



DeviceNet

(Catalog Number DN)

Version 1

System Overview



Integrating DeviceNet Products with your Existing Rockwell Automation Architecture. As a full-line supplier, we know that the function and cost of an integrated control system are dictated by how easily and effectively you can combine system components.

The DeviceNet Network was Designed to Meet Your Needs.

Rockwell Automation DeviceNet products increase flexibility and efficiency in your control system. Integrate the industry's fully open network with Allen-Bradley PLC® scanners, SLC™ scanners, Series 9000 photoelectric sensors, and ac and dc drives, along with Reliance ac and dc drives and many other control products.

Our DeviceNet products take advantage of this exciting new technology and provide access to your existing Rockwell Automation architecture.

Whether you're using the ControlNet™ network, DH+™ network, or Ethernet™ network, PLC processors, SLC processors, or other processors, Rockwell Automation DeviceNet products are easily integrated to help you link the plant floor with the rest of your control system.

Rely on Rockwell Automation Quality and World-Class Support

We have helped numerous customers around the world achieve their manufacturing goals. For assistance with Rockwell Automation DeviceNet products, call your local distributor or sales office.

Our support network offers complete system integration and support services including application engineering, installation supervision, system startup, training, field service, and ongoing product support.

We're global because we're local to you.

You can access a Rockwell Automation sales representative, appointed distributor, or authorized system integrator almost anywhere around the world. Perhaps that's why Rockwell Automation is the preferred supplier of automation controls in the industry.



Purpose of this Selection Guide

This selection guide contains all of the technical information you need to build or enhance your DeviceNet™ network.

- descriptions
- features and benefits
- DeviceNet features
- configuration information
- physical connections
- network topologies
- accessories
- ordering information
- related publications
- specifications

Call your local Allen-Bradley sales office to place your order.

What You Need to Build a DeviceNet Network

A DeviceNet network requires the following components:

- power supply
- PLC or SLC Chassis with matching DeviceNet Scanner Module and programming software (or SoftLogix5)
- trunk line
- drop line
- termination resistors
- Personal Computer with Windows™ ver. 3.1 or later, or Windows NT™ or Windows 95™
- DeviceNetManager™ Software
- RS-232 Personal Computer Interface

What this System Overview Contains

Use this table to locate information on each product:

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DeviceNet Training Courses

Please contact your nearest Rockwell Automation sales office for information on the following:

- locations
- schedules
- detailed course descriptions
- pricing

Designing and Configuring a DeviceNet Network (CCP163)

This course provides the skills, guidelines, and foundation to design a DeviceNet network. Additionally, it presents the planning and decision making considerations needed to configure a DeviceNet network.

Upon completion of this course, you will be able to produce and configure a DeviceNet network design by performing the following tasks:

- selecting the appropriate network devices
- determining the appropriate taps, connectors, and cables
- planning a physical layout
- determining the requirements of power supplies
- determining the placement of power supplies
- preparing the documentation for configuring a DeviceNet network
- mapping a 1771-SDN scanner's data tables
- using DeviceNetManager software to configure a DeviceNet network
- verifying the operation of a configuration
- selecting the different options of data mapping

Purpose of this Section



This section of this selection guide contains all of the technical information you need to order your DeviceNet physical media:

- descriptions
- requirements
- specifications
- catalog numbers
- related publications

DeviceNet Physical Media

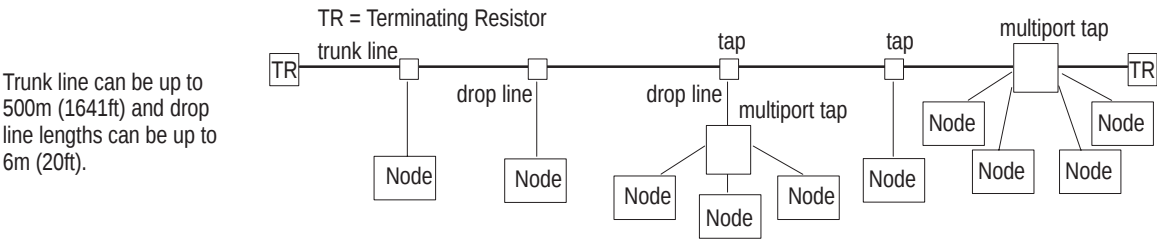
DeviceNet physical media consists of a trunk and drop line configuration. The **trunk line** serves as the main cable that connects nodes to each other. Terminating resistors are required at each end of the trunk line. The **drop line** connects on one end to the trunk line and on the other end to the device. Devices can also connect to the **DevicePort™ taps** with the taps connecting to the trunk line via a **T-port tap** or **DeviceBox tap**. Communication (signal) and 24V dc power are provided in the trunk and drop lines.

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Understanding the DeviceNet Cable System

The cable system uses a trunk/drop line topology and its components begin at the connection point of your device to the DeviceNet network. Devices (or nodes) are generally connected to the drop line or multiport taps. These in turn are connected to the trunk line via a sealed-style, open-style, or multiport taps.



DeviceNet Cable Specifications		
Description		5 conductors, 1 pair for 24V dc, 1 pair for CAN, 1 shield
Thick cable current rating		8A @ 24V dc (maximum) 4A max. per NEC Class 2 requirements in North America
Thin cable current rating		3A @ 24V dc in trunk line (maximum)
Baud rates		125, 250 and 500 K bits/s
Maximum length		Thick cable trunk line – 100m (320ft) @ 500 Kbits/s 250m (820ft) @ 500 Kbits/s 500m (1640ft) @ 125 Kbits/s Thin cable trunk line – 100m (320ft) @ 500 Kbits/s Drop line (single) – 6m (20ft) (total of all drop lines) – 39m (125ft) @ 500Kbits/s – 78m (256ft) @ 250 Kbits/s – 156m (512ft) @ 125 Kbits/s
Jacket material		Thick cable gray PVC Thin cable yellow CPE
Environmental Conditions	Operating Temperature	–20 to 70°C (–4 to 158°F) @ 8A
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
Agency Approval		 

Two Sizes of DeviceNet Cables

You can connect components using two cable sizes:

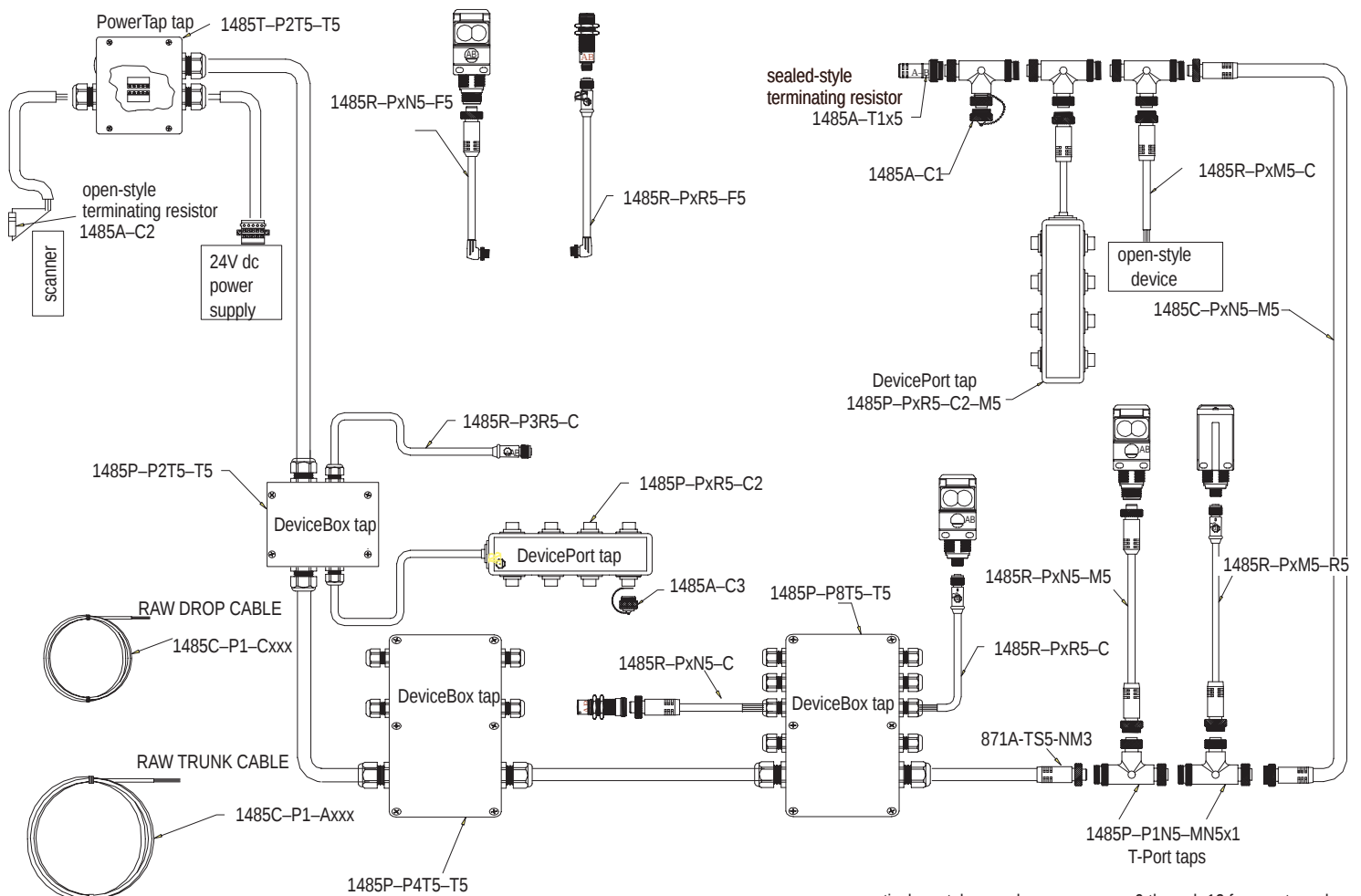
This cable	Is used
Thick	Generally as the trunk line for a DeviceNet network with an outside diameter of 12.2mm (0.48in). You can also use this cable for drop lines. ¹
Thin	Generally as the drop line connecting devices to the trunk line with an outside diameter of 6.9mm (0.27in). This cable has a smaller diameter and is more flexible. You can also use this cable for trunk line. ¹

¹ See the DeviceNet Cable System Planning and Installation Manual (DN-6.7.2) for restrictions.

Cable System Components

The following diagram shows many of the sealed-style and open-style components of the DeviceNet cable system. Sealed devices, like sensors and operator interfaces, typically use mini- and micro-style quick-disconnect connectors.

Typical Thick Trunk Cable System



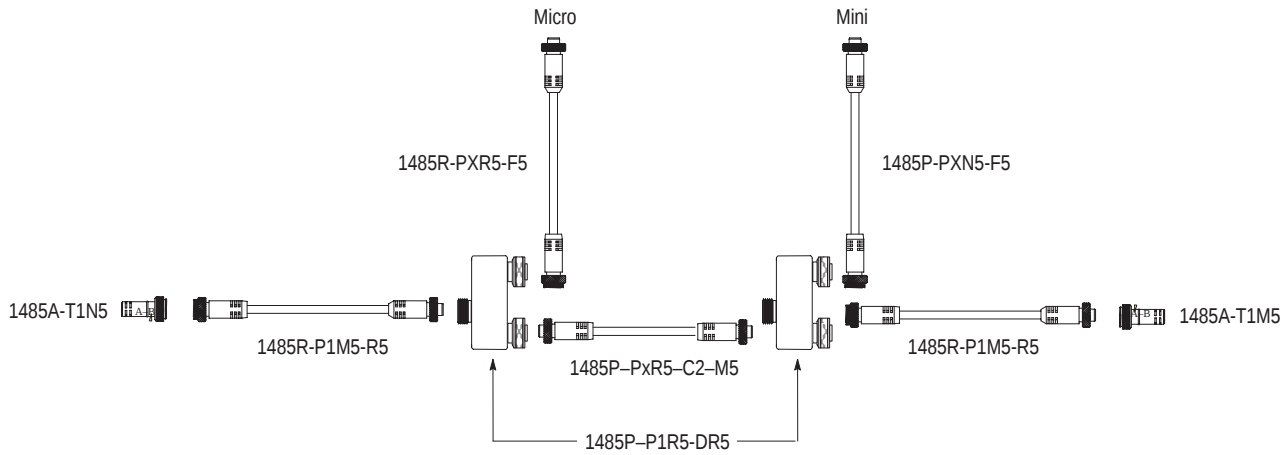
x = particular catalog number – see pages 9 through 12 for exact number



Allen-Bradley

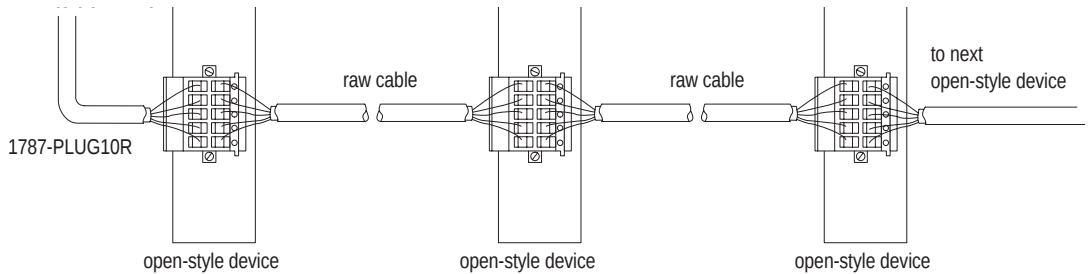
Thin trunk cable is typically used for small networks with sealed quick-disconnector devices.

Typical Thin Trunk Cable System



Daisy Chain Configuration

Daisy chain configuration is typically used with open-style devices (i.e. devices that are typically mounted in enclosures like drives and motor starters) with open-style connectors.

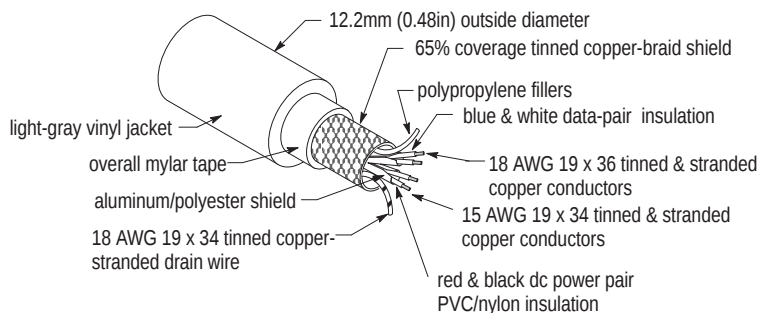


20919-M

Thick Cable

Thick cable, rated at 8 amps (NEC 4 amps) with an outside diameter of 12.2mm (0.48in), can be used as the trunk line on the DeviceNet network or as the drop line which connects devices to the trunk line via taps.

Description	Length	Catalog Number
Thick cable	50m (164ft)	1485C-P1-A50
	150m (492ft)	1485C-P1-A150
	300m (984ft)	1485C-P1-A300
	500m (1640ft)	1485C-P1-A500



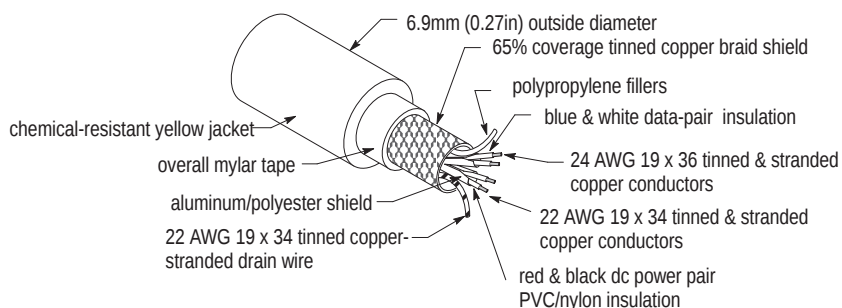
Specifications

Current Rating	8A (NEC 4A)	
Jacket Material	Gray PVC	
Environmental Conditions	Operating Temperature	-20 to 70°C (-4 to 158°F) @ 8A
	Storage Temperature	-40 to 85°C (-40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
Agency Approval		

Thin Cable

Thin cable, with a current rating of 3.0 amps and an outside diameter of 6.9mm (0.27in), can be used as the trunk line on the DeviceNet network or as the drop line which connects devices to the trunk line via taps. A CPE outer jacket provides greater chemical resistance.

Description	Length	Catalog Number
Thin cable	50m (164ft)	1485C-P1-C50
	150m (492ft)	1485C-P1-C150
	300m (984ft)	1485C-P1-C300
	600m (1968ft)	1485C-P1-C600



Specifications

Current Rating	3.0A	
Jacket Material	Yellow CPE chlorinated polyethylene	
Environmental Conditions	Operating Temperature	-20 to 70°C (-4 to 158°F) @ 1.5A
	Storage Temperature	-40 to 85°C (-40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
Agency Approval		

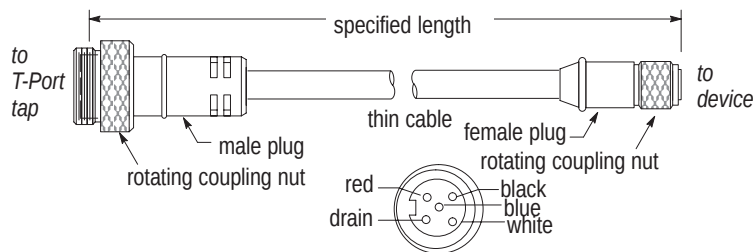
Preterminated Thin Cable Cordsets

Several types of preterminated thin cable cordsets are available.

T-Port Tap Drop Lines

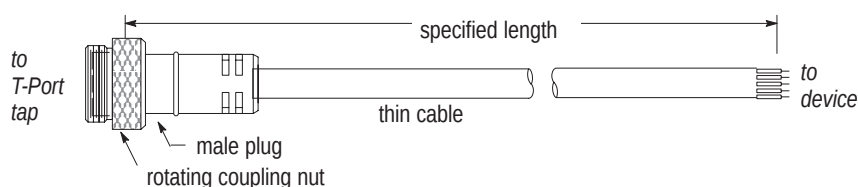
Mini Male to Micro Female . . . Catalog Number

1m (3.28ft)	1485R-P1M5-R5
2m (6.56ft)	1485R-P2M5-R5
3m (9.84ft)	1485R-P3M5-R5



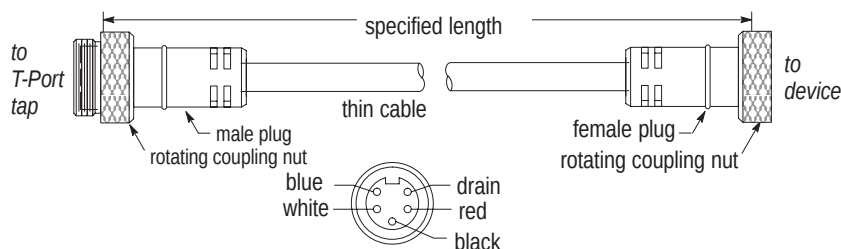
Mini Male to Conductor Catalog Number

1m (3.28ft)	1485R-P1M5-C
2m (6.56ft)	1485R-P2M5-C
3m (9.84ft)	1485R-P3M5-C



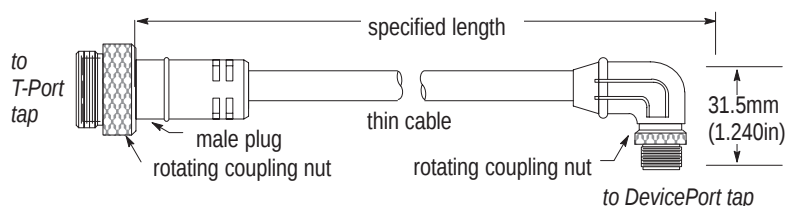
Mini Male to Mini Female Catalog Number

1m (3.28ft)	1485R-P1N5-M5
2m (6.56ft)	1485R-P2N5-M5
3m (9.84ft)	1485R-P3N5-M5



Mini Male to Micro 90° Male Catalog Number

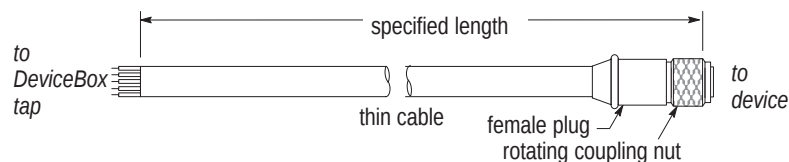
1m (3.28ft)	1485R-P1M5-F5
2m (6.56ft)	1485R-P2M5-F5



DeviceBox Tap to Device

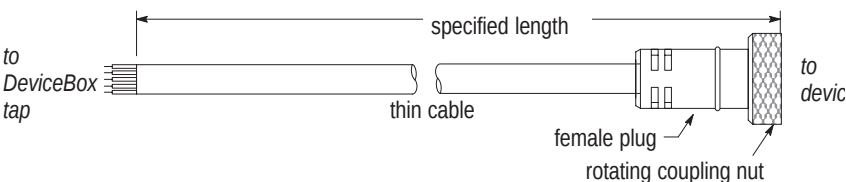
Conductor to Micro Female Catalog Number

1m (3.28ft)	1485R-P1R5-C
2m (6.56ft)	1485R-P2R5-C
3m (9.84ft)	1485R-P3R5-C



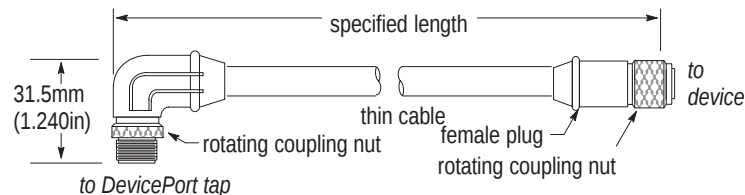
Conductor to Mini Female Catalog Number

1m (3.28ft)	1485R-P1N5-C
2m (6.56ft)	1485R-P2N5-C
3m (9.84ft)	1485R-P3N5-C

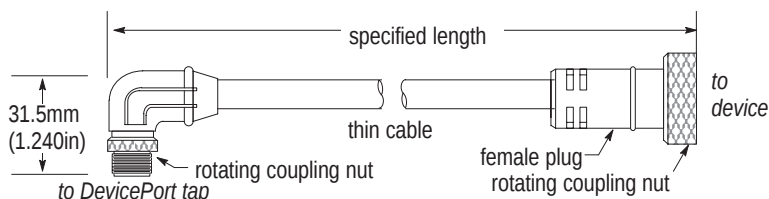


DevicePort Tap to Device**Micro 90° Male to Micro Female Catalog Number**

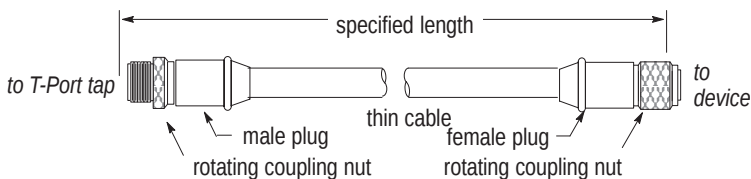
1m (3.28ft)	1485R-P1R5-F5
2m (6.56ft)	1485R-P2R5-F5

**Micro 90° Male to Mini Female Catalog Number**

1m (3.28ft)	1485R-P1N5-F5
2m (6.56ft)	1485R-P2N5-F5

**Thin Trunk Cable****Micro Male to Micro Female Catalog Number**

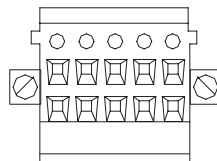
1m (3.28ft)	1485R-P1R5-F5
2m (6.56ft)	1485R-P2R5-F5
3m (9.84ft)	1485R-P3R5-D5
4m (13.12ft)	1485R-P4R5-D5

**Specifications**

Housing Material	Connectors Cable	Polymer Yellow CPE
Enclosure Rating		1200 PSI (8270kPA) 60°C (140°F) temperature wash-down NEMA 1, 2, 3, 4, 4X, 6P, 12, and 13 IP67 (IEC 529)
Environmental Conditions	Operating Temperature Storage Temperature Relative Humidity	-25 to 70°C (-13 to 158°F) -40 to 85°C (-40 to 185°F) 5 to 95% (noncondensing)
Agency Approval		

Linear Plugs

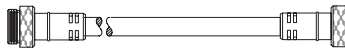
Linear plugs are available with jack screws for retentive locking.

10-Pin Linear Plug with Jack Screws – 1787-PLUG10R

recommended for making a daisy-chain segment with thick or thin cable (available with or without jack screws) when device has mating header. These ship in quantities of 10.

Preterminated Thick Cable Cordsets

Preterminated thick cable cordsets are available.

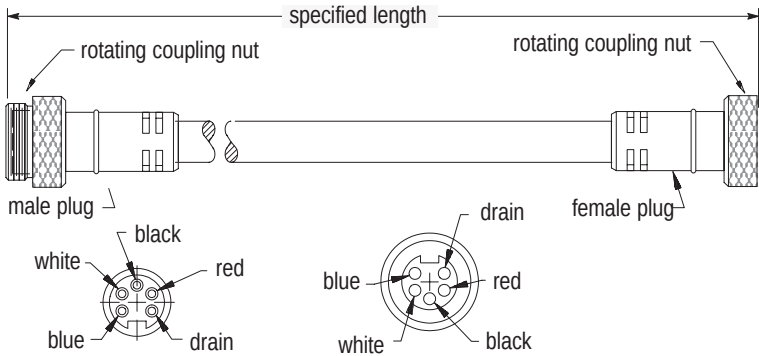


Description	Length	Catalog Number
Mini male to mini female	1m (3.28ft)	1485C-P1N5-M5
	2m (6.56ft)	1485C-P2N5-M5
	3m (9.84ft)	1485C-P3N5-M5
	5m (16.41ft)	1485C-P5N5-M5
	10m (32.81ft)	1485C-P10N5-M5

Predetermined Trunk Line Segments

Preterminated segments are available for connection to the trunk line.

Mini Male to Mini Female . . .	Catalog Number
1m (3.28ft)	1485C-P1N5-M5
2m (6.56ft)	1485C-P2N5-M5
3m (9.84ft)	1485C-P3N5-M5
5m (16.41ft)	1485C-P5N5-M5
10m (32.81ft)	1485C-P10N5-M5



ArmorBlock Cordsets

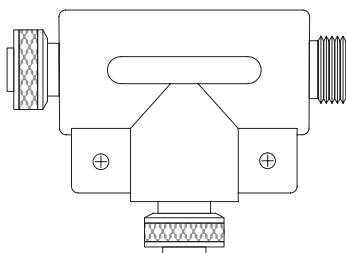
Preterminated cables for use with ArmorBlock™ I/O blocks (1792 series) are available.

These cordsets provide connection to both I/O and power and are available in a variety of lengths and connection configurations.

Description	Length	Catalog Number
Mini female 3 pin to conductor (3 amp)	5m (16.41ft)	871A-CS3-DN5
Mini female 3 pin to conductor (8 amp)	4m (13.12ft)	871A-CS3-N4
Micro male 4 pin to conductor	1m (3.28ft)	871A-CS4-DM1
	2m (6.56ft)	871A-CS4-DM2
	3m (9.84ft)	871A-CS4-DM3
Micro male 4 pin to mini female 4 pin	1m (3.28ft)	871A-CS4-DM1N
	2m (6.56ft)	871A-CS4-DM2N
	3m (9.84ft)	871A-CS4-DM3N
Micro male 4 pin to micro female 4 pin	1m (3.28ft)	871A-CS4-DM1D
	2m (6.56ft)	871A-CS4-DM2D
	3m (9.84ft)	871A-CS4-DM3D
Micro male 4 pin to micro female 5 pin	1m (3.28ft)	871A-CS4-DM1D5
	2m (6.56ft)	871A-CS4-DM2D5
	3m (9.84ft)	871A-CS4-DM3D5
Micro male 4 pin splitter to conductor	5m (16.41ft)	871A-CS4-DM5X
16 point ArmorBlock splitter tee	n/a	1485-P-P1R4-DR4
Micro male 4 pin right angle terminal chamber	18 AWG, 1 key	871A-TR4-DM
Micro male 4 pin straight terminal chamber	22 AWG, 1 key	871A-TS4-DM
	18AWG, 1 key	871A-TS4-DM1

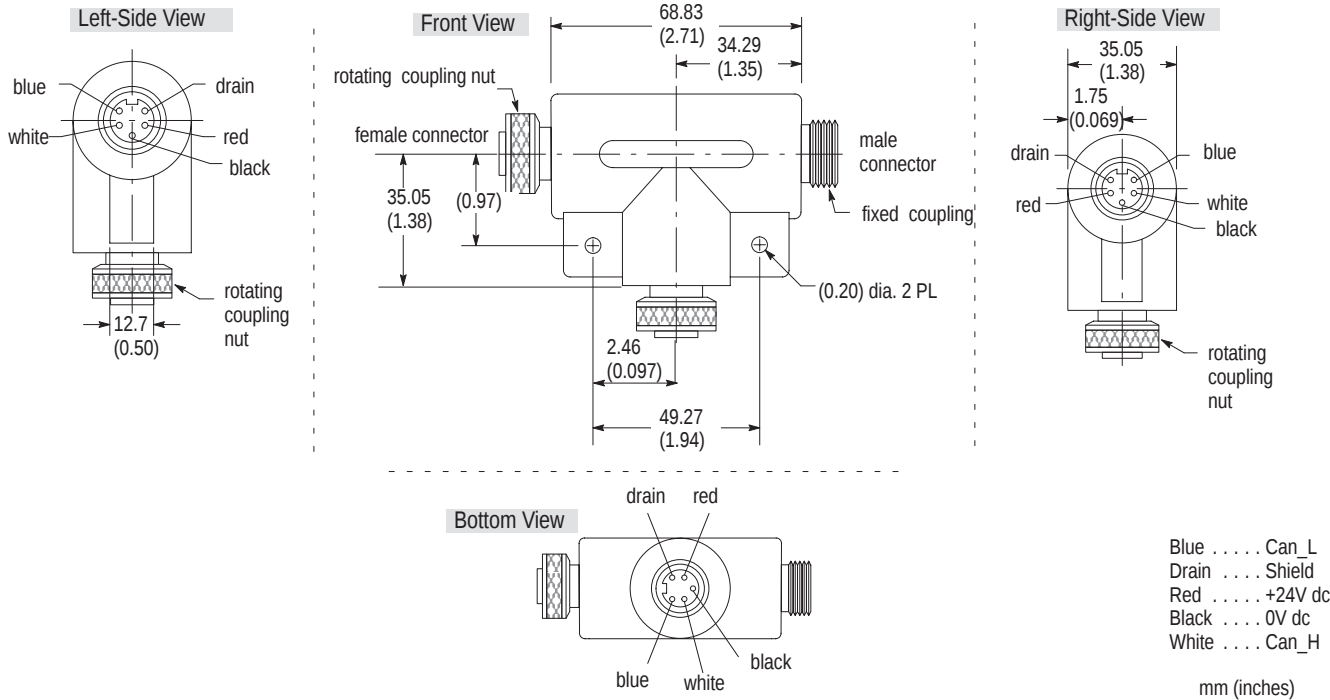
T-Port Tap

The T-Port tap connects to a single device or drop line to the trunk. The mini quick-disconnect style T-Port taps have right or left keyway for positioning purposes. They also come with either mini or micro connectors. The micro style T-Port tap should be used in thin trunk cable systems.

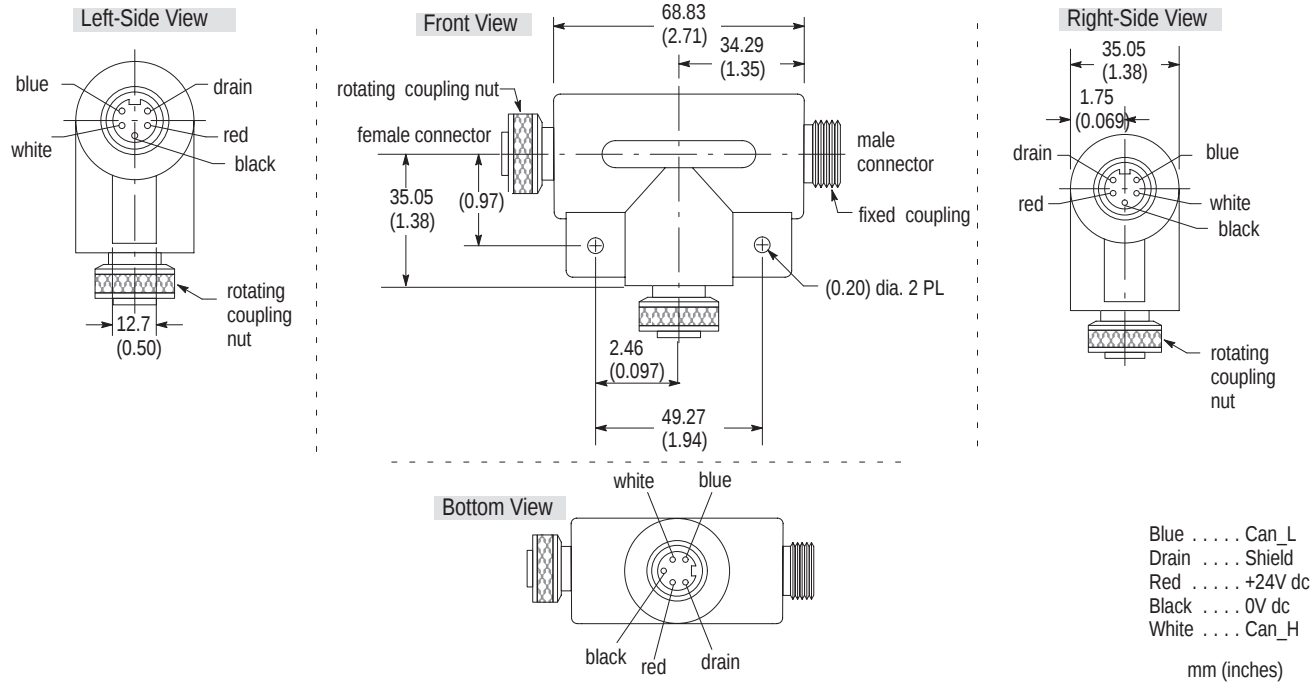


Description	Catalog Number
Mini T-Port tap with right keyway	1485P-P1N5-MN5R1
Mini T-Port tap with left keyway	1485P-P1N5-MN5L1
Micro T-Port tap	1485P-P1R5-DR5

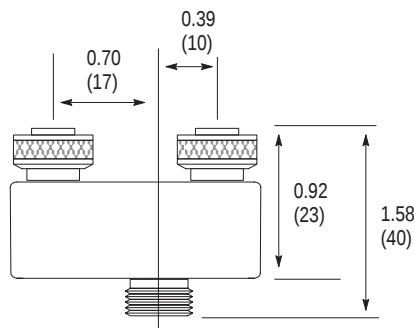
T-Port Tap With Right Keyway – 1485P-P1N5-MN5R1



T-Port Tap With Left Keyway – 1485P-P1N5-MN5L1



Micro T-Port Tap – 1485P-P1R5-DR5

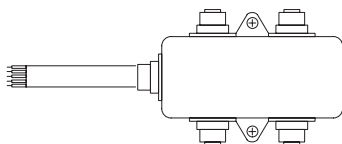


Specifications

Housing Material	Black polymer
Enclosure Rating	1200 PSI (8270kPa) 60°C (140°F) washdown NEMA 4X, 6P, 12, and 13 IP67 (IEC529), 3.56PM
Environmental Conditions	Operating Temperature: -20 to 70°C (-4 to 158°F) Storage Temperature: -40 to 85°C (-40 to 185°F) Relative Humidity: 5 to 95% (noncondensing)
Agency Approval	UL 508 CE 22.2

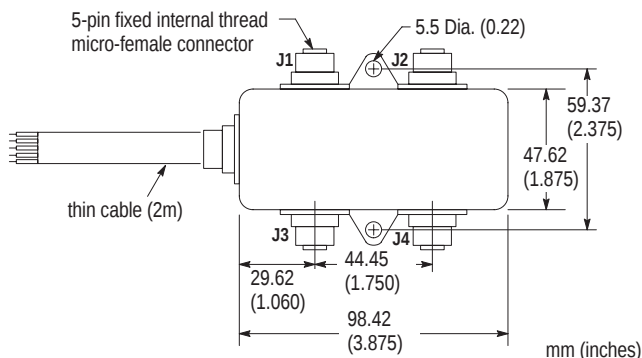
DevicePort Tap

DevicePort taps are sealed, passive multiport taps that connect to the trunk line via drop lines with quick-disconnect connectors or conductor/pigtail. A DevicePort tap connects clusters of DeviceNet-compatible devices to the network.

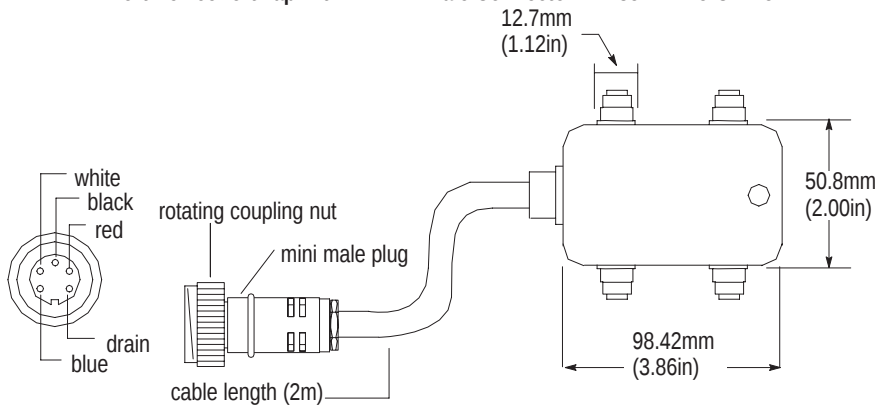


Description	Catalog Number
4-port DevicePort tap with 2m drop line	1485P-P4R5-C2
4-port DevicePort tap with 2m mini male connector	1485P-P4R5-C2-M5
8-port DevicePort tap with 2m drop line	1485P-P8R5-C2
8-port DevicePort tap with 2m mini male connector	1485P-P8R5-C2-M5

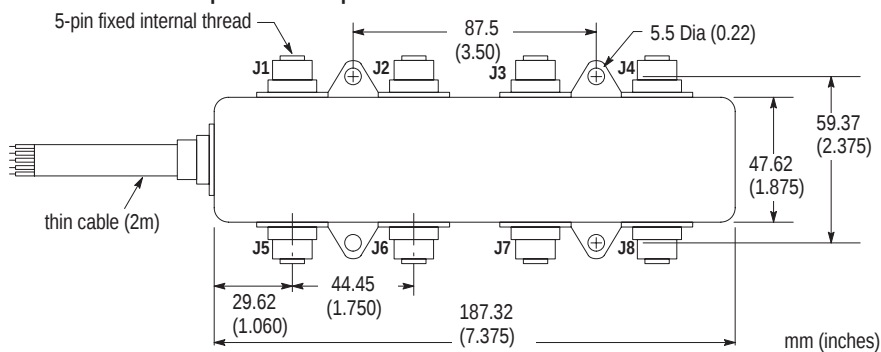
4-Port DevicePort Tap with 2m Drop Line – 1485P-P4R5-C2



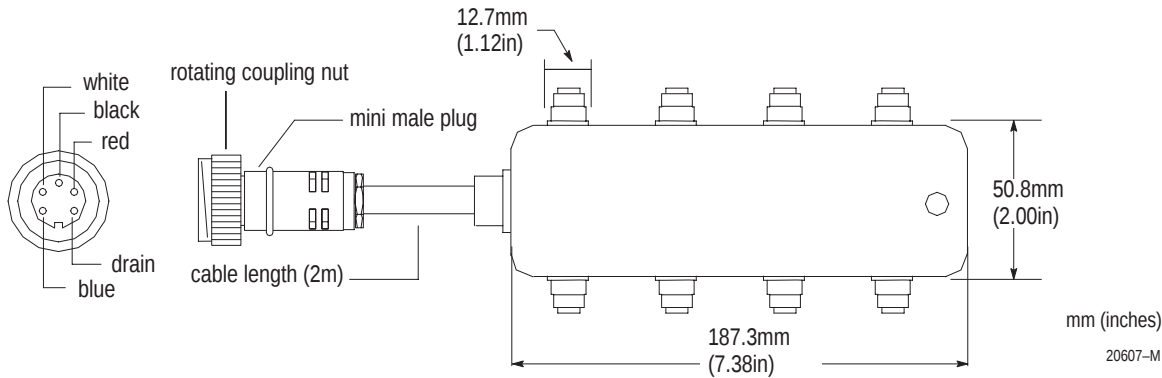
4-Port DevicePort Tap with 2m Mini Male Connector – 1485P-P4R5-C2-M5



8-Port DevicePort Tap with 2m Drop Line – 1485P-P8R5-C2



8-Port DevicePort Tap with 2m Mini Male Connector – 1485P-P8R5-C2-M5



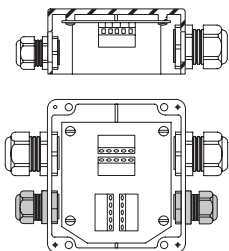
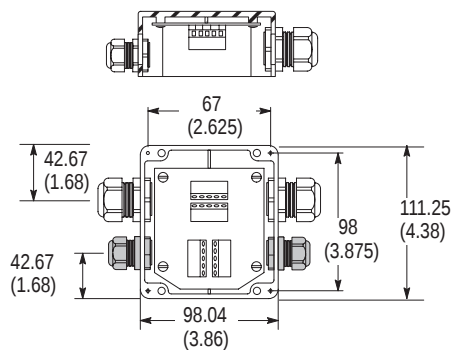
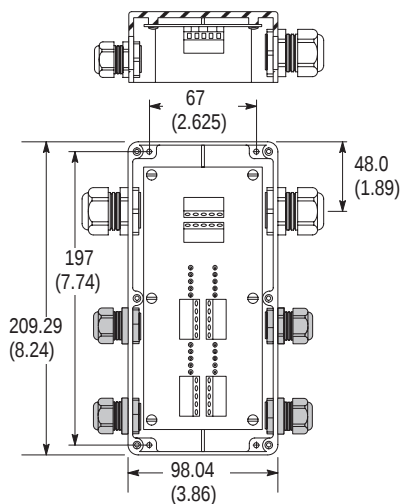
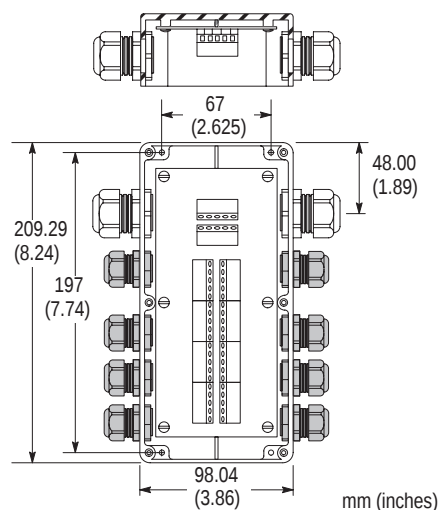
20607-M

Specifications

Housing Material		Black polyester
Enclosure Rating		1200 PSI, (8270kPA) 60°C (140°F) washdown NEMA 4, 6P IP67 (IEC 529)
Environmental Conditions	Operating Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
Agency Approval		

DeviceBox Tap

DeviceBox™ multiport passive taps are a direct connection onto the trunk line, providing terminal strip connections for up to 8 nodes using thin cable drop lines. They have a removable gasket cover and cable glands to provide a tight, sealed box that can be mounted on a machine or on a plant floor.

**2-Port DeviceBox Tap – 1485P-P2T5-T5****4-Port DeviceBox Tap – 1485P-P4T5-T5****8-Port DeviceBox Tap – 1485P-P8T5-T5**

mm (inches)

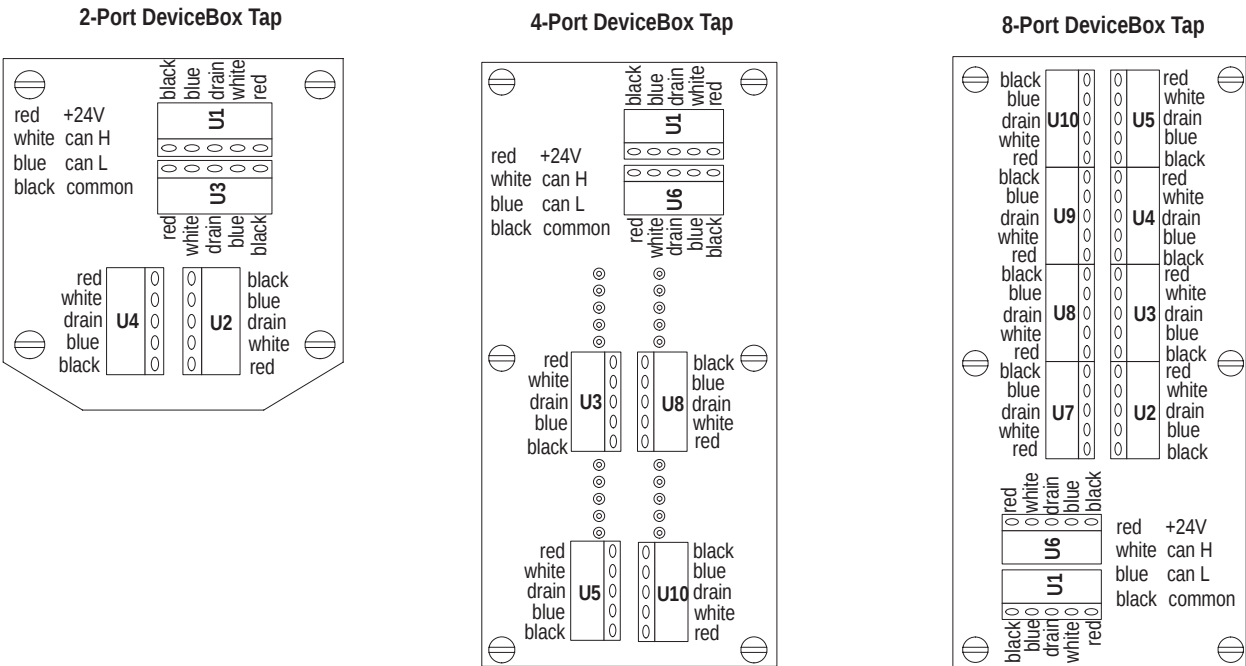
Specifications

Long-Term Testing		Standard 30/60 day soak @ 75°C (167°F) temperature shock
Connector Type		5-position terminal blocks
Housing Material		Black polymer



Enclosure Rating		1200 PSI (8270kPa) 60°C (140°F) washdown NEMA 3, 4X, 6P, 12, and 13 IP67 (IEC 529)
Environmental Conditions	Operating Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)

DeviceBox Tap Wiring Diagrams

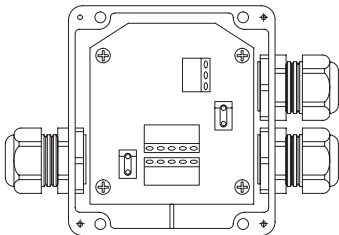


Accessories Kit for DeviceBox Taps – 1485-ACCKIT

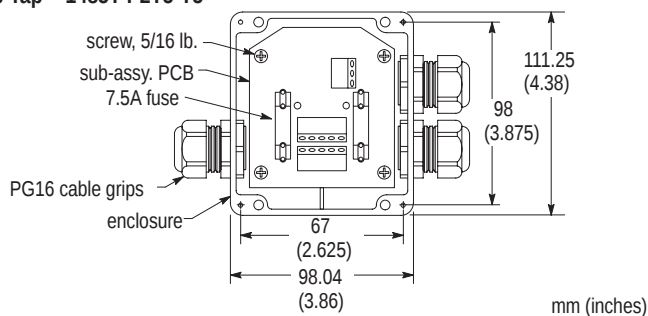
- wrench
 - PG16 cable grip
 - PG9 cable grip
 - PGP 16 threaded plug
 - PG16 locking nuts
- PGP9 threaded plugs
 - installation sheet
 - 3 #8-32 x 5/8 large slotted/phillips screws
 - 4 #8-15 x 3/4 large self-tapping, type A screws
 - 4 #8 slip medium-weight steel zinc plate lockwashers

PowerTap Tap

The PowerTap™ tap provides 7.5 amps overcurrent protection to the thick cable. With diode protection, multiple PowerTap taps may also be used to connect multiple power supplies to the trunk line.



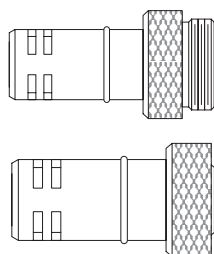
Description	Catalog Number
PowerTap tap – sealed	1485T-P2T5-T5
PowerTap tap – open	1485T-P2T5-T5N

PowerTap Tap – 1485T-P2T5-T5**Specifications**

Power Requirements	24V dc $\pm 1\%$
Power Rating	7.5A maximum
Housing Material	Black polymer
Enclosure Rating	1200 PSI (8270kPa) 60°C (140°F) water temperature washdown NEMA 3, 4X, 6P, 12, and 13
Environmental Conditions	Operating Temperature: -25 to 70°C (-13 to 158°F) Storage Temperature: -40 to 85°C (-40 to 185°F) Relative Humidity: 5 to 95% (noncondensing)

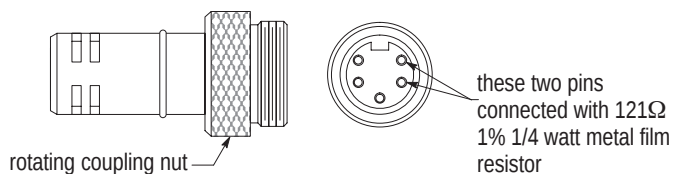
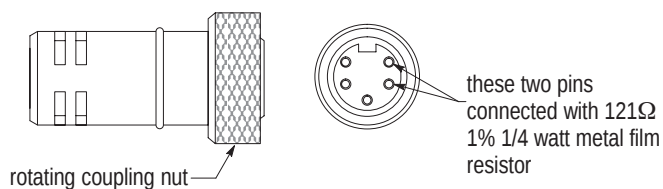
Sealed-Style Terminations

Network terminations are required at each end of the trunk line. Male and female terminators electrically stabilize DeviceNet communication using terminating resistors. All contacts are gold plated for corrosion resistance. Two pins on both terminators are connected with 121 Ω 1% 1/4 watt metal film resistors.



Sealed-style terminators are suitable for use with T-Port taps.

Description	Catalog Number
Terminator mini male	1485A-T1M5
Terminator mini female	1485A-T1N5

Terminator Mini Male – 1485A-T1M5**Terminator Mini Female – 1485A-T1N5**

Specifications		
Enclosure Rating		1200 PSI (8270kPa) 60°C (140°F) washdown NEMA 4, 6P IP67 (IEC 529)
Environmental Conditions	Operating Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)

Open-Style Terminations

Open-style terminators are suitable for use with DeviceBox taps or open-style plugs/taps. These are included with all scanner modules.

Description	Catalog Number
Open-style terminator	1485A-C2

5-Point Open-Style Connector Tap

The 5-point open-style tap provides five terminal blocks pre-assembled on a DIN rail for easy mounting and wiring. Each terminal block is individually identified and color coordinated to match DeviceNet cable connections. Terminal blocks are single-circuit, dual-conductor style allowing for two to one wiring. You may use this tap with thick or thin cable.

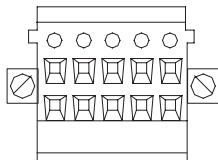


Description	Catalog Number
5-point open-style connector tap	1492-DN3TW

Open-Style Linear Plugs

Linear plugs are available with jack screws for retentive locking.

Linear plugs are recommended for making a daisy-chain segment with thick or thin cable when the device has a mating open-style header. The 1787-PLUG10R package contains a quantity of 10 linear plugs.



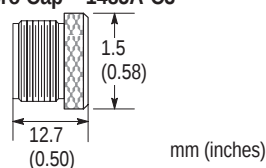
Description	Catalog Number
Open-style linear plug	1787-PLUG10R

Accessories

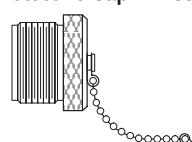
Several accessories are available for use with DeviceNet media products.

Description	Catalog Number
Micro cap	1485A-C3
Mini protective cap	1485A-C1
Field-attachable thick cable mini male	871A-TS5-NM3
Field-attachable thick cable mini female	871A-TS5-N3
Field-attachable thin cable mini male	871A-TS5-NM1
Field-attachable thin cable mini female	871A-TS5-N1
Field-attachable thin cable micro male	871A-TS5-DM1
Field-attachable thin cable micro female	871A-TS5-D1

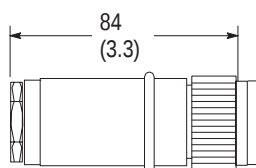
Micro Cap – 1485A-C3



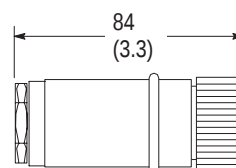
Mini Protective Cap – 1485A-C1



**Male Field-Attachable
Mini Straight with Screw Termination
(5 contacts) – 871A-TS5-NM3**



thick cable only
**Female Field-Attachable
Mini Straight with Screw Termination
(5 contacts) – 871A-TS5-N3**



mm (inches)

Stainless-Steel Products

DeviceNet physical media products are available with stainless steel couplings as a build-to-order product. The following physical media products are available in stainless steel.

- preterminated thin cable cordsets
- DevicePort taps
- preterminated thick cable cordsets
- DeviceLink™ Discrete Input
- mini T-Port taps

To order one of the above physical media products in stainless steel, add an **S** to the catalog number – 1485**R**-P1N5-M5 becomes 1485**RS**-P1N5-M5.



Allen-Bradley

DeviceNet Assistant Software

Use DeviceNet Assistant Software to determine:

- optimal placement and number of power supplies along the trunk line
- required cabling and correct mating of cables to devices
- a complete bill of material
- maximum baud rate

Description	Catalog Number
DeviceNet Assistant Software	DNA-900

For More Information



For More Information...

For DeviceNet cable system planning and installation information, refer to the DeviceNet Cable System Planning and Installation Manual (publication number DN-6.7.2).

Related Publications

Title	Publication Number
DeviceNet Sealed Physical Media Bulletin 1485 Product Profile	DN-1.8
DeviceNet Media System Component List	DN-2.1
DeviceNet Cable System Planning and Installation Manual	DN-6.7.2



PHOTOSWITCH® Series 9000 Photoelectric Sensor

Series 9000 photoelectric sensors are designed to perform in many harsh environments. The sensors are well-sealed in a high-impact, chemically resistant Valox housing. Series 9000 sensors withstand 1200 psi high pressure, high temperature washdowns, making them ideal for use in tough sensing environments found in food and beverage packaging and many material handling industries.

DeviceNet network compatible Series 9000 photoelectric sensors are available in Retroflective, Polarized Retroflective, Standard Diffuse, Transmitted Beam, IR Glass Fiber Optic, Visible Red Plastic Fiber Optic, and new ClearSight clear object detection sensing modes.

DeviceNet Features and Benefits

- factory assembled and tested to assure reliable performance
- lower installation costs
- single housing sensor and network electronics simplify maintenance and troubleshooting

Strobing Protocol – this sensor can be locally configured using a pushbutton and LED interface. Parameters such as network address, baud rate and light/dark operate can be selected on the sensor, eliminating the need for hand-held terminal. These parameters can also be configured remotely.

This sensor uses a static diagnostic algorithm. Any operating condition that causes the sensor to detect a margin of greater than 1 but less than 2.5 causes the diagnostic bit to be set to 1.

Change of State Protocol – this sensor uses a dynamic diagnostic algorithm. The diagnostic bit remains at 0 unless a complete sensing transition occurs and the application margin does not go above 2.5. This diagnostic bit is automatically reset when a complete sensing transition occurs and the application margin goes above 2.5.

Product Features and Benefits

- all adjustments are located under a clear, captive cover that assures sealing
- each sensor has three highly visible LED indicators, visible from 360°.
- ClearSight 9000 sensors detect clear materials
- choose from micro or mini style connector, or an attached 2m PVC drop cable
- factory assembled with no additional customer assembly required

DeviceNet Details

Device Type	Strobing Protocol Sensor	Change of State Protocol Sensor
Explicit Peer-to-Peer Messaging	No	No
I/O Peer-to-Peer Messaging	No	No
Configuration consistency Value	No	No
Faulted Node Recovery	No	No
Baud Rates	125K, 250K, 500K	125K, 250K, 500K
Master/Scanner	No	No
I/O Slave Messaging		
• Bit Strobe	No	No
• Polling	No	No
• Cyclic	No	No
• Change-of-State (COS)	No	Yes

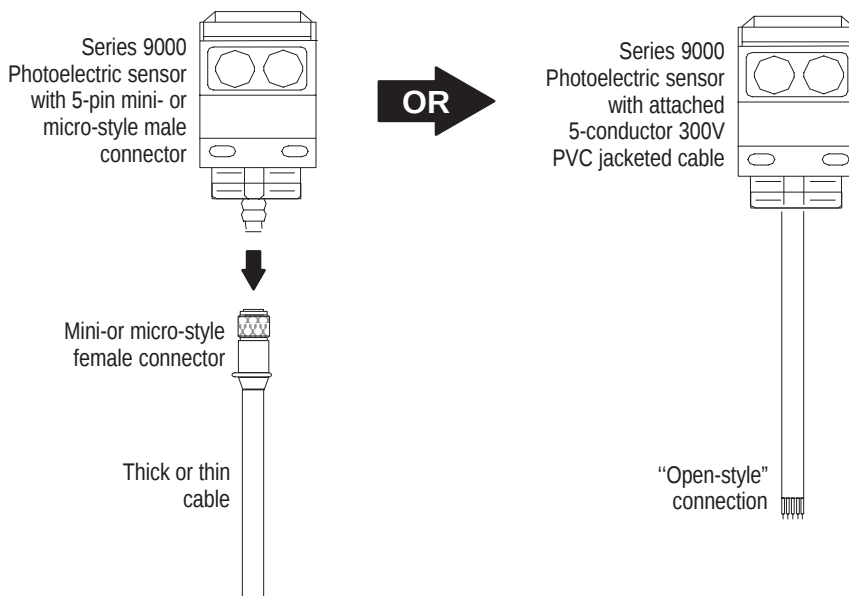
Configuration Information

Configure::	By using:
Node Addresses and Data Rates	Either the network or the integral setup tool in the sensor (Strobing Protocol Sensor) Network Configuration (Change of State Protocol Sensor)
Parameters	Electronic Data Sheets in DeviceNetManager Software



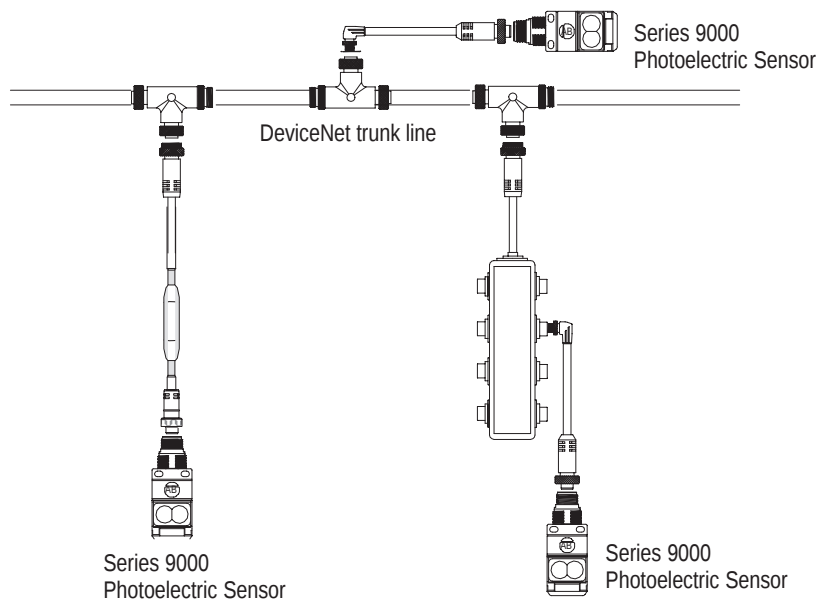
Physical Connection

You need the following components to connect the sensor to a DeviceNet network.



Network Topology

You can use the Series 9000 Photoelectric Sensor in many different trunk line configurations. The following illustration shows some examples.



Ordering Information

Sensing Mode	Connection Type	Communication Protocol	
		Strobing	Change of State
Retroreflective	2m cable micro QD mini QD	42GNU-9000	42GNU-9010
		42GNU-9000-QD	42GNU-9010-QD
		42GNU-9000-QD1	42GNU-9010-QD1
Polarized Retroreflective	2m cable micro QD mini QD	42GNU-9200	42GNU-9210
		42GNU-9200-QD	42GNU-9210-QD
		42GNU-9200-QD1	42GNU-9210-QD1
Standard Diffuse	2m cable micro QD mini QD	42GNP-9000	42GNP-9010
		42GNP-9000-QD	42GNP-9010-QD
		42GNP-9000-QD1	42GNP-9010-QD1
Transmitted Beam Receiver	2m cable micro QD mini QD	42GNR-9000	42GNR-9010
		42GNR-9000-QD	42GNR-9010-QD
		42GNR-9000-QD1	42GNR-9010-QD1
IR Glass Fiber Optic	2m cable micro QD mini QD	42GNF-9000	42GNF-9010
		42GNF-9000-QD	42GNF-9010-QD
		42GNF-9000-QD1	42GNF-9010-QD1
Visible Red Plastic Fiber Optic	2m cable micro QD mini QD	42GNF-9100	42GNF-9110
		42GNF-9100-QD	42GNF-9110-QD
		42GNF-9100-QD1	42GNF-9110-QD1
ClearSight Clear Object Detector	2m cable micro QD mini QD	42GNC-9100	42GNC-9110
		42GNC-9100-QD	42GNC-9110-QD
		42GNC-9100-QD1	42GNC-9110-QD1

Sensing Ranges

Sensing Mode	Sensing Range (max @ 1:1 margin)	Field of View	Light Source
Retroreflective	9.1m (30ft)	1.5°	Visible red (660Nm)
Polarized Retroreflective	5m (16ft)	1.5°	Visible red (660Nm)
Standard Diffuse	1.5m (5ft)	3.5°	Infrared (880Nm)
Transmitted Beam Receiver ¹	61m (200ft) or 152m (500ft)	n/a	n/a
IR Glass Fiber Optic	Depends upon fiber optic cable selected	n/a	Infrared (880Nm)
Visible Red Plastic Fiber Optic	Depends upon fiber optic cable selected	n/a	Visible red (660Nm)
ClearSight Clear Object Detector	1.2m (4ft)	1.5°	Visible red (660Nm)

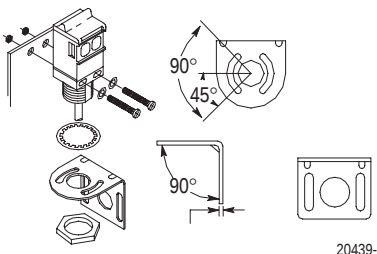
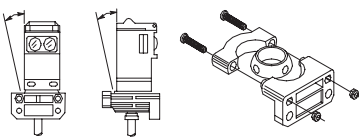
¹ Depends upon the choice of light source. Two light sources are available providing 61m (200ft) or 152m (500ft) range.



Specifications

Indicators	Green Yellow Red/Green (Bi-color)	Margin Output Network status
Lens Material	Plastic	
Housing Material	High-impact, chemically-resistant Valox®	
Sensitivity Adjustment	Single-turn potentiometer	
Supply Voltage	11 to 25V dc	
Power Consumption	DeviceNet current draw – 70mA (maximum)	
Enclosure Rating	NEMA 3, 4X, 6P, 12, 13 IP67 (IEC 529) Withstands 1200 PSI (827kPa) 60°C (140°F) High temperature washdown	
Environmental Conditions	Operating Temperature Relative Humidity	–25 to 70°C (–13 to 158°F) 5 to 95% (noncondensing)
Agency Approval	  	

Available Mounting Kits

This kit	Provides	Cat. No.
Universal Mounting Assembly Kit  20439-M	360° rotation, vertical and angular tilt adjustment, adjustable 10° in each direction 360° rotation, vertical and angular tilt adjustment, adjustable 10° in each direction	60-2421
Swivel/Tilt Mounting Assembly Kit 	360° rotation and 10° of tilt adjustment 360° rotation and 10° of tilt adjustment	60-2439

Related Publications

Title	Publication Number
Sensor Catalog	C112





RediSTATION Operator Interface (2705-T3DN1A42A, -T3DN1B42A)

The RediSTATION™ is a push-button/pilot light/selector-switch unit with the added capability of DeviceNet communication.

You can purchase preconfigured interface devices or select your own for the three-hole enclosure. You can also purchase the DeviceNet interface communication board separately to mount in your own enclosure (see Ordering Information table).

DeviceNet Features and Benefits

- indication of network operation, panel operation, and burned out or missing bulb
- DIP-switch configuration of node address, communication rate, flashing pilot light frequency
- input status on state of outputs normal or flash from network

Product Features and Benefits

- three 800T devices in a pre-assembled 3-hole station or “build your own”
- open style that accommodates most standard push buttons, selector switches, or pilot lights that may be used in any position
- flash-option on pilot-light output
- NEMA 4X enclosure

DeviceNet Details

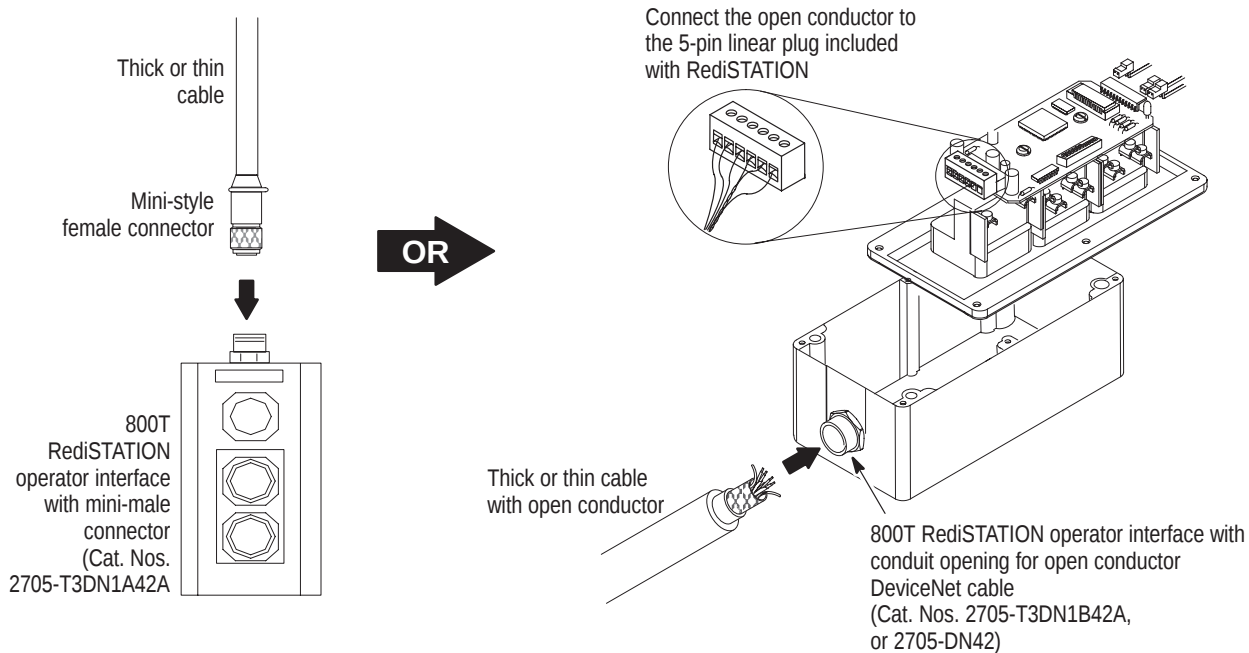
Device Type	General Device
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	Yes
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	No
• Cyclic	No
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Node Addresses, Data Rates and Parameters	Dip switches

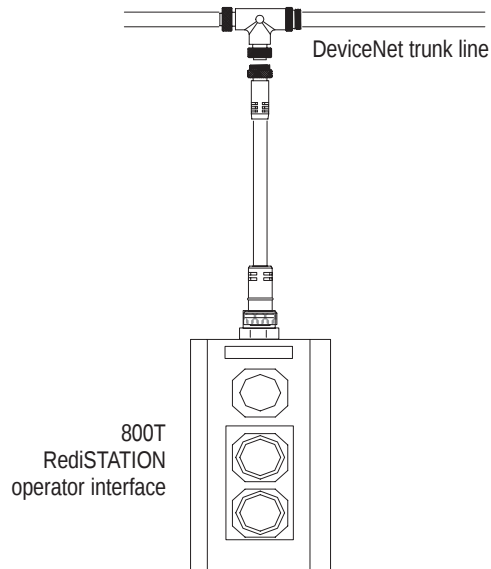
Physical Connection

You need the following components to connect a RediSTATION to a DeviceNet network.



Network Topology

The RediSTATION fits into an example DeviceNet network as shown in the following figure.



Ordering Information

RediSTATION Type	Catalog Number
Standard Configuration (stop push-button, start push-button, pilot light) with Mini DeviceNet Connector	2705-T3DN1A42A
Standard Configuration (stop push-button, start push-button, pilot light) with Open-Style DeviceNet Terminal Connector	2705-T3DN1B42A
DeviceNet Interface Communication Board (with I/O connector cables and DeviceNet PCB terminal block connector, (4) 24V dc input, (2) 24V dc output) with Open-Style DeviceNet Terminal Connector	2705-DN42

Related Publications

Title	Publication Number
RediSTATION User Manual	2705-804

Specifications

DeviceNet Current Draw		7W max.
Status Indicator		Operating status (green/red)
Inputs	Number	4
	Type	Hard contact sourcing
	Voltage/Current	24V dc/24mA max.
Outputs	Number	2
	Voltage/Current	24V dc/100mA maximum
Dimensions (Depth x Width x Height)		209.8 x 96.8 x 112.0mm (8.26 x 3.81 x 4.41in)
Weight		3.1lbs (1.4kg)
Enclosure Rating		NEMA 4, 12, 13 (IP 66)
Environmental Conditions	Operating Temperature	0 to 55°C (32 to 131°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% noncondensing 50% maximum at 40°C (104°F)
	Shock	
	Operating	30g
	Nonoperating	50g
	Vibration	
	Operating	2.5g @ 58 to 2000Hz 5 to 57Hz 0.38mm displacement (peak-to-peak) 5.0g @ 58 to 2000Hz
	Nonoperating	5 to 57Hz 0.76mm displacement (peak-to-peak)
	Agency Approval	
2705-T3DN1A42A		UL listed for Hazardous Location A196 Approved for Class 1, Groups A, B, C, D, Division 2
2705-T3DN1A42A Enclosure		UL Listed NEMA Type 4, 12, 13





AdaptaScan Bar Code Reader

The AdaptaScan™ bar code reader scans and decodes bar code symbols. Laser light from the reader exits the scan window, reflects off the bar code symbol, passes back through the scan window, and is decoded by the reader. Use an AdaptaScan bar code reader on DeviceNet to communicate to a controller, such as a PLC or another AdaptaScan bar code reader.

DeviceNet Features and Benefits

- peer-to-peer communication between AdaptaScan bar code readers to share look-up tables and I/O
- power can be drawn from DeviceNet or a separate power source
- communication to A-B PLC scanners or SLC scanners

Product Features and Benefits

- software selectable linear or raster scanning
- DeviceNet, RS-232, and RS-422/RS-485 communication ports
- DeviceNet, DH485 (master and slave) DF1, and dumb terminal communication protocols
- available in 500 and 800 scans/second rates
- automatic or manual focus reduces setup time
- Windows™-based software package (2755-ASN) for configuration and system monitoring
- separate wiring base simplifies installation
- seven status indicators on the reader and one inside the wiring base

The integral decoder decodes these common bar code symbols:

- | | |
|----------------------|-----------------|
| • UPC-A | • EAN-8 |
| • UPC-E | • EAN-13 |
| • Code 39 | • Code 128 |
| • Codabar | • USPS 2 of 5 |
| • Interleaved 2 of 5 | • Matrix 2 of 5 |
| • Phama Code | • Code 93 |
| • Discrete 2 of 5 | |

DeviceNet Details

Device Type	General Device
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

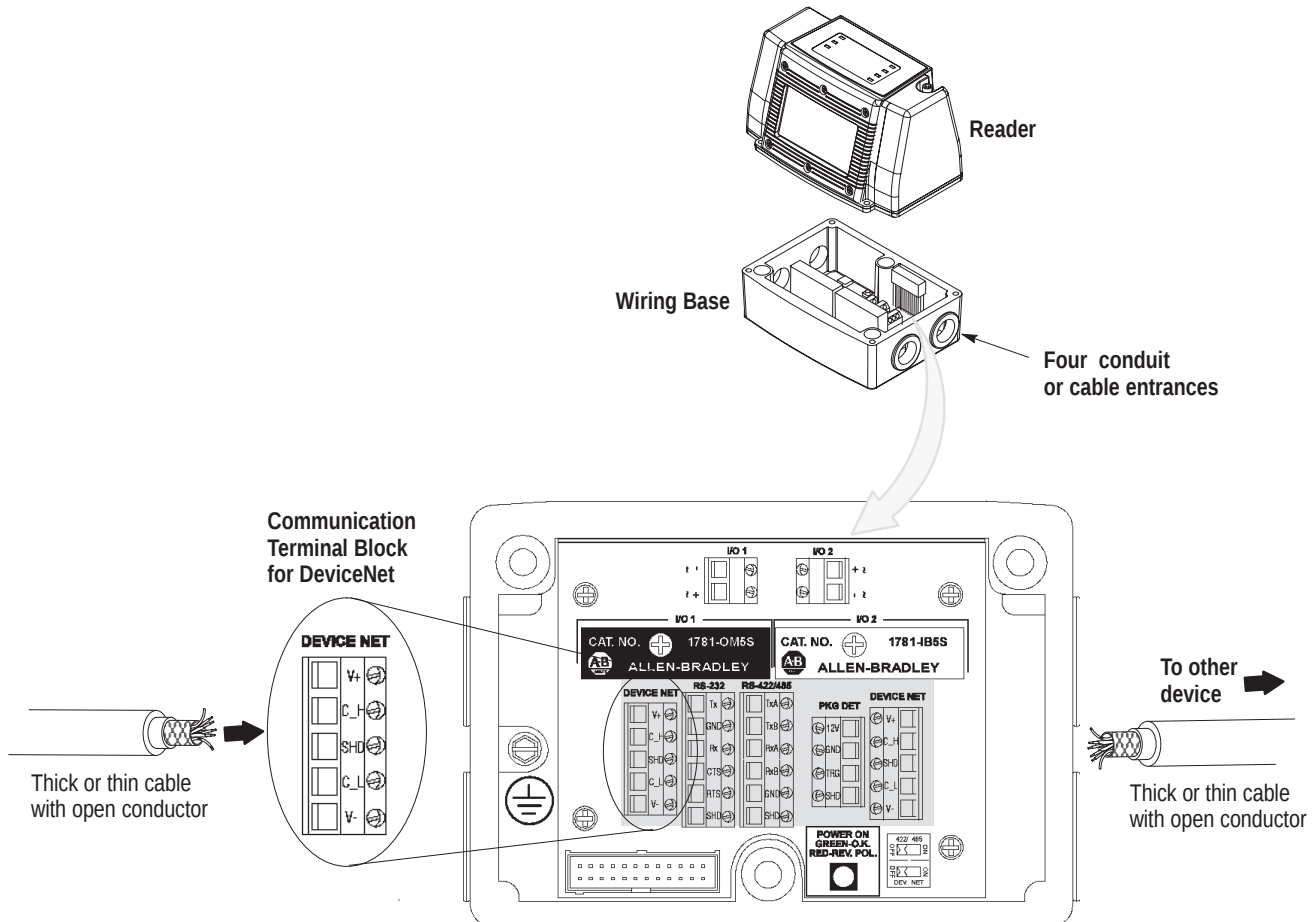
Configuration Information

Configure:	By using:
Node Addresses and Data Rates	OLP Software point-to-point
Input Data	2 bytes discrete (default); plus 2 bytes – message length and message characters (optional)
Output Data	1 byte



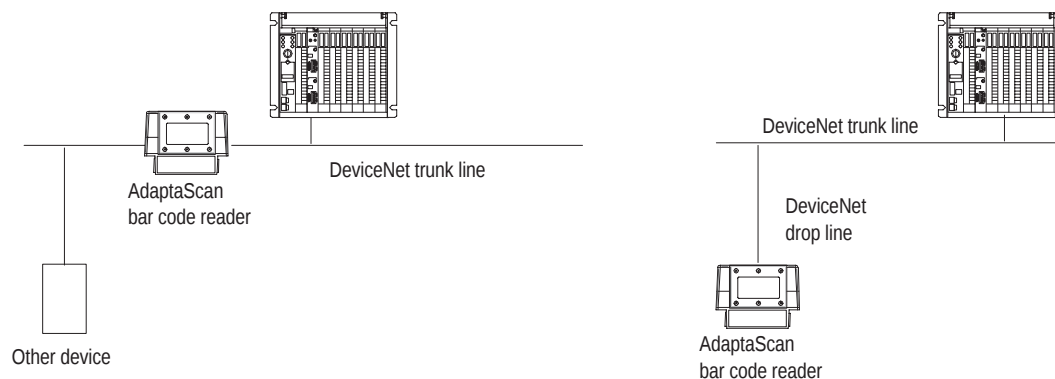
Physical Connection

You need the following components to connect an AdaptaScan Bar Code Reader to a DeviceNet network.



Network Topology

The AdaptaScan Bar Code Reader can be used on a trunk or drop line in a DeviceNet network:



Ordering Information

Two scan speeds are available.

Catalog Number	Scan Rate	Maximum Scan Angle ^①
2755-SN5	500	50°
2755-SN8	800	30°

^① Usable scan angle is 80° of the mechanical/optical scan angle.

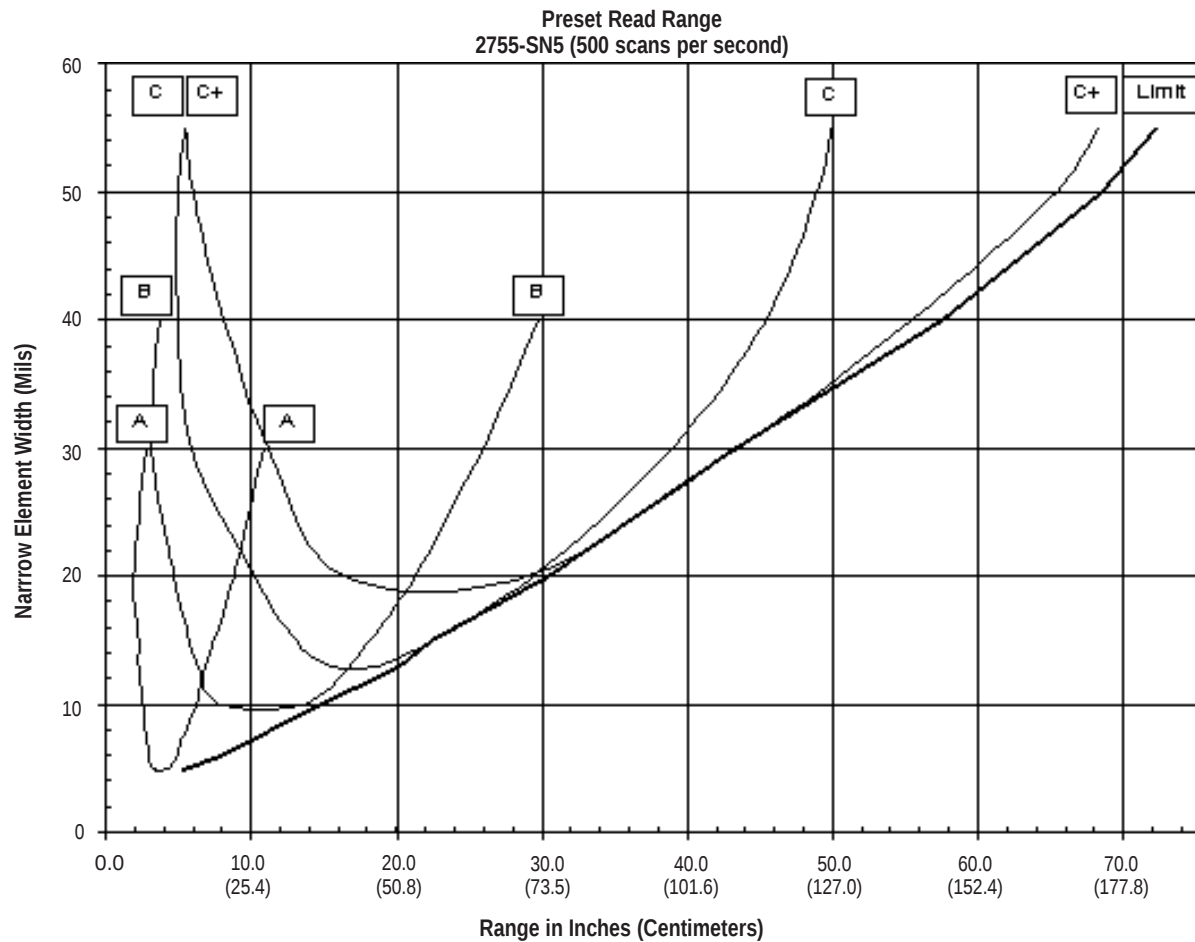
The following accessories are available.

Item	Description	Catalog No.
Wiring Bases	Reader wiring base: US version Metric version	2755-NB40 2755-NB41
Window Kits	Replacement scan window kit includes window, bezel, mounting screws and instructions. Plastic window kit Glass window kit	2755-NW44 2755-NW45
Power Supplies	24 VDC power supply powers a single Reader 120 VAC Input, 60 Hz (US) 240 VAC input, 50 Hz (European)	2755-PW46 2755-PW47
Mounting Bracket Kit	Provides almost any combination of tilt, pitch and rotational positioning.	2755-NM42
Communication Cable	Cable, 9 feet 10 inches (3 meters) connects Reader configuration port to a personal computer. Has a 9 pin D shell connector for the computer's RS-232 com port.	2755-NC43 (Series A) 2755-NC48 (Series B)
I/O Modules	2 input modules, 115VAC 2 input modules, 3.3 to 32VDC 2 input modules, 230VAC 2 output modules, 120VAC 2 output modules, 3 to 60VDC 2 output modules, 240VAC	2755-IA5S 2755-IB5S 2755-IM5S 2755-OA5S 2755-OB5S 2755-OM5S
Off-line Programming Software	Windows-based package for reader configuration and monitoring – English	2755-ASN
	Windows-based package for reader configuration and monitoring – French	2755-ASNFR
	Windows-based package for reader configuration and monitoring – German	2755-ASNDE
	Windows-based package for reader configuration and monitoring – Spanish	2755-ASNES



Read Ranges 2755-SN5

This graph shows the four preset read ranges and read range limit for the 500 scan per second Reader (Catalog No. 2755-SN5). The read ranges are also shown in the table below the graph.



2755-SN5 ①

Minimum Element Width ②		Read Range③	
Mils	mm	Inches	Centimeters
5	.13	2.5 - 5.3	6.3 - 13.5
6	.15	2.5 - 7.9	6.3 - 20.1
7.5	.19	2.5 - 9.5	6.3 - 24.1
10	.25	2.0 - 14.6	5.0 - 37.1
13	.33	2.0 - 20.1	5.0 - 51.1
15	.38	2.5 - 22.4	6.3 - 56.9
20	.51	2.5 - 30.3	6.3 - 76.9
25	.64	3.0 - 36.8	7.6 - 93.5
30	.75	3.0 - 43.1	7.6 - 109.5
35	.89	3.0 - 52.1	7.6 - 132.3
40	1.02	4.0 - 57.5	10.2 - 146.1
45	1.14	4.5 - 62.5	11.4 - 158.8
50	1.27	5.0 - 68.5	12.7 - 173.9
55	1.40	6.0 - 72.2	15.2 - 183.4

① Read ranges based on Code 39 symbol. Label orientation is on an axis with 5° pitch and 25° skew. Reader set at maximum scan angle.

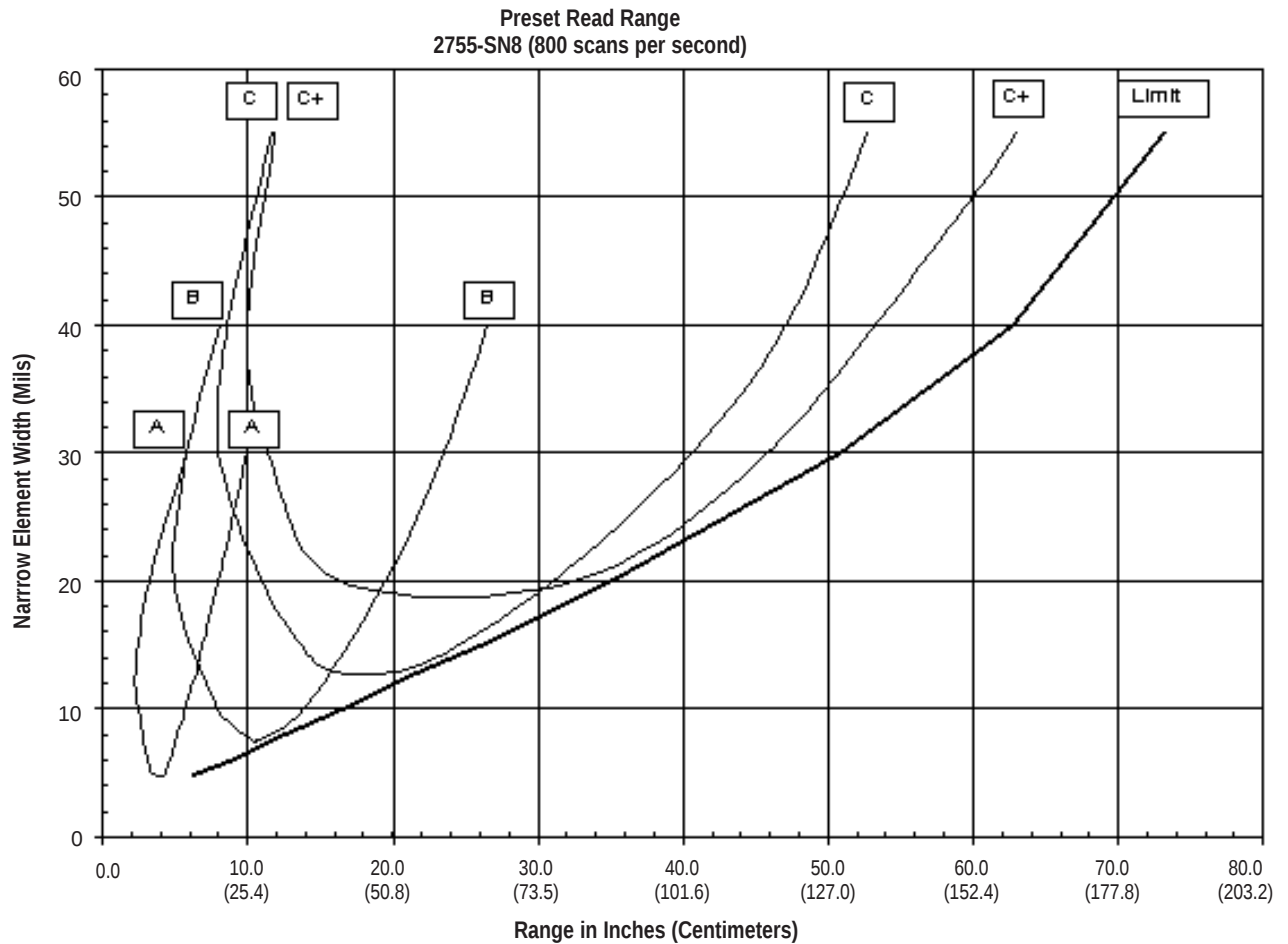
② When scanning labels at an angle, apparent element width is less than actual element width.

③ Read ranges measured from front edge of wiring base. Add .015m (.58in) for distance to the scan window.



Read Ranges 2755-SN8

This graph shows the four preset read ranges and read range limit for the 800 scan per second Reader (Catalog No. 2755-SN8). The read ranges are also shown in the table below the graph.



2755-SN8 ①

Minimum Element Width ②		Read Range③	
Mils	mm	Inches	Centimeters
5	.13	2.0 - 6.3	5.0 - 16.0
6	.15	2.0 - 8.8	5.0 - 22.3
7.5	.19	2.0 - 11.3	5.0 - 28.7
10	.25	2.0 - 16.6	5.0 - 42.2
13	.33	2.0 - 21.6	5.0 - 54.9
15	.38	2.5 - 26.0	6.3 - 66.0
20	.51	3.0 - 34.9	7.6 - 88.6
25	.64	4.0 - 42.8	10.2 - 108.7
30	.75	6.0 - 50.8	15.2 - 129.0
35	.89	7.0 - 56.2	17.8 - 143.3
40	1.02	8.0 - 62.7	20.3 - 159.3
45	1.14	9.0 - 66.0	22.9 - 167.6
50	1.27	11.0 - 69.6	27.9 - 176.8
55	1.40	12.0 - 73.1	30.5 - 185.7

① Read ranges based on Code 39 symbol. Label orientation is on an axis with 5° pitch and 25° skew. Reader set at maximum scan angle.

② When scanning labels at an angle, apparent element width is less than actual element width.

③ Read ranges measured from front edge of wiring base. Add .015m (.58in) for distance to the scan window.

Related Publications

Title	Publication Number
AdaptaScan Bar Code Reader Product Data	2755-2.61
AdaptaScan Bar Code Reader User Manual	2755-837
AdaptaScan Software User Manual	2755-838
AdaptaScan Application Guide	2755-6.8



Specifications

Power Consumption		
	DeviceNet Current Draw	1.27A @ 11V (maximum)
Light Source		
Visible laser diode, thermo-electric cooled		
Wave Length		
660nm		
Output Power		
1mW (maximum)		
Scan Rate (Nominal)	2755-SN5	500 scans/second
	2755-SN8	800 scans/second
Mechanical/Optical Scan Angle (default is bold)	2755-SN5	15°, 20°, 25°, 30°, 35°, 40° , 45°, 50°
	2755-SN8	15°, 15°, 15°, 18°, 21°, 24° , 27°, 30° *Maximum usable scan angle is 80% of mechanical/optical scan angle
Package Detect		
External, +12V dc @ 100mA (maximum) 5mA current sink (minimum)		
Status Indicators	On Symbol	Yellow
	Trigger Read	Yellow/Green
	Input/Output #1	Yellow
	Input/Output #2	Yellow
	Network	Green/Red
	Laser On	Yellow
	Module	Green/Red
CDRH Standards		
Meets Class II standards		
Dimensions	(Depth x Width x Height)	104.8 x 184.2 x 136.5mm (4.125 x 7.25 x 5.375in)
	Weight	2.1kg (4.6 lbs)
Enclosure Rating		
NEMA Type 4 (with properly sealed wiring base)		
Environmental Conditions	Operating Temperature	0 to 50°C (32 to 122°F)
	Storage Temperature	-30 to 70°C (-22 to 158°F)
	Relative Humidity	5 to 95% (noncondensing)
	Shock: Operating	30g
	Nonoperating	50g
	Vibration: Operating	2g @ 10 to 150Hz (3-axis)
Agency Approval		
  		



Bulletin 160 Smart Speed Controller for the DeviceNet Network

The Bulletin 160 SSC™ (Smart Speed Controller) is a compact variable speed drive for use on three phase AC induction motors. It is microprocessor controlled and fully programmable for a variety of applications.

The Bulletin 160 Smart-Speed Controller uses the 160-DN1 snap-on Device Communication interface.

DeviceNet Features and Benefits

- diagnostics available across network include actual power, low speed limit, and high speed limit
- 40mA maximum draw on the network
- configure parameters of multiple SSC modules over the network

Product Features and Benefits

- compact variable speed drive available in ratings of 1/2 to 3 HP (0.37 – 2.2kW), 200 – 240V ac, and 380 – 460V ac
- complies with ODVA DeviceNet ac drive device profile which ensures interoperability of drives on a network
- supports polled I/O and explicit messaging for configuration
- supports configuration assemblies for downloading parameters

DeviceNet Details

Device Type	Communication Adapter
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	Yes
Faulted Node Recovery	Yes
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

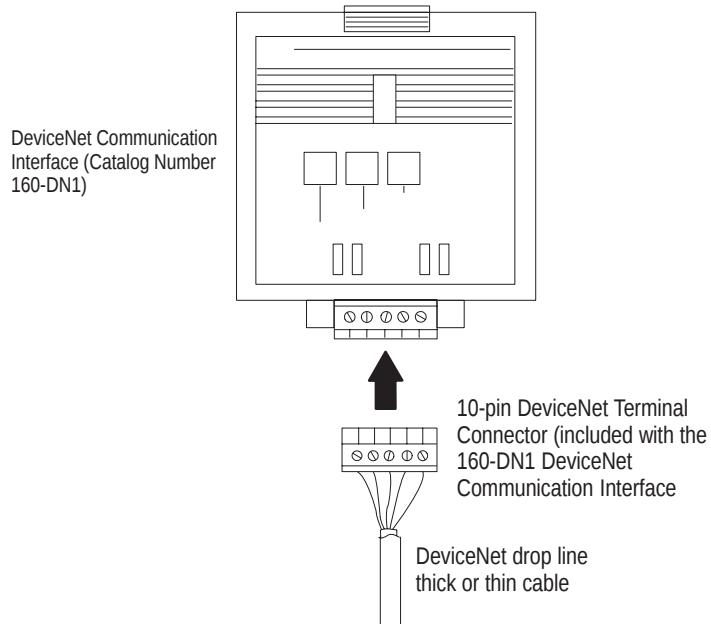
Configuration Information

Configure:	By using:
Node Addresses and Data Rates	125k bit/s, 250k bit/s, or 500k bit/s (selectable through DIP switches)



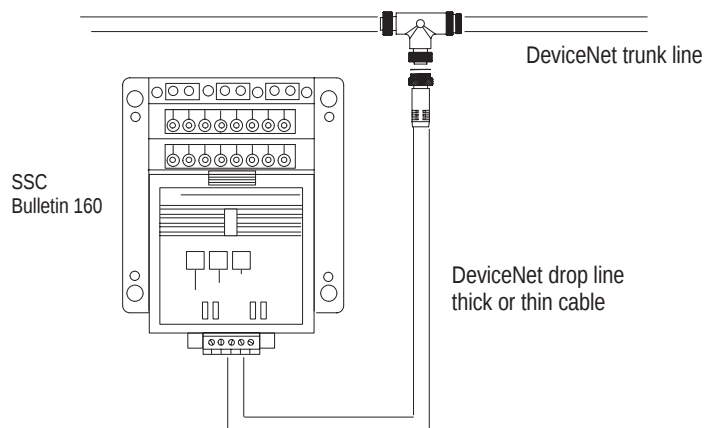
Physical Connection

You need the following components to connect a Bulletin 160 AC Drive to a DeviceNet network.



Network Topology

The DeviceNet Communication Interface (Cat. No. 160-DN1) attaches to the Smart Speed Controller and fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
Smart-Speed Controller	Bulletin 160

Related Publications

Title	Publication Number
SSC Smart Speed Controllers Brochure	160-1.0.1
SSC Smart Speed Controllers User Manual	0160-5.9
SSC Smart Speed Controllers Quick Reference	0160-5.8
SSC DeviceNet User Manual	0160-5.5



Specifications

Performance Features	
• Compact packaging • Feed through power terminals • DIN rail or panel mounting	• IGBT hybrid power module • Hybrid current limit
Application Logic	
• Configurable control terminal block • S-curve acceleration and deceleration	• Programmable output contact • Auto boost and slip compensation
Operator Interface	
• Redy/Fault panel (standard) • Program Keypad Module (optional)	• DeviceNet Communication Module (optional)
Power Consumption	
DeviceNet Current Draw	140mA (1203-GK5)
Nominal Ratings	
0.37–2.2kW (0.5–3hp)	
Inputs	
Single-phase voltage	200–240V $\pm 10\%$
Three-phase voltage	200–240V, 380–460V $\pm 10\%$
Frequency	47 to 63Hz
Faultless ride-through	100mSec
Control ride-through	2.0 seconds (typical)
Outputs	
Voltage	Adjustable from 0V to input voltage
Frequency range	0 to 240Hz – programmable
Frequency resolution	0.1Hz
Continuous current	To 100% of rated current
Intermittent current	To 150% for 60 seconds
Instantaneous current trip	At 300%
Drive Adjustments	
Accel/Decel	0.1 to 600 sec in 0.1 sec increments
Frequency	1 to 240Hz
Stop Mode	Ramp, Coast, DC Injection Braking
Current Limit	1 to 180%
Motor Overload Current	0.1 to 200%
Preset Speeds	8 independently set preset speeds
Drive Protection	
Under and overvoltage	
Overcurrent	
Output phase to phase short circuit	
Output phase to ground short circuit	
Drive over temperature	
Built-in electronic overload protection	
Dimensions (Depth x Width x Height)	
.37-1.5kW (0.5-2hp)	136 x 72 x 152mm (5.4 x 2.83 x 6.0in)
2.2kW (3hp)	136 x 130 x 152mm (5.4 x 5.12 x 6.0in)
Ambient Operating Temperatures	
Standard IP20 (Open Style)	0 to 50°C (32 to 122°F)
Chassis Mount	0 to 50°C (32 to 122°F) internal enclosure 0 to 40°C (32 to 104°F) external enclosure
NEMA 4/12/4X	0 to 40°C (32 to 104°F)
Standards	
  	
Designed to meet International Standards	



Communication Module for Drives and Power Products (1203-GK5, 1336-GM5, 1336F-GMS5)

The DeviceNet Communication Module (1203-GK5) connects a 1305™, 1336 PLUSII™, 1336 IMPACT™ AC drive, 1397 DC drive, 1394 Digital, AC, Multi-Axis Motion Control System, 1557 Medium Voltage Drive, SMP-3™ overload relay, SMC Dialog Plus™ Controller, or other SCANport™ product to a DeviceNet network.

The 1336-GM5 communication module (not pictured) is placed within the 1336 PLUSII and 1336 IMPACT drives that are B frame or larger providing an on-board connection to the DeviceNet network.

The 1336F-GMS5 mounts onto the control board of any 1336 PLUSII drive providing an easy connection to a DeviceNet network.

DeviceNet Features and Benefits

- supports all configurable parameters of the connected device
- allows you to upload and edit a device's configuration (EDS) online for use by DeviceNetManager software or other pc-based tools
- supports 4 – 20 words of I/O data through polling by a scanner
- explicit peer-to-peer messaging allows multiple pc-based tools to access data directly (up to 5 connections)
- supports the capability of modifying device parameters from a PLC program

Product Features and Benefits

- status indicators provide a visual indication of the SCANport™ interface and the DeviceNet interface
- select your network address and data rate via DIP switches or parameters
- select your data size and fault/idle state via DIP switches



DeviceNet Details

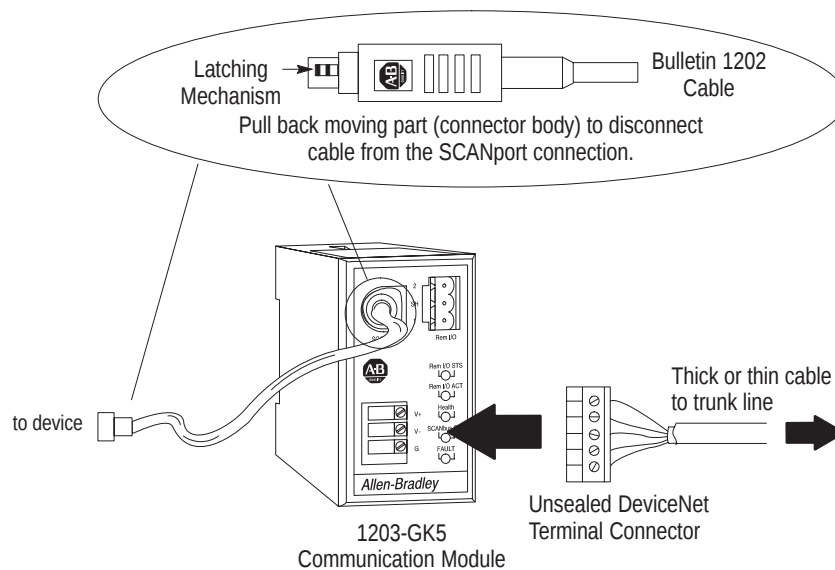
Device Type	Communication Module
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches or parameters

Physical Connection

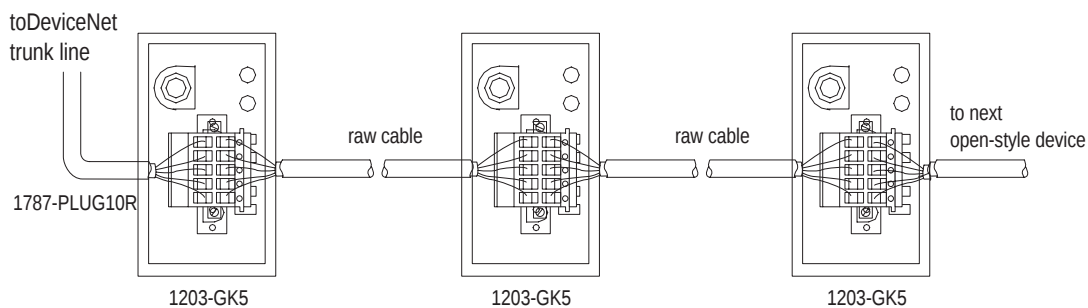
You need the following components to connect a 1203-GK5 to the DeviceNet network.



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Network Topology

The 1203-GK5 Communication Module can be used on a drop line or in a daisy-chain configuration:



Ordering Information

The 1203-GK5 NEMA Type 1 (DIN-rail mountable) and the 1336-GM5 open-style (internally mountable) communication interface modules connect the following products to the DeviceNet network:

Compatible Communication Module	Product Description
1203-GK5 only	SMP-3 Smart Motor Protector
	SMC Dialog Plus
	1305 ac drive
	1397 digital dc drive
	1394 digital, AC, Multi-axis Motion Control System
1203-GK5 or 1336-GM5	1336 IMPACT™ ac drive
1203-GK5, 1336 GM5, or 1336F-GM5	1336 PLUSII ac drive
1203-GK5, 1336-GM5, or 1557-13GM5	1557 medium voltage drive

Related Publication

Publication	Catalog Number
DeviceNet Communications Module	1203-5.3

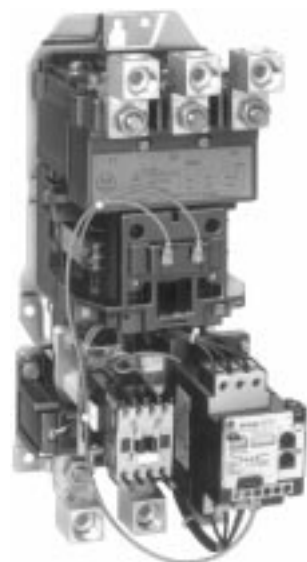


Specifications

Power Consumption	DeviceNet Current Draw	110mA (1203-GK5)
		40mA (1336-GM5)
		40mA (1336-GMS5)
Communications	Device Side	SCANport peripheral interface
	DeviceNet Network Side	125k bit/s, 250k bit/s, 500k bit/s (selectable)
Dimensions (Depth x Width x Height)	1203-GK5	124.4 x 76.2 x 45.7mm (4.9 x 3.0 x 1.8in)
	1336-GM5, 1336F-GMS5	Not applicable
Weight	1203-GK5	7oz
Enclosure Rating	1203-GK5	NEMA 1 (IP30)
	1336-GM5	Open (IP00)
Environmental Conditions	Operating Temperature	0 to 50°C (32 to 122°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
Agency Approval		  



Bulletin 193 SMP-3 Overload Relay mounted on an IEC Contactor



NEMA Motor Starter with Bulletin 193 SMP-3 Overload Relay

Bulletin 193 and 592 SMP-3 Solid State Overload Relay

The SMP-3™ solid-state overload relay provides solid-state motor overcurrent protection in addition to ground fault tripping, jam/stall protection, and protection against damage caused by phase loss conditions. The SMP-3 can also be used to start and stop motors, and can be reset over the DeviceNet network.

Connect the SMP-3 overload relay to the DeviceNet network through a 1203-GK5 interface module.

DeviceNet Features and Benefits

- provides diagnostics across the network including motor current draw, phase loss, ground fault, jam/stall fault, and % thermal capacity

Product Features and Benefits

- replaces three bimetallic overload relays and up to 10 heater elements
- quick identification of a tripped overload relay and the trip cause
- available for both IEC and NEMA starters
- provides more accurate setting than traditional overload relays at $\pm 2.5\%$ setting accuracy

DeviceNet Details when Connected to 1203-GK5 Interface Module

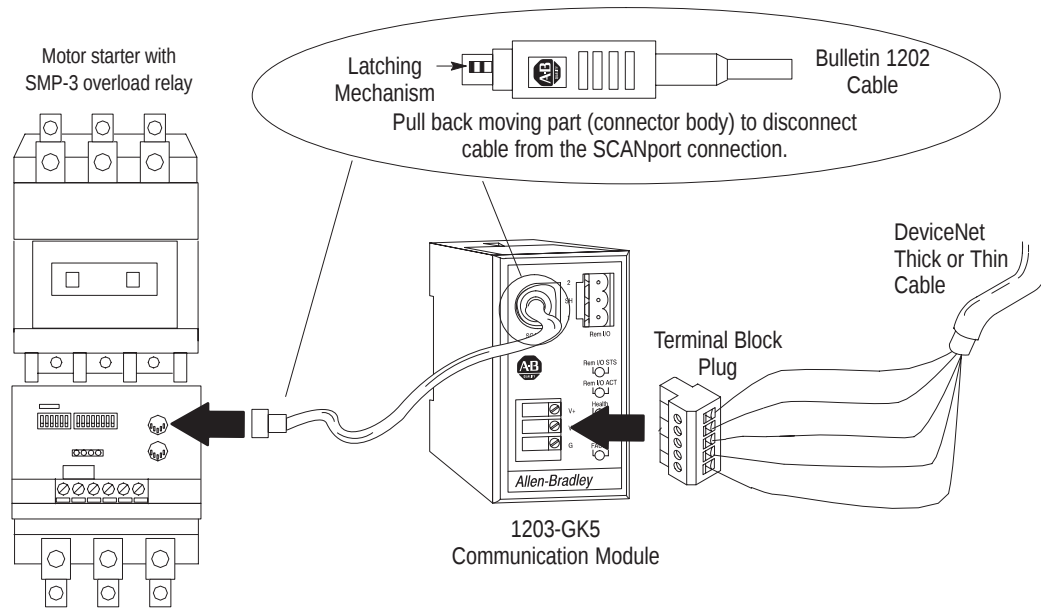
Device Type	Overload Relay
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches on 1203-GK5 interface module

Physical Connection

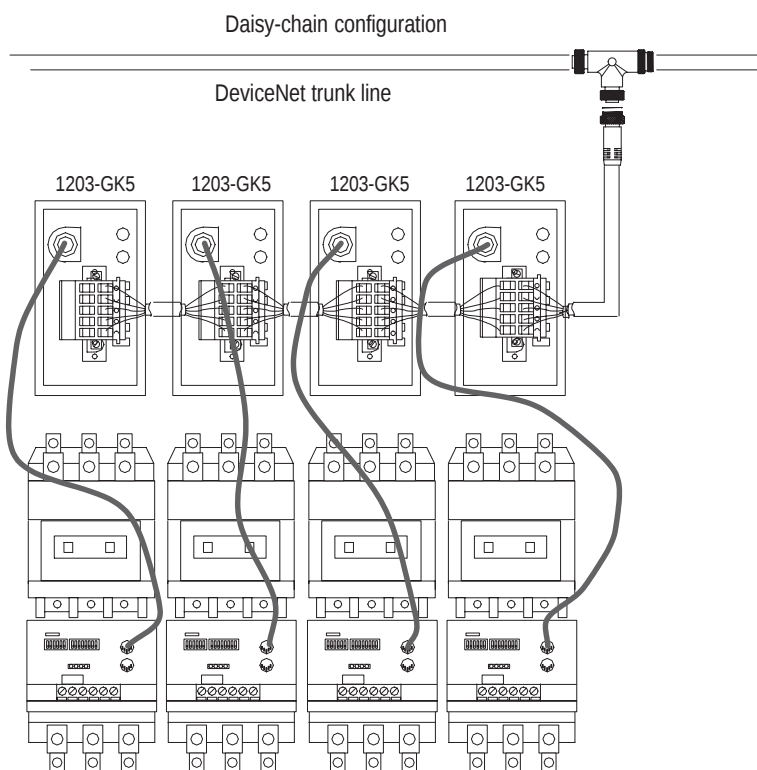
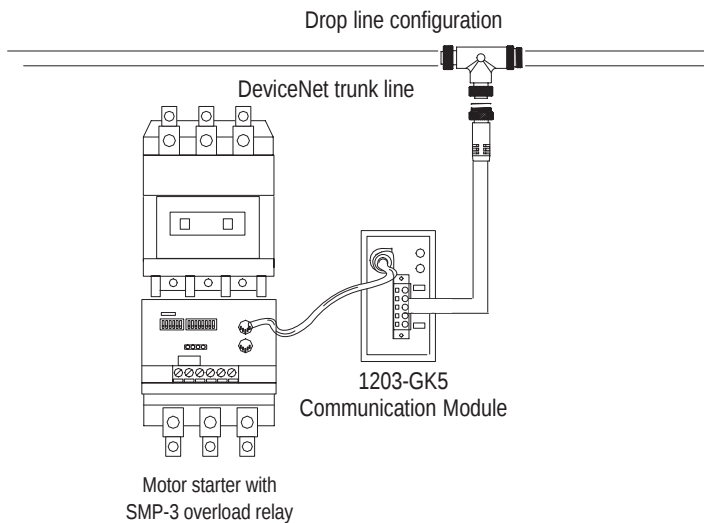
The SMP-3 relay connects to the 1203-GK5 Communication Interface Module. You need the following components to connect an SMP-3 relay to the 1203-GK5 to a DeviceNet network.



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Network Topology

The SMP-3 relay connects to the 1203-GK5 Communication Interface Module. The 1203-GK5 can be used on a drop line or in a daisy-chain configuration:



Parameters

These are the SMP-3 overload relay's set-up and display parameters.

- Average 3-Phase Current
- % Current Unbalance
- Full-Load Current Setting
- Trip Cause
- Triac Status
- % Thermal Capacity Utilized
- Start
- Stop
- Reset

Ordering Information

Description	Catalog Number
IEC Overload Relay	Bulletin 193
NEMA Overload Relay	Bulletin 592
IEC Contactor	Bulletin 100
NEMA non-reversing starter with SMP-3 solid-state overload relay	Bulletin 509
NEMA full-voltage reversing starter with SMP-3 solid-state overload relay	Bulletin 505

Related Publications

Title	Publication Number
Industrial Control Catalog	A112
SMP Overview Brochure	193-1.0
IEC Contactors and Overload Relays Brochure Bulletin 100	100-1.0.1
NEMA Starter Brochure Bulletin 509	509-1.3
SMP-3 Solid State Overload Relay User Manual	193-5.0



Specifications

Power Consumption		
DeviceNet Current Draw	5mA	
External Power Requirements	120 V/120mA or 240 V/60mA max.	
Operating Voltage		110 to 220V 50/60Hz
Output Contact Rating		5A @ 300V
Output Triac Rating		0.5A @ 240V
Control Voltage		120 or 240V ac +10–15%
Operating Frequency		50/60Hz
Body Material		Thermoplastic
Contact Material		Silver tin
Bulletin 193		
Dimensions and Weight	Depends on Cat. No. Refer to Publication A112	
Bulletin 592		
Dimensions (Depth x Width x Height)	142 x 119 x 158mm (5.6 x 4.75 x 6.3in)	
Bulletin 193 – Max. Wire size		
193-xxx1	2-10mm ² (#8 AWG)	
193-xxx2	1–35mm ² (#2 AWG)	
193-xxx3	1–35mm ² (#2 AWG)	
193-xxx4	1–50mm ² (#1/0 AWG)	
193-xxx5	1–120mm ² (#4/0 AWG)	
Bulletin 592 – Max. Wire size		
NEMA size		
00	#18-12 AWG	
0	#14-8 AWG	
1	#14-8 AWG	
2	#14-4 AWG	
3	#8-1/0 AWG	
4	#6-1/0 AWG	
5	#4-500 MCM AWG	
6	#500 MCM	
Bulletin 193/592 Control Terminals 1 or 2		2 mm ² (#14 AWG)
Rated Insulation Voltage	CSA/UL IEC 947-4U	240V (triacs), 300V (hard contact) 300V (triacs), 300V (hard contact)
Environmental Conditions		
Operating Temperature	–20 to 55°C (–4 to 131°F)	
Storage Temperature	–50 to 70°C (–58 to 158°F)	
Altitude	2,000m (6,562ft)	
Temperature Compensation		–20 to 55°C (–4 to 131°F)
Agency Approval		  





SMC Dialog Plus Controller for the DeviceNet Network

The SMC Dialog Plus™ controller provides soft starting and controlled stopping for three-phase squirrel cage motors rated 1 – 1000A, 200 – 600V ac, 50/60 Hz. Control voltage is 100 – 240V ac or 24V ac/dc.

The SMC Dialog Plus controller connects to a DeviceNet network through a 1203-GK5 interface module via the controller's SCANport connection.

DeviceNet Features and Benefits

- program, monitor, and control the SMC Dialog Plus controller via a DeviceNet network
- diagnostics available across the network include phase reversal, voltage unbalance, and excess starts per hour

Product Features and Benefits

- multiple starting and stopping features that allow you to control starting current, voltage, and torque
- built-in electronic motor overload protection that reduces panel space and labor requirements
- extensive motor protection such as overload, underload, stall, jam, line fault, and phase rebalance
- meaningful motor diagnostics displayed locally in easy-to-read text helps pinpoint system faults, minimizing downtime and simplifying troubleshooting
- programming is easily accomplished through the built-in keypad and LCD locally or from DeviceNetManager software remotely

DeviceNet Details

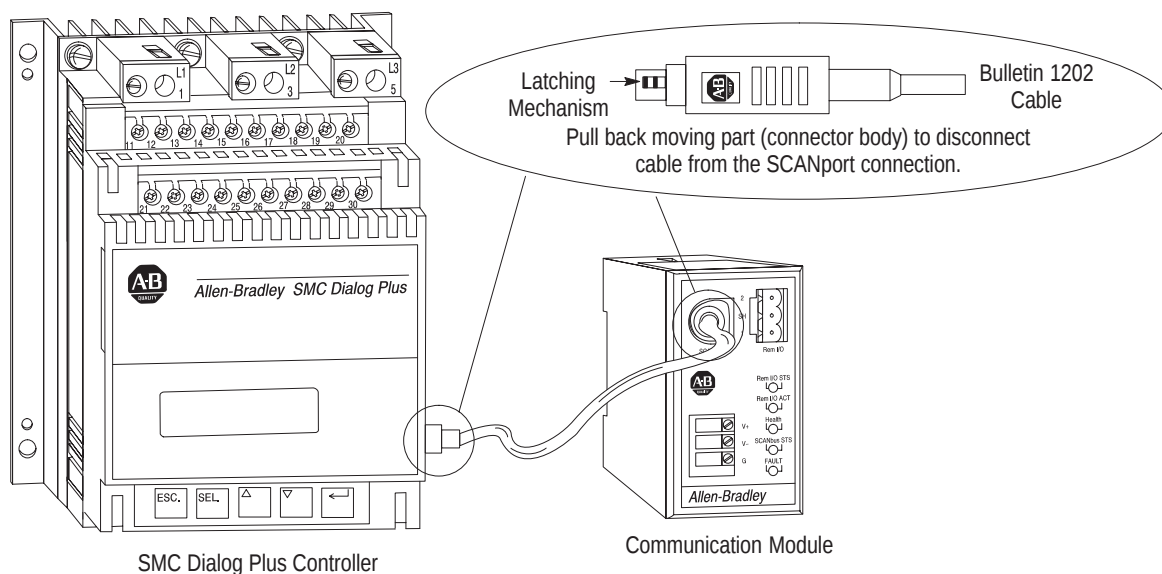
Device Type	Type 101
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	125k bit/s, 250k bit/s, or 500k bit/s (selectable through 1203-GK5 module)
Parameters	Electronic Data Sheets in DeviceNetManager Software

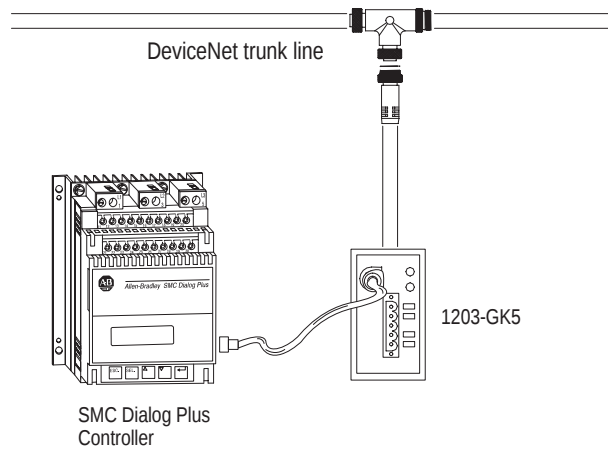
Physical Connection

The Bulletin 1203 communication module allows the user to connect the SMC Dialog Plus controller to various networks and communication protocols. The figure below shows how the controller and the communication module connect to the DeviceNet network.



Network Topology

You can use the SMC Dialog Plus controller in drop line configurations. The following illustration shows an example.



Ordering Information

Description	Catalog Number
SMC Dialog Plus Controller	Bulletin 150
Industrial Controls Catalog	A112

The SMC Dialog Plus controller has the following options:

- Soft Stop
- Pump Control
- Preset Slow Speed
- SMB™ Smart Motor Braking
- Accu-Stop™
- Slow Speed with Braking

Accessories

Description	Description/Used With	Cat. No.
Protective Modules	24–54A, 480V	150-N84
	24–54A, 600V	150-N86
	97–360A, 480V	150-N84L
	97–360A, 600V	150-N86L
Terminal Lugs	97–360A	199-LF1
	500–720A	199-LG1
	850–1000A	199-LJ1
IEC Terminal Covers	97–135A	150-NT1
	180–360A	150-NT2
Human Interface Modules	Door-mount Bezel Kit	1201-DMA
	Programmer Only	1201-HAP
	Analog Control Panel	1201-HA1
	Digital Control Panel	1201-HA2
Communication Modules	Remote I/O	1203-GD1
	DH 485 or RS 232/422/485-DF1	1203-GD2 (Series B)
	RS 232/422/485-DF1	1203-GD2
	DeviceNet	1203-GK5
Communication Cables	1/3 meter, Male-Male	1202-C03
	1 meter, Male-Male	1202-C10
	3 meter, Male-Male	1202-C30
	9 meter, Male-Male	1202-C90
Converter Modules	1–12.5A	825-MCM20
	9–100A	825-MCM180
	64–360A	825-MCM630
	Fanning Strip	150-NFS

Related Publications

Title	Publication Number
Brochure and Selection Guide	150-1.4.1
Typical Specification	150-2.5
SMC Dialog Plus Product and Application Guide	150-5.2
Industrial Controls Catalog	A112



Specifications

Electrical Ratings		UL/CSA/NEMA	IEC
Power Circuit			
Power Consumption DeviceNet Current Draw External Power Requirements		5mA 120 V/120mA or 240 V/60mA max.	
Communication Rate		125k bit/s, 250k bit/s, or 500k bit/s (selectable through 1203-GK5 module)	
Operating Voltage		100–240 VAC (–15%, +10%) 24 VAC (–15%, +10%) 24 VDC (–20%, +10%)	100–240 V ~ (–15%, +10%) 24 V ~ (–15%, +10%) 24 VDC (–20%, +10%)
Rated Insulation Voltage		N/A	240 V ~
Rated Impulse Voltage		N/A	3000 V
Method of Connection		Motor in delta or star; SCRs between windings and supply	
Number of Poles		Equipment designed for three phase loads only	
Rated Operation Voltage (Ue)		200–480 VAC (–15%, +10%) 200–600 VAC (–15%, +10%)	200–415V ~ (–15%, +10%) 200–500V ~ (–15%, +10%)
Rated Insulation Voltage (Ui)		N/A	500V ~
Rated Impulse Voltage (Uimp)		N/A	4000V
Dielectric Withstand		2200 VAC	2500V ~
Repetitive Peak Inverse Voltage Rating		200–480 VAC: 1400V 200–600 VAC: 1600V	200–415V ~: 1400V 200–500V ~: 1600V
Operating Frequency		50/60 Hz	50/60 Hz
Utilization Category		MG 1	AC-53a
Protection Against Electrical Shock		N/A	IP 00 (open device)
DV/DT Protection		RC Snubber Network	
Transient Protection		Metal Oxide Varistors: 220 Joules @ 24–360A 220 Joules @ 480V, 500–1000A 300 Joules @ 600V, 500–1000A	
Power Requirements			
Control Module		40 VA	
Dimensions			
Measurements (Depth x Width x Height)		185 x 154 x 180mm (7.3 x 6.0 x 7.1in)	
Weight		4.5kg (10lb)	
Environmental Ratings			
Operating Temperature Range		0°C–50°C (open) 0°C–40°C (enclosed)	
Storage and Transportation Temperature Range		–20°C–+75°C	
Altitude		2000 meters	
Humidity		5%–95% (non-condensing)	
Pollution Degree		2	
Agency Approval		  	



1305 AC Drive

The 1305 AC Drive connects to the DeviceNet network via the 1203-GK5 communication module giving drive status and diagnostics over the network as well as explicit messaging for flexibility, control capability, and ease of operation.

1305 AC Drive Features and Benefits

- microprocessor-controlled, adjustable frequency drive designed for reliable control of 3-phase induction motors
- NEMA 1 (IP30) enclosed drive
- features inherent dynamic braking and built-in protective functions
- 0.37 – 4.0kW (0.5 – 5 HP) 380 – 460VAC
- 0.37 – 2.2kW (0.5 – 3 HP) 200 – 230VAC

DeviceNet Details

Device Type	General type 101
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	no
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

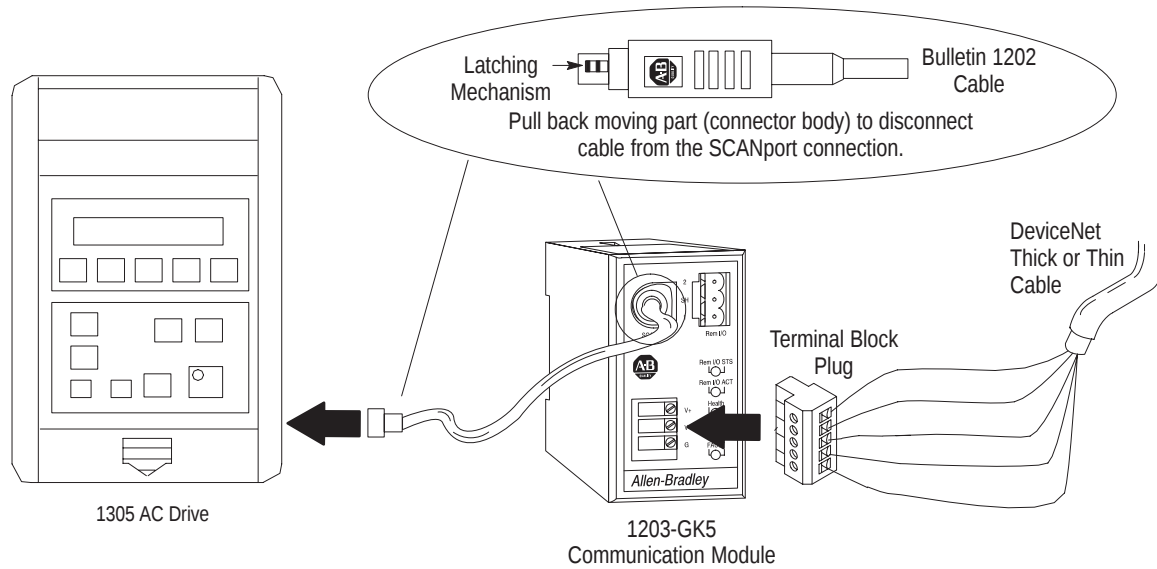
Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches or parameters



Physical Connection

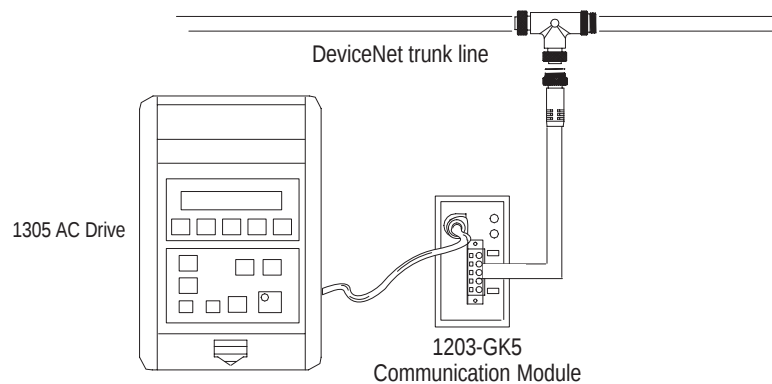
You need the following components to connect a 1305 AC Drive to the DeviceNet network.



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Network Topology

The 1305 AC Drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1305 AC Drive	Bulletin 1305 AC Drive

Related Publications

Title	Publication Number
Bulletin 1305 AC Drive	1305-1.0.1
DeviceNet Communication Module Installation Instructions	1203-5.3

Specifications

Performance Features

- Compact packaging
- Capable of producing high torque across a wide speed range
- Easy access power and control wiring through a hinged front panel
- Readily configurable for either two- or three-wire control
- Inherent dynamic braking for faster stopping
- IR compensation function increases power to the motor when it is needed most
- Fast acceleration times mean more cycle per minute, thus increased revenue
- Built-in protective features save panel space and reduce installation costs
- Hybrid current limit function utilizes both firmware and hardware control to minimize the possibility of trips during shock loads, fast accelerations, constant speed operation and deceleration
- Intelligent power modules using IGBT technology

Operator Interface

- Programming and/or Operation
- Optional Human Interface Module
- 2-line x 16-character LCD
- Multi-language Support

Application Logic

- Software configurable inputs
- Slip compensation
- S-curve acceleration and deceleration

Power Consumption

DeviceNet Current Draw	110mA (1203-GK5)
------------------------	------------------

Nominal Ratings	0.37–4.0kW (0.5–5hp)
-----------------	----------------------

Inputs

Three-phase voltage	200/230V, 380/460Vac $\pm 10\%$
Frequency	47 to 63Hz
Power ride-through	15mSec minimum
Control ride-through	0.5 sec. min. (typical 2.0 sec.)

Outputs

Voltage	Adjustable from 0V to nominal input voltage
Frequency range	0 to 400Hz – programmable
Frequency resolution	0.01Hz
Continuous current	To 100% of rated current
Intermittent current	To 150% for 60 seconds
Instantaneous current trip	At 200% to 270%
Speed regulation	1%

Specifications continued on next page



Specifications (continued)

Drive Adjustments	
Accel/Decel	0.0 to 3600 sec in 0.1 sec increments independently set (2 accel, 2 decel)
Frequency	0 to 120Hz min., 40 to 400Hz max.
Stop Mode	Ramp to Stop/Coast/DC Brake to Stop/S-curve Stop
Current Limit	20 to 150%
Motor Overload Current	20 to 115%
Motor Control	V/Hz
Preset Speeds	8 independently set preset speeds
Jog Input	0 to 400Hz
Dimensions (Depth x Width x Height)	
200/230V frames	
.37-.55kW (0.5-.75hp)	122 (w/o pot.) 127.1 (w pot.) x 120 x 195mm 4.80 or 5.0 x 4.72 x 7.68in)
.75kW (1hp)	140 (w/o pot.) 145.1 (w pot.) x 120 x 195mm 5.51 or 5.71 x 4.72 x 7.68in)
1.5kW (2hp)	179 (w/o pot.) 184.1 (w pot.) x 170 x 195mm 7.05 or 7.25 x 6.69 x 7.68in)
2.2kW (3hp)	179 (w/o pot.) 184.1 (w pot.) x 210 x 195mm 7.05 or 7.25 x 8.27 x 7.68in)
380/460V frames	
.37-2.2kW (0.5-3hp)	179 (w/o pot.) 184.1 (w pot.) x 170 x 195mm 7.05 or 7.25 x 6.69 x 7.68in)
4.0kW (5hp)	179 (w/o pot.) 184.1 (w pot.) x 210 x 195mm 7.05 or 7.25 x 8.27 x 7.68in)
Ambient Operating Temperatures	
Standard IP20 (Open Style)	0 to 50°C (32 to 122°F)
Chassis Mount	0 to 50°C (32 to 122°F) internal enclosure 0 to 40°C (32 to 104°F) external enclosure
NEMA 4/12/4X	0 to 40°C (32 to 104°F)
Standards	
  	
Designed to meet International Standards	



1336 PLUSII AC Drive

The 1336 PLUSII™ AC Drive connects to the DeviceNet network via the 1203-GK5 communication module (use the drive mounted 1336-GM5 for ac drives B-frame and larger, or 1336F-GMS5 on all frames) giving drive status and diagnostics over the network as well as explicit messaging for flexibility, control capability, and ease of operation.

1336 PLUSII AC Drive Features and Benefits

- easy setup and operation, uncommon flexibility, and outstanding performance
- Sensorless Vector Control Technology
- uses sophisticated control algorithms to provide smooth performance, exceptional torque at any speed, and quiet efficient operation
- 0.37 – 448kW (0.5 – 600 HP) 200 – 600V

DeviceNet Details

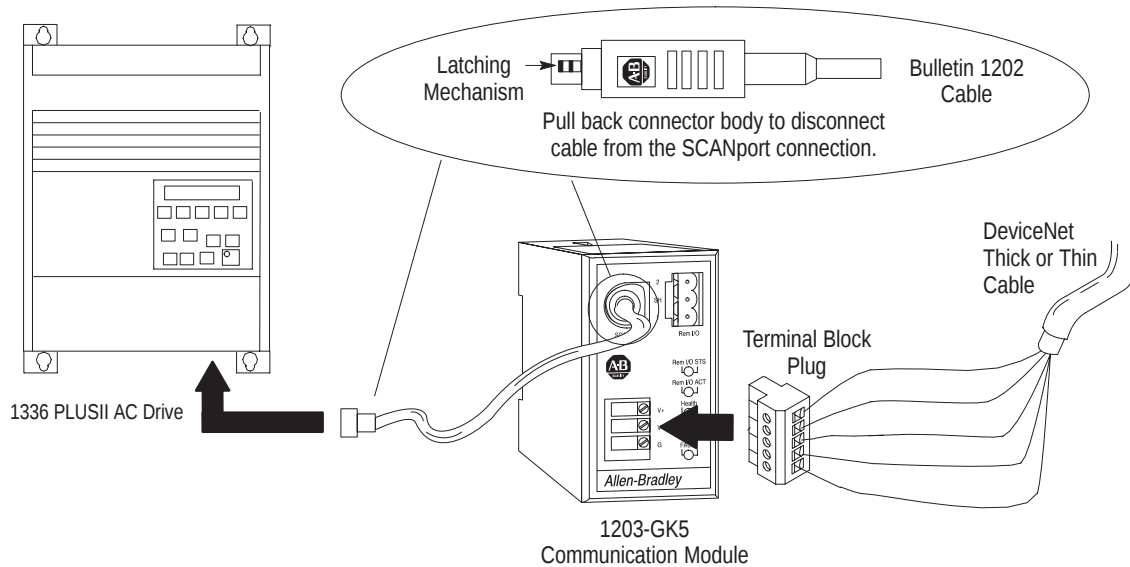
Device Type	1336 PLUSII AC Drive
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches or parameters

Physical Connection

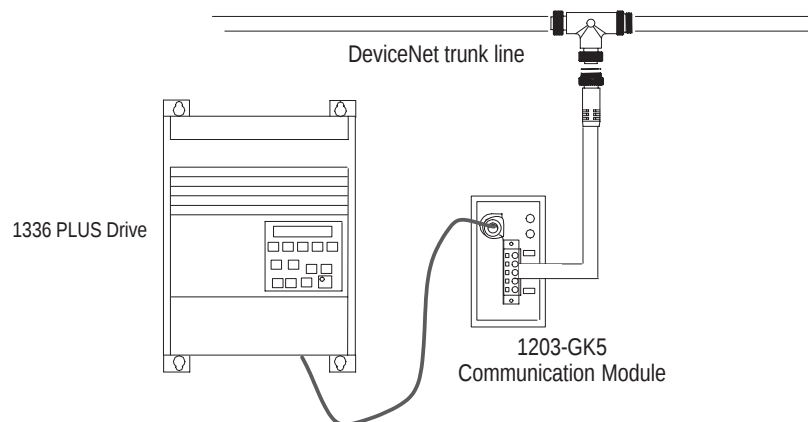
You need the following components to connect a 1336 PLUSII AC Drive to the DeviceNet network.



20298

Network Topology

The 1336 PLUSII AC Drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1336 PLUSII AC Drive	Bulletin 1336

Related Publication

Title	Publication Number
Redefining Simplicity, Flexibility and Performance in an AC Drive	1336 PLUS-1.0

Specifications

Application Logic

- Software and Hardware Configurable Inputs/Outputs
- S-curve Acceleration and Deceleration
- Process PI Control
- Slip Compensation and Droop
- Speed Sensitive Electronic Overload
- Investigated by UL to meet NEC Article 430
- Single Drop PLC Interface Option

Operator Interface

- Programming and/or Operation
- Scalable Process Display
- 2-line x 16-character LCD
- Multi-language Support

Drive Protection

- Under and Over Voltage
- Overcurrent
- Output Phase-to-phase & Phase-to-ground Shorts
- Input Transient

Power Consumption

DeviceNet Current Draw	110mA (1203-GK5) 40mA (1336-GM5 or 1336F-GMS5)
------------------------	---

Inputs

Three-phase voltage	200–240Vac, 380–480Vac, 500–600Vac $\pm 10\%$
Frequency	47 to 63Hz
Power ride-through	15mSec minimum
Control ride-through	2.0 sec. (typical)

Outputs

Voltage	0 to 100% of rated voltage
Frequency range	0 to 400Hz
Frequency resolution	0.003% of Max. Frequency
Continuous current	To 100% of rated current
Intermittent current	To 150% for 60 seconds
Instantaneous current trip	At 220-300%
Speed regulation	1% with encoder, 0.5% with Slip Compensation
Starting torque	250% of Rated Torque
Peak torque	260% of Rated Torque
Dynamic response	12 radians

Specifications continued on next page

Specifications (continued)

Drive Adjustments	
Accel/Decel	0 to 600 sec in 0.01 sec increments, linear or S-curve
Line Loss Recovery	4 Programmable Options
Output Frequency	0 to 120Hz min., 40 to 400 max.
Stop Mode	Coast/Ramp/Brake/Ramp to Hold
Adjustable Current Limit	20 to 160%
Motor Overload	20 to 115%
Motor Control	Sensorless Vector – V/Hz
Process PI Loop	Prop. & Int. Gains, Output Limits, Preloads
Preset Speeds	8 independently set preset speeds
Speed Regulation Mode	Open Loop, Encoder Feedback, Slip Compensation, Droop, Process PI
7 Preset Frequencies, 3 Skip Frequencies	0–400Hz
Flying Start	4 Methods plus Direction
Smooth Torque at Low Speed	120:1 Speed Range
Ambient Operating Temperatures	
Standard IP00 (Open Style) w/o enclosure	0 to 50°C (32 to 122°F)
IP20; NEMA Type 1 w/enclosure	0 to 40°C (32 to 104°F)
Dimensions (Height x Width x Depth)	
.37-3.7kW (0.5-5hp)	290 x 215.9 x 207mm 11.42 or 8.50 x 8.15in)
5.5-15kW (7.5-20hp)	350 x 260 x 212mm 13.78 or 10.24 x 8.35in)
11-22kW (15-30hp)	476.3 x 276.4 x 219.7mm 18.75 or 10.88 x 8.86in)
30-45kW (40-60hp)	701 x 301.8 x 225mm 27.60 or 11.88 x 8.86in)
45-93kW (60-125hp)	1240 x 381.5 x 270.8mm 48.82 or 15.02 x 10.66in)
112-187kW (150-250hp)	1498.6 x 511 x 424.4mm 59 or 20.12 x 16.71in)
187-336kW (250-450hp)	2286 x 762.1 x 635mm 90 or 30 x 25in)
Standards	
  	
Designed to meet International Standards	





1336 IMPACT Drive

The 1336 IMPACT™ drive connects to the DeviceNet network via the 1203-GK5 communication module (use the drive mounted 1336-GM5 for B-frame and larger) giving drive status and diagnostics over the network as well as explicit messaging for flexibility, control capability, and ease of operation.

1336 IMPACT Drive Features and Benefits

- precise speed and torque control that uses FORCE technology, patented field-oriented control algorithms
- sensorless motor temperature compensation, auto-tuning of speed and torque loops, and switching from encoder-based field oriented control to encoderless control simply by choosing a parameter value
- 0.37 – 488kW (0.5 – 650 HP) 200 – 600V

DeviceNet Details

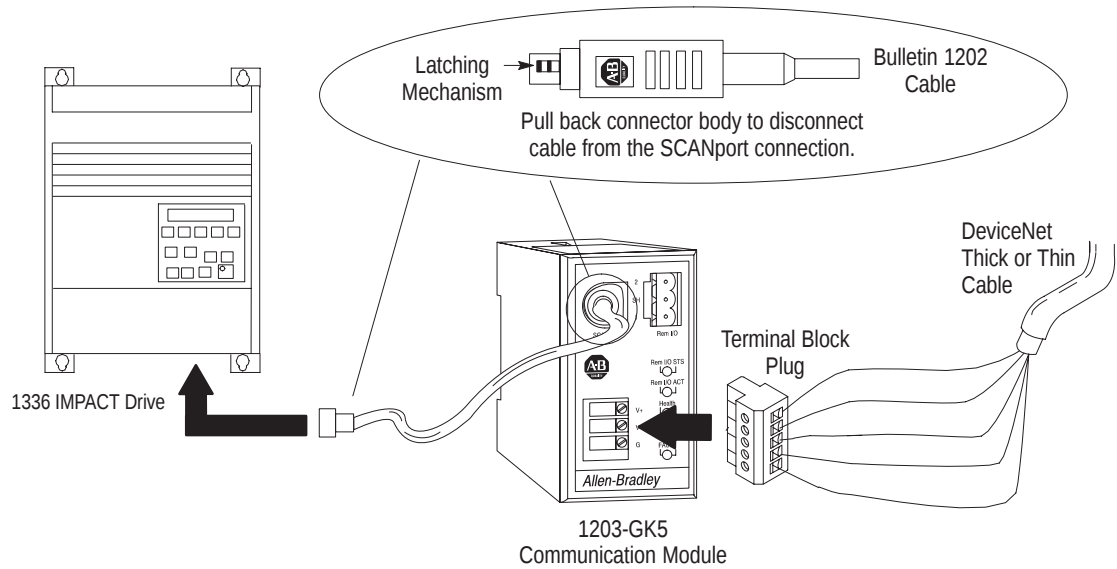
Device Type	1336 IMPACT Drive
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches or parameters

Physical Connection

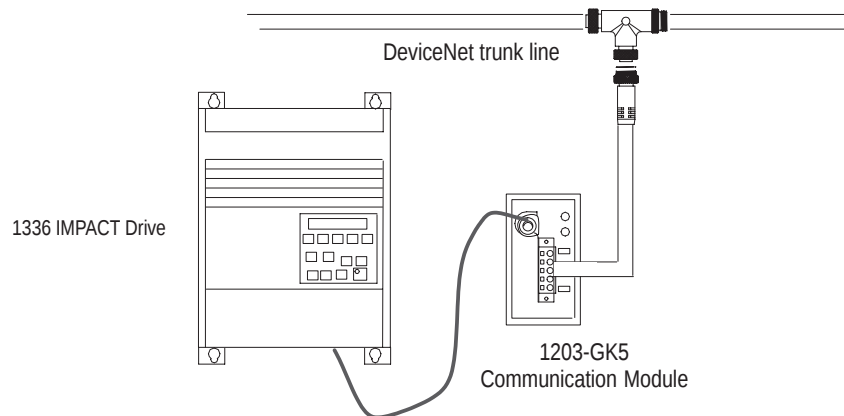
You need the following components to connect a 1336 IMPACT Drive to the DeviceNet network.



20298

Network Topology

The 1336 IMPACT Drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1336 IMPACT Drive	Bulletin 1336

Related Publication

Title	Publication Number
1336 IMPACT AC Drive	1336 IMPACT-1.0
DeviceNet Communication Module	1203-5.3

Specifications

Application Logic

- Internal process trim regulator
- Selectable speed/torque regulator modes
- 7 basic function blocks available
- UL-approved speed sensitive electronic overload
- Internal MOP
- Bus regulator

Operator Interface

- Programmable analog and digital I/O
- SCANport communication interface
- 2-line x 16-character LCD Human Interface Module

Drive Protection

- Under and Over Voltage
- Overcurrent
- Output Phase-to-phase & Phase-to-ground Shorts
- Power logic control ride through

Power Consumption

DeviceNet Current Draw	110mA (1203-GK5) 40mA (1336-GM5)
------------------------	-------------------------------------

Inputs

Three-phase voltage	200–240Vac, 380–480Vac, 500–600Vac
Frequency	50 to 60Hz (±3%)
Power ride-through	15mSec minimum
Control ride-through	2.0 sec. (typical)

Outputs

Voltage	Fully programmable – 0 to Nominal Input Voltage
Frequency range	0 to 250Hz
Continuous current	To 100% of rated current
Instantaneous current trip	200% of rated output current
Speed regulation	Encoder 0.001% of top speed over a 100:1 speed range Encoderless 0.5% of top speed over a 120:1 speed range

Drive Adjustments

Speed/Torque Mode	5 options for selecting the drive torque reference
7 Speed References, 2 Jog Speeds	0 to ±8 times base speed
Motor Frequency	1 to 250Hz
Adjustable Current Limit	Programmable to 400% or rated current, not to exceed inverter rating
Motor Overload	150% to 400%
Process Trim PI Loop	Programmable to trim speed or torque
Bus/Brake Options	Choice of options for the bus filter reference, precharge/ride through conditions and braking

Specifications continued on next page



Specifications (continued)

Ambient Operating Temperatures	
Standard IP00 (Open Style) w/o enclosure	0 to 50°C (32 to 122°F)
IP20; NEMA Type 1, IP65; NEMA Type 4 w/enclosure	0 to 40°C (32 to 104°F)
Dimensions (Height x Width x Depth)	
.37-3.7kW (0.5-5hp)	290 x 215.9 x 207mm 11.42 or 8.50 x 8.15in)
5.5-7.5kW (7.5-10hp)	350 x 260 x 212mm 13.78 or 10.24 x 8.35in)
11-22kW (15-30hp)	476.3 x 276.4 x 219.7mm 18.75 or 10.88 x 8.86in)
30-45kW (40-60hp)	701 x 301.8 x 225mm 27.60 or 11.88 x 8.86in)
45-112kW (60-150hp)	1240 x 381.5 x 270.8mm 48.82 or 15.02 x 10.66in)
112-187kW (150-250hp)	1498.6 x 511 x 424.4mm 59 or 20.12 x 16.71in)
224-336kW (300-450hp)	2286 x 762.1 x 635mm 90 or 30 x 25in)
224-597kW (300-800hp)	2324 x 762.1 x 635mm 91.50 or 30 x 25in)
Standards	  
Designed to meet International Standards	





1397 Digital DC Drive

The 1397 dc drive connects to the DeviceNet network via the 1203-GK5 communication module giving drive status and diagnostics over the network as well as explicit messaging for flexibility, control capability, and ease of operation.

1397 Digital DC Drive Features and Benefits

- simple, compact, and cost effective for new and machine upgrade applications
- out-of-the-box startup for simple installations with available options for added flexibility
- 1.1 – 225kW (1.5 – 300 HP)

DeviceNet Details

Device Type	1397 Digital DC Drive
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

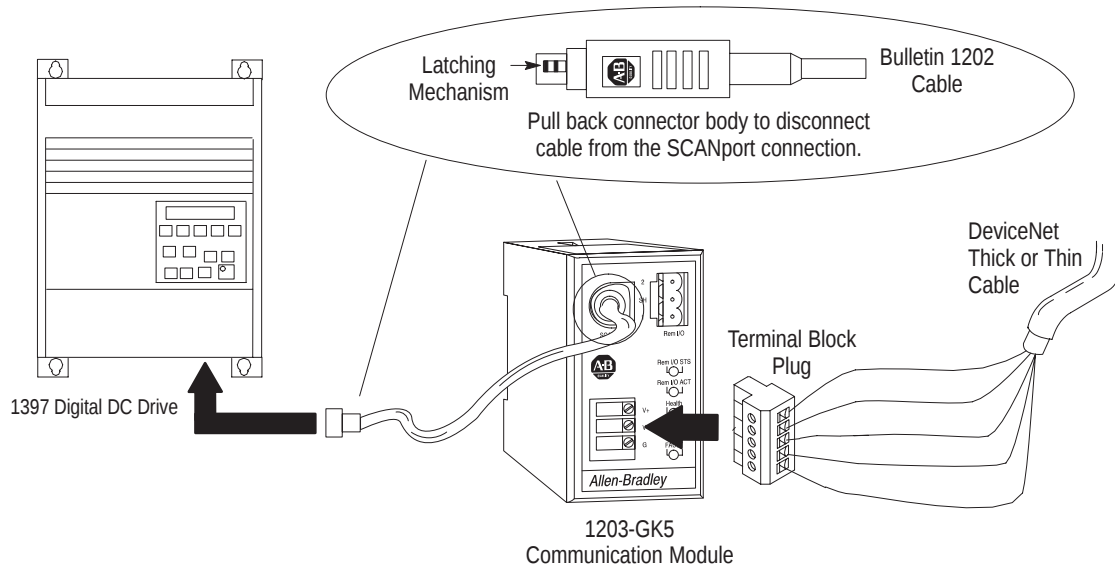
Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dip switches or parameters



Physical Connection

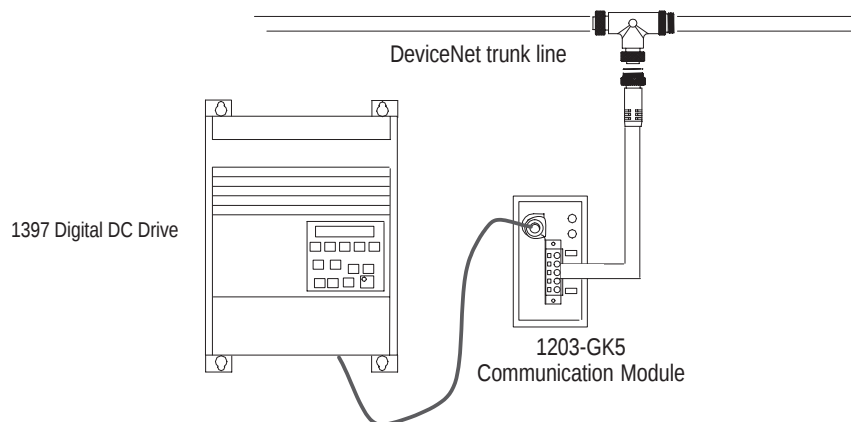
You need the following components to connect a 1397 Digital DC Drive to the DeviceNet network.



20298

Network Topology

The Digital DC Drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1397 Digital DC Drive	Bulletin 1397

Related Publication

Title	Publication Number
1397 Digital DC Drive Brochure	1397-1.0
DeviceNet Communication Module	1203-5.3

Specifications

Performance Features

- 10 Digital Inputs – 24Vdc
- 3 Contact Outputs
- 2 Analog Reference Inputs
- Outer Control Loop for Process Trim
- Programmable Stop Modes
- Regenerative or non-regenerative configurations
- User-selectable reference inputs
- UAbove base speed operation with field current regulator (option)
- Additional I/O Capability (with optional I/O expansion board):
 - 5 Digital Inputs
 - 2 Analog Inputs
 - 1 Pulse Train Input
- Separately Adjustable Accel/Decel Times
- Programmable Setup and Adjustment
- 2 External Speed References
- Programmable Setpoints
- Full Torque at zero speed

Operator Interface

- Human Interface Module (HIM)
- Full SCANport Support

Power Consumption

DeviceNet Current Draw 140mA (1203-GK5)

Nominal Ratings

2.2–224kW (3–300–3hp) @ 460Vac
1.2–112kW (1.5–150hp) @ 230Vac

Inputs

Nominal line voltage 207–253/414–506Vac
Frequency 50 or 60Hz
Line frequency variation ± 2 Hz

Outputs

230Vac line Armature voltage – 240Vdc
Field voltage – 150Vdc
Frequency range Armature voltage – 500Vdc
Field voltage – 300Vdc

Drive Adjustments

Accel/Decel 0.0 to 600 sec in 0.01 sec increments,
linear or S-curve
Stop Mode Coast/Ramp, with Adaptive Adjustment;
Zero Speed regulation 20 to 160%
Adjustable Current Limit 20 to 115%
Motor Control Prop and Int. Gains, Output Limits,
Preloads
Speed Regulation Mode Open Loop, Encoder Feedback, IR,
Compensation
Process PI Loop Process PI



Dimensions (Height x Width x Depth)	
.1.2-22kW (1.5-30hp)	477.5 x 254.5 x 300mm (18.8 x 10.03 x 11.8in)
2.2-45kW (3-60hp)	477.6 x 254.6 x 300.1mm (18.8 x 10.03 x 11.81in)
30-56kW (40-75hp)	477.5 x 254.5 x 300mm (18.8 x 10.03 x 11.8in)
56-112kW (75-150hp)	491.9 x 461.7 x 334.4mm (19.36 x 18.17 x 13.16in)
224kW (300hp)	850 x 599 x 424.7mm (33.46 x 23.58 x 16.72in)
Ambient Operating Temperatures	
Without Enclosure (IP00; Open Style)	0 to 55°C (32 to 122°F)
With Enclosure (IP20; NEMA Type 1)	0 to 40°C (32 to 104°F)
Standards	
  	
Designed to meet International Standards	



1557 Medium Voltage Drive

The 1557 Medium Voltage Drive uses CSI-PWM technology and direct vector control to provide near sinusoidal motor waveforms for use with new and retrofit standard ac motors.

The 1557 Medium Voltage Drive connects to a DeviceNet network through a 1203-GK5 or 1336-GM5 communication interface module. A 1557-13GM5 field-installable modification kit is also available.

DeviceNet Features and Benefits

- modify parameters to multiple drives across the network via a pc or PLC processor

Product Features and Benefits

- wide product range 100 – 10,000 HP (2300 – 6900V)
- no DV/DT stress to motor
- no DI/DT stress to motor
- virtually unlimited motor cable distance
- inherent regenerative motor braking
- low voltage test modes
- 98.6% efficiency at full load and full speed

DeviceNet Details

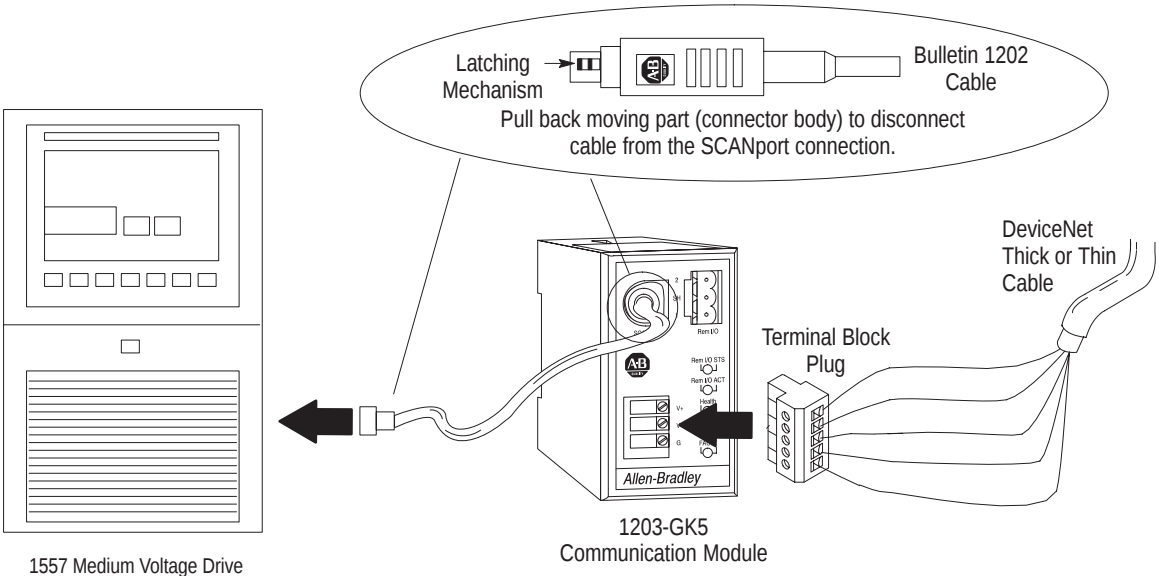
Device Type	1557 Medium Volatge Drive
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	1203-GK5 Communication Module

Physical Connection

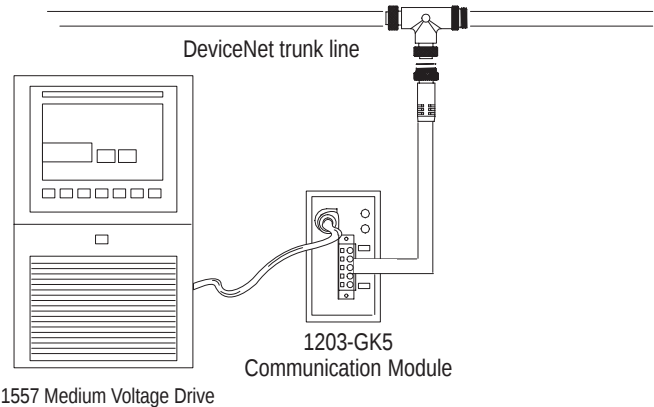
You need the following components to connect a 1557 Medium Voltage Drive to the DeviceNet network.



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Network Topology

The 1557 Medium Voltage Drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1557 Medium Voltage Drive	Bulletin 1557

Related Publications

Title	Publication Number
The Preferred Choice in M.V. Speed Control	1557-1.0
M.V. Speed Control Product Data	1557-1.1
M.V. Speed Control Specification Guide	1557-2.2

Specifications

Power Consumption	
DeviceNet Current Draw	140mA (1203-GK5) 60mA (1336-GM5)5mA
External Power Requirements	2300/3300/4160/6900Vac ($\pm 10\%$) 3 phase 50/60Hz ($\pm 3\%$)
Communication Rate	125k bit/s, 250k bit/s, or 500k bit/s (selectable through 1203-GK5 module)
Operating Voltage	110 to 220V 50/60Hz
Horsepower	400-10,000
Efficiency (drive only)	97% min. at full load/full speed
Output Frequency	6-75Hz (without tach) .2-75Hz (with tach)
Output Voltage	0-2300V, 0-4160V, 0-3300V/6900 sinusoidal PWM-CSI
Output Amps	Based on MVA
Overload Rating	100% continuous, 115% 60 sec. (variable torque)
Maximum Design Voltage Rating	6900Vac
Environmental Conditions	
Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	-40 to 70°C (-40 to 158°F)
Altitude	1,000m (3300ft)
Temperature Compensation	-20 to 55°C (-4 to 104°F)
Agency Approval	  



1394 Digital AC Multi-Axis Motion Control System

The 1394 is a full-featured digital ac closed-loop servo controller that integrates multi-axis motion control and servo drive functions into a single, compact system for high-performance position, velocity, and torque control of one to four servo motors.

The 1394 connects to the DeviceNet network through a 1203-GK5 interface module.

DeviceNet Features and Benefits

- configure, tune, and start up via pc or PLC processor
- modify parameters adapt to application modes
- read, load, and performance information for trending and diagnostic use
- read machine velocity or position

Product Features and Benefits

- one to four axis-field configurable
- state-of-the-art digital signal processing for superior performance
- advanced auto-tuning and startup simplifies commissioning
- Integrated Power Module (IPM) technology for smooth, efficient power conversion

DeviceNet Details

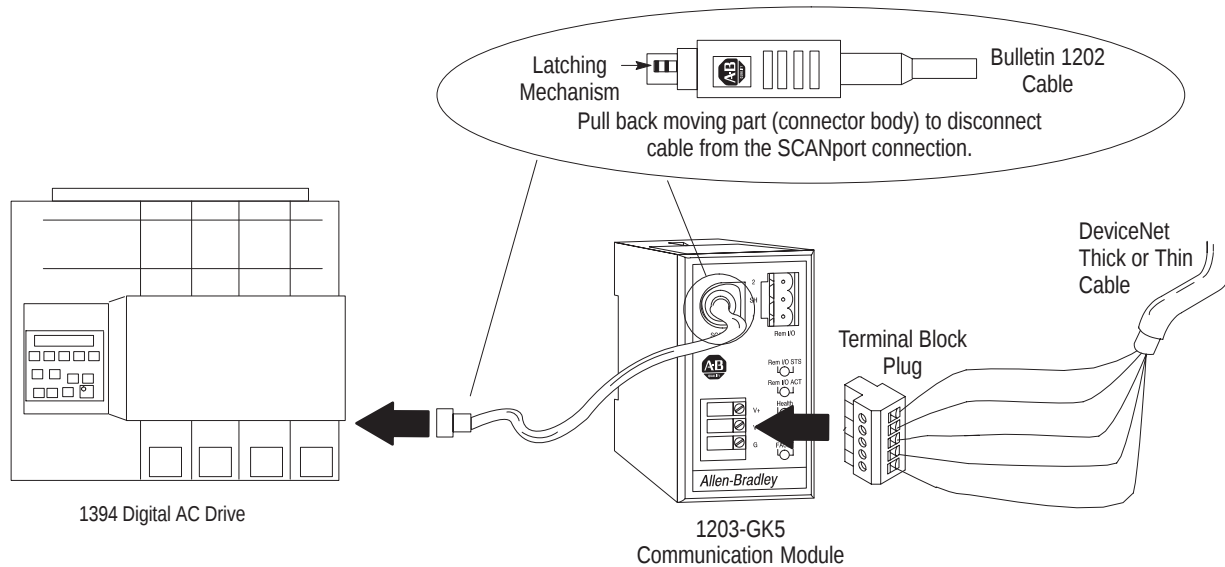
Device Type	AC Drive
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	1203-GK5 Communication Module

Physical Connection

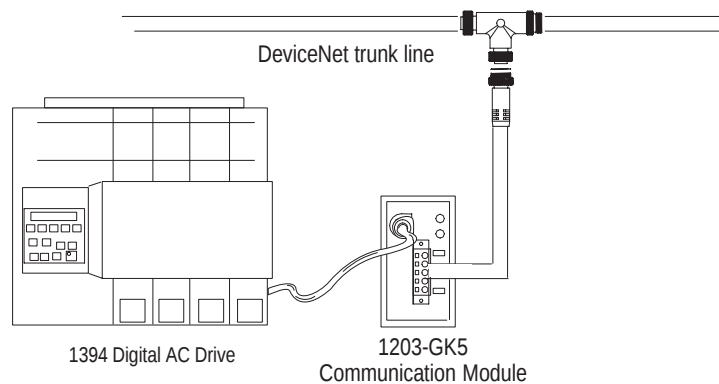
You need the following components to connect a 1394 Digital Multi-Axis Motion Control System to the DeviceNet network.



20298

Network Topology

The 1394 Digital Multi-Axis Motion Control System fits into an example DeviceNet network as shown in the following figure.



Ordering Information

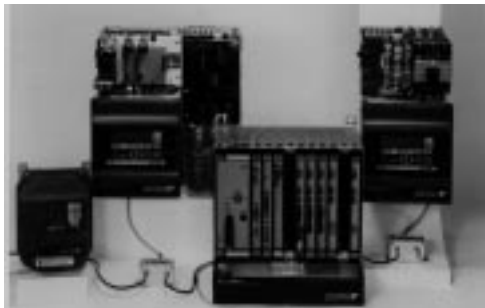
Description	Catalog Number
1394 Digital Multi-Axis Motion Control System	Bulletin 1394

Related Publications

Title	Publication Number
1394 Color Brochure	1394-1.0
1394 Product Data	1394-2.0
1394 User Manual	1394-5.0

Specifications

Power Consumption	
DeviceNet Current Draw	140mA
External Power Requirements	120 V/120mA or 240 V/60mA max.
Communication Rate	125k bit/s, 250k bit/s, or 500k bit/s (selectable through 1203-GK5 module)
Operating Voltage	110 to 220V 50/60Hz
Rated AC Input Voltage	324-528Vac 50/60Hz Three phase
AC Input Current	6.5A
Continuous Power Output	4/5kW
Nominal Bus Output Voltage	530/680Vdc
Peak Power Output	28kW
Efficiency	99%
Measurements (Depth x Width x Height)	279.4 x 150.0 x 400cm (11.0 x 5.91 x 15.75in)
Weight	11kg (24.25lb)
Environmental Conditions	
Ambient Air Temperature	0 to 50°C (32 to 122°F)
Relative Humidity	5 to 95% (noncondensing)
Altitude	1,000m (3300ft)
Agency Approval	  



GV3000 AC Drive

DeviceNet Features and Benefits

- monitored and controlled by a PLC scanner module
- directly connects to the DeviceNet network
- diagnostics available across the network include accel time, decel time, and current limit %

GV3000 Drive Product Features and Benefits

- software selection for v/Hz, SVC or FYC operation
- $\pm 10\text{v}$, 0 – 20mA, 4 – 20mA isolated speed reference input
- models for 230, 380 – 460v ac input voltage
- 15Hz response vector speed loop bandwidth

The GV3000™ ac drive is a digital PWM inverter for vector or V/Hz control from 1 – 400 HP with a communication module to connect to the DeviceNet network.

DeviceNet Details

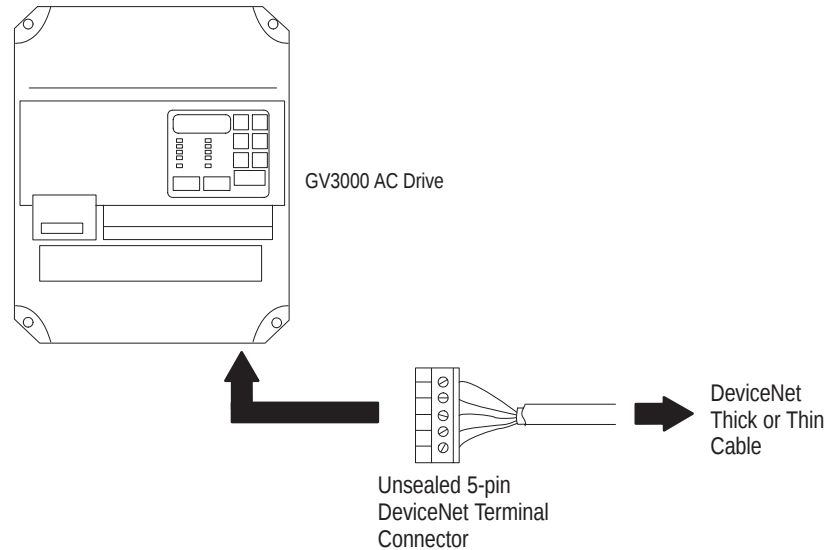
Device Type	AC Drive
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Parameters within the drive

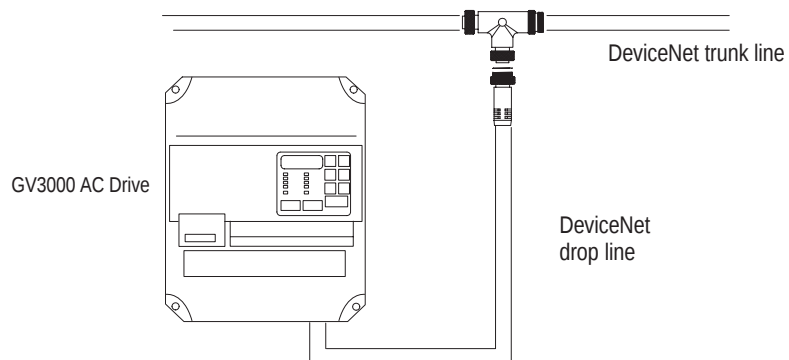
Physical Connection

You need the following components to connect a GV3000 ac drive to the DeviceNet network.



Network Topology

The GV3000 ac drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

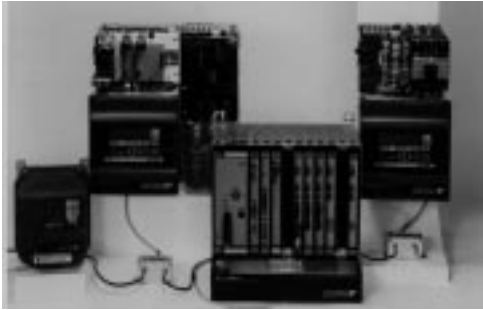
Description	Catalog Number
GV3000 ac Drive DeviceNet Interface Card	2 DV 3000

Related Publications

Title	Publication Number
GV3000 AC Drives	D-2883
DeviceNet AC and DC Drives	D-2902

Specifications

Power Consumption	
DeviceNet Current Draw	95mA
External Power Requirements	200-230/380-460 3 phase 50/60Hz ± 2 cycles of nominal
Communication Rate	125k bit/s, 250k bit/s, or 500k bit/s (selectable through drive parameters)
Operating Voltage	200-230, 380-460V 50/60Hz
Measurements – Weight	Depends on the Cat. No. Refer to Publication A112
Horsepower	1–400
Efficiency (drive only)	97% min. at full load/full speed
Output Frequency	0.5–210Hz (V/Hz) 0–240Hz (Vector/SVC)
Output Amps	Based on Drive Rating
Overload Rating	110% continuous (V/Hz) 150% minimum (Vector/SVC)
Maximum Design Voltage Rating	504Vac
Environmental Conditions	
Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	–40 to 65°C (–40 to 149°F)
Altitude	1,000m (3300ft)
Agency Approval	  



FlexPak3000 Digital DC Drive

DeviceNet Features and Benefits

- monitored and controlled by a PLC scanner module
- directly connects to the DeviceNet network
- diagnostics available across the network include accel time, decel time, and current limit %

FlexPak3000 Drive Product Features and Benefits

- full-wave, full-control 6-SCR power conversion for smooth, efficient operation and high performance
- selectable $\pm 10\text{v}$ or 4 – 20mA auto-speed reference
- analog outputs can be selected proportional to speed and current
- 250v dc input accepts analog tachometer for speed feedback
- 150% current limit for 1 minute
- self-tuning of voltage, speed, and current loops

The FlexPak3000™ Digital DC variable-speed drive is a three-phase drive for regenerative and non-regenerative applications from 1.5 – 600 HP with a communication module to connect to the DeviceNet network.

DeviceNet Details

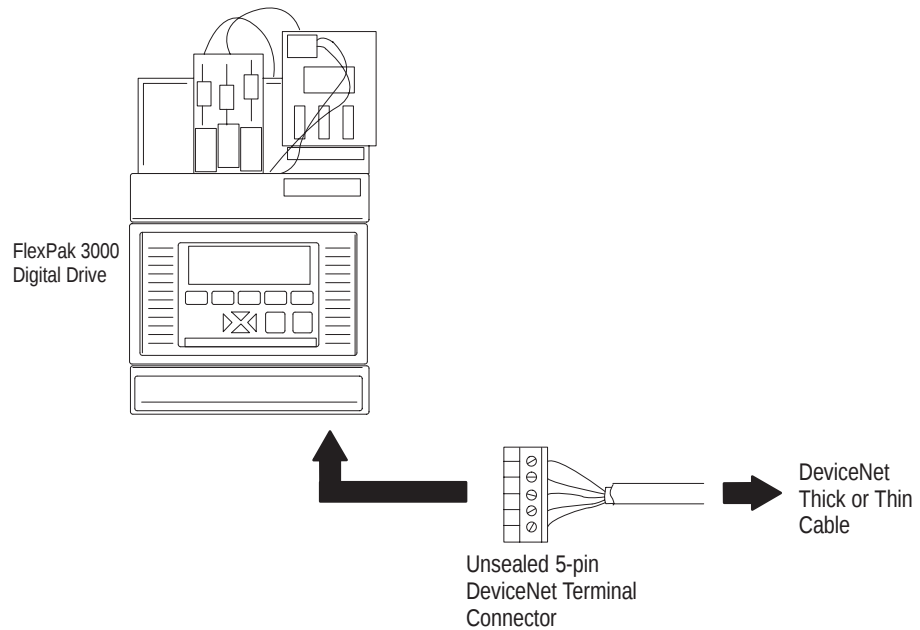
Device Type	DC Drive
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Parameters within the Drive

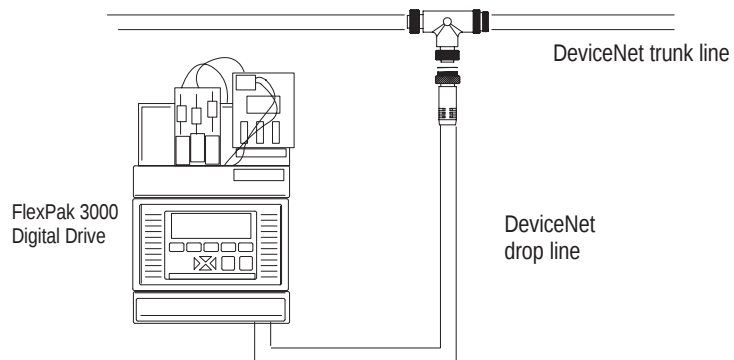
Physical Connection

You need the following components to connect a FlexPak3000 Digital DC drive to the DeviceNet network.



Network Topology

The FlexPak3000 Digital DC drive fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
FlexPak3000 Digital DC Drive DeviceNet Interface Card	915FK1100

Related Publications

Title	Publication Number
FlexPak3000 Product Summary	D-509
DeviceNet AC and DC Drive	D-2902

Specifications

Power Consumption	
DeviceNet Current Draw	95mA
External Power Requirements	230-460 $\pm$ 10% 3 phase 50/60Hz $\pm$ 2 cycles of nominal
Communication Rate	125k bit/s, 250k bit/s, or 500k bit/s (selectable through drive parameters)
Operating Voltage	230Vac $\pm$ 10% 460Vac $\pm$ 10%
Measurements – Weight	Depends on the Cat. No. Refer to Publication A112
Horsepower	1.5–600
Efficiency (drive only)	98.6% min. at full load/full speed
Output Voltage	240Vdc on 230Vac line 500Vdc on 460Vac line
Output Amps	Based on Drive Rating
Overload Rating	150% for one minute
Maximum Design Voltage Rating	460Vac
Environmental Conditions	
Operating Temperature	0 to 65°C (32 to 131°F)
Storage Temperature	–30 to 65°C (–22 to 149°F)
Altitude	1,000m (3300ft)
Agency Approval	  



EZLINK Bearing Monitor

The EZLINK™ bearing monitor provides low-cost online conditions monitoring for bearings and speed reducers.

The EZLINK bearing monitor works with the EZLINK software which was custom-written for the DeviceNet network.

DeviceNet Features and Benefits

- elimination of dedicated signal conditioners and power supplies
- directly connects to the DeviceNet network
- less wiring than traditional methods
- supports change-of-state messaging for higher performance
- increased reliability for more uptime

Product Features and Benefits

- Windows-based user interface (EZLINK software) for configuration
 - easy node setup, point and click operation
 - user-friendly limits setting
 - retained history and time plot displays on temperature and vibration

DeviceNet Details

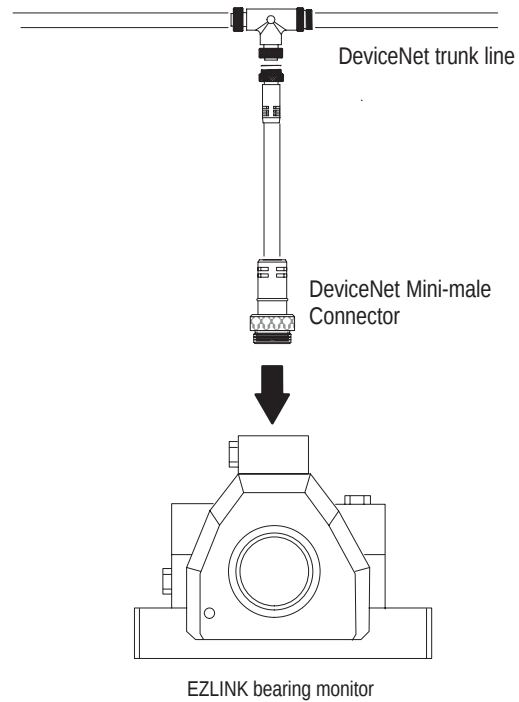
Device Type	Bearing Monitor
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Dodge EZLINK Monitor DeviceNetManager Software
Parameters	Dodge EZLINK Monitor Electronic Data Sheets DeviceNetManager Software

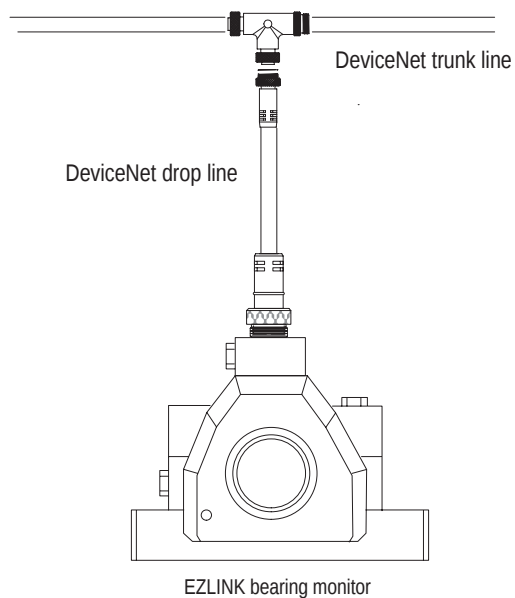
Physical Connection

You need the following components to connect a EZLINK Bearing Monitor to the DeviceNet network.



Network Topology

The EZLINK Bearing Monitor fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
EZLINK Bearing Monitor	varies by application

Related Publications

Title	Publication Number
EZLINK General Brochure	DMR1572
EZLINK Technical Manual	499396
Bearing Catalog	DMR-1203
Bearing Monitor Brochure	DMR-1269
Gearing Catalog	DMR-1205
Torque-Arm Harsh Duty Brochure	DMR-1467

To order these publications, call the Greenville Fulfillment Center at 864-232-6681.

Related Accessories

Item	Item
Software	EZLINK Software Monitoring

Specifications

Power Consumption	
DeviceNet Current Draw	225mA @ 11V maximum
Measurement Precision	
Temperature	1F
Speed	1 RPM
Vibration	0.004 inches/sec
Measurement Accuracy	
Temperature	0.5F
Speed	0.5% to 600 RPM, 1% to 1200 RPM
Vibration	0.002 inches/sec
Status Indicators	Combination Network/Module, red/green
Dimensions (Depth x Width x Height)	111.1 x 47.6 x 82.66mm (4.3 x 1.8 x 3.2in)
Weight	612 g
Enclosure Rating	Exceeds NEMA Type 4
Environmental Conditions	
Operating Temperature	-40 to 85°C
Storage Temperature	-55 to 100°C
Relative Humidity	5 to 95% noncondensing
Temperature Compensation	-20 to 55°C (-4 to 104°F)
Agency Approval	  
	FCC Part 15, Class A



DeviceLink I/O

The DeviceLink™ I/O discrete input connects single, non-DeviceNet 24Vdc compatible sensors to the DeviceNet network.

Features and Benefits

- configurable on/off delay for use with mechanical sensors
- offered in mini quick-disconnect, micro quick-disconnect, and open conductor styles
- connects 2- or 3-wire 24V sensors with sourcing outputs; devices with relay contacts and mechanical sensing devices
- available with optional stainless steel couplings

DeviceNet Features and Benefits

- offered in a variety of cable lengths up to 3m (9ft)
- contains user-configurable debounce filtering
- provides visual network diagnostics with a bicolor LED status indicator

DeviceNet Details

Device Type	General Purpose Discrete I/O
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	No
• Cyclic	No
• Change-of-State (COS)	No

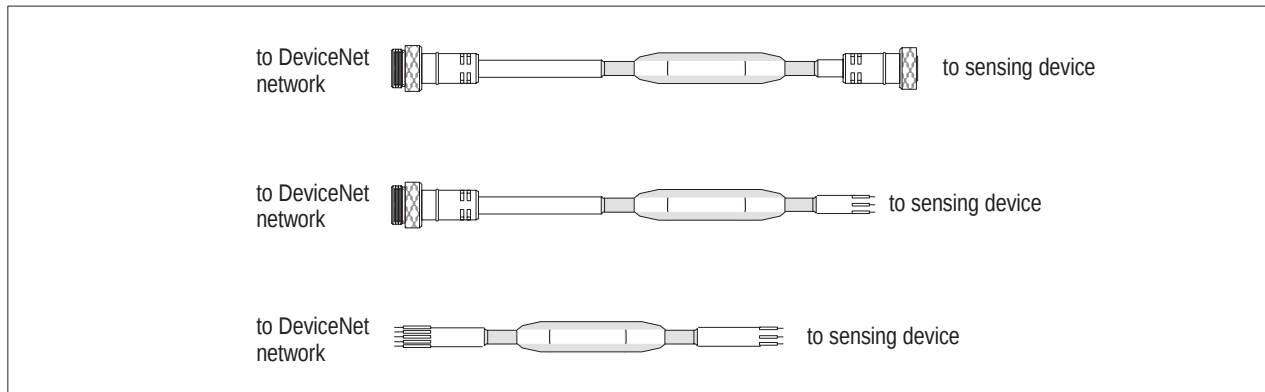
Configuration Information

Configure:	By using:
Node Addresses and Data Rates, On/off delay	DeviceNetManager Software



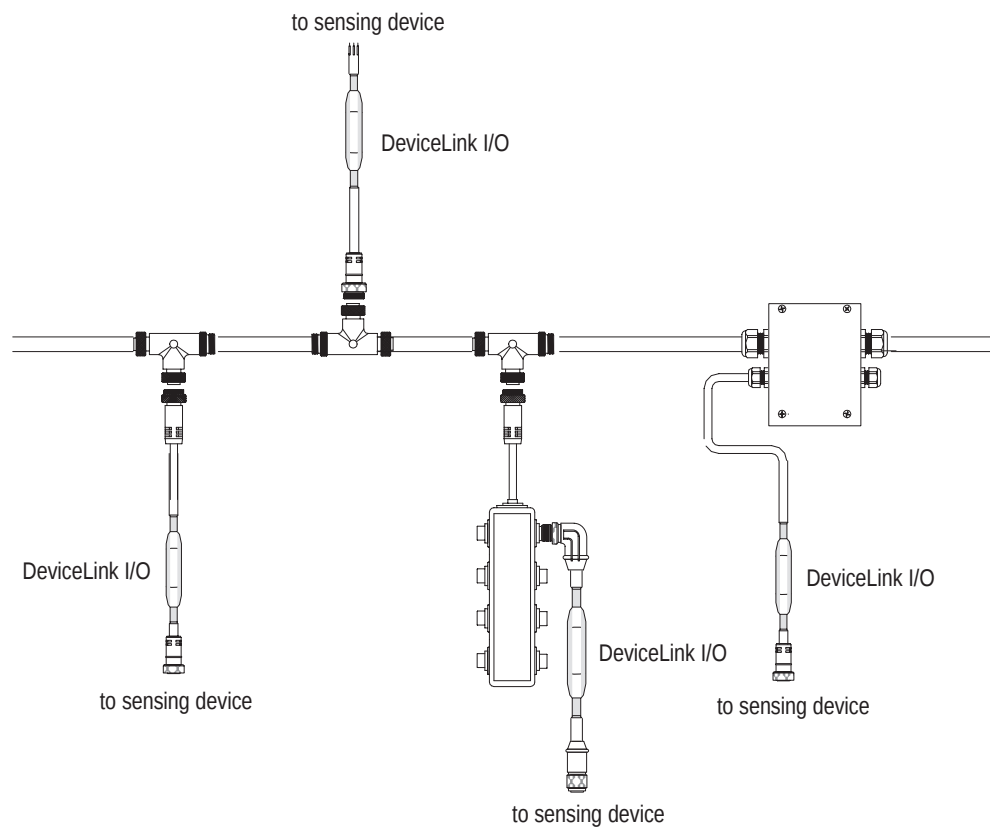
Physical Connection

Connect one end of the DeviceLink cable to the DeviceNet network and the other end to the sensing device.



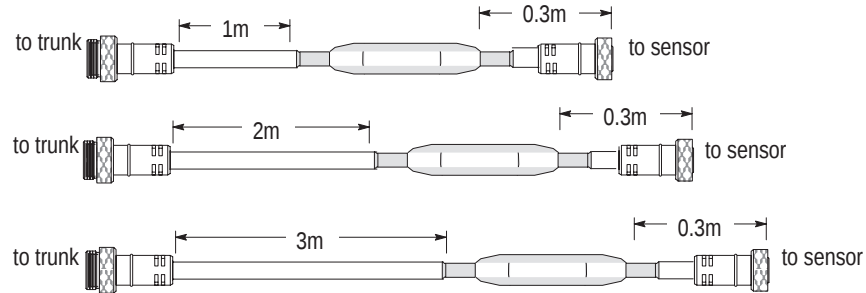
Network Topology

The DeviceLink I/O fits into an example DeviceNet network as shown in the following figure.



DeviceLink Cable Types and Ordering Information

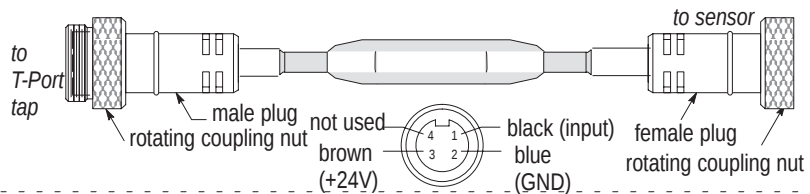
Cable lengths are measured by the distance between the DeviceLink electronics and the DeviceNet network. The distance between the DeviceLink electronics and the sensor is 12 in., unless otherwise noted.



These DeviceLink cables are available:

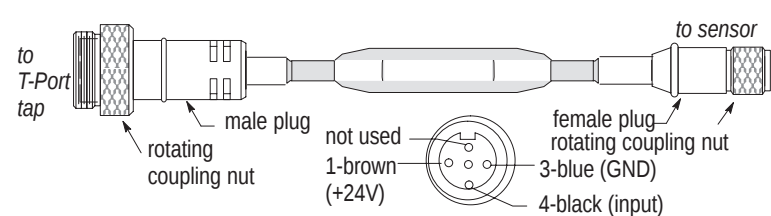
Mini Male to Mini Female . . . Part Number

1m (3.28ft)	1485D-A1M5-N4
2m (6.56ft)	1485D-A2M5-N4
3m (9.84ft)	1485D-A3M5-N4



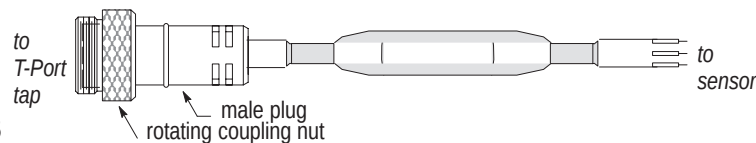
Mini Male to Micro Female . . . Part Number

1m (3.28ft)	1485D-A1M5-R4
2m (6.56ft)	1485D-A2M5-R4
3m (9.84ft)	1485D-A3M5-R4



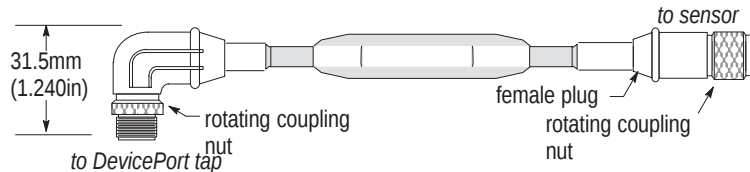
Mini Male to Conductor Part Number

1m (3.28ft)	1485D-A1M5-C
2m (6.56ft)	1485D-A2M5-C
3m (9.84ft)	1485D-A3M5-C
0.3m (1ft)	1485D-A1FM5-C5



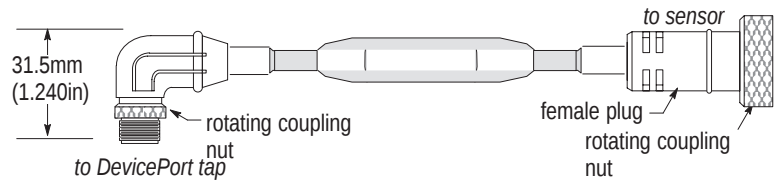
Micro 90° Male to Micro Female Part Number

1m (3.28ft)	1485D-A1F5-R4
2m (6.56ft)	1485D-A2F5-R4

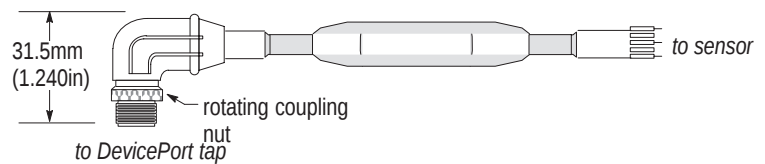


Micro 90° Male to Mini Female Part Number

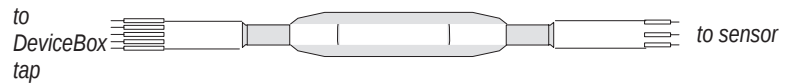
1m (3.28ft)	1485D-A1F5-N4
2m (6.56ft)	1485D-A2F5-N4

**Micro 90° Male to Conductor Part Number**

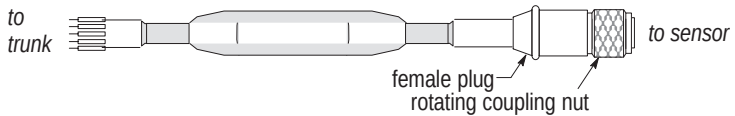
1m (3.28ft)	1485D-A1F5-C
2m (6.56ft)	1485D-A2F5-C

**Conductor to Conductor . . . Part Number**

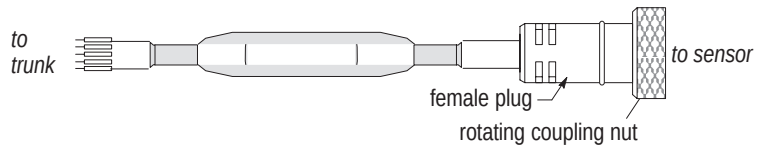
3m (9.84ft)	1485D-A3C3-C
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**Conductor to Micro Female . Part Number**

3m (9.84ft)	1485D-A3C3-R4
-------------------	---------------

**Conductor to Mini Female . . Part Number**

3m (9.84ft)	1485D-A3C3-N4
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**Stainless Steel Products**

DeviceLink discrete inputs are available with stainless steel couplings as a build-to-order product.

To order one of the above DeviceLink discrete inputs in stainless steel, add an **S** to the part number – 1485**D**-A1M5-N4 becomes 1485**DS**-A1M5-N4.

Specifications

Power Consumption		40mA plus power consumed by attached device
DeviceNet Current Draw		
Indicators	Green/Red	Network/status LED
Network Address		00 – 63
Sensor Type Supported		24V dc with sourcing output, 2 or 3-wire
Sensor Input “0” Level		0V to 1V, sourcing 0 to 1.65mA
Sensor Input “1” Level		3V to maximum supply voltage (with respect to ground)
Enclosure Rating		1200 PSI (8270kPa) NEMA 6P, 4X, 12, and 13
Environmental Conditions	Operating Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Vibration	0.35mm D.A., 10 to 57Hz;
		5g, 57 to 150Hz: 3 mutually perpendicular planes
Agency Approval		 

Related Publications

Title	Publication Number
DeviceNet Cable System Planning and Installation Manual	DN–6.7.2
Automation Systems Catalog	B111





1792 ArmorBlock I/O Block

The 1792 ArmorBlock™ I/O block is a compact unit that contains I/O circuits, a built-in power supply, and a built-in DeviceNet network adapter. Because of its sealed housing (and optional stainless steel connectors), a 1792 I/O module requires no enclosure. The low-profile version of ArmorBlock is 50% smaller.

Features and Benefits

- supports I/O poll and change-of-state messaging
- NEMA 4X and 6P/IP 67 sealed housing eliminates enclosure cost and space
- low wiring cost because I/O block can be located close to sensors and actuators
- module will automatically set itself to the appropriate communication rate when connected to the network – autobaud (not applicable with low-profile version)
- 2A electronic fuse protection for outputs
- optional stainless steel connectors (not applicable with low-profile version)
- short circuit conditions reported over the network
- no switches to set – all parameters are configurable with DeviceNetManager software

DeviceNet Details

Device Type	General Purpose Discrete I/O
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes ¹
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	Yes

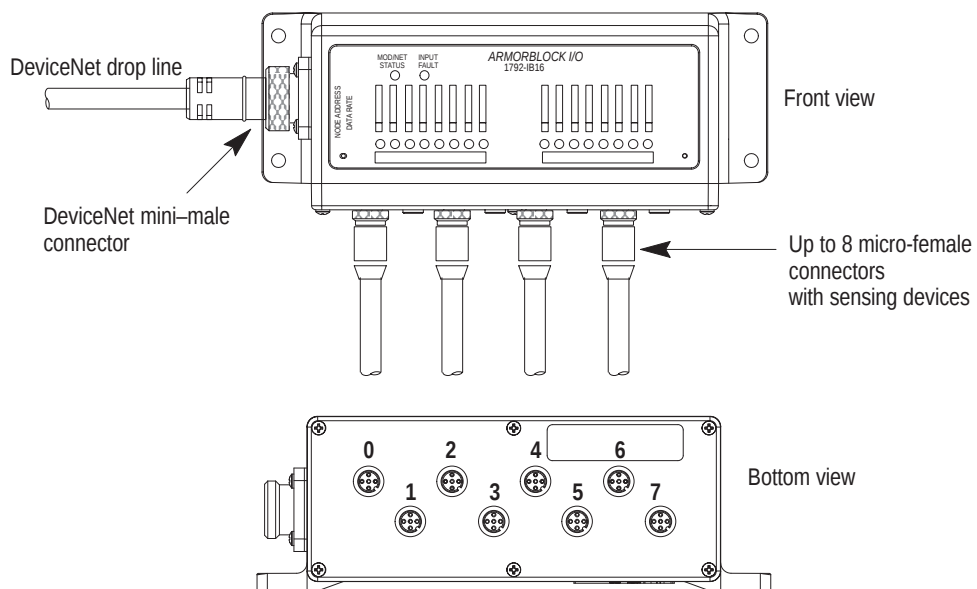
¹ Low-profile version only.

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	The network
Parameters	Electronic Data Sheets in DeviceNetManager Software

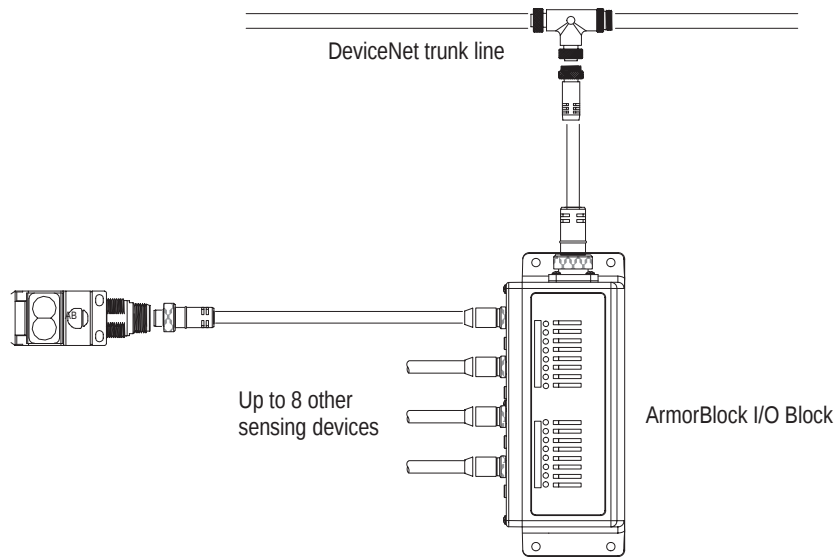
Physical Connection

You need the following components to connect a 1792 ArmorBlock I/O block to the DeviceNet network.



Network Topology

The 1792 ArmorBlock I/O block fits into an example DeviceNet network as shown in the following figure.



ArmorBlock I/O Cables

Description	Length	Part Number (aluminum)	Part Number ¹ (stainless steel)	Application
micro-male (4-pin) to conductor (wire)	1m	871A-CS4-DM1	871AS-CS4-DM1	ArmorBlock inputs or outputs to field load devices
	2m	871A-CS4-DM2	871AS-CS4-DM2	
	3m	871A-CS4-DM3	871AS-CS4-DM3	
micro-male (4-pin) to mini-female (4-pin)	1m	871A-CS4-DM1N	871AS-CS4-DM1N	ArmorBlock inputs to PNP sourcing sensors using a mini connector
	2m	871A-CS4-DM2N	871AS-CS4-DM2N	
	3m	871A-CS4-DM3N	871AS-CS4-DM3N	
micro-male (4-pin) to micro-female (4-pin)	1m	871A-CS4-DM1D	871AS-CS4-DM1D	one-to-one extension from ArmorBlock inputs to PNP sourcing sensors using a micro connector
	2m	871A-CS4-DM2D	871AS-CS4-DM2D	
	3m	871A-CS4-DM3D	871AS-CS4-DM3D	
micro-male (4-pin) to micro-female (5-pin)	1m	871A-CS4-DM1D5	871AS-CS4-DM1D5	ArmorBlock inputs to photoelectric sensors with diagnostics using a micro connector
	2m	871A-CS4-DM2D5	871AS-CS4-DM2D5	
	3m	871A-CS4-DM3D5	871AS-CS4-DM3D5	
micro-male (4-pin) to two separate conductors (splitter "Y" cable)	5m	871A-CS4-DM5X	871AS-CS4-DM5X	two sensor connection to one micro connector (allows 16 inputs to eight micro connectors on ArmorBlock module 1792-IB16) ²
Description	Type	Catalog Number		
Micro male 4 pin right angle terminal chamber	18 AWG, 1 key	871A-TR4-DM		
Micro male 4 pin straight terminal chamber	22 AWG, 1 key	871A-TS4-DM		
	18AWG, 1 key	871A-TS4-DM1		

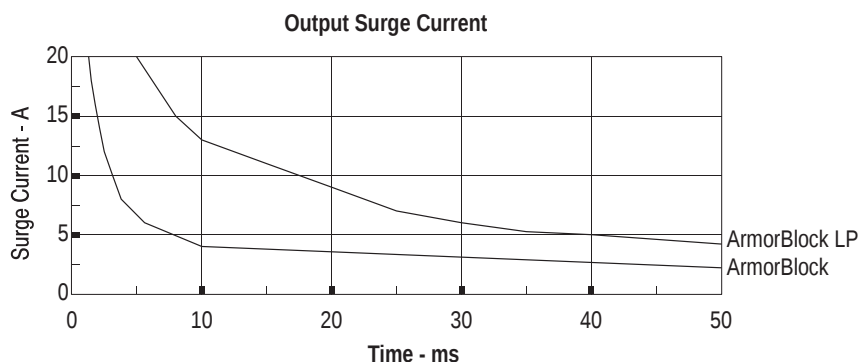
¹ Stainless steel ArmorBlock I/O cables have a chemically-resistant jacket with stainless steel couplings and are available as a **build-to-order** product. ² The "Y" cable requires terminal chambers for attachment to quick-disconnect devices.

ArmorBlock Output Power Cables

Description	Length	Part Number (aluminum)	Part Number (stainless steel)	Application
3-pole female mini connector to conductor (wire)	5m	871A-CS3-DN5	871AS-CS3-DN5	output power (12 amp) for output blocks

Other Important Product Information

The output circuits can drive dc loads with a surge or inrush current. The table below illustrates this drive characteristic. The auxiliary output power source must be capable of supplying this current.



Ordering Information

ArmorBlock I/O Block Type	Catalog Number	Type
4 input module	1792-IB4AT B	Aluminum
	1792-IB4ST B	Stainless Steel
8 input module	1792-IB8AT B	Aluminum
	1792-IB8ST B	Stainless Steel
16 input module	1792-IB16AT B	Aluminum
	1792-IB16ST B	Stainless Steel
4 output module	1792-OB4EAT B	Aluminum
	1792-OB4EST B	Stainless Steel
2 input/2 output module	1792-IB2XOB2EAT B	Aluminum
	1792-IB2XOB2EST B	Stainless Steel

Low Profile ArmorBlock I/O Block Type	Catalog Number	Type
8 output module	1792-OB8PLP	Aluminum
16 input module	1792-IB16LP	Aluminum
8 input/8 output module	1792-IB8XOB8PLP	Aluminum

Related Publications

Title	Publication Number
ArmorBlock I/O Product Data	1792-2.1
ArmorBlock 4 Input Module Installation Instructions	1792-5.1
ArmorBlock 8 Input Module Installation Instructions	1792-5.2
ArmorBlock 16 Input Module Installation Instructions	1792-5.3
ArmorBlock 4 Output Module Installation Instructions	1792-5.4
ArmorBlock 2 Input/2 Output Module Installation Instructions	1792-5.5
ArmorBlock-LP 16 Input Module Installation Instructions	1792-5.6
ArmorBlock-LP 8 Output Module Installation Instructions	1792-5.7
ArmorBlock-LP 8 Input/8 Output Module Installation Instructions	1792-5.8
DeviceNet Cable Planning and Installation Manual	DN-6.7.2
DeviceNetManager Software User Manual	1787-6.5.3

Specifications

4 Input Module – Cat. No. 1792-IB4

Input Specifications

Inputs per Block		4 sinking
On-state Voltage Range		10–30V dc
On-state Current	Maximum Minimum	6.0mA @ 30V dc 2.0mA @ 10V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	1.5mA
Transition Voltage		5–10V dc
Transition Current		1.5–3.0mA
Input Impedance	Maximum	5K ohms
Input Signal Delay	Off to On On to Off	0ms, 2ms, 4ms, 8ms, 16ms 0ms, 2ms, 4ms, 8ms, 16ms
Sensor Source	Voltage Current	10–25V dc 50mA per point, 0.2A total per module
Indicators		Mod/Net Status – red/green Input Fault – red I/O Status – yellow (customer field side driven)

General Specifications

DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA (no powered sensors) 300mA (full sensor load)
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Power Dissipation	Maximum	1.0 Watts
Thermal Dissipation	Maximum	3.4 BTU/hr
Environmental Conditions		
	Operational Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	up to 100%
	Shock	30 g peak acceleration, 11(±1)ms pulse width
	Operating	50 g peak acceleration, 11(±1)ms pulse width
	Non-operating	Tested 10 g @ 10–500Hz per IEC 68-2-6
	Vibration	
Conductors		Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure		Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives



Specifications

8 Input Module – Cat. No. 1792-IB8

Input Specifications

Inputs per Block		8 sinking
On-state Voltage Range		10–30V dc
On-state Current	Maximum Minimum	6.0mA @ 30V dc 2.0mA @ 10V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	1.5mA
Transition Voltage		5–10V dc
Transition Current		1.5–3.0mA
Input Impedance	Maximum	5K ohms
Input Signal Delay		
	Off to On On to Off	0ms, 2ms, 4ms, 8ms, 16ms 0ms, 2ms, 4ms, 8ms, 16ms
Sensor Source	Voltage Current	10–25V dc 50mA per point, 0.4A total per module
Indicators		Mod/Net Status – red/green Input Fault – red I/O Status – yellow (customer field side driven)

General Specifications

DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA (no powered sensors) 500mA (full sensor load)
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Power Dissipation	Maximum	1.9 Watts
Thermal Dissipation	Maximum	6.5 BTU/hr
Environmental Conditions		
	Operational Temperature	–25 to 70°C (–13 to 158°F)
	Storage Temperature	–40 to 85°C (–40 to 185°F)
	Relative Humidity	up to 100%
	Shock	30 g peak acceleration, 11(±1)ms pulse width
	Operating	50 g peak acceleration, 11(±1)ms pulse width
	Non-operating	
	Vibration	Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors		Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure		Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

Specifications

16 Input Module – Cat. No. 1792-IB16

Input Specifications

Inputs per Block		16 sinking
On-state Voltage Range		10–30V dc
On-state Current	Maximum Minimum	6.0mA @ 30V dc 2.0mA @ 10V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	1.5mA
Transition Voltage		5–10V dc
Transition Current		1.5–3.0mA
Input Impedance	Maximum	5K ohms
Input Signal Delay	Off to On On to Off	0ms, 2ms, 4ms, 8ms, 16ms 0ms, 2ms, 4ms, 8ms, 16ms
Sensor Source	Voltage Current	10–25V dc 50mA per point, 0.8A total per module
Indicators		Mod/Net Status – red/green Input Fault – red I/O Status – yellow (customer field side driven)

General Specifications

DeviceNet Power	Voltage Current	12.0 – 25.0V dc 100mA (no powered sensors) 900mA (full sensor load)
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Power Dissipation	Maximum	3.7 Watts
Thermal Dissipation	Maximum	12.63 BTU/hr
Environmental Conditions		
Operational Temperature		–25 to 70°C (–13 to 158°F)
Storage Temperature		–40 to 85°C (–40 to 185°F)
Relative Humidity		up to 100%
Shock	Operating Non-operating	30 g peak acceleration, 11(±1)ms pulse width 50 g peak acceleration, 11(±1)ms pulse width
Vibration		Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors		Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure		Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives



Specifications

4 Output Module – 1792-OB4E

Output Specifications

Outputs per Block		4 sourcing
Output Voltage Range		19 – 30V dc
On-state Voltage	Maximum	0.25V dc @ rated current
On-state Current	Maximum	2.0A per output @ 60°C 1.0A per output @ 70°C
Module Current (all outputs on) Maximum		8.0A per module ¹
Off-state Leakage Current	Maximum	1.5mA per output
Surge Current	Maximum	4.0A for 10ms, repeatable every 2s
Indicators		Mod/Net Status – red/green I/O Status – yellow/red (customer field side driven)

General Specifications

DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Power Dissipation	Maximum	4.0 Watts
Thermal Dissipation	Maximum	13.7 BTU/hr
Isolation		500V ac – outputs to DeviceNet
Environmental Conditions		
Operational Temperature		–25 to 70°C (–13 to 158°F)
Storage Temperature		–40 to 85°C (–40 to 185°F)
Relative Humidity		up to 100%
Shock	Operating	30 g peak acceleration, 11(±1)ms pulse width
	Non-operating	50 g peak acceleration, 11(±1)ms pulse width
Vibration		Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors		Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure		Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

¹ Minimum wire size is 16 gauge.

Specifications

2 Input/2 Output Module – 1792-IB2XOB2E

Input Specifications

Inputs per Block		2 sinking
On-state Voltage Range		10–30V dc
On-state Current	Maximum Minimum	6.0mA @ 30V dc 2.0mA @ 10V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	1.5mA
Transition Voltage		5–10V dc
Transition Current		1.5–3.0mA
Input Impedance	Maximum	5K ohms
Input Signal Delay	Off to On On to Off	0ms, 2ms, 4ms, 8ms, 16ms 0ms, 2ms, 4ms, 8ms, 16ms
Sensor Source	Voltage Current	10–25V dc 50mA per point, 0.1A total per module

Output Specifications

Outputs per Block		2 sourcing
Output Voltage Range		19 – 30V dc
On-state Voltage	Maximum	0.25V dc @ rated current
On-state Current	Maximum	2.0A per output @ 70°C
Module Current (all outputs on)	Maximum	4.0A per module ¹
Off-state Leakage Current	Maximum	1.5mA per output
Surge Current (per output)	Maximum	4.0A for 10ms, repeatable every 2s

General Specifications

Indicators		Mod/Net Status – red/green Input Fault – red I/O Status – yellow/red (customer field side driven)
DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA (no powered sensors) 200mA (full sensor load)
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Power Dissipation	Maximum	1.9 Watts
Thermal Dissipation	Maximum	6.9 BTU/hr

Specifications continued on next page



2 Input/2 Output Module – 1792-IB2XOB2E

Isolation Voltage	500V ac – outputs to DeviceNet 500V ac – outputs to inputs
Environmental Conditions	
Operational Temperature	–25 to 70°C (–13 to 158°F)
Storage Temperature	–40 to 85°C (–40 to 185°F)
Relative Humidity	up to 100%
Shock	30 g peak acceleration, 11(±1)ms pulse width
Operating	50 g peak acceleration, 11(±1)ms pulse width
Non-operating	
Vibration	Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors	Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure	Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification	• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

¹ Minimum wire size is 20 gauge.

Specifications

16 Input Module – Cat. No. 1792-IB16LP

Input Specifications

Inputs per Block	16 sinking
On-state Voltage Range	12–30V dc
On-state Current	Maximum Minimum
	15.0mA @ 30V dc 1.6mA @ 12V dc
Off-state Voltage	Maximum
	5V dc
Off-state Current	Minimum
	0.8mA
Transition Voltage	5–12.0V dc
Transition Current	0.8–2.2mA
Input Signal Delay	
Off to On or On to Off	1ms maximum
Sensor Source	Voltage
	Minimum 13V dc @ 800mA out and DeviceNet power = 15V dc
	Current
	50mA per point, 0.8A total per module
Indicators	Network Status – red/green Module Status – red/green Sensor Power Supply Status – green Module Power Supply Status – green Short Circuit Sensors – red I/O Status – yellow
Communication Rate in Baud	125k, 250k, 500k selectable

General Specifications

DeviceNet Power	Voltage	11.0 – 25.0V dc
	Current	100mA (no powered sensors) 900mA (full sensor load)
Dimensions	Inches	6.0H X 2.4W X 2.0D
	Millimeters	152H X 60W X 51D
Environmental Conditions		
Operational		0 to 60°C (32 to 140°F)
Temperature		–20 to 80°C (–40 to 176°F)
Storage Temperature		up to 100%
Relative Humidity		30 g peak acceleration, 11(±1)ms pulse width
Shock	Operating	50 g peak acceleration, 11(±1)ms pulse width
	Non-operating	Tested 10 g @ 10–500Hz per IEC 68-2-6
Vibration		
Conductors		Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure		Meets or exceeds IP67
Agency Certification		CE marked for all applicable directives



Specifications

8 Output Module – Cat. No. 1792-OB8PLP

Output Specifications

Outputs per Block	8 Sourcing Outputs – labeled 1A through 8A
Output Voltage Range	19–30V dc
On-state Current Maximum	2.0A per output at 60°C
On-state Voltage Maximum	3.0V dc at rated current
Module Current (all outputs on)	12.0A per module
Off-state Leakage Current	1.5mA maximum per output
Surge Current Maximum	4.0A for 10ms, repeatable every 2s
Indicators	Network Status – red/green Module Status – red/green Output Status – Yellow Output Fault – Red Module Power Supply Status – green
Communication Rate in Baud	125k, 250k, 500k software selectable

General Specifications

DeviceNet PowerVoltage Current	11.0 – 25.0V dc 100mA
Dimensions Inches Millimeters	6.8H X 2.4W X 2.0D 172.1H X 60W X 51D
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	0 to 60°C (32 to 140°F) –20 to 80°C (–4 to 176°F) up to 100% 30 g peak acceleration, 11(±1)ms pulse width 50 g peak acceleration, 11(±1)ms pulse width Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors	Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure	Meets or exceeds IP67
Agency Certification	CE marked for all applicable directives

Specifications

8 Input/8 Output Module – Cat. No. 1792-IB8XOB8PLP

Input Specifications

Inputs per Block	8 sinking inputs labeled 1, 3, 5, and 7
On-state Voltage Range	12–30V dc
On-state Current	Maximum 15.0mA @ 30V dc Minimum 1.6mA @ 12V dc
Off-state Voltage	Maximum 5V dc
Off-state Current	Minimum 0.8mA
Transition Voltage	5–12.0V dc
Transition Current	0.8–2.2mA
Input Signal Delay	Off to On or On to Off 1ms maximum
Sensor Source	Voltage Minimum 13V dc @ 400mA out and DeviceNet power = 15V dc Current 50mA per point, 0.4A total per module

Output Specifications

Outputs per Block	8 Sourcing Outputs – labeled 2, 4, 6 and 8
Output Voltage Range	19–30V dc
On-state Current Maximum	1.0A per output
On-state Voltage Maximum	3V dc at rated current
Module Current (all outputs on)	8.0A per module
Off-state Leakage Current	1.5mA maximum per output

General Specifications

Indicators	Network Status – red/green Module Status – red/green Sensor Supply Status – green Module Power Supply Status – green Short Circuit Sensor – red I/O Status – yellow
Communication Rate in Baud	125k, 250k, 500k software selectable
DeviceNet Power	Voltage 11.0 – 25.0V dc Current 100mA (no powered sensors); 500mA (full sensor load)
Dimensions	Inches 6.8H X 2.4W X 2.0D Millimeters 172.1H X 60W X 51D
Environmental Conditions	Operational Temperature 0 to 60°C (32 to 140°F) Storage Temperature –20 to 80°C (–40 to 176°F) Relative Humidity up to 100% Shock Operating 30 g peak acceleration, 11(±1)ms pulse width Non-operating 50 g peak acceleration, 11(±1)ms pulse width Vibration Tested 10 g @ 10–500Hz per IEC 68-2-6
Conductors	Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure	Meets or exceeds IP67
Agency Certification	CE marked for all applicable directives





1794-ADN DeviceNet FLEX I/O Adapter

The 1794-ADN DeviceNet FLEX I/O Adapter communicates with a DeviceNet scanner, allowing connectivity from field-based hard-wired I/O devices to the DeviceNet network.

FLEX I/O™ is a compact, modular I/O system that consists of I/O modules, terminal bases, and an adapter.

DeviceNet Features and Benefits

- supports I/O strobe, poll, cyclic, change-of-state, and peer-to-peer messaging
- up to 8 FLEX I/O modules may be connected to a single DeviceNet adapter
- interfaces up to 128 discrete I/O points or 64 analog channels per adapter to the DeviceNet network
- diagnostic status indicators for network and I/O
- adapter will automatically set itself to the appropriate communication rate when connected to the network (auto baud)
- adapter can provide diagnostics for failed or removed I/O modules

Product Features and Benefits

- individual components allow you to mix and match I/O types (ac/dc, input/output, analog or discrete) and termination styles (2 or 3 tier, screw terminal, or cage clamp)
- remove and insert I/O modules under backplane power
- can be mounted on a DIN rail

DeviceNet Details

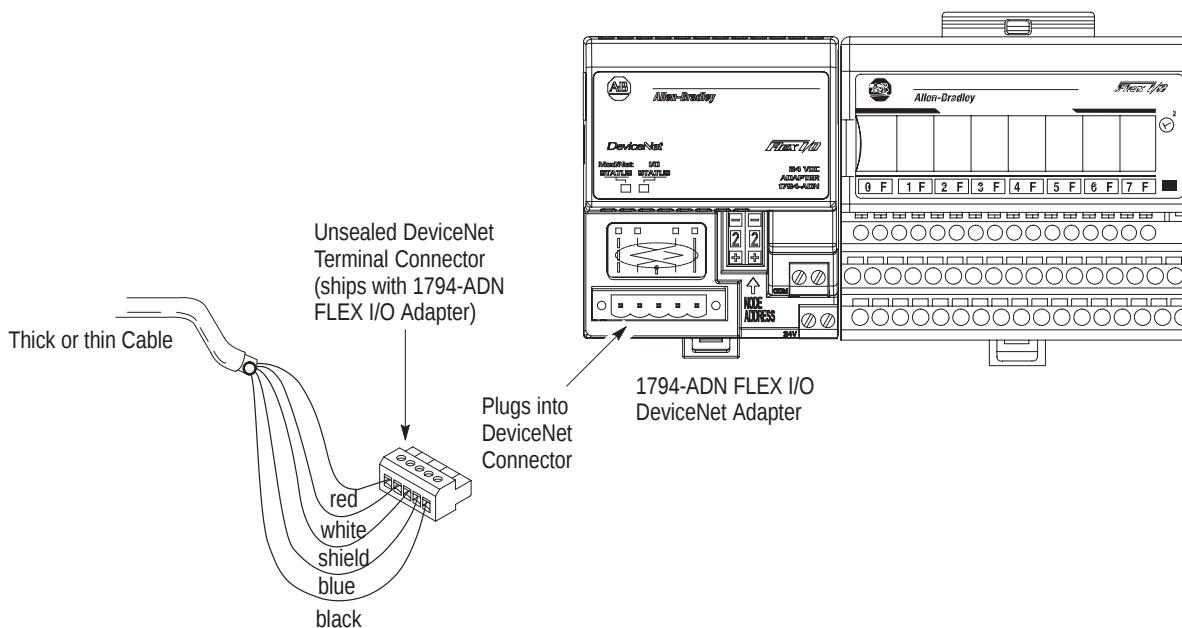
Device Type	Communication Adapter
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	Yes
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Data Rates	– Auto baud (default) or the network
Node Addresses	– Configurable with pushbutton switches
Configuration Data	Status word which includes 1 bit per FLEX module and input from each FLEX module, dependent on module type(s)
– Parameters	Dependent on options for specific modules with DeviceNetManager Software

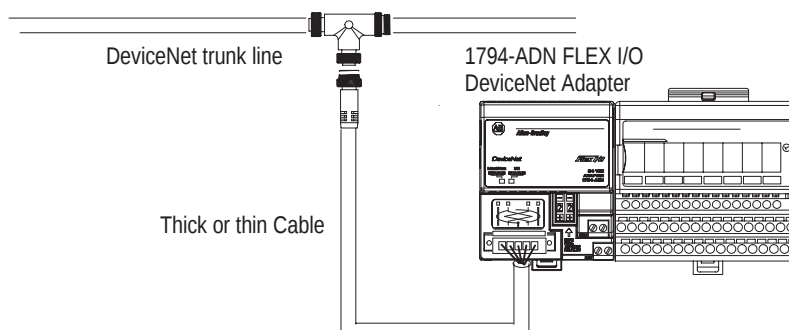
Physical Connection

The 1794-ADN DeviceNet FLEX I/O DeviceNet Adapter connects to the DeviceNet network as shown in the following example.



Network Topology

The 1794-ADN DeviceNet FLEX I/O DeviceNet Adapter fits into an example DeviceNet network as shown in the following figure.



Ordering Information

Description	Catalog Number
1794-ADN DeviceNet FLEX I/O Adapter	1794-ADN/B

FLEX I/O Modules Supported by the FLEX I/O DeviceNet Adapter

Module Type	Catalog Number	Description
120V ac Modules	1794-IA8	8 Input Module
	1794-OA8	8 Output Module
24V dc Modules	1794-IB16	16 Sink Input Module
	1794-IV16	16 Source Input Module
	1794-OB16	16 Source Output Module
	1794-OV16	16 Sink Output Module
	1794-OB8EP	Electronically Fused 8 Output Module
	1794-IB8S	Sink Sensor Input Module
	1794-IB10XOB6	10 Input/6 2A Output Module
	1794-IE8/B	Selectable Analog 8 Input Module
	1794-OE4/B	Selectable Analog 4 Output Module
	1794-IE4XOE2/B	4 Input/2 Output Analog Module
24V dc Source Modules	1794-IF4I	Source Isolated Analog 4 Input Module
	1794-OF4I	Source Isolated Analog 4 Output Module
	1794-IF2XOF2I	2 Input/2 Output Isolated Analog Module
	1794-OB16P	Source Output Module
Relay Module	1794-OW8	8 Relay Sink/Source Output Module
24V dc RTD Input Module	1794-IR8	RTD Input Module
	1794-IRT8	Thermocouple/RTD/mV Module
24V dc Thermocouple/mV Input Module	1794-IT8	Thermocouple/mV Input Module
	1794-IJ2	High Resolution Frequency Input Module
24V dc SCANport Module	1203-FM1	SCANport Module

Related Publications

Title	Publication Number
FLEX I/O Brochure	1794-1.16
FLEX I/O Product Data	1794-2.1
FLEX I/O DeviceNet Adapter Installation Instructions	1794-5.14
DeviceNet Adapter Module User Manual	1794-6.5.5

Specifications

Power Consumption	DeviceNet Current Draw External Requirements	90mA maximum 400mA maximum from external 24V supply (does not include power for driving field I/O circuits)
Indicators		Mod/Net status—red/green I/O status—red/green
I/O Capacity		8 modules any mix
Input Voltage Rating		24V dc nominal
Input Voltage Range		19.2V to 31.2V dc (includes 5% ac ripple)
Isolation Voltage		100% tested at 850V dc for 1s between user power and flexbus
Power Dissipation		7.6W maximum @ 19.2V dc
Thermal Dissipation		26 BTU/hr @ 19.2V dc
Power Conductors	Wire Size	12 gauge (4mm ²) stranded/3/64 in (1.2mm) insulation maximum; category 2 ^①
Dimensions (Depth x Width x Height)		87 x 68 x 69mm (3.4 x 2.7 x 2.7in)
Weight		0.2kg (0.4lb)
Environmental Conditions	Operating Temperature Storage Temperature Relative Humidity Shock: Operating Nonoperating Vibration	0 to 55°C (32 to 131°F) –40 to 85°C (–40 to 185°F) 5 to 95% (noncondensing) 30g peak accel/11(±1)ms pulse width 50g peak accel/11(±1)ms pulse width Tested 5g @ 10 to 500Hz per IEC 68-2-6
Agency Approval		  Class 1 Division 2 certified 

^① Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.





1771-SDN/B DeviceNet Scanner for the 1771 Chassis

The 1771-SDN DeviceNet scanner module is a single-slot module that resides in the 1771 I/O chassis and provides connection to two DeviceNet networks.

Multiple scanners can reside in the same I/O chassis, limited only by the I/O chassis size and power supply capacity.

DeviceNet Features and Benefits

- two independent DeviceNet channels: up to 63 slave devices each
- supports I/O strobe, poll, cyclic, and change-of-state messaging
- two seven-segment status displays for network and module diagnostics
- diagnostic faulted device failure table for PLC logic monitoring

Product Features and Benefits

- multiple scanners per I/O chassis: local, extended local, and remote chassis
- explicit messaging support allows editing device parameters from your PLC program
- cyclic data support allows you to define data refresh rates which is ideal for process applications
- change-of-state data support for high-speed applications where throughput and node prioritization is key
- communicates with PLC processors via discrete and block transfers over the 1771 backplane, ControlNet network, or over Remote I/O link

Compatible Processors and Adapters

The 1771-SDN module is a bi-directional block-transfer module that also supports discrete I/O transfers with 1/2 slot addressing of 24 bits and 1 slot addressing of 8 bits.

Data from DeviceNet devices can be user-mapped into discrete input block-transfer read areas or discrete output and block-transfer write areas.

Using Discrete IO Points for High-speed Discrete Inputs and Outputs

The following table describes chassis addressing modes and the number of discrete inputs and outputs assigned to the 1771-SDN Scanner Module slot.

Addressing Mode	Discrete Inputs	Discrete Outputs
1/2-slot	24	24
1-slot	8	8
2-slot	0	0



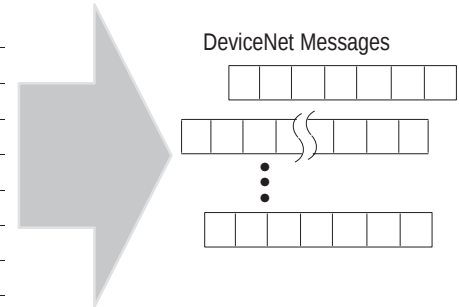
PLC Communication Support of DeviceNet Data

- supports up to 356 words of input/356 words of output data via block transfers from/to DeviceNet slave devices and communicates with PLC processors
- command/status word allows control and monitoring of each DeviceNet channel

Data Structure of Outputs to the Scanner Module

The PLC-5 processor downloads output data to the scanner module using block transfer write instructions over the 1771 backplane. The scanner module can update a maximum of 357 output words by internally linking together six different sized block transfers as shown in the following table.

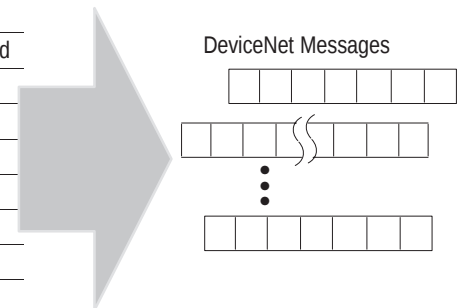
Block Transfer Size	Accessed Scanner Output Block	Scanner Output Data Table
62 words	Block 62	Word 0 – Module Command Register Word Words 1–61
61 words	Block 61	Words 62–122
60 words	Block 60	Words 123–182
59 words	Block 59	Words 183–241
58 words	Block 58	Words 242–299
57 words	Block 57	Words 300–356



Data Structure of Inputs from the Scanner Module

The PLC-5 uploads input data from the scanner using block transfer read instructions over the 1771 backplane. The scanner interprets BTRs of length 1 through 50 and 62 words as being from the first block of the scanner input table. The scanner module can update a maximum of 357 input words by internally linking together six different sized block transfers as shown in the following table.

Block Transfer Size	Accessed Scanner Input Block	Scanner Input Data Table
62 words	Block 62	Word 0 – Module Status Register Word Words 1–61
61 words	Block 61	Words 62–122
60 words	Block 60	Words 123–182
59 words	Block 59	Words 183–241
58 words	Block 58	Words 242–299
57 words	Block 57	Words 300–356



Explicit Message Program Control

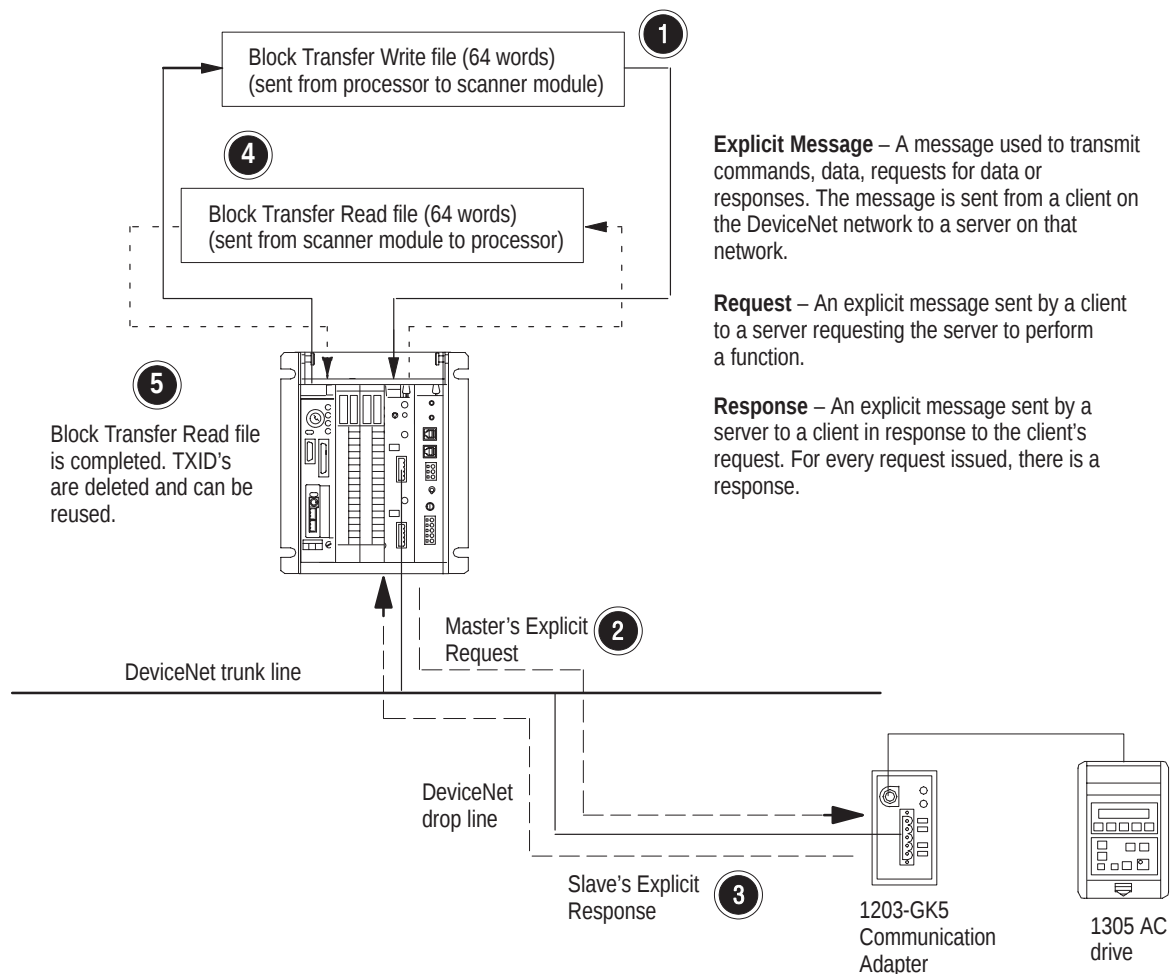
Use the Explicit Message Program Control feature to configure device parameters on your DeviceNet network via the ladder logic program in the PLC-5 processor that is controlling these devices.

You can use Explicit Message Program Control only with devices that are slaves of your 1771-SDN Scanner Module. These slave devices must be mapped in the scanner module's scan list.

Use the Explicit Message Program Control feature to:

- transmit configuration data from your scanner module to its slave devices on your DeviceNet network
- receive status and diagnostics from these devices on your DeviceNet network
- make runtime adjustments to device parameters according to changing conditions detected by your processor

How the Explicit Message Program Control Feature Works



DeviceNet Details

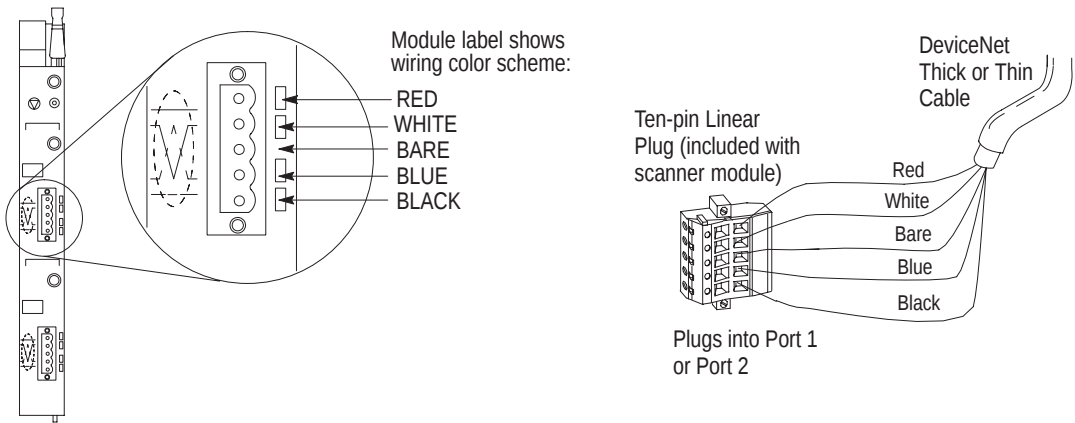
Device Type	Communication Adapter
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Data Rates and Node Addresses	Configurable via Network or dip switches
Configuration Data – Parameters	Strobe and poll Complete data mapping between block transfer and I/O image tables and DeviceNet devices Background poll rate Strobe or poll for each node

Physical Connection

The 1771-SDN/B DeviceNet Scanner module connects to the DeviceNet network as shown in the following figure.

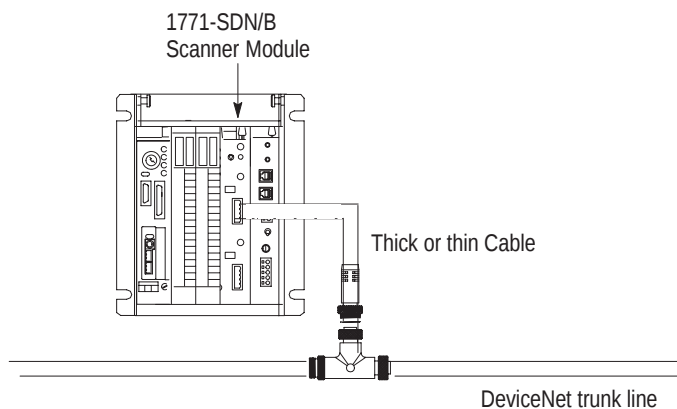


1771-SDN/B Scanner Module

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Network Topology

The 1771-SDN/B DeviceNet Scanner module fits into an example network as shown in the following figure.



Ordering Information

Description	Catalog Number
1771-SDN/B DeviceNet Scanner Module	1771-SDN/B

Related Publications

Title	Publication Number
1771-SDN Scanner Module Installation Instructions	1771-5.14
DeviceNet Scanner Configuration Manual	1771-6.5.118
DeviceNetManager Software User Manual	1787-6.5.3

Specifications

Power Consumption	DeviceNet Current Draw	90mA max. per channel
	Backplane Current Draw	1.2A @ 5V dc maximum
Messaging Capabilities	Master	Poll and strobe
	Explicit	Initiate and respond
Isolation Voltage		Optical Isolation between: • Backplane and Channel 1 • Backplane and Channel 2 • Channel 1 and Channel 2 1 M Ω resistor from Channels 1 and 2 to chassis
Module Location		1771-A1B through -A4B or later I/O chassis, any slot except left-most
Environmental Conditions	Operating Temperature	0 to 60°C (32 to 140°F)
	Storage Temperature	-40 to 85°C (-40 to 185°F)
	Relative Humidity	5 to 95% (noncondensing)
	Shock Unpackaged	
	Operating	30g
	Nonoperating	50g
	Vibration Unpackaged	5g from 10 to 500Hz
Dimensions (HxWxD)		270 x 30 x 170 (10.6 x 1.2 x 6.7)
Weight		0.9kg (1.9lb)
Agency Approval		 508  Class 1 Division 2 certified 



1747-SDN/B DeviceNet Scanner for the SLC Chassis

The 1747-SDN DeviceNet scanner is a single-slot module that resides in the SLC modular chassis and provides connection to the DeviceNet network.

Multiple scanners can reside in the same SLC chassis, limited only by the chassis size and power supply capacity.

DeviceNet Features and Benefits

- one channel per scanner: up to 63 slave devices
- supports I/O strobe, poll, cyclic, and change-of-state messaging
- seven-segment status display for network and module diagnostics
- diagnostic faulted device failure table for SLC logic monitoring

Product Features and Benefits

- multiple scanners per SLC modular chassis
- explicit messaging support allows editing device parameters from your SLC program
- cyclic data support allows you to define data refresh rates which is ideal for process applications
- change-of-state data support for high-speed applications where throughput and node prioritization is key
- communicates with SLC processors via discrete and/or M1/M0 file transfers over the chassis backplane

Compatible Processors and Adapters

You can use the 1747-SDN module in a local SLC chassis with an SLC 5/02, 5/03, or 5/04 processor in the leftmost slot.

The 1747-SDN module is compatible with the 1746-A4, -A7, -A10, and -A13 SLC chassis.

Data from DeviceNet devices can be user-mapped into discrete input and M1 read file areas or M0 write file and discrete output areas.

SLC Communication Support of DeviceNet Data

- supports up to 256 words of input/256 words of output data from/to DeviceNet slave devices and communicates with SLC processors via M1/M0 file transfers
- additionally supports up to 32 words from/to DeviceNet slave devices and communicates with SLC processors via discrete transfers
- can operate as a master to slave devices while operating as a slave to a remote master at the same time



SLC Module Data Organization

The module has four data areas to transfer data, status and command information between the module and the processor:

- SLC input image table
- SLC output image table
- SLC M1 file
- SLC M0 file

Input and Output Image Tables

The following table describes the mapping of the 1747-SDN input and output image tables and the M1 and M0 files.

Words	SLC Input Image	Words	SLC Output Image
0	Status	0	Command
1–31	DeviceNet Input Data (31 words)	1–31	DeviceNet Output Data (31 words)

Words	SLC M1 File	Words	SLC M0 File
0–149	DeviceNet Input Data (150 words)	0–149	DeviceNet Output Data (150 words)
150–209	Reserved (60 words)	150–223	Reserved (74 words)
210	Node Address/Status Indicator (1 word)		
211	Scan Counter (1 word)		
212–215	Device Idle Table (4 words)		
216–219	Device Failure Table (4 words)		
220–223	Auto Verify Failure Table (4 words)		
224–255	Explicit Message Program Control (32 words)	224–255	Explicit Message Program Control (32 words)

Explicit Message Program Control

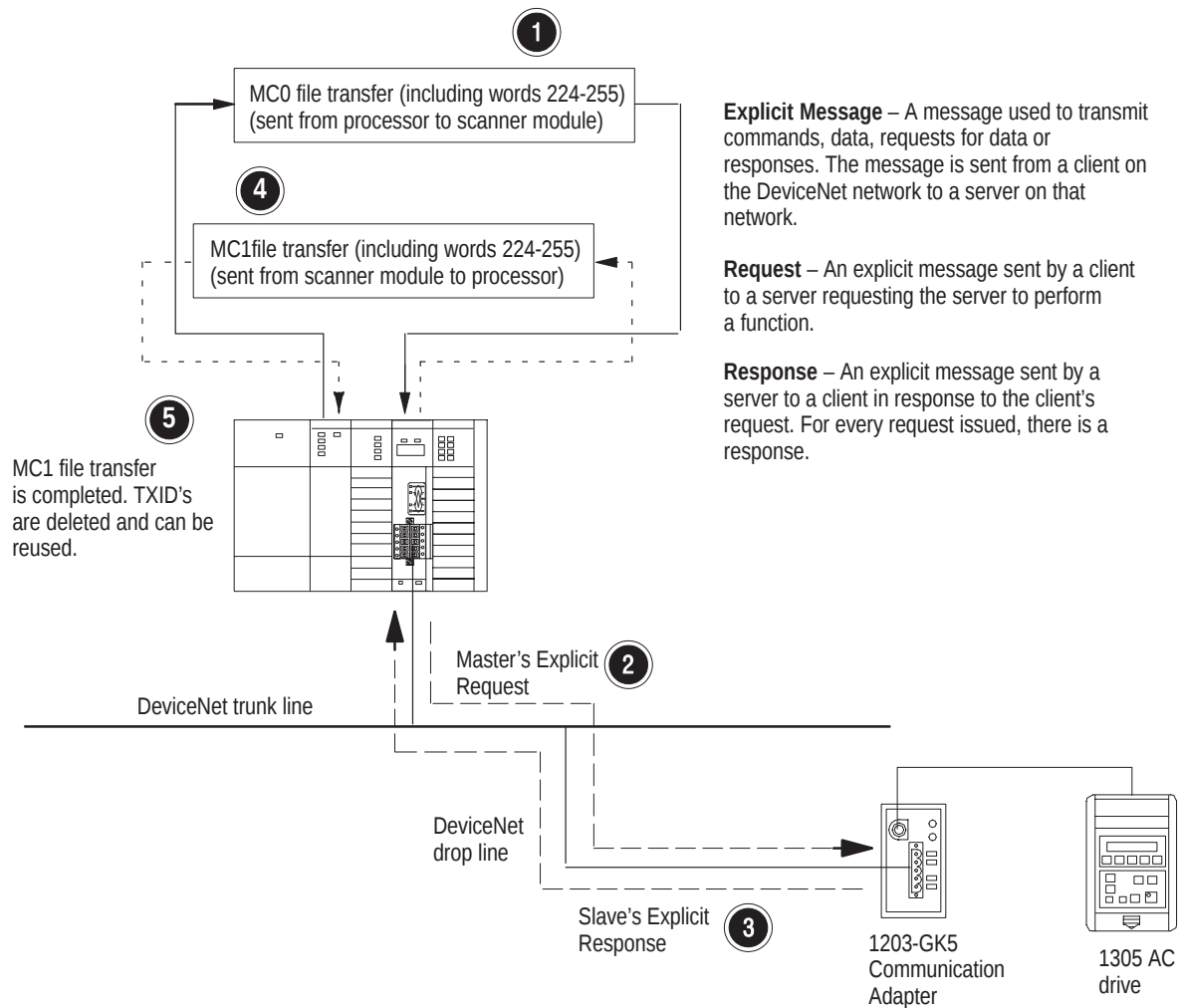
Use the Explicit Message Program Control feature to configure device parameters on your DeviceNet network via the M0 and M1 files in the SLC processor that is controlling these devices.

You can use Explicit Message Program Control only with devices that are slaves of your 1747-SDN Scanner Module. These slave devices must be mapped in the scanner module's scan list.

Use the Explicit Message Program Control feature to:

- transmit configuration data from your scanner module to its slave devices on your DeviceNet network
- receive status and diagnostics from these devices on your DeviceNet network
- make runtime adjustments to device parameters according to changing conditions detected by your processor

How the Explicit Message Program Control Feature Works



DeviceNet Details

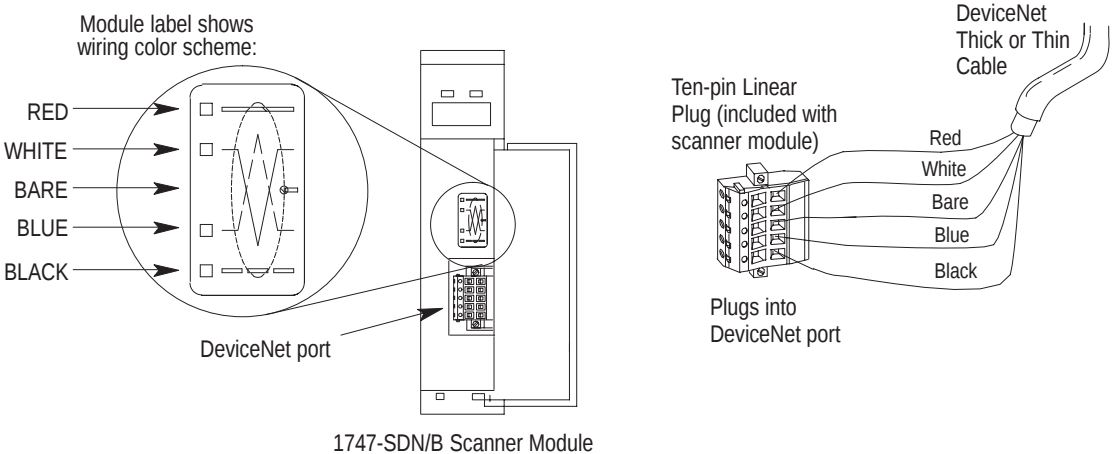
Device Type	1747-SDN/B DeviceNet Scanner Module
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Data Rates and Node Addresses	Network or dip switches
Configuration Data – Parameters	Strobe and poll Complete data mapping between block transfer and I/O image tables and DeviceNet devices Background poll rate Strobe or poll for each node

Physical Connection

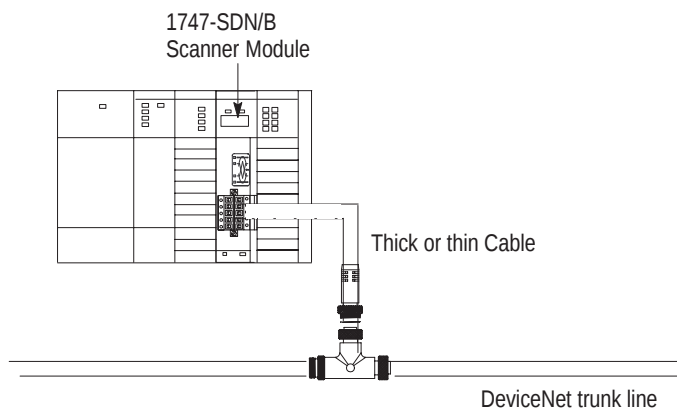
The 1747-SDN/B DeviceNet Scanner module connects to the DeviceNet network as shown in the following figure.



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Network Topology

The 1747-SDN/B DeviceNet Scanner module fits into an example network as shown in the following figure.



Ordering Information

Description	Catalog Number
1747-SDN/B DeviceNet Scanner Module	1747-SDN/B

Related Publications

Title	Publication Number
1747-SDN Scanner Module Installation Instructions	1747-5.8
DeviceNet Scanner Configuration User Manual	1747-6.5.2
DeviceNetManager Software User Manual	1747-6.5.3

Specifications

Module Location	SLC 5/02, 5/03 or 5/04 chassis
Module Defaults	Node Address – 63 Baud Rate – 125 Kbits/s
Backplane Current	500 mA @ 5Vdc
DeviceNet Power Requirements	90mA each channel (maximum)
Isolation Voltage	Optical Isolation between backplane and DeviceNet channel 1 Megohm resistor from DeviceNet channel to chassis
Environmental Conditions:	
Operational Temperature	0-60°C (32-140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5-95% without condensation
Shock Unpackaged	30g operational 50g non-operational
Weight	0.3kg (0.6lb)
Vibration Unpackaged	5g from 10-150Hz
Immunity Radiated Fields	10V/m 27mHz-1000mHz
Agency Certification	•   Class 1 Division 2, groups A, B, C, I •  marked for all applicable directives



DTAM Plus and DTAM Micro Operator Interface

The DTAM Plus™ and the DTAM Micro™ Operator Interfaces use an Off-Line Software Development Package to create display screens that depict register information, prompt you for data, or facilitate recipe downloading.

DeviceNet Features and Benefits

- provides an interface to a PLC-5 scanner (1771-SDN) or an SLC 500 scanner (1747-SDN)

Product Features and Benefits

- 4-line by 20-character VFD or backlit LCD display for viewing datatable information and operator prompts (DTAM Plus)
- 2-line by 20-character backlit LCD display for viewing datatable information and operator prompts (DTAM Micro)
- 8K or 40K memory option available for supporting up to approximately 50 or 244 user screens
- data scaling in standard engineering units allows for the display of data as numeric values or bar graphs
- user-developed screens provide menu-type operations with operator prompts
- configurable communication port

DeviceNet Details

Device Type	General Device
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	No

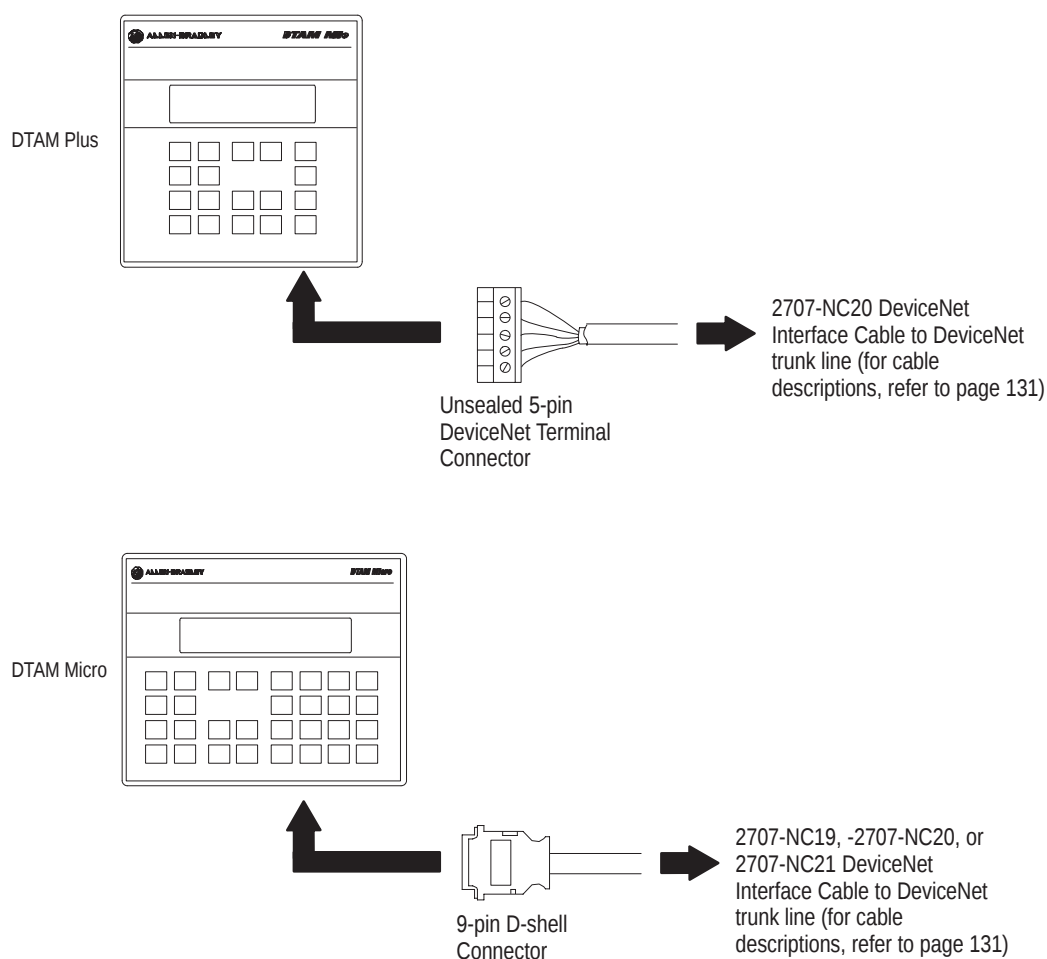
Configuration Information

Configure:	By using:
Node Addresses and Data Rates	Communication Port Programming Software – 2707-NP



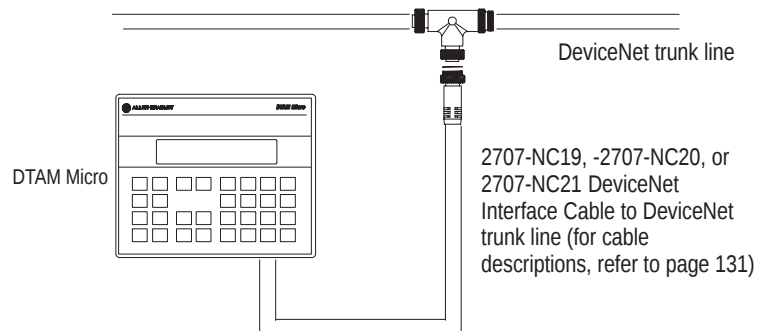
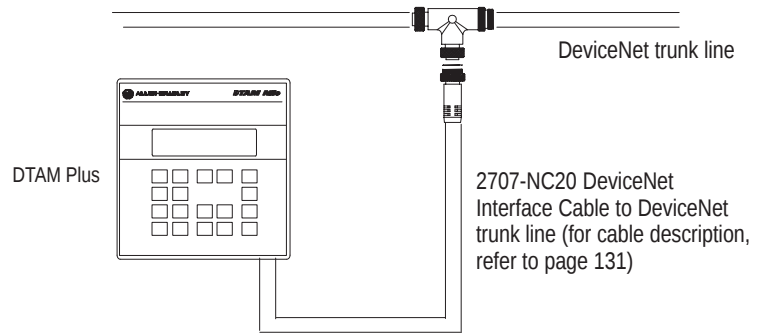
Physical Connection

You need the following components to connect DTAM Plus and Micro Operator Interface to the DeviceNet network.



Network Topology

The DTAM Plus and Micro Operator Interfaces fit into an example networks as shown in the following figures.



Ordering Information

DTAM Plus Operator Interface Type	Catalog Number
Four-line LCD display, 8K memory, P1 power supply (20-30Vdc)	2707-L8P1D
Four-line LCD display 8K memory, P2 power supply (110-340Vac)	2707-L8P2D
Four-line LCD display, 40K memory, printer port, real-time clock, P1 power supply	2707-P40P1D
Four-line LCD display, 40K memory, printer port, real-time clock, P2 power supply	2707-P40P2D
Four-line VFD display, 40K memory, printer port, real-time clock, P1 power supply	2707-V40P1D
Four-line VFD display, 40K memory, printer port, real-time clock, P2 power supply	2707-V40P2D
VFD display, 40K memory, printer port, real-time clock, NEMA type 4X rating, P2 power supply	2707-V40P2ND
DeviceNet Interface Cable	Catalog Number
Connects DTAM Plus to DeviceNet network with bare wires (for taps and open-style connectors)	2707-NC20

DTAM Micro Operator Interface Type	Catalog Number
Two-line LCD display, 11-25Vdc power supply	2707-M232P3D
DeviceNet Interface Cables	Catalog Number
Connects DTAM Micro to DeviceNet network with male sealed micro connector	2707-NC19
Connects DTAM Micro to DeviceNet network with bare wires (for taps and open-style connectors)	2707-NC20
Connects DTAM Micro to DeviceNet network with female sealed micro connector	2707-NC21

Related Publications

DTAM Plus – Title	Publication Number
DTAM Plus Product Data	2707-2.0
DTAM Plus User Manual	2707-800.5
DTAM Programming Software User Manual	2707-801
DTAM Plus Programming Software Document Update	2707-801.7
DTAM Micro Product Data	2707-2.3
Devicenet Cale Systems Planning and Installation Manual	DN-6.7.2

Related Publications

DTAM Micro – Title	Publication Number
DTAM Micro Products Data Sheet	2707-2.3
DTAM Micro Operator Interface User Manual	2707-803
DTAM Programming Software User Manual	2707-801
DTAM Programming Software Document Update	2707-801.10
Devicenet Cale Systems Planning and Installation Manual	DN-6.7.2

Specifications

DTAM Plus Operator Interface		
Power Consumption		
DeviceNet Current Draw	800mA max.	
Operating Voltages		
P1 Designation		
15-23Vac, 47-440Hz		
20-30Vdc, 800mA max., 1A fuse		
P2 Designation		
85-265Vac, 47-440Hz		
110-340Vdc, 300mA max., 1/2A fuse		
P3 Designation		
11-13Vdc		
250mA max., 1/2A fuse		
Input Voltage Range	11 to 25Vdc	
Input Current	1.8W maximum	
Measurements (Depth x Width x Height)	47.5 x 139.7 x 193.0mm (1.8 x 5.5 x 7.6in)	
Front Panel Size		
Height – 215.9mm (8.5in)		
Width 165.1mm (6.5in)		
Memory		
8K-byte option supports approx. 50 application screens		
40K-byte option supports approx. 244 application screens		
Display		
Type	– VFD (Vacuum Fluorescent Display)	
	– LCD Liquid Crystal Display)	
Column and Character	4-line by 20-characters	
Character Size	4.75 x 2.95mm (0.19 x 0.12 in)	
Character Format	5 x 8 mm dot matrix	
Contrast	Fixed	
Display Viewing Area	25 x 76mm (1.0 x 3.0in)	
Viewing Angle	Horizontal ±30°, Vertical –20° to 30°	
Keypad		
Type	Tactile-embossed, domed keys, sealed membrane	
Operation Force	453 grams (16oz)	
Operational Life	1 million operations	
Communication Connection	Unsealed 5-pin DeviceNet Terminal Connector	
Environmental Conditions		
Operating Temperature	0 to 55°C (32 to 131°F)	
Storage Temperature	–20 to 70°C (–4 to 158°F)	
Relative Humidity	5 to 95% (without condensation)	
Shock	30g (operating)	
Vibration	50g (non-operating)	
Agency Approval		
  		



Specifications

DTAM Micro Operator Interface		
Power Consumption		
DeviceNet Current Draw		215 mA
Operating Voltages	P1 Designation 15-23Vac, 47-440Hz 20-30Vdc, 800mA max., 1A fuse P2 Designation 85-265Vac, 47-440Hz 110-340Vdc, 300mA max., 1/2A fuse P3 Designation 11-13Vdc 250mA max., 1/2A fuse	
Input Voltage Range		11 to 25Vdc
Input Current		1.8W maximum
Measurements (Depth x Width x Height)		47.5 x 139.7 x 193.0mm (1.8 x 5.5 x 7.6in)
Front Panel Size		Height – 137.2mm (5.4in) Width 175.3mm (6.9in)
Memory		8K-byte option supports approx. 50 application screens 40K-byte option supports approx. 244 application screens
Display	Type LCD with LED backlighting Column and Character 2-line by 20-characters Character Size 4.75 x 2.95mm (0.19 x 0.12 in) Character Format 5 x 8 mm dot matrix Contrast Fixed Display Viewing Area 25 x 76mm (1.0 x 3.0in) Viewing Angle Horizontal $\pm 30^\circ$, Vertical -20° to 30°	
Keypad	Type Tactile-embossed, domed keys, sealed membrane Operation Force 453 grams (16oz) Operational Life 1 million operations	
Communication Connection		Unsealed 5-pin DeviceNet Terminal Connector
Environmental Conditions	Operating Temperature 0 to 55°C (32 to 131°F) Storage Temperature -20 to 70°C (-4 to 158°F) Relative Humidity 5 to 95% (without condensation) Shock 30g (operating) Vibration 50g (non-operating)	
Certifications		NEMA Type 4, 12, 13 (indoor) Class 1 Division 2
Agency Approval	  	



DeviceView Hand-Held Configurator

The DeviceView™ Hand-Held Configurator encapsulates the vital functions of DeviceNetManager software into this mobile tool to configure and troubleshoot your DeviceNet network.

DeviceNet Features and Benefits

- communicates with any device on the network
- configuration of devices on the network
- holds multiple Electronic Data Sheet (EDS) files for device configuration in on-board memory
- downloads EDS files to the unit
- enhances troubleshooting on the DeviceNet network with the diagnostic features
- set node address and communication rate for devices without hardware switches (node commissioning)

Hand-Held Configurator Usage Modes

In Enhanced Mode, you use the EDS files that you've downloaded to the hand-held configurator to provide the structure of the configuration data inside the DeviceNet device.

In Basic Mode, you communicate with a device using the native DeviceNet class, instance, and attribute addressing scheme. This mode is useful in cases where the EDS files are not available.



DeviceNet Details

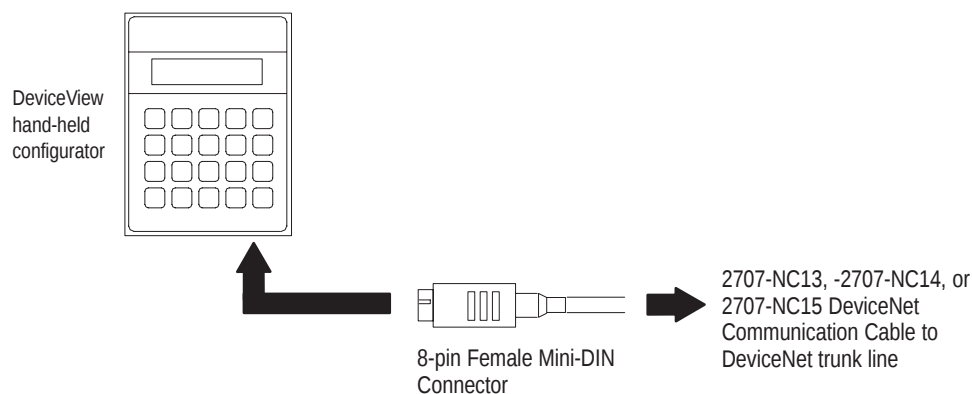
Device Type	Operator Interface
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
I/O Slave Messaging	
Master/Scanner	No
• Bit Strobe	No
• Polling	No
• Cyclic	No
• Change-of-State (COS)	No

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	RS-232 Communication Port

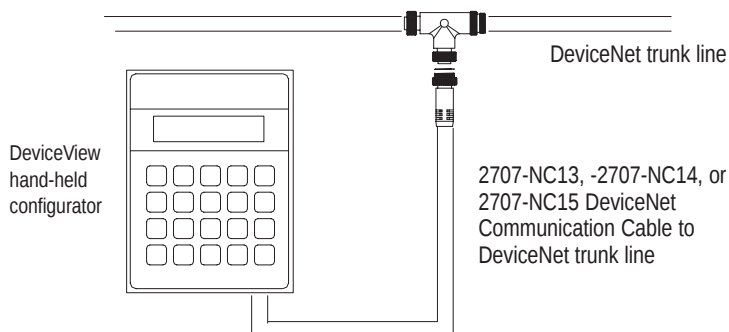
Physical Connection

You need the following components to connect the DeviceView Hand-Held Configurator to the DeviceNet network.



Network Topology

The DeviceView Hand-Held Configurator connects to an example DeviceNet network as shown in the following figure.



Ordering Information

Hand-Held Configurator Type	Catalog Number
DeviceView configurator	2707-DNC
DeviceView downloader software	2707-DP1
Network cable with bare leads, 1m (3ft)	2707-NC13
Network cable with female micro-connector, 1m (3ft)	2707-NC14
Network cable with male micro-connector, 1m (3ft)	2707-NC15
Upload/download cable	2707-NC8
120V ac power supply, ac to dc adapter	2707-PS120
220V ac power supply, ac to dc adapter	2707-PS220

Related Publications

Title	Publication Number
DeviceView Configurator Brochure	2707-1.5
DeviceView Configurator User Manual	2707-806



Specifications

MicroView Operator Interface		
Power Consumption	DeviceNet Current Draw	1.8W
Input Voltage Range		11 to 25Vdc
Input Current		164 mA @ 11V 72 mA @ 25V
Measurements (Depth x Width x Height)		24.8 x .90.2 x 129.5mm (0.975 x 3.6 x 5.1in)
Weight		0.2kg (0.44lb)
Front Panel Size		Height – 137.2mm (5.4in) Width 175.3mm (6.9in)
Display	Type	LCD with yellow/green LED backlighting
	Column and Character	2-line by 16-characters
	Character Size	5.6 x 3mm (0.22 x 0.12 in)
	Character Format	5 x 7 mm dot matrix
	Contrast	Fixed
	Display Viewing Area	15 x 60mm (0.58 x 2.35in)
	Viewing Angle	Horizontal $\pm 30^\circ$, Vertical -20° to 30°
Keypad	Type	Tactile-embossed, domed keys, sealed membrane
	Operation Force	453 grams (16oz)
	Operational Life	1 million operations
Communication Connection		8-pin female mini DIN connector
Environmental Conditions	Operating Temperature	0 to 55°C (32 to 131°F)
	Storage Temperature	-20 to 70°C (-4 to 158°F)
	Relative Humidity	5 to 95% (without condensation)
	Shock	30g (operating)
	Vibration	50g (non-operating)
Certifications		UL C-UL
Agency Approval		  



DeviceNet PCMCIA Interface Card

The DeviceNet PC card is a PCMCIA communication interface that enables a Windows or MS-DOS-compatible computer (typically a notebook computer) to communicate on the DeviceNet network.

DeviceNet Features and Benefits

- automatically establishes its communication rate to match the rate already established on the network (auto baud)
- automatically establishes its node address as the next available address on the network (*auto address*)

Product Features and Benefits

- plugs directly into the Type II PCMCIA slot of your computer
- compatible with A-B *WinDNet16*TM protocol engine
- ideal for use with DeviceNetManager software and other *WinDNet16* applications, such as the DeviceNet monitor tool (9240-MONI6)
- all electronics housed in pc card
- no mechanical switches for configuration
- Microsoft® Windows 3.1 and Windows 95 drivers included
- pc card cable to linear 5-pin header supplied
- FLASH upgradable for support of future enhancements

DeviceNet Details

Device Type	General Device
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	Yes
Configuration consistency Value	Yes
Faulted Node Recovery	Yes
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

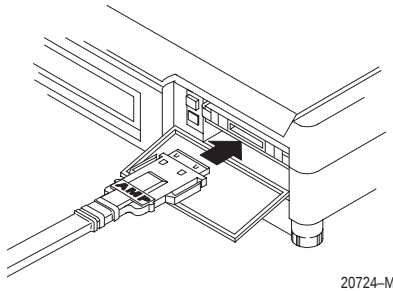
Configure:	By using:
Node addresses and data rates	WinDNet16 software



Physical Connection

You need the following components to connect the DeviceNet PC card to the DeviceNet network.

Important: The following diagrams show a PCMCIA 2.1 compliant system. If you are using another computer, your installation may appear slightly different.



The silver side should face upward as you connect the cable to the 1784-PCD card.

1. Attach the smaller end of the 1784-PCD1 cable to the 1784-PCD card.

2. Attach the other end of the 1784-PCD1 cable to the linear plug or cable you are using.

You can connect the card to the DeviceNet network using a	Catalog or Part No. ^À	See figure
5-pin probe cable	1787-PCABL	[1]
sealed mini-male cable	1787-MCABL	[2]
5-pin linear plug without jack screws	PN 94215305	[3] ^À
T-style cable	1787-TCABL	[4] on page 140

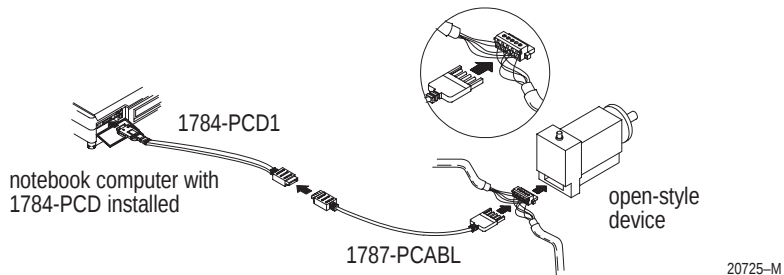
^À You purchase the cables separately from Allen-Bradley.

^À This plug is supplied with the 1784-PCD card.

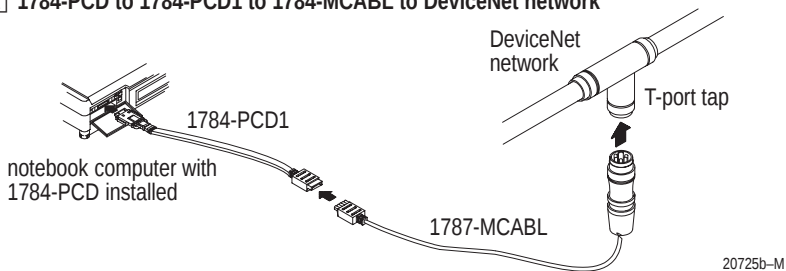
Network Topology

The DeviceNet PC card connects to an example DeviceNet network as shown in the following figure.

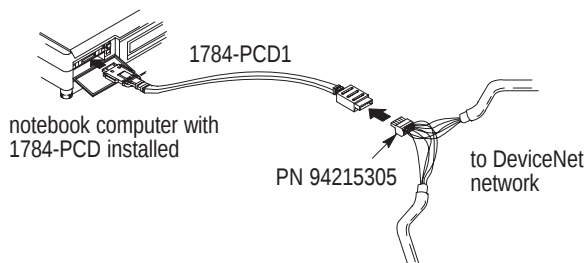
1 1784-PCD to 1784-PCD1 to 1784-PCABL to DeviceNet network



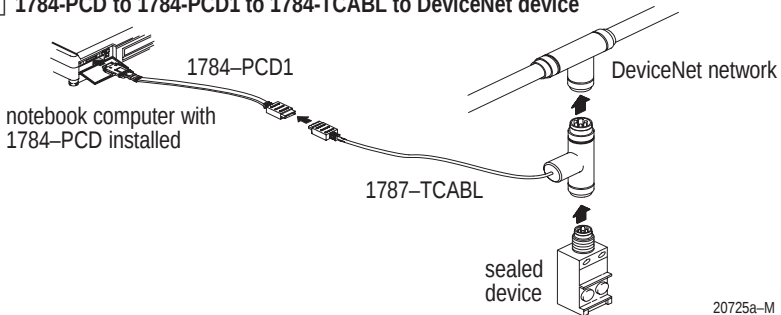
2 1784-PCD to 1784-PCD1 to 1784-MCABL to DeviceNet network



3 1784-PCD to 1784-PCD1 to 5-pin linear plug (PN 94215305) DeviceNet network



4 1784-PCD to 1784-PCD1 to 1784-TCABL to DeviceNet device



Ordering Information

PC Card Type	Catalog Number
Open-style 5-pin probe cable, 2.5m (8ft)	1787-PCABL
Sealed-style T-style cable, 2m (6ft)	1787-TCABL
Sealed mini-male cable, 2m (6ft)	1787-MCABL

Related Publications

Title	Publication Number
DeviceNet PC Card Installation Instructions	1784-5.29

Specifications

PCMCIA Type	Type II form-factor network adapter card
PCMCIA Standard	Compliant to PCMCIA Standard, release 2.1
Card and Socket Services Standard	Compliant to PCMCIA Card and Socket Services Standard, revision 2.1
Power Consumption	
DeviceNet Current Draw	90mA @ 25V
External Power Requirements (PC)	275mA @ 5V
Slot Temperature	
Operating	0 to 50°C (32 to 122°F)
Non-operating	-40 to 85°C (-40 to 185°F)
Humidity	5 to 95% (without condensation)
Vibration	10 to 70Hz, constant 0.012 in displacement 70 to 500Hz, constant 2g acceleration
Shock	
Operating	30g peak/11ms
Non-operating	50g peak/11ms
Operating Voltage	110 to 220V 50/60Hz
Weight	Card – 40g (0.1 lb) Cable – 40g (0.1 lb)
Agency Approval	  



RS-232 Personal Computer Interface

The RS-232 personal computer interface module connects to the RS-232 serial port of your pc-compatible laptop, desktop, notebook computer, or other serial device establishing your computer as a node on the DeviceNet network.

DeviceNet Features and Benefits

- establish the RS-232 module as a permanent node on the network or carry it (with your PC) as a portable device from network to network for troubleshooting and maintenance
- supports point-to-point connections for downloading configuration information – a host computer can perform parameter or node configuration on a device
- compatible with A-B *WinDNet16* protocol engine
- ideal for use with DeviceNetManager software and other *WinDNet16* applications
- can supply power (up to 100mA @ 12V dc) to devices for one-on-one configuration if required
- FLASH upgradable for support of future enhancements

DeviceNet Details

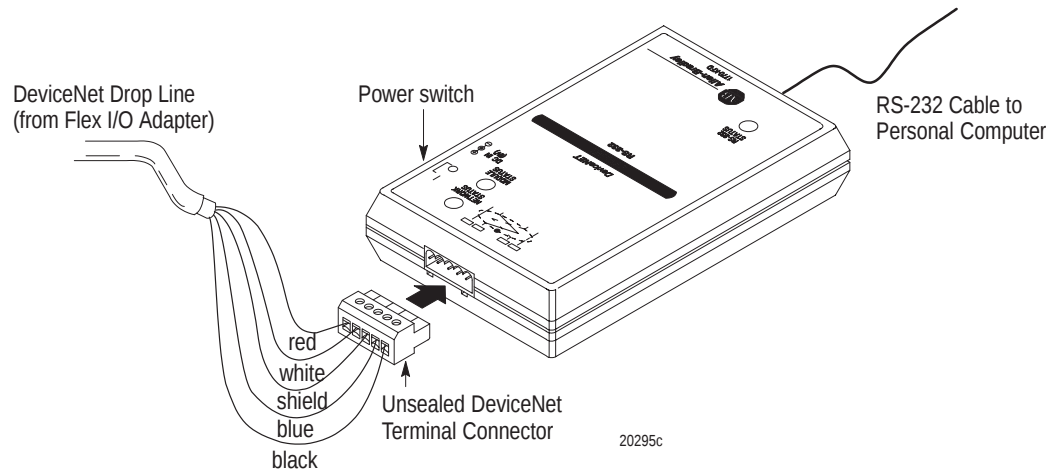
Device Type	Computer Interface
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	Yes
Configuration consistency Value	Yes
Faulted Node Recovery	Yes
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:		By using:
Node Addresses		DeviceNetManager Software
Communication Rates	Serial Selectable	9.6k bit/s, 19.2k bit/s, 38.4k bit/s, 57.6k bit/s
	DeviceNet Selectable	125k bit/s, 250k bit/s, 500k bit/s
Typical	Network Connection	connecting the RS-232 module to a multi-node DeviceNet network
	Point-to-Point Connection	connecting the RS-232 module to a device creating a two node DeviceNet network

Physical Connection

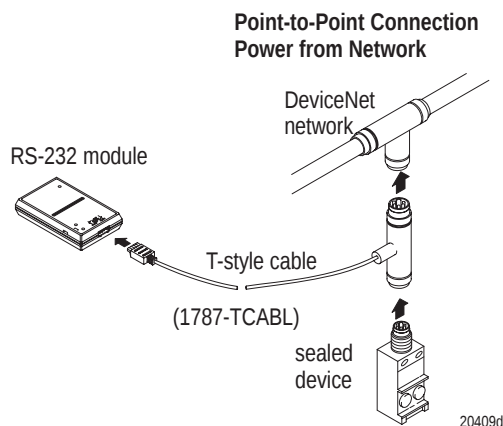
The RS-232 personal computer interface module connects to the DeviceNet network as shown in the following figure.



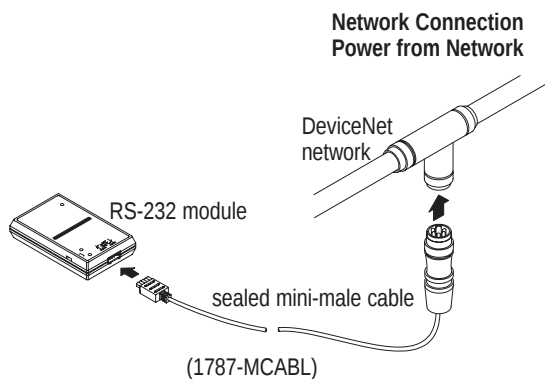
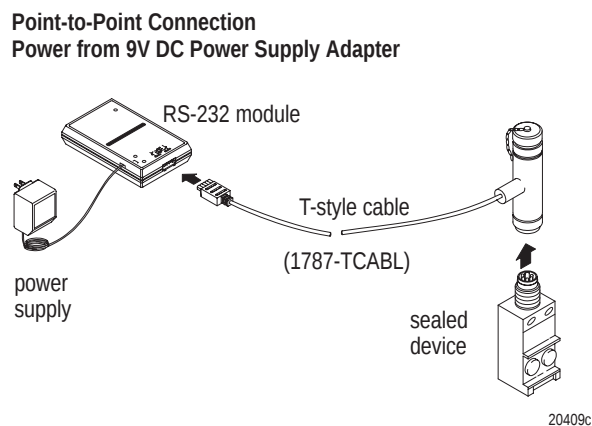
Network Topology

The RS-232 personal computer interface module can attach to the DeviceNet network a number of different ways as shown in the following figure.

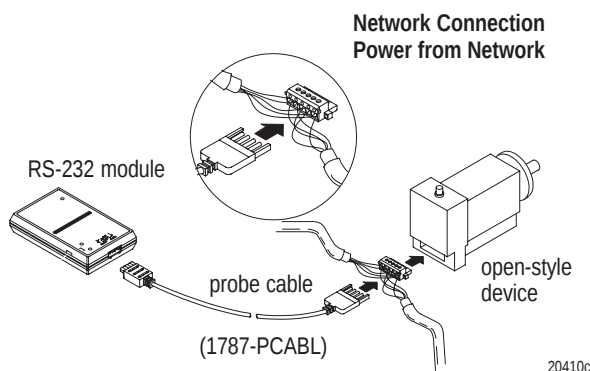
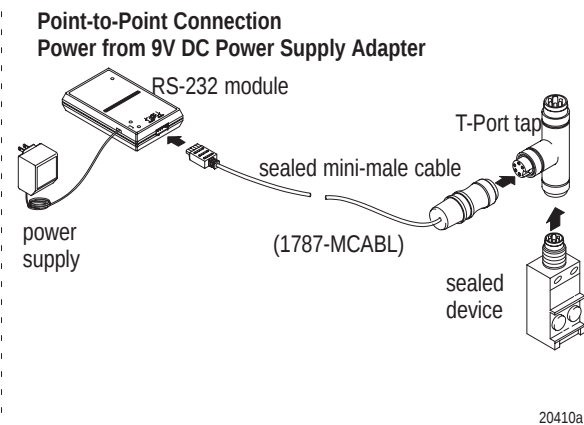
RS-232 Module Connections



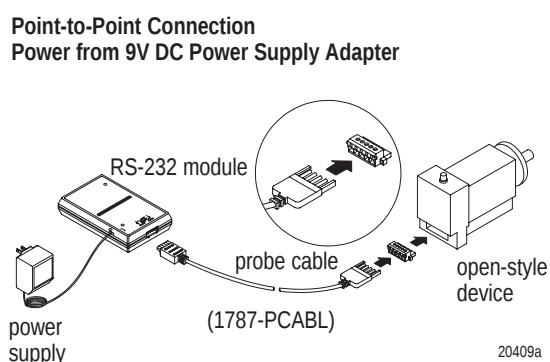
T-Style Cable



Sealed Mini-Male Cable

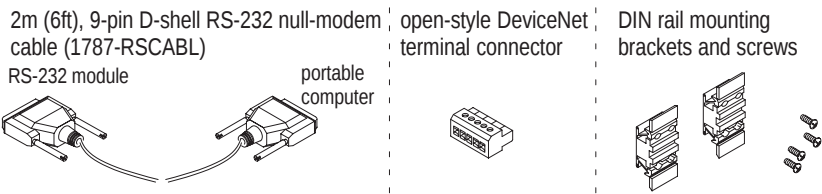


Probe Cable

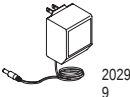
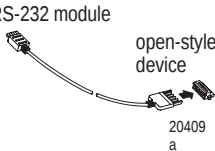
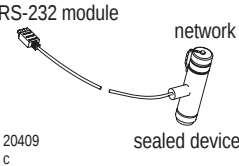
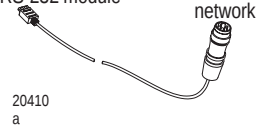


Allen-Bradley

RS-232 Module Components



You can order these options with the RS-232 module. The following table describes those options.

Option	Separately
DeviceNet RS-232 PC Interface Module Installation Instructions  shipped free-of-charge but must be requested	Pub. 1770-5.6
U.S. 9V dc power-supply adapter (120V ac)  supplies power to RS-232 module and device in point-to-point connections	1787-USADPTR
an 2.5m (8ft), 5-pin probe cable  connects the RS-232 module to an open-style device	1787-PCABL
a 2m (6ft), T-style cable  connects the RS-232 module to a DeviceNet device for point-to-point connection via a sealed T-Port tap (also used when power is supplied from the RS-232 module via a wall adapter)	1787-TCABL
a 2m (6ft), sealed mini-male cable  connects the RS-232 module to the network via a sealed T-Port tap	1787-MCABL

Ordering Information

Product Information	Catalog Number
RS-232 Personal Computer Interface	1770-KFD
U.S. 9V dc power-supply adapter	1787-USADPTR
Global 9V dc power-supply adapter (only available with 1770-KFDG module)	1770-KFDG
Open-style 5-pin probe cable, 2.5m (8ft)	1787-PCABL
Sealed-style T-style cable, 2m (6ft)	1787-TCABL
Sealed mini-male cable, 2m (6ft)	1787-MCABL

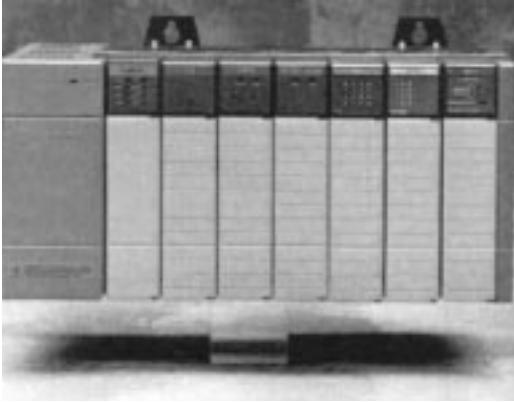
Related Publications

Title	Publication Number
DeviceNet RS-232 Interface Module Installation Instructions	1770-5.6
DeviceNetManager Software User Manual	1787-6.5.3
DeviceNet Cable System Planning & Installation Manual	DN-6.7.2

Specifications

Power Consumption	DeviceNet Current Draw AC Wall Adapter DeviceNet Current Supply	700mA @ 11V to 200mA @ 25V 9V @ 1A 100mA @ 12V dc (point-to-point mode only)
Electrical Fast Transient		500V on communication cables 1kV on DeviceNet power
Communication Ports	Serial DeviceNet Network	One 9-pin RS-232 D-shell Open-style header
Cabling	Serial DeviceNet Network	RS-232 null-modem cable, male DB-9 Drop/trunk cable with open-style terminal connector
ESD Immunity	Air Contact	2 to 15kV 2 to 5kV
Electromagnetic Susceptibility		10 V/M 27 to 1000MHz
Dimensions (Depth x Width x Height)		130.17 x 82.55 x 28.57mm (5.125 x 3.25 x 1.125in)
Weight		156g (5.5oz)
Enclosure Rating		ULV0
Environmental Conditions	Operating Temperature Storage Temperature Relative Humidity	0 to 50°C (32 to 122°F) -40 to 85°C (-40 to 185°F) 5 to 95% (noncondensing)
Agency Approval		  





1747-OC Open Controller

The 1747-OC Open Controller is a PC-compatible control processor for the Small Logic Controller (SLC) form factor. The Open Controller communicates with local I/O (1746 form factor cards) and any other standard Allen-Bradley remote I/O.

Product Features and Benefits

- chassis based system combines the reliability and form factor of a PLC with the flexibility of personal computer technology
- leverages standard PC technology for programming and interface to communications and other options
- supports:
 - PC based operating systems – commercial and embedded
 - PC development tools such as Microsoft/Borland C/C++
 - PCMCIA and PCI technology
- integrates a 586-class CPU and a local I/O scanner to offer:
 - high performance and deterministic I/O response
 - access to Allen-Bradley's wide range of 1746 industrial I/O modules
- rugged industrial packaging and field-proven chassis and power supply
- long-term product availability using modular, upgradable add-on options with field-installable designs

DeviceNet Details

Device Type	1747-OC Open Controller
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Data Rates and Node Addresses	Network or dip switches
Configuration Data – Parameters	Strobe and poll Complete data mapping between block transfer and I/O image tables and DeviceNet devices Background poll rate Strobe or poll for each node

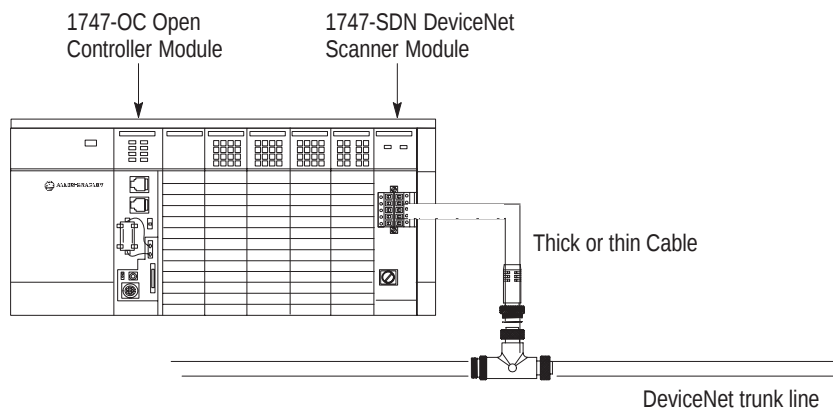
Physical Connection

To communicate over the DeviceNet network, your custom application program running on the Open Controller must use Application Program Interface calls within DOS or Windows NT 4.0, to configure and access the data. A soft PLC-based controller solution is available using SoftLogix5 or Controlware to control the 1747-SDN DeviceNet scanner module.

Use a 1784-PCD card in a PCMCIA module to configure the DeviceNet link, if you are running Windows on the Open Controller system.

Physical Connection

You need the following components to connect an Open Controller to the DeviceNet network.



Ordering Information

Description	Catalog Number
1747-OC Open Controller	1747-OC
1747-OCxxxxx	5x86 CPU Module
1747-OCVGA1	VGA Interface
1747-OCPCM1	PCMCIA Interface
1747-OCIDE1	ATA (IDE) Expansion
1747-OCIDE25	2.5° IDE Expansion
1747-OCKTX	A-B Comm (single channel)
1747-OCKTXD	A-B Comm (dual channel)
1747-OCPI4	PCI Expansion Bus
1747-OCAPINT	API Software for Windows NT
1747-OCAPID	API Software for DOS

Related Publications

Title	Publication Number
Hardware/Software Profile	1747-1.13
Support Profile	1747-9.14
MS-DOS and Windows NT API	1747-1.16
Selection Guide	1747-1.12
System Overview	1747-2.22
CD-ROM	1747-CD2-1

Specifications

Power Consumption	
DeviceNet Current Draw	90mA @ 24Vdc
External Power Requirements (PC)	625mA @ 5V max.
Module Location	left slot of any 1746 chassis
Driver compatibility	Windows NT 4.0 or greater
Environmental Conditions:	
Operational Temperature	0-60°C (32-140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5-95% without condensation
Shock Unpackaged	30g peak for 11ms – operational 50g peak for 11ms – storage
Weight	396.9g (14oz)
Power Dissipation	2.25 A @ 5Vdc
Vibration Unpackaged	10 to 500 Hz 2.0 G maximum peak acceleration .012 in (peak-to-peak) displacement
Immunity Radiated Fields	10V/m 27mHz-1000mHz
Agency Certification	•   Class 1 Division 2, groups A, B, C, I •  marked for all applicable directives



DeviceNet Power Supply

The DeviceNet Power Supply is specifically designed for the DeviceNet network.

DeviceNet Features and Benefits

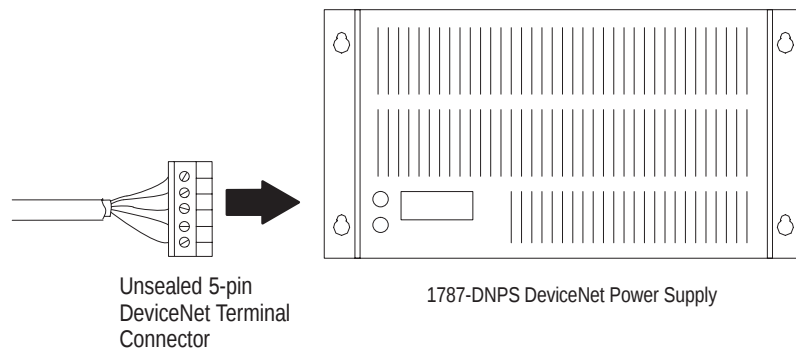
- only power supply to be DeviceNet compliant – meets DeviceNet power requirements
- standard 3-pin IEC connector on the input, Phoenix combination connector for DeviceNet on the output

Product Features and Benefits

- UL/CSA Class 2 listed power supply
- 24Vdc with 5.5A@60°C
- 115/230V selectable input
- LED power indicator
- flange mounted

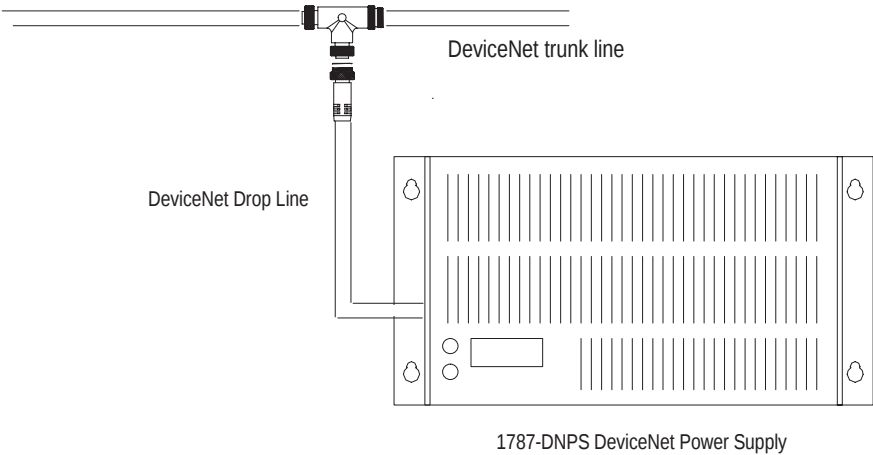
Physical Connection

You need the following components to connect the DeviceNet Power Supply to the DeviceNet network.



Network Topology

The DeviceNet Power Supply connects to an example DeviceNet network as shown in the following figure.



Ordering Information

Power Supply	Catalog Number
DeviceNet Power Supply	1787-DNPS

Related Publications

Title	Publication Number
DeviceNet Power Supply Installation Instructions	1787-5.8
DeviceNet Cable System and Planning Installation Manual	DN-6.7.2

Specifications

Power Connector	3-pin IEC
Fuse	Class 2 type accepted
DC Connector	DeviceNet unsealed 5-pin
Indicators	Green, power on
Mounting	Flange
Enclosure	Vented (indoor)
Input Voltage	115V $\pm 10\%$ 230V $\pm 10\%$ selectable
Output Voltage	24Vdc $\pm 1\%$
Output Current	100VA – consistent with NEC Class2 Max. output current 5.5A $\pm 0.1A$ @ 60° with 30% derating @ 75°
Line Regulation	.3% max.
Load Regulation	.3% max.
Ripple	250mV
Load Capacitance Capability	7000uF load
Turn on Overshoot	.2% max.
Line Frequency	48-62Hz
Turn on Time	250msec max./5% of final value
Overcurrent Protection	Consistent with UL 1310
Isolation	Output isolated from AC and Chassis ground
Temperature	
Operating	0 to 60°C (32 to 125°F)
Non-operating	–40 to 85°C (–40 to 185°F)
Humidity	5 to 95% (without condensation)
Vibration	2g – 10 to 70Hz
Shock	30g, 11ms half cycle
Measurements (Depth x Width x Height)	11 x 6.5 x 5in
Weight	7.2kg (16lb)
Agency Approval	  





DeviceNet PCI Communication Interface Card

The DeviceNet PCI Scanner Card is a DeviceNet interface card designed for the standard PCI-bus used in many of today's personal computers. The scanner card is available in two types:

- 1784-PCID – communication interface for control applications requiring general programming, configuration and monitoring capability via a personal computer with PCI-bus architecture
- 1784-PCIDS – I/OInx™ scanner for control applications with SoftLogix

DeviceNet Features and Benefits

- explicit peer to peer messaging
- master/scanner
- I/O slave messaging with bit strobe, polling, cyclic and change of state

Product Features and Benefits

- smaller size PCI short card – much smaller than a half-size PCI card
- 8Kbyte shared RAM data exchange
- Windows NT, ver. 4.0, kernel-level driver that is compatible with RSLinx and IOLinx software
- direct integration into SoftLogix5

DeviceNet Details

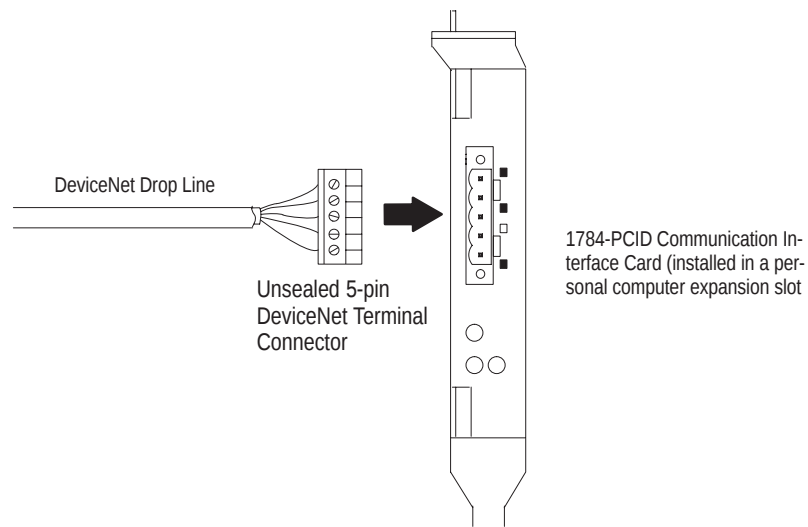
Device Type	Interface Card
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Node addresses and data rates	DeviceNetManager Software I/O Client Test Application

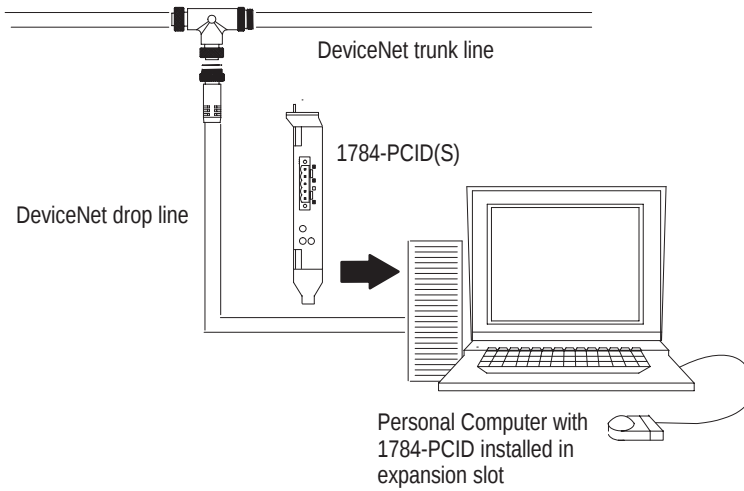
Physical Connection

You need the following components to connect the DeviceNet PCI Communication Interface Card to the DeviceNet network.



Network Topology

The DeviceNet PCI Communication Interface Card connects to an example DeviceNet network as shown in the following figure.



Ordering Information

PCI Interface Card Type	Catalog Number
Communication Interface	1784-PCID
I/OInx Scanner	1784-PCIDS

Related Publications

Title	Publication Number
DeviceNet PC Card Installation Instructions	1784-5.31

Specifications

Mechanical form factor	PCI 5V, 32-bit short card
PCMCIA Standard	Compliant to PCMCIA Standard, release 2.1
PCI local bus	Compliant to PCI revision 2.1
Driver compatibility	Windows NT 4.0 or greater
Power Consumption	
DeviceNet Current Draw	90mA @ 24Vdc
External Power Requirements (PC)	625mA @ 5V max.
Conductor	Category
Slot Temperature	
Operating	0 to 55°C (32 to 131°F)
Non-operating	–40 to 85°C (–40 to 185°F)
Humidity	5 to 95% (without condensation)
Vibration	0 to 70Hz, constant 0.012 in displacement 70 to 500Hz, constant 2g acceleration
Shock	
Operating	30g peak/11ms
Non-operating	50g peak/11ms
Measurements (Height x Depth)	10.7 x 12cm (4.2 x 4.7)
Weight	Card – 40g (0.1 lb)
Agency Approval	  





Bulletin 100 DeviceNet Starter Auxiliary

The Bulletin 100 DeviceNet Starter Auxiliary (DSA) provides a low-cost DeviceNet node for motor starters and general I/O communications applications. The DSA includes inputs that can connect to hard contacts such as a contactor or circuit breaker auxiliary contact, limit switch, 2-wire proximity, 3-wire photoswitch, and outputs (with external power supply) that can energize contactors, solenoids, lamps, etc.

Features and Benefits

- wire eliminating for standard motor starter configurations
- provides start control and status for motor control starters
- 2A electronic fuse protection for solid-state outputs
- short-circuit condition reported over the network
- programmable on delay/off delay
- short-circuit detection on inputs
- 120Vac or 24Vdc input versions
- 24Vdc solid-state and 240Vac relay output version
- network LED status indicator
- DIN rail or panel mount capabilities
- accepts contact closure inputs
- compatible with 2-wire proximity switches and 3-wire photoswitches
- color-coded I/O terminal plugs

DeviceNet Features and Benefits

- inputs are powered from the network power source
- device automatically sets its own baud rate (autobaud)
- supports I/O poll and change-of-state messaging
- no switches to set – all parameters are configurable with DeviceNetManager software

DeviceNet Details

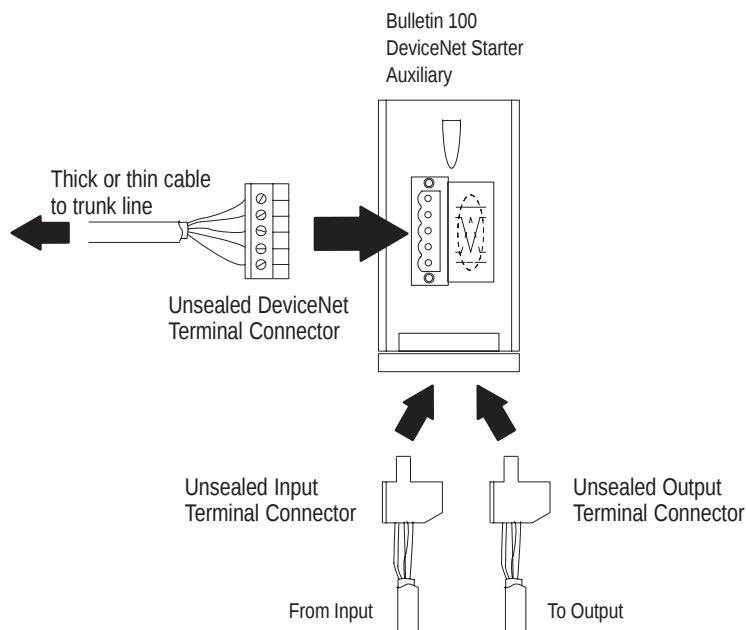
Device Type	General Purpose Discrete I/O
Explicit Peer-to-Peer Messaging	No
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	No
I/O Slave Messaging	
• Bit Strobe	No
• Polling	Yes
• Cyclic	No
• Change-of-State (COS)	Yes

Configuration Information

Configure:	By using:
Node Addresses and Data Rates	The network
Parameters	Electronic Data Sheets in DeviceNetManager Software or by floppy disk file

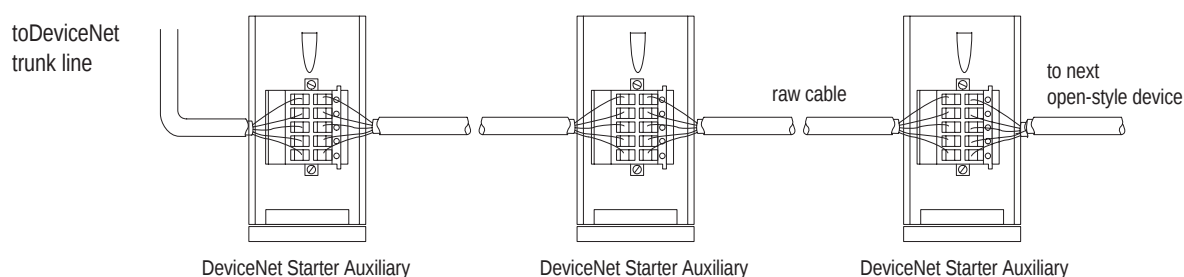
Physical Connection

You need the following components to connect a DeviceNet Starter Auxiliary to the DeviceNet network.



Network Topology

The DeviceNet Starter Auxiliary can be used on a drop line or in a daisy-chain configuration:



DeviceNet Starter Auxiliary I/O Connectors

The DeviceNet Starter Auxiliary is supplied with 5mm pitch input plug and output plug ready for wiring into the application.

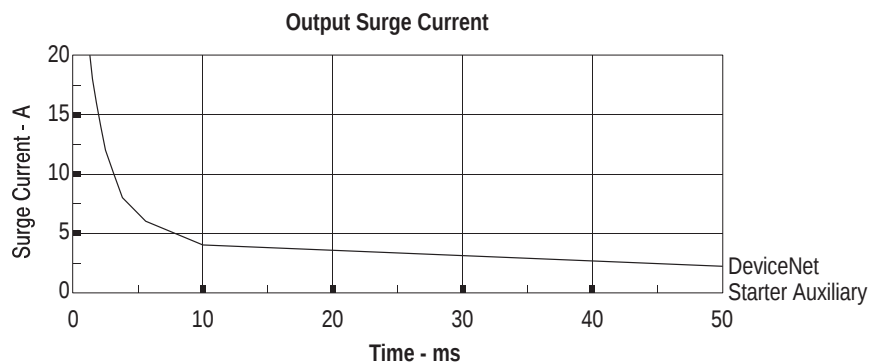
I/O Terminal Plugs	
Type	Pitch 5mm
Plug Color	
Input Plug	Black
Output Plug	Gray
Connection Capacity	
Solid/Stranded/conductor Sizes	0.2–2.5mm ² /0.2–2.5mm ² /24–12AWG
Stranded without Ferrules	
with/without Plastic Collar	0.25–2.5mm ² /0.25–2.5mm ²
Multiple Connection (2 Conductors with same Cross Section)	
Solid/Stranded	0.2–1mm ² /0.2–1.5mm ²
Stranded without Ferrules	
with/without Plastic Collar	0.25mm ² –1mm ²
Stranded with TWIN Ferrules with Plastic Collar	0.5mm ² –1.5mm ²
Electrical Rating	
Voltage	300V
Current	5A

The DeviceNet Starter Auxiliary is supplied with standard DeviceNet plug and a DeviceNet daisy-chain plug to allow easy network connection.

DeviceNet Terminal Plugs	
Type	Pitch 5.08mm Phoenix Connector
Catalog Number	
Standard Plug	22112-172-01
Daisy-chain Plug	94220605
Connection Capacity	
Solid/Stranded/conductor Sizes	0.2–2.5mm ² /0.2–2.5mm ² /24–12AWG
Stranded without Ferrules	
with/without Plastic Collar	0.25–2.5mm ² /0.25–2.5mm ²
Multiple Connection (2 Conductors with same Cross Section)	
Solid/Stranded	0.2–1mm ² /0.2–1.5mm ²
Stranded without Ferrules	
with/without Plastic Collar	0.25mm ² –1mm ²
Stranded with TWIN Ferrules with Plastic Collar	0.5mm ² –1.5mm ²
Electrical Rating	
Voltage	300V
Current	5A

Other Important Product Information

The solid-state output circuits can drive dc loads with a surge or inrush current. The table below illustrates this drive characteristic. The external output supply must be capable of supplying this current.



Ordering Information

Device Type	Catalog Number
4–120V in/2-Relay Out	100-DNX41R
2–120V in/1-Relay Out	100-DNX21R
4–24V in/2-Relay Out	100-DNX42R
2–24V in/1-Relay Out	100-DNX22R
4–24V in/2-Solid-State Out	100-DNX42S
2–24V in/1-Solid-State Out	100-DNX22S

Related Publications

Title	Publication Number
DeviceNet Starter Auxiliary User Manual	100-5.1
Typical Wiring Diagram/Full Voltage Starters	GI-2.0
Industrial Control Catalog	A112
IEC Contactors and Overload Relay Brochure	100-1.0.1, 100C-1.0.1
NEMA Starters Brochure	500-1.3
SMP Overload Relays	193-1.0

Specifications

Catalog Numbers 100-DNX41R, -DNX21R

Input Specifications

Inputs per Device		
100-DNX41R		4
100-DNX21R		2
On-state Voltage Range		10–30V dc
50-60Hz		
On-state Current	Maximum	9.0mA
	Minimum	4.0mA
Off-state Voltage	Maximum	30V dc @ 60Hz
Off-state Current	Minimum	1mA
Transition Voltage		30–80V ac
Transition Current		1.0–4.0mA

Output Specifications

Outputs per Device		
100-DNX41R		2
100-DNX21R		1
Outputs Voltage Range		240Vac – 30Vdc
Maximum		
Switching Capacity		3600VA
Maximum		UL – B300
		IEC – AC-15, 5A
Thermal Continuous		
Maximum		5A

General Specifications

DeviceNet Power	Voltage	11.0 – 25.0V dc
	Current	150mA maximum
Surge Current at Power Up		Less than 10A for 5ms
Wiring		
Type		75° copper wire – minimum required
Tightening Torque		0.5-0.6Nm (4.4-5.3 lb-in)
Size		2.5mm ² (14AWG)
Dimensions	Inches	3 11/64 H X 1 25/32 W X 4 7/8 D
	Millimeters	80.6 H X 45 W X 123.4 D
Environmental Conditions		
Operational Temperature		0 to 60°C (32 to 140°F)
Storage Temperature		–40 to 85°C (–40 to 185°F)
Relative Humidity		0 to 95% non-condensing
Shock	Operating	30 g peak acceleration, 11(±1)ms pulse width
	Non-operating	50 g peak acceleration, 11(±1)ms pulse width
Vibration		Tested 2.5 g @ 10–500Hz per IEC 68-2-6
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives



Specifications

Catalog Numbers 100-DNX42R, -DNX22R, -DNX42S, -DNX22S

Input Specifications

Inputs per Device		
100-DNX42R, -DNX42S		4
100-DNX22R, -DNX22S		2
On-state Voltage Range		
50-60Hz		10-30V dc ¹
On-state Current	Maximum	11.0mA @ 30V
	Minimum	8.0mA @ 10V
Off-state Voltage	Maximum	5.5V dc ¹
Off-state Current	Minimum	6mA
Transition Voltage		5.5-10V dc ¹
Transition Current		6.0-8.0mA
2-wire Proximity Source		10-30Vdc
2-wire Proximity		10V minimum ²
3-wire Photoswitch		
Voltage		10-30V dc
Current		50mA per point – 0.1A per module ²

¹ With reference to internal GND

² DeviceNet supply voltage must be 15-25Vdc range, refer to user documentation or manufacturer

Output Specifications

Outputs per Device		
100-DNX41R, -DNX42R		2
100-DNX21R, -DNX22R		1
Outputs Voltage Range		
Maximum		240Vac – 30Vdc
Switching Capacity		
Maximum		3600VA UL – B300 IEC – AC-15, 5A
Thermal Continuous		
Maximum		5A

Specifications continued on next page

General Specifications		
DeviceNet Power	Voltage Current	11.0 – 25.0V dc 150mA maximum
Surge Current at Power Up		Less than 10A for 5ms
Wiring	Type Tightening Torque Size	75 ^o copper wire – minimum required 0.5-0.6Nm (4.4-5.3 lb-in) 2.5mm ² (14AWG)
Dimensions	Inches Millimeters	3 11/64 H X 1 25/32 W X 4 7/8 D 80.6 H X 45 W X 123.4 D
Environmental Conditions	Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	0 to 60°C (32 to 140°F) –40 to 85°C (–40 to 185°F) 0 to 95% non-condensing 30 g peak acceleration, 11(±1)ms pulse width 50 g peak acceleration, 11(±1)ms pulse width Tested 2.5 g @ 10–500Hz per IEC 68-2-6
Agency Certification		• CSA certified • CSA Class I, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

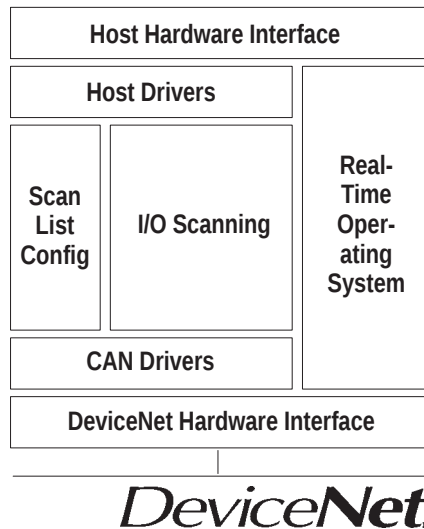
Specifications

Catalog Numbers 100-DNX42S, -DNX22S

Output Specifications

Outputs per Device	2
100-DNX42S	1
100-DNX22S	
Outputs Voltage Range	19 – 30Vdc ±10%
On-state Voltage Maximum	0.25V @ 2A
On-state Current per Output Maximum	2 Output Devices: 2A per output @ 50C 1A per output @ 60C (see Device Current below) 1 Output Device: 2A
Device Current All Outputs ON	2 Output Devices: 4A per device @ 50C 1A per device @ 60C 1 Output Device: 2A
Off-state Leakage Current Maximum	1.5mA
Surge Current per output	4A for 10ms





DeviceNet Master Library

The DeviceNet Master Library, Version 2.0, allows developers of embedded DeviceNet products to add I/O scanner functionality to their designs.

DeviceNet Features and Benefits

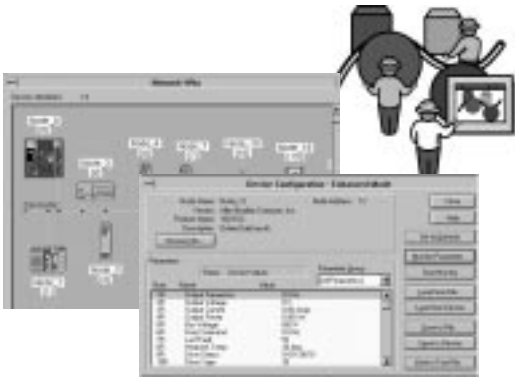
- includes source code, Application Programming Interface (API) definitions, and user manual
- includes a description of the overall scanner architecture
- utilizes two APIs to allow easy integration into systems containing various CAN chips, host microprocessors, and operating systems – all without extensive source code modifications
- features master I/O messaging functionality for bit-strobe, poll and change-of-state
- contains UCMM proxy
- includes simulated environments to run the scanner stack on a personal computer

DeviceNet Details

Device Type	Developer's Kit
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

Ordering Information

Item:	Catalog Number:
DeviceNet Master Library	n/a – Contact Allen-Bradley Business Partner Programs at (440)-646-5200



DeviceNetManager Software, Version 3.004

DeviceNetManager™ software configures software parameters of DeviceNet devices from multiple vendors and performs network diagnostic and troubleshooting.

This software provides graphical online determination of all devices on the network including the identification of vendor, device type, revision level, and serial number of each device.

DeviceNet Features and Benefits

- central point for managing, configuring, and commissioning devices on the network
- run the manager software side-by-side with Rockwell Software (6200, WINtelligent™, or RSLogix™ programming software) in a Microsoft Windows™ 3.1, Windows 95™, or Windows NT™ environment
- supports configuration of strobe, poll, cyclic (slave mode), and change-of-state (slave mode) messaging for 1771-SDN, 1747-SDN, 1756-DNB and 1784-PCIDS
- supports additional device configuration utilities via custom launch feature
- configures all DeviceNet devices regardless of vendor using Enhanced Mode with vendor-supplied Electronic Data Sheet (EDS) files or Basic Mode when EDS files are not available
- file storage for multiple DeviceNet projects and networks
- architected with the A-B WinDNet16 protocol engine (WinDNet16 supplied)
- ideal for use with any WinDNet16-compatible hardware interface (ie., 1784-PCD, 1770-KFD, etc.)
- graphical WHO screens for monitoring and troubleshooting network devices
- online help and complete user documentation facilitate operation

System Requirements

Item:	Description:
Software	Windows v3.x, Windows95 or Windows NT operating system
RAM	4MB
Hard Disk Space	2MB
Serial Ports	1 plus the mouse serial port
RS 232 to DeviceNet Interface	1770-KFD
Interface Card	DeviceNet PCMCIA, 1784-PCD or 1784-PCID

Ordering Information

Item:	Catalog Number:
DeviceNetManager Software	1787-MGR

Related Publications

Title	Publication Number
DeviceNetManager Software User Manual	1787-6.5.3
DeviceNet Scanner Configuration Manual	1771-6.5.118
DeviceNet Scanner Configuration Manual	1747-6.5.2
DeviceNet Adapter Module User Manual	1794-6.5.5



RSWire™

Control Design & Documentation



DeviceNet Module for RSWire Software

The DeviceNet module provides tools for designing, documenting, and implementing DeviceNet networks. The software is an add-on to **RSWireE Designer**, a computer-aided design tool for creation of control system schematics, layouts, and manufacturing documentation.

DeviceNet Features and Benefits

- aids in the creation of DeviceNet-hardwire schematics
- automatically assigns cable part numbers
- integrates project schematics and panel layouts
- includes over 100 detailed DeviceNet-product symbols
- provides a database of over 300 A-B part numbers and descriptions

About RSWire Control Design Documentation

Designed for development and network construction, the DeviceNet Module assists system developers and engineers in network layout, design, and cost estimates.

- quickly layout a DeviceNet network
- select any A-B DeviceNet product or media symbol from a vast library
- access valid catalog numbers for A-B DeviceNet products and components as the DeviceNet Module automatically checks product placement within the network
- verify that component genders mate to create valid network configurations
- generate a bill-of-materials automatically from the user-developed DeviceNet network mechanical drawing
- export schematics to *.dxf and *.dwg file formats
- save multiple network configurations as a single project

Requirements

In order to run the DeviceNet module for **RSWire** software, you must have AutoCAD® software, 12 or higher, and **RSWire Designer** software.

Related Publications

Title	Publication Number
RSWire DeviceNet Module Reference Guide	9399-EDS-DNREF-12.20.95

System Requirements

Software:	Catalog Number:
RSWire Designer for AutoCad or Standalone	9371-EDES2 (with AutoCAD R13) 9371-EDES3 (with AutoCAD R12) 9371-EDES1 (no AutoCAD required)
RSWire Database/Panel Layout option	9371-EDBA3
RSWire List option	9371-ELWI3
Windows, Windows 95 or WindowsNT	

Ordering Information

Item:	Catalog Number:
DeviceNet Module for RSWire	9371-DNLIB
RSWire Database/ Panel Layout option	9371-EDBA3
Wire List	9371-EWL13



DeviceNet Monitor Tool

The DeviceNet Monitor Tool captures all of the traffic on the DeviceNet network, which can be useful for product development or troubleshooting. The timing information provided lets a user determine the delta time between successive messages.

DeviceNet Features and Benefits

- WinDNet 16 compatible
- bit strobe, polling, cyclic and change-of-state I/O slave messaging
- 125K, 250K and 500K baud rates

Features and Benefits

- easy-to-read format of captured data, with optional formats for time stamp information
- programmable screening capabilities to receive only desired traffic
- display filters to allow the user to display only desired traffic save capability to save data to a disk file

DeviceNet Details

Device Type	Software Utility
Explicit Peer-to-Peer Messaging	Yes
I/O Peer-to-Peer Messaging	No
Configuration consistency Value	No
Faulted Node Recovery	No
Baud Rates	125K, 250K, 500K
Master/Scanner	Yes
I/O Slave Messaging	
• Bit Strobe	Yes
• Polling	Yes
• Cyclic	Yes
• Change-of-State (COS)	Yes

System Requirements

Item:	Description:
Software	Windows v3.x, Windows95 or Windows NT operating system
RAM	4MB
Hard Disk Space	1MB
Serial Ports	1 plus the mouse serial port
RS 232 to DeviceNet Interface	1770-KFD
Interface Card	DeviceNet PCMCIA or 1784-PCD

Ordering Information

Item:	Catalog Number:
DeviceNet Monitor Tool	9240-MON16





RSServer for the DeviceNet Network

RSServer is a high-speed AdvanceDDE™ server that provides connectivity between DDE-aware applications and any DeviceNet network. The server is compatible with all of Rockwell Software's View and Component products including RSView, the WINtelligent Series (View, Trend and Quality) and the new RSDATA Visual Basic extension. The RSServer for DeviceNet uses the new WinDNET.dll library to provide universal access to any of the multiple communications devices supporting DeviceNet today.

DeviceNet Features and Benefits

- 16-bit DDE server
- uses the new WinDNet16™ dynamic link library to provide universal access to any of the multiple communication devices supporting DeviceNet
- tight integration with Allen-Bradley's DeviceNetManager software
- supports RSPortal™ which allows for the access of DeviceNet data via the Internet or an intranet
- provides highly reliable communication links from Microsoft Windows client applications to industrial devices on DeviceNet

Product Features and Benefits

- simplifies data access by using parameter names from device Electronic Data Sheet (EDS) file
- diagnostics available based on server, topic and item basis
- right mouse menus are available to make operations quicker and easier
- supports all major industrial client/server DDE communication schemes in operation today – Advance DDE, Fast DDE, XL_Table, CF_Text
- DDE data may be addressed by EDS parameter names
- topic EDS information stored and retrieved
- display all parameter attributes in Advances Parameter dialog
- display parameters and all other device data using Data Monitor

System Requirements

Item:	Description:
Software	Windows v3.1, Windows for Workgroups v3.11, or Windows95

Additionally, you need one of the following DeviceNet communication devices that conforms to the requirements of Allen-Bradley's WinDNet16SDK:

- Allen-Bradley 1770-KFD
- Allen-Bradley 1784-PCID
- Allen-Bradley 1784-PCD

Ordering Information

Item:	Catalog Number:
RSServer for DeviceNet	9352-WDN100D

DeviceNet is a trademark of the Open Device Vendors Association (ODVA).

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