensors



Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Inductive Sensors

Detecting a failed sensor is often difficult and can cause long periods of equipment downtime in conventionally wired systems. In networked systems, integrated chips provide sensors with their own "intelligence" and expand their functionality. "Intelligent" sensors are self-monitoring, programmable and transmit data over the network to a controller.

Precision Alignment LED (PAL)
Inductive sensors are adjusted so the distance between the target and the sensor is about fifty percent of the maximum sensing range. If the target moves within eighty to a hundred percent of the specified sensing range, the weak signal LED flashes to indicate the sensor is not aligned properly.

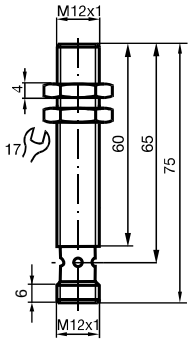
Coil Monitoring
The sensor's oscillator coil is monitored for lead breakage and the operational availability bit is updated in the 4-bit data packet sent to the master. Additional information such as switching output is also available in this data packet. The mode of operation (N.O./N.C.) can be changed by exchanging parameter bits with the AS-Interface master. Thirty-one intelligent sensors can be connected to an AS-Interface system.

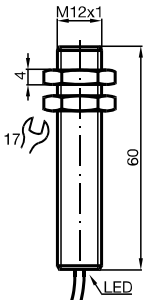
Cylindrical Sensors
Shielded and unshielded cylindrical sensors are available in diameters M12-M30. Cylindrical sensors are available with potted 2 m round cables or V1 (M12x1) connectors with multiple LEDs.

Limit Switch Sensors
Rectangular sensors are available as surface mount sensors in limit, mini-limit and Rhino style housings. The new Rhino housing was developed for the material handling industry. The Rhino uses only two screws for mounting and to adjust the sensor head in 15° increments.

The limit and mini-limit switch housing styles meet the mounting hole arrangement of EN 60947 for mechanical conveyor limit switches. For connection of the AS-Interface flat cable, a special base (U9A) is available for the limit switch housing.

AS-Interface Sensor





Model Numbers

NCB2-12GM60-B3-V1

NCB2-12GM60-B3

Cylindrical sensors

Features

- Shielded
- 2 mm sensing range
- Programmable (N.O./N.C.)
- IP67

Programming Instructions

Address preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code 1
ID-Code 1

Data bit

Bit	Function
D0	switch output
D1	not used
D2	operational availability
D3	not used

Parameter bit

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used

*default settings

Technical Data:

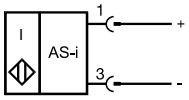
Model Number	NCB2-12GM60-B3-V1	NCB2-12GM60-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 26 AWG
Output indication	4-way LED yellow	LED yellow

Common Specifications

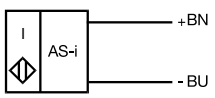
Sensing range s_n	2 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-1.62 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	12 mm x 12 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 1100 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	stainless steel

Electrical Connection

Connector version

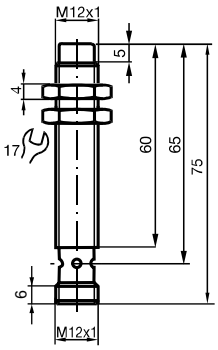


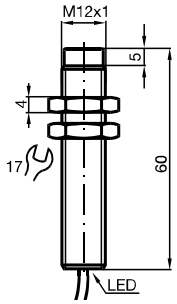
Cable version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Sensor





Model Numbers

NCN4-12GM60-B3-V1

NCN4-12GM60-B3

Cylindrical sensor

Features

- Unshielded
- 4 mm sensing range
- Programmable (N.O./N.C.)
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

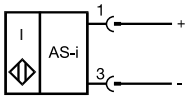
Model Number	NCN4-12GM60-B3-V1	NCN4-12GM60-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 26 AWG
Output indicator	4-way LED yellow	LED yellow

Common Specifications

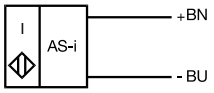
Sensing range s_n	4 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-3.24 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	12 mm x 12 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 350 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	Stainless steel

Electrical Connection

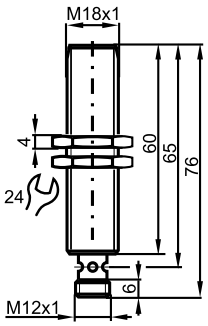
Connector version

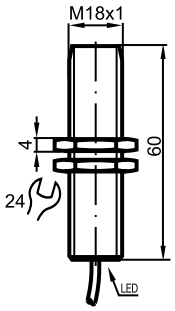


Cable version



AS-Interface Sensor





Model Numbers

NCB5-18GM60-B3-V1

NCB5-18GM60-B3

Cylindrical sensor

Features

- Shielded
- 5 mm sensing range
- Programmable (N.O./N.C.)
- IP67

Programming Instructions

Address preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code 1
ID-Code 1

Data Bits

Bit	Function
D0	switch output
D1	weak signal indication
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

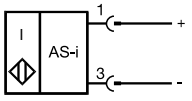
Model Number	NCB5-18GM60-B3-V1	NCB5-18GM60-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 22 AWG
Output indicator	4-way LED yellow	LED yellow
Power ON	-	LED green

Common Specifications

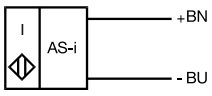
Sensing range s_n	5 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-4.05 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	18 mm x 18 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 200 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	Stainless steel

Electrical Connections

Connector version

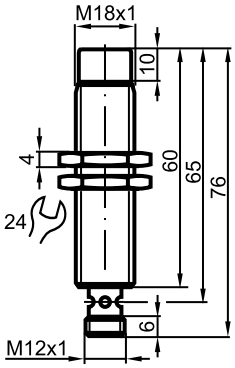


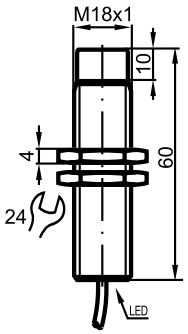
Cable version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Sensor





Model Numbers

NCN8-18GM60-B3-V1

NCN8-18GM60-B3

Cylindrical sensor

Features

- Unshielded
- 5 mm sensing range
- Programmable (N.O./N.C.)
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	weak signal indication
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

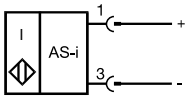
Model Number	NCN8-18GM60-B3-V1	NCN8-18GM60-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 22 AWG
Output indicator	4-way LED yellow	LED yellow
Power ON	-	LED green

Common Specifications

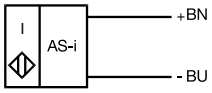
Sensing range s_n	8 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-6.48 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	24 mm x 24 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 100 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	Stainless steel

Electrical Connection

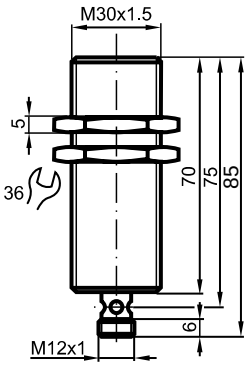
Connector version

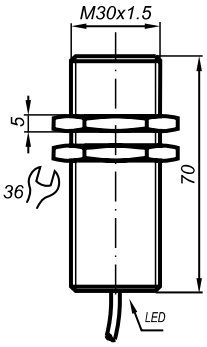


Cable version



AS-Interface Sensor





Model Numbers

NCB10-30GM70-B3-V1

NCB10-30GM70-B3

Cylindrical sensor

Features

- Shielded
- 10 mm sensing range
- Programmable (N.O./N.C.)
- Precision alignment LED (PAL)
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	weak signal indication (dynamic)
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

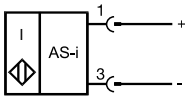
Model Number	NCB10-30GM70-B3-V1	NCB10-30GM70-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 22 AWG
Output indicator	4-way LED yellow	LED yellow
Power ON	-	LED green
Precision alignment (static)	-	LED red

Common Specifications

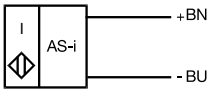
Sensing range s_n	10 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-8.1 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	30 mm x 30 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 70 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	Stainless steel

Electrical Connection

Connector version

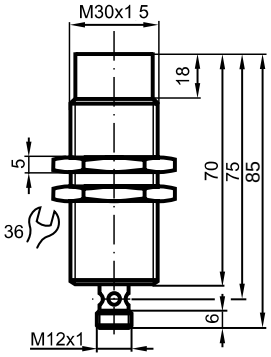


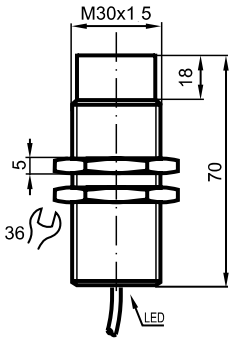
Cable version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Sensor





Model Numbers

NCN15-30GM70-B3-V1

NCN15-30GM70-B3

Cylindrical sensor

Features

- Unshielded
- 15 mm sensing range
- Programmable (N.O./N.C.)
- Precision alignment LED (PAL)
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	weak signal indication (dynamic)
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

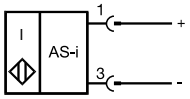
Model Number	NCN15-30GM70-B3-V1	NCN15-30GM70-B3
Connection	V1 (M12x1)	2 m PVC cable
Cable	-	2 x 22 AWG
Output indicator	4-way LED yellow	LED yellow
Power ON	-	LED green
Precision alignment (static)	-	LED red

Common Specifications

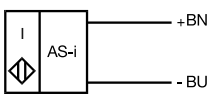
Sensing range s_n	15 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-12.1 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	45 mm x 45 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 50 Hz
Power-on delay t_v	≤ 1 s
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Housing material	Stainless steel

Electrical Connection

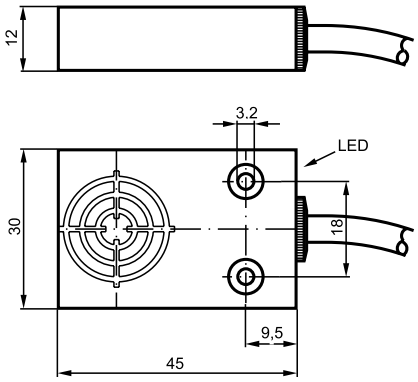
Connector version



Cable version



AS-Interface Sensor



Model Number

NBB6-F-B3

Surface mount sensor

Features

- Shielded
- 6 mm sensing range
- Programmable (N.O./N.C.)
- Coil monitoring
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	coil monitoring
D3	not used

Parameter Bits

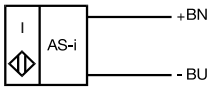
Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

Model Number	NBB6-F-B3
Connection	2 m PVC cable
Cable	2 x 22 AWG
Sensing range s_n	6 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-4.86 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	22 mm x 22 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 20 mA
Switching frequency f	≥ 500 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2, EN 50 044
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	90 g
Housing material	PBT

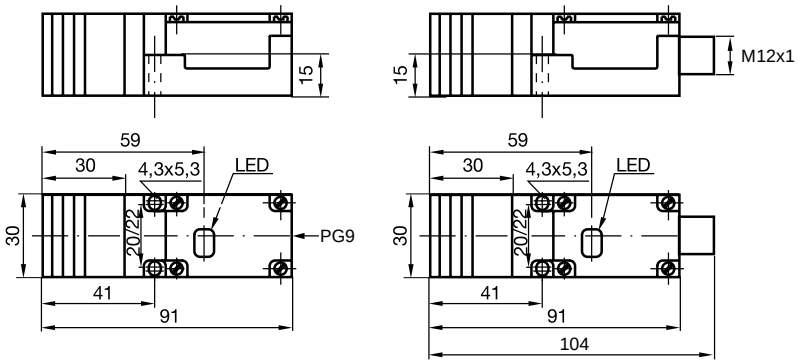
Electrical Connection

Cable version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Sensor



Model Number

NCN15-M1A-B3

NCN15-M1A-B3-V1

Mini-limit switch

Features

- 15 mm sensing range
- Precision alignment
- Programmable (N.O./N.C.)
- Adjustable sensor head
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	weak signal indication (dynamic)
D2	operational availability
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

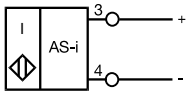
Model Number	NCN15-M1A-B3	NCN15-M1A-B3-V1
Connection	Terminal compartment	V1 (M12x1)
Cross section	≤ 2.5 mm²	-

Common Specifications

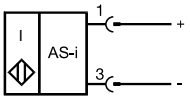
Sensing range s_n	15 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-12.1 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	45 mm x 45 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 100 Hz
Power-on delay t_v	≤ 1 s
Output Indicator	LED yellow
Power ON	LED green
Precision alignment (static)	LED red
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	170 g

Electrical Connection

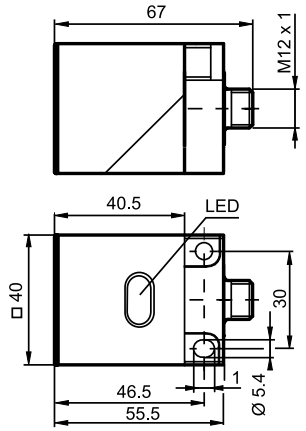
Terminal compartment



Connector version



AS-Interface Sensor



Model Number

NBB20-L2-B3-V1

Rhino

Features

- Shielded
- 20 mm sensing range
- Programmable (N.O./N.C.)
- Adjustable sensor head
- Coil monitoring
- IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	coil monitoring
D3	not used

Parameter Bits

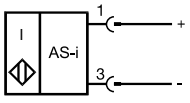
Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Technical Data:

Model Number	NBB20-L2-B3-V1
Connection	V1 (M12x1) quick disconnect
Sensing range s_n	20 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-16.2 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	60 mm x 60 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 100 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	210 g
Housing material	PBT

Electrical Connection

Connector version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Sensor

Model Number

NBN30-L2-B3-V1

Rhino

Features

- Unshielded
- 30 mm sensing range
- Programmable (N.O./N.C.)
- Adjustable sensor head
- Coil monitoring
- IP67

Programming Instructions

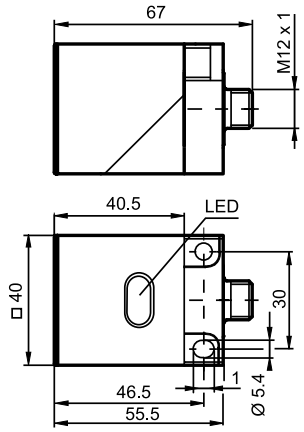
Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	coil monitoring
D3	not used

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

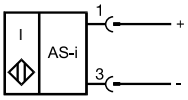


Technical Data:

Model Number	NBN30-L2-B3-V1
Connection	V1 (M12x1) quick disconnect
Sensing range s_n	30 mm
Shielded	no
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-24.3 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	90 mm x 90 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	≥ 100 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	210 g
Housing material	PBT

Electrical Connection

Connector version



AS-Interface Sensor

Model Numbers

NBB20+U1A+B3

NBB20+U1A+B3-V1

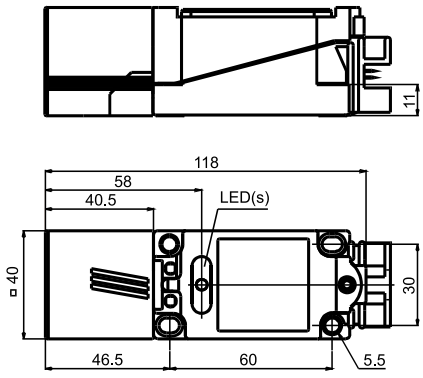
NBB20+U5A+B3

NBB20+U9A+B3

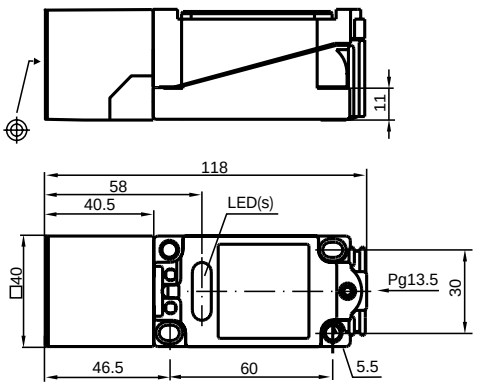
Limit switch

Features

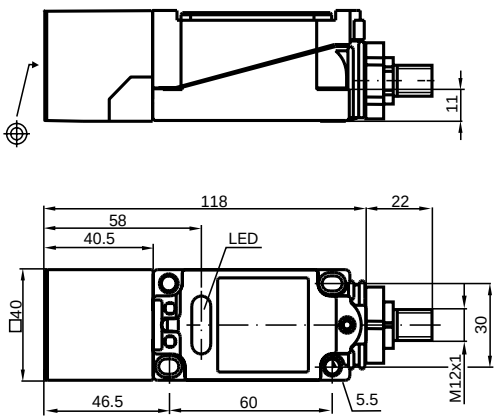
- Unshielded
- 20 mm sensing range
- Programmable (N.O./N.C.)
- Adjustable sensor head
- IP67



The above diagram shown with U9A base.



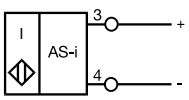
The above diagram shown with U1A or U5A base.



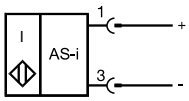
The above diagram shown with U1A base with V1 option.

Electrical Connection

Terminal connection



Connector version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	NBB20+U1A+B3	NBB20+U1A+B3-V1
Connection	Terminal compartment	V1 (M12x1) quick disconnect
Cross section	≤ 2.5 mm² (14 AWG)	-

Model Number	NBB20+U5A+B3	NBB20+U9A+B3
Connection	Cage spring terminal	Cable-piercing technique
Cross section	≤ 1.5 mm² (16 AWG)	AS-Interface flat cable

Common Specifications

Sensing range s_n	20 mm
Shielded	Yes
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-16.2 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	60 mm x 60 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	150 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	240 g
Housing material	PBT

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	operational availability
D3	not used

Parameter Bits

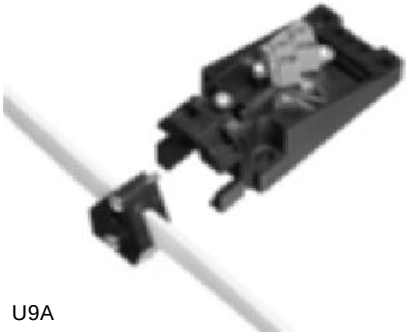
Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Base

U1A

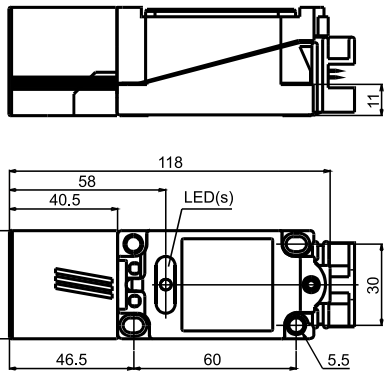
U1A with V1 option

U5A

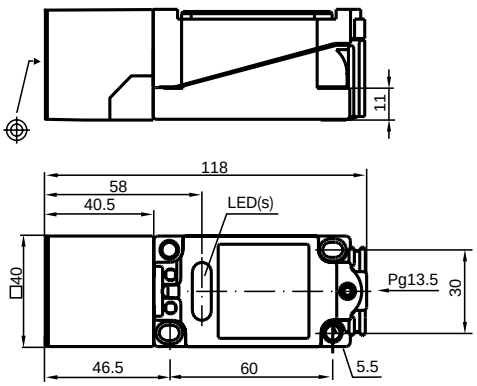


U9A

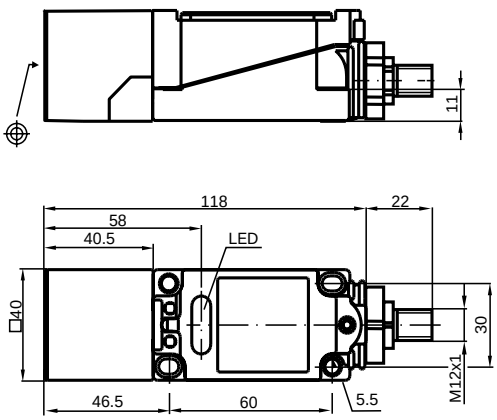
AS-Interface Sensor



The above diagram shown with U9A base.



The above diagram shown with U1A or U5A base.



The above diagram shown with U1A base with V1 option.

Model Number

NBN30+U1A+B3

NBN30+U1A+B3-V1

NBN30+U5A+B3

NBN30+U9A+B3

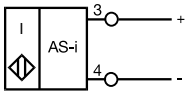
Limit switch

Features

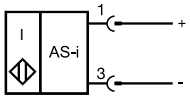
- Unshielded
- 30 mm sensing range
- Programmable (N.O./N.C.)
- Adjustable sensor head
- IP67

Electrical Connection

Terminal connection



Connector version



Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	NBN30+U1A+B3	NBN30+U1A+B3-V1
Connection	Terminal compartment	V1 (M12x1) quick disconnect
Cross section	≤ 2.5 mm² (14 AWG)	-

Model Number	NBN30+U5A+B3	NBN30+U9A+B3
Connection	Cage spring terminal	Cable-piercing technique
Cross section	≤ 1.5 mm² (16 AWG)	AS-Interface flat cable

Common Specifications

Sensing range s_n	30 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-24.3 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	90 mm x 90 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	150 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 g, T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	240 g
Housing material	PBT

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

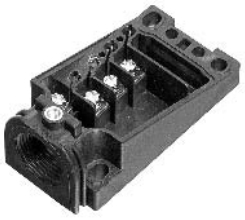
Data Bits

Bit	Function
D0	switch output
D1	not used
D2	operational availability
D3	not used

Parameter Bits

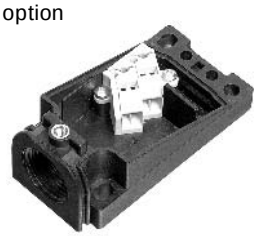
Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Bases

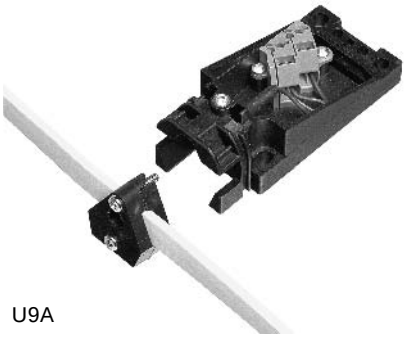


U1A

U1A with V1 option



U5A



U9A

AS-Interface Sensor

Model Number

NBN40+U1A+B3

NBN40+U1A+B3-V1

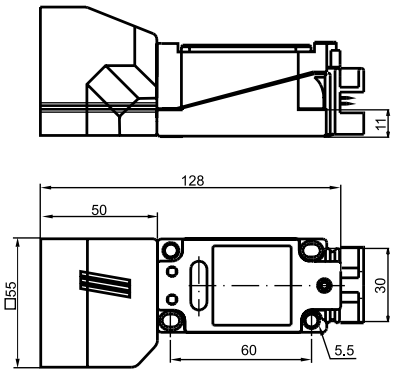
NBN40+U5A+B3

NBN40+U9A+B3

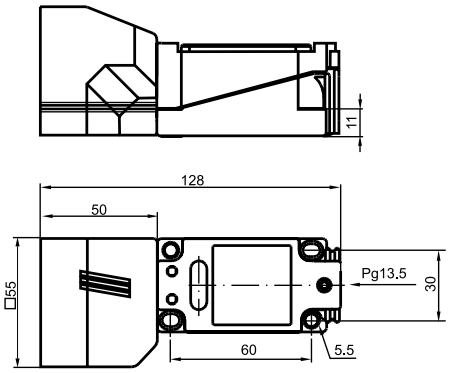
Limit switch

Features

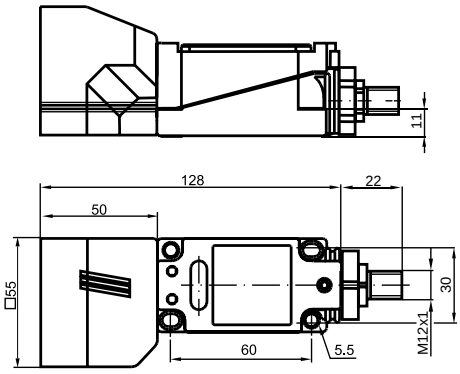
- Unshielded
- 40 mm sensing range
- Programmable (N.O./N.C.)
- Adjustable sensor head
- IP67



The above diagram shown with U9A base.



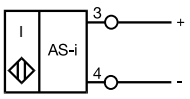
The above diagram shown with U1A or U5A base.



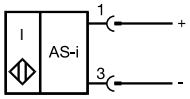
The above diagram shown with U1A base with V1 option.

Electrical Connection

Terminal connection



Connector version



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	NBN40+U1A+B3	NBN40+U1A+B3-V1
Connection	Terminal compartment	V1 (M12x1) quick disconnect
Cross section	≤ 2.5 mm² (14 AWG)	-

Model Number	NBN40+U5A+B3	NBN40+U9A+B3
Connection	Cage spring terminal	Cable-piercing technique
Cross section	≤ 1.5 mm² (16 AWG)	AS-Interface flat cable

Common Specifications

Sensing range s_n	40 mm
Shielded	No
Mode of operation	normally open/normally closed, programmable
Operating sensing range s_a	0-32.4 mm
Reduction factor	stainless steel: 0.85/aluminum: 0.4 copper: 0.3/brass: 0.4
Hysteresis H	5%
Standard target (1mm Fe)	120 mm x 120 mm
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Switching frequency f	150 Hz
Power-on delay t_v	≤ 1 s
Output indicator	LED yellow
Power ON	LED green
Isolation voltage V_i	≥ 500 V
Meets standard	EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67
Allowable shock	b ≤ 30 , T ≤ 11 ms
Vibration stress	f ≤ 55 Hz, a ≤ 1 mm
Weight	340 g
Housing material	PBT

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data Bits

Bit	Function
D0	switch output
D1	not used
D2	operational availability
D3	not used

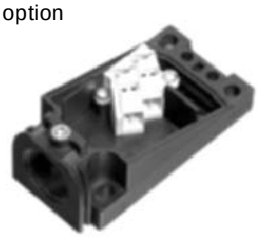
Parameter Bits

Bit	Function (1/0)
P0	not used
P1	normally open*/normally closed
P2	not used
P3	not used
	*default setting

Bases

U1A

U1A with V1 option



U5A

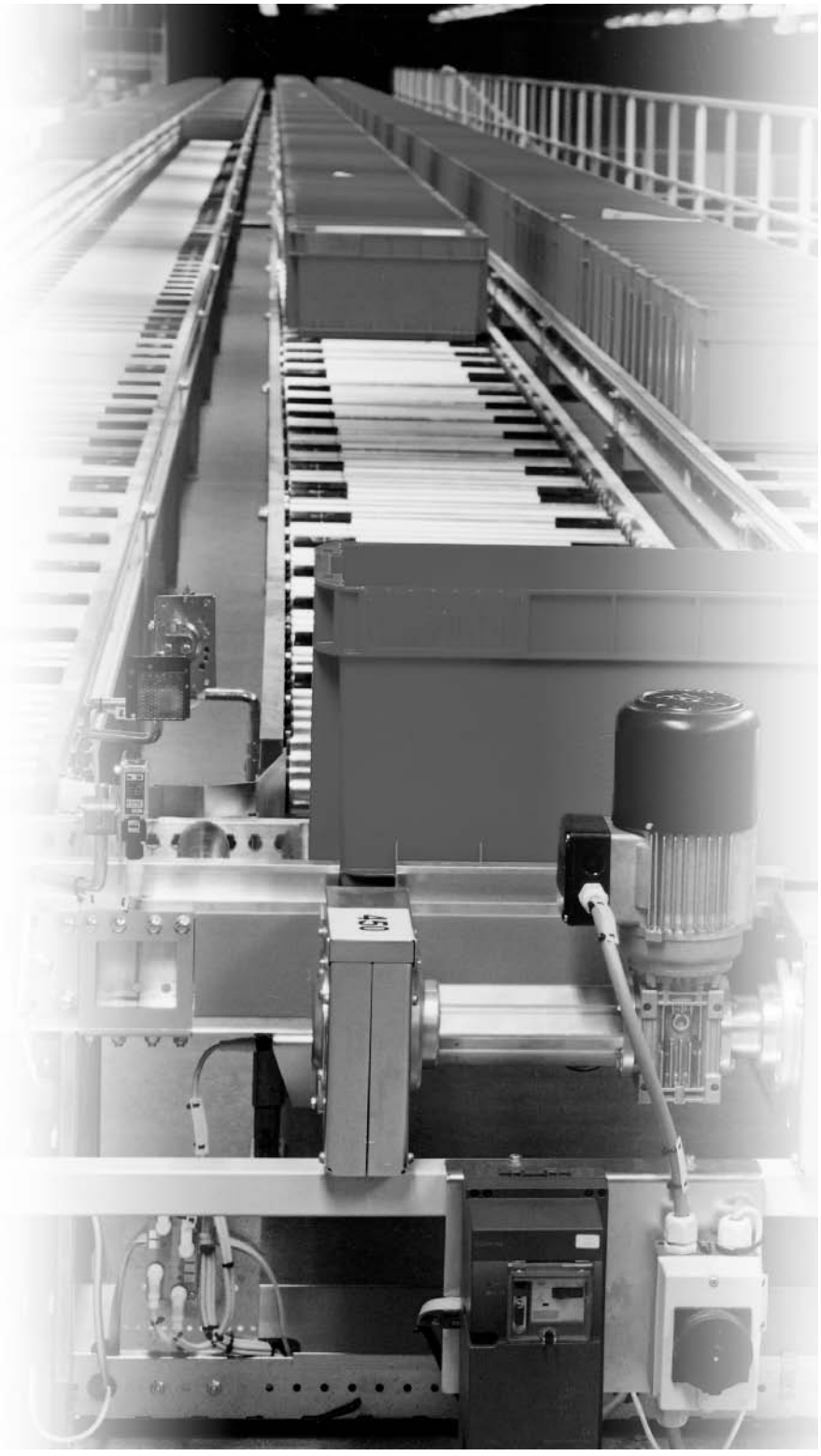
U9A

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Photoelectric Sensors

Intelligent Photoelectric Sensors



Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Photoelectric Sensors

All programming options and data bit assignments are used for AS-Interface intelligent photoelectric sensors. The following are the individual data bit assignments:

D0	Switch output
D1	Weak signal indication
D2	Operational availability
D3	Switching frequency (when available)

The following are the programming options:

P0	Pulse frequency 1 or 2
P1	Light on/dark on
P2	Pulse lengthening on/off
P3	Weak signal indication static/dynamic

Light-on/dark-on
Light-on/dark-on for photoelectric sensors corresponds to normally open/normally closed with inductive sensors and is switched via parameter P1.

Photoelectric sensor housings
Photoelectric sensors with AS-Interface ASICs are available in various rectangular housings including surface mount, limit switch and mini-limit switch styles. The F22 housings feature easy maintenance and offer a "Teach In" mode that automatically sets the sensors to the current range.

Pulse frequency
Sensors with LEDs are operated with light pulses instead of a continuous light source (the signal frequency lies in the 10 kHz range). If two sensors are used in close proximity to each other, the pulse frequencies can be set so they prevent cross talk or interference.

Pulse lengthening
Many sensors use the P2 parameter bit to extend the output signal. The output signal must be extended when the target signal is less than 5 ms.

Switch frequency
The switch frequency can be changed from 200 Hz to 1.5 kHz with certain sensors. Weak signal indication is not possible when using a 1.5 kHz switching frequency.

Weak signal indication (optical failure control)
The weak signal indicator provides a signal (flashing red LED) to indicate the receiver is picking up less light than intended, possibly caused by a dirty lens or misalignment.

If N.O.+ failure or N.C.+ failure mode is selected, the failure warning output will switch along with the LED. The failure warning always operates as an N.O. function.

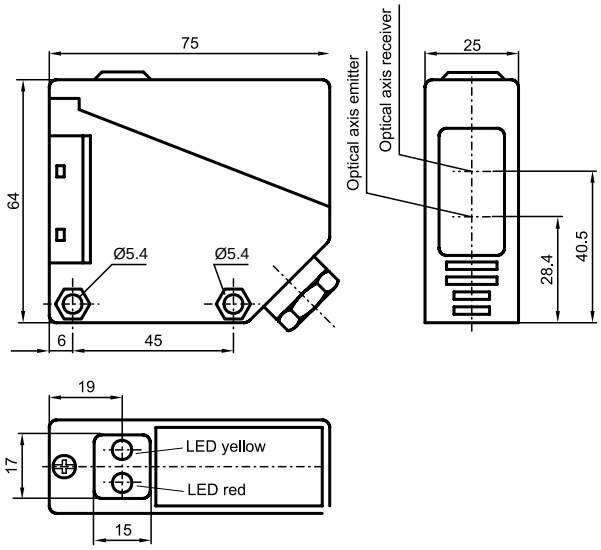
The sensor can be programmed for either static or dynamic (the default setting) failure indication.

Static Use this mode for applications that have a fixed sensing distance and position. The static failure warning indicator can also be used as an adjustment aid for the sensor.

Dynamic Use this mode for targets that have variable sensing distances or high switch frequencies.

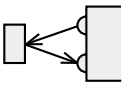
Photoelectric sensors are available in various rectangular housings such as the surface mount, limit switch and mini-limit switch styles. When using the limit switch sensors with a U9A base, the sensor can be connected directly to the AS-Interface flat cable to take advantage of the insulation displacement connection.

AS-Interface Sensor



Model Number

OCT800-F8-B3



800 mm

Diffused mode photoelectric sensor

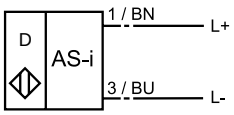
Features

- 800 mm adjustable sensing range
- Light-on/dark-on programmable
- "Weak signal" indication and output
- Mounting hardware included
- IP66

Accessories

None required.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCT800-F8-B3
Sensing range	800 mm
Standard target	standard white 200 mm x 200 mm
Dead band	≤ 65 mm
Sensing range adjustment	potentiometer
Detectable object	opaque, transparent
Switching frequency	100 Hz
Response time	5 ms
Power-on delay	≤ 50 ms
Range hysteresis	≤ 15%
Scan width hysteresis	≤ 3%
Operating mode	light-on/dark-on, programmable
Signal duration	20 ms, programmable
Indicators	
Switch status	LED yellow
"Weak signal" indication	LED red
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Optics	PMMA lens
Light source	infrared light 940 nm
Ambient light resistance	sunlight ≤ 10,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +131°F)
Storage temperature	-40 to +80°C (-40 to +131°F)
Allowable shock and vibration	b ≤ 30 g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm
Electrical connection	terminal compartment, cable diameter ≤ 10 mm (8 AWG)
Housing material	PBT
Lens	PMMA
Weight	100 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP66

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

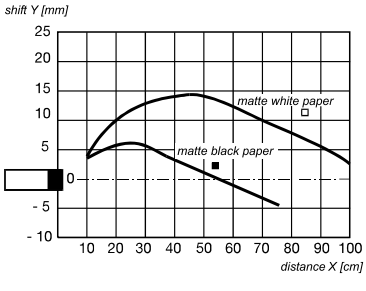
Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	operational availability
D3	not used

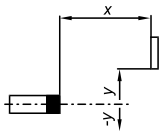
Parameter bits

Bit	Function (1/0)
P0	not used
P1	light-on*/dark-on
P2	pulse lengthening (20 ms) off*/on
P3	pulse lengthening of light-on*/dark-on signals (off/on-delay) *default setting

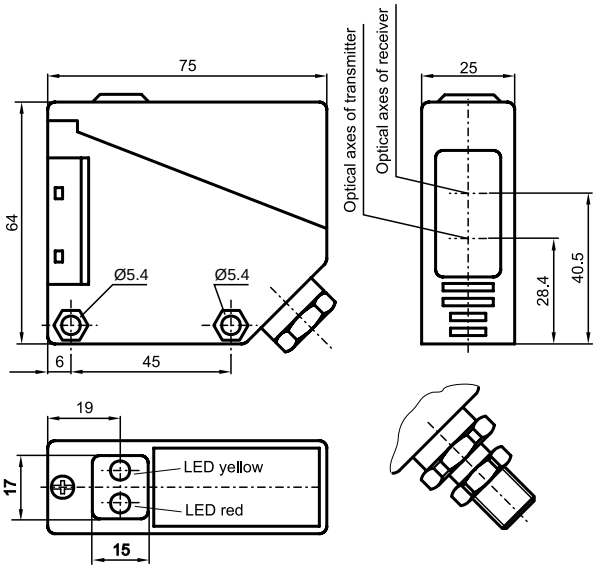
Characteristic Response Curve

Possible distance (shift) between the optical axes and the object.





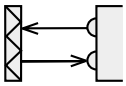
AS-Interface Sensor



Model Number

OCS5000-F8-B3

OCS5000-F8-B3-V1



5 m

Retro-reflective mode photoelectric sensor

Features

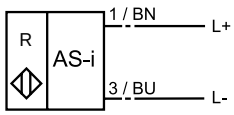
- 5,000 mm adjustable sensing range
- Light-on/dark-on programmable
- Polarized filter
- Visible red light
- "Weak signal" indication and output
- Mounting hardware included
- IP66

Accessories

Reflector

See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCS5000-F8-B3 OCS5000-F8-B3-V1
Sensing range	5,000 mm
Standard target	reflector ∅ 80 mm
Dead band	≤ 100 mm
Sensing range adjustment	potentiometer
Detectable object	opaque
Switching frequency	100 Hz
Response time	5 ms
Power-on delay	≤ 50 ms
Scan width hysteresis	≤ 1%
Operating mode	light-on/dark-on, programmable
Indicators	
Switch status	LED yellow
"Weak signal" indication	LED red
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Optics	lens elements
Light source	visible red 660 nm
Ambient light resistance	sunlight ≤ 10,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +131°F)
Storage temperature	-40 to +80°C (-40 to +131°F)
Allowable shock and vibration	b ≤ 30 g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm
Electrical connection (to-B3)	terminal compartment, cable diameter ≤ 10 mm
(to-B3-V1)	V1 quick disconnect, M12x1
Housing material	PBT
Lens	PMMA
Weight	100 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP66

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

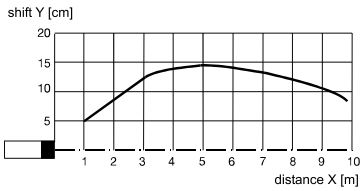
Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	operational availability
D3	not used

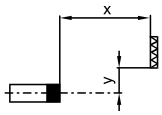
Parameter bits

Bit	Function (1/0)
P0	not used
P1	light-on*/dark-on
P2	pulse lengthening (20 ms) off*/on
P3	pulse lengthening of light-on*/dark-on signals (off/on-delay) *default setting

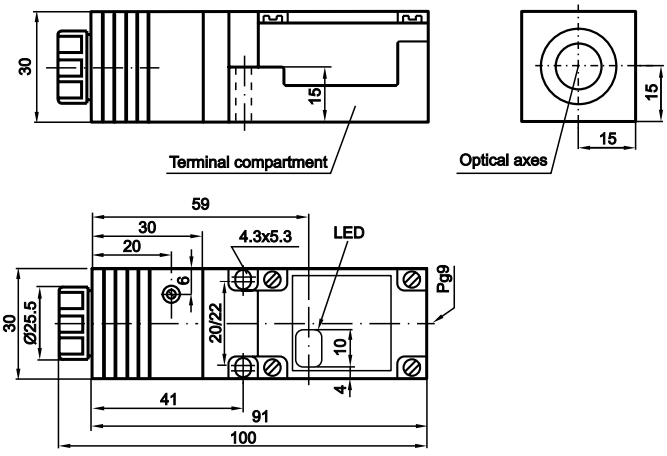
Characteristic Response Curve

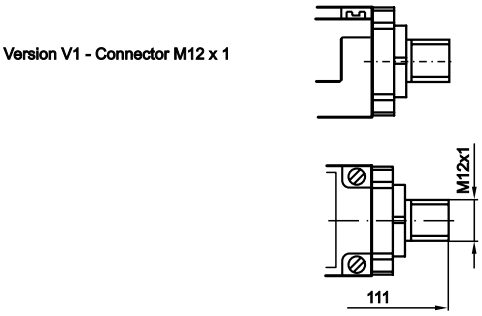
Possible distance (shift) between the optical axes and the reflector.





AS-Interface Sensor

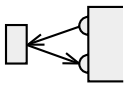




Model Number

OCT500-M1A-B3

OCT500-M1A-B3-V1



500 mm

Diffused mode photoelectric sensor

Features

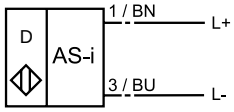
- 500 mm adjustable sensing range
- Fiber optic adaptable
- Cross talk protection
- Removable terminal compartment or V1 (M12x1) quick disconnect
- "Weak signal" indication and output
- Adjustable sensor head
- Scratch resistant crystal lens
- IP67

Accessories

Replacement Lens
See page 244 for photoelectric sensor accessories.

For fiber optic accessories, see the Pepperl+Fuchs Sensors Catalog or visit our website at www.am.pepperl-fuchs.com.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCT500-M1A-B3 OCT500-M1A-B3-V1
Sensing range	500 mm
Standard target	standard white 200 mm x 200 mm
Sensing range adjustment	potentiometer
Detectable object	opaque, transparent
Switching frequency	
(Pulse: Pause 1:1)	200 Hz, programmable
(Pulse: Pause 1:1)	1.5 kHz, programmable
Response time	at 200 Hz 2.5 ms at 1.5 kHz 0.3 ms
Power-on delay	≤ 20 ms
Range hysteresis	≤ 10%
Scan width hysteresis	≤ 3%
Operating mode	light-on/dark-on, programmable
Cross talk protection	2 selectable pulse frequencies
Signal duration	20 ms, programmable
Indicators	
Switch status	LED yellow
Power ON/"weak signal" indication[3)]	LED green/LED red flashing
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Filter	red filter
Optics	lens elements
Light source	infrared light 950 nm
Ambient light resistance	sunlight ≤ 40,000 Lux halogen light ≤ 30,000 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Allowable shock and vibration	b ≤ 30 g , T ≤ 11 ms f ≤ 55 Hz , a ≤ 1 mm
Electrical connection	
OCT500-M1A-B3	terminal, cable #14 AWG
OCT500-M1A-B3-V1	V1 (M12 x 1) quick disconnect
Housing material	PBT
Lens	crystal
Weight	100 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	operational availability
D3	switch frequency 200 Hz*/1.5 kHz[3)]

Parameter bits

Bit	Function (1/0)
P0	pulse frequency 1*/0
P1	light-on*/dark-on
P2	pulse lengthening (20 ms) off*/on
P3	"weak signal" indication

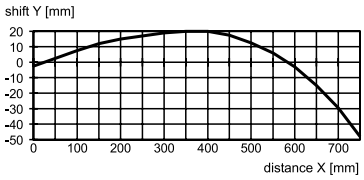
[3)] static/dynamic*

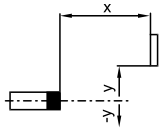
[3)] no weak signal indication with 1.5 kHz

* default setting

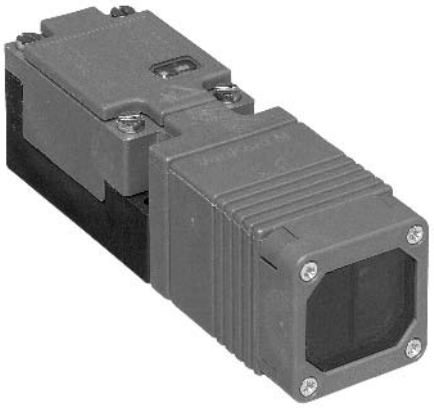
Characteristic Response Curve

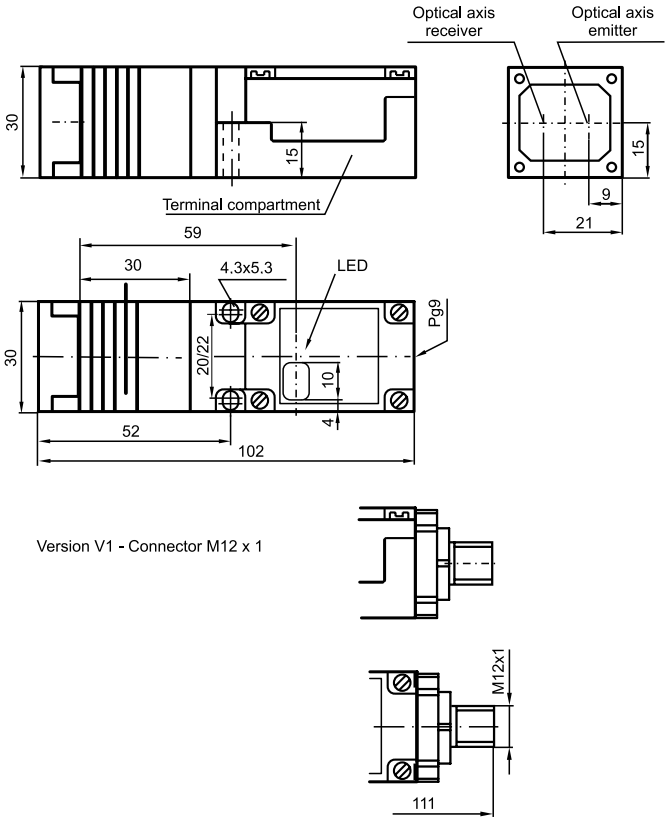
Possible distance (shift) between the optical axes and the object.





AS-Interface Sensor



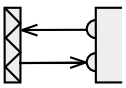


Version V1 - Connector M12 x 1

Model Number

OCS3000-M1A-B3

OCS3000-M1A-B3-V1



3 m

Retro-reflective mode photoelectric sensor

Features

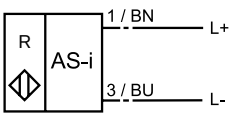
- 3,000 mm Sensing range
- Light-on/dark-on, programmable
- Visible red light
- Removable terminal compartment or V1 (M12x1) quick disconnect
- Cross talk protection
- "Weak signal" indication and output
- Adjustable sensor head
- Scratch resistant crystal lens
- IP67

Accessories

Reflector

See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCS3000-M1A-B3 OCS3000-M1A-B3-V1
Sensing range	3,000 mm
Standard target	reflector Ø 80 mm
Dead band	≤ 200 mm
Detectable object	opaque
Switching frequency	
(Impulse: Pause 1:1)	200 Hz, programmable
(Impulse: Pause 1:1)	1.5 kHz, programmable
Response time	2.5 ms at 200 Hz 0.3 ms at 1.5 kHz
Power-on delay	≤ 20 ms
Scan width hysteresis	≤ 1%
Operating mode	light-on/dark-on, programmable
Signal duration	20 ms, programmable
Cross talk protection	2 selectable pulse frequencies
Indicators	
Switch status	LED yellow
Power ON/"weak signal" indication[3)]	LED green/LED red flashing
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Filter	polarization filter
Optics	dual lens system
Light source	visible red light 660 nm
Ambient light resistance	sunlight ≤ 10,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Allowable shock and vibration	b ≤ 30 g, T ≤ 11 mm f ≤ 55 Hz, a ≤ 1 mm
Electrical connection	
OCS3000-M1A-B3	terminal, cable #14 AWG
OCS3000-M1A-B3-V1	V1 (M12 x 1) quick disconnect
Housing material	PBT
Lens	crystal
Weight	100 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	operational availability
D3	switch frequency 200 Hz*/1.5 kHz[3)]

Parameter bits

Bit	Function (1/0)
P0	pulse frequency 1*/0
P1	light-on*/dark-on
P2	pulse lengthening (20 ms) off*/on
P3	"weak signal" indication

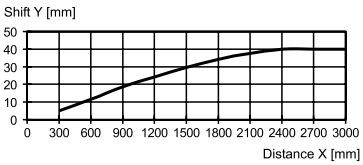
[3)] static/dynamic*

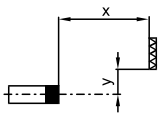
[3)] no weak signal indication with 1.5 kHz

* default setting

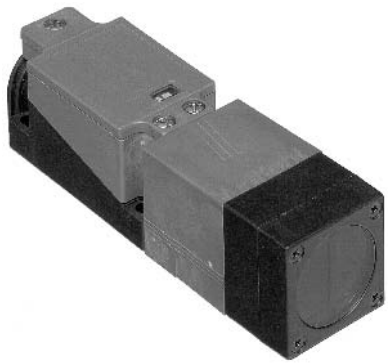
Characteristic Response Curve

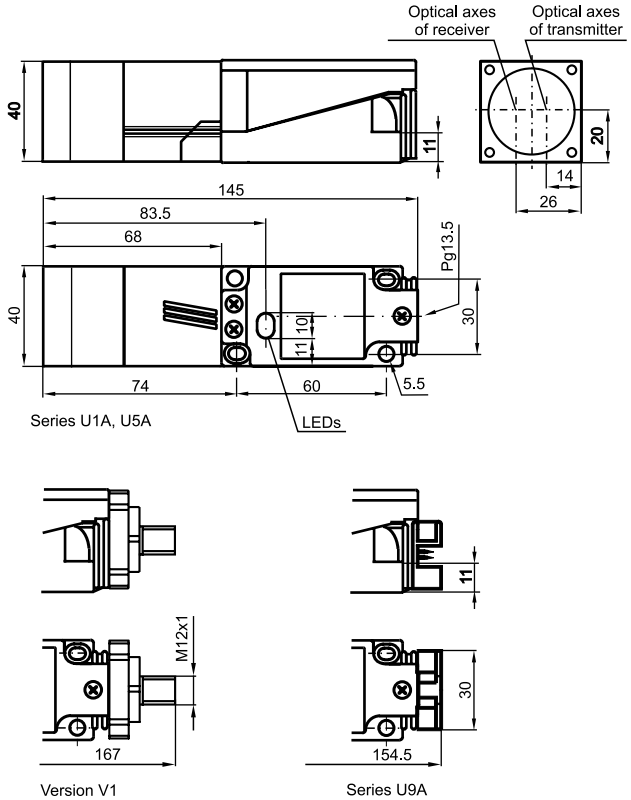
Possible distance (shift) between the optical axes and the object.





AS-Interface Sensor





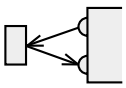
Model Number

OCT2000+U1A+B3

OCT2000+U1A+B3-V1

OCT2000+U5A+B3

OCT2000+U9A+B3



2 m

Diffused mode photoelectric sensor

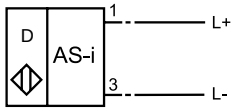
Features

- 2,000 mm adjustable sensing range
- Light-on/dark-on, programmable
- Cross talk protection
- "Weak signal" indication and output
- Adjustable sensor head
- Scratch resistant crystal lens
- IP67

Accessories

None required.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCT2000+U1A+B3 OCT2000+U1A+B3-V1 OCT2000+U5A+B3 OCT2000+U9A+B3
Sensing range	2,000 mm
Standard target	standard white 200 mm x 200 mm
Sensing range adjustment	potentiometer
Detectable object	opaque, transparent
Switching frequency	
(Impulse: Pause 1:1)	200 Hz, programmable
(Impulse: Pause 1:1)	1.5 kHz[3], programmable
Response time	2.5 ms at 200 Hz 0.3 ms at 1.5 kHz
Power-on delay	≤ 20 ms
Range hysteresis	≤ 10%
Scan width hysteresis	≤ 3%
Operating mode	light-on/dark-on, programmable
Cross talk protection	2 selectable pulse frequencies
Signal duration	20 ms, programmable
Indicators	
Switch status	LED yellow
Power ON/"weak signal" indication[3]	LED green/LED red flashing
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Filter	red filter
Optics	dual lens system
Light source	infrared light 880 nm
Ambient light resistance	sunlight ≤ 10,000 Lux halogen light ≤ 10,000 Lux
Operaing temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Allowable shock and vibration	b ≤ 30 g , T ≤ 11 ms f ≤ 55 Hz , a ≤ 1 mm
Electrical connection	
OCT2000+U1A+B3	terminal, #22 AWG
OCT2000+U1A+B3-V1	V1 (M12 x 1) quick disconnect
OCT2000+U5A+B3	spring tension terminals, cable #16 AWG
OCT2000+U9A+B3	cable-piercing technique, AS-i flat cable
Housing material	PBT
Lens	crystal
Weight	200 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	operational availability
D3	switching frequency 200 Hz*/1.5 kHz[3]

Parameter bits

Bit	Function (1/0)
P0	pulse frequency 1*/0
P1	light-on*/dark-on
P2	signal duration (20 ms) off*/on
P3	"weak signal" indication

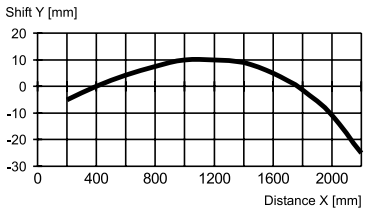
[3] static/dynamic*

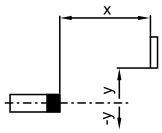
[3] no weak signal indication with 1.5 kHz

* default setting

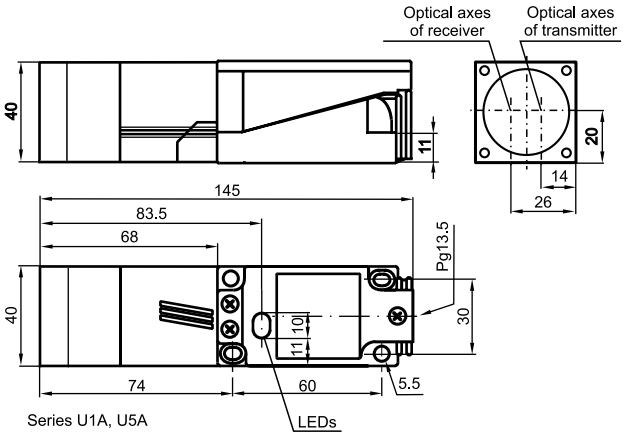
Characteristic Response Curve

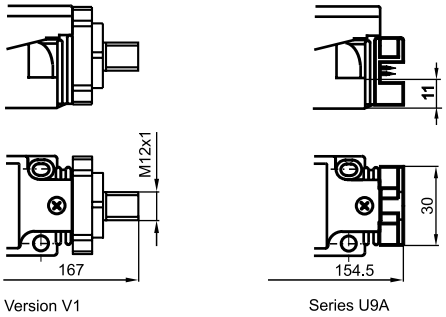
Possible distance (shift) between the optical axes and the object.





AS-Interface Sensor





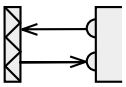
Model Number

OCS10M+U1A+B3

OCS10M+U1A+B3-V1

OCS10M+U5A+B3

OCS10M+U9A+B3



10 m

Retro-reflective mode photoelectric sensor

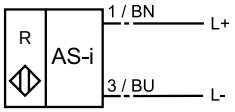
Features

- 10,000 mm sensing range
- Light-on/dark-on, programmable
- Visible red light
- Polarized filter
- Cross talk protection
- "Weak signal" indication and output
- Adjustable sensor head
- Scratch resistant crystal lens
- IP67

Accessories

Reflector
See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	**OCS10M+U1A+B3** **OCS10M+U1A+B3-V1** **OCS10M+U5A+B3** **OCS10M+U9A+B3**
Sensing range	10,000 mm
Standard target	reflector 100 mm x 100 mm
Dead band	≤ 200 mm
Detectable object	opaque, reflective
Switch frequency	
(Pulse: pause 1:1)	200 Hz, programmable
(Pulse: pause 1:1)	1.5 kHz [3], programmable
Power-on delay	2.5 ms at 200 Hz 0.3 ms at 1.5 kHz
Power-on delay	20 ms
Scan width hysteresis	≤ 1%
Operating mode	light-on/dark-on, programmable
Signal duration	20 ms, programmable
Cross talk protection	2 selectable pulse frequencies
Indicators	
Switch status	LED yellow
Power ON/"weak signal" indication[3]	LED green/LED red flashing
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 40 mA
Mechanical Data	
Filter	polarization filter
Optics	dual lens system
Light source	infrared light 660 nm
Ambient light resistance	sunlight ≤ 10,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Allowable shock and vibration	b ≤ 30 g , T ≤ 11 ms f ≤ 55 Hz , a ≤ 1 mm
Electrical connection	
OCS10M+U1A+B3	terminal, cable #14 AWG
OCS10M+U1A+B3-V1	V1 (M12 x 1) quick disconnect
OCS10M+U5A+B3	spring tension terminals, cable diameter #16 AWG
OCS10M+U9A+B3	cable-piercing technique, AS-i flat cable
Housing material	PBT
Lens	crystal
Weight	200 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67, insulated

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	1

Data bits

Bit	**Function**
D0	switch status
D1	weak signal (0=ON; 1=OFF)
D2	operational availability
D3	switching frequency 200 Hz*/1.5 kHz[3]

Parameter bits

Bit	**Function(1/0)**
P0	pulse frequency 1*/0
P1	light-on*/dark-on
P2	pulse lengthening off*/on
P3	"weak signal" indication

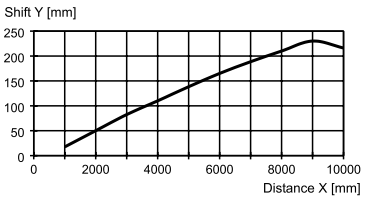
[3] static*/dynamic

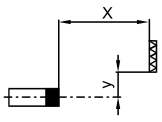
[3] no weak signal indication with 1.5 kHz

* default setting

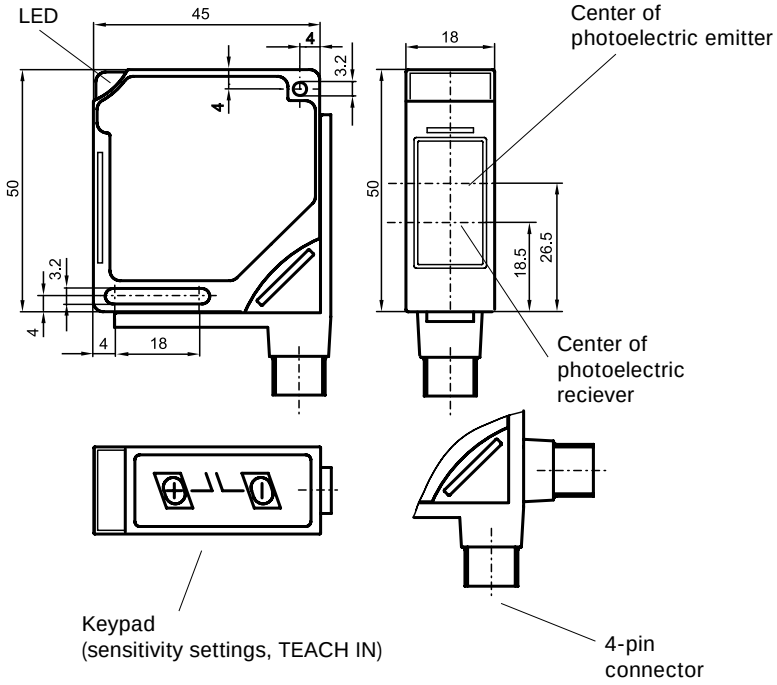
Characteristic Response Curve

Possible distance (shift) between the optical axes and the object.



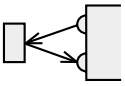


AS-Interface Sensor



Model Number

OCT500-F22-B3-V1



500 mm

Diffused mode photoelectric sensor

Features

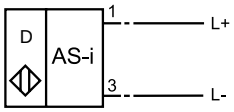
- Membrane pushbutton sensitivity adjustment via TEACH IN
- 500 mm adjustable sensing range
- Visible red light
- "Weak signal" indication and output
- Control/test input
- Programming via optical interface (e.g. optional time increments)
- V1 (M12x1) adjustable connector
- IP67

Accessories

OMH-F22-1
Mounting bracket

F22 Programming
See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCT500-F22-B3-V1
Sensing range	0-500 mm
Standard target	standard white 100 mm x 100 mm
Sensing range adjustment	- incrementally by using the "+" or "-" keys - automatically per "TEACH IN"
Light source	visible red light 660 nm
Light point diameter	25 mm at a distance of 500 mm
Max. switching frequency	100 Hz
Min. readiness delay	500 µs
Power-on delay	< 80 ms
Range hysteresis	programmable
Indicators	
Switch status	LED yellow
Weak signal indication	LED red, flashing at 2 Hz
Key depression response	LED red, 65 ms
Error signal in TEACH IN mode	LED red, 1.5 s
Power ON/TEACH IN mode	LED green/LED green, flashing at 2 Hz or 4 Hz
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 30 mA
Voltage drop	≤ 2.5 V
Control/test input	inactive ≤ 2 V, active ≥ 7 V
On/off delay	< 3 ms
Internal resistance	> 12 kΩ
Mechanical Data	
Connector, dove tail	Al Si
Ambient light resistance	sunlight ≤ 15,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Electrical connection	V1 quick disconnect, 4-pin, adjustable
Lens	PMMA, scratch resistant dual lenses
Housing material	PBT
Weight	60 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67

Programming Lock

Once the programming lock is activated, it can only be deactivated by resetting the unit to the default settings. To restore the factory default settings, do the following:

1 Disconnect the power.
2 Simultaneously press and hold the "+" and "-" keys.
3 While both keys are pressed, turn on the power then release the keys.

Note:
The red LED flashes if the sensor does not detect a target. To correct, turn the power off and then on again. In the "automatic key setting" mode, the keypad is unlocked after pressing both keys for five seconds. The keypad resets itself four minutes after the last key is pressed.

Special Features:
- Fully automatic static and dynamic TEACH IN up to the max. switching frequency
- TEACH IN to sensing range or improved threshold setting
- Self-test
- Reset to defaults function
- Repeat function (key depression sensitivity setting)

Parameter Adjustments

Programming is accomplished via an optical interface (PC or hand-held).

Factory Setting: Underlined

Parameter:

- **Outputs:**
  - Normally closed and weak signal
  - Normally open and weak signal
  - Normally open or normally closed
- **Weak Signal Indication:**
  - Off
  - Static
  - Dynamic
- **Switch Freq. → Switch Delay:**
  - 1 kHz → 0.5 ms
  - 500 Hz → 1 ms
  - 250 Hz → 2 ms
  - 100 Hz → 5 ms
  - 50 Hz → 10 ms
  - 20 Hz → 25 ms

  for improved suppression of interference within applications
- **Hysteresis:**
  - Low
  - Default
  - High
- **Time Function 1:**
  - None
  - On delay (0.1 s to 25.5 s in 0.1 s increments)
- **Time Function 2:**
  - None
  - Off delay (0.1 s to 25.5 s in 0.1 s increments)
  - Impulse extension (1 ms to 255 ms in 1 ms increments)
  - One-shot output function (1 ms to 255 ms in 1 ms increments)
- **Pulse Frequency:**
  - Pulse frequency 1
  - Pulse frequency 2
  - Pulse frequency 3
- **Keypad Settings:**
  - Off
  - Automatically
  - Always
- **Input Function:**
  - None
  - Test (emitter off)
  - E2/E3-conversion via PLC (N.C./N.O.)
  - AND-logic operation
  - OR-logic operation
  - XOR-logic operation
- **Inverted Input:**
  - all control input functions can be inverted
- **Programming Lock:**
  - Off
  - On

Target Adjustment

OCT500-F22-B3-V1

Manual Adjustment

Target

Static TEACH IN

Target

Target

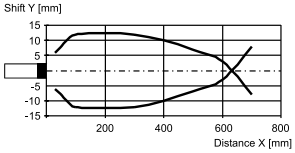
Dynamic TEACH IN

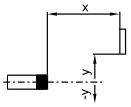
Target

Target

Characteristic Response Curve

Possible distance (shift) of the optical axes of the emitter and reciever.





Setting Sensor Switch Point

Setting Options:

- **Manual** (with the keypad)
- **TEACH IN** static mode
- **TEACH IN** dynamic mode

Manual Settings

1) Simultaneously press the "+" and "-" keys for five seconds (until the green LED flashes once). The sensor is now "unlocked."
2) Move the target to the desired distance within the sensing range. The sensitivity of the sensor can now be set using the two "+" and "-" keys (the red LED will flash with each key depression. The yellow LED indicates the switch status). The keys feature a repeat function: simply push then hold the key and its function is automatically repeated. The sensitivity adjustment is saved even after the power is switched off.

   Note:
   If the red LED does not blink while the user presses the key, the limit of the key has been reached.

TEACH IN of Targets with a Set Range (Static Mode)

1) Push the "+" and "-" keys simultaneously for five seconds until the green LED blinks **once**. The sensor is now "unlocked."
2) Push the "+" and "-" keys simultaneously (about one second) until the red LED goes out. The sensor is now in the "Learning Mode" as indicated by two blinking green LEDs (2 Hz).
3) Move the target to the desired range within the detection zone. The green LED briefly flashes at a high frequency (4 Hz). The learning process is complete when the LED flashes at the output frequency again.
4) The "+" or the "-" key must be pressed in order to end TEACH IN. The range to the target is set when the green LED glows continuously and the yellow LED is on. As the target moves out of range, the yellow LED goes out.

TEACH IN of Moving Targets (Dynamic Mode)

1) Push the "+" and "-" keys simultaneously for five seconds until the green LED blinks **once**. The sensor is now "unlocked."
2) Push the "+" and "-" keys simultaneously (about one second) until the red LED goes out. The sensor is now in the "Learning Mode" as indicated by two blinking green LEDs (2 Hz).
3) Move the target to the desired range within the detection zone. The green LED briefly flashes at a high frequency (4 Hz). The learning process is complete when the LED flashes at the output frequency again.

   Note:
   In certain cases, the small change in the flash frequency of the LED is unrecognizable.
4) To end TEACH IN, press the "+" or "-" key. The green LED glows continuously and the yellow LED indicates the switching status.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	F

Data bits

Bit	**Function**
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	normally open/normally closed
D3	function input

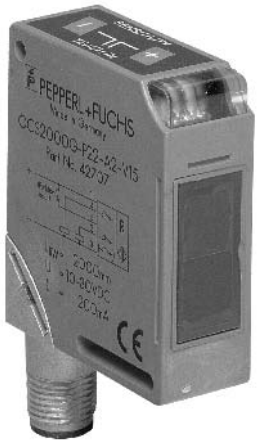
Parameter bits

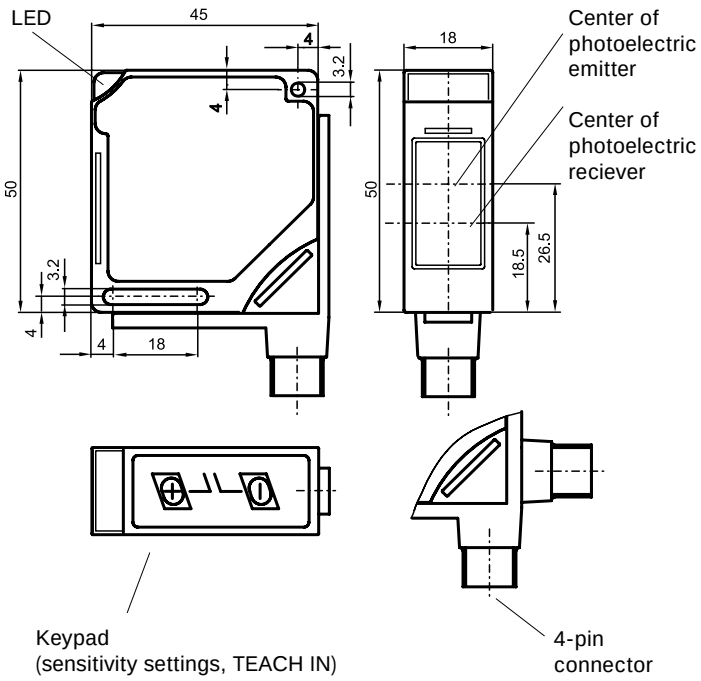
Bit	**Function (1/0)**
P0	not used
P1	not used
P2	not used
P3	not used

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Notes

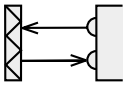
AS-Interface Sensor





Model Number

OCS2000G-F22-B3-V1



2 m

Retro-reflective mode photoelectric sensor

Features

- 2,000 mm sensing range
- Clear object detection
- Polarized filter
- Visible red light
- Membrane pushbutton sensitivity adjustment via TEACH IN
- "Weak signal" indication and output
- Control/test input
- Programming via optical interface (e.g. optional time increments)
- V1 (M12x1) adjustable connector
- IP67

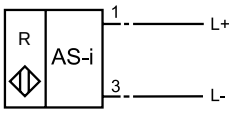
Accessories

Reflector
See page 244 for photoelectric sensor accessories.

OMH-F22-1
Mounting bracket

F22 Programming
See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCS2000G-F22-B3-V1
Sensing range	0-2,000 mm with an ORR50 reflector
Standard target	reflector Ø 50 mm
Sensing range adjustment	- incrementally by using the "+" or "-" - automatically per "TEACH IN"
Light source	visible red light 660 nm
Light point diameter	75 mm at a distance of 2,000 mm
Max. switching frequency	100 Hz
Min. response time	500 µs
Power-on delay	< 80 ms
Range hysteresis	programmable
Indicators	
Switch status	LED yellow
Weak signal indication	LED red, flashing at 2 Hz
Key depression response	LED red, 65 ms
Error signal in TEACH IN mode	LED red, 1.5 s
Power ON/TEACH IN mode	LED green/LED green, flashing at 2 Hz or 4 Hz
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 30 mA
Mechanical Data	
Connector, dove tail	Al Si
Ambient light resistance	sunlight ≤ 15,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Electrical connection	V1 quick disconnect, 4-pin, adjustable
Lens	PMMA, scratch resistant dual lenses
Housing material	PBT
Weight	60 g
Fulfills standard	EN 60 947-5-2
Protection (IEC)	IP67

Programming Lock

Once the programming lock is activated, it can only be deactivated by resetting the unit to the default settings. To restore the factory default settings, do the following:

1 Disconnect the power.
2 Simultaneously press and hold the "+" and "-" keys.
3 While both keys are pressed, turn on the power then release the keys.

Note:
The red LED flashes if the sensor does not detect a target. To correct, turn the power off and then on again. In the "automatic key setting" mode, the keypad is unlocked after pressing both keys for five seconds. The keypad resets itself four minutes after the last key is pressed.

Special Features:
- Fully automatic static and dynamic TEACH IN up to the maximum switching frequency
- TEACH IN to sensing range or improved threshold setting
- Self-test
- Resets to default functions

Parameter Adjustments

Programming is accomplished via an optical interface (PC or hand-held).

Factory Setting: Underlined

Parameter:

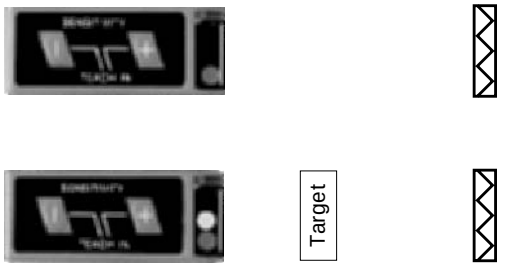
- **Outputs:**
  - Normally closed and weak signal
  - Normally open and weak signal
  - Normally open or normally closed
- **Weak Signal Indication:**
  - Off
  - Static
  - Dynamic
- **Switch Freq. → Switch Delay:**
  - 1 kHz → 0.5 ms
  - 500 Hz → 1 ms
  - 250 Hz → 2 ms
  - 100 Hz → 5 ms
  - 50 Hz → 10 ms
  - 20 Hz → 25 ms

  for improved suppression of interference within applications
- **Hysteresis:**
  - Low
  - Default
  - High
- **Time Function 1:**
  - None
  - On delay (0.1 s to 25.5 s in 0.1 s increments)
- **Time Function 2:**
  - None
  - Off delay (0.1 s to 25.5 s in 0.1 s increments)
  - Impulse extension (1 ms to 255 ms in 1 ms increments)
  - One-shot output function (1 ms to 255 ms in 1 ms increments)
- **Pulse Frequency:**
  - Pulse frequency 1
  - Pulse frequency 2
  - Pulse frequency 3
- **Keypad Settings:**
  - Off
  - Automatically
  - Always
- **Input Function:**
  - None
  - Test (emitter off)
  - E2/E3-conversion via PLC (N.C./N.O.)
  - AND-logic operation
  - OR-logic operation
  - XOR-logic operation
- **Inverted Input:**
  - all control input functions can be inverted
- **Programming Lock:**
  - Off
  - On

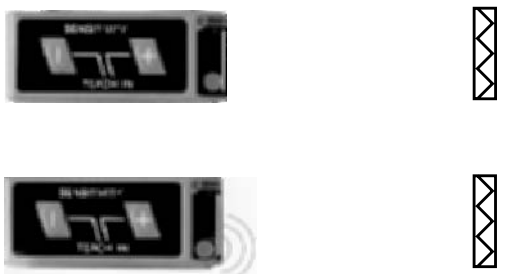
Sensitivity Adjustment

OCS2000G-F22-B3-V1

Manual Settings

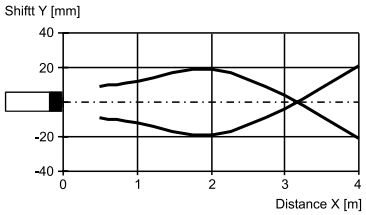


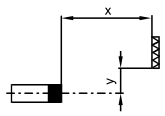
Dynamic TEACH IN



Characteristic Response Curve

Possible distance (shift) of the optical axes of the emitter and reciever.





Setting Sensor Switch Point

Setting Options:

- **Manual** (with the keypad)
- **TEACH IN** dynamic mode

Manual Settings

1) Simultaneously press the "+" and "-" keys for five seconds (until the green LED flashes once). The sensor is now "unlocked."
2) Move the target to the desired distance within the sensing range. The sensitivity of the sensor can now be set using the two "+" and "-" keys (the red LED will flash with each key depression. The yellow LED indicates the switch status). The keys feature a repeat function: simply push then hold the key and its function is automatically repeated. The sensitivity adjustment is saved even after the power is switched off.

   Note:
   If the red LED does not blink while the user presses the key, the limit of the key has been reached.

TEACH IN of Moving Targets (Dynamic Mode)

1) Push the "+" and "-" keys simultaneously for five seconds until the green LED blinks **once**. The sensor is now "unlocked."
2) Push the "+" and "-" keys simultaneously (about one second) until the red LED goes out. The sensor is now in the "Learning Mode" as indicated by two blinking green LEDs (2 Hz).
3) Move the target to the desired range within the detection zone. The green LED briefly flashes at a high frequency (4 Hz). The learning process is complete when the LED flashes at the output frequency again.

   Note:
   In certain cases, the small change in the flash frequency of the LED is unrecognizable.
4) To end TEACH IN, press the "+" or "-" key. The green LED glows continuously and the yellow LED indicates the switching status.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	F

Data bits

Bit	Function
D0	Switch output
D1	"Weak signal" indication (0=on, 1=off)
D2	normally open/normally closed switch output
D3	function input

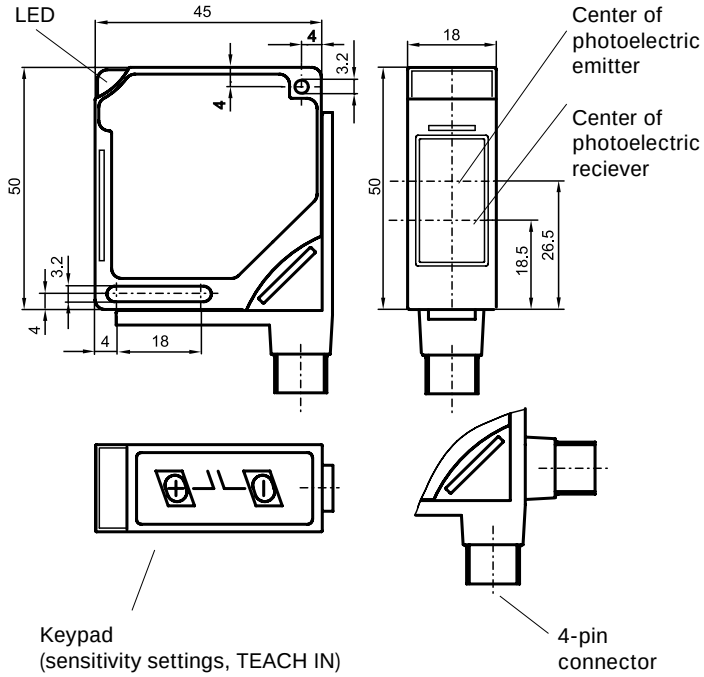
Parameter bits (1/0)

Bit	Function
P0	not used
P1	not used
P2	not used
P3	not used

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

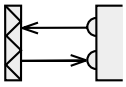
Notes

AS-Interface Sensor



Model Number

OCS6000-F22-B3-V1



6 m

Retro-reflective mode photoelectric sensor

Features

- 6000 mm sensing range
- Polarized filter
- Visible red light
- Membrane pushbutton sensitivity adjustment via TEACH IN
- "Weak signal" indication and output
- Control/test input
- Programming via optical interface (e.g. optional time increments)
- V1 (M12x1) adjustable connector
- IP67

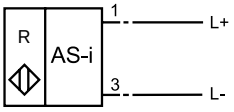
Accessories

Reflector
See page 244 for photoelectric sensor accessories.

OMH-F22-1
Mounting bracket

F22 Programming
See page 244 for photoelectric sensor accessories.

Electrical Connection



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	OCS6000-F22-B3-V1
Sensing range	0-6,000 mm with an ORR100 reflector 0-4,000 mm with an ORR50 reflector
Sensing range adjustment	- incrementally by using the "+" or "-" - automatically per "Teach In"
Light source	visible red light 660 nm
Light point diameter	140 mm at a distance of 4,000 mm 200 mm at a distance of 6,000 mm
Max. switching frequency	100 Hz
Min. response time	500 µs
Power-on delay	< 80 ms
Range hysteresis	programmable
Indicators	
Switch status	LED yellow
Weak signal indication	LED red, flashing at 2 Hz
Key depression response	LED red, 65 ms
Error signal in TEACH IN mode	LED red, 1.5 s
Power ON/TEACH IN mode	LED green/LED green, flashing at 2 Hz or 4 Hz
Electrical Data	
Operating voltage	from AS-Interface, reverse polarity protection
Operating current	≤ 30 mA
Mechanical Data	
Connector, dove tail	Al Si
Ambient light resistance	sunlight ≤ 15,000 Lux halogen light ≤ 7,500 Lux
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +80°C (-40 to +176°F)
Electrical connection	V1 quick disconnect, 4-pin, adjustable
Optics	PMMA, scratch resistant dual lenses
Housing material	PBT
Weight	60 g
Fulfills standard	EN 60947-5-2
Protection (IEC)	IP67

Programming Lock

Once the programming lock is activated, it can only be deactivated by resetting the unit to the default settings. To restore the factory default settings, do the following:

1 Disconnect the power.
2 Simultaneously press and hold the "+" and "-" keys.
3 While both keys are pressed, turn on the power then release the keys.

Note:
The red LED flashes if the sensor does not detect a target. To correct, turn the power off and then on again. In the "automatic key setting" mode, the keypad is unlocked after pressing both keys for five seconds. The keypad resets itself four minutes after the last key is pressed.

Special Features:
- Fully automatic static and dynamic TEACH IN up to the maximum switching frequency.
- TEACH IN to sensing range or improved threshold setting
- Self-test
- Resets to default functions

Parameter Adjustments

Programming is accomplished via an optical interface (PC or hand-held).

Factory Setting: Underlined

Parameter:

- **Outputs:**
  - Normally closed and weak signal
  - Normally open and weak signal
  - Normally open or normally closed

- **Weak Signal Indication:**
  - Off
  - Static
  - Dynamic

- **Switch Freq. → Switch Delay:**
  - 1 kHz → 0.5 ms
  - 500 Hz → 1 ms
  - 250 Hz → 2 ms
  - 100 Hz → 5 ms
  - 50 Hz → 10 ms
  - 20 Hz → 25 ms

  for improved suppression of interference within applications

- **Hysteresis:**
  - Low
  - Default
  - High

- **Time Function 1:**
  - None
  - On delay
    (0.1 s to 25.5 s in 0.1 s increments)

- **Time Function 2:**
  - None
  - Off delay
    (0.1 s to 25.5 s in 0.1 s increments)
  - Impulse extension
    (1 ms to 255 ms in 1 ms increments)
  - One-shot output function
    (1 ms to 255 ms in 1 ms increments)

- **Pulse Frequency:**
  - Pulse frequency 1
  - Pulse frequency 2
  - Pulse frequency 3

- **Keypad Settings:**
  - Off
  - Automatically
  - Always

- **Input Function:**
  - None
  - Test (emitter off)
  - E2/E3-conversion via PLC (N.C./N.O.)
  - AND-logic operation
  - OR-logic operation
  - XOR-logic operation

- **Inverted Input:**
  - all control input functions can be inverted

- **Programming Lock:**
  - Off
  - On

Target Settings

OCS6000-F22-B3-V1

Manual Adjustment

Target

Reflector

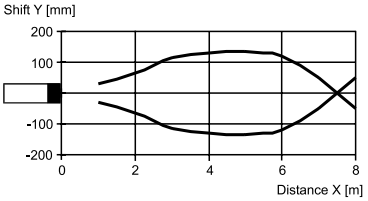
Dynamic TEACH IN

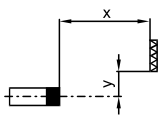
Target

Reflector

Characteristic Response Curve

Possible distance (shift) between the optical axes and Reflector.





Setting Sensor Switch Point

Setting Options:

- **Manual** (with the keypad)
- **TEACH IN** dynamic mode

Manual Settings

1) Simultaneously press the "+" and "-" keys for five seconds (until the green LED flashes once). The sensor is now "unlocked."
2) Move the target to the desired distance within the sensing range. The sensitivity of the sensor can now be set using the two "+" and "-" keys (the red LED will flash with each key depression. The yellow LED indicates the switch status). The keys feature a repeat function : simply push then hold the key and its function is automatically repeated. The sensitivity adjustment is saved even after the power is switched off.

   Note:
   If the red LED does not blink while the user presses the key, the limit of the key has been reached.

TEACH IN of Moving Targets (Dynamic Mode)

1) Push the "+" and "-" keys simultaneously for five seconds until the green LED blinks **once**. The sensor is now "unlocked."
2) Push the "+" and "-" keys simultaneously (about one second) until the red LED goes out. The sensor is now in the "Learning Mode" as indicated by two blinking green LEDs (2 Hz).
3) Move the target to the desired range within the detection zone. The green LED briefly flashes at a high frequency (4 Hz). The learning process is complete when the LED flashes at the output frequency again.

   Note:
   In certain cases, the small change in the flash frequency of the LED is unrecognizable.
4) To end TEACH IN, press the "+" or "-" key. The green LED glows continuously and the yellow LED indicates the switching status.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	1
ID-Code	F

Data bits

Bit	Function
D0	switch output
D1	"weak signal" indication (0=on, 1=off)
D2	normally open/normally closed
D3	function input

Parameter bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Notes

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

I/O Modules

I/O Modules

I/O Modules

I/O modules are the interfaces between standard sensors or actuators and AS-Interface. Pepperl+Fuchs offers a wide selection of modules to meet the special needs of each application.

In the Field

Pepperl+Fuchs offers the following field mountable modules.

- **Flat modules**
- **Compact modules**
- **Field modules**
- **Standard modules**

Flat Modules (Page 121)

The flat modules are ideal for limited space applications where it is not possible to mount a standard or field module. The flat module features mechanical coding on the base and an addressing jack for connection of the hand-held addressing device. By using the cinch cable (VAZ-PK-V1-CINCH), the module can be addressed while connected to the network. This module is unique in that the flat cable can be installed in two orientations within the base, simplifying installation of the AS-Interface cable. For additional information, see *Flat Modules* on page 121.

Compact Modules (Page 133)

The compact modules are commonly used for materials handling equipment and robotics. The AS-Interface and external power connections are made through a single V1 (M12x1) quick disconnect. The sensors/actuators are attached via V3 (M8x1) quick disconnects. The IP67 rated compact module offers many mounting options to simplify the installation process. For additional information, see *Compact Modules* on page 133.

Field Modules (Page 143)

The field and standard modules use the same base connections to the AS-Interface. The difference is that sensors/actuators are connected to the field modules through cord grips and cage tension spring terminals while standard modules use V1 (M12x1) quick disconnects. This enables the use of potted cable sensors and eliminates the need for custom length molded cables. With six base combinations, the field modules offer a solution for almost any application. For additional information, see *Field Modules* on page 143.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

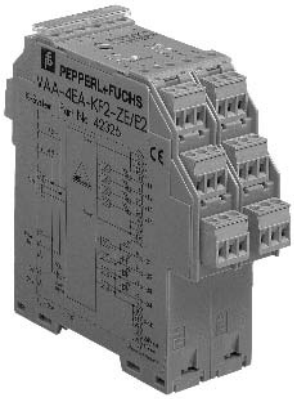
Standard Modules (Page 157)

Standard modules support both the mechanically-keyed AS-Interface flat cable and standard 16 AWG 2-conductor round cable. A V1 (M12x1) quick disconnect is used to connect sensors and actuators. With six base combinations, the standard module offers a solution for almost any application. For additional information, see *Standard Modules* on page 157.

Within Enclosures and Junction Boxes

Pepperl+Fuchs also offers the folowing I/O modules designed for panel mounting. These modules, excluding relay output versions, carry a hazardous location Class 1, Division 2 approval.

- **Enclosure modules**
- **Junction box modules**



Enclosure Modules (Page 173)

The enclosure modules feature a narrow profile that uses a minimal amount of cabinet space. I/O connections are easily accomplished using mechanically-keyed, removable terminals. As an additional feature, AS-Interface can be transmitted through the P+F Power Rail system. An integrated addressing jack enables the module to be addressed while connected to AS-Interface. For additional information, see *Enclosure Modules* on page 173.

Junction Box Modules (Page 193)

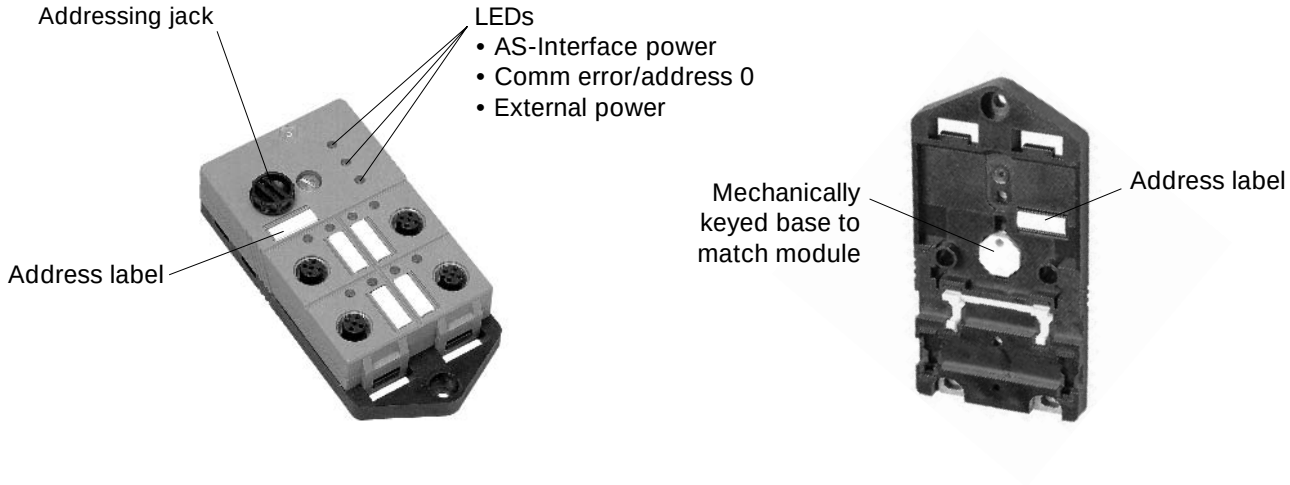
These I/O modules feature a low-profile housing designed for use within junction boxes. An integrated addressing jack enables the module to be addressed while connected to AS-Interface. A plastic cover, which is printed with the wiring diagram, protects the screw terminals. For additional information, see *Junction Box Modules* on page 193.

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Flat Modules

Pepperl+Fuchs offers a wide variety of I/O modules for AS-Interface including a new line of flat modules only 29 mm high, ideal for limited space applications. This IP67 housing can be mounted directly in the field and accepts sinking or sourcing I/O from a variety of different devices. The following diagrams show some of the features of this product:

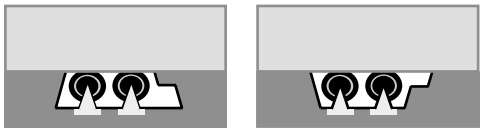


Modules can be ordered with PNP or NPN functionality and include a V1 (M12x1) quick disconnect for inputs and outputs.

The flat module mounting bases (U-G2FF and U-G3FF) are mechanically coded for reverse polarity protection. To prevent the possibility of connection errors, each AS-Interface node has an I/O and ID code that allows the master to electronically identify the I/O configuration and version of the device.

To simplify addressing of the flat modules, an addressing jack is integrated into the housing for easy connection of a hand-held addressing device (e.g. VBP-HH1-110V). The addressing jack enables the user to address the module before, during or after connection to AS-Interface.

When installing flat modules, the AS-Interface cable may be brought into the base in two different orientations. This allows for complete mounting flexibility of the module. The diagrams below show the two flat cable mounting arrangements; because the flat cable connections are mechanically-keyed there is no possibility of reversing the polarity.



The flat cable can be easily connected without having to consider the profile of the AS-Interface cable.

AS-Interface Sensor/Actuator Module

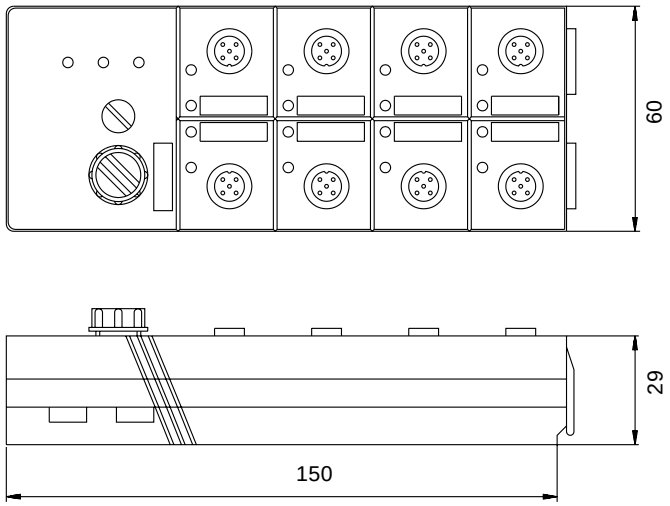


Diagram with mounting base

Model Number

VAA-4EA-G2-ZE/E2

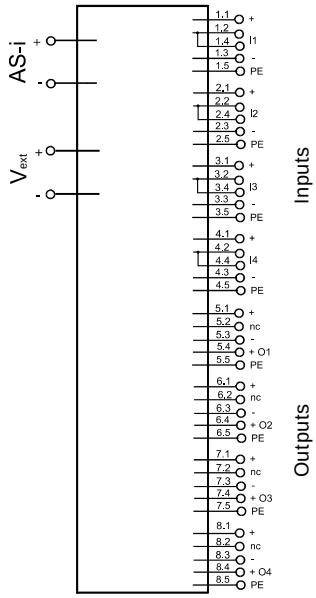
Flat module

4 inputs/4 outputs

Features

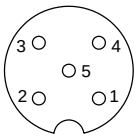
- Connection via AS-Interface flat cable
- Module accepts AS-Interface cable from 2 orientations
- Insulation displacement connection to AS-Interface flat cable
- External power LED
- 4 input LEDs, 4 output LEDs
- Red LED when module is addressed to zero or communication error occurs
- Addressing jack
- PE connection
- Bus powered inputs
- IP67

Connections



nc = not connected

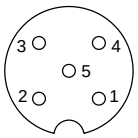
Outputs Face view - female



1 External power (+)
2 n.c.
3 External power (-)
4 Switch output (+)
5 PE ground

PE connection via mounting base

Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*
5 PE ground

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-G2-ZE/E2
Connections	
AS-Interface	yellow flat cable
External power	black flat cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 35 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 7 mA
V_{out}	24-31 VDC from AS-Interface
I_{out}	150 mA, short circuit protection
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 4 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/red flashing
Communications error/address 0	LED red
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4EA-G2-ZE/E2 is an AS-Interface I/O module with four inputs and four outputs. Each output is rated for 2 A at 24 VDC. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-4EA-G2-ZE/E2 monitors the inputs for short circuits.

The IP67 flat module features an integrated addressing jack and is ideal for applications requiring field-mountable I/O modules. In addition to the normal electrical color coding, the module uses mechanical coding to eliminate mistakes in wiring.

Sensors and actuators attach to V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status. A red LED monitors AS-Interface communications and indicates when the module has an address of zero or if a communication error occurs. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state.

The U-G2FF mounting base is normally used for the connection of the AS-Interface flat cable and the external 24 VDC power supply. The specially designed base enables users to connect flat cable from either side as long as the cable is perpendicular to the module.

Note: The mounting base is sold separately.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

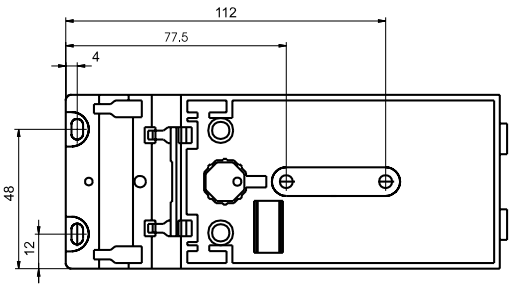
Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G2FF
Mounting base for connection of AS-Interface and 24 VDC flat cables.

Mounting hole dimensions for M4 screws



VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

V1-G-Q21
V1 (M12x1) to Quickon adapter

VAZ-V1-B
Protective cover

AS-Interface Sensor Module

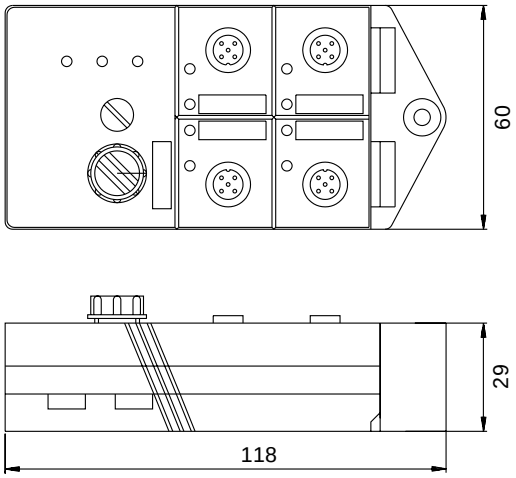


Diagram with mounting base

Model Number

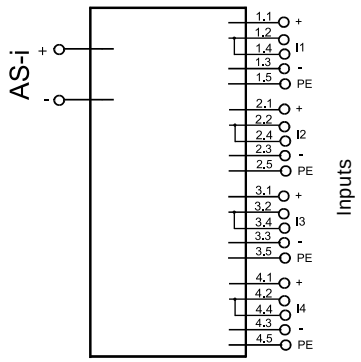
VAA-4E-G2-ZE
Flat module

4 inputs

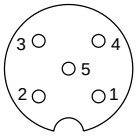
Features

- Connection via AS-Interface flat cable
- Module accepts AS-Interface cable from 2 orientations
- Insulation displacement connection to AS-Interface flat cable
- 4 input LEDs
- Red LED when module is addressed to zero or communication error occurs
- Addressing jack
- PE connection
- Bus powered inputs
- IP67

Connections



Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*
5 PE ground

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G2-ZE
Connections	
AS-Interface	yellow flat cable
Inputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 7 mA
V_{out}	24-31 VDC from AS-Interface
I_{out}	150 mA, short circuit protection
Indicators	
4, switch status (I1-I4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red flashing
Communications error/address 0	LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G2-ZE is an AS-Interface I/O module with four inputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-4E-G2-ZE monitors the inputs for short circuits.

The IP67 flat module features an integrated addressing jack and is ideal for applications requiring field-mountable I/O modules. In addition to the normal electrical color coding, the module uses mechanical coding to eliminate mistakes in wiring.

Sensors attach to V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage. A red LED monitors AS-Interface communications and indicates when the module has an address of zero or if a communication error occurs.

The U-G3FF mounting base is normally used for the connection of the AS-Interface flat cable and the external 24 VDC power supply. The specially designed base enables users to connect flat cable from either side as long as the cable is perpendicular to the module.

Note: The mounting base is sold separately.

VAA-4E-G2-ZA0 is available as an NPN version.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

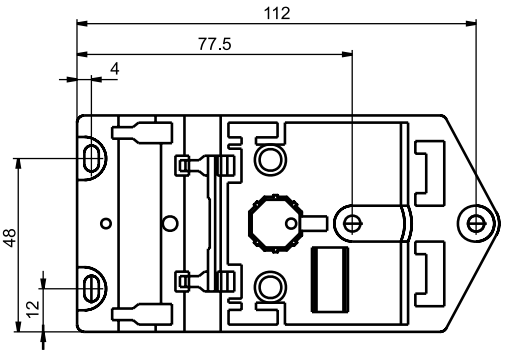
Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G3FF
Mounting base for connection of AS-Interface and 24 VDC flat cables.

Mounting hole dimensions for M4 screws



VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

V1-G-Q21
V1 (M12x1) to Quickon adapter

VAZ-V1-B
Protective cover

AS-Interface Actuator Module

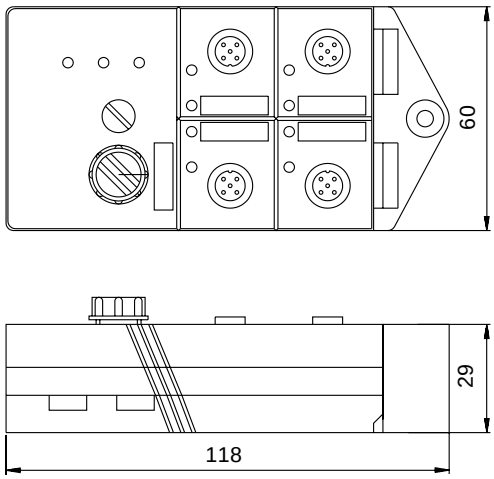


Diagram with mounting base

Model Number

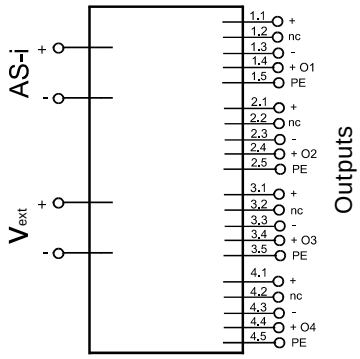
VAA-4A-G2-E2
Flat module

4 outputs

Features

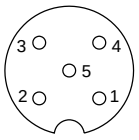
- Connection via AS-Interface flat cable
- Module accepts AS-Interface cable from 2 orientations
- Insulation displacement connection to AS-Interface flat cable
- External power LED
- 4 output LEDs
- Red LED when module is addressed to zero or communication error occurs
- Addressing jack
- PE connection
- Watchdog functionality
- IP67

Connections



nc = not connected

Outputs Face view - female



1 External power (+)
2 n.c.
3 External power (-)
4 Switch output (+)
5 PE ground

PE connection via mounting base

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-G2-E2
Connections	
AS-Interface	yellow flat cable
External power	black flat cable
Outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 40 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 4 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15%
Indicators	
4, switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
Communications error/address 0	LED red
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4A-G2-E2 is an AS-Interface I/O module with four outputs. Each output is rated for 2 A at 24 VDC.

The IP67 flat module features an integrated addressing jack and is ideal for applications requiring field-mountable I/O modules. In addition to the normal electrical color coding, the module uses mechanical coding to eliminate mistakes in wiring.

Actuators attach to V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status. A red LED monitors AS-Interface communications and indicates when the module has an address of zero or if a communication error occurs. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state.

The U-G3FF mounting base is normally used for the connection of the AS-Interface flat cable and the external 24 VDC power supply. The specially designed base enables users to connect flat cable from either side as long as the cable is perpendicular to the module.

Note: The mounting base for the module is sold separately.

VAA-4A-G2-EA0 is available as an NPN version.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	F

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

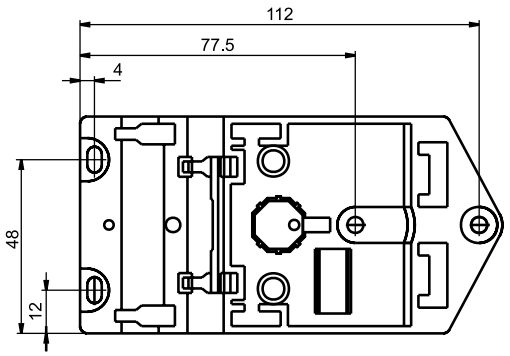
Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G3FF
Mounting base for connection of AS-Interface and 24 VDC flat cables.

Mounting Hole Dimensions Using M4 Screws



VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

V1-G-Q21
V1 (M12x1) to Quickon adapter

VAZ-V1-B
Protective cover

AS-Interface Sensor/Actuator Module

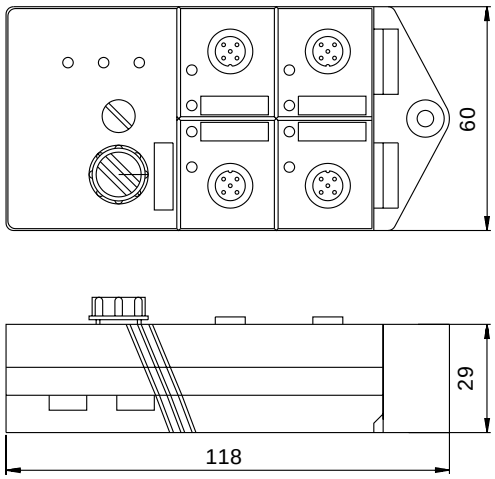


Diagram with mounting base

Model Number

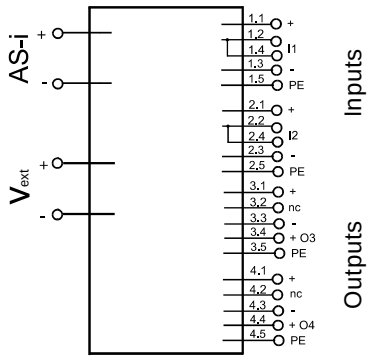
VAA-2EA-G2-ZE/E2
Flat module

2 inputs/2 outputs

Features

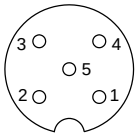
- Connection via AS-Interface flat cable
- Module accepts AS-Interface cable from 2 orientations
- Insulation displacement connection to AS-Interface flat cable
- External power LED
- 2 input LEDs, 2 output LEDs
- Red LED when module is addressed to zero or communication error occurs
- Addressing jack
- PE connection
- Watchdog functionality
- Bus powered inputs
- IP67

Connections



nc = not connected

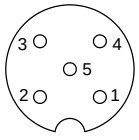
Outputs Face view - female



1 External power (+)
2 n.c.
3 External power (-)
4 Switch output (+)
5 PE ground

PE connection via mounting base

Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*
5 PE ground

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G2-ZE/E2
Connections	
AS-Interface	yellow flat cable
External power	black flat cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 7 mA
V_{out}	24-31 VDC from AS-Interface
I_{out}	100 mA, short circuit protection
Outputs	2 electronic outputs
Load capacity	24 VDC, 2 A (per output), 4 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15%
Indicators	
4, Switch status (I1, I2, O3, O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red
Communications error address 0	LED red
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2EA-G2-ZE/E2 is an AS-Interface I/O module with two inputs and two outputs. Each output is rated for 2 A at 24 VDC. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-2EA-G2-ZE/E2 monitors the inputs for short circuits.

The IP67 flat module features an integrated addressing jack and is ideal for applications requiring field-mountable I/O modules. In addition to the normal electrical color coding, the module uses mechanical coding to eliminate mistakes in wiring.

Sensors and actuators attach to V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status. A red LED monitors AS-Interface communications and indicates when the module has an address of zero or if a communication error occurs. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state.

The U-G3FF mounting base is normally used for the connection of the AS-Interface flat cable and the external 24 VDC power supply. The specially designed base enables users to connect flat cable from either side as long as the cable is perpendicular to the module.

Note: The mounting base sold separately.

VAA-2EA-G2-ZA0/EA0 is available as an NPN version.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

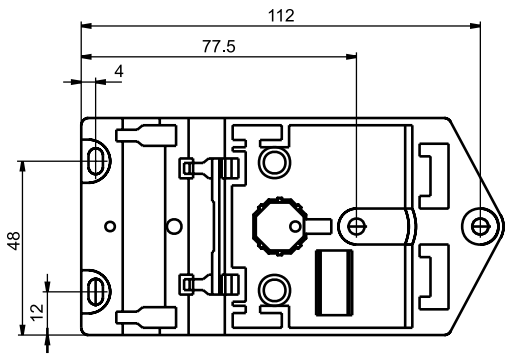
Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G3FF
Mounting base for connection of AS-Interface and 24 VDC flat cables.

Mounting Hole Dimensions Using M4 Screws



VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

V1-G-Q21
V1 (M12x1) to Quickon adapter

VAZ-V1-B
Protective cover

AS-Interface Sensor/Actuator Module

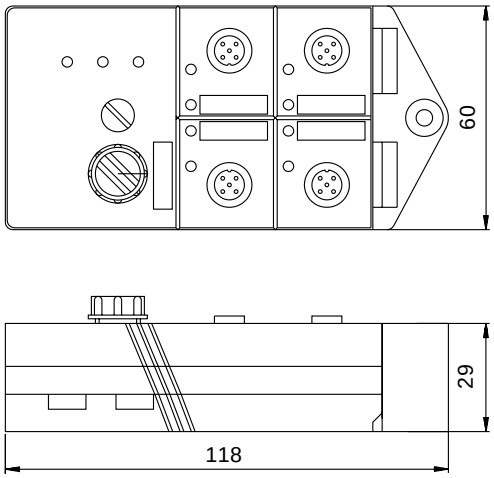


Diagram with mounting base

Model Number

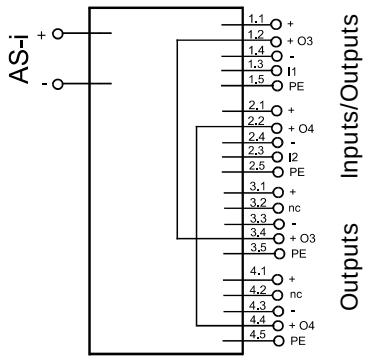
VAA-2•EA-G2-ZE/E2
Flat module

2 inputs/2 outputs

Features

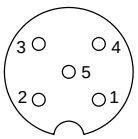
- Connection via AS-Interface flat cable
- Module accepts AS-Interface cable from 2 orientations
- Insulation displacement connection to AS-Interface flat cable
- External power LED
- 2 input LEDs, 2 output LEDs
- Red LED when module is addressed to zero or communication error occurs
- Addressing jack
- PE connection
- Bus powered inputs and ouputs
- IP67

Connections



nc = not connected

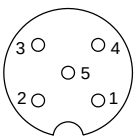
Inputs/Outputs Face view - female



1 Input power (+)
2 Switch output (+)
3 Input/output power (-)
4 Input (+)
5 PE ground

PE connection via mounting base

Outputs Face view - female



1 External power (+)
2 n.c.
3 External power (-)
4 Switch output (+)
5 PE ground

PE connection via mounting base

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2•EA-G2-ZE/E2
Connections	
AS-Interface	yellow flat cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 7 mA
V_{out}	24-31 VDC from AS-Interface
I_{out}	150 mA total for inputs and outputs, short circuit protection
Outputs	2 electronic outputs
Output voltage V_{out}	from AS-Interface, reverse polarity protection
Output current I_{out}	150 mA total for inputs and outputs, short circuit protection
Indicators	
4, Switch status (I1, I2, O3, O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red flashing
Communications error address 0	LED red
External power	LED green
EMV	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2•EA-G2-ZE/E2 is an AS-Interface I/O module with two inputs and two outputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The outputs are powered via AS-Interface. The VAA-2•EA-G2-ZE/E2 monitors the inputs and outputs for short circuits.

The IP67 flat module features an integrated addressing jack and is ideal for applications requiring field-mountable I/O modules. In addition to the normal electrical color coding, the module uses mechanical coding to eliminate mistakes in wiring.

Sensors and actuators attach to V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage. A red LED monitors AS-Interface communications and indicates when the module has an address of zero or if a communication error occurs. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state.

The U-G3FF mounting base is normally used for the connection of the AS-Interface flat cable and the external 24 VDC power supply. The specially designed base enables users to connect flat cable from either side as long as the cable is perpendicular to the module.

Note: The mounting base is sold separately.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

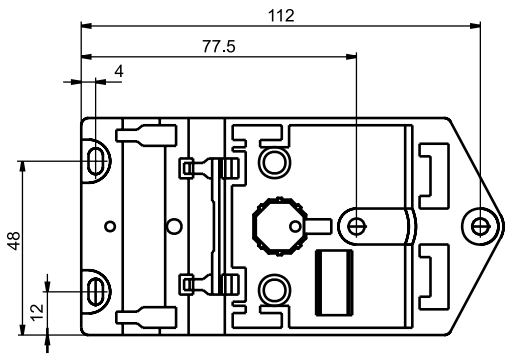
Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G3FF
Mounting base for connection of the AS-Interface and 24 VDC flat cables.

Mounting Hole Dimensions Using M4 Screws



VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

V1-G-Q21
V1 (M12x1) to Quickon adapter

VAZ-V1-B
Protective cover

Notes

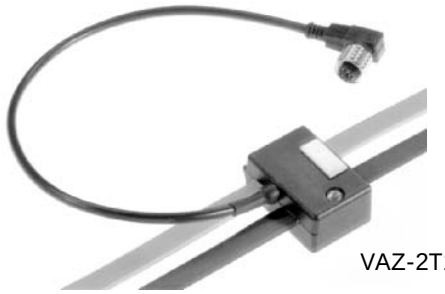
PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Compact Modules

AS-Interface offers advantages for many areas of automation. I/O modules allow connection of standard sensors and actuators to AS-Interface. Many of the modules commonly available on the market are too large and too heavy for robotics and materials handling applications. Circuit boards are an alternative but are expensive to protect from rigorous industrial environmental conditions. Pepperl+Fuchs offers a cost-effective solution with the use of compact modules.

The compact modules connect to field devices through the use of V3 (M8x1) quick disconnects. These small modules are rated IP67 and are ideal for rugged industrial environments. The unique mounting hole arrangement enables the module to be mounted in almost any position or location.

The module uses a V1 (M12x1) quick disconnect to attach AS-Interface and external power. The VAZ-2T1-FK-V1 adapter (see photo below) connects both the yellow (AS-Interface) and black (external 24 VDC) flat cables.



VAZ-2T1-FK-V1

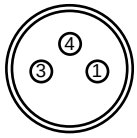
VAZ-2T5-G2

The VAZ-2T5-G2 adapter allows for connection of up to five compact modules using standard V1 (M12x1) extension cables.

The same adapter can also be used for the 4 input modules, but because no external power is required for input-only modules, the VAZ-FK-V1-.5M or VAZ-FK-V1-2M can also be used.

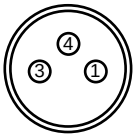
The VBP-HH1-110V hand-held addressing device uses a V1 (M12x1) quick disconnect and a V1-G-YE2M-PVC-V1-G cable to connect to the compact module. The VBP-HH1-110V enables the user to address the compact module before or during installation. A V3 (M8x1) quick disconnect is used to attach sensors and actuators to the module. Refer to the diagram below for the pinouts of the V3 (M8x1) connectors:

Inputs Face view - female



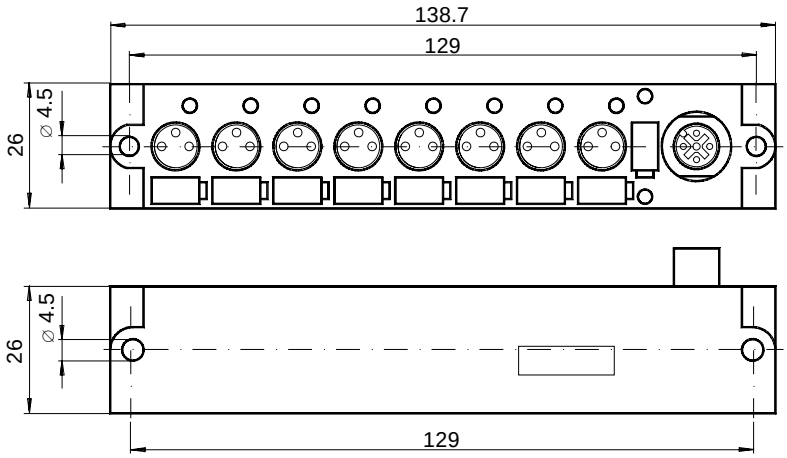
1 Input power (+)
3 Input power (-)
4 Input (+)

Outputs Face view - female



1 External power (+)
3 External power (-)
4 Signal output (+)

AS-Interface Sensor/Actuator Module



Model Number

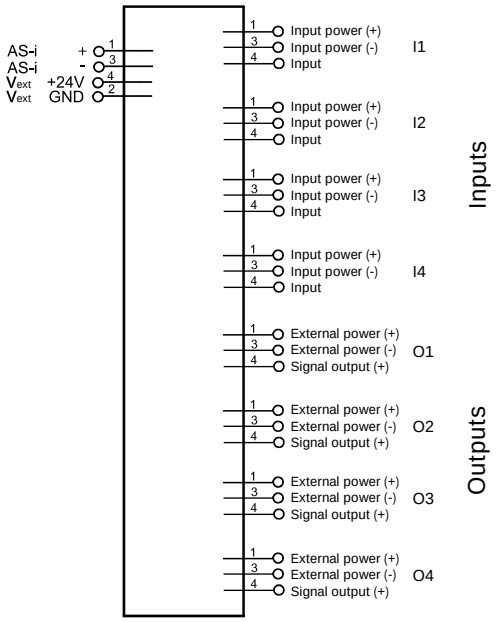
VAA-4EA-G6-ZE/E2
Compact module

4 inputs/4 outputs

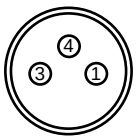
Features

- Compact design
- V1 (M12x1) AS-Interface connection
- V3 (M8x1) sensor/actuator connection
- External power LED
- Encapsulated
- IP67

Connections

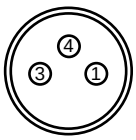


Inputs Face view - female



1 Input power (+)
3 Input power (-)
4 Input (+)

Outputs Face view - female



1 External power (+)
3 External power (-)
4 Signal output (+)

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-G6-ZE/E2
Connection	
AS-Interface/external power	V1 (M12x1) quick disconnect Pin 1 AS-Interface + Pin 2 ext. GND Pin 3 AS-Interface - Pin 4 ext. 24 VDC
Inputs/outputs	V3 (M8x1) quick disconnect
Operating voltage	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 8 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	200 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 0.5 A (per output), 2 A total, galvanically isolated
External power	24 VDC +/- 20%
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
AS-Interface voltage	LED green
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-20 to +70°C (-4 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4EA-G6-ZE/E2 is an AS-Interface compact module with four inputs and four outputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. 24 VDC sourcing outputs can supply a maximum of 0.5 A per output for a total of 2 A per module.

The IP67 rated module features completely encapsulated electronics and can be mounted in almost any position. Its compact size is especially useful for materials handling and robotics applications.

The connection to AS-Interface and the external power supply is established via a V1 (M12x1) quick disconnect. Please refer to the technical data for the pin assignments. An advantage of this connection is that a separate base is not required. A standard cable with a V1 (M12x1) quick disconnect can also be used for addressing.

Sensors and actuators attach to a V3 (M8x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status.

Programming Instructions

Address preset to 00, can be changed via the master or with a hand-held addressing device.

IO-Code 7
ID-Code 0

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	Input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

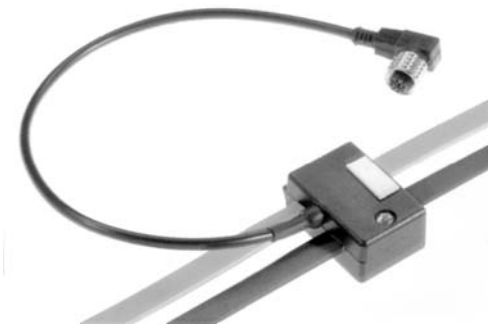
VBP-HH1-110V
Hand-held addressing device

V1-G-YE.5M-PVC-V1-G
Extension cable for connection to the hand-held addressing device

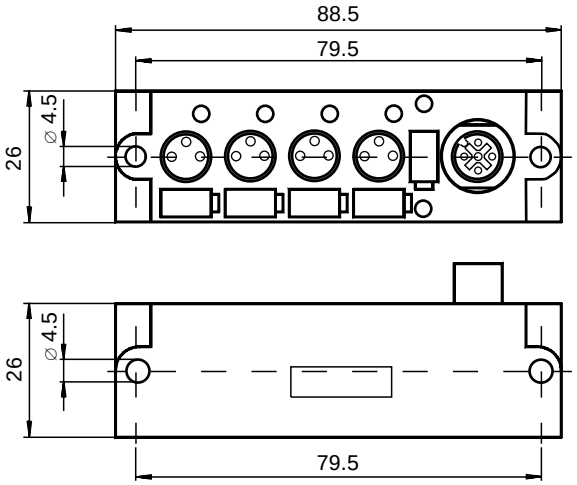
VAZ-V3-B
Protective cover (M8x1)

VAZ-2T5-G2
AS-Interface and external power 5-way passive splitter

VAZ-2T1-FK-V1
Cable adapter from 2 AS-Interface flat cables to a V1 (M12x1) quick disconnect



AS-Interface Sensor/Actuator Module



Model Number

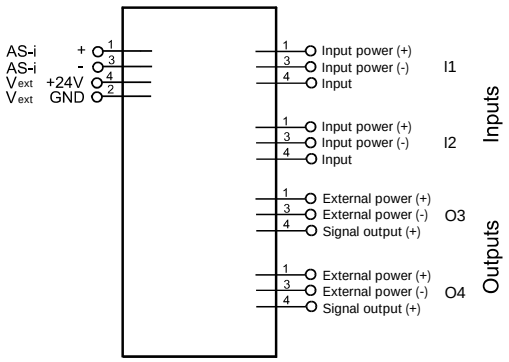
VAA-2EA-G6-ZE/E2
Compact module

2 inputs/2 outputs

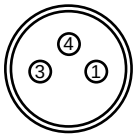
Features

- Compact design
- V1 (M12x1) AS-Interface connection
- V3 (M8x1) sensor/actuator connection
- External power LED
- Encapsulated
- IP67

Connections

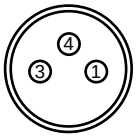


Inputs Face view - female



1 Input power (+)
3 Input power (-)
4 Input (+)

Outputs Face view - female



1 External power (+)
3 External power (-)
4 Signal output (+)

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G6-ZE/E2
Connection	
AS-Interface/external power	V1 (M12x1) quick disconnect Pin 1 AS-Interface + Pin 2 ext. GND Pin 3 AS-Interface - Pin 4 ext. 24 VDC
Inputs/outputs	V3 (M8x1) quick disconnect
Operating voltage	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 8 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	200 mA
Outputs	2 electronic outputs
Load capacity	24 VDC, 0.5 A (per output), 2 A total, galvanically isolated
External power	24 VDC +/- 20%
Indicators	
4, Switch status (I1-I2, O1-O2)	LED yellow
Power (AS-Interface)	LED green
External power	LED green
EMC	per EN 50 081-2, EN 50082-2
Operating temperature t_b	-20 to +70°C (-4 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2EA-G6-ZE/E2 is an AS-Interface compact module with two inputs and two outputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. 24 VDC sourcing outputs can supply a maximum of 0.5 A per output for a total of 1 A per module.

The IP67 rated module features completely encapsulated electronics and can be mounted in almost any position. Its compact size is especially useful for materials handling and robotics applications.

The connection to AS-Interface and the external power supply is established via a V1 (M12x1) quick disconnect. Please refer to the technical data for the pin assignments. An advantage of this connection is that a separate base is not required. A standard cable with a V1 (M12x1) quick disconnect can also be used for addressing.

Sensors and actuators attach to a V3 (M8x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O1
D3	output O2

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

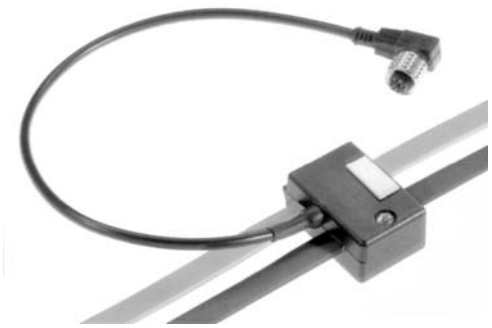
VBP-HH1-110V
Hand-held addressing device

V1-G-YE.5M-PVC-V1-G
Extension cable for connection to the hand-held addressing device

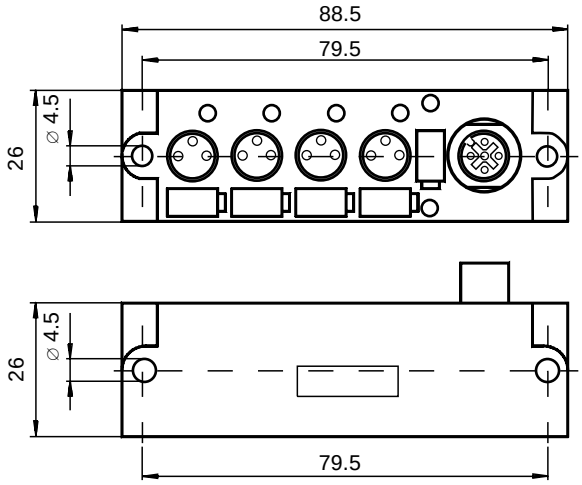
VAZ-V3-B
Protective cover (M8x1)

VAZ-2T5-G2
AS-Interface and external power 5-way passive splitter

VAZ-2T1-FK-V1
Cable adapter from 2 AS-Interface flat cables to a V1 (M12x1) quick disconnect



AS-Interface Sensor Module



Model Number

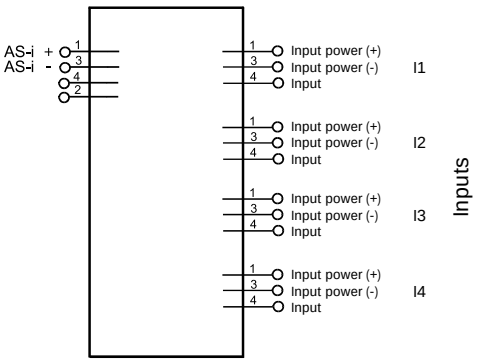
VAA-4E-G6-ZE
Compact module

4 inputs

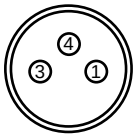
Features

- Compact design
- V1 (M12x1) AS-Interface connection
- V3 (M8x1) sensor connection
- Encapsulated
- IP67

Connections



Inputs Face view - female



1 Input power (+)
3 Input power (-)
4 Input (+)

I/O Modules

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G6-ZE
Connection	
AS-Interface	V1 (M12x1) quick disconnect Pin 1 AS-Interface + Pin 2 n.c. Pin 3 AS-Interface - Pin 4 n.c.
Inputs	V3 (M8x1) quick disconnect
Operating voltage	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4 mA
I_{in}	≤ 8 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	200 mA
Indicators	
4, Switch status (I1-I4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-20 to +70°C (-4 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G6-ZE is an AS-Interface compact module with four inputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs.

The IP67 rated module features completely encapsulated electronics and can be mounted in almost any position. Its compact size is especially useful for materials handling and robotics applications.

The connection to AS-Interface is established via a V1 (M12x1) quick disconnect. Please refer to the technical data for the pin assignments. An advantage of this connection is that a separate base is not required. A standard cable with a V1 (M12x1) quick disconnect can also be used for addressing.

Sensors attach to a V3 (M8x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Programming Instructions

Address preset to 00, can be changed via the master or with a hand-held addressing device.

IO-Code 0
ID-Code 0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

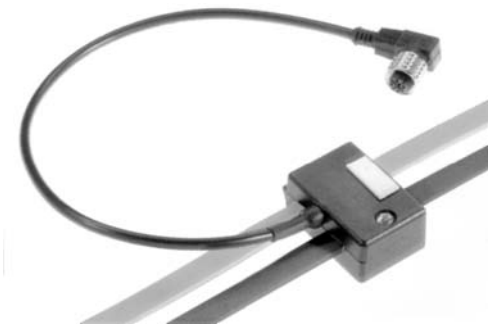
VBP-HH1-110V
Hand-held addressing device

V1-G-YE.5M-PVC-V1-G
Extension cable for connection to the hand-held addressing device

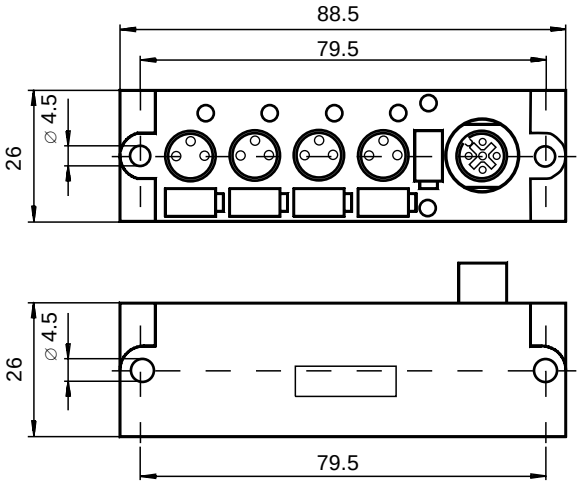
VAZ-V3-B
Protective cover (M8x1)

VAZ-2T5-G2
AS-Interface and external power 5-way passive splitter

VAZ-2T1-FK-V1
Cable adapter from 2 AS-Interface flat cables to a V1 (M12x1) quick disconnect



AS-Interface Actuator Module



Model Number

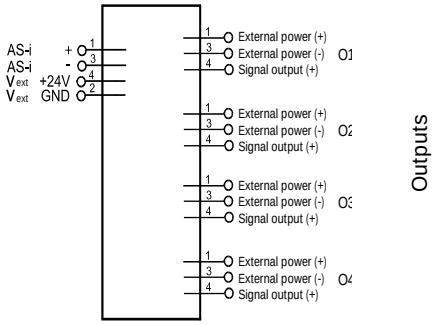
VAA-4A-G6-E2
Compact module

4 outputs

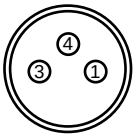
Features

- Compact design
- V1 (M12x1) AS-Interface connection
- V3 (M8x1) actuator connection
- External power LED
- Encapsulated
- IP67

Connections



Outputs Face view - female



1 External power (+)
3 External power (-)
4 Signal output (+)

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-G6-E2
Connection	
AS-Interface/external power	V1 (M12x1) quick disconnect Pin 1 AS-Interface + Pin 2 ext. GND Pin 3 AS-Interface - Pin 4 ext. 24 VDC
Outputs	V3 (M8x1) quick disconnect
Operating voltage	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Outputs	2 electronic outputs
Load capacity	24 VDC, 0.5 A (per output), 2 A total, galvanically isolated
External power	24 VDC +/- 20%
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
External power	LED green
EMC	per EN 50 081-2, EN 50082-2
Operating temperature t_b	-20 to +70°C (-4 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4A-G6-E2 is an AS-Interface compact module with four outputs. 24 VDC sourcing outputs can supply a maximum of 0.5 A per output for a total of 2 A per module.

The IP67 rated module features completely encapsulated electronics and can be mounted in almost any position. Its compact size is especially useful for materials handling and robotics applications.

The connection to AS-Interface and the external power supply is established via a V1 (M12x1) quick disconnect. Please refer to the technical data for the pin assignments. An advantage of this connection is that a separate base is not required. A standard cable with a V1 (M12x1) quick disconnect can also be used for addressing.

Actuators attach to a V3 (M8x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and external power supply status.

Programming Instructions

Address preset to 00, can be changed via the master or with a hand-held addressing device.

IO-Code 8
ID-Code 0

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

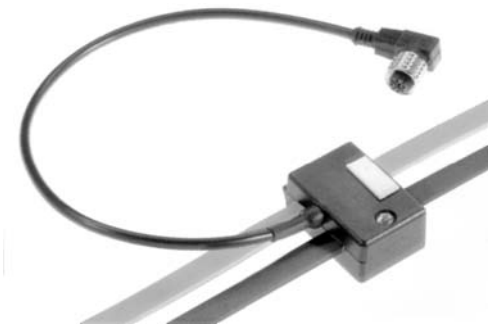
VBP-HH1-110V
Hand-held addressing device

V1-G-YE.5M-PVC-V1-G
Extension cable for connection to the hand-held addressing device

VAZ-V3-B
Protective cover (M8x1)

VAZ-2T5-G2
AS-Interface and external power 5-way passive splitter

VAZ-2T1-FK-V1
Cable adapter from 2 AS-Interface flat cables to a V1 (M12x1) quick disconnect

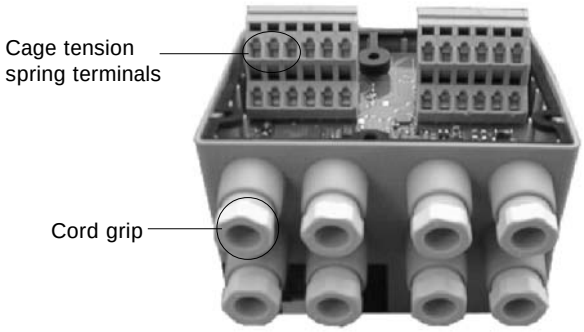


Notes

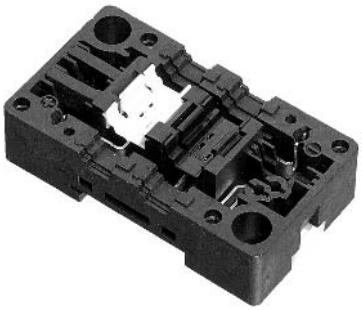
PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Field Modules

These watertight modules were developed in response to customer requests. They are used in applications where the equipment is cleaned daily and will hold up to water jets from any direction in a washdown environment. They can also withstand high vibration applications such as valve positioning and actuation. The following is an overview of the G4 module key features:



Sensors and actuators are connected to the field module using the included cord grips for the cable connection and cage tension spring terminals for the electrical connection. By eliminating the quick disconnect, I/O connections are inexpensive compared to the quick disconnect and offer a water tight more compact installation. Custom molded cables of differing lengths are no longer required because these field modules accept only cable that can be cut to any length, eliminating waste and coiled leads. Below are two examples of field mounting bases.



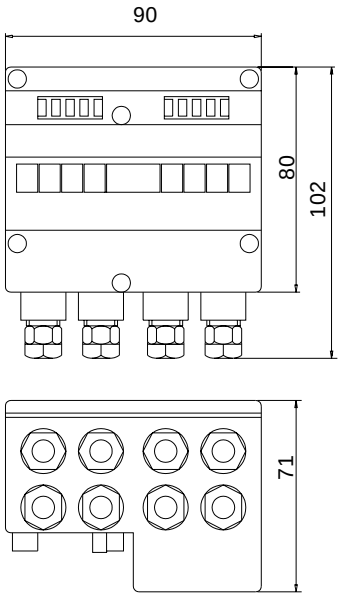
U-G1FFA

PG11-1/2"NPT

U-G1PP

The field modules are connected to the AS-Interface cable using standardized bases. These bases allow for connection of AS-Interface flat or round cable. Also new bases, U-G1FFA and U-G1FA, have an integrated addressing jack which eliminates the need to unscrew the cover or use a master for addressing. The field modules are available in many versions to solve a wide variety of applications including connection to 2-wire or NAMUR sensors for detection of lead breakage.

AS-Interface Sensor/Actuator Module



Model Number

VAA-4EA-G4-ZE/E2

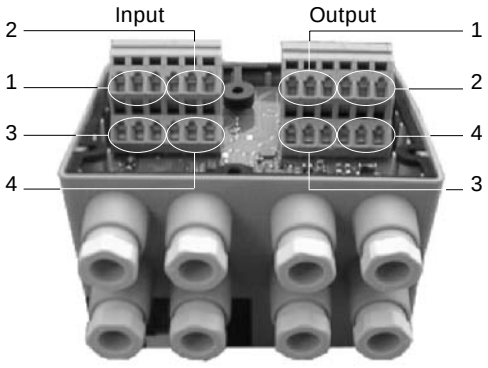
Field module

4 inputs/4 outputs

Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor/actuator connection via cage tension spring terminals
- Bus powered inputs
- External power supply for outputs
- External power LED
- Watchdog functionality
- IP67

Connections



Input 1 Input 2

+	In	-	+	In	-

Input 3 Input 4

+	In	-	+	In	-

2 or 3-wire sensor or mechanical contact

Output 1 Output 2

NC	Out (+)	-	NC	Out (+)	-

Output 3 Output 4

NC	Out (+)	-	NC	Out (+)	-

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-G4-ZE/E2
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Inputs/outputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 8 mA
V_{OUT}	20-30 VDC from AS-Inferface
I_{OUT}	140 mA, short circuit protection
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 4 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red flashing
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature tl	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4EA-G4-ZE/E2 is an AS-Interface I/O module with four inputs and four outputs. Each output is rated for 2 A at 24 VDC. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-4EA-G4-ZE/E2 monitors the inputs for short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors and actuators attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state. To disable the watchdog function, use the P0 parameter bit.

Flat or round cables can be used for the AS-Interface network and the external 24 VDC power supply. Use the U-G1FF or U-G1FFA base for AS-Interface flat cable or the U-G1PP base for round cable. The AS-Interface standardized base U-G1FF (EEMS) uses the cable-piercing method to connect both the yellow and black flat cables. The AS-Interface standardized base U-G1FFA uses the cable-piercing method to connect both the yellow and black flat cables and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	Input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G1FF
Base for connection of AS-Interface and 24 VDC flat cables.

U-G1FFA
Base for connection of AS-Interface and 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface and 24 VDC round cables

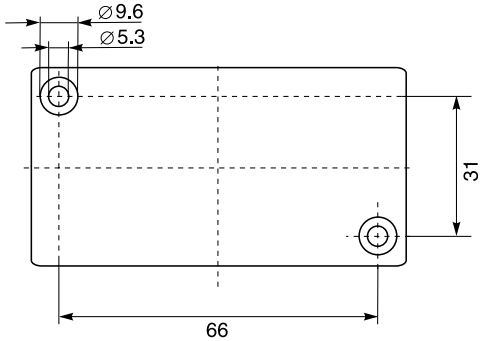
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1PP base

VAZ-G4-B
PG7 plug

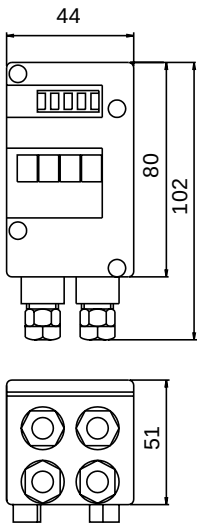
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor Module



Model Number

VAA-4E-G4-ZE

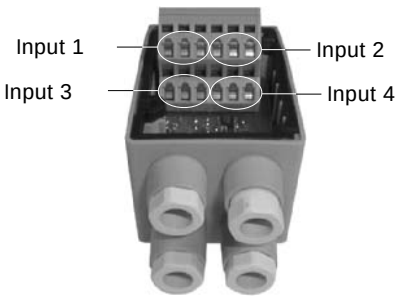
Field module

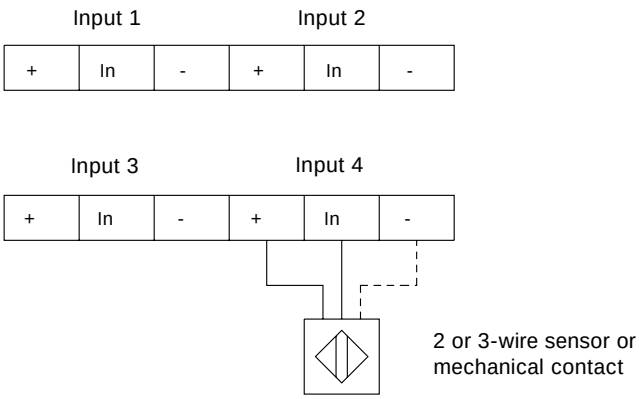
4 inputs

Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor connection via cage tension spring terminals
- Bus powered inputs
- IP67

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G4-ZE
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 40 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 8 mA
V_{OUT}	20-30 VDC from AS-Inferface
I_{OUT}	160 mA, short circuit protection
Indicators	
4, Switch status (I1tol4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red flashing
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G4-ZE is an AS-Interface I/O module with four inputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-4E-G4-ZE monitors the inputs for short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FA base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA uses the cable-piercing method to connect the yellow flat cable and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

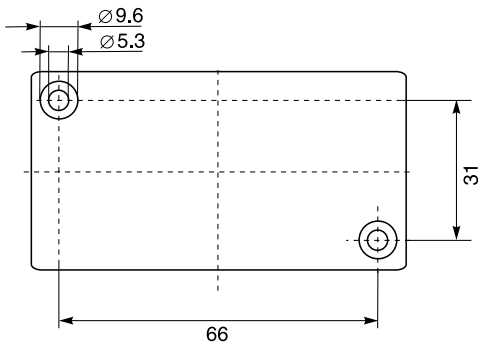
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-G4-B
PG7 plug

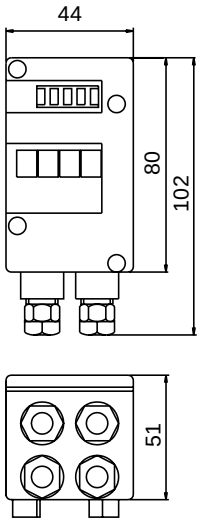
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor Module



Model Number

VAA-4E-G4-Z

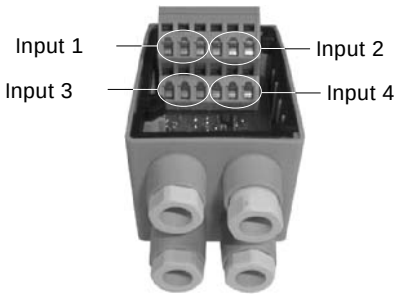
Field module

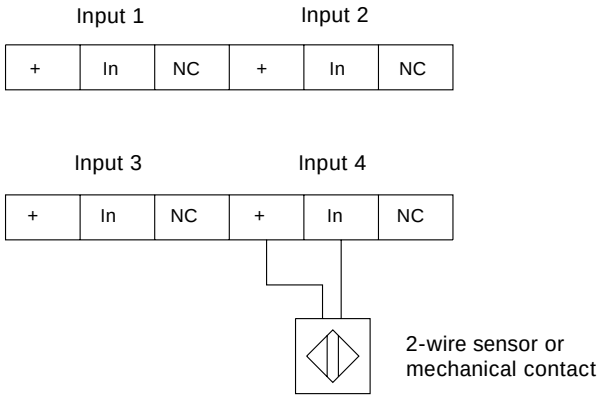
4 inputs

Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor connection via cage tension spring terminals
- Bus powered inputs
- Short circuit and lead breakage monitoring of inputs
- IP67

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G4-Z
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	four 2-wire sensors, DC, sourcing
OFF I_{In}	0.5-1 mA
ON I_{In}	3-5 mA
Lead breakage I_R	< 0.5 mA
V_{OUT}	20-30 VDC from AS-Inferface
Short circuit I_{OUT}	> 5 mA
Indicators	
4, Switch status (I1-I4)/lead breakage/sensor overload	LED yellow/LED red/LED red flashing
Power (AS-Interface)/ communications error	LED green/LED green flashing
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G4-Z is an AS-Interface I/O module with four inputs. Mechanical contacts and 2-wire sensors can be connected to the inputs. The VAA-4E-G4-Z monitors the inputs for lead breakage snd short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FA base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA uses the cable-piercing method to connect the yellow flat cable and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	LB/SC monitoring I1 deactivated*/activated
P1	LB/SC monitoring I2 deactivated*/activated
P2	LB/SC monitoring I3 deactivated*/activated
P3	LB/SC monitoring I4 deactivated*/activated

* default setting

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

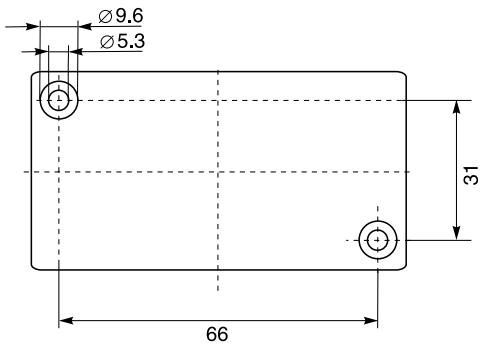
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-G4-B
PG7 plug

VBP-HH1-110V
Hand-held addressing device

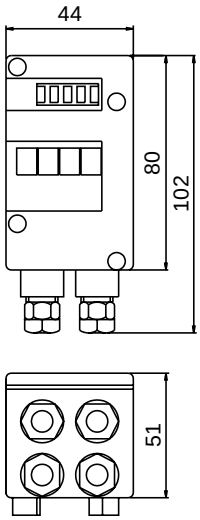
VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



I/O Modules

AS-Interface Sensor Module



Model Number

VAA-4E-G4-N

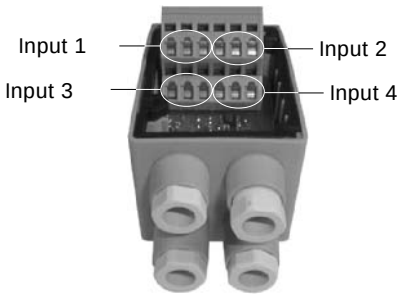
Field module

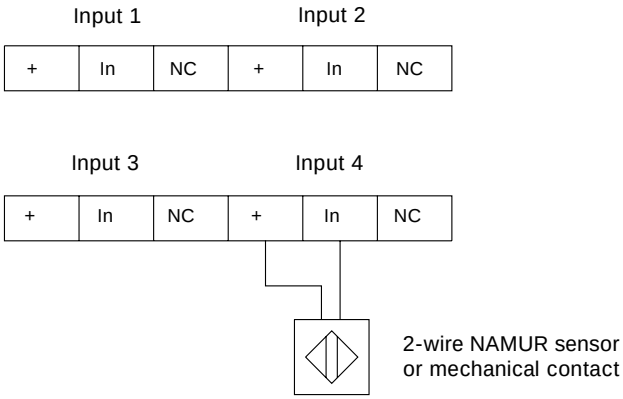
4 inputs

Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor connection via cage tension spring terminals
- Bus powered inputs
- Short circuit and lead breakage monitoring of inputs
- NAMUR inputs for non-hazardous locations
- IP67

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G4-N
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 40 mA
Inputs	four NAMUR sensors
OFF I_{In}	1.6-6 mA
ON I_{In}	0.15-1.8 mA
Lead breakage I_R	< 0.15 mA
Short circuit I_{OUT}	> 6 mA
Indicators	
4, Switch status (I1-I4)/lead breakage/sensor overload	LED yellow/LED red/LED red flashing
Power (AS-Interface)/ communications error	LED green/LED green flashing
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G4-N is an AS-Interface I/O module with four inputs. NAMUR sensors can be connected to the inputs. The VAA-4E-G4-N monitors the inputs for lead breakage snd short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FA base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA uses the cable-piercing method to connect the yellow flat cable and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	LB/SC monitoring I1 deactivated*/activated
P1	LB/SC monitoring I2 deactivated*/activated
P2	LB/SC monitoring I3 deactivated*/activated
P3	LB/SC monitoring I4 deactivated*/activated

* default setting

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

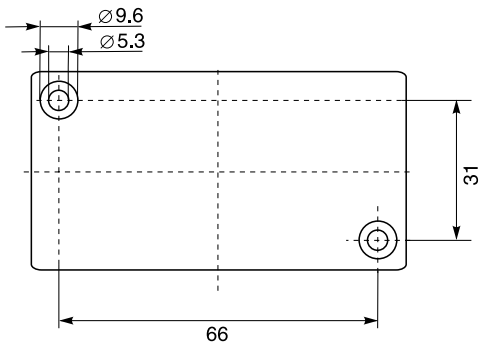
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-G4-B
PG7 plug

VBP-HH1-110V
Hand-held addressing device

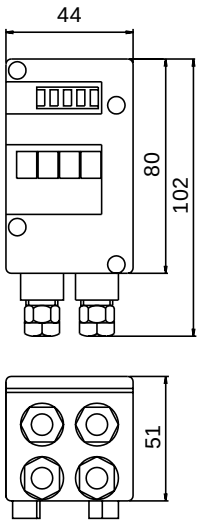
VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



I/O Modules

AS-Interface Actuator Module



Model Number

VAA-4A-G4-E2

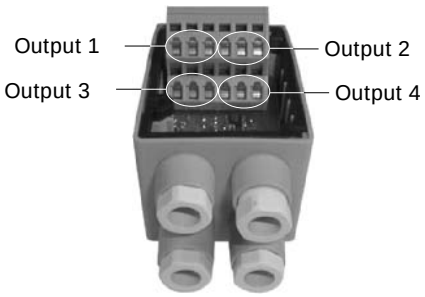
Field module

4 outputs

Features

- Uses standard AS-Interface flat or round cable mounting bases
- Actuator connection via cage tension spring terminals
- External power supply for outputs
- Watchdog functionality
- IP67

Connections



Output 1			Output 2		
NC	Out (+)	-	NC	Out (+)	-

Output 3			Output 4		
NC	Out (+)	-	NC	Out (+)	-

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-G4-E2
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Outputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 4 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature tl	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4A-G4-E2 is an AS-Interface I/O module with four outputs. Each output is rated for 2 A at 24 VDC. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Actuators attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state. To disable the watchdog function, use the P0 parameter bit.

Flat or round cables can be used for the AS-Interface network and the external 24 VDC power supply. Use the U-G1FF or U-G1FFA base for AS-Interface flat cable or the U-G1PP base for round cable. The AS-Interface standardized base U-G1FF (EEMS) uses the cable-piercing method to connect both the yellow and black flat cables. The AS-Interface standardized base U-G1FFA uses the cable-piercing method to connect both the yellow and black flat cables and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	F

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G1FF
Base for connection of AS-Interface and 24 VDC flat cables.

U-G1FFA
Base for connection of AS-Interface and 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface and 24 VDC round cables

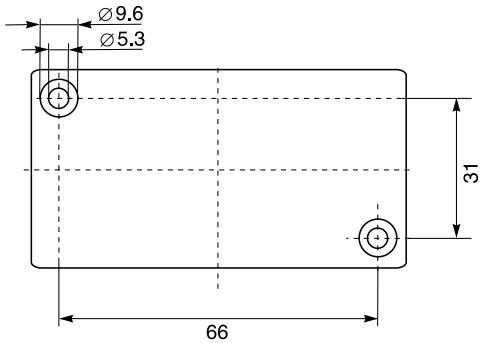
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1PP base

VAZ-G4-B
PG7 plug

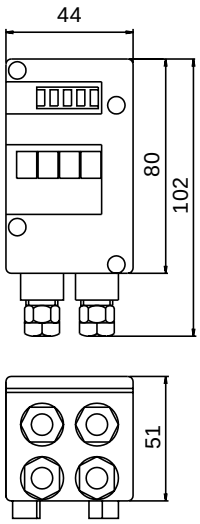
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor/Actuator Module



Model Number

VAA-2EA-G4-ZE/E2

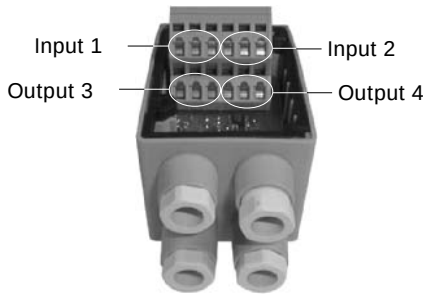
Field module

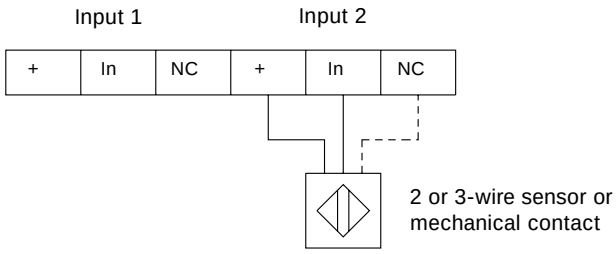
2 inputs/2 outputs

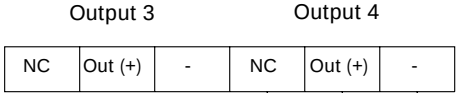
Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor/actuator connection via cage tension spring terminals
- Bus powered inputs
- External power supply for outputs
- Watchdog functionality
- IP67

Connections







PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G4-ZE/E2
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Inputs/outputs	PG7 cord-grip and spring tension terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 8 mA
V_{OUT}	20-30 VDC from AS-Inferface
I_{OUT}	140 mA, short circuit protection
Outputs	2 electronic outputs
Load capacity	24 VDC, 1.5 A (per output), 3 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red flashing
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature tl	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2EA-G4-ZE/E2 is an AS-Interface I/O module with two inputs and two outputs. Each output is rated for 1.5 A at 24 VDC. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-2EA-G4-ZE/E2 monitors the inputs for short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors and actuators attach to PG cable glands and cage tension spring terminals. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status. If the watchdog is active and an AS-Interface communication error occurs, the output returns to its de-energized state. If the watchdog is deactivated, outputs latch in their last state. To disable the watchdog function, use the P0 parameter bit.

Flat or round cables can be used for the AS-Interface network and the external 24 VDC power supply. Use the U-G1FF or U-G1FFA base for AS-Interface flat cable or the U-G1PP base for round cable. The AS-Interface standardized base U-G1FF (EEMS) uses the cable-piercing method to connect both the yellow and black flat cables. The AS-Interface standardized base U-G1FFA uses the cable-piercing method to connect both the yellow and black flat cables and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Accessories

U-G1FF
Base for connection of AS-Interface and 24 VDC flat cables.

U-G1FFA
Base for connection of AS-Interface and 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface and 24 VDC round cables

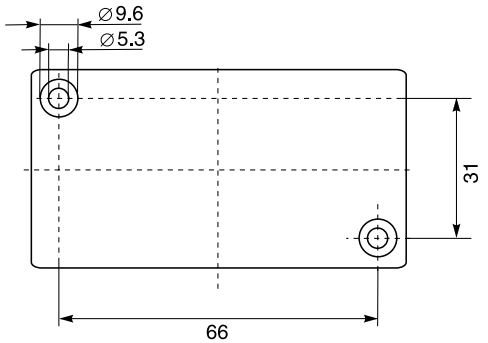
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1PP base

VAZ-G4-B
PG7 plug

VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases

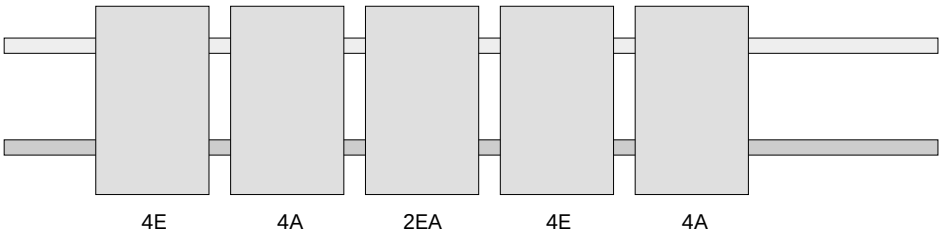


Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Standard Modules

Thousands of applications have used these modules over many years. This housing was the first to be built and its design has stood the test of time. Many different mounting bases and I/O combinations make this the perfect choice for any application.

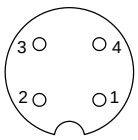


Many applications mount modules in series, as shown in the diagram above, where it may be necessary to mount input and output modules next to each another. The modules allow for the use of the U-G1FF base so the external power can be used to power outputs or not used at all and just passed through the base for use in the next I/O module.

Terminals are available for connection to AS-Interface when using standard round cable with the U-G1P or U-G1PP bases. The round cable base is also ideal for those applications requiring conduit. Please see the accessories section for our selection of conduit adapters pg. 239.

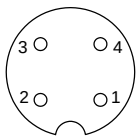
Standard modules use V1 (M12x1) quick disconnects to attach both sensors and actuators. V1-G-S field attachable connectors can be used for I/O without quick disconnects and are available in straight and right-angled versions. The inputs and outputs use a standard connector arrangement as shown in the following diagrams:

Inputs Face view - female



1 Input power (+)
2 Input
3 Input power (-)
4 Input

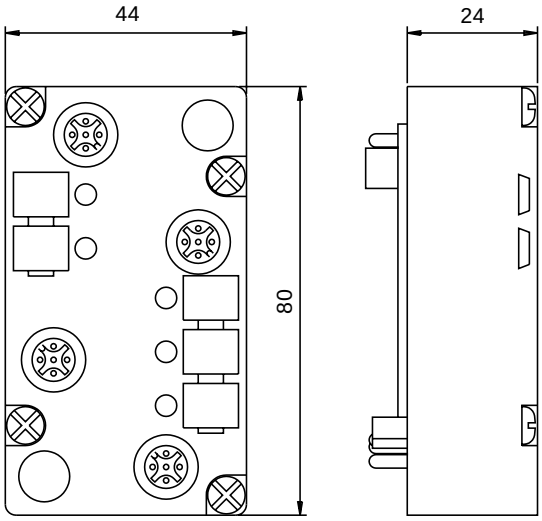
Outputs Face view - female



1 n.c.
2 n.c.
3 External power (-)
4 Switch output (+)

The VAA-2·2E-G1-AE is made specifically for sensors with one N.O. and one N.C. output, weak signal indication, or with two independent switch points such as with ultrasonics. The VAA-2·2E-G1-AE offers the capability of assigning two independent input signals to one connector.

AS-Interface Sensor Module



Model Number

VAA-4E-G1-Z

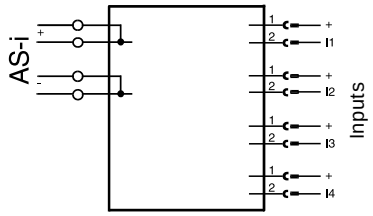
Standard module

4 inputs

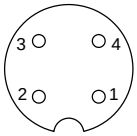
Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor connection via V1 (M12x1) quick disconnect
- Bus powered inputs
- Dip switch enabled short circuit and lead breakage monitoring of inputs
- IP67

Connections



Inputs Face view - female



1 Input power (+)
2 Input
3 n.c.
4 n.c.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G1-Z
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Inputs	four 2-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	> 4.5 mA
Lead breakage I_R	< 430 µA
V_{OUT}	20-30 VDC from AS-Inferface
Short circuit I_{OUT}	> 5 mA
Indicators	
4, Switch status (I1-I4)/lead breakage	LED yellow/LED red
Power (AS-Interface)/ sensor overload	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G1-Z is an AS-Interface I/O module with four inputs. Mechanical contacts and 2-wire sensors can be connected to the inputs. The VAA-4E-G1-Z monitors the inputs for lead breakage snd short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors attach through V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FA base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA uses the cable-piercing method to connect the yellow flat cable and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Note: LB/SC selected per input via 4 internal dip switches.

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

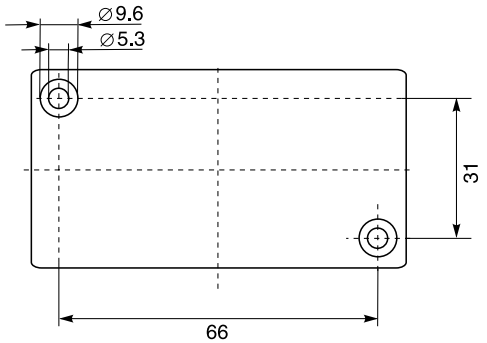
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

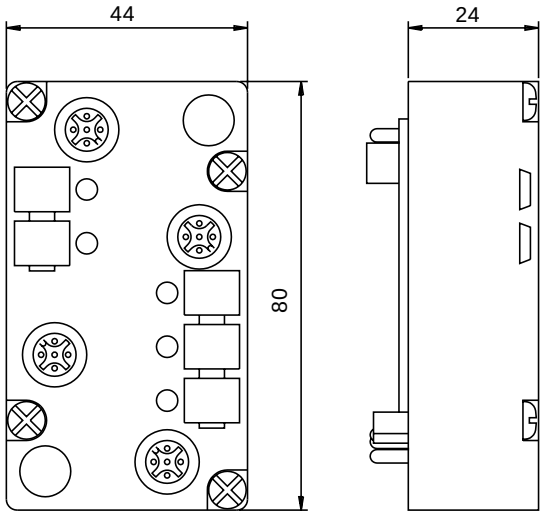
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor Module



Model Number

VAA-4E-G1-ZE

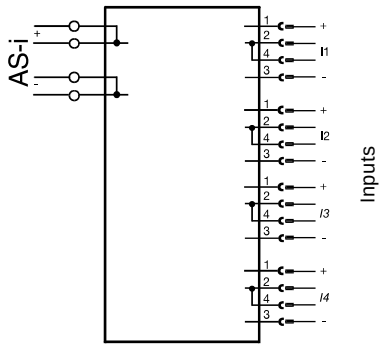
Standard module

4 inputs

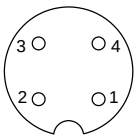
Features

- Uses standard AS-Interface flat or round cable mounting bases
- Sensor connection via V1 (M12x1) quick disconnect
- LED indication for inputs
- Bus powered inputs
- IP67

Connections



Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-G1-ZE
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Inputs	four 2- or 3-wire sensors,DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	200 mA, short circuit protection
Indicators	
4, switch status (I1-I4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4E-G1-ZE is an AS-Interface I/O module with four inputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-4E-G1-ZE monitors the inputs for short circuits. This robust housing is ideal for applications where heavy vibration may be encountered, such as valve positioning and actuation.

Sensors attach through V1 (M12x1) quick disconnects. LEDs indicate the current switch status of each channel and display the AS-Interface voltage.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FA base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA uses the cable-piercing method to connect the yellow flat cable and includes an integrated addressing jack.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

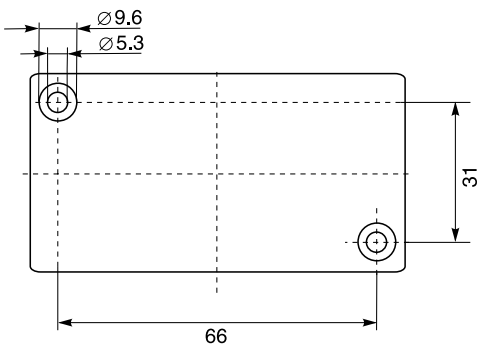
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

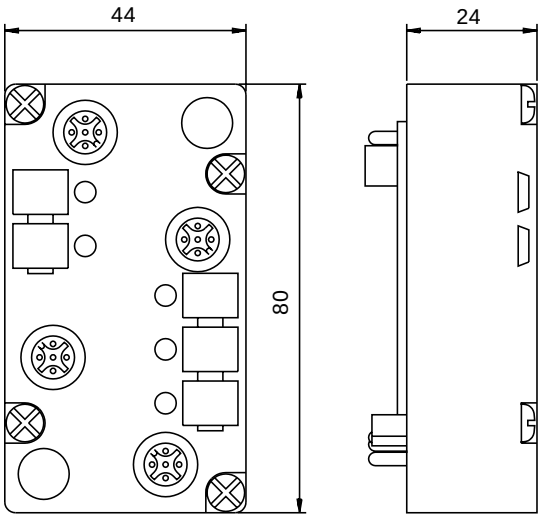
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor Module



Model Number

VAA-2•2E-G1-AE

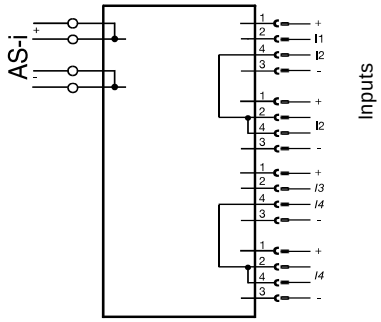
Standard module

2 x 2 inputs

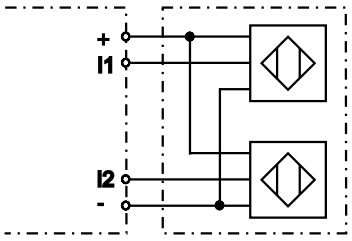
Features

- Uses standard AS-Interface flat or round cable mounting bases
- Short circuit monitoring
- LED indication for inputs
- Two isolated inputs per connector for N.O./N.C. sensors
- IP67

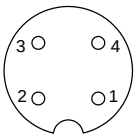
Connections



Inputs



Inputs Face view - female



1 Input power (+)
2 Input
3 Input power (-)
4 Input

I/O Modules

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2•2E-G1-AE
Connections	
AS-Interface	yellow flat cable or standard round cable
Inputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
I_{in} OFF	≤ 1.5 mA
I_{in} ON	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	200 mA, short circuit protection
Indicators	
4, switch status (I1-I4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2*2E-G1-AE is an AS-Interface I/O module with four inputs. Two seperate input signals are integrated into one connector. This is especially useful for N.O./N.C. sensors, sensors with weak signal indication or ultrasonics with two switch points.

This IP67 G1 module is well suited for harsh field applications and connects easily with sensors through a V1 (M12x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FF base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA and U-G1FFA include an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

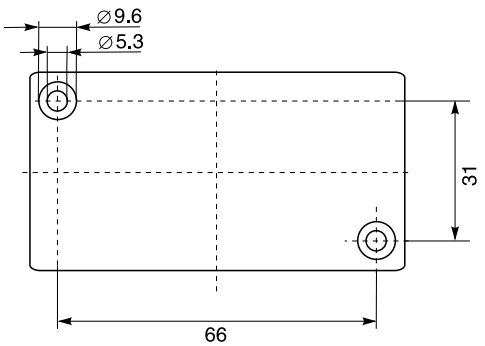
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

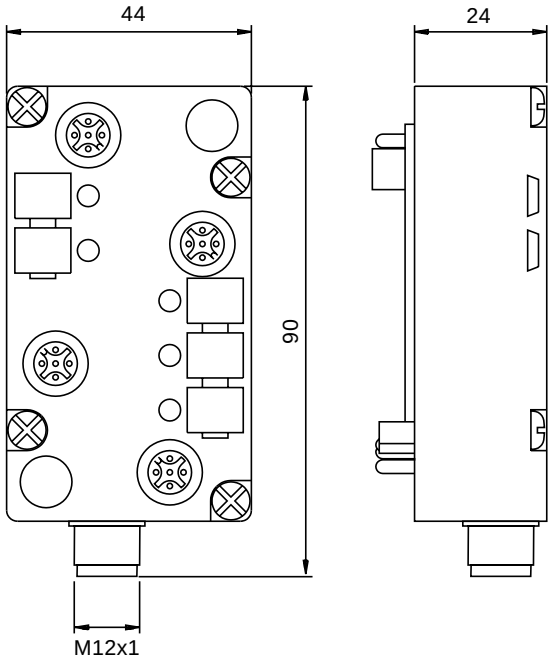
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor/Actuator Module



Model Number

VAA-2EA-G1-ZE/R

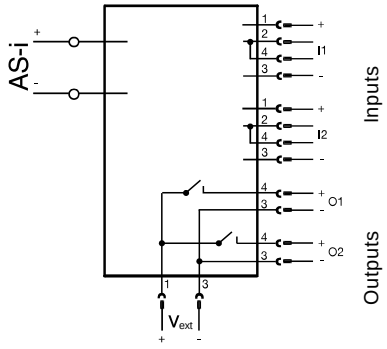
Standard module

2 inputs/2 outputs

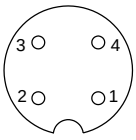
Features

- Uses standard AS-Interface flat or round cable mounting bases
- External power supply for relay outputs
- Short circuit monitoring
- LED indication for inputs and outputs
- IP67

Connections

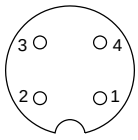


Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*

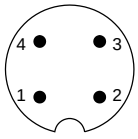
Outputs Face view - female



1 n.c.
2 n.c.
3 Relay (-)
4 Relay (+)

* Internally connected

V_{ext} Face view - male



1 24 VDC (+)
2 n.c.
3 (-)
4 n.c.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G1-ZE/R
Connections	
AS-Interface	yellow flat cable or standard round cable
External power	V1 (M12x1) quick disconnect
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 40 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{OUT}	20-30 VDC from AS-Inferface
I_{OUT}	100 mA, short circuit protection
Outputs	2 relay outputs
Load capacity	24 VDC, 500 mA (per relay), 2 A total, galvanically isolated
External power V_{ext}	24 VDC
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2EA-G1-ZE/R is an AS-Interface I/O module with two inputs and two outputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs and the relay output is rated for 500 mA at 24 VDC

This IP67 G1 module is well suited for harsh field applications and connects easily with sensors through a V1 (M12x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FF base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA and U-G1FFA include an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-FK-V1-.5M
Connects Vext ro 24 VDC flat cable

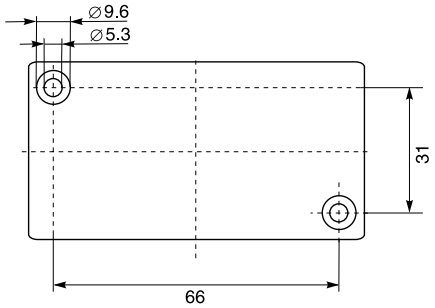
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

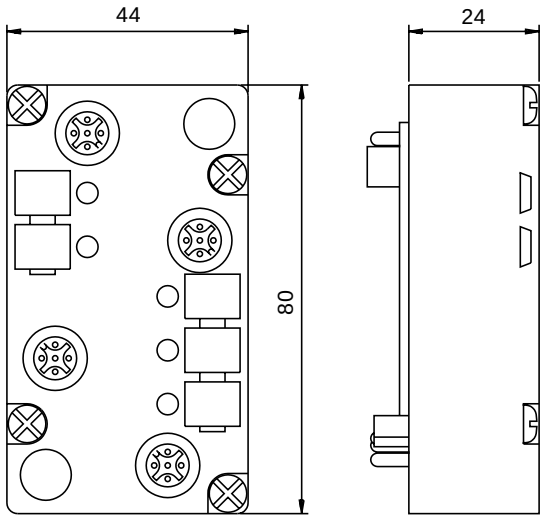
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Sensor/Actuator Module



Model Number

VAA-2EA-G1-ZE/E2

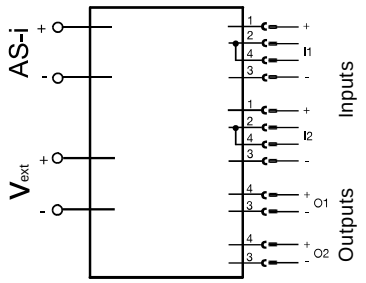
Standard module

2 inputs/2 outputs

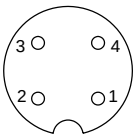
Features

- Uses standard AS-Interface flat or round cable mounting bases
- Inputs for 2- and 3-wire sensors
- Outputs up to 2 A per module
- LEDs indicate bus and input status
- IP67

Connections

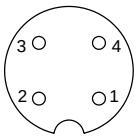


Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*

Outputs Face view - female



1 n.c.
2 n.c.
3 External power (-)
4 Switch output (+)

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G1-ZE/E2
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 100 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{in}	≤ 1 mA
ON I_{in}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{OUT}	20-30 VDC from AS-Inferface
I_{OUT}	120 mA, short circuit protection
Outputs	2 electronic outputs
Load capacity	24 VDC, 1 A (per output), 2 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-2EA-G1-ZE/E2 is an AS-Interface I/O module with two inputs and two outputs. Each output is rated for 1 A at 24 VDC. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The VAA-2EA-G1-ZE/E2 monitors the inputs for short circuits.

This IP67 G1 module is well suited for harsh field applications and connects easily with sensors and actuators through a V1 (M12x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status.

Flat or round cables can be used for the AS-Interface network. Use the U-G1FF base for AS-Interface flat cable or the U-G1PP base for round cable. The AS-Interface standardized base U-G1FF (EEMS) uses the cable-piercing method to connect the AS-Interface and external power flat cables. The AS-Interface standardized base U-G1FFA includes an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface round cable and external power supply

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

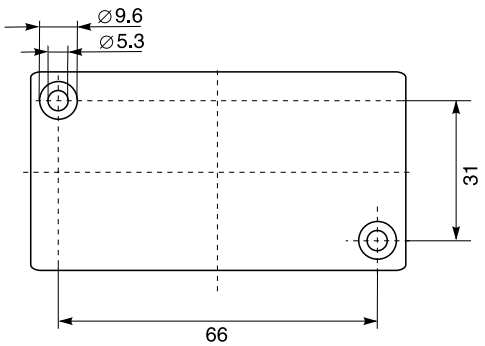
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

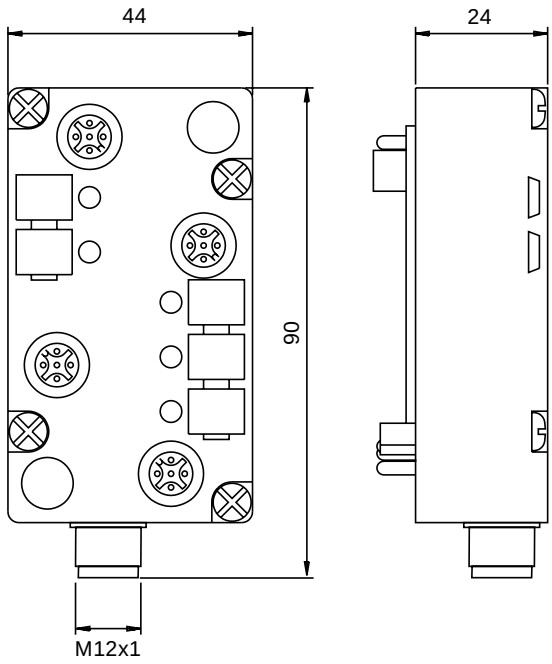
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Actuator Module



Model Number

VAA-4A-G1-R

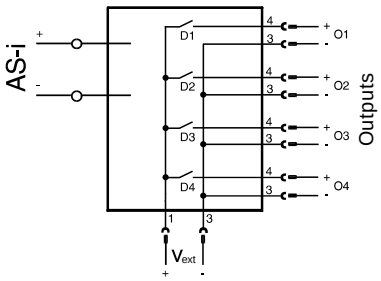
Standard module

4 outputs

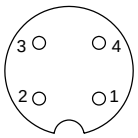
Features

- Uses standard AS-Interface flat or round cable mounting bases
- External power supply for relay outputs
- LED indication for outputs
- IP67

Connections

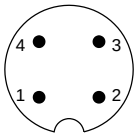


Outputs Face view - female



1 n.c.
2 n.c.
3 Relay (-)
4 Relay (+)

V_{ext} Face view - male



1 24 VDC (+)
2 n.c.
3 (-)
4 n.c.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-G1-R
Connections	
AS-Interface	yellow flat cable or standard round cable
External power	V1 (M12x1) quick disconnect
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Outputs	4 relays outputs
Load capacity	24 VDC, 500 mA (per relay), 2 A total, galvanically isolated
External power V_{ext}	24 VDC
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4A-G1-R is an AS-Interface I/O module with four outputs. The relay outputs are rated for 0.5 A at 24 VDC.

This IP67 G1 module is well suited for harsh field applications and connects easily with actuators through a V1 (M12x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status.

Flat or round cables can be used for the AS-Interface network. Use the U-G1F or U-G1FF base for AS-Interface flat cable or the U-G1P base for round cable. The AS-Interface standardized base U-G1F (EMS) uses the cable-piercing method to connect the yellow flat cable. The AS-Interface standardized base U-G1FA and U-G1FFA include an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	0

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-FK-V1-.5M
Connects Vext ro 24 VDC flat cable

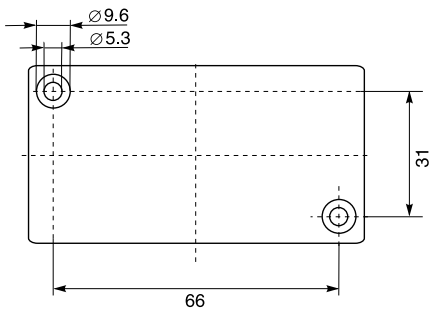
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

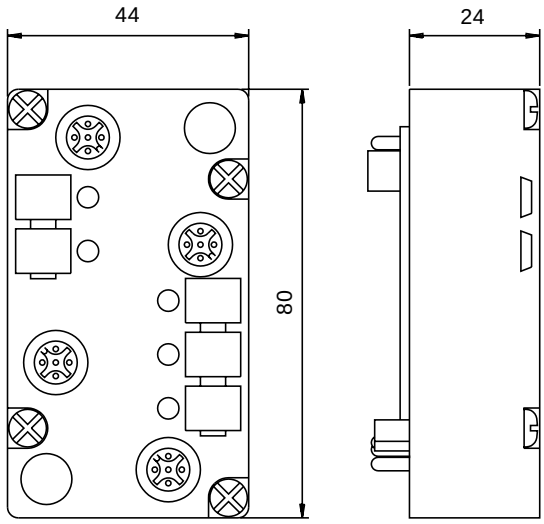
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Actuator Module



Model Number

VAA-4A-G1-E2

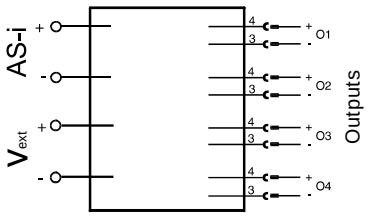
Standard module

4 outputs

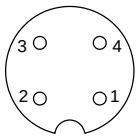
Features

- Uses standard AS-Interface flat or round cable mounting bases
- External power supply for outputs
- LED indication for outputs
- IP67

Connections



Outputs Face view - female



1 n.c.
2 n.c.
3 External power (-)
4 Switch output (+)

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-G1-E2
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 1 A (per output), 2 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-4A-G1-E2 is an AS-Interface I/O module with four outputs. The relay outputs can be operated with a maximum of 24 VDC and 2 A per output.

This IP67 G1 module is well suited for harsh field applications and connects easily with actuators through a V1 (M12x1) quick disconnect. LEDs indicate the current switch status of each channel and display the AS-Interface voltage and power supply status.

Flat or round cables can be used for the AS-Interface network. Use the U-G1FF base for AS-Interface flat cable or the U-G1PP base for round cable. The AS-Interface standardized base U-G1FF (EEMS) uses the cable-piercing method to connect the AS-Interface and external power flat cables. The AS-Interface standardized base U-G1FFA includes an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	0

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface round cable and external power supply

PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

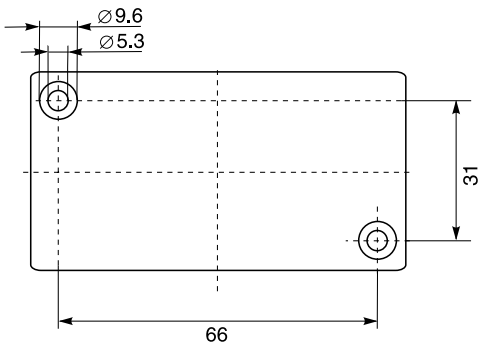
VAZ-V1-B
M12 protective cover

V1-G-Q21
V1 (M12x1) to Quickon adapter

VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Enclosure Modules

The compact, space saving KF and KF2 series modules are specifically designed for use in enclosures. Modules with four inputs (4E-modules) *or* four outputs (4A-modules) are 20 mm wide, and those with four inputs *and* four outputs are 40 mm wide. A feature of the enclosure modules is AS-Interface can be transmitted through the P+F Power Rail system. The Power Rail consists of an insert installed in 35 mm DIN rail. The AS-Interface signal is transmitted across two conductors integrated in the Power Rail.

The Power Rail is offered in two versions:

1. The PR 05 is 50 mm long and segmented into 20 mm sections (see Fig. 1). It can be shortened to a minimum of 40 mm or lengthened using the VE-PR linking connector.
2. The UPR-05 is 2 m long and is continuous (no segments).

Both versions of Power Rail can be mounted either vertically or horizontally. Figure 2 illustrates how the module snaps onto a DIN rail and connects to the AS-Interface cable.

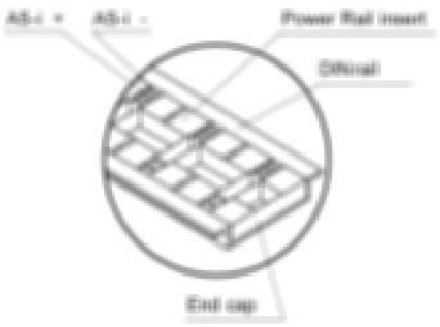


Fig. 1: The Power Rail

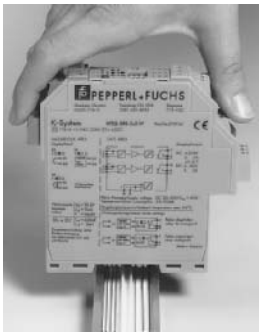


Fig. 2: KF module mounting

By connecting a single KF module to the AS-Interface cable, all other modules are connected to the network if the Power Rail is used. This greatly simplifies expansion of a system. Masters/gateways in KF housings can also be connected to both the AS-Interface cable and the Power Rail.

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

All output modules feature communications monitoring which is activated or deactivated by the P0 parameter bit. With the watchdog active, all outputs return to their de-energized state when a communication error occurs on the network. One LED per channel indicates the current status. Maximum load capacity is 2 A per output or 8 A per module. Mechanical contacts and 2- or 3-wire sensors can be connected to the inputs of the KF module.

There are two methods for connecting sensors:

1. Sensors receive power externally (KF series modules). This option is used with input devices that have high current requirements. Wiring costs are reduced because only the load wire and a common ground has to be connected to the module.
2. Sensors are powered through AS-Interface (KF2 modules).

The KF2-modules monitor the current drawn from the inputs. If a short occurs, the module will no longer communicate with AS-Interface and an error is indicated on the module. Figure 3 (below) illustrates the difference between the two options:

Inputs

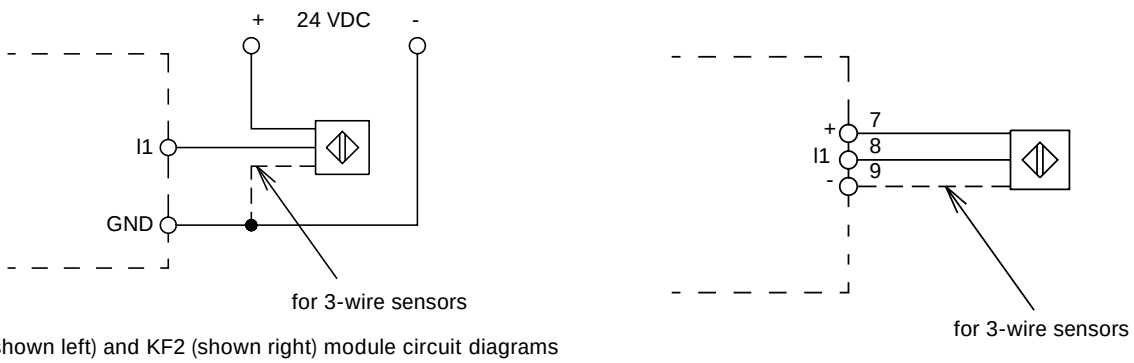
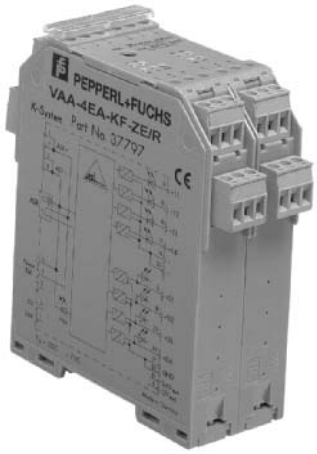
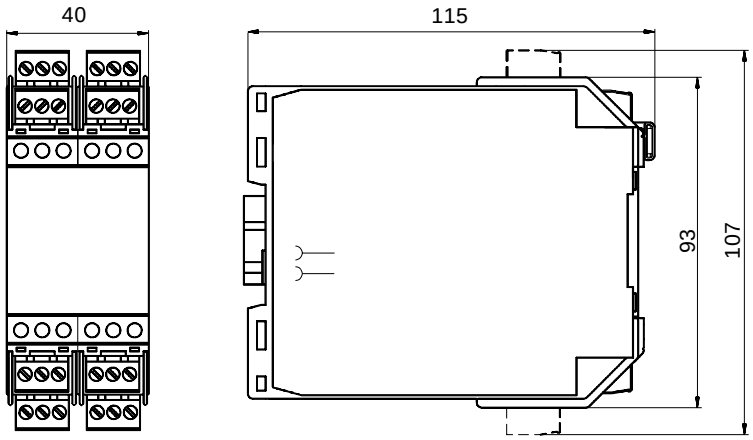


Fig. 3: KF (shown left) and KF2 (shown right) module circuit diagrams

AS-Interface Sensor/Actuator Module





Model Number

VAA-4EA-KF-ZE/R

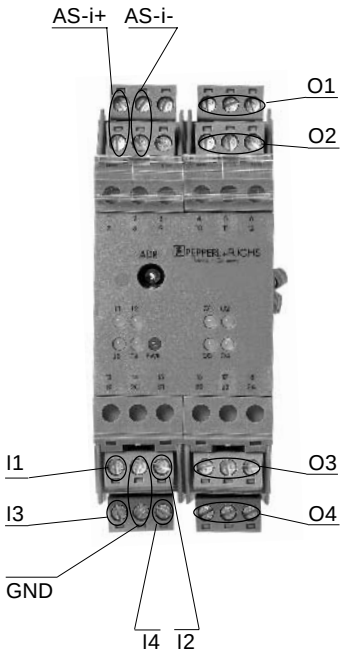
Enclosure module

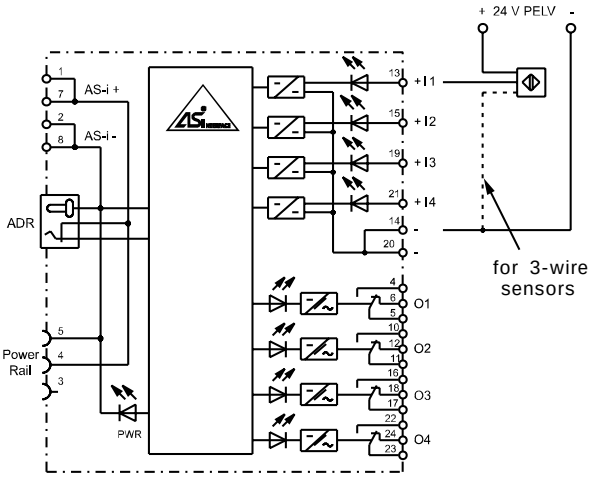
4 inputs/4 outputs

Features

- 4 DC inputs and 4 relay outputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Inputs powered externally
- LED indication for inputs and outputs
- Watchdog functionality

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF-ZE/R
Connections	
AS-Interface	terminals or Power Rail
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
Outputs	4 form C relay outputs
Load capacity	250 VAC, 4 A (per relay)
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-KF-ZE/R AS-Interface I/O module is an enclosure module with four inputs and four relay outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4EA-KF-ZE/R, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs and outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs and outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/disabled by the P0 parameter bit.

Accessories

VBP-HH1-110V
Hand-held addressing device

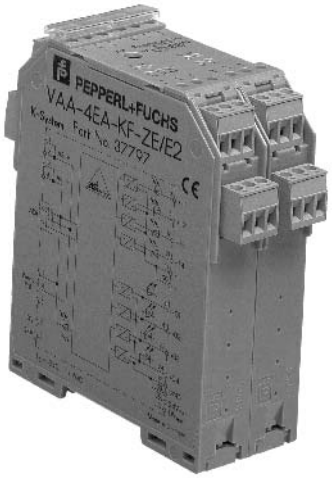
VAZ-PK-V1-CINCH
Cable from module to addressing device

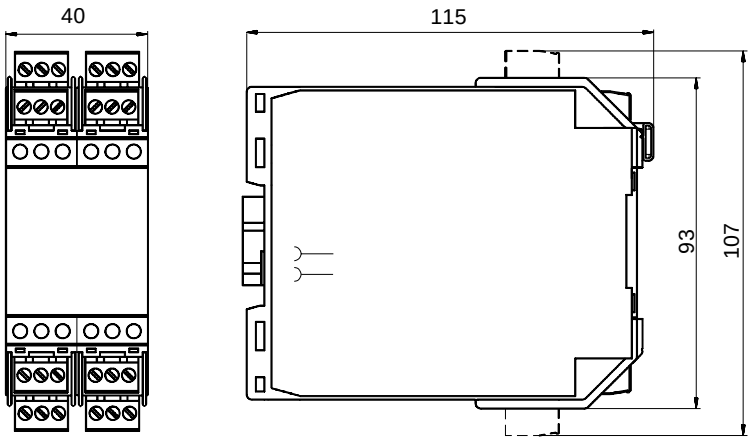
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor/Actuator Module





Model Number

VAA-4EA-KF-ZE/E2

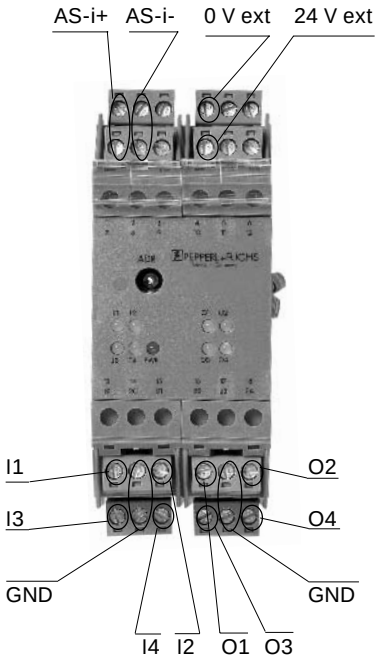
Enclosure module

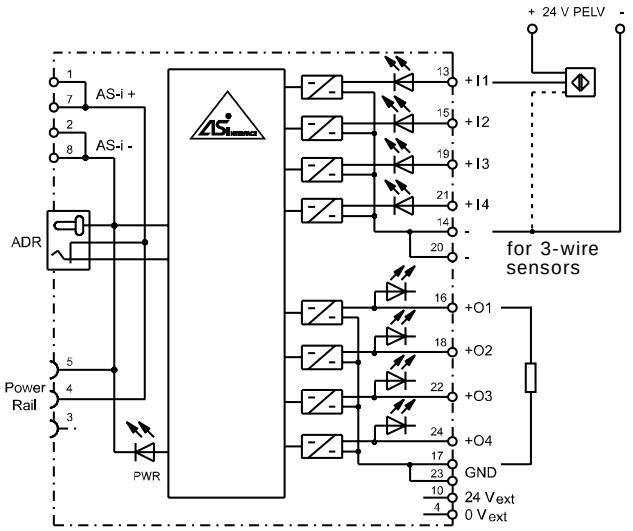
4 inputs/4 outputs

Features

- 4 DC inputs and 4 electronic outputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Inputs powered externally
- LED indication for inputs and outputs
- Watchdog functionality
- Harzardous location Class 1, Division 2 approved

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF-ZE/E2
Connections	
AS-Interface	terminals or Power Rail
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 8 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-KF-ZE/E2 AS-Interface I/O module is an enclosure module with four inputs and four electronic outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4EA-KF-ZE/E2, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs and outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs and outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/disabled by the P0 parameter bit.

Accessories

VBP-HH1-110V
Hand-held addressing device

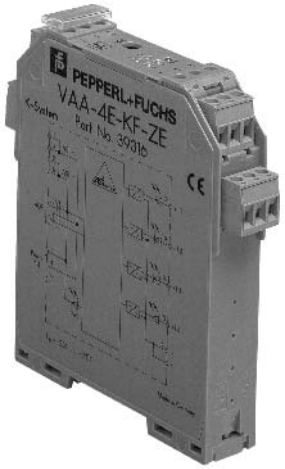
VAZ-PK-V1-CINCH
Cable from module to addressing device

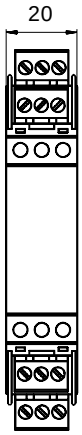
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

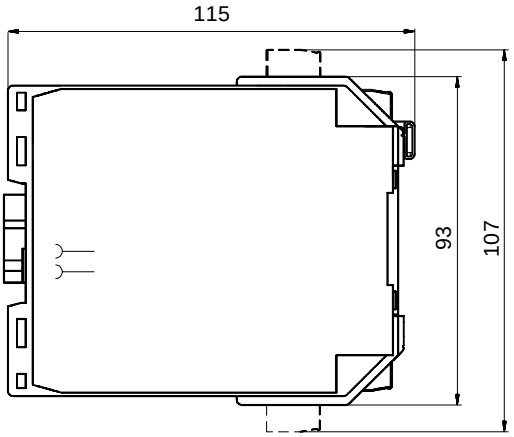
UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor Module







Model Number

VAA-4E-KF-ZE

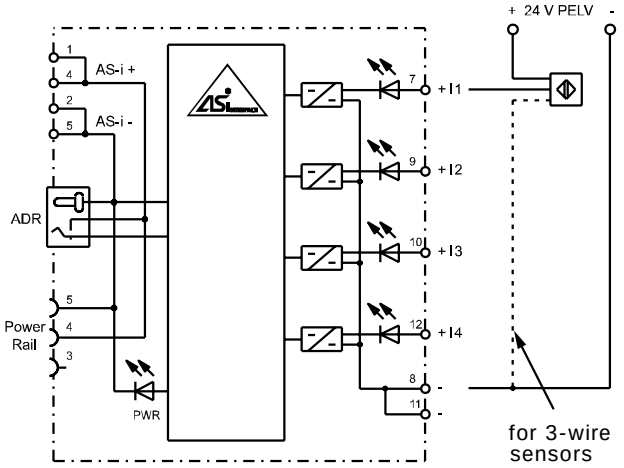
Enclosure module

4 inputs

Features

- 4 DC inputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Inputs powered externally
- LED indication for inputs
- Harzardous location Class 1, Division 2 approved

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-KF-ZE
Connections	
AS-Interface	terminals or Power Rail
Inputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
Indicators	
4, Switch status (I1-I4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Description

The VAA-4E-KF-ZE AS-Interface I/O module is an enclosure module with four inputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4E-KF-ZE, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs.

Accessories

VBP-HH1-110V
Hand-held addressing device

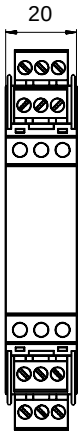
VAZ-PK-V1-CINCH
Cable from module to addressing device

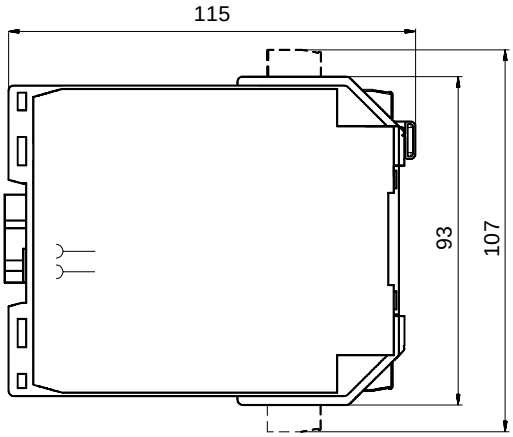
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Actuator Module





Model Number

VAA-4A-KF-E2

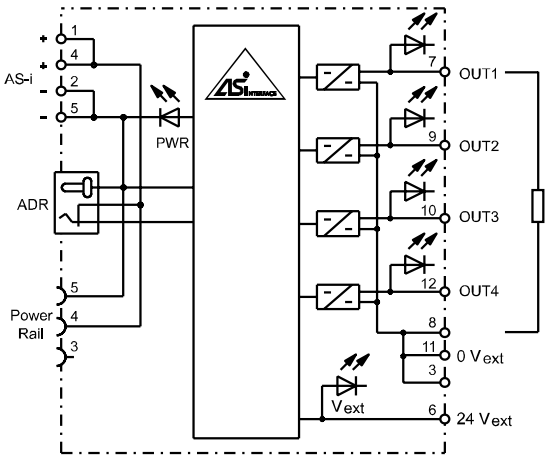
Enclosure module

4 outputs

Features

- 4 electronic outputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Outputs powered externally
- LED indication outputs
- Watchdog functionality
- Harzardous location Class 1, Division 2 approved

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-KF-E2
Connections	
AS-Interface	terminals or Power Rail
Outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 8 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	F

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4A-KF-E2 AS-Interface I/O module is an enclosure module with four electronic outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4A-KF-E2, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/disabled by the P0 parameter bit.

Accessories

VBP-HH1-110V
Hand-held addressing device

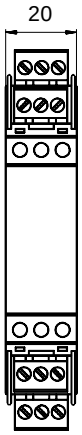
VAZ-PK-V1-CINCH
Cable from module to addressing device

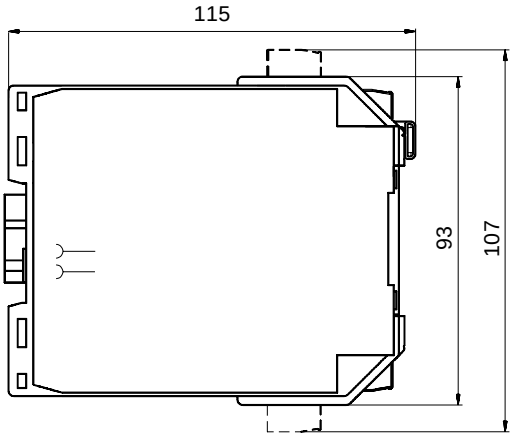
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor Module





Model Number

VAA-4E-KF-WS

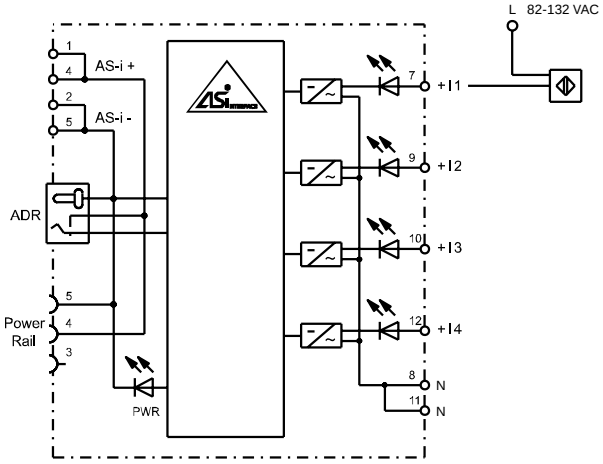
Enclosure module

4 inputs

Features

- 4 AC inputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Inputs powered externally
- LED indication for inputs
- Harzardous location Class 1, Division 2 approved

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-KF-WS
Connections	
AS-Interface	terminals or Power Rail
Inputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Inputs	four 2- or 3-wire sensors, AC
OFF I_{in}	≤ 2 mA
ON I_{in}	≥ 20 mA
Voltage range	82-132 VAC, 50-60 Hz
Indicators	
4, Switch status (I1-I4)	LED yellow
Power (AS-Interface)/ communication error	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	F

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Description

The VAA-4E-KF-WS AS-Interface I/O module is an enclosure module with four AC inputs. This module is specially designed for use in enclosures and features a 20 mm wide housing. To install the VAA-4E-KF-WS, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs.

Accessories

VBP-HH1-110V
Hand-held addressing device

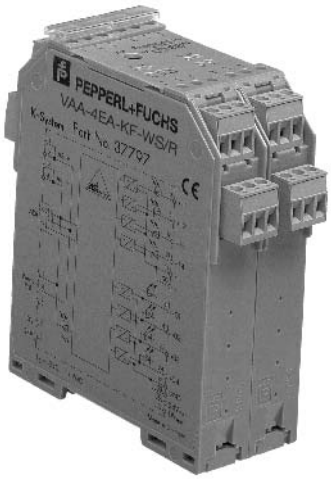
VAZ-PK-V1-CINCH
Cable from module to addressing device

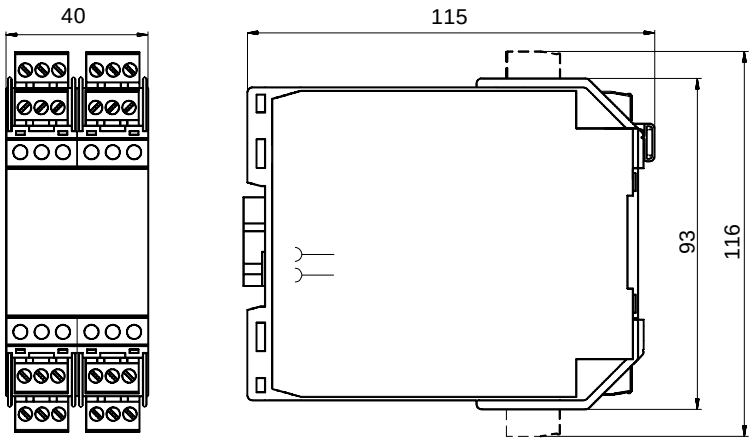
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor/Actuator Module





Model Number

VAA-4EA-KF-WS/R

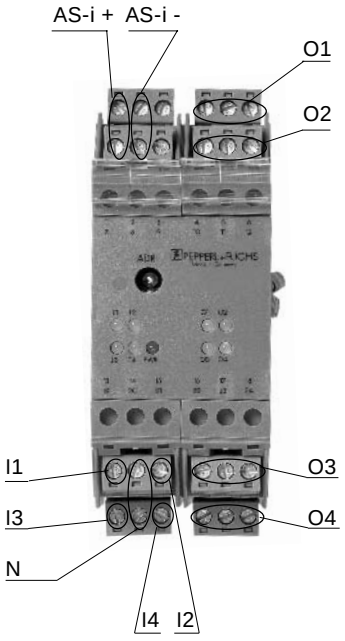
Enclosure module

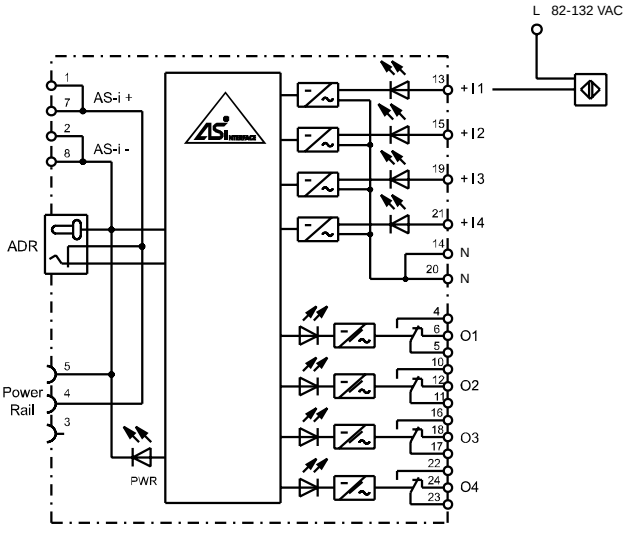
4 inputs/4 outputs

Features

- 4 AC inputs and 4 relay outputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- Inputs powered externally
- LED indication for inputs and outputs
- Watchdod functionality

Connection





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF-WS/R
Connections	
AS-Interface	terminals or Power Rail
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA
Inputs	four 2- or 3-wire sensors, AC
OFF I_{In}	≤ 2 mA
ON I_{In}	≥ 20 mA
Voltage	82-132 VAC, 50-60 Hz
Outputs	4 form C relay outputs
Load capacity	250 VAC, 4 A (per relay)
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)/ communication error	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-KF-WS/R AS-Interface I/O module is an enclosure module with four AC inputs and four relay outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4EA-KF-WS/R, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs and outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs and outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/ disabled by the P0 parameter bit.

Accessories

VBP-HH1-110V
Hand-held addressing device

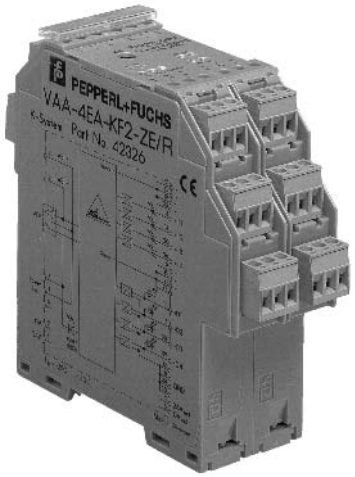
VAZ-PK-V1-CINCH
Cable from module to addressing device

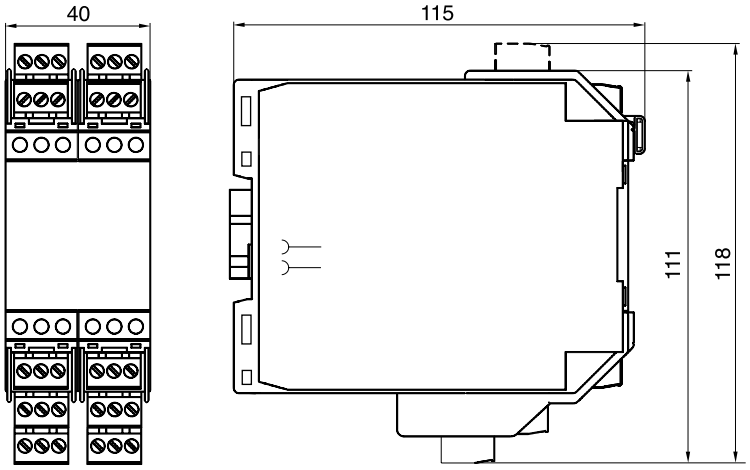
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor/Actuator Module





Model Number

VAA-4EA-KF2-ZE/R

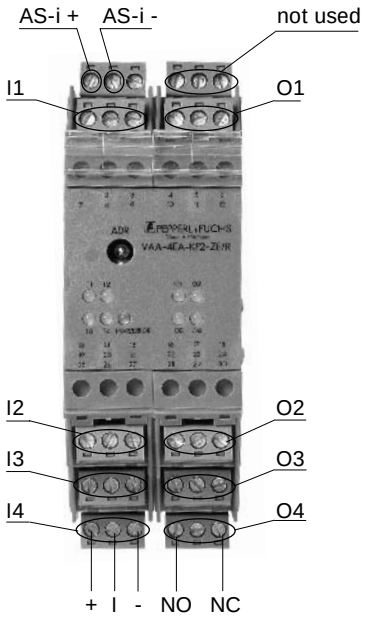
Enclosure module

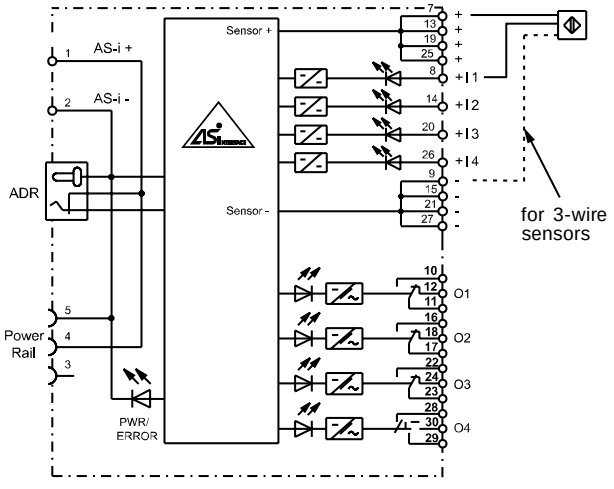
4 inputs/4 outputs

Features

- 4 DC inputs and 4 relay outputs
- AS-Interface connection via Power Rail or terminals
- Removable, mechanically-keyed terminals
- AS-Interface powered inputs
- LED indication for inputs and outputs
- Watchdog functionality

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF2-ZE/R
Connections	
AS-Interface	terminals or Power Rail
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	160 mA, short circuit protection
Outputs	4 form C relay outputs
Load capacity	250 VAC, 4 A (per relay)
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red
EMCr	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-KF2-ZE/R AS-Interface I/O module is an enclosure module with four AS-Interface powered inputs and four relay outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4EA-KF2-ZE/R, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF2 modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs and outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs and outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/disabled by the P0 parameter bit.

VAA-4EA-KF2-ZE0/R is available as an NPN version.

Accessories

VBP-HH1-110V
Hand-held addressing device

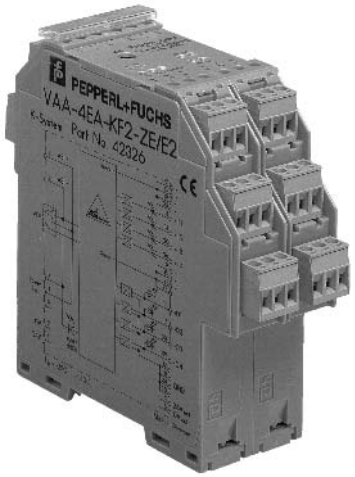
VAZ-PK-V1-CINCH
Cable from module to addressing device

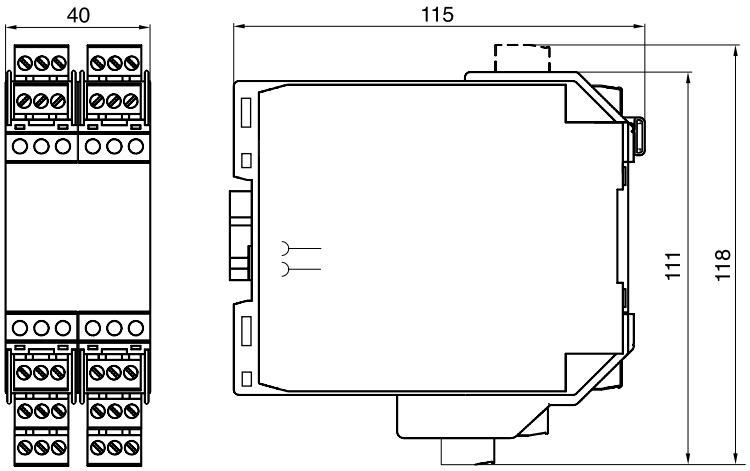
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor/Actuator Module





Model Number

VAA-4EA-KF2-ZE/E2

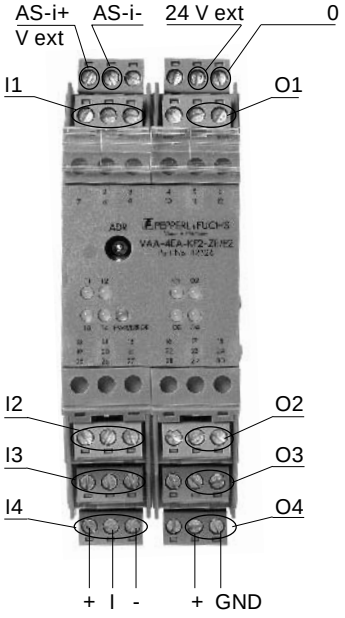
Enclosure module

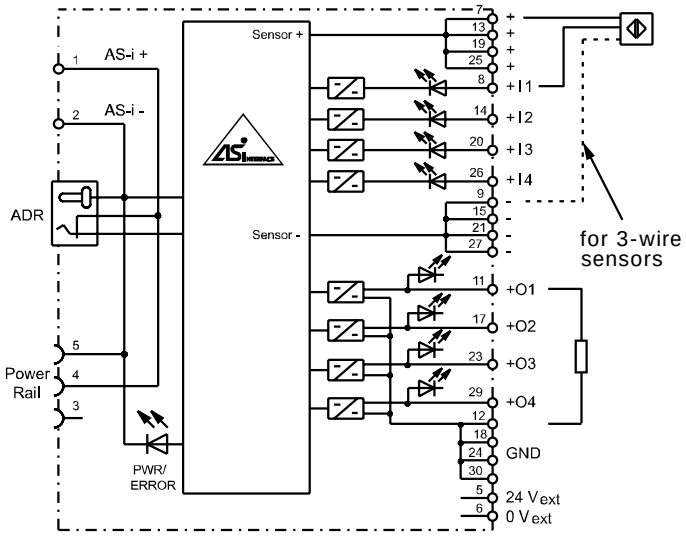
4 inputs/4 outputs

Features

- 4 DC inputs and 4 electronic outputs
- AS-Interface connection via Power Railot terminals
- Removable, mechanically-keyed terminals
- AS-Interface powered inputs
- LED indication for inputs and outputs
- Watchdog functionality
- Harzardous location Class 1, Division 2 approved

Connections





PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF2-ZE/E2
Connections	
AS-Interface	terminals or Power Rail
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	150 mA, short circuit protection
Outputs	4 electronic outputs
Load capacity	24 VDC, 2 A (per output), 8 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-KF2-ZE/E2 AS-Interface I/O module is an enclosure module with four AS-Interface powered inputs and four electronic outputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4EA-KF2-ZE/E2, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors/actuators takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF2 modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid in installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs and outputs are powered externally and power to the module is supplied by the AS-Interface cable. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs and outputs.

Note:
When the watchdog is active, all outputs return to their de-energized state if a communication error occurs on the network. The watchdog can be enabled/disabled by the P0 parameter bit.

Accessories

VBP-HH1-110V
Hand-held addressing device

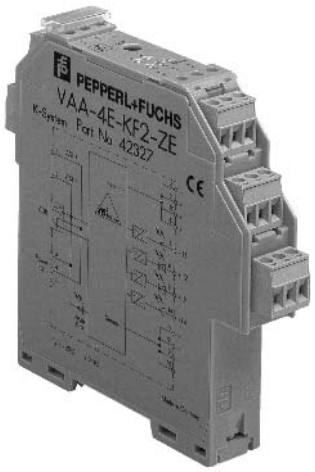
VAZ-PK-V1-CINCH
Cable from module to addressing device

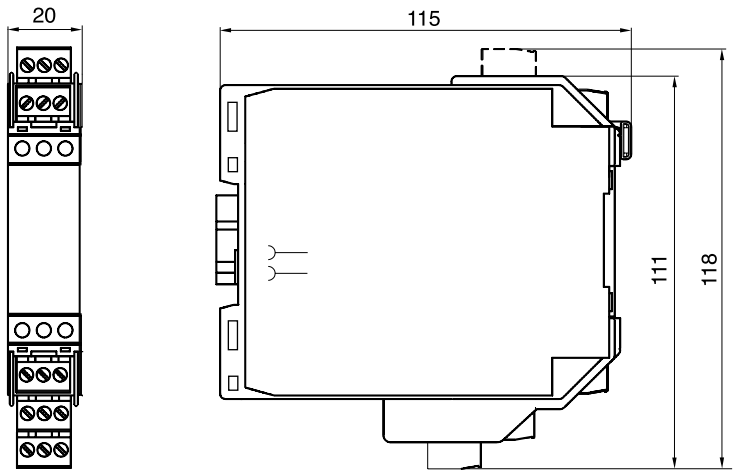
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Sensor Module





Model Number

VAA-4E-KF2-ZE

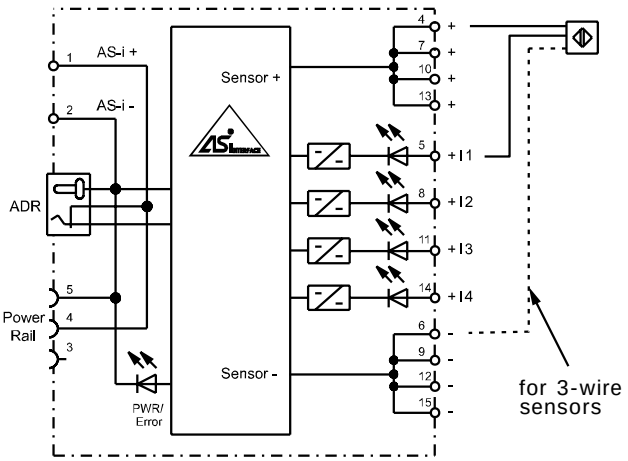
Enclosure module

4 inputs

Features

- 4 DC inputs
- AS-Interface connection via Power Rail
- Removable, mechanically-keyed terminals or terminals
- AS-Interface powered inputs
- LED indication for inputs
- Short circuit indication
- Harzardous location Class 1, Division 2 approved

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-KF2-ZE
Connections	
AS-Interface	terminals or Power Rail
Inputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 80 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	150 mA, short circuit protection
Indicators	
4, Switch status (I1-I4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Description

The VAA-4E-KF2-ZE AS-Interface I/O module is an enclosure module with four AS-Interface powered inputs. This module is specially designed for use in enclosures and features a 40 mm wide housing. To install the VAA-4E-KF2-ZE, simply snap it onto a 35 mm DIN rail (per EN 50 022).

The connection of the sensors takes place through mechanically-keyed, removable terminals that accept wire diameters up to 14 AWG. The KF2 modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid installation.

The connection to the AS-Interface cable can be accomplished through terminal connections or using the Power Rail. The inputs are powered from AS-Interface. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs.

Accessories

VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to addressing device

UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

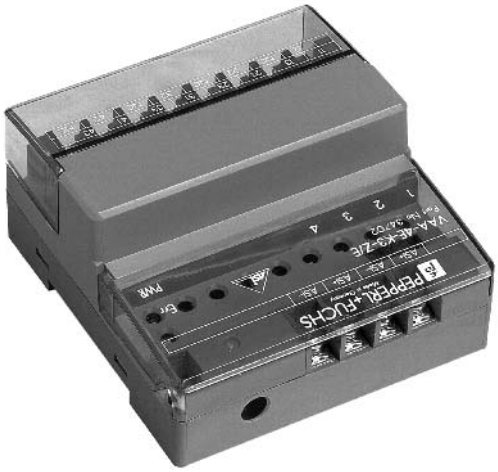
PR 05
Power Rail, 0.5 m long

Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Junction Box Modules

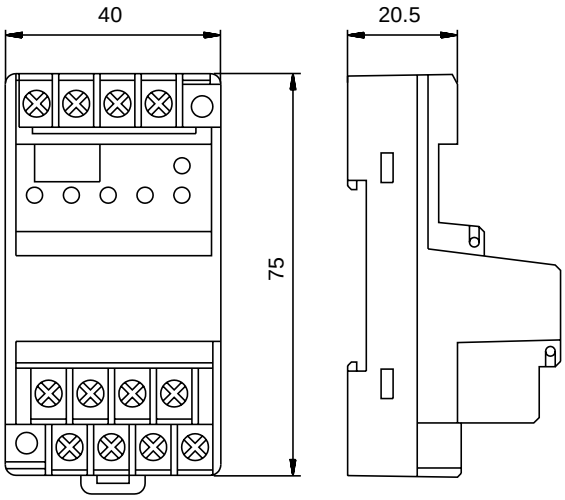
Pepperl+Fuchs offers junction box modules as small as 38 mm. These modules can be mounted on either a DIN rail or through the mounting holes in the base. An integrated addressing jack enables the module to be addressed while connected to AS-Interface. A plastic cover, which is printed with the wiring diagram, protects the screw terminals. Input modules are available for 2- or 3-wire sensors and for mechanical contacts. Outputs are available as form C (N.O./N.C.) relays or electronic outputs.



Several monitoring mechanisms are available for the junction box modules: two-wire sensors can be monitored for lead breakage because a small current always flows through the sensor. Depending on the sensor, this current is between 0.7 and 1 mA. If the lead breaks, the circuit is interrupted. The VAA-4E-K2-Z module, which is disconnected from AS-Interface, detects the lead breakage and no longer reacts to the data request from the master. Error detection is easy because the master displays the address of the faulty module and a red LED indicates the failed channel.

Input modules for 2- and 3-wire sensors are monitored for excessive current flow from the four inputs. If the sensors use too much current, the module is disconnected from AS-Interface and a red LED illuminates on the module. The external power supply for the outputs, like all other signals, is connected to the terminals.

AS-Interface Sensor Module



Model Number

VAA-4E-K2-Z

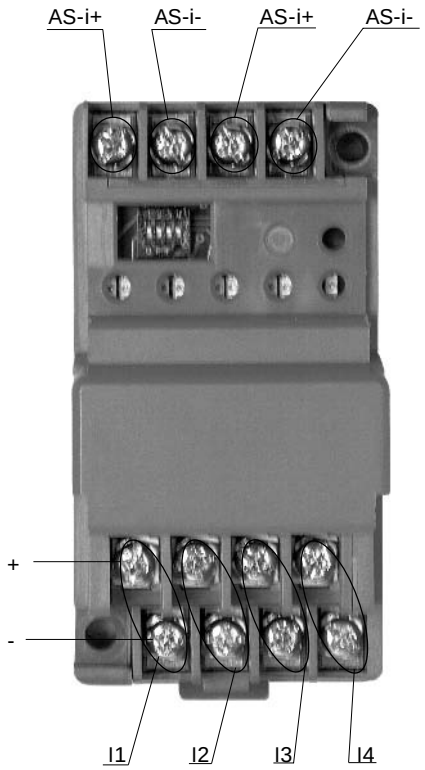
Junction box module

4 inputs

Features

- Lead breakage and short circuit monitoring activated by DIP switches
- LED indication for inputs
- AS-Interface powered inputs
- Harzardous location Class 1, Division 2 approved

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-K2-Z
Connections	
AS-Interface	terminals
Inputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Inputs	four 2-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 3 mA
Lead breakage I_R	< 430 µA
Short circuit I_{OUT}	> 5 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	150 mA, short circuit protection
Indicators	
4, Switch status (I1-I4)/ lead breakage	LED yellow/LED red
Power (AS-Interface)/sensor overload	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Description

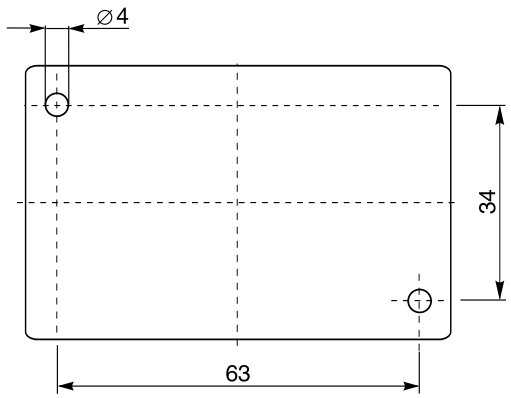
The VAA-4E-K2-Z AS-Interface I/O module is a junction box module with four inputs. Two-wire sensors and mechanical contacts can be connected to the inputs and are monitored for lead breakage and short circuits. When the DIP switch is open (OFF), LB/SC monitoring is active.

The 39 mm profile is ideal for installation in junction boxes. The VAA-4E-K2-Z mounts by snapping onto the 35 mm DIN rail per EN 50 022. Screw terminals for cables up to 14 AWG connect the inputs and AS-Interface cable. The sensors connected to the module are powered from AS-Interface.

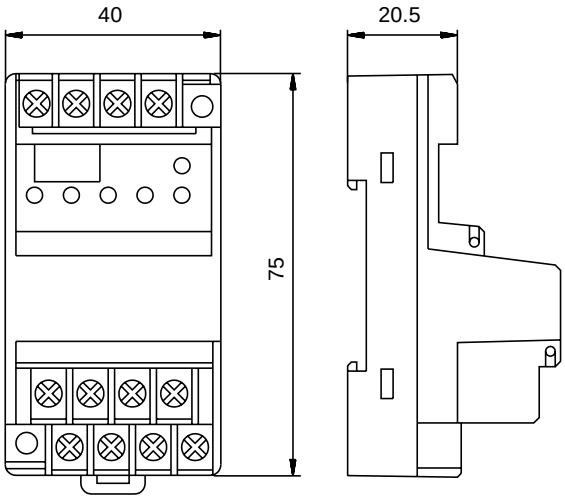
An LED for each input indicates the current switch status or lead breakage. If a short circuit exists on the inputs, the module disconnects from AS-Interface and the master indicates an error.

Accessories

Hole dimensions when mounted with screws



AS-Interface Sensor/Actuator Module



Model Number

VAA-2EA-K2-ZE/E2

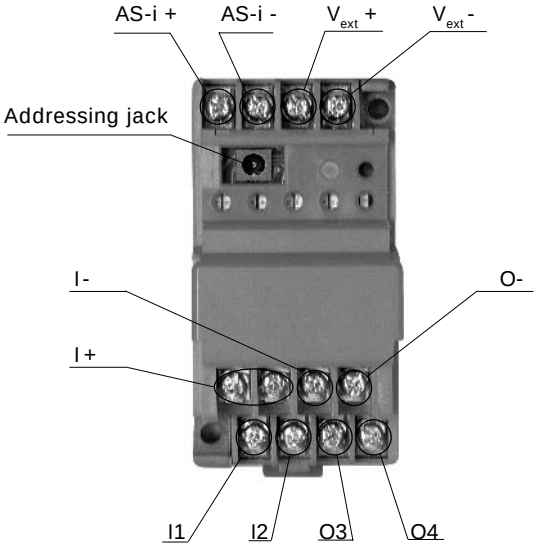
Junction box module

2 inputs/2 outputs

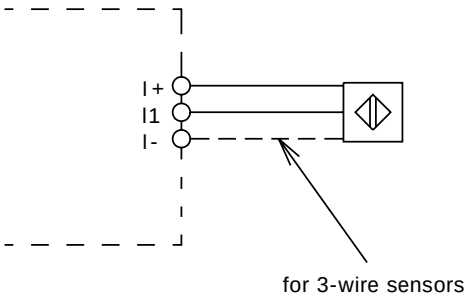
Features

- LED indication for inputs and outputs
- Integrated addressing jack
- AS-Interface powered inputs
- Watchdog functionality
- Harzardous location Class 1, Division 2 approved

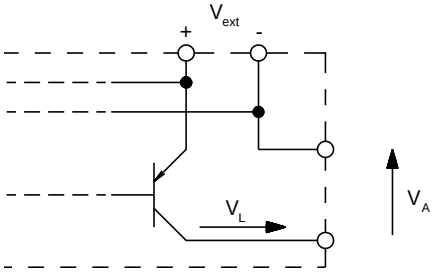
Connections



Inputs



Outputs



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-K2-ZE/E2
Connections	
AS-Interface	terminals
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	100 mA, short circuit protection
Outputs	2 electronic outputs
Load capacity	24 VDC, 500 mA (per output), 1 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)	LED green
External power	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Data Bits

Bit	Function
D0	input 01
D1	input 02
D2	output 03
D3	output 04

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-2EA-K2-ZE/E2 AS-Interface I/O module is a junction box module with two inputs and two electronic outputs. Mechanical contacts and 2- or 3-wire sensors can be connected to the inputs.

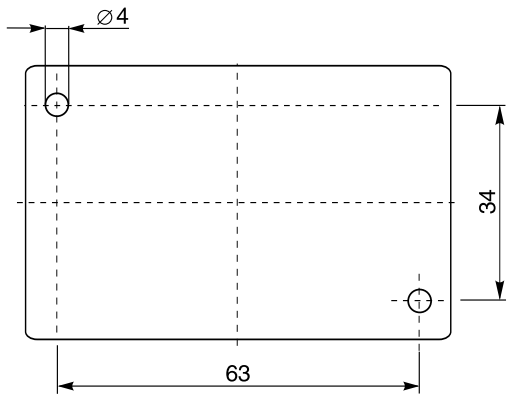
Its 39 mm profile is especially suited for installation in an enclosure. The VAA-2EA-K2-ZE/E2 mounts by snapping onto the 35 mm DIN rail per EN 50 022. Screw terminals for cables up to 14 AWG connect the inputs, outputs and AS-Interface cable. The inputs are powered from AS-Interface. Each electronic output can carry a 0.5 A load at 24 VDC. The external power supply can be connected directly to the module. A green LED indicates an external power supply while LEDs for each input and output indicate the current switch status.

Accessories

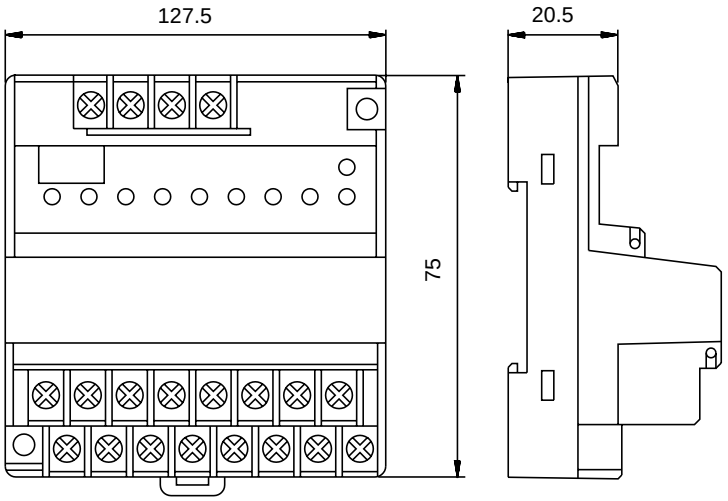
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to addressing device

Hole dimensions when mounted with screws



AS-Interface Sensor Module



Model Number

VAA-4E-K3-ZE

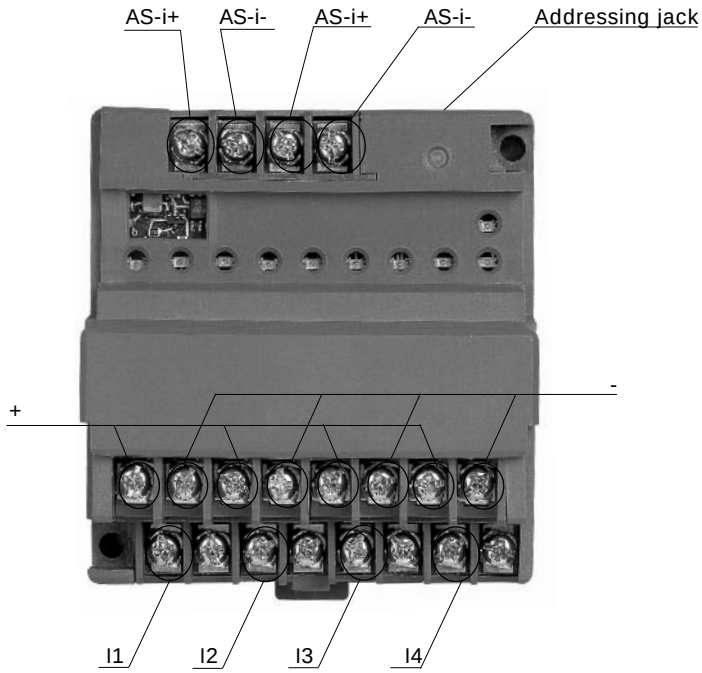
Junction box module

4 inputs

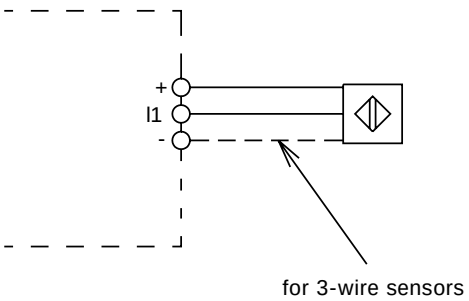
Features

- LED indication for inputs
- Integrated addressing jack
- AS-Interface powered inputs
- Input filter capability
- Harzardous location Class 1, Division 2 approved

Connections



Inputs



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4E-K3-ZE
Connections	
AS-Interface	terminals
Inputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 30 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	180 mA, short circuit protection
Indicators	
4, Switch status (I1-I4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	0
ID-Code	0

Data Bits

Bit	Function
D0	input I1
D1	input I2
D2	input I3
D3	input I4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	input filter = 1, filter de-activated* = 0, filter activated
P2	not used
P3	not used

* default setting

Description

The VAA-4E-K3-ZE AS-Interface I/O module is an Junction box module with four AS-Interface powered inputs. The 39 mm profile is ideal for installations in junction boxes. To install the VAA-4E-K3-ZE, simply snap it onto a 35 mm DIN rail (per EN 50 022).

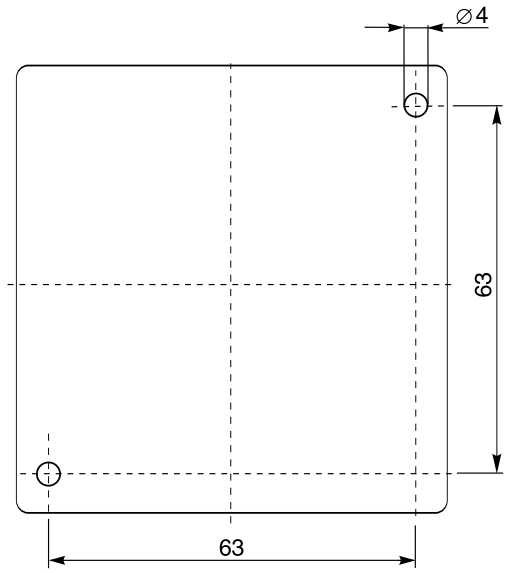
The connection of the sensors takes place through terminals that accept wire diameters up to 14 AWG. The K3 modules allow the exchange of components while under power.

The connection to the AS-Interface cable can be accomplished through terminal connections. The inputs are powered from AS-Interface. An addressing jack is available for connection of the hand-held addressing device to the module. LEDs indicate the status of the inputs.

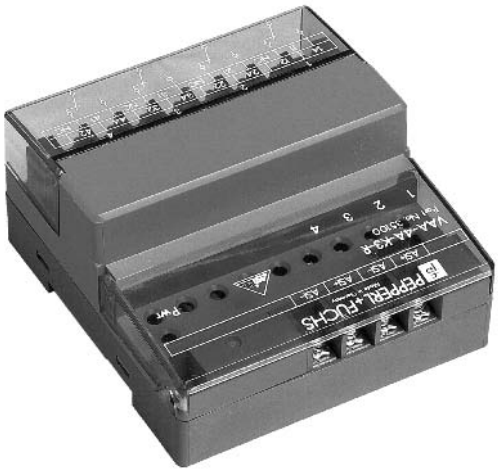
When the input filter is activated via parameter bit P1, the module will suppress pulses less than 5 ms in duration.

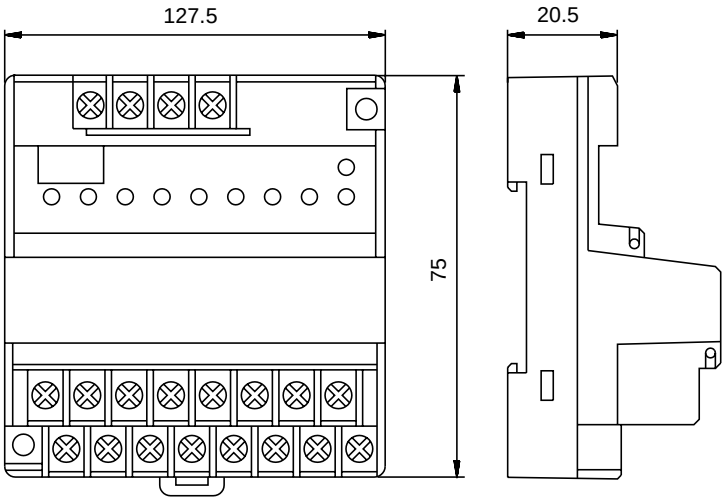
Accessories

Hole Dimensions When Screw Mounted



AS-Interface Actuator Module





Model Number

VAA-4A-K3-R

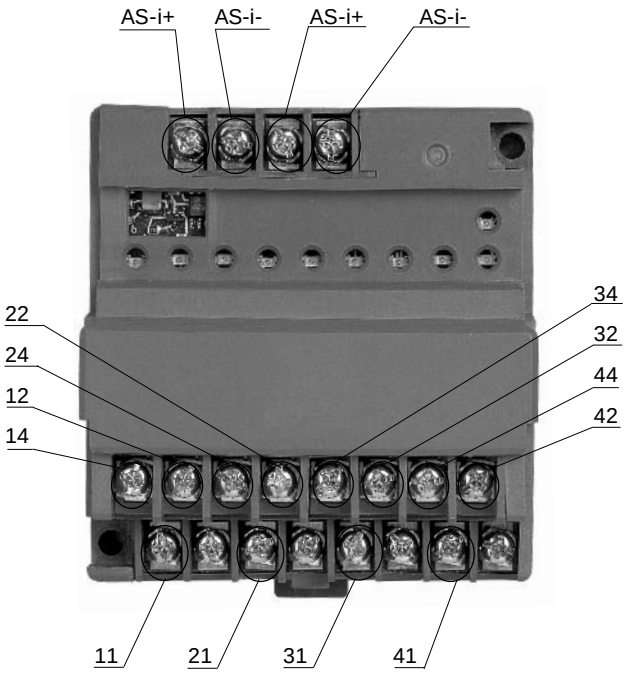
Junction box module

4 outputs

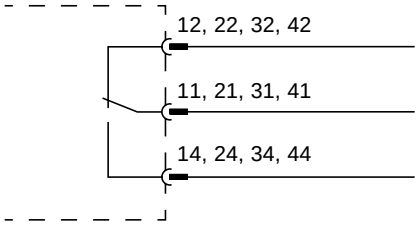
Features

- LED indication for outputs
- 4 isolated form C relays

Connections



Outputs



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4A-K3-R
Connections	
AS-Interface	terminals
Outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 40 mA
Outputs	4 form C relay outputs
Load capacity	115 VAC, 500 mA (per relay) 24 VDC, 500 mA (per relay) 60 VA max. (per relay)
Indicators	
4, Switch status (O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	8
ID-Code	0

Data Bits

Bit	Function
D0	output O1
D1	output O2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

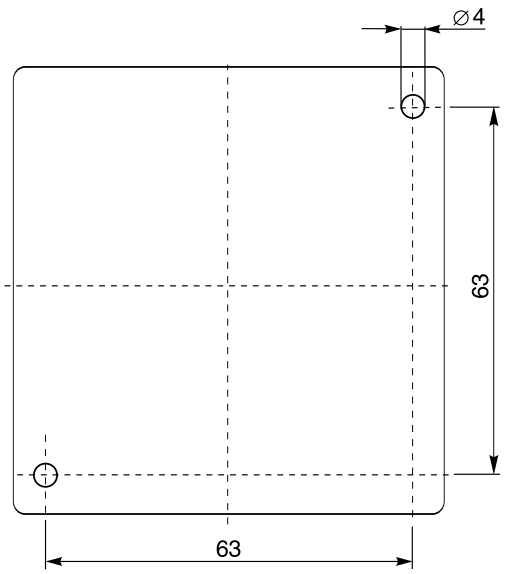
Description

The VAA-4A-K3-R is a junction box module with four relay outputs. Its 39 mm profile is especially suited for installation in an junction box. The VAA-4A-K3-R mounts by snapping onto the 35 mm DIN rail per EN 50 022. Screw terminals for cables up to 14 AWG connect the outputs and AS-Interface cable.

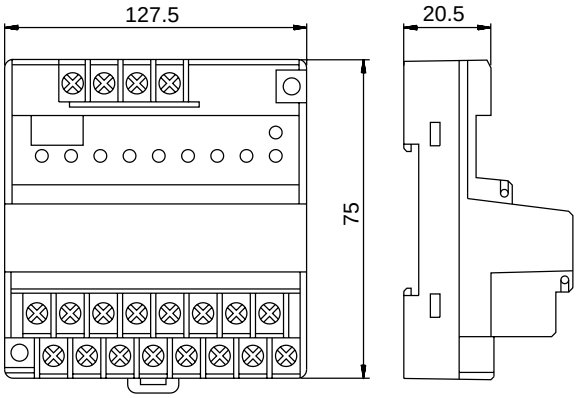
Each output is switched via a relay that can carry a load of 60 VA. An LED is available for each output to indicate the current switch status. Should there be an interruption to bus communications, outputs maintain their switch status as long as power is supplied.

Accessories

Hole Dimensions When Screw Mounted



AS-Interface Sensor/Actuator Module



Model Number

VAA-4EA-K3-ZE/E2

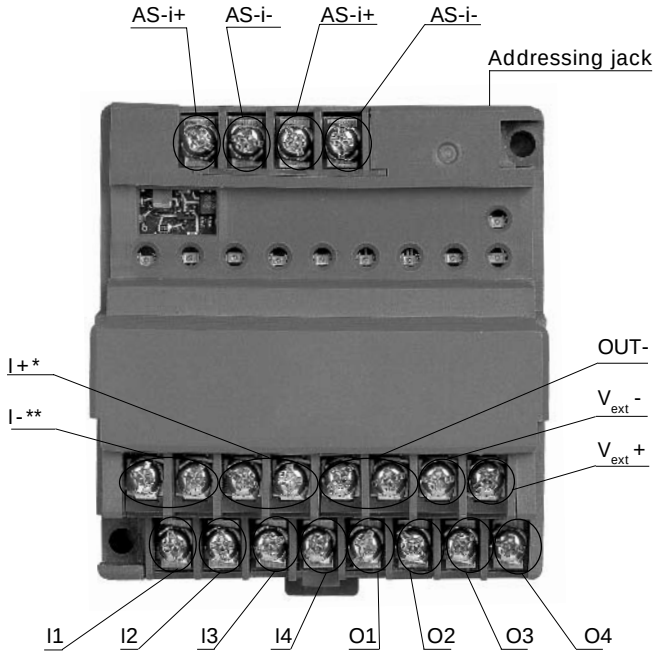
Junction module

4 inputs/4 outputs

Features

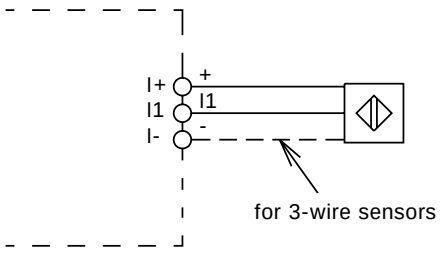
- LED indication for inputs and outputs
- Integrated addressing jack
- Inputs are powered externally
- Watchdog functionality
- Harzardous location Class 1, Division 2 approved

Connections

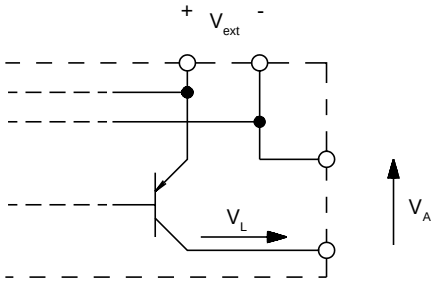


Note: * I+ is internally connected to V_{ext}+
** I- is internally connected to V_{ext}-

Inputs



Outputs



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-K3-ZE/E2
Connections	
AS-Interface	terminals
Inputs/outputs	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 60 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 7 mA
Outputs	4 electronic outputs
Load capacity	24 VDC, 500 mA (per output), 2 A total, galvanically isolated
External power V_{ext}	24 VDC ± 15 %
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

The VAA-4EA-K3-ZE/E2 AS-Interface I/O module is a junction box module with four inputs and four electronic outputs. Mechanical contacts and 2- or 3-wire sensors can be connected to the inputs.

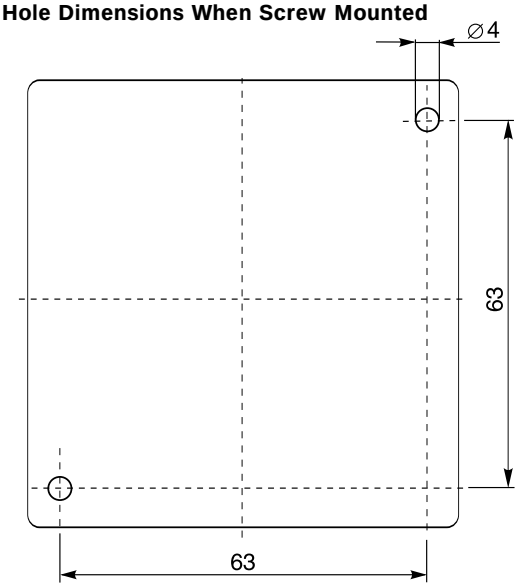
Its 39 mm profile is especially suited for installation in an enclosure. The VAA-4EA-K3-ZE/E2 mounts by snapping onto the 35 mm DIN rail per EN 50 022. Screw terminals for cables up to 14 AWG connect the inputs, outputs and AS-Interface cable. The inputs are powered from the external power supply. Each electronic output can carry a 0.5 A load at 24 VDC. The external power supply can be connected directly to the module. A green LED indicates an external power supply while LEDs for each input and output indicate the current switch status.

Accessories

VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to addressing device

Hole Dimensions When Screw Mounted

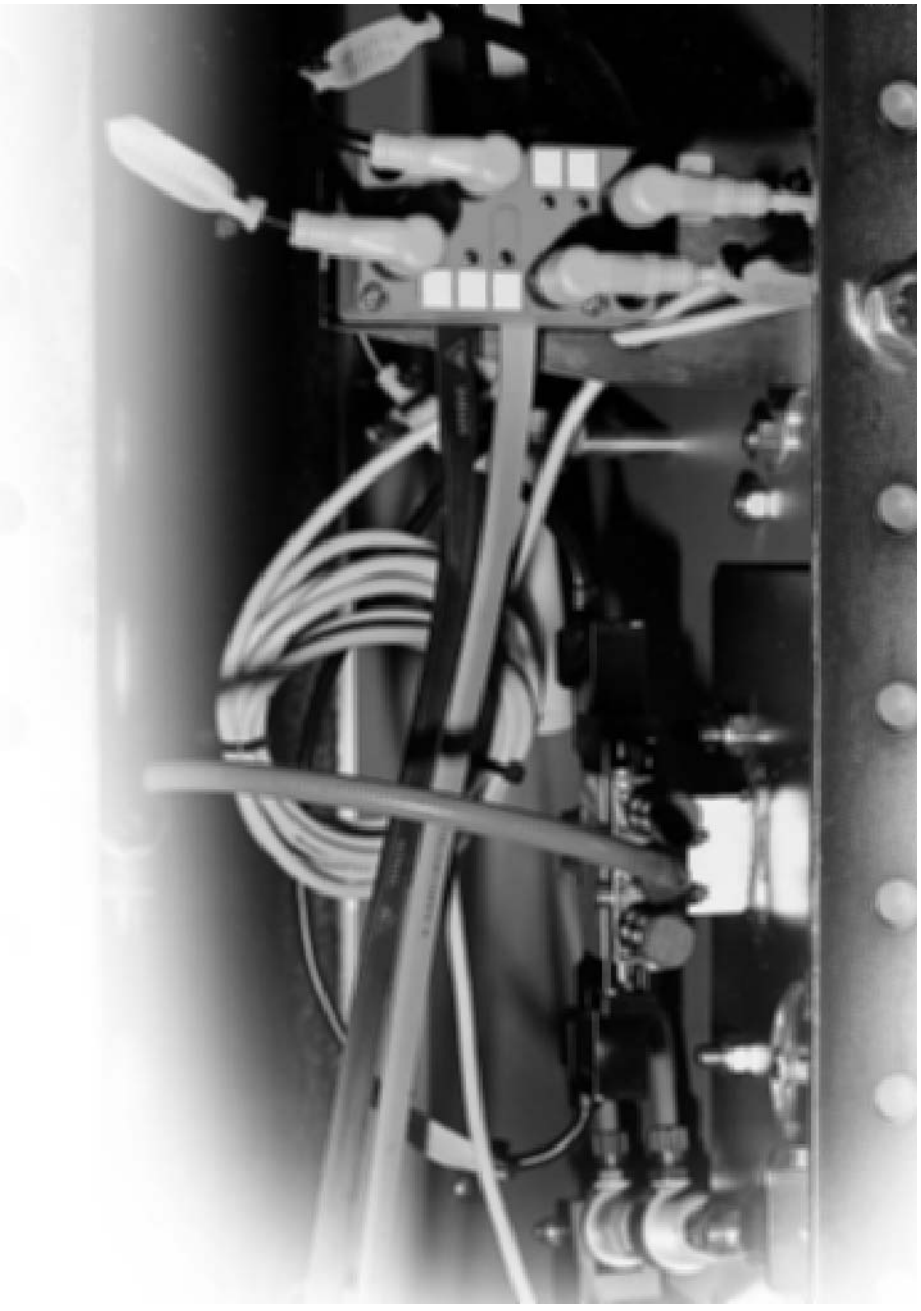


Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Special Functions Modules

Special Function Modules



Notes

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Special Function Modules

In addition to standard modules, Pepperl+Fuchs offers a series of products with special functionality to solve the most demanding applications. These modules include:

- Logic modules
- Lighted push buttons
- Pneumatic modules
- Rotary encoders
- Control relays

The VAA-2EA-G1-ZE/E2-LG logic module links both inputs with the two outputs. Various logic operations can be chosen with the parameters. One advantage is the logical linkage occurs in the module so it is possible to achieve reaction times under 0.5 ms.

The VAA-LT2-G1 lighted pushbutton module is an IP67 module that transfers the button signals over two inputs and controls the corresponding LEDs over two outputs. This module establishes the interface between the maintenance personnel and the AS-Interface system. This pushbutton module is ideal for use in the field due to its high IP rating.

The problem of the control of pneumatic valves is solved using the VAA-2EA-G1-ZE/P-S pneumatic modules. This module has two separate 2- or 3-way integrated valves and two inputs for 2- or 3-wire sensors. A major advantage of this module is the bus-powered solenoids and inputs are in the same housing.

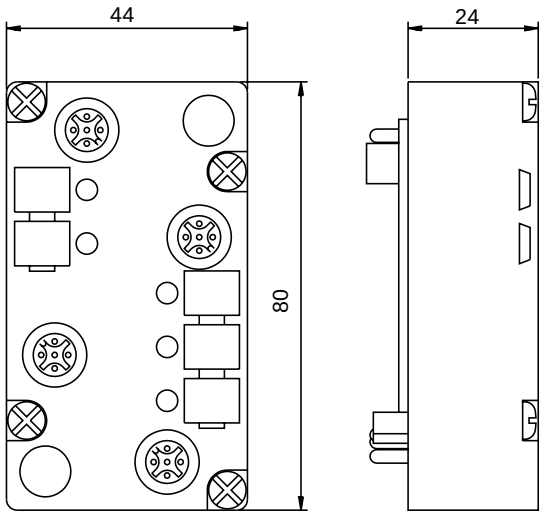
Rotary encoders are commonly used to detect angles and positions of devices in automation technology. Absolute rotary encoders, such as Pepperl+Fuchs' BVE and BVM series, indicate their position by an encoded number and are programmable through the use of parameter bits. Four AS-Interface ASICs are integrated in this encoder so the position can be quickly transferred (within one AS-Interface cycle) with a resolution of 13 bits.

Valve position indicators tell whether a valve is open or closed. The NCN3-F31-B3-V1-K is a valve position indicator that mounts directly to the actuator and requires no additional adjustments. The unit is composed of two sensors (each with an output) enclosed in a single housing. The sensor status and the power supply for the valves are available from the AS-Interface cable. Another useful valve position indicator is the PL1-F25- B3-S circuit board with dual sensors. These indicators are commonly used with applications where an armature is controlled pneumatically through a shaft. The terminals for the valve are mounted on the circuit board so that the sensor status and the power supply can be transferred across the AS-Interface.

The VAA-4EA-CB-E/E2 is a circuit board module with four inputs and four outputs although Pepperl+Fuchs can customize it to your specific applications. AS-Interface supplies power to this module which features watchdog functionality, short circuit and overload protection, and bus powered outputs.

The EASY programmable relays are a simple, low-cost alternative to hard-wired and conventional PLC solutions. They are ideal for controlling HVAC systems, counting, security lighting, alarms or other applications typically considered too simple to justify the expense of a PLC. The relays mount on a 35 mm DIN rail or can be screwed to a panel. An EEPROM stores the ladder diagram program, eliminating the need for a battery backup. A separate memory module is available for program backup or distribution to multiple units. The EASY control relays use just four buttons and a cursor control to construct ladder diagrams so you don't have to learn a special logic language.

AS-Interface Logic Module



Model Number

VAA-2EA-G1-ZE/E2-LG

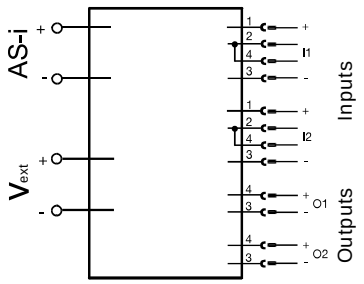
Logic module

2 inputs/2outputs

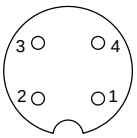
Features

- Inputs can be logically linked to outputs using parameter bits
- Can operate as a standard 2 input/2 output I/O module
- LEDs for inputs and outputs
- Uses standard AS-Interface flat or round cable mounting bases
- IP67

Connections

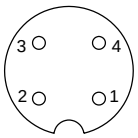


Inputs Face view - female



1 Input power (+)
2 Input*
3 Input power (-)
4 Input*

Outputs Face view - female



1 n.c.
2 n.c.
3 External power (-)
4 Switch output (+)

* Internally connected

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G1-ZE/E2-LG
Connections	
AS-Interface/external power	yellow flat cable/black flat cable or standard round cable
Inputs/outputs	V1 (M12x1) quick disconnect
Operating voltage V_B	via AS-Interface, reverse polarity protection
Operating current I_e	≤ 70 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{in}	≤ 1 mA
ON I_{in}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{OUT}	20-30 VDC from AS-Interface
I_{OUT}	70 mA, short circuit protection
Outputs	2, electronic
Load capacity	24 VDC, 500 mA (per output), 1 A total, galvanically isolated
External power V_{ext}	24 VDC ±15% PELV
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)/sensor overload	LED green/LED red
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

Function:

- Logically connects inputs I1 and I2 to outputs O3 and O4
- Uses all four inputs and outputs

Inputs: D0, D1 switch conditions on inputs I1, I2 (1 = Switch status ON)
D2, D3 switch conditions on outputs O3, O4 (1 = Switch status ON)

Outputs: D0, D1 not used
D2, D3 Master-release of outputs O3, O4 (0 = output with no power)

Note:
The outputs are switched to a de-energized state (after approximately 10 ms) when an interruption of the bus communications (master outage) occurs.

Logic Function:

P3	P2	P1	P0	Output O3	Output O4	
0	0	0	0	D2	D3	(2EA-relationship)
0	0	0	1	I1	I2	(directly affect)
0	0	1	0	I1	I1 AND I2	
0	0	1	1	I1	I1 OR I2	
0	1	0	0	I1	I1 XOR I2	
0	1	0	1	I1 AND I2	I1 AND I2	
0	1	1	0	I1 AND I2	I1 OR I2	
0	1	1	1	I1 AND I2	I1 XOR I2	
1	0	0	0	I1 OR I2	I1 OR I2	
1	0	0	1	I1 OR I2	I1 XOR I2	
1	0	1	0	I1 XOR I2	I1 XOR I2	
1	0	1	1	reserved		
1	1	0	0	reserved		
1	1	0	1	reserved		
1	1	1	0	reserved		
1	1	1	1	D2	D3	(2EA-relationship)

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bit

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

Parameter Bits

Function
Adjustment of the logic functions through P0 to P3 (refer to Logic Function on this page)

Accessories

U-G1FF
Base for connection of AS-Interface flat cable and the 24 VDC flat cables

U-G1FFA
Base for connection of AS-Interface flat cable and the 24 VDC flat cables with addressing jack.

U-G1PP
Base for connection of AS-Interface round cable and external power supply

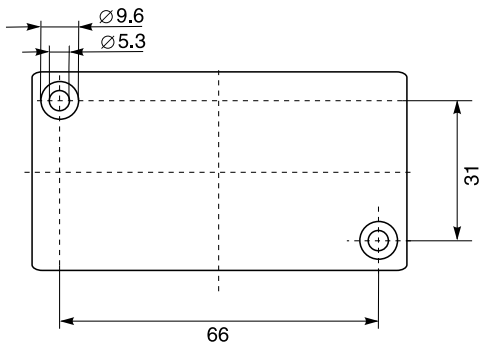
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-V1-B
Protective cover

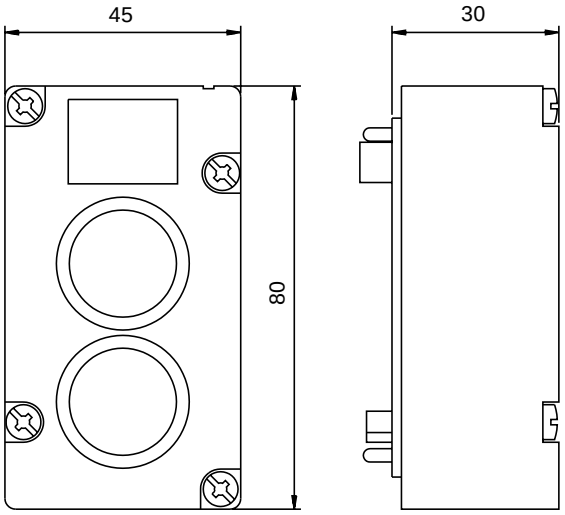
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Pushbutton Module



Model Number

VAA-LT2-G1

Lighted pushbutton module

2 inputs/2outputs

Features

- 2 integrated illuminated buttons
- White LEDs with colored lens covers
- Uses standard AS-Interface flat or round cable mounting bases
- IP67

Button Color Options

The default lens colors for the VAA-LT2-G1 is as follows:

button 1 = green
button 2 = red

The folowing optional lens colors are also available:

black (opaque)
gray (opaque)
red
green
yellow
white (clear)
orange
blue

To order optional lens colors, indicate positions and color on the order. (i.e. VAA-LT2-G1 button 1 = blue, button 2 = orange)

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-LT2-G1
Connections	
AS-Interface	yellow flat cable or standard round cable
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 55 mA
Inputs	2 integrated pushbuttons
Outputs	2 integrated LEDs, powered from AS-Interface
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature	-25 to + 60°C (-13 to +140°F)
Storage temperature	-40 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Description

The VAA-LT2-G1 lighted push button module provides a link between the maintenance personnel and AS-Interface. LEDs integrated in the buttons display the current status. The IP67 lighted buttons are ideal for use in the field.

Use the U-G1F base to connect to the AS-Interface flat cable, and use the U-G1P base to connect to the round cable. The VAA-LT2-G1 is fully powered from AS-Interface. The AS-Interface standardized base U-G1FA includes an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Bit Assignment

Bit	Function
D0	button 2 (red)
D1	button 1 (green)
D2	LED 2 (red)
D3	LED 1 (green)

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

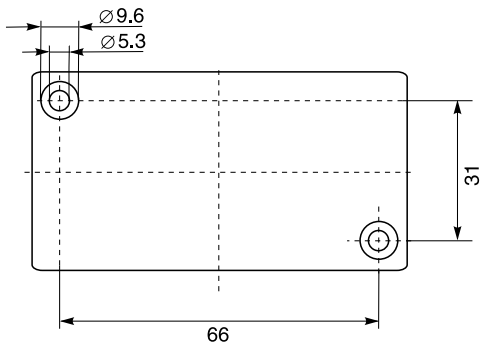
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-V1-B
Protective cover

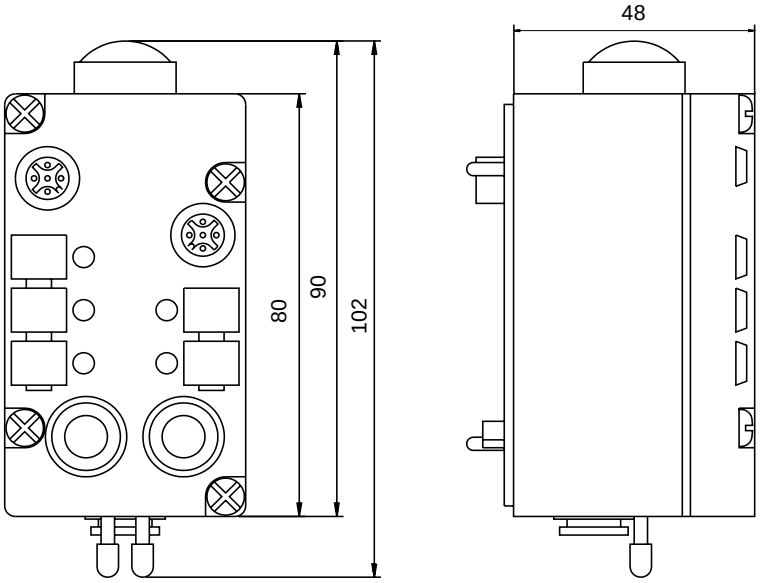
VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases



AS-Interface Pneumatic Module



Model Number

VAA-2EA-G1-ZE/P-S

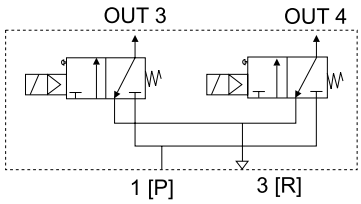
Pneumatic module

2 inputs/2 outputs

Features

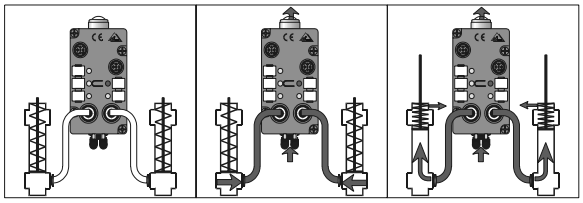
- Connection of 2- or 3-wire sensors
- Uses standard AS-Interface flat or round cable mounting bases
- Connects directly to pneumatic cylinders
- Easy installation
- IP65

Outputs

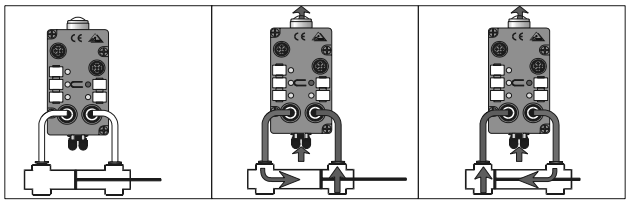


Examples for AS-Interface Airbox Functions

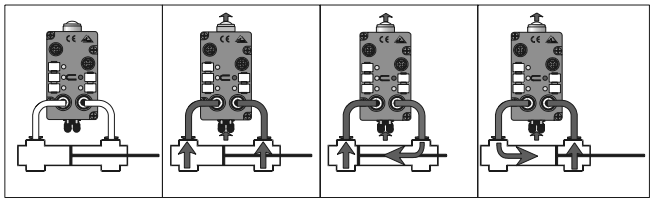
3/2-way valve



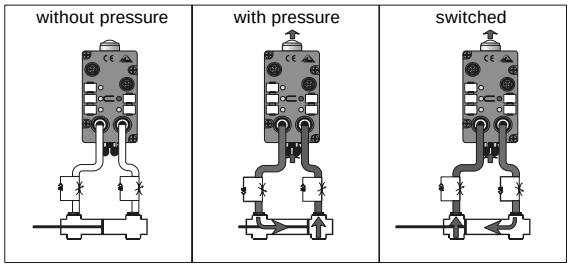
4/2-way valve



5/3-way valve



5/3-way valve



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-2EA-G1ZE/P-S
Connections	
AS-Interface	yellow flat cable/black flat cable or standard round cable
Inputs	V1 (M12x1) quick disconnect
Outputs	air hose connector (8 mm)
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 45 mA
Inputs	two 2- or 3-wire sensors, DC, sourcing
OFF I_{in}	≤ 1 mA
ON I_{in}	≥ 4.5 mA
I_{in}	≤ 7 mA
V_{out}	20-30 VDC from AS-Interface
I_{out}	100 mA, short circuit protection
Outputs	2, integrated solenoids
Pneumatic outputs	3/2-way valves
Pressure (min)	2 bar
Pressure (max)	8 bar
Air throughput rate	400 Nl/min
Exhaust	Sinterfilter
Seated valve nominal width	5 mm
Compressed air consistancy	filtered (5 µm), oiled or unoiled compressed air
Indicators	
4, Switch status (I1-I2, O3-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature	0 to + 55°C (32 to +131°F)
Storage temperature	-20 to +55°C (-4 to +131°F)
Protection (IEC)	IP65

Description

The VAA-2EA-G1-ZE/P-S module has two inputs for 2- or 3-wire sensors and two pneumatic outputs with a high air throughput rate for direct control of pneumatic actuators in the field. Two isolated 3/2 way valves are built in the module. Sensors are connected to the module with a V1 (M12x1) quick disconnect and jacketed 8 mm quick disconnects attach the outputs to the pneumatic cylinders.

Use the U-G1F base to connect to the AS-Interface flat cable, and use the U-G1P base to connect to the round cable. The VAA-2EA-G1-ZE/P-S is fully powered from AS-Interface. The AS-Interface standardized base U-G1FA includes an integrated addressing jack that allows easy connection to the hand-held addressing device.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	3
ID-Code	F

Data Bit

Bit	Function
D0	input I1
D1	input I2
D2	output O3
D3	output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Accessories

U-G1F
Base for connection of AS-Interface flat cable

U-G1FA
Base for connection of AS-Interface flat cable with addressing jack.

U-G1P
Base for connection of AS-Interface round cable

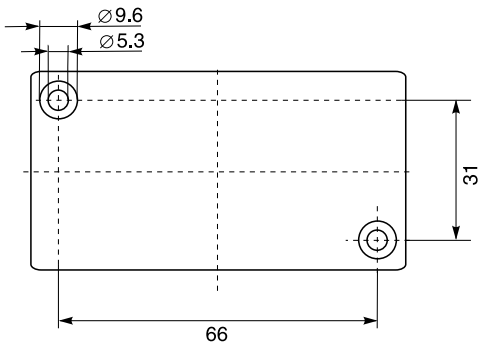
PG11-1/2"NPT
1/2" NPT conduit adapter for U-G1P base

VAZ-V1-B
Protective cover

VBP-HH1-110V
Hand-held addressing device

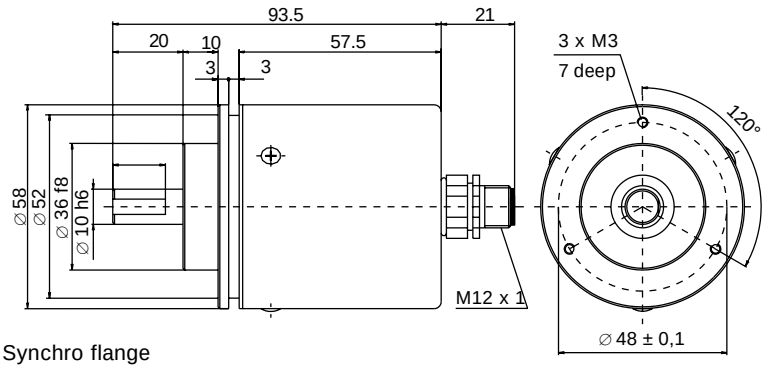
VAZ-PK-V1-CINCH
Cable from module to hand-held addressing device

Mounting hole dimensions for bases

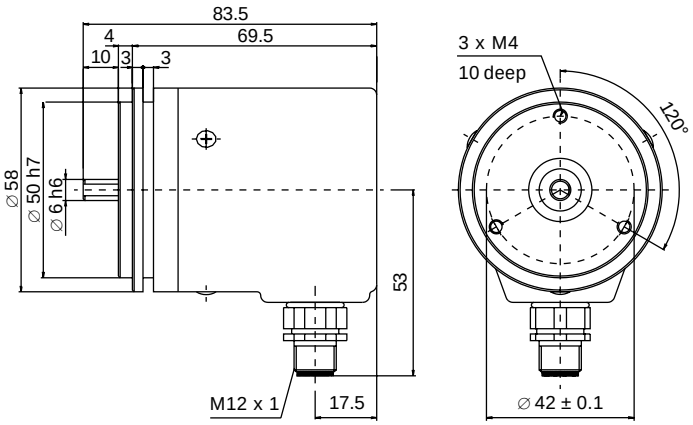


AS-Interface Serial Absolute Rotary Encoder

Clamping flange



Synchro flange



Model Number

Series BVE 10, BVM 10

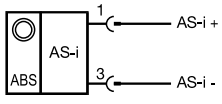
See Key to Model Numbers

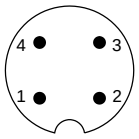
Features

- 13-bit single-turn
- 16-bit multi-turn
- Gray or binary code
- Transmission of the position data over 4 AS-Interface slaves
- Programming and addressing via AS-Interface

Electrical Connections

AS-i Connection Face view - male





1 AS-i (+)
2 n.c.
3 AS-i (-)
4 n.c.

NOTE:
Pin 2 and pin 4 must not be connected.

Key to Model Numbers

B	V		1	0	-				B	-		-	

Data format
B = AS-Interface

Design
E = Single-turn
M = Multi-turn

Flange
1 ≙ Clamping flange
2 ≙ Synchro flange

Shaft
0 = ∅ 10 x 20 mm
2 = ∅ 12 x 20 mm
6 = ∅ 6 x 10 mm

Connections
F = V1, radial
G = V1, axial

Steps per revolution*

Number of rotations*

* Note: BVM 10 - Steps per revolution ≤ 8,192. Steps per revolution x number of rotations ≤ 65,536.
BVE 10 - Steps per revolution = 8,192.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	See Model Number
Connections	
AS-Interface	V1 (M12x1) quick disconnect, axial or radial
Operating voltage	from AS-Interface
Operating current	< 100 mA
Mechanical	
Housing	aluminium, black finish
Flange	aluminium
Code-disc	metal
Shaft	stainless steel
Shaft seal	oil/saltwater-resistant
Max. speed	6000 rpm
Inertia	30 gcm^2
Starting torque	< 1.5 Ncm (at 20 °C)
Torque	< 1.0 Ncm (at 20 °C)
Max. shaft load, axial	40 N
Max. shaft load, radial	60 N
Min. mechanical life	4 x 10^{10} Rot.
Environmental Conditions	
Operating temperature	-20 to +80°C (-13 to +176°F)
Storage temperature	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP65

Description

The absolute rotary encoders use 4 AS-Interface addresses for transmitting up to 16 bit position data. These encoders offer a number of operating modes that will guarantee trouble-free operation.

1. Sequential Addresses and Gray-Codes
Since these 4 addresses are sequentially polled, the data can originate from 4 different measurement times. In order to minimize this effect, addresses A, B, C and D should be sequential addresses and, if possible, Gray Code should be used.

2. Temporary Storage of the Position Data in the Rotary Encoder
A controller exchanges input and output data at intervals that are independent of the AS-Interface scans. Therefore, the encoder data can originate from 2 different AS-Interface cycles. This problem can be avoided through temporary storage of the position data in the rotary encoder. The controller transfers the data bits D2 and D3 for address A to enable the temporary storage feature. The controller then receives the encoder data simultaneously from the AS-Interface master which was stored from the previous cycle. The data is delayed one scan as a precautionary measure.

3. Temporary Storage and Transfer with Response Bits
If any data from the rotory encoder is interrupted during transmission, it is possible that not all of the data transferred to the controler originates from the same position in the data word. The controller can check the data integrity for a single data word by comparing the 4 response bits. This is accomplished through the transfer of one response bit per address. As a result of using the response bits, the size of the usable data is reduced from 16 to 12 bits.

Programming Instructions

	Pre-set Address	IO-Code	ID-Code
Slave A	1	7	F
Slave B	2	0	F
Slave C	3	0	F
Slave D	4	0	F

Parameter Bits (slave A)

PB	0	1
P0	gray code	binary code
P1	with response bit	without response bit
P2	counter clockwise operating mode	clockwise operating mode
P3	not used	not used

Data Input without Response Bit

Slave A

D0	D1	D2	D3
Bit0	Bit1	Bit2	Bit3

Slave B

D0	D1	D2	D3
Bit4	Bit5	Bit6	Bit7

Slave C

D0	D1	D2	D3
Bit8	Bit9	Bit10	Bit11

Slave D

D0	D1	D2	D3
Bit12	Bit13	Bit14	Bit15

Data Input with Response Bit

Slave A

D0	D1	D2	D3
Bit0	Bit1	Bit2	QA

Slave B

D0	D1	D2	D3
Bit3	Bit4	Bit5	QB

Slave C

D0	D1	D2	D3
Bit6	Bit7	Bit8	QC

Slave D

D0	D1	D2	D3
Bit9	Bit10	Bit11	QD

Data Output (slave A)

D0/D1:	00 or 11	standard operation
	01	the rotary encoder is set to 0
	10	the rotary encoder is set to 90°
D2/D3:	00 or 11	output data is not stored
	10 or 01	output data is stored

Accessories

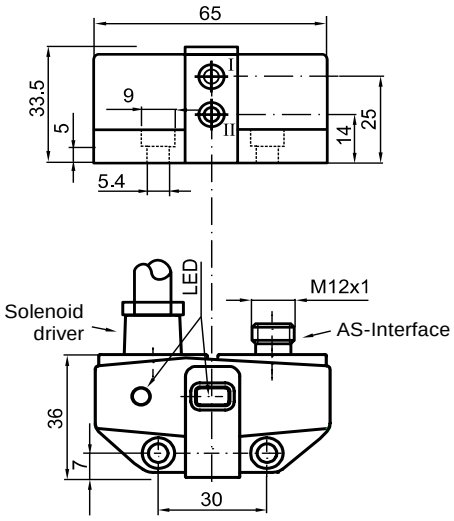
9203
Mounting bracket for clamping flange

9310
Synchro mounting flange

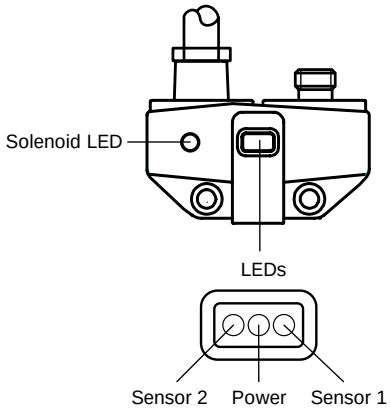
9401, 9402, 9403
Encoder shaft couplers

For more information on mounting accessories and adapters, refer to the Rotary Encoders Catalog.

AS-Interface Valve Position Sensor and Solenoid Driver



Actuator not displayed.



Model Number

NCN3-F31-B3-V1-K

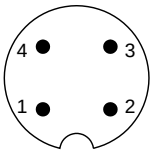
Valve position indicator and solenoid driver

Features

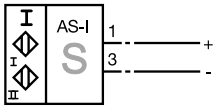
- 2 integrated sensors and AS-Interface powered solenoid driver
- 3 mm sensing range for each sensor
- Integrated sensors programmable N.O./N.C.
- Coil breakage monitoring of the sensors
- Lead breakage and short circuit monitoring of the solenoid
- IP67

Electrical Connections

AS-i Connection Face view - male



1 AS-i (+)
2 n.c.
3 AS-i (-)
4 n.c.



Solenoid Cable

\+ Red
\- Yellow

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	NCN3-F31-B3-V1-K
Connections	
AS-Interface	V1 (M12x1) quick disconnect
Output	1 M pigtail
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 150 mA
Inputs	2, integrated sensors, powered from AS-Interface
Shielded	yes
Sensing range s_a	2.4-3.7 mm
Switching frequency f	≥ 100 Hz
Outputs	1, solenoid driver*
Output voltage V_{out}	from AS-Interface, reverse polarity protection
Output current I_{out}	100 mA, short circuit protection
Indicators	
2, switch status	LED yellow
Power (AS-Interface)	LED green
Solenoid on/LB or SC	LED yellow/LED red
EMC	per EN 60 947-5-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP67

* Valve power consumption maximum 2.6 W/24 VDC

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	D
ID-Code	F

Data Bits

Bit	Function
D0	solenoid status "0" solenoid off "1" solenoid on
D1	solenoid error [1] "0" lead breakage/short circuit "1" no error
D2	switch output sensor I [2] "0" target present (on) "1" target absent (off)
D3	switch output sensor II [2] "0" target present (on) "1" target absent (off)

Parameter Bits

Bit	Function (1/0)
P0	watchdog [3] "0" inactive "1" active
P1	not used
P2	mode of operation sensor I [4] "1" normally open "0" normally closed
P3	mode of operation sensor II [4] "1" normally open "0" normally closed

1 Monitoring only occurs with actuated solenoid (D0 = "1")

2 Applies to N.C. function (P2/P3 = "1" ; preset), for N.O. function (P2/P3 = "0") reverse relationship

3 Watchdog active: output returns to its de-energized state if a communications fault occurs

4 Default setting: normally closed

Description

The NCN3-F31-B3-V1-K is a dual inductive sensor and solenoid driver used to indicate and control the valve position of actuators. This dual sensor uses two screws to mount directly on the actuator and requires no additional adjustment.

The NCN3-F31-B3-V1-K connects to AS-Interface with a V1(M12x1) quick disconnect. The D1 data bit monitors the solenoid for lead breakage and short circuits. Yellow LEDs display the current switch conditions. A dual LED displays the current solenoid status or if an error exists.

The sensors can be programmed as normally open or normally closed contacts (parameter bits P2 and P3). If the watchdog is active and a communication fault occurs on the network, the ouput returns to its de-energized state. The P0 parameter bit disables the watchdog function.

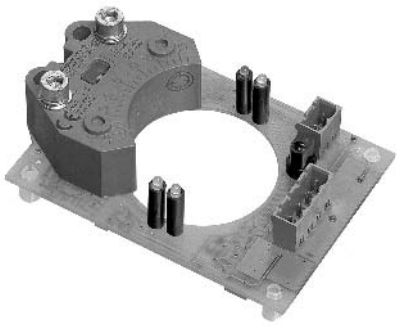
Accessories

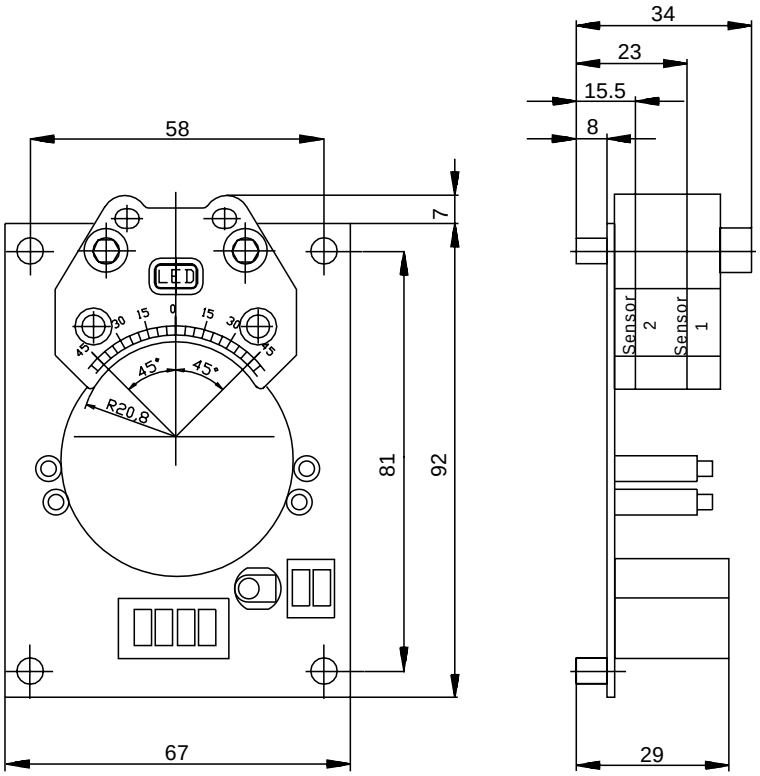
VBP-HH1-110V
Hand-held addressing device

BT 65
Positioning puck

BT 115
Positioning puck

AS-Interface Valve Position Sensor and Solenoid Driver





Model Number

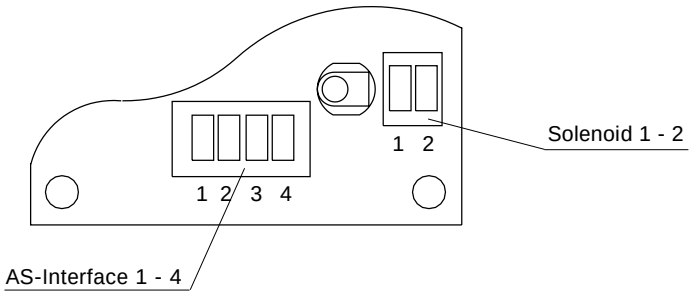
PL1-F25-B3-S

Valve position indicator and solenoid driver circuit board

Features

- 2 integrated sensors and AS-Interface powered solenoid driver
- Lead breakage and short circuit monitoring of the solenoid
- Watchdog functionality
- LED indication for inputs and output

Connections



Connections			
AS-Interface		Solenoid	
Pin 1	AS-i +	Pin 1	Solenoid +
Pin 2	AS-i -	Pin 2	Solenoid -
Pin 3	AS-i +		
Pin 4	AS-i -		

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	PL1-F25-B3-S
Connections	
AS-Interface	removable terminals
Output	removable terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 150 mA
Inputs	2, integrated sensors, powered from AS-Interface
Switching frequency f	≥ 100 Hz
Outputs	1, solenoid driver*
Output voltage V_{out}	from AS-Interface, reverse polarity protection
Output current I_{out}	100 mA, short circuit protection
Indicators	
2, switch status	LED yellow on board
2, switch status	LED yellow in sensor
Power (AS-Interface)	LED green
Solenoid on	LED yellow
EMC	per EN 60 947-5-2
Operating temperature t_b	-25 to +60°C (-13 to +140°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)

* Valve power consumption maximum 2.6 W/24 VDC

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	D
ID-Code	F

Data Bits

Bit	Function
D0	solenoid status "1" solenoid on "0" solenoid off
D1	not used
D2	switch output sensor I "1" target present (on) "0" target absent (off)
D3	switch output sensor II "1" target present (on) "0" target absent (off)

Parameter Bits

Bit	Function (1/0)
P0	watchdog = 1, outputs return to their de-energized state when a communications fault exists = 0, outputs latch in their last state when a communications fault exists
P1	not used
P2	not used
P3	not used

Description

Quarter-turn valves are commonly used to control product flow throughout the processing industry. These valves are typically controlled pneumatically and open or closed indication is reported back to the controller. Standard housings per VDI/VDE 3845 contain the open or closed proximity sensors used by a control valve.

The PL1-F25-B3-S circuit board was developed for use in standard housings and includes connection terminals, the AS-Interface circuit board and dual sensor.

A jack is provided for programming the AS-Interface address using the cinch cable and a hand-held addressing device. When the output is active, the solenoid is monitored for lead breakage.

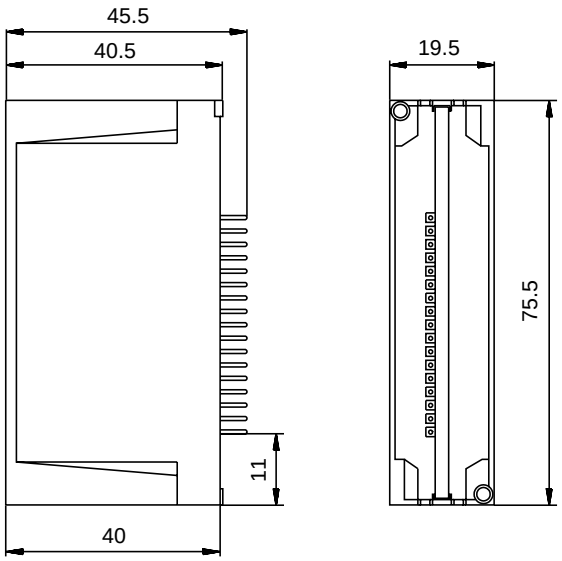
Accessories

VBP-HH1-110V
Hand-held addressing device

VAZ-PK-V1-CINCH
Connection cable, module/addressing device

BT 65
Positioning puck

AS-Interface Circuit Board



Model Number

VAA-4EA-CB-E/E2

Circuit board module

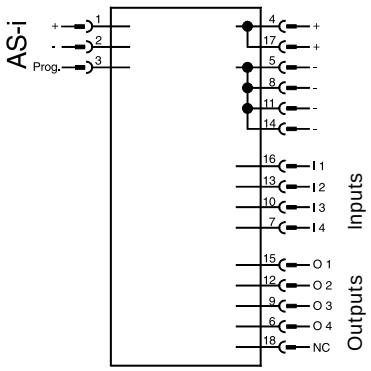
4 inputs/4 outputs

Features

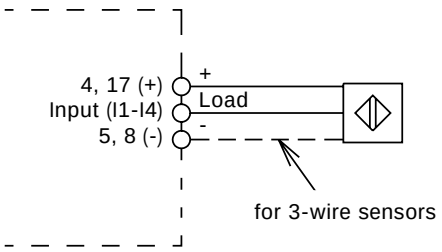
- Bus powered outputs
- Short circuit and overload protection for inputs and outputs
- Watchdog functionality

Connections

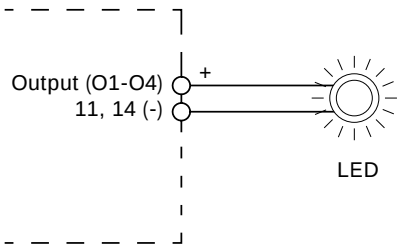
Rail dimension: 2.54



Inputs



Outputs



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-CB-E/E2
Connections	
AS-Interface	Solder pins
Inputs/outputs	Solder pins
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 200 mA
Inputs	four 2- or 3-wire sensors, DC, sourcing
OFF I_{In}	≤ 1.5 mA
ON I_{In}	≥ 5 mA
I_{In}	≤ 7 mA
V_{OUT}	20-30 VDC from AS-Interface
Outputs	4, electronic
Load capacity	45 mA per output 24 VDC, 180 mA total
Indicators	
8, Switch status (I1-I4, O1-O4)	LED yellow
Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature t_b	-25 to +70°C (-13 to +158°F)
Storage temperature t_l	-40 to +70°C (-40 to +158°F)
Protection (IEC)	IP00

Description

The VAA-4EA-CB-E/E2 is an AS-Interface circuit board solution for an AS-Interface I/O module. AS-Interface supplies power to the module and the input and outputs are short circuit and overload protected. If the watchdog is active and a communication fault occurs on the network, the ouput returns to its de-energized state.

P+F can customize circuit board models to meet your specific applications.

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	0

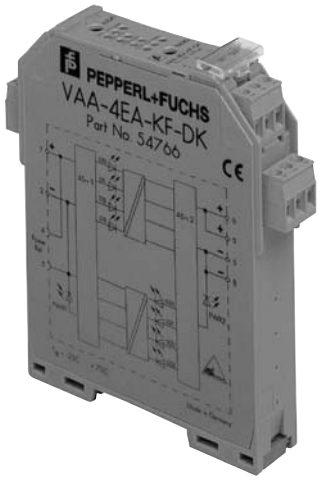
Data Bits

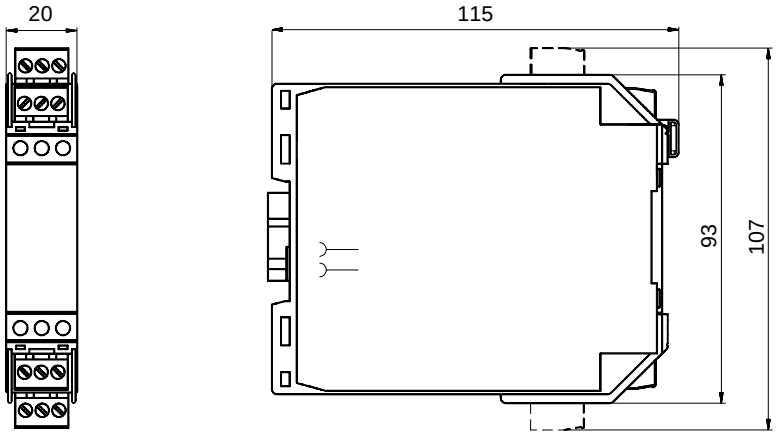
Bit	Function
D0	input I1/output O1
D1	input I2/output O2
D2	input I3/output O3
D3	input I4/output O4

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

AS-Interface Data Coupler





Model Number

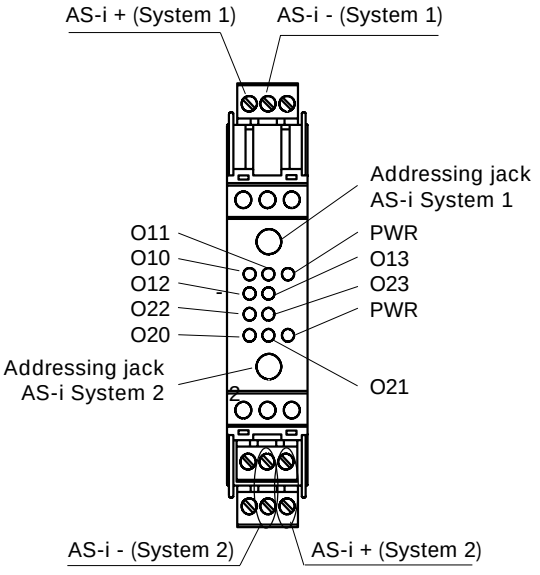
VAA-4EA-KF-DK

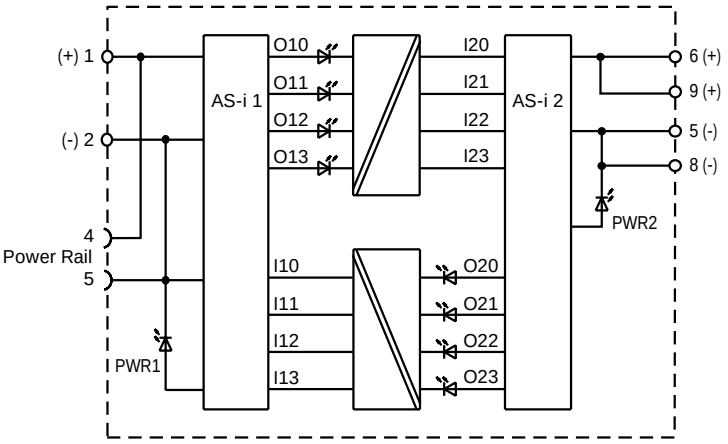
Data coupler

Features

- Module for bidirectional data exchange between two AS-Interface systems
- Two AS-Interface connections per system
- Two 4 input/4 output modules (1 per system, internally connected)
- AS-Interface connections via power rail and terminals
- Removable, mechanically-keyed terminals
- LED indication for all outputs
- Two integrated addressing jacks

Connections





SPECIAL FUNCTION MODULES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VAA-4EA-KF-DK
Connections	
AS-Interface	terminals or Power Rail (System 1) terminals (System 2)
Inputs/outputs	internally connected
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 50 mA (System 1) ≤ 50 mA (System 2)
Indicators	
8, Switch status (O1-O4, O1-O4)	LED yellow
2, Power (AS-Interface)	LED green
EMC	per EN 50 081-2, EN 50 082-2
Operating temperature	-25 to + 70°C (-13 to +158°F)
Storage temperature	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits (System 1)

Bit	Function
D0	input I10/output O10
D1	input I11/output O11
D2	input I12/output O12
D3	input I13/output O13

Data Bits (System 2)

Bit	Function
D0	input I20/output O20
D1	input I21/output O21
D2	input I22/output O22
D3	input I23/output O23

Parameter Bits

Bit	Function (1/0)
P0	not used
P1	not used
P2	not used
P3	not used

Description

The data coupler VAA-4EA-KF-DK is used for bidirectional data exchange between two independent AS-Interface systems. Therefore the data exchange can be carried out locally, without having to transfer the data back to the control system. This is of particular advantage in time-critical applications.

The inputs and outputs are electrically isolated from each other so that the two independent AS-Interface systems can be connected. The electrical isolation eliminates a potential problem of a floating ground. The status of all the outputs is indicated via 8 LEDs provided on the front of the module. Two additional LEDs signal the presence of the AS-Interface voltage on the two circuits.

The connection to the AS-Interface System 1 can be accomplished through terminal connections or using the Power Rail and System 2 by terminals only. Two addressing jacks are available for connection of the hand-held addressing device to each module. The KF modules allow the exchange of components while under power and the mechanically-keyed, removable terminals enable simple replacement of the module and aid installation.

Accessories

VBP-HH1-110V
Hand-held addressing device

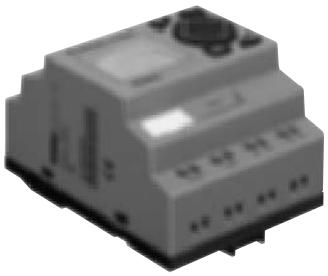
VAZ-PK-V1-CINCH
Cable from module to addressing device

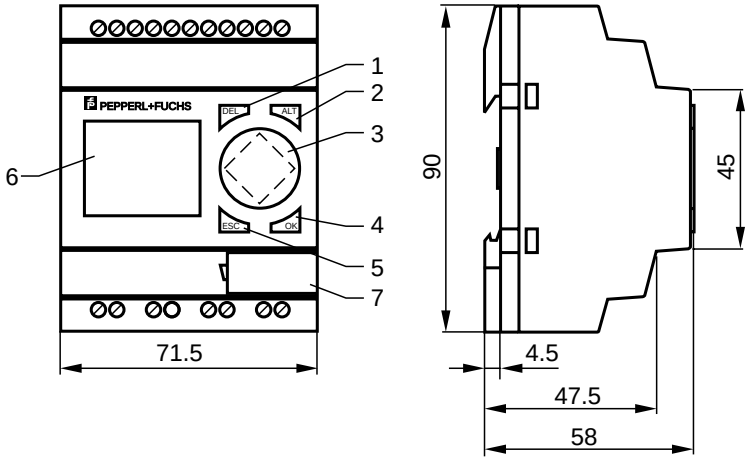
UPR-05
Continuous Power Rail with aluminum DIN rail and cover, 2 m long

UPR E
UPR 05 end cap

PR 05
Power Rail, 0.5 m long

AS-Interface Control Relay





1 DEL key
2 ALT key
3 Cursor key
4 OK key
5 ESC key
6 LCD display
7 Socket for PC Interface (with cover)

Model Number

EASY412-DC-TC

Control relay

IP20

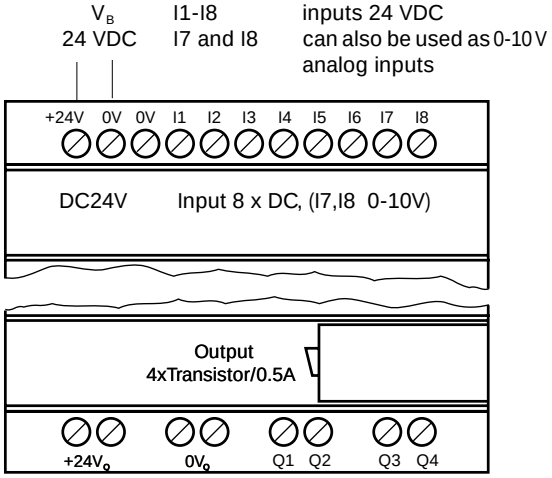
Features

- 8 digital inputs, two of which can be used as analog inputs
- 4 transistor outputs
- 4-line LCD display
- Control panel/keys
- Real-time clock/timing relay
- Retentive memory functions
- Interface for transfer to memory card or PC
- No software required

Controls and displays

1 DEL key:	Deletion of contacts, relays, connections, ladder rungs
2 ALT key:	Indicate connections, N.O. or N.C. contact selection, insert ladder rung
3 Cursor keys:	right, left, up, down Contacts, relays, number selection P key for: Input P1 cursor left Input P2 cursor up Input P3 cursor right Input P4 cursor down
4 OK key:	Step forward in menu, accept entry
5 ESC key:	Take one step back in menu Menu, exit parameter function relay Exit without saving
LCD display:	Inputs/outputs status indication Operating status Ladder diagram Display time

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	EASY412-DC-TC
Connections	
Power	terminals
Inputs/outputs	terminals
Operating voltage V_B	24 VDC, +20/-15 %
Operating current I_e	≤ 80 mA
Digital inputs (I1-I8)	8*, mechanical contacts or 3-wire sensors, DC, sourcing
OFF V_{In}	≤ 5 VDC
ON V_{In}	≥ 15 VDC
ON I_{In}	≤ 3.3 mA
Analog inputs (I7-I8)	2*, 0-10 VDC
Voltage range	0-10 VDC
Resolution	0.1 VDC
Input impedance	11.2 kΩ
Outputs	4, electronic
Load capacity	24 VDC, 500 mA (per output), galvanically isolated
Indicators	
LCD display	4 line
Operating temperature t_b	-25 to +55°C (-13 to +131°F)
Storage temperature t_l	-40 to +70°C (-40 to +158°F)
Protection (IEC)	IP20

* 8 digital inputs, two of which can be used as analog inputs.

References

Manual: EASY 412, EASY 600 User's Manual

The documentation and software are included with the unit.

Training Guide: EASY 412, EASY 600

- Contact Pepperl+Fuchs

Description

The EASY412-DC-TC programmable relay is a simple, low-cost alternative to hard-wired and conventional PLC solutions. It is ideal for controlling HVAC systems, counting, security lighting, alarms or other applications typically considered too simple to justify the expense of a PLC. This relay mounts on a 35 mm DIN rail or it can be screwed to a panel. The EEPROM stores the ladder diagram program, eliminating the need for a battery backup. A separate memory module is available for program backup or distribution to multiple units.

Programming
The EASY412-DC-TC uses just four buttons and a cursor control to construct ladder diagrams so you don't have to learn a special logic language. Internal relays enable interlocking functions and intermediate data storage. An optional Windows-based software package is available for users who require advanced programming capabilities.

Accessories

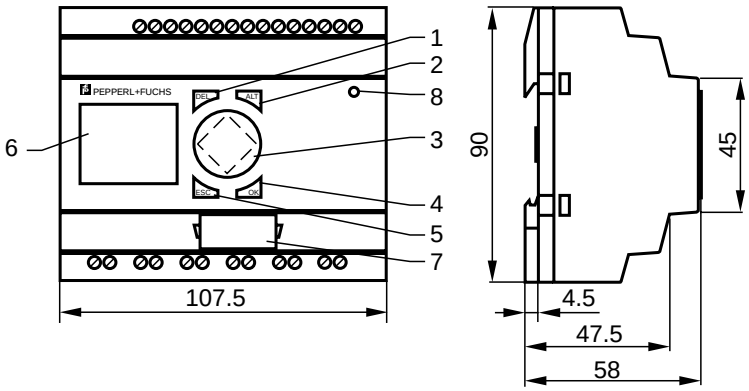
EASY-SOFT
Windows-based programming software for ladder logic programming and printing.

EASY-M-8K
8K Flash memory module for back-up and copying of programs from/to the EASY412-DC-TC.

EASY-M-16K
16K Flash memory module for back-up and copying of programs from/to the EASY412-DC-TC.

EASY-PC-CAB
Programming cable for connectiong the EASY412-DC-TC to a PC serial port, 2 m long.

AS-Interface Control Relay



1 DEL key	5 ESC key
2 ALT key	6 LCD display
3 Cursor key	7 Socket for PC Interface (with cover)
4 OK key	8 LED Power/Run

Model Number

EASY621-DC-TC

Control relay

IP20

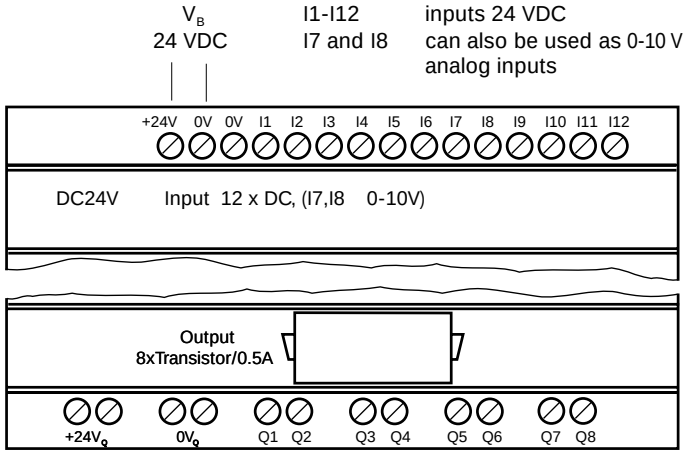
Features

- 12 digital inputs, two of which can be used as analog inputs
- 4 transistor outputs
- 4-line LCD display
- Control panel/keys
- Real-time clock/timing relay
- Retentive memory functions
- Interface for transfer to memory card or PC
- Can be expanded with EASY205-ASI as a 4 input/4 output AS-Interface module
- No software required

Controls and displays

1 DEL key:	Deletion of contacts, relays, connections, ladder rungs
2 ALT key:	Indicate connections, N.O. or N.C. contact selection, insert ladder rung
3 Cursor keys:	right, left, up, down Contacts, relays, number selection P key for: Input P1 cursor left Input P2 cursor up Input P3 cursor right Input P4 cursor down
4 OK key:	Step forward in menu, accept entry
5 ESC key:	Take one step back in menu Menu, exit parameter function relay Exit without saving
LCD display:	Inputs/outputs status indication Operating status Ladder diagram Display time

Connections



SPECIAL FUNCTION MODULES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	EASY621-DC-TC
Connections	
Power	terminals
Inputs/outputs	terminals
EASY expansion	integrated 6-pin connector
Operating voltage V_B	24 VDC, +20/-15%
Operating current I_e	≤ 140 mA
Digital inputs (I1-I12)	12*, mechanical contacts or 3-wire sensors, DC, sourcing
OFF V_{In}	≤ 5 VDC
ON V_{In}	≥ 15 VDC
ON I_{In}	≤ 3.3 mA
Analog inputs (I11-I12)	2*, 0-10 VDC
Voltage range	0-10 VDC
Resolution	0.1 VDC
Input impedance	11.2 kΩ
Outputs	8, electronic
Load capacity	24 VDC, 500 mA (per output), galvanically isolated
Indicators	
Program mode/run mode	LED green/LED green flashing
LCD display	4 line
Operating temperature t_b	-25 to +55°C (-13 to +131°F)
Storage temperature t_l	-40 to +70°C (-40 to +158°F)
Protection (IEC)	IP20

* 12 digital inputs, two of which can be used as analog inputs.

References

Manual: EASY 412, EASY 600 User's Manual

The documentation and software are included with the unit.

Training Guide: EASY 412, EASY 600

- Contact Pepperl+Fuchs

Description

The EASY621-DC-TC programmable relay is a simple, low-cost alternative to hard-wired and conventional PLC solutions. It is ideal for controlling HVAC systems, counting, security lighting, alarms or other applications typically considered too simple to justify the expense of a PLC. This relay mounts on a 35 mm DIN rail or it can be screwed to a panel. The EEPROM stores the ladder diagram program, eliminating the need for a battery backup. A separate memory module is available for program backup or distribution to multiple units.

Programming
The EASY621-DC-TC uses just four buttons and a cursor control to construct ladder diagrams so you don't have to learn a special logic language. Internal relays enable interlocking functions and intermediate data storage. An optional Windows-based software package is available for users who require advanced programming capabilities.

Expandability
The EASY621-DC-TC can be expanded with a connection to AS-Interface using the EASY205-ASI module. The exchange of data between the AS-Interface master and the EASY 621 is provided by four inputs and four outputs as well as four parameter bits of the EASY205-ASI module.

Accessories

EASY-SOFT
Windows-based programming software for ladder logic programming and printing.

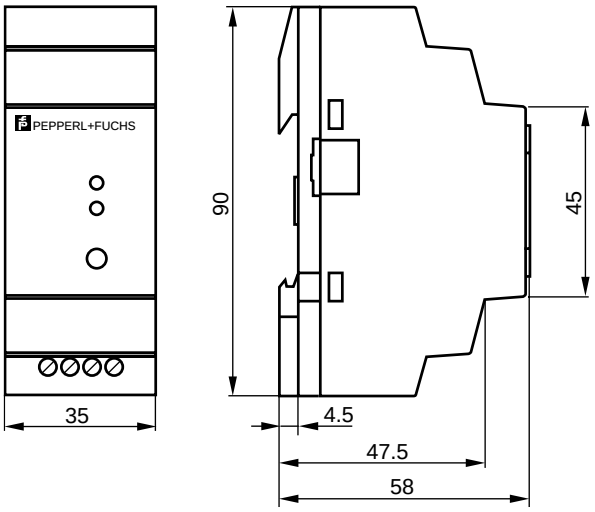
EASY-M-8K
8K Flash memory module for back-up and copying of programs from/to the EASY621-DC-TC.

EASY-M-16K
16K Flash memory module for back-up and copying of programs from/to the EASY621-DC-TC.

EASY-PC-CAB
Programming cable for connectiong the EASY621-DC-TC to a PC serial port, 2 m long.

EASY205-ASI
AS-Interface expansion module for the EASY 612 control relay.

AS-Interface EASY Expansion Module



Model Number

EASY205-ASI

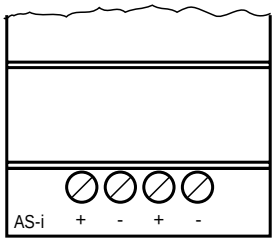
AS-Interface expansion module for the EASY 621

IP20

Features

- AS-Interface expansion module for control relay EASY621-DC-TC
- Interface module and control relay together form an intelligent standard AS-i module
- Internal watchdog for monitoring the communication with the AS-i interface and the control relay
- 4 inputs/4 outputs/4 parameters
- Functional display for device supply and watchdog

Connections



PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	EASY205-ASI
Connections	
EASY expansion	integrated 6-pin connector
AS-Interface	terminals
Operating voltage V_B	from AS-Interface, reverse polarity protection
Operating current I_e	≤ 25 mA
Indicators	
Power (AS-Interface)	LED green
Communication error	LED red
Operating temperature t_b	-25 to +55°C (-13 to +131°F)
Storage temperature t_l	-40 to +70°C (-40 to +158°F)
Protection (IEC)	IP20

Programming Instructions

Address	preset to 00, can be changed via the master or with a hand-held addressing device.
IO-Code	7
ID-Code	F

Data Bits

Bit	Function	EASY Outputs
D0	input I1	S1
D1	input I2	S2
D2	input I3	S3
D3	input I4	S4

Data Bits

Bit	Function	EASY Inputs
D0	output O1	R1
D1	output O2	R2
D2	output O3	R3
D3	output O4	R4

Parameter Bits

Bit	Function (1/0)	EASY Inputs
P0	output P0	R5
P1	output P1	R6
P2	output P2	R7
P3	output P3	R8

Description

The EASY621-DC-TC can be expanded with a connection to AS-Interface using the EASY205-ASI module. The exchange of data between the AS-Interface master and the EASY 621 is provided by four inputs and four outputs as well as four parameter bits of the EASY205-ASI module.

Accessories

VBP-HH1-110V
Hand-held addressing device

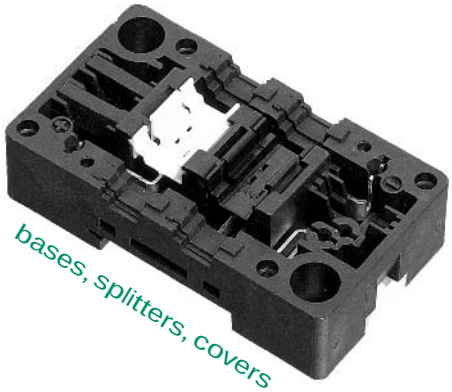
VAZ-PK-V1-CINCH
Cable from module to addressing device

Note: 6-pin connector for attaching the expansion module to the EASY 621 is included with the unit.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Accessories

Accessories

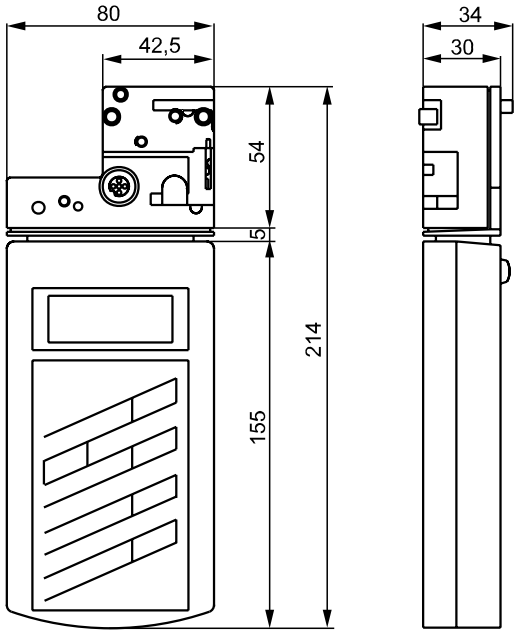


bases, splitters, covers

Hand-held addressing device

AS-Interface cable, connection cables, connectors, adapters

AS-Interface Addressing Device



Model Number

VBP-HH1-110V

Hand-held addressing device

IP20

Features

- Sets and reads module addresses
- Reads module IO and ID codes
- Sets module parameters
- Reads inputs and sets outputs using data mode
- Short circuit and overload protected
- Sets module parameters
- LCD display
- Supports AS-Interface specification 2.1

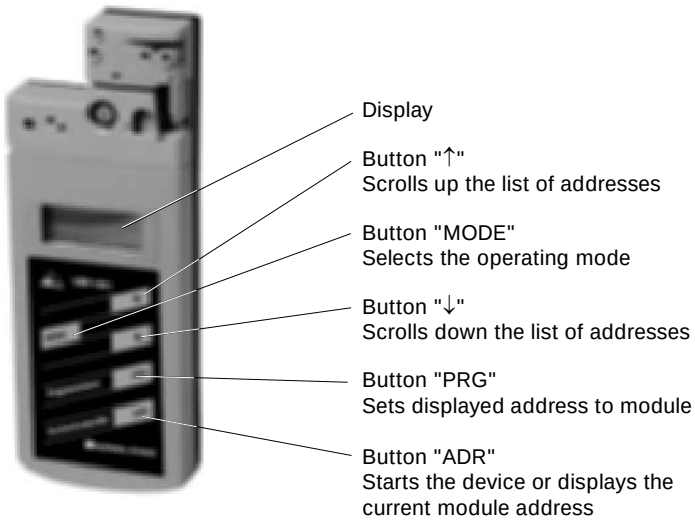
Modes of Operation

- Addressing mode
- Read ID codes
- Read IO codes
- Display peripheral faults
- Read/write I/O data

Operation

The device is activated with the "ADR" button and automatically turns off after one minute of inactivity.

- Press the "ADR" button to display the current module addresses.
- To enter new addresses, select from the address ring (i.e. 0-31, 0-31A, 0-31B) with the "↑" and "↓" keys. Press the button to advance the addresses one at a time. Hold the button to scroll through the addresses (0.5 s per address).
- Press "PRG" to load the new address in the module. The programmed address automatically displays after about 0.5 s.
- To program address 0 in the module, simultaneously press and hold "ADR" and "PRG."
- "MODE" button is used to select the operating mode.



Note: Charge battery before using!

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Model Number	VBP-HH1-110V
Display	LCD, character size is 13 mm
Buttons	keypad, 5 keys
Interface	AS-Interface, short circuit and overload protected
Power supply	battery operated, recharge time approximately 14 hours
Charger	115/230 VAC, plug-in charger included. Use only for charging! Not intended for use as a power supply.
Operating life	8 hours OR ≥ 250 read/write operations with a fully charged battery
Operating temperature	0 to +50°C (32 to +122°F)
Storage temperature	-20 to +55°C (-4 to +131°F)
Weight	approximately 550 g
Protection (IEC)	IP20

References

Manual: VBP-HH1-110V User's Manual

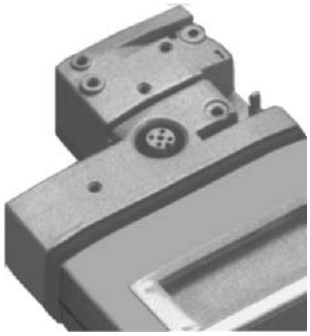
The documentation is included with the unit.

Description

The VBP-HH1-110V is a hand-held device for addressing AS-Interface modules such as sensors, actuators and I/O modules. The VBP-HH1-110V uses a universal adapter to connect to the AS-Interface module.

Display
The LCD displays the address or an error code.

The following devices and housing styles connect easily to this device:
- V1 quick disconnect (M12x1)
- Mini-limit switch
- Limit switch
- Flat pack housing
- AS-Interface I/O modules



Error Signals:

F1	Overload/short circuit
F2	Module is not connected or defective
F3	Programming error
F4	Desired address is assigned
F5	Address 0 is assigned
F6	Spec. 2.04 module is found instead of spec. 2.1 module
F7	Spec. 2.1 module is found instead of spec. 2.04 module
F8	Receive error
LOBAT	Recharge battery — thirty read and addressing functions are possible after the first indication. To recharge the battery, use only the battery charger included with the VBP-HH1-110V.

Status Indicator:

÷	the indicated address is identical to the last programmed module address.

Accessories

The VAZ-PK-V1-CINCH programming cable connects the addressing device to modules and bases with integrated addressing jacks.

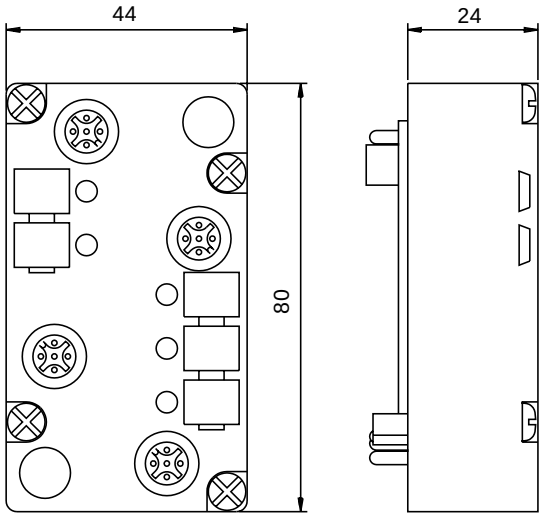
VAZ-PK-V1-CINCH
AS-Interface programming cable

V1-G-S-YE1M-PVC-V1-G
1 M extension cable (male - male)

VAZ-T1-FK-V1
Flat cable to V1 (M12x1) quick disconnect converter

VAZ-V1-B
V1 (M12x1) protective cover

AS-Interface Splitter



Model Number

VAZ-T4-G1

Splitter

Features

- Splits the AS-Interface cable in 4 directions
- V1 (M12x1) quick disconnects
- AS-Interface LEDs
- IP67

The VAZ-T4-G1 is a passive device and does not consume an address on AS-Interface.

Technical Data:

Model Number	VAZ-T4-G1
Connections	
AS-Interface	yellow flat cable or standard round cable 4, V1 (M12x1) quick disconnects
Indicators	
Power (AS-Interface)	LED green
Operating temperature t_b	-25 to +85°C (-13 to +185°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

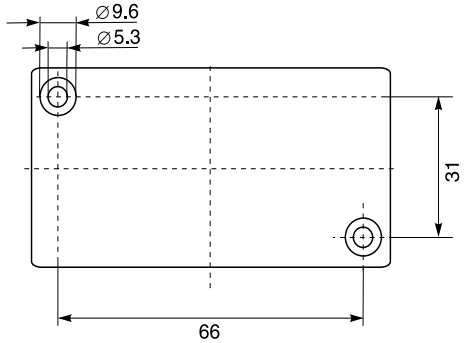
Accessories

U-G1F
Base for connection to the AS-Interface flat cable

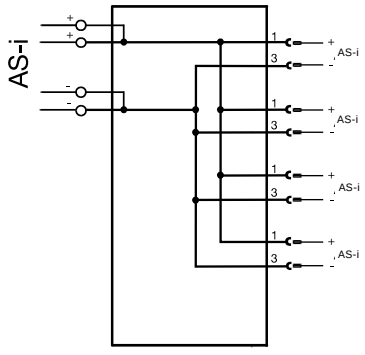
U-G1P
Base for connections to a round cable

V1-G-Q21
V1 to Quickon adapter

Hole dimensions for mounting bases



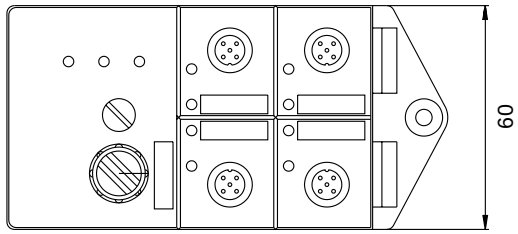
Connections



ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Splitter



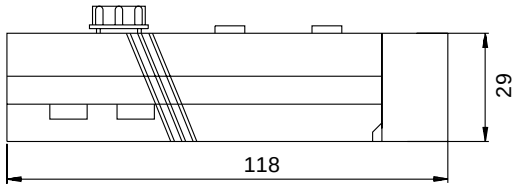


Diagram with mounting base

Model Number

VAZ-2T5-G2

Splitter

Features

- Splits AS-Interface and external power cables in 5 directions
- V1 (M12x1) quick disconnects
- AS-Interface and external power LEDs
- IP67

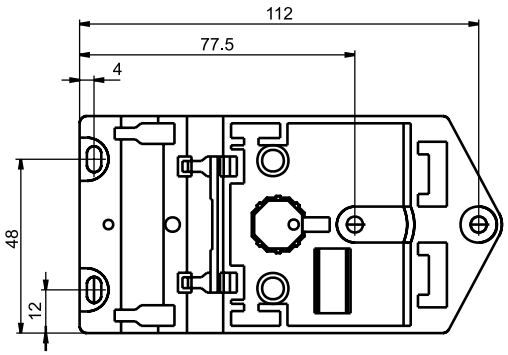
The VAZ-2T5-G2 is a passive device and does not consume an address on AS-Interface.

Accessories

U-G3FF
Mounting base for the connection of the AS-Interface flat cable and the 24 VDC flat cable.

V1-G-Q21
V1 to Quickon adapter

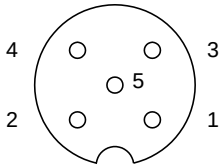
Mounting hole dimensions for mounting bases



Technical Data

Model Number	VAZ-2T5-G2
Connections	
AS-Interface	yellow flat cable or standard round cable 5, V1 (M12x1) quick disconnects
External power	black flat cable
Indicators	
Power (AS-Interface)/ reverse polarity	LED green/LED red
External power/reverse polarity	LED green/LED red
Operating temperature t_b	-25 to +85°C (-13 to +185°F)
Storage temperature t_l	-25 to +85°C (-13 to +185°F)
Protection (IEC)	IP67

Connection



1	AS-i +
2	V_{ext} +
3	AS-i -
4	V_{ext} -
5	not used

ACCESSORIES

PROFIBUS-DP Master Simulator

Model Number

VAZ-PB-SIM

PROFIBUS-DP Master Simulator

Features

- Performs network "who"
- Exchanges I/O data with or without GSD file
- Shipment includes software, cable and converter (UART)

Description

The PROFIBUS DP Master Simulator is an easy to use software for diagnosis and I/O data exchange with PROFIBUS DP. The simulator can browse the PROFIBUS DP network and report all connected slaves. Any of the connected slaves can then be selected for I/O data exchange without using a GSD file. Input data can be read, output data can be written and the PROFIBUS DP diagnostic data can be displayed. The PROFIBUS DP Master Simulator can also use GSD-files to establish connection to a slave, modify user parameters and store the configuration. The PROFIBUS station address can be changed with the simulator which is helpful when using IP67 PROFIBUS modules without addressing switches.

The I/O data and the PROFIBUS user diagnostics can be displayed in binary, hexadecimal and ASCII. In type mode it is possible to set an output as long as the mouse button is pressed. It is also possible to write the PROFIBUS output data with consistency.

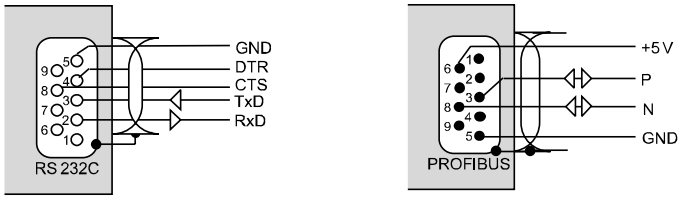
The PROFIBUS DP Master Simulator supports PROFIBUS DP V1which enables slaves to be operated in the acyclic mode DP V1. This is helpful during the setup of complex field devices like drives, modular I/O systems, etc.

The PROFIBUS DP Master Simulator consists of the software and a PROFIBUS UART. The PROFIBUS UART is the interface between the RS232 serial port of the PC and PROFIBUS DP. The UART is completely powered from the serial port on the PC, so it is well suited for work in the field using a laptop or a notebook.

Technical Data

Model Number	VAZ-PB-SIM
Connections	
PC	9-pin D-sub female
PROFIBUS-DP	9-pin D-sub male
Operating voltage V_B	from PROFIBUS-DP, 5 VDC
Operating current I_e	≤ 60 mA
Requirements	IBM compatible PC, 80386 or higher
Operating system	MS Windows 3.1x, 95/98 or NT
Software	PROFIBUS-DP Master Simulator
Baud rate	19.2 kbps
Operating temperature t_b	0 to +55°C (+32 to +122°F)
Storage temperature t_i	-25 to +70°C (-13 to +158°F)
Dimensions L, W, H	64 mm x 34 mm x 17 mm

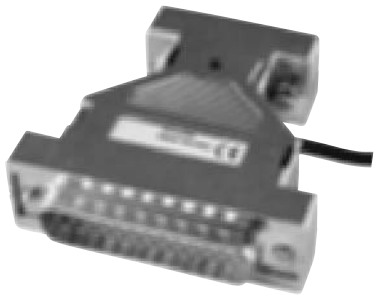
Connection

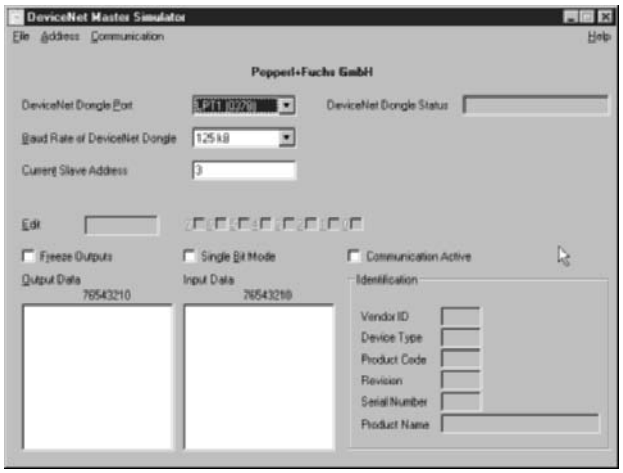


ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

DeviceNet Master Simulator





Model Number

VAZ-DN-SIM

DeviceNet Master Simulator

Features

- Performs network "who"
- Exchanges I/O data with any DeviceNet slaves
- Does not use EDS files
- Shipment includes software, converter cables and CAN dongle

Description

The DeviceNet Master Simulator is an easy to use software for diagnosis and I/O data exchange with DeviceNet slaves. The simulator can browse the DeviceNet network and report all connected slaves. Any of the connected slaves can then be selected for I/O data exchange without using an EDS file. Input data can be read, output data can be written and the DeviceNet diagnosis data can be displayed. Furthermore, it is possible to read and write any object independent of the state of communication.

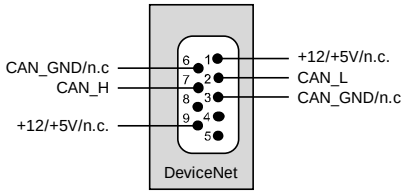
The I/O data is displayed in binary and hexadecimal. In type mode it is possible to set an output as long as the mouse button is pressed. A separate display shows the "Identity Object Class" of the connected slave along with the I/O data.

The DeviceNet Master Simulator consists of the software and a CAN dongle. The CAN dongle is the interface between the parallel port of the PC and DeviceNet. The dongle is completely powered from the keyboard port on the PC, so it is well suited for work in the field using a laptop or a notebook.

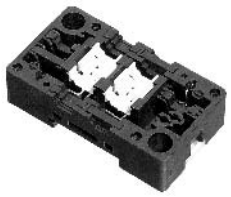
Technical Data

Model Number	VAZ-DN-SIM
Connections	
PC	25-pin D-sub parallel port, male
DeviceNet	9-pin D-sub male
Operating voltage V_B	from keyboard jack of PC
Requirements	IBM compatible PC, 80486 or higher
Operating system	MS Windows 95/98 or NT
Software	DeviceNet Master Simulator
DeviceNet Baud rates	125, 250, 500 kbps
Operating temperature t_b	0 to +55°C (+32 to +122°F)
Storage temperature t_l	-25 to +70°C (-13 to +158°F)

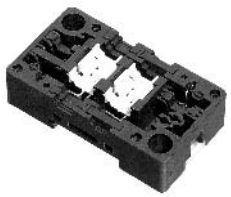
Connection



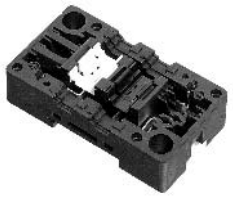
Accessories



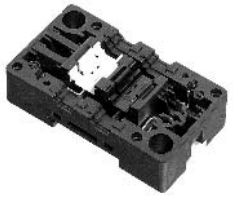
Model Number	U-G1F
Description	Mounting base
Cable connection	2 yellow flat cables
Dimensions L, W, H	80 mm x 45 mm x 20 mm
Protection (IEC)	IP67



Model Number	U-G1FA
Description	Mounting base with addressing jack
Cable connection	2 yellow flat cables
Dimensions L, W, H	80 mm x 45 mm x 20 mm
Protection (IEC)	IP67



Model Number	U-G1FF
Description	Mounting base
Cable connection	1 yellow flat cable, 1 black flat cable
Dimensions L, W, H	80 mm x 45 mm x 20 mm
Protection (IEC)	IP67



Model Number	U-G1FFA
Description	Mounting base with addressing jack
Cable connection	1 yellow flat cable, 1 black flat cable
Dimensions L, W, H	80 mm x 45 mm x 20 mm
Protection (IEC)	IP67

Model Number	U-G1P
Description	Mounting base
Cable connection	PG11 cord grip for AS-Interface round cable
Cable diameter	< 2.5 mm^2
Dimensions L, W, H	80 mm x 45 mm x 34 mm
Protection (IEC)	IP67

Model Number	U-G1PP
Description	Mounting base
Cable connection	PG11 cord grip for AS-Interface and external power round cables
Cable diameter	< 2.5 mm^2
Dimensions L, W, H	80 mm x 45 mm x 20 mm
Protection (IEC)	IP67

Model Number	VAZ-DK-G1
Description	Protective cover for all U-G1□ bases
Dimensions L, W, H	80 mm x 45 mm x 8 mm
Protection (IEC)	IP67

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Accessories

Model Number	PG11 CORD GRIP
Description	Cord grip with nut and round cable grommet
Protection (IEC)	IP67

Model Number	VAZ-PG11-FKD
Description	Flat cable grommet for PG11 cord grip
Protection (IEC)	IP67

Model Number	PG11-1/2"NPT
Description	PG11 male to 1/2" NPT female conduit adapter
Protection (IEC)	IP67

Model Number	U-G2FF
Description	Mounting base for flat modules
Cable connection	1 yellow flat cable, 1 black flat cable
Dimensions L, W, H	153 mm x 60 mm x 10 mm
Protection (IEC)	IP67

Model Number	U-G3FF
Description	Mounting base for flat modules
Cable connection	1 yellow flat cable, 1 black flat cable
Dimensions L, W, H	119 mm x 60 mm x 10 mm
Protection (IEC)	IP67

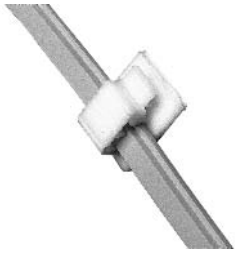
Model Number	VAZ-G4-B
Description	PG7 protective plug for field modules
Protection (IEC)	IP67

Model Number	VAZ-V1-B
Description	V1 (M12x1) protective cover
Protection (IEC)	IP67

Accessories

Model Number	VAZ-V3-B
Description	V3 (M8x1) protective cover
Protection (IEC)	IP67

Model Number	VAZ-FK-ST1
Description	Shrink tube end cover
Protection (IEC)	IP 65



Model Number	VAZ-FK-CL1
Description	Flat cable mounting clip
Connection	Adhesive or screw mount

Model Number	VAZ-T1-G2F
Description	Flat to round cable converter
Dimensions L, W, H	48 mm x 35 mm x 13 mm
Protection (IEC)	IP52

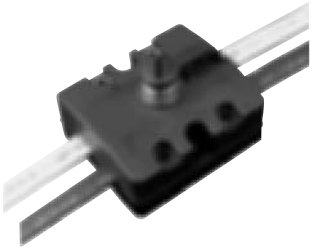
Model Number	VAZ-G6F-W2M
Description	Flat to round cable converter with a 2 m standard round cable
Protection (IEC)	IP67

Model Number	VAZ-FK-V1-.5M
Description	Flat to round cable converter with a 0.5 m cable and V1 (M12x1) quick disconnect
Protection (IEC)	IP65

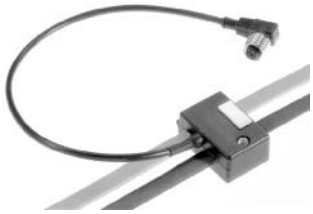
Model Number	VAZ-FK-V1-2M
Description	Flat to round cable converter with a 2 m cable and V1 (M12x1) quick disconnect
Protection (IEC)	IP65

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

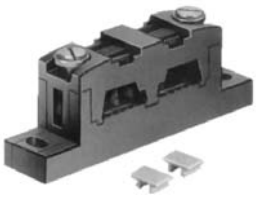
Accessories



Model Number	VAZ-2FK-V1
Description	Connects flat yellow and flat black cables to a V1 (M12x1) quick disconnect
Protection (IEC)	IP67



Model Number	VAZ-2T1-FK-V1
Description	Connects flat yellow and flat black cables to a V1 (M12x1) quick disconnect with a 1 m cable
Protection (IEC)	IP67



Model Number	VAZ-2FK-B1
Description	Splitter for connection of 2 yellow or 2 black flat cables
Protection (IEC)	IP65

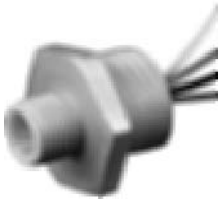
Model Number	VAZ-G6F-V1
Description	Flat cable to V1 (M12x1) quick disconnect converter
Protection (IEC)	IP67

Model Number	VAZ-T1-FK-V1
Description	Flat cable to V1 (M12x1) quick disconnect converter
Protection (IEC)	IP67

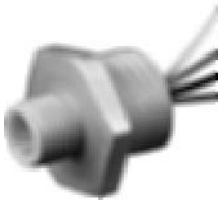
Model Number	VAZ-T1-FK-PG9
Description	PG9 to flat cable adapter
Protection (IEC)	IP67

Model Number	VAZ-T1-FK-PG13.5
Description	PG13.5 to flat cable adapter
Protection (IEC)	IP67

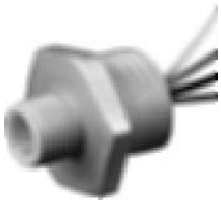
Accessories



Model Number	PG11-V1-G-S-.15M
Description	PG11 to V1 (M12x1) quick disconnect adapter
Protection (IEC)	IP67



Model Number	1/2"NPT-V1-G-S-.15M
Description	1/2"NPT to V1 (M12x1) quick disconnect adapter
Protection (IEC)	IP67



Model Number	3/4"NPT-V1-G-S-.15M
Description	3/4"NPT to V1 (M12x1) quick disconnect adapter
Protection (IEC)	IP67

Model Number	VAZ-V8-6
Description	6-pin connector for 24 VDC connection on VAN-24DC-K9
Protection (IEC)	IP65

Model Number	VAZ-R2-STRT
Description	2 m serial extension cable for use with R2, R3 and R4 masters

Model Number	VAZ-G4-R4
Description	2 M RS485 serial cable for use with field mountable masters

Model Number	VAZ-R4-R2
Description	RS232 to RS485 converter

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Accessories

Model Number	VAZ-PB-DB9-W
Description	PROFIBUS 9-pin right-angle D-sub connector for 2 PROFIBUS cables

Model Number	VAZ-PK-V1-CINCH
Description	V1 (M12x1) to cinch connector for the hand-held addressing device

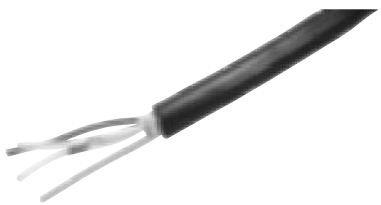
Model Number	EASY-SOFT
Description	Windows-based programming software for ladder logic programming and printing

Model Number	EASY-M-8K or EASY-M-16K
Description	8K or 16K Flash memory module for back-up and copying of programs from/to the EASYcontrol relay

Model Number	EASY-PC-CAB
Description	Programming cable for connectiong the EASY control relay to a PC serial port, 2 m long

Model Number	VAZ-PB-CABLE
Description	Purple PROFIBUS cable
Length	100 ft. spool

Model Number	VAZ-RIO-CABLE
Description	Remote I/O cable (blue hose)
Length	100 ft. spool



Model Number	VAZ-SERIAL-CABLE
Description	4-conductor, twisted pair foil shielded cable for RS232, RS422 or RS485 communications
Length	100 ft. spool

Photoelectric Accessories

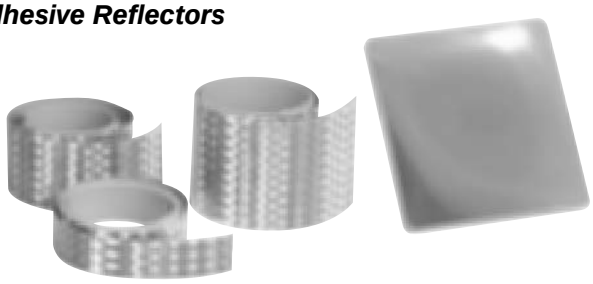
Reflectors

Model Number	ORR50
Description	50 mm square reflector

Model Number	ORR60
Description	60 mm round reflector

Model Number	ORR80
Description	80 mm round reflector

Adhesive Reflectors



Model Number	RT1x100
Description	1 in. x 100 in. reflective tape

Model Number	RT2x100
Description	2 in. x 100 in. reflective tape

Model Number	RT3x100
Description	3 in. x 100 in. reflective tape

Model Number	OFR70
Description	70 mm square reflector

Replacement Lens

Model Number	OTS18
Description	Mini limit switch sensor lens

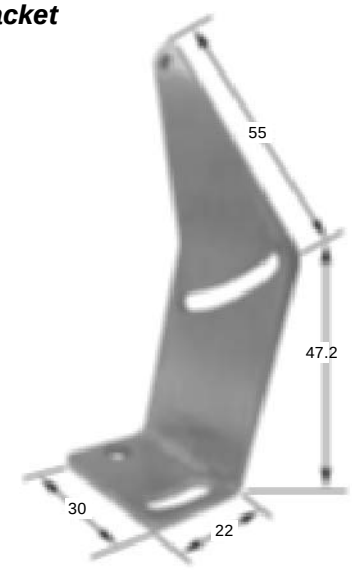
F22 Programming

Model Number	F22-R2
Description	RS232 connector

Model Number	F22-CLIP
Description	Clip-on optical interface

Model Number	F22-HH-E
Description	Hand-held programmer

F22 Mounting Bracket

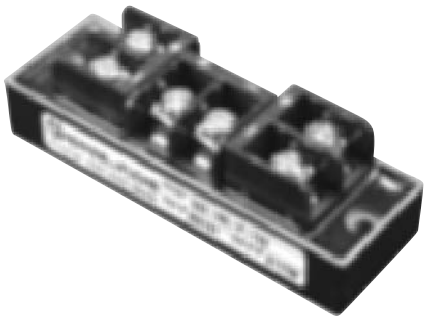


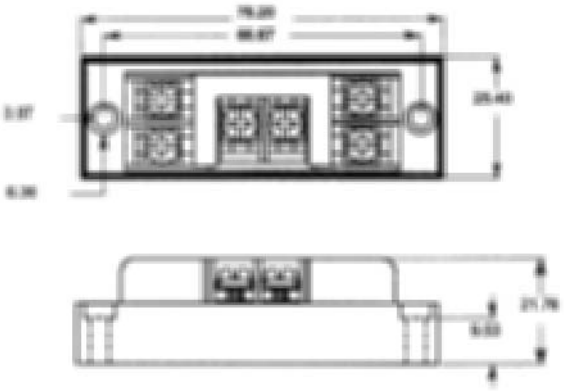
Model Number	OMH-F22-1
Description	Mounting bracket for F22 style sensors

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Wiring Tees





Model Numbers

VAZ-RK-TEE

VAZ-RK-P-TEE

Standard and protected wiring tees

Features

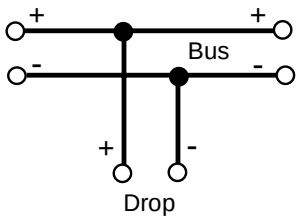
- 10 A capacity
- Low space requirement
- Easy and fast mounting
- Protected tee prevents a shorted segment from affecting AS-Interface
- Red LED indication during fault condition
- Automatically resets

Technical Data

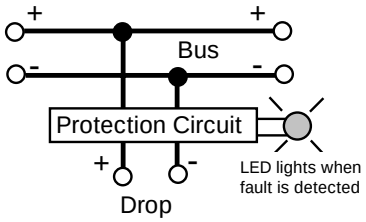
Model Number	VAZ-RK-TEE VAZ-RK-P-TEE
Connections	
AS-Interface	terminals
Protected Tee	
Break current	≥ 280 mA on drop leg
Voltage drop	negligible on the bus leg ≤ 1 VDC on the drop leg
Holding current	25 mA after break
Reset current	< 25 mA
Shorted drop leg	LED red
Standard Tee	
Break current	no break current
Voltage drop	negligible on the bus leg negligible on the drop leg
Common Specifications	
Operating voltage V_b	120 VAC/VDC max.
Operating temperature t_b	-40 to +85°C (-40 to +185°F)
Storage temperature t_l	-40 to +85°C (-40 to +185°F)
Protection (IEC)	IP20

Connection

Connection: VAZ-RK-TEE



Connection: VAZ-RK-P-TEE



ACCESSORIES

AS-Interface Flat Cable

Model Numbers

VAZ-FK-S-YE

VAZ-FK-S-BK

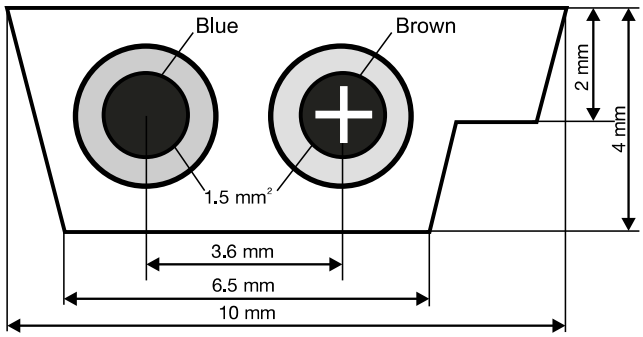
VAZ-FK-R-YE

VAZ-FK-R-BK

AS-Interface flat cable

Features

- Insulation displacement
- Standard and oil-resistant versions available
- High flexibity
- Mechanically-keyed and color-coded



Technical Data:

Model Numbers		**VAZ-FK-S-YE** (standard yellow) **VAZ-FK-S-BK** (standard black)	**VAZ-FK-R-YE** (oil-resistant yellow) **VAZ-FK-R-BK** (oil-resistant black)
Length		sold only in 100 m spools	sold per foot (1 spool = 328')
Nominal voltage V_0		300 V	
Number of cables, cable diameter		2-wire, 16 AWG	
Cable type		Tin plated copper, fine gauge, class 6 per DIN VDE 0295	
Insulation		rubber mixture per DIN VDE 0207 Section 20	
Color coding Polarity protection		1 brown wire, 1 blue wire, cable coding brown wire is on the profile side	
Coating		EM3 rubber mixture in accordance with DIN VDE 0207 Section 21, dimensions per Fig. 1 yellow coating (similar to RAL 1012) or black (similar to RAL 9005)	
Limit temperatures		in operation, installation, transport and storage	
At the conductor	during operation during short circuit	+90°C (+194°F) +200°C (+392°F)	
On the surface	fixed installation variable installation	-40 to +85°C (-40 to +185°F) -25 to +85°C (-13 to +185°F)	
Max. tensile strength		per DIN VDE 0298 Section 3. 50 N/mm² diameter during installation	
Min. bending radius		per DIN VDE 0298 Section 3, Table 2 stress due to bending should be kept to the wide side of the cable	
Current load capacity		per DIN VDE 0298 Setion 4, Table 6, Column 4	
Tests Requirements		T = type test; F = selection test; S = part testing Requirements based testing	
T, F T, F	Lead resistance Voltage resistance (testing of the entire lead)	DIN VDE 0295 no puncture length of the probe 20 m min. time of immersion in water 1 h water temperature (20 ±5)°C test voltage (AC) 1.8 kV test length 5 min.	DIN VDE 0472 Section 501 DIN VDE 0472, Section 508 Testing method A

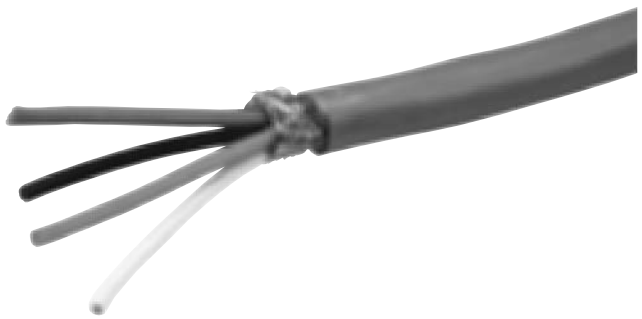
PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

AS-Interface Round Cable

Model Number

VAZ-RK-PVC-Y904028

AS-Interface round cable



Features

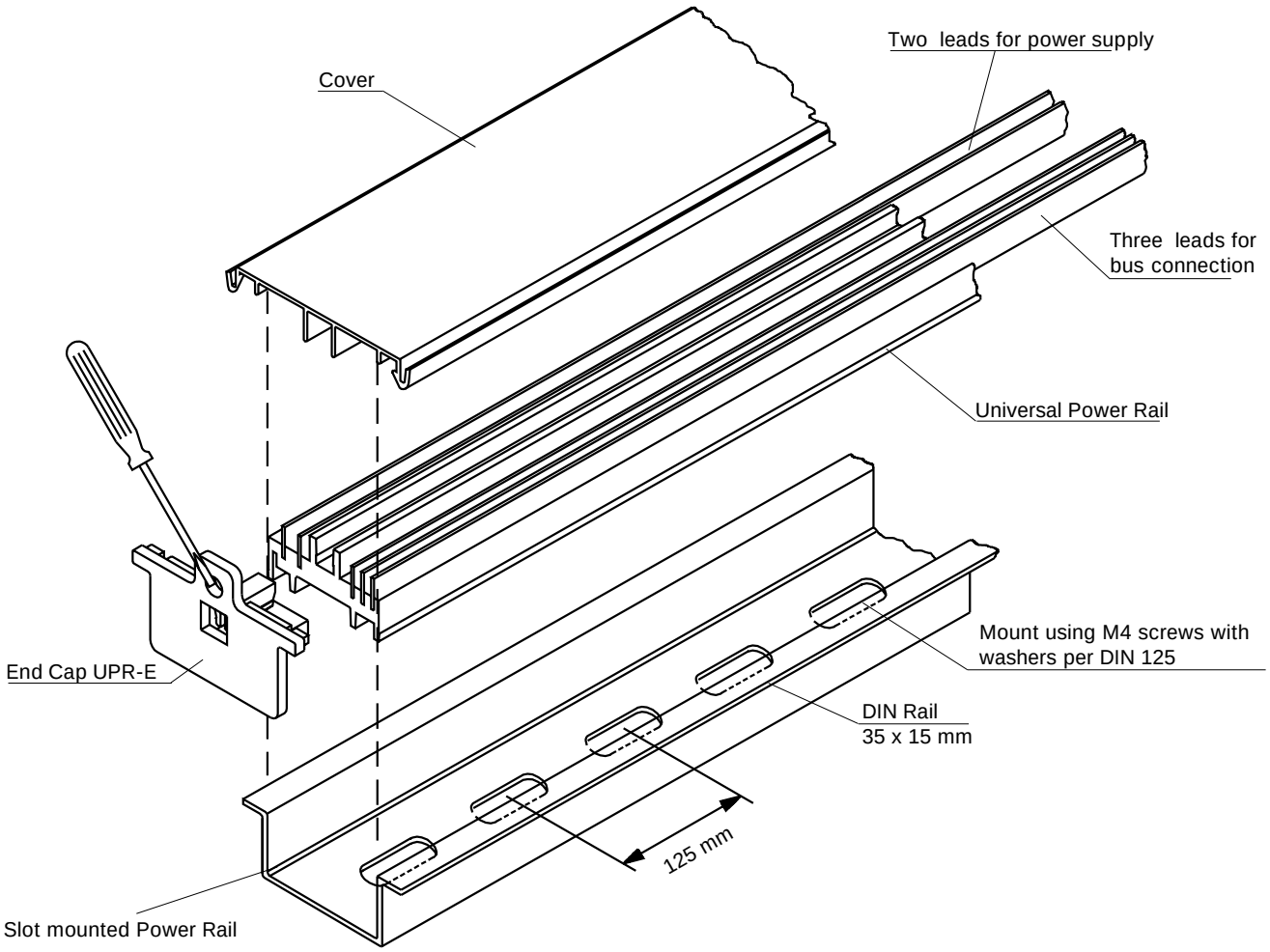
- Resistant to environmental conditions
- Four conductors plus overall braided shield
- UL Class 2 approved cable

Technical Data:

Model Numbers	**VAZ-RK-PVC-Y904028**
Length	sold only in 100 m spools
Nominal voltage V_0	300 V
Number of cables, cable diameter	4-wire, 16 AWG
Cable type	Tin plated copper, extra flexible
Insulation	color coded polyethylene
Shield	braided tin plated copper, 90% coverage
Color coding	1 black wire, 1 white wire, 1 red wire and 1 green wire
Coating	chrome gray PVC

Transmission Characteristics (at 167 kHz)	
Capacitance	52-78 pF per meter
Impedence	64-96 Ω per meter
Conductance	4-5 nS per meter

Universal Power Rail



CE

Model Number

UPR-05

Continuous Power Rail

Features

- Nominal current 4 A
- Easy to install
- Terminating insulation with end cap

Description

Function

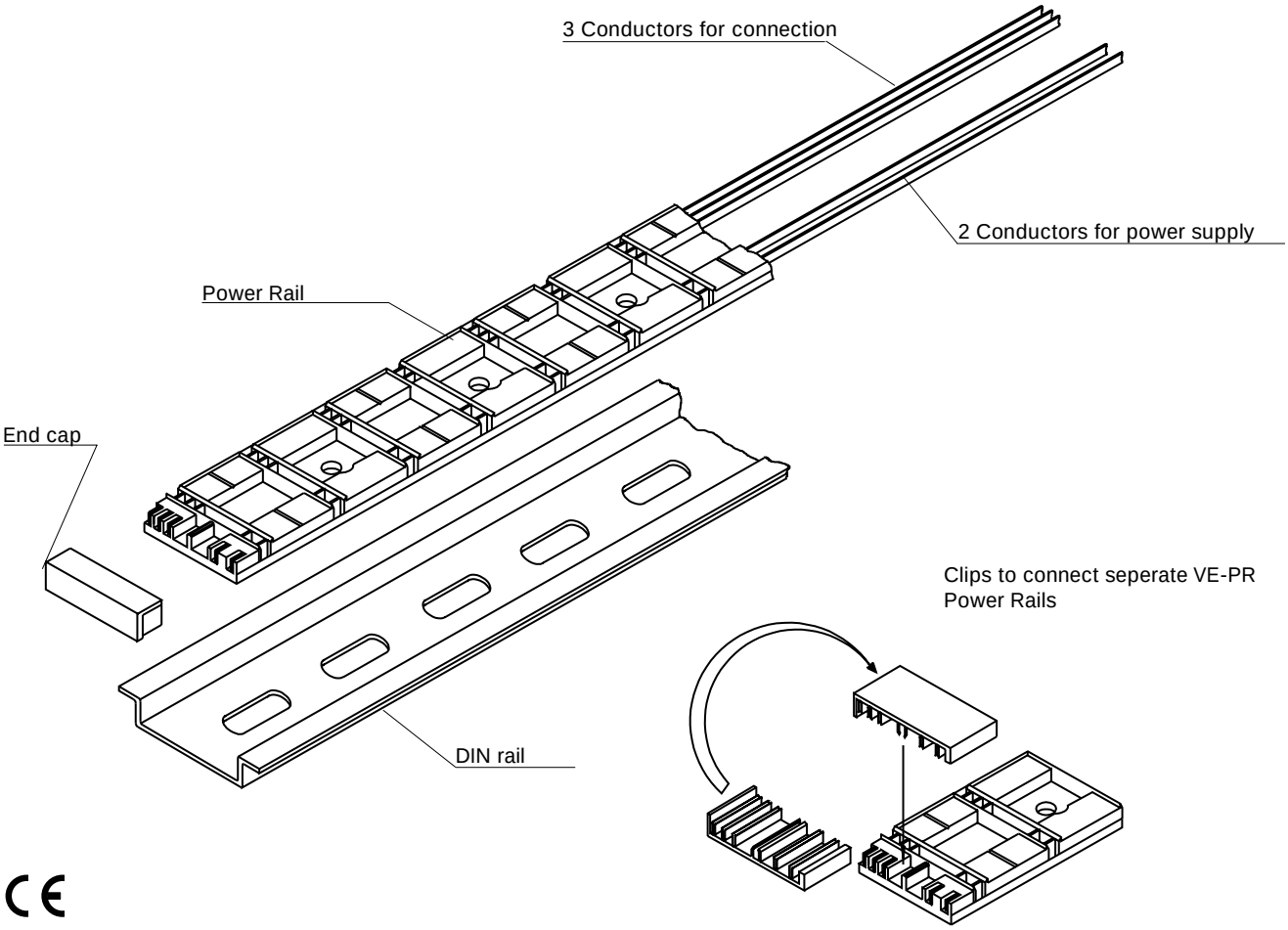
The Power Rail is a plastic insert within the standard DIN EN 50 022 rail that eliminates wiring problems normally associated with the installation of couplers and power supplies.

A variety of interface modules can be supplied with auxiliary power by simply snapping them onto the power rail. The power supply is established with either a supply module or the terminal strip of a motherboard. The supply voltage connections of the interface module work only with the respective modules and cannot be used for the power rail.

The PR-05 Power Rail has three additional pins to connect the interface modules to the bus. The standard length of the rail is 500 mm but can be shortened in 40 mm sections to meet your specific needs. Gold plated contacts ensure a positive connection.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Power Rail



CE

Model Number

PR-05

Power Rail

Features

- Nominal current 4 A
- Easy to install
- Terminating insulation with end cap

Description

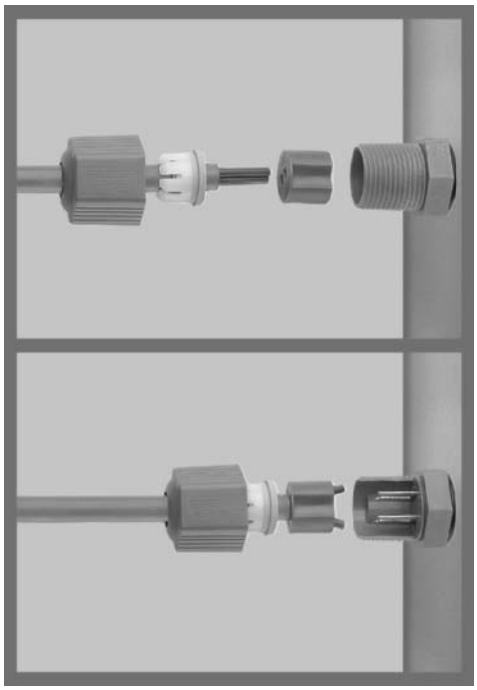
Function

The Power Rail is a plastic insert within the standard DIN EN 50 022 rail that eliminates wiring problems normally associated with the installation of couplers and power supplies.

A variety of interface modules can be supplied with auxiliary power by simply snapping them onto the power rail. The power supply is established with either a supply module or the terminal strip of a motherboard. The supply voltage connections of the interface module work only with the respective modules and cannot be used for the power rail.

The PR-05 Power Rail has three additional pins to connect the interface modules to the bus. The standard length of the rail is 500 mm but can be shortened in 40 mm sections to meet your specific needs. Gold plated contacts ensure a positive connection.

Micro DC (12mm) Field Attachable Quickon



Model Number

Straight	Gender
V1-G-Q21	male

Features

- Single key
- #14 AWG
- Cable entrance for 4-7.5 mm cable
- Field attachable wiring (by customer)
- 4-pin

Description

Quickon is the fastest and easiest field attachable concept for the connection from the sensor to the I/O module. It is no longer necessary to strip conductors and fight with small screw terminations. With Quickon, one turn and the connections are made, dust and waterproof with an IP-67 rating and integrated strain relief in 10 seconds. No special tools are required. Quickon and a standard round cable off the roll are all that is needed. You can eliminate expensive pre-molded cables of different lengths and connectors. The V1 (M12x1) 4-pin field attachable connector brings all the advantages of Quickon to the AS-Interface I/O modules.

Technical Data:

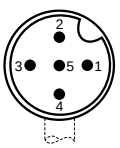
Material Data	
Body	PVC
Insert	polyethylene
Cable type	Customer option
Contacts	CU alloy
Contact plating	nickel and tin
Wire gauge	#14 AWG

Electrical Data	
Current rating	4 A
Voltage rating	125 VAC/ 125 VDC

Environment Data	
Protection classes	IEC IP67
Temperature range	-13°F to +140°F

Pin Assignment:

Face View (male)



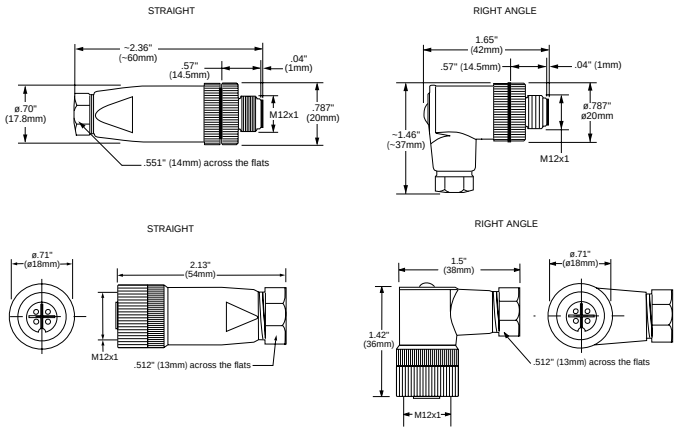
Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Micro DC (12mm) Field Attachable Connectors



Model Numbers

Straight	Gender
V1-G	female
V1-G-S	male

Right Angle	Gender
V1-W	female
V1-W-S	male

Features

- Single key
- #18 AWG
- PG7 cable entrance thread (4-6 mm cable diameter)
- Field attachable wiring (by customer)
- 4-pin

Technical Data:

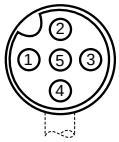
Material Data	
Body	Black nylon
Insert	PVC
Cable type	Customer option
Contacts	Machined brass
Contact plating	Gold plate
Shell	Nickel-plated diecast zinc
Wire gauge	#18 AWG
Coupling nut	N/A

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	N/A
Current rating	4 A
Voltage rating	300 VAC/ 300 VDC

Environment Data	
Protection classes	IEC IP67
Temperature range	-13°F to +194°F
Corrosion resistance	N/A
Water spray	N/A

Pin Assignment:

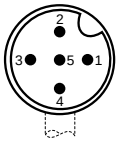
Face View (female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

Face View (male)

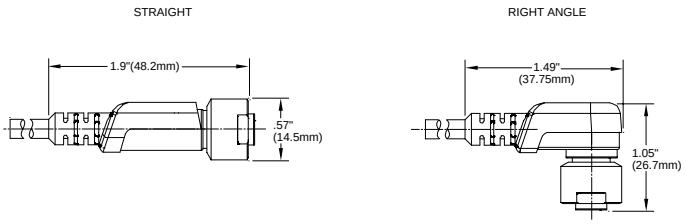


Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

Micro DC (12mm) Cordsets



Model Numbers

Straight	Length
V1-G-2M-PVC	2 m
V1-G-2M-PUR	2 m
V1-G-5M-PVC	5 m
V1-G-5M-PUR	5 m

Right Angle	Length
V1-W-2M-PVC	2 m
V1-W-2M-PUR	2 m
V1-W-5M-PVC	5 m
V1-W-5M-PUR	5 m

Features

- Single key
- PVC or PUR cable jacket
- Female version
- #22 AWG
- 4-pin

Technical Data:

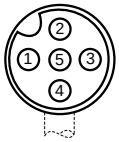
Material Data	
Body	Green, flame-resistant PVC or PUR
Insert	PUR
Cable type	Black, flexible PVC or PUR jacket
Contacts	Machined copper and tin over gold
Contact plating	Copper and tin over nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Copper and tin over nickel

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1500 VAC
Current rating	4 A
Voltage rating	250 VDC

Environment Data	
Protection classes	IP67
Temperature range	-13°F to +194°F
Corrosion resistance	N/A
Water spray	N/A

Pin Assignment:

Face View
(female)



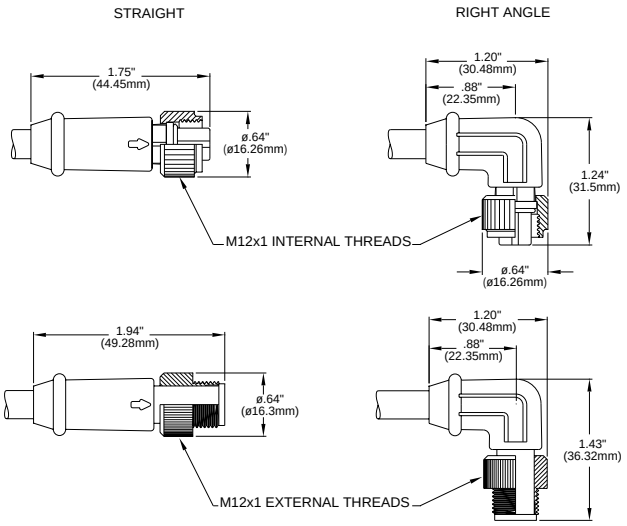
Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Micro DC (12mm) Cordsets



Model Numbers

Straight	Length	Gender
V1-G-YE2M-PVC	2 m	female
V1-G-YE5M-PVC	5 m	female
V1-G-S-YE2M-PVC	2 m	male
V1-G-S-YE5M-PVC	5 m	male

Right Angle	Length	Gender
V1-W-YE2M-PVC	2 m	female
V1-W-YE5M-PVC	5 m	female
V1-W-S-YE2M-PVC	2 m	male
V1-W-S-YE5M-PVC	5 m	male

Features

- Single key
- PVC cable jacket
- Female and male versions
- #22 AWG
- 4-pin

Technical Data:

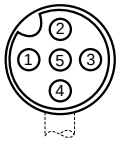
Material Data	
Body	Yellow, 90 A durometer flame-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1,3,4,6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

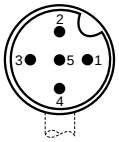
Face View (female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

Face View (male)

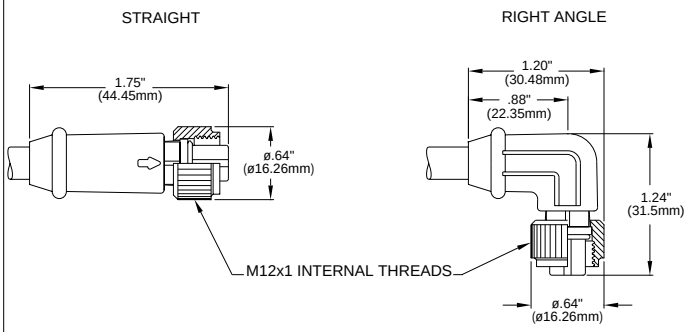


Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

Micro DC (12mm) Cordsets



Model Numbers

Straight	Length
V1-G-YE2M-PUR	2 m
V1-G-YE5M-PUR	5 m

Right Angle	Length
V1-W-YE2M-PUR	2 m
V1-W-YE5M-PUR	5 m

Features

- Single key
- PUR cable jacket
- Female version
- #22 AWG
- 4-pin

Technical Data:

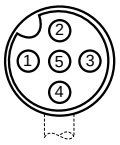
Material Data	
Body	Yellow, oil-resistant PUR
Insert	Yellow PUR
Cable type	Yellow, PUR jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1,3,4,6P, 13/IEC IP68
Temperature range	-4°F to +176°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

Face View
(female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Micro DC (12mm) Extension Cables

Model Numbers

Female straight to male straight	A	Length
V1-G-YE.5M-PVC-V1-G		0.5 m
V1-G-YE1M-PVC-V1-G		1 m
V1-G-YE2M-PVC-V1-G		2 m
V1-G-YE5M-PVC-V1-G		5 m

Female straight to male right angle	B	Length
V1-G-YE.5M-PVC-V1-W		0.5 m
V1-G-YE1M-PVC-V1-W		1 m
V1-G-YE2M-PVC-V1-W		2 m
V1-G-YE5M-PVC-V1-W		5 m

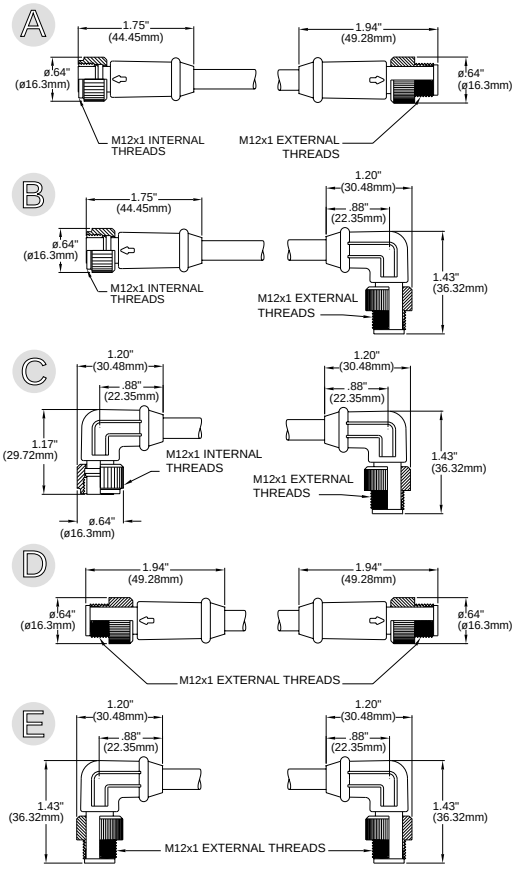
Female right angle to male right angle	C	Length
V1-W-YE2M-PVC-V1-W		2 m
V1-W-YE5M-PVC-V1-W		5 m

Male straight to male straight	D	Length
V1-G-S-YE1M-PVC-V1-G		1 m

Male right angle to male right angle	E	Length
V1-W-S-YE1M-PVC-V1-W		1 m

Features

- Single key
- PVC cable jacket
- #22 AWG
- Female to male and male to male versions
- 4-pin
- For 3-pin versions (pin 2 removed), add 3P to the model number. (i.e. V1-3P-G-YE2M-PVC-V1-3P-G)



Technical Data:

Material Data

Body	Yellow, 90 A durometer flame-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data

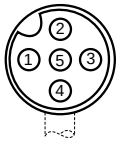
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data

Protection classes	NEMA 1,3,4, 6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

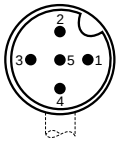
Face View (female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

Face View (male)

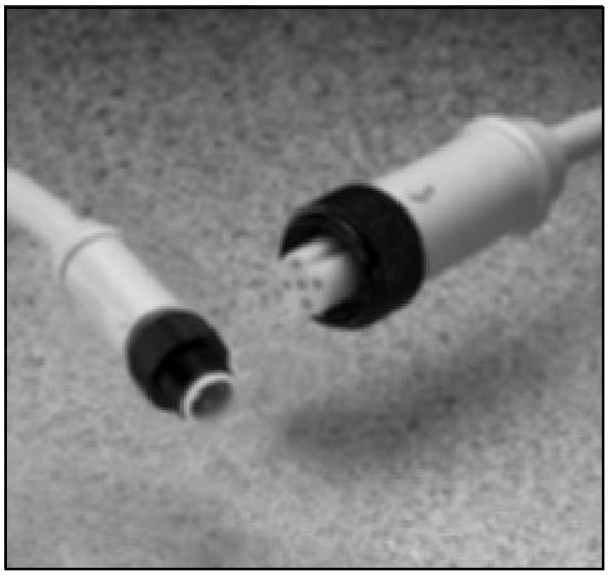


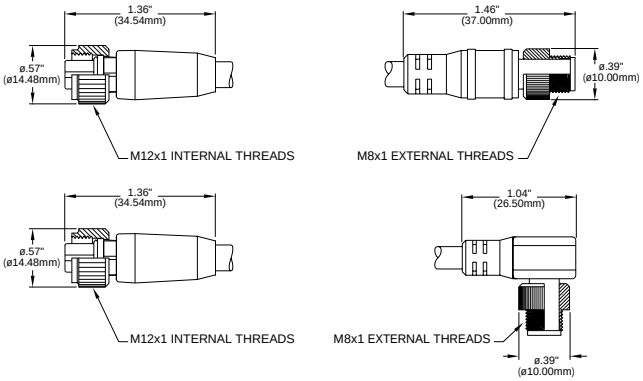
Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

Micro (12mm) to Pico/Nano (8mm) DC Extension Cables





Model Numbers

Female straight to male straight	Length
V1-G-YE.5M-PVC-V3-GM	0.5 m
V1-G-YE1M-PVC-V3-GM	1 m
V1-G-YE2M-PVC-V3-GM	2 m
V1-G-YE5M-PVC-V3-GM	5 m

Female straight to male right angle	Length
V1-G-YE.5M-PVC-V3-WM	0.5 m
V1-G-YE1M-PVC-V3-WM	1 m
V1-G-YE2M-PVC-V3-WM	2 m
V1-G-YE5M-PVC-V3-WM	5 m

Features

- Single key
- PVC cable jacket
- #22 AWG
- Female to male versions
- 3-pin

Technical Data:

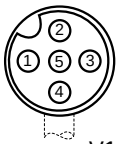
Material Data	
Body	Yellow, 90 A durometer flame-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1,3,4,6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

Face View (female)

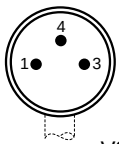


V1 end

Color Code

1. Brown
2. Not used
3. Blue
4. Black
5. Not used

Face View (male)



V3 end

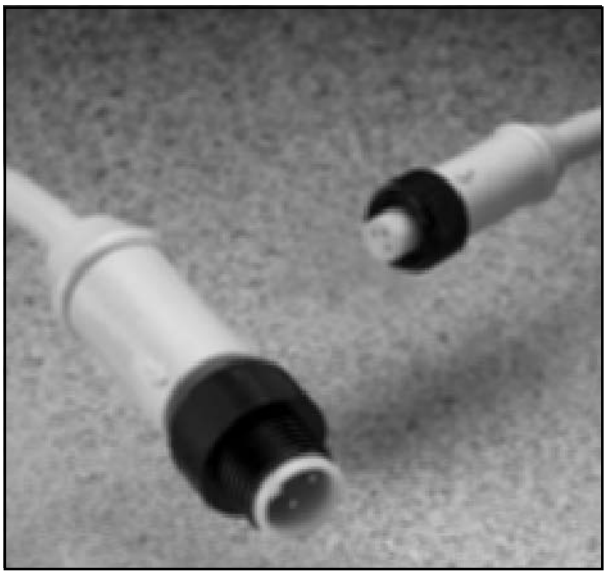
Color Code

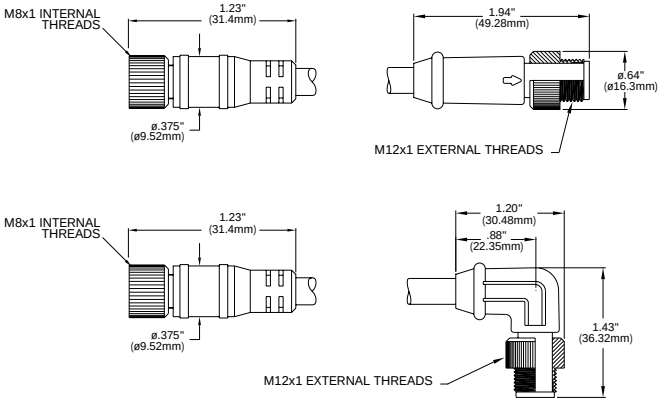
1. Brown
3. Blue
4. Black

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Pico/Nano (8mm) to Micro (12mm) DC Extension Cables





Model Numbers

Female straight to male straight	Length
V3-GM-YE.5M-PVC-V1-G	0.5 m
V3-GM-YE1M-PVC-V1-G	1 m
V3-GM-YE2M-PVC-V1-G	2 m
V3-GM-YE5M-PVC-V1-G	5 m

Female straight to male right angle	Length
V3-GM-YE.5M-PVC-V1-W	0.5 m
V3-GM-YE1M-PVC-V1-W	1 m
V3-GM-YE2M-PVC-V1-W	2 m
V3-GM-YE5M-PVC-V1-W	5 m

Features

- Single key
- PVC cable jacket
- #22 AWG
- Female to male versions
- 3-pin

Technical Data:

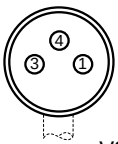
Material Data	
Body	Yellow, 90 A durometer flame-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1,3,4,6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

Face View (female)

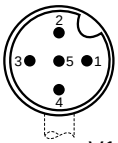


V3 end

Color Code

1. Brown
3. Blue
4. Black

Face View (male)



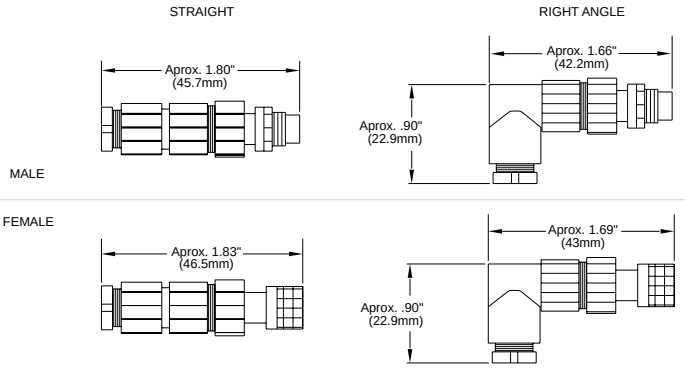
V1 end

Color Code

1. Brown
2. Not used
3. Blue
4. Black
5. Not used

ACCESSORIES

Pico/Nano DC (8mm) Connectors



Model Numbers

Straight	Gender
V3-GM	female
V3-GM-S	male

Right Angle	Gender
V3-WM	female
V3-WM-S	male

Features

- Field attachable wiring
- Female and male versions
- Accomodates #22-26 AWG
- 3-pin

Technical Data:

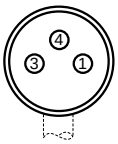
Material Data	
Body	Black Polypropylene
Insert	N/A
Cable type	Copper alloy
Contacts	Machined brass or bronze
Contact plating	Gold plate
Shell	N/A
Wire gauge	#22 - 26 AWG
Coupling nut	Nickel-plated diecast zinc

Electrical Data	
Contact resistance	≤ 10 mΩ
Electrical isolation	N/A
Current rating	4 A
Voltage rating	60 VAC

Environment Data	
Protection classes	IEC IP67
Temperature range	-13°F to +158°F
Corrosion resistance	N/A
Water spray	N/A

Pin Assignment:

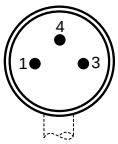
Face View (female)



Color Code

1. Brown
2. Black
3. Blue

Face View (male)

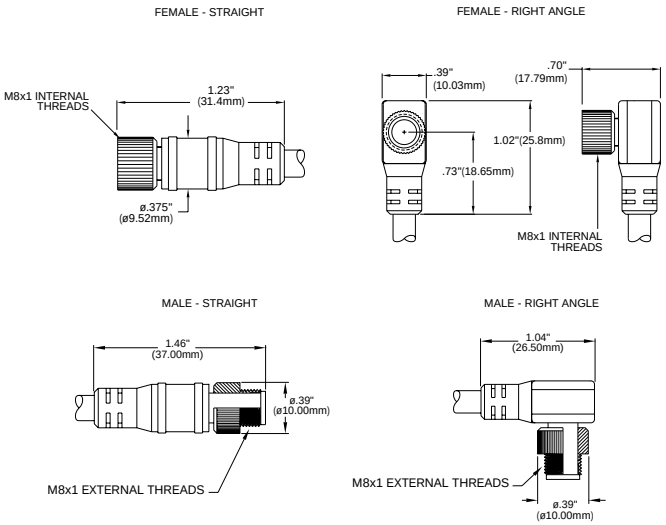


Color Code

1. Brown
2. Black
3. Blue

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Pico/Nano DC (8mm) Cordsets



Model Numbers

Straight	Length	Gender
V3-GM-YE2M-PVC	2 m	female
V3-GM-YE5M-PVC	5 m	female
V3-GM-S-YE2M-PVC	2 m	male
V3-GM-S-YE5M-PVC	5 m	male

Right Angle	Length	Gender
V3-WM-YE2M-PVC	2 m	female
V3-WM-YE5M-PVC	5 m	female
V3-WM-S-YE2M-PVC	2 m	male
V3-WM-S-YE5M-PVC	5 m	male

Features

- PVC cable jacket
- Female and male version
- #24 AWG
- 3-pin
- Coupler version

Technical Data:

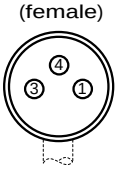
Material Data	
Body	Yellow PVC
Insert	Yellow PUR
Cable type	Yellow, AWM UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#24 AWG
Coupling nut	Machined brass with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1000 VAC
Current rating	4 A
Voltage rating	60 VAC/75 VDC

Environment Data	
Protection classes	NEMA 1, 3, 4, 6P, 13/IEC IP68
Temperature range	-40°F to +221°F
Corrosion resistance	N/A
Water spray	N/A

Pin Assignment:

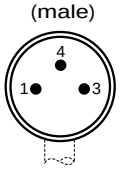
Face View (female)



Color Code

1. Brown
2. Black
3. Blue

Face View (male)

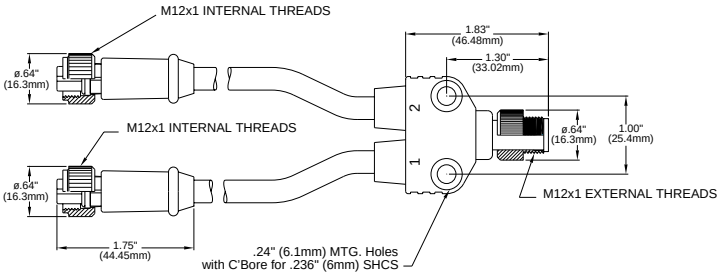


Color Code

1. Brown
2. Black
3. Blue

ACCESSORIES

Micro DC (12mm) Dual-port Junction Block with Cable



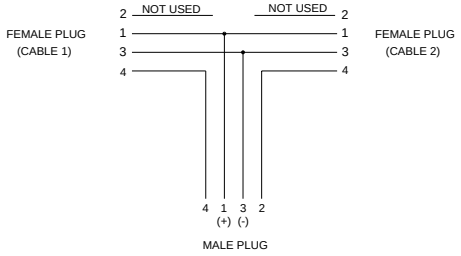
Model Number

	Length
V1-G-.3M-T-0M-V1-G	0.3 m

Features

- Single key
- PVC cable jacket
- #18 AWG
- 4-pin

Wiring Diagram



Technical Data:

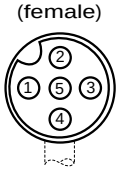
Material Data	
Body	Yellow, oil-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Wire gauge	#18 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1, 3, 4, 6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

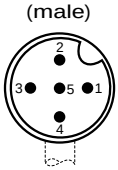
Face View (female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

Face View (male)



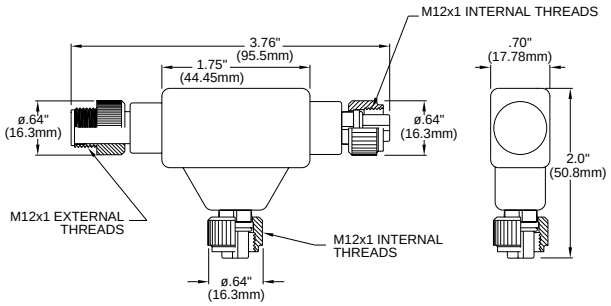
Color Code

1. Brown
2. Not used
3. Blue
4. Black
5. Not used

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Micro DC (12mm) Dual-port Junction Block



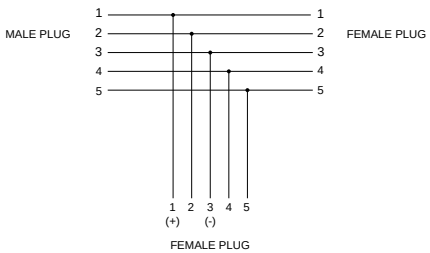
Model Number

VAZ-RK-TEE-V1

Features

- Single key
- PVC cable jacket
- #18 AWG
- 4-pin

Wiring Diagram



Technical Data:

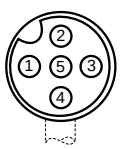
Material Data	
Body	Yellow, 90 A durometer
	flame-resistant PVC
Insert	Black PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Wire gauge	#18 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data	
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data	
Protection classes	NEMA 1, 3, 4, 6P, 13/IEC IP68
Temperature range	-4½F to +221½F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	N/A

Pin Assignment:

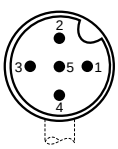
Face View (female)



Color Code

1. Brown
2. White
3. Blue
4. Black
5. Gray

Face View (male)

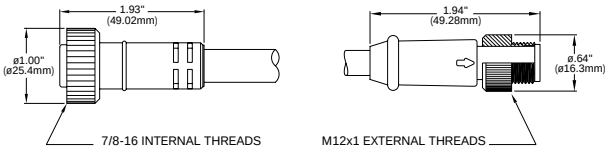


Color Code

1. Brown
2. Not used
3. Blue
4. Black
5. Not used

ACCESSORIES

Mini (7/8"-16) to Micro (12mm) DC Extension Cables



Model Numbers

Female straight to male straight	Length
V94-G-YE1M-PVC-V1-G	1 m
V94-G-YE2M-PVC-V1-G	2 m
V94-G-YE5M-PVC-V1-G	5 m

Features

- Single key
- PVC cable jacket
- #22 AWG
- Female to male version
- 4-pin

Technical Data:

Material Data

Body	Yellow, 90 A durometer flame-resistant PVC
Insert	Yellow PUR
Cable type	Yellow, AWM, UL style 2661, PVC jacket
Contacts	Machined brass
Contact plating	30 micro-inches of 24 karat gold over 50 micro-inches of nickel
Shell	N/A
Wire gauge	#22 AWG
Coupling nut	Diecast Zamak 5 with black epoxy coat

Electrical Data

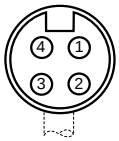
Contact resistance	≤ 5 mΩ
Electrical isolation	1600 VAC
Current rating	3 A
Voltage rating	300 VDC

Environment Data

Protection classes	NEMA 1,3,4,6P, 13/IEC IP68
Temperature range	-4°F to +221°F
Corrosion resistance	1000 hr. salt spray per MIL-STD-202F
Water spray	1200 psi

Pin Assignment:

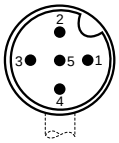
Face View (female)



Color Code

1. Black
2. Blue
3. Brown
4. White

Face View (male)



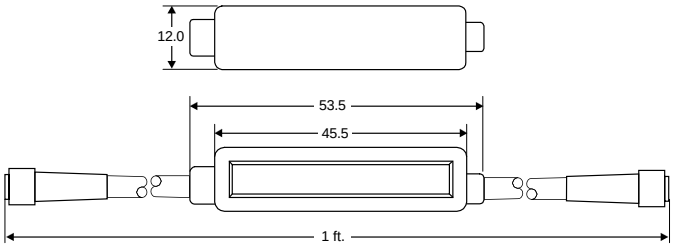
Color Code

1. Brown
2. White
3. Blue
4. Black
5. Not used

ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

NPN/PNP Converters



Model Numbers

V1-G-NPN/PNP CONVERTER-V1-G

V3-G-NPN/PNP CONVERTER-V3-G

NPN/PNP Converter

Features

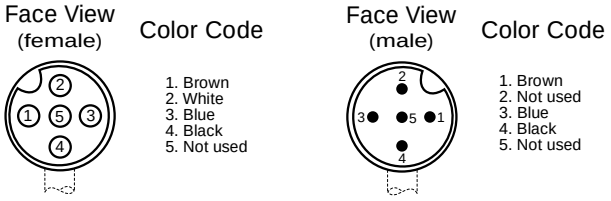
- Converts NPN to PNP outputs
- All molded construction
- Short circuit/overload protection
- In-line device, no mounting necessary
- Female to male version
- Available with V1 (M12x1) or V3 (M8x1) quick disconnects

Technical Data:

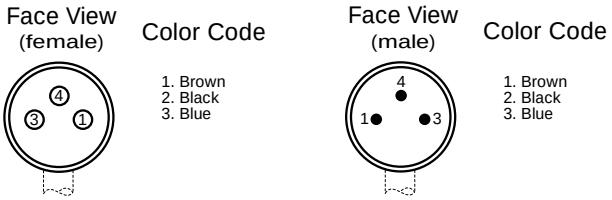
Material Data	
Body	Black, glass-filled polypropylene
Cable type	Black, flexible PVC
Contacts	Machined copper and tin over gold
Contact plating	Copper and tin over nickel
Wire gauge	#24 AWG
Coupling nut	Nickel over brass

Electrical Data	
Operating voltage V_B	12-24 VDC, +/- 10%
Operating current I_e	≤ 20 mA (no load/sensor)
Input	one 2- or 3-wire sensor, DC, sinking
OFF I_{In}	≤ 1 mA
ON I_{In}	≥ 4.5 mA
I_{in}	≤ 6 mA
V_{OUT}	V_B less 0.7 VDC
I_{OUT}	≤ 150 mA
Output	1 electronic output, DC, sourcing
Load capacity	V_B less 1.7 VDC, 500 mA (max.), overload protected
Temperature range	-20°C to +80°C (-4°F to +176°F)
Protection (IEC)	IP67

Pin Assignment:



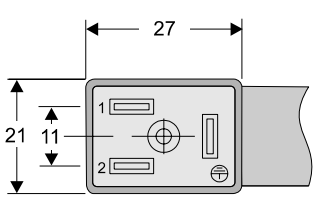
V1 (M12x1) Version



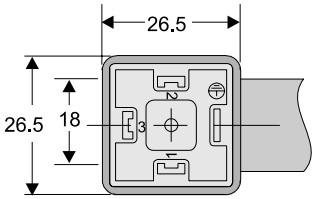
V3 (M8x1) Version

ACCESSORIES

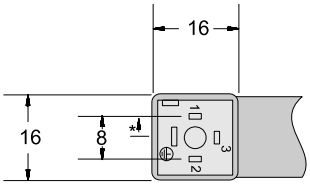
DIN Connectors



MINI

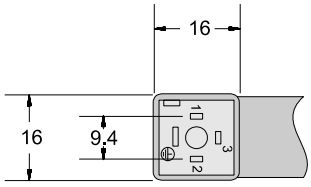


Type A



*Ground spade offset by 0.2 mm toward Pin 1.

Type C



9 mm

Model Numbers

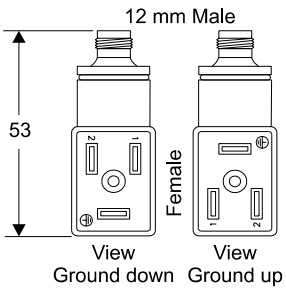
VAZ-TYPEA-UP-PNP-V1-S-0M
VAZ-TYPEA-DN-PNP-V1-S-0M
VAZ-MINI-UP-PNP-V1-S-0M
VAZ-MINI-DN-PNP-V1-S-0M
VAZ-TYPEC-UP-PNP-V1-S-.15M
VAZ-TYPEC-DN-PNP-V1-S-.15M
VAZ-9MM-UP-PNP-V1-S-.15M
VAZ-9MM-DN-PNP-V1-S-.15M

DIN Connectors

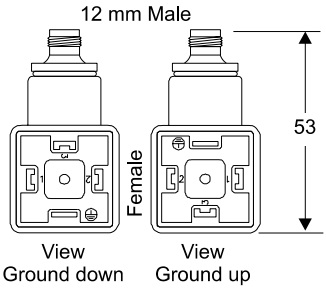
Features

- LED indication
- Industry standard Type A, Type C, Mini and 9 mm solenoid connectors
- V1 (M12x1) male quick disconnect
- Ground up or ground down versions available
- Includes gasket

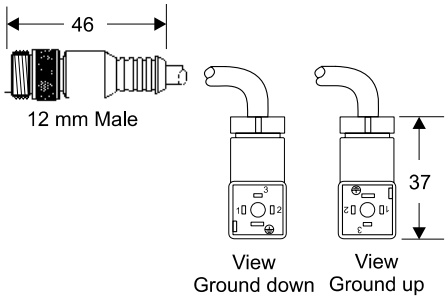
Connections



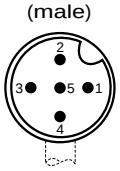
MINI



Type A



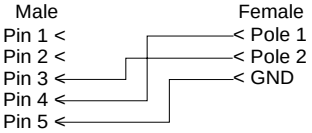
Type C and 9 mm



Color Code

1. Not used
2. Not used
3. Blue
4. Black
5. GND

PNP Type 5-pin



ACCESSORIES

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Technical Data:

Material Data	
Body	Black, glass-filled polypropylene
Cable type	Black, flexible PVC
Contacts	Machined copper and tin over gold
Contact plating	Copper and tin over nickel
Wire gauge	#24 AWG

Electrical Data	
Operating voltage V_B	6-48 VAC/VDC
Operating current I_e	≤ 3 A
Temperature range	-25°C to +85°C (-13°F to +185°F)
Protection (IEC)	IP65

Description

The DIN connectors are modular interface connectors made to conform to industry standard configurations. These connectors interface female ISO (DIN 43650 Form "A"), MINI and Sub-Micro (DIN 43650 "C") solenoid connections to industry standard male 12mm (Micro) circular connectors as shown on the previous page. These rugged modular connectors offer rapid installation and environmental protection designed to IP65 and Nema 4. These DIN connectors include a mounting gasket, LED indication and are pre-wired to connect with popular multi-port junction blocks and industrial networking systems.

Note: Other wiring configurations are available. Contact P+F for further information.

Accessories

Micro DC (12mm) Extension Cables
See page 255.

Micro (12mm) to Pico (8mm) Extension Cables
See page 256.

Glossary

Address
The identification number of a module. The default setting for AS-Interface modules is 0 and can be set to values between 1 and 31. There is no limit on the number of times one can change the address.

Actuator
A device that carries out a simple movement such as a contactor or valve.

APM
An abbreviation for alternating pulse modulation. A display of the bits on the AS-Interface cable where each bit represents a $\sin^2$-pulse. Each positive pulse follows a negative pulse and vice versa. Highly resistant to interference.

Automatic Addressing
With the system in operation a module can be replaced with the address of the one it is replacing. The address of the new module must be 0 and auto addressing must be enabled.

Bit error rate
The statistical mean of the errors occurring during transmission.

Configuration data
The display of all current I/O modules determines the actual status of the network. The profile (I/O, ID) are stored in the list of the detected slaves (LDS).

I/O module
This device connects directly to AS-Interface and accepts up to 4 inputs and 4 outputs from standard devices.

Cycle time
The time span between two I/O transfers on a single module. The fewer the nodes, the shorter the cycle time.

Data integrity
A measure of the error free operation of data transfer.

Gateway
A device that controls all AS-Interface communications and is a single drop on a higher level bus system.

ID-code
Identifies the type of module. The manufacturer sets this value.

Insulation displacement
An electrical connection to the AS-Interface flat cable without the use of a cutting tool.

Intelligent sensor
A sensor with an AS-Interface ASIC that uses one address.

I/O code
Is a code assigned to the I/O module by the manufacturer. Its value is then stored in the configuration that tells the I/O mix of the module.

Master
Controls all AS-Interface communications and talks back to a PC or PLC.

Message
A complete group of bits that makes up information.

Operating current
Current needed by the device for proper operation.

Parameter bits
A four-bit code indicating how the I/O module will function. Examples: N.C./N.O., absolute/relative distance for US - sensors, light-on/dark-on for photoelectric sensors. Parameter bits can be changed as needed and are reset when powered off.

Parity check
Simple error checking of the sum of the user bits contained in one telegram (address, data, control bits, parity bit) which must be even in AS-Interface. The sender must select the parity bit.

Passive module
A device that connects one or more intelligent devices to AS-Interface. It does not require an address.

Projected data
The current stored configuration of AS-Interface The I/O and ID codes are permanently stored in the master. The master compares the current configuration and actual configuration to detect improperly connected or missing modules.

Remaining error probability
Indicates the number of errors that could occur during a transmission based on the average of previous error detection.

Sensor
A device that indicates presence of something and relays the information back to a controller. Some of the most common types of sensors are inductive, capacitive, photoelectric and ultrasonic.

Telegram
A message sent by the master and answered by an I/O module.

Transmission (Baud) rate
The transmission speed of a bit on the AS-Interface cable measured in bits per second (bps). One bit per second is about one baud.

Additional information:

W. Kriesel, O.W. Madelung AS-Interface, 2nd Edition. Munich, 1996.
G. Schnell, et. al. Bus Systems in Automation Technology, 2nd Edition, Wiesbaden, 1996.

These books are available from Pepperl+Fuchs.

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

WARRANTY REGISTRATION FORM

(For a copy of the warranty, terms and conditions, contact P+F)

PEPPERL+FUCHS, INC.
LIFETIME WARRANTY REGISTRATION INSTRUCTIONS
TO BE COMPLETED BY THE ORIGINAL (END) USER OF THE PRODUCT

STEP 1 : Fill in all information below.
STEP 2 : Have the Registration signed by an authorized Representative of the Original User and an authorized Representative of Pepperl+Fuchs, Inc. ("P+F").
STEP 3 : Return this Registration to P+F (keep a copy for your records).

LIFETIME WARRANTY REGISTRATION
AVAILABLE ONLY FOR INDUCTIVE SENSORS, CAPACITIVE SENSORS, CORDSETS, MAGNET OPERATED SENSORS, READ-ONLY INDUCTIVE I.D.SYSTEMS, AND SENSOR BUS SYSTEM COMPONENTS (WITHOUT ELECTRO-MECHANICAL COMPONENTS)

Date : _____

Please Print

Company Name : _____

Division : _____ Dept: _____

Address: _____

City : _____ State : _____ ZIP :

Phone : ( ) _____ Your Name : _____

Your Title : _____

Industry (Items Manufactured or Service Performed at this Location) : _____

_____

_____

Approximate Date Purchased : _____ Approximate Date Installed : _____

What is the General Application for this Product ? _____

_____

Which OEM Supplied the Mechanical Equipment on which the Product is installed ? Name : _____

Location: _____

P+F Products Installed :

Catalog Number	Description	Approximate Quantity

Why were P+F Products Specified for this Application? _____

_____

_____

Signature of Authorized Representative of P+F : _____ Date : _____

Signature of Authorized Representative of Original User : _____ Date : _____

Return to : Pepperl+Fuchs, Inc.
1600 Enterprise Parkway
Twinsburg, Ohio 44087-2245
Attention : Warranty Registration Department
Phone : (330) 425-3555 • FAX : (330) 405-4710

Model Numbers

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Model Numbers

Model		Page
OCT2000+U1A+B3-V1	Diffused Mode Photoelectric Sensor	100
OCT2000+U5A+B3	Diffused Mode Photoelectric Sensor	100
OCT2000+U9A+B3	Diffused Mode Photoelectric Sensor	100
OCT500-F22-B3-V1	Diffused Mode Photoelectric Sensor	104
OCT500-M1A-B3	Diffused Mode Photoelectric Sensor	96
OCT500-M1A-B3-V1	Diffused Mode Photoelectric Sensor	96
OCT800-F8-B3	Diffused Mode Photoelectric Sensor	92
OFR70	Reflector	244
OMH-F22-1	F22 Mounting Bracket	244
ORR50	Reflector	244
ORR60	Reflector	244
ORR80	Reflector	244
OTS18	Replacement Lens	244
PG11-1/2"NPT	PG11 to 1/2" NPT Conduit Adapter	239
PG11 CORD GRIP	Cord Grip	239
PG11-V1-G-S-.15M	Adapter	242
PL1-F25-B3-S	Valve Position Indicator	218
PR-05	Power Rail	249
RT1x100	Reflective Tape	244
RT2x100	Reflective Tape	244
RT3x100	Reflective Tape	244
SST-ASI-SLC	SLC 500, Dual Master	16
U-G1F	Mounting Base for Standard and Field Modules	238
U-G1FA	Mounting Base for Standard and Field Modules	238
U-G1FF	Mounting Base for Standard and Field Modules	238
U-G1FFA	Mounting Base for Standard and Field Modules	238
U-G1P	Mounting Base for Standard and Field Modules	238
U-G1PP	Mounting Base for Standard and Field Modules	238
U-G2FF	Mounting Base for Flat Modules	239
U-G3FF	Mounting Base for Flat Modules	239
UPR-05	Continuous Power Rail	248
V1-G	Micro DC (12mm) Connector	251
V1-G-.3M-T-0M-V1-G	Micro DC (12mm) Junction Block with Cables	260
V1-G-2M-PUR	Micro DC (12mm) Cordset	252
V1-G-2M-PVC	Micro DC (12mm) Cordset	252
V1-G-5M-PUR	Micro DC (12mm) Cordset	252
V1-G-5M-PVC	Micro DC (12mm) Cordset	252
V1-G-NPN/PNP CONVERTER-V1-G	Micro DC (12mm) NPN/PNP Converter	263
V1-G-Q21	Micro DC (12mm) Quickon Adapter	250
V1-G-S	Micro DC (12mm) Connector	251
V1-G-S-YE1M-PVC-V1-G	Micro DC (12mm) Extention Cable	255
V1-G-S-YE2M-PVC	Micro DC (12mm) Cordset	253
V1-G-S-YE5M-PVC	Micro DC (12mm) Cordset	253
V1-G-YE.5M-PVC-V1-G	Micro DC (12mm) Extention Cable	255
V1-G-YE.5M-PVC-V1-W	Micro DC (12mm) Extention Cable	255
V1-G-YE.5M-PVC-V3-GM	Micro (12mm) to Pico/Nano (8mm) Extention Cable	256
V1-G-YE.5M-PVC-V3-WM	Micro (12mm) to Pico/Nano (8mm) Extention Cable	256
V1-G-YE1M-PVC-V1-G	Micro DC (12mm) Extention Cable	255
V1-G-YE1M-PVC-V1-W	Micro DC (12mm) Extention Cable	255
V1-G-YE1M-PVC-V3-GM	Micro (12mm) to Pico/Nano (8mm) Extention Cable	256
V1-G-YE1M-PVC-V3-WM	Micro (12mm) to Pico/Nano (8mm) Extention Cable	256
V1-G-YE2M-PUR	Micro DC (12mm) Cordset	254
V1-G-YE2M-PVC	Micro DC (12mm) Cordset	253
V1-G-YE2M-PVC-V1-G	Micro DC (12mm) Extention Cable	255
V1-G-YE2M-PVC-V1-W	Micro DC (12mm) Extention Cable	255
V1-G-YE2M-PVC-V3-GM	Micro (12mm) to Pico/Nano (8mm) Extention Cable	256

Model Numbers

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com

Model Numbers

Model		Page
VAA-4A-G1-E2	Standard Module	170
VAA-4A-G1-R	Standard Module	168
VAA-4A-G2-E2	Flat Module	126
VAA-4A-G4-E2	Field Module	152
VAA-4A-G6-E2	Compact Module	140
VAA-4A-K3-R	Junction Box Module	200
VAA-4A-KF-E2	Enclosure Module	180
VAA-4E-G1-Z	Standard Module	158
VAA-4E-G1-ZE	Standard Module	160
VAA-4E-G2-ZE	Flat Module	124
VAA-43E-G4-N	Field Module	150
VAA-4E-G4-Z	Field Module	148
VAA-4E-G4-ZE	Field Module	146
VAA-4E-G6-ZE	Compact Module	138
VAA-4E-K2-Z	Junction Box Module	194
VAA-4E-K3-ZE	Junction Box Module	198
VAA-4E-KF-WS	Enclosure Module	182
VAA-4E-KF-ZE	Enclosure Module	178
VAA-4E-KF2-ZE	Enclosure Module	190
VAA-4EA-CB-E/E2	Circuit Board Module	220
VAA-4EA-G2-ZE/E2	Flat Module	122
VAA-4EA-G4-ZE/E2	Field Module	144
VAA-4EA-G6-ZE/E2	Compact Module	134
VAA-4EA-KF-DK	Data Coupler	222
VAA-4EA-KF-WS/R	Enclosure Module	184
VAA-4EA-KF-ZE/E2	Enclosure Module	176
VAA-4EA-KF-ZE/R	Enclosure Module	174
VAA-4EA-KF2-ZE/E2	Enclosure Module	188
VAA-4EA-KF2-ZE/R	Enclosure Module	186
VAA-4EA-K3-ZE/E2	Junction Box Module	202
VAA-LT2-G1	Lighted Push Button Module	210
VAE-G1-S	Extender	67
VAG-CAN-K5	CANopen Gateway	48
VAG-CCL-G4F	Mitsubishi CC Link Gateway IP65	50
VAG-DN-K5	DeviceNet Gateway	46
VAG-IBS-G4F-FB	InterBus Gateway IP65	34
VAG-IBS-K1	InterBus Gateway (Periphal Bus) IP20	30
VAG-IBS-KF-FB	InterBus Gateway (Remote Bus) IP20	32
VAG-MOD+-K5-R4	MODBUS PLUS Gateway	44
VAG-MOD-KF-R4	MODBUS Gateway	42
VAG-PB-G4F-R4	PROFIBUS Gateway IP65	38
VAG-PB-KF-R4	PROFIBUS Gateway IP20	36
VAG-PB-KF-R4-DM	PROFIBUS Gateway, Dual Master	40
VAM-CTR-G4F-R4	RS485 Serial Master IP65	22
VAM-CTR-KF-R2	RS232 Serial Master IP20	20
VAM-CTR-KF-R3	RS422 Serial Master IP20	20
VAM-CTR-KF-R4	RS485 Serial Master IP20	20
VAM-CTR-PC2	ISA PC Master	24
VAM-CTR-PC104	PC104 PC Master	28
VAN-115/230AC-CL2-S	AS-i Power Supply, 3 A Class 2	62
VAN-115/230AC-K6	AS-i Power Supply, 2.8 A	58
VAN-115/230AC-K7	AS-i Power Supply, 8 A	59
VAN-115/230AC-K7-DN	AS-i Power Supply, Dual 4 A	60
VAN-115/230AC-K7-CN	AS-i Power Supply, Combination 2.8 A/6 A, 24 VDC	61
VAN-115/230AC-K8	AS-i Power Supply, 2.8 A	57
VAN-24DC-K9	AS-i Power Supply, 2.8 A, 24 VDC Input	63

Model Numbers

Model		Page
VAR-G1-S	Repeater	66
VAR-G3F	Repeater	65
VAZ-2FK-B1	Cable Accessories	241
VAZ-2FK-V1	Cable Accessories	241
VAZ-2T1-FK-V1	Cable Accessories	241
VAZ-2T5-G2	Splitter	235
VAZ-9MM-DN-PNP-V1-S-.15M	DIN Connector	264
VAZ-9MM-UP-PNP-V1-S-.15M	DIN Connector	264
VAZ-DK-G1	Mounting Base Protective Cover	238
VAZ-DN-SIM	DeviceNet Master Simulator	237
VAZ-FK-ST1	Flat Cable End Cover	240
VAZ-FK-R-BK	Oil-resistant Flat Cable, Black	246
VAZ-FK-R-YE	Oil-resistant Flat Cable, Yellow	246
VAZ-FK-S-BK	Standard Flat Cable, Black (328' Spool)	246
VAZ-FK-S-YE	Standard Flat Cable, Yellow (328' Spool)	246
VAZ-G4-B	Protective Plug for Field Modules	239
VAZ-G4-R4	Serial Cable for IP 65 Masters	242
VAZ-G6F-V1	Cable Accessories	241
VAZ-G6F-W2M	Cable Accessories	240
VAZ-FK-V1-.5M	Cable Accessories	240
VAZ-FK-V1-2M	Cable Accessories	240
VAZ-FK-CL1	Flat Cable Mounting Clip	240
VAZ-MINI-DN-PNP-V1-S-0M	DIN Connector	264
VAZ-MINI-UP-PNP-V1-S-0M	DIN Connector	264
VAZ-PB-CABLE	Purple PROFIBUS Cable	243
VAZ-PB-DB9-W	PROFIBUS 9-pin D-sub Connector	243
VAZ-PB-SIM	PROFIBUS-DP Master Simulator	236
VAZ-PG11-FKD	Flat Cable Grommet	239
VAZ-PK-V1-CINCH	Hand-held Programming Cable	243
VAZ-R2-STRT	Serial Extension Cable	242
VAZ-R4-R2	RS232/RS485 Converter	242
VAZ-RK-P-TEE	Protected Wiring Tee	245
VAZ-RK-PVC-Y904028	AS-Interface Round Cable (328' Spool)	247
VAZ-RK-TEE	Wiring Tee	245
VAZ-RK-TEE-V1	Micro DC (12mm) Junction Block	261
VAZ-RIO-CABLE	Remote I/O Cable (100' Spool)	243
VAZ-SERIAL-CABLE	Serial Cable (100' Spool)	243
VAZ-T1-FK-Pg13.5	Cable Accessories	241
VAZ-T1-FK-Pg9	Cable Accessories	241
VAZ-T1-FK-V1	Cable Accessories	241
VAZ-T1-G2F	Cable Accessories	240
VAZ-T4-G1	Splitter	234
VAZ-TYPEA-DN-PNP-V1-S-0M	DIN Connector	264
VAZ-TYPEA-UP-PNP-V1-S-0M	DIN Connector	264
VAZ-TYPEC-DN-PNP-V1-S-.15M	DIN Connector	264
VAZ-TYPEC-UP-PNP-V1-S-.15M	DIN Connector	264
VAZ-V1-B	M12 Protective Cover	239
VAZ-V3-B	M8 Protective Cover	240
VAZ-V8-6	24 VDC Connector for K9 Power Supply	242
VBG-RIO-KHD2-R2	Remote I/O Node Adapter	18
VBG-TCP/IP-K5-RJ45-DM	Ethernet Gateway, Dual Master	52
VBM-CTR-PCI-DM	PCI PC Master	26
VBP-HH1-110V	Hand-held Addressing Device	232

PEPPERL+FUCHS Pepperl+Fuchs® Inc. • 1600 Enterprise Parkway • Twinsburg, Ohio 44087-2245
Telephone (330) 425-3555 • FAX (330) 405-4710 • E-mail: sales@us.pepperl-fuchs.com