StuvEx nv
Heiveldekens 8 - B-2550 Kontich - Belgium
Tel. +32-3-458 25 52 - Fax +32-3-458 25 27
E-mail: info@stuvex.be - www.stuvex.be

StuvEx Safety Systems
48, Church Street
Weybridge, Surrey KT 13 8DP - United Kingdom
Tel. +44-1932-849602 - Fax +44-1932-852171
E-mail: info@stuvex.com - www.stuvex.com

SYSTEMS AND PARTS

CONTROL UNIT

Background

In the past, each active safety system worked differently; hence, each control unit had to be different. This meant that the operators, engineers and their supervisors had to be familiar with several systems. With the new generation of control units (the CUP03-02x family), this situation definitively belongs to the past: StuvEx has streamlined all control units into a single family, all with the same controls, possibilities, electrical connections etc.

Product

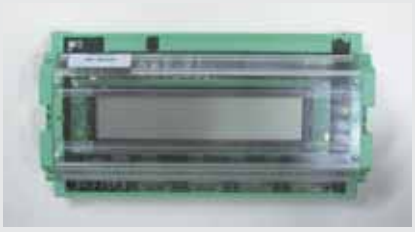
There are two basic configurations:

- CUP0302D-S: the simplest, stand-alone configuration for one zone only, typically used in simple stand-alone safety systems such as chemical barriers, fast-closing valves etc.
- CUP0302D-B: the basic configuration for more complex safety systems such as explosion suppression or when several simple systems must to be controlled/monitored from a central point.
  CUP0302D-E: an extension unit for up to 6 zones
  CUP0302D-Z: an extension unit for 1 zone

The -B control unit is the heart of the system. This unit is equipped with a memory, an LCD screen and controls all connected zones. The maximum number of zones a -B unit can manage is 16. If so desired, these can be distributed throughout plant by way of -E or -Z extensions.
Up to 6 zones can be built into each -B and -E unit. The -Z unit is equipped for a single zone only. The number of -E and -Z units that can be connected to a single -B unit is limited to 16 zones.

The ZCN type zone modules that are installed in the -B, -E and -Z units can be easily snapped into the units without switching off power (“hot swappable,” thus all zones already operational do not need to be switched off).
All units (with exception of the -S unit) are interconnected by means of a bus cable.

Control unit



MCU Module

ZCN Module

Functioning

The functioning of the control unit is always the same, regardless of configuration and the unit used, with the exception of the stand-alone version (-S) which does not have a memory or an LCD and, since it is a stand-alone version, cannot be controlled from a central point.

Features:

- Up to 16 devices can be controlled per zone: extinguishing agent bottles, FSGVs and other StuvEx systems. This limit can (theoretically) be increased infinitely by making use of the “cross firing” function.
- Simultaneous monitoring of up to 4 detectors, which can be connected as a group in an OR or AND function. In case of an AND function, it is also possible to generate a fault if 1 detector is in alarm for 5 seconds and no second detector goes into alarm; this avoids unwanted and false alarms.
- The ability to connect an external interlock: this allows the safety circle to be closed; the zone cannot be reset before the external interlock circuit is closed (e.g. a switch on an inspection hatch), and the process cannot be restarted until the zone has been reset.
- The on/off and reset switches on the zone modules can also be wired externally, so that a key switch or a switch with a padlock can be installed on the machine for safer maintenance. This is also a form of external interlock.
- Very stable protocol that virtually excludes external EMC interference on the wiring
- Cross Fire functionality: this allows a barrier between, for example, two volumes to be controlled from two different zones. If necessary, this barrier can also be equipped with “its own” detectors.
- Exchangeable without having to switch off the electric mains (hot swappable).

System design

The basic model of all units includes a steel housing, IP65, suitable for use in a zone 22 or 21 environment. On request, however, the units can also be supplied with stainless steel housing and/or for use in gas Ex zones (1 or 2).

Intended use

In each case, the units are a component of a certified ATEX safety system, but they of course also have their own certificate as a component. Consequently, any application must be based on the instructions contained the ATEX certificate, the product specifications and the user manual.

Technical specifications

For more details on this product, we refer to the technical datasheet.

StuvEx nv
Heiveldekens 8 - B-2550 Kontich - Belgium
Tel. +32-3-458 25 52 - Fax +32-3-458 25 27
E-mail: info@stuvex.be - www.stuvex.be

StuvEx Safety Systems
48, Church Street
Weybridge, Surrey KT 13 8DP - United Kingdom
Tel. +44-1932-849602 - Fax +44-1932-852171
E-mail: info@stuvex.com - www.stuvex.com

SYSTEMS AND PARTS

CONTROL UNIT

Characteristics				
Type	**CUP03-02D-B**	**CUP03-02D-E**	**CUP03-02D-Z**	**CUP03-02D-S**
Max number of ZCNs	Maximum 16 x ZCNs per bus system (1 bus system consists of one B + x * E + y * Z units)			
	6	6	1	1
Power supply	110-220 V AC	110-220 V AC	Via B or E unit	110-220 V AC
Backup power supply	Via external UPS	Via external UPS	Via B or E unit	Via external UPS
Bus cable	LAPP CABLE: UNITRONIC ® LIYCY (TP) 3 x 2 x 0.5 - Part Nr: 00 35 811			
Ambient temp.	0°C - +50°C			0°C - +60°C
Storage temp.	0°C - +50°C			0°C - +50°C
Relative humidity	25 to 75%, non-condensing			
Protection degree	IP65			
Installation in zone	Zone 22		Zone 21, 22	
ATEX marking CE Ex	II 3D T85°C IP 65		II 2 D T85°C IP 65	
Weight	13.5		4.5	
Signalisation				
Visual	Yes: LCD & LED on MCU	No	Yes: LEDs on ZCN	Yes: LED's on ZCU
Electric	Yes: ZCN + general fault & triggering contact. Optional: take over contacts of ZCN in E and Z units	Yes: ZCN		Yes: ZCU
Audio	90 dB buzzer	No		90 dB buzzer
Relay contact	3A@30 V DC (res)			
Operation	External & Internal	No	No	Internal + optional external
SIL level	SIL 2			

Opties		
Installation in zone	n/a	zone 1, 2

COMPONENTS				
	MCU	**ZCx**	**GG**	**HV**
Inputs	16 x ZCN via bus	4 x detector RSS or 2 x detector RSS + 2 ZCx	1 x from ZCx	1 x from ZCx
Outputs	n/a	16 x GG card or 1 x HV card	1 x GG FLASH II or 2 x GG FSGV	12 x GG FLASH I
CrossFire functionality	n/a	Yes (2 x In, 2 x Out)	n/a	
Operation	Yes + prepared for external switches	Yes + prepared for external switches	n/a	Yes
Interlocks				
Input	No	Yes (start up cond.)	n/a	
Output	Yes (fault + alarm)	Yes (fault + alarm)	n/a	
Temp. monitoring	Yes			No
Visualisation	LCD + LED	LED	n/a	LED
Environmental temperature	0°C - +50°C	0°C - +60°C	-30°C - +70°C	0°C - +40°C
Storing temperature	0°C - +50°C	0°C - +60°C	-40°C - +80°C	0°C - +40°C
UPS fault input	Yes	No		
Earth fault input	Yes	No		
Alarm horn/light	Not internal, connection clamps provided		n/a	
Power supply	24 V DC ±15%	24 V DC ±15%	n/a	24 V DC ±15%
Consumption	150 mA	100 mA	70 mA	0.5 A
Relay data	3 A@30 V DC (res)		n/a	

This document provides an overview of the product's characteristics and possibilities. These are not necessarily part of the standard version and may not always be realised together. A detailed offer will be made for each specific application.

StuvEx nv
Heiveldekens 8 - B-2550 Kontich - Belgium
Tel. +32-3-458 25 52 - Fax +32-3-458 25 27
E-mail: info@stuvex.be - www.stuvex.be

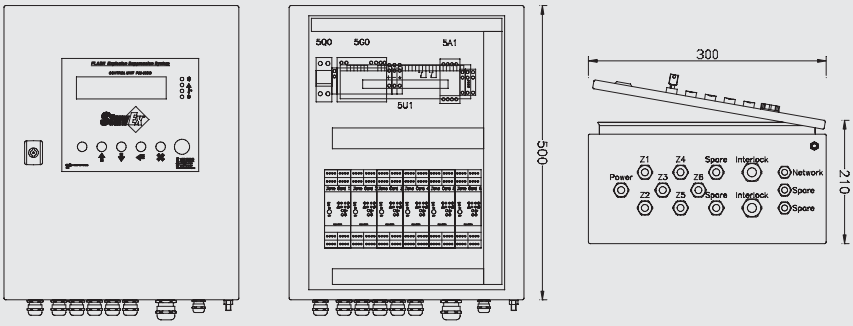
StuvEx Safety Systems
48, Church Street
Weybridge, Surrey KT 13 8DP - United Kingdom
Tel. +44-1932-849602 - Fax +44-1932-852171
E-mail: info@stuvex.com - www.stuvex.com

SYSTEMS AND PARTS

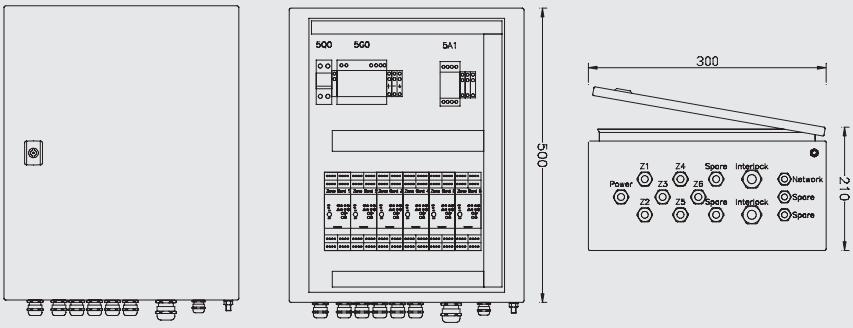
CONTROL UNIT

HOUSINGS

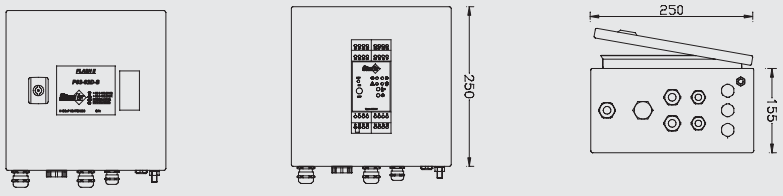
CUP03-02D-B



CUP03-02D-E



CUP03-02D-Z/S



Front Inside Bottom

StuvEx nv
Heiveldekens 8 - B-2550 Kontich - Belgium
Tel. +32-3-458 25 52 - Fax +32-3-458 25 27
E-mail: info@stuvex.be - www.stuvex.be

StuvEx Safety Systems
48, Church Street
Weybridge, Surrey KT 13 8DP - United Kingdom
Tel. +44-1932-849602 - Fax +44-1932-852171
E-mail: info@stuvex.com - www.stuvex.com

CONTROL UNIT

ELECTRICAL INSTALLATION

General
The cables can be laid in standard cable ladders or trays. This in principle could also be done in existing cable trays or ladders used by other cables. This latter practice, however, is strongly advised against. To avoid false triggering, the cables must be located at least 50 cm from power supply cables (high or low voltage), frequency regulators or changers (the power supply cables and cables to electric motors...).
The shielding of the various cables may only be connected to earth at one side. For the cable between the control unit and the junction box, this will be at the control unit side using a special EMC gland(1). For the cables between the junction box and the extinguishing agent bottle, detector/fast closing valve or other StuvEx apparatus, the shielding is automatically connected to the earth at the apparatus end.

The bus cable between two control units
Unless specified otherwise by StuvEx or confirmed in writing, only the prescribed cable type may be used:
UNITRONIC ® LIYCY (TP) 3 x 2 x 0.5 - Part Nr: 00 35 811

The shielding may be connected to the earth at only one control unit (practical rule: the CU nearest the B unit).

The cable between the control unit/junction box and the junction box
Unless specified otherwise by StuvEx or confirmed in writing, only the prescribed cable type may be used:
UNITRONIC ® LIYCY (TP) 6 x 2 x 0.5 - Part Nr: 00 35 813

The shielding may be connected to the earth at only one control unit or junction box (practical rule with two junction boxes: the JB nearest to the control unit).

These cables are manufactured and sold under the brand 'Lapp Kabel':

- Worldwide there are 15 production units, distributed across America, Europe and Asia.
- 'Lapp Kabel' is represented in more than 75 countries via a vast sales and representation network.

You can find the nearest dealer and/or commercial information at www.lappgroup.com. You, of course, may also contact StuvEx or its representative.

From the Junction box to the gas generator, the detector or to another StuvEx apparatus
Unless specified otherwise by StuvEx or confirmed in writing, StuvEx prescribes cables made by Phoenic Contact:

- Junction box to detector
  type SAC-4P-M12MS/x,y-PUR/M12FS SH (4 pin M12 straight connectors, male-female)
  x and y indicate the length.
- Cables to apparatus (such as from the junction box to a gas generator)
  type SAC-5P-M12MS/x,y-PUR/M12FS SH (5 pin M12 straight connectors, male-female)
  x and y indicate the length.

Phoenix Contact cables are available in various lengths. To be able to work with the same cable lengths, different cables can be interconnected. If necessary, cables with 90°Connectors can also be used.

Phoenix Contact has a worldwide sales network and is represented in ±70 countries.

To obtain technical and/or commercial information, contact the nearest dealer at www.phoenixcontact.com.
Important remark: the certification of the cables and the connectors for installation in a zone 21 and 22 location is only valid in a StuvEx configuration (the certificate has been obtained by StuvEx and not by Phoenix Contact).

(1) e.g. Capri	Newcap M16	4.5-10mm	RefNr 186.164 + 229.164
	Newcap M20	6-13mm	RefNr 186.204 + 229.204
	Newcap M25	10-18mm	RefNr 186.254 + 229.254