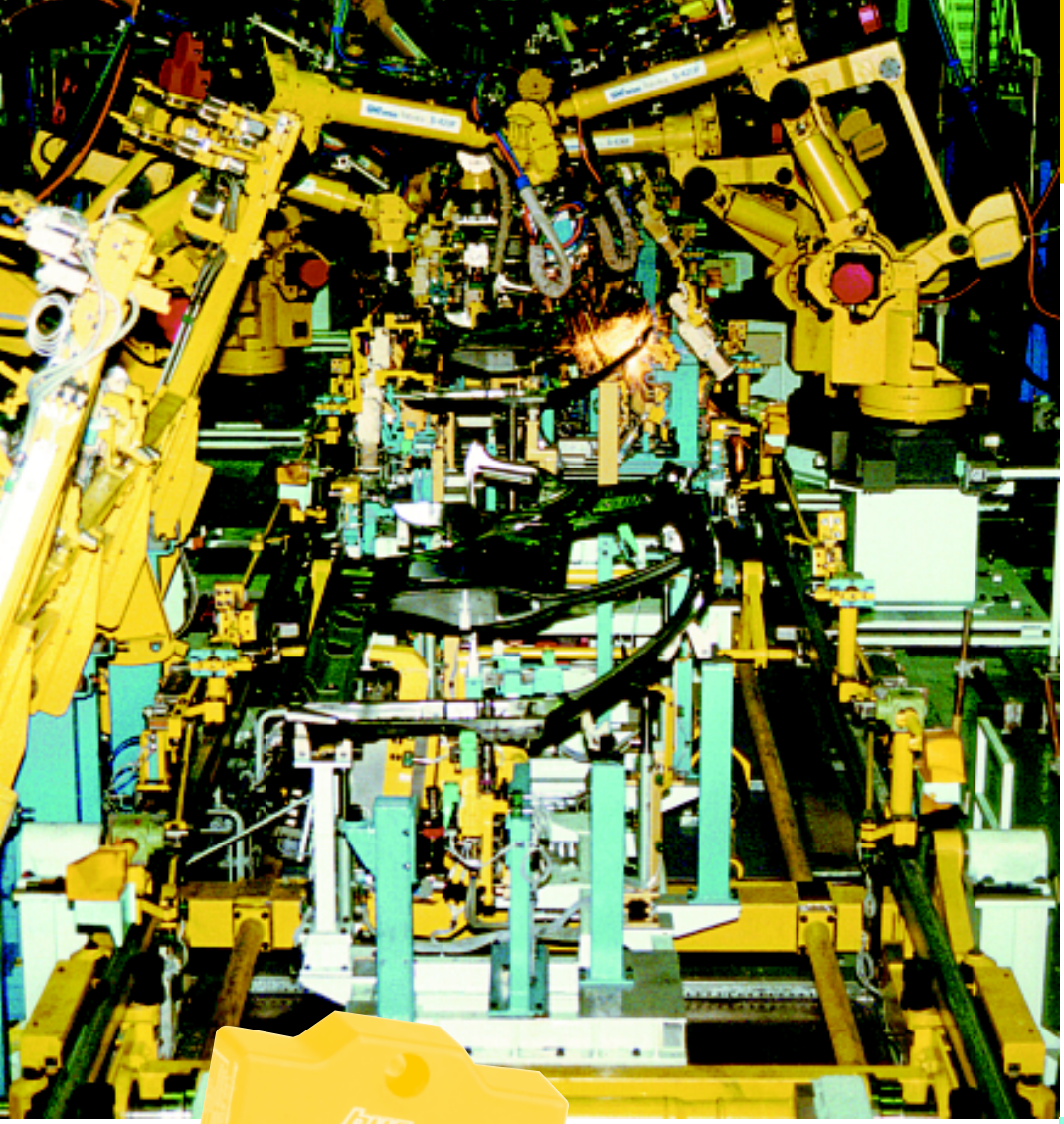
TURCK



DeviceNet™

FIELDBUS
COMPONENTS

BACK

bus stop®
Your fieldbus connection

DeviceNet™
Stations and Connection Products

Hans Turck GmbH & Co. KG • D–45466 Mülheim an der Ruhr • Tel. 02 08/49 52-0 • Fax 02 08/49 52-264 • E-Mail: turckmh@mail.turck-globe.de

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Table of contents

Type code	Input parameters						Output parameters					
Advanced I/O modules:	Page number	Number of inputs	Inputs per connector	Compatible with npn/pnp sensor	Short-circuit protection	Open-circuit detection	Number of outputs	Outputs per connector	Maximum output load	Bus power or auxiliary power	Short-circuit protection	Open-circuit detection
FDNL-L0800-T	18	8	1	npn/pnp	individual	Y	–	–	–	–	–	–
FDNL-S0800-T	20	8	1	pnp	group	N	–	–	–	–	–	–
FDNL-L1600-T	22	16	2	npn/pnp	individual	Y	–	–	–	–	–	–
FDNL-S1600-T	24	16	2	pnp	group	N	–	–	–	–	–	–
FDNL-S1600-W	26	16	2	pnp	group	N	–	–	–	–	–	–
FDNP-L0404G-TT	28	4	1	npn/pnp	individual	Y	4	1	0.5 A	aux	Y	Y
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FDNP-S0808H-WW	42	8	2	pnp	group	N	8	2	2 A	aux	Y	N
FDNL-P1204G-T	44	12	2	pnp	individual	Y	4	2	0.5 A	bus	Y	Y
FDNP-P1204G-TT	46	12	2	pnp	individual	Y	4	2	0.5 A	aux	Y	Y
FDNQ-CSB44-T	48	4	1	pnp	group	N	4	1	80 mA	bus	Y	N
FDNL-CSG88-T	50	8	1	pnp	group	Y	8	1	0.5 A	bus	Y	Y
FDNL-CPG88-T	52	8	1	pnp	individual	Y	8	1	0.5 A	bus	Y	Y
FDNL-CSG88-W	54	8	1	pnp	group	N	8	1	0.5 A	bus	Y	N
FDNP-CPG88-TT	56	8	1	pnp	individual	Y	8	1	0.5 A	aux	Y	Y
FDNP-XSG16-TT	58	16	2	pnp	group	N	16	2	0.5 A	aux	Y	N
CDN-IM4-0046	60	4	1	npn/pnp	individual	Y	–	–	–	–	–	–
CDN-IM16-0003	62	16	2	npn/pnp	individual	N	–	–	–	–	–	–
CDN-IOM44-0045	64	4	1	npn/pnp	individual	Y	4	1	2 A	aux	Y	Y
CDN-OM4-0049	66	–	–	–	–	–	4	1	2 A	aux	Y	Y
BD8D4EP0	68	4	1	pnp	group	N	–	–	–	–	–	–
BD8D4EX0	70	4 x 2	2	pnp	group	N	–	–	–	–	–	–
BD8D8EP0	72	8	1	pnp	group	N	–	–	–	–	–	–
BD8D8EX0	74	8 x 2	2	pnp	group	N	–	–	–	–	–	–
BD8D2EP2ET	76	2	1	pnp	group	N	2	1	2 A	aux	Y	N
BD8D2EX2ET	78	2 x 2	2	pnp	group	N	2	1	2 A	aux	Y	N
BD8D4EP4ET	80	4	1	pnp	group	N	4	1	2 A	aux	Y	N
BD8D4EX4ET	82	4 x 2	2	pnp	group	N	4	1	2 A	aux	Y	N
BD2DT1EP0	84	1	1	pnp	individual	N	–	–	–	–	–	–
BD2DT1EX0	86	1 x 2	2	pnp	group	N	–	–	–	–	–	–
BD2DT2EP0	88	2	1	pnp	group	N	–	–	–	–	–	–
BD2DT2EX0	90	2 x 2	2	pnp	group	N	–	–	–	–	–	–
BD2DT1EP1EU	92	1	1	pnp	individual	N	1	1	150 mA	bus	Y	N
BD2DT1EX1EU	94	1 x 2	2	pnp	group	N	1	1	150 mA	bus	Y	N
BD2DT2EU	96	–	–	–	–	–	2	1	150 mA	bus	Y	N

Components

Stations:	Page
FD… stations	18 ... 59
CDN… stations	60 ... 67
BD8… stations	68 ... 83
BD2… stations	84 ... 97

Cables:	Page
572, 577, 5711, 5710, 570, 579, 575	98…104
Open connector cordsets, dimensions and pinouts	106...113
Bus drop, power and diagnostic tees	114
E&M stop tees	116
Drop junctions	118
Gender changers and elbow connectors	120

Cables:	Page
Terminating resistors	122
Bulkhead feed-through receptacles	123
Field solderable receptacles	124
Passive mutiport junctions	126
Module junctions	130
Power taps	132
Field-wireable connectors	134
DeviceNet™ power cordsets, *minifast*® connectors	138

A Worldwide Fieldbus Solution

Freedom to Make the Best Fieldbus Choice
When you work with TURCK, you are not linked to a single fieldbus technology. You have freedom of choice from a supplier who will allow you to choose from the leading bus products that best match your application and desired bus benefits.

The TURCK Catalogue
busstop® is the trade name that covers the industry's most complete and industrially hardened line of device-level stations, junctions and cabling products. Robust *busstop*® stations are high quality on-the-machine and at-the-process nodes which are designed to be installed in the worst environments while delivering maximum performance within the design parameters of the particular bus.

busstop® cables and cordsets for data and other bus-specific applications come in a variety of different connectors, cable grades and individual bus standards. These cabling products are the electrical designer's choice for secure and trouble-free communication. The gold plated pin-and-sleeve connector will transmit the lowest level data signal or carry enough power to actuate banks of solenoids.

Device-level Buses and Fieldbuses
A device-level bus connects directly to a device such as a sensor or actuator; there are no other buses between the device-level bus and the device. Only a few of the buses are strictly device-level buses. They are AS-Interface®, Seriplex, and *sensoplex*®*2*. These strictly device-level buses are fast and have limited data bits per node, but have minimal overhead in their messages.

A fieldbus is something more. It could be a device-level bus but it could also have a device-level bus attached to it through a gateway or bridge. Another definition of a fieldbus is that devices on the bus are complex or „smart" , while the products on the device-level buses are simple or "dumb". Although this is a good black-and-white definition, it is full of holes when analogue or digital sensors are considered. Most digital sensors are actually analogue sensors with fixed set points; this makes the digital sensor more complex than the analogue sensor.

The buses that could qualify in some or all scenarios as fieldbuses are DeviceNet™, Smart Distributed System, PROFIBUS-DP, PA & FMS, Foundation Fieldbus H1 & H2, Interbus-S, Beckhoff II/O Light Bus, Sercos, Modbus+, ControlNet, GE Genius I/O and industrial versions of ARCnet and Ethernet. All are legitimate fieldbuses and vary in some form or another.

***Interlink*BT – A BANNER-TURCK Company for Bus Products**

*Interlink*BT was founded by the companies **TURCK** und **BANNER** and combines the experience and know-how of these two pioneers in the field of industrial automation, resulting in one of the most complete and versatile lines of bus products. The range of products comprises stations, junctions and connection products for all customary industrial fieldbus systems.

***Interlink*BT** is the distributor for the American market.

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A Fieldbus Example

The illustration below is a simple fieldbus example but it does have many of the components of an actual application. The host may be a PLC or PC.

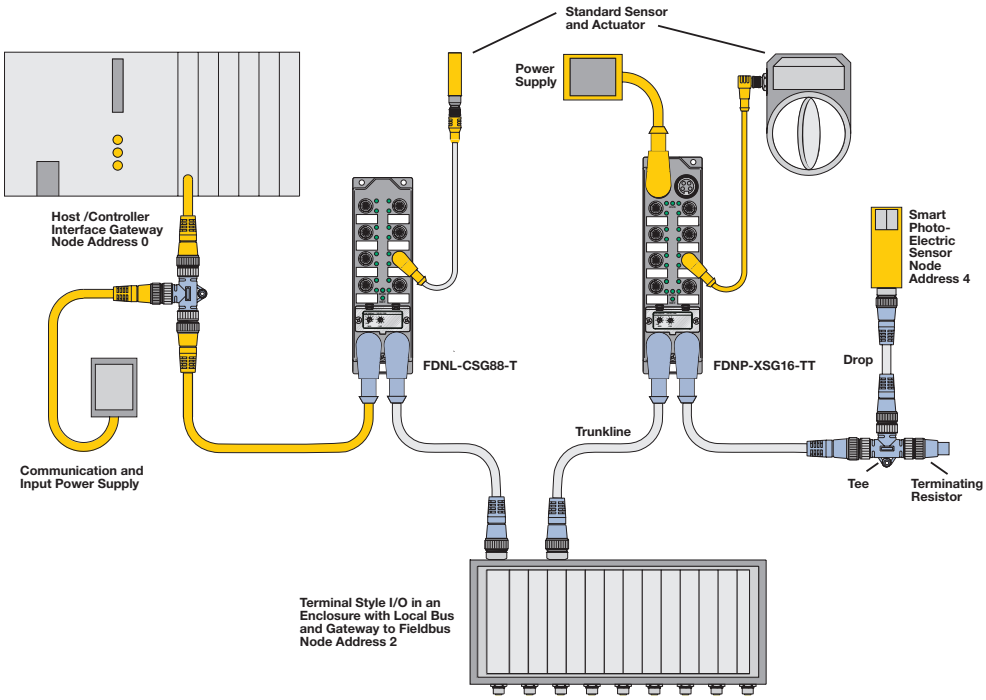

Fig. 1

The interface gateway, sometimes called a scanner module, may be a separate card or be built into the host. This card acts as the network manager and as a gateway to the bus used by the host. As a network manager the card must be able to manage reporting of information by the nodes and in some way organize the data to deliver it to the host in a fashion the host will understand. In simple buses, the network management function is just a standard master-to-slave and the organizing of the data for the host is simple mapping. By default the address of this card is often “0"; even when it is not zero many programmers set it to zero out of convention.

Next, power is required to run at least the transmitting and receiving components in each node on the network. Often the same power is used to power the inputs as well as the “smart” chipsets that handle communication. A plug-and-play tee cleans up some of the interconnect wiring to the power supply, making it easier to replace.

The first field node in this example has eight input channels. Although several different types of inputs are possible, the most common on today’s buses are 24 VDC 2- and 3-wire. This eight-input station is shown connected to a standard sensor.
Another node may be a terminal style node where individual slices of I/O are mounted on a DIN rail and connected to a bus coupler. This bus coupler is in essence a gateway from the local bus to the higher level bus. Most examples of this type of I/O today are IP20 or open-style construction and must be mounted in an enclosure. When done right, a node with small granularity (two or four channels per slice) offers maximum flexibility. Advanced terminal I/O systems such as Beckhoff Terminal II/O include many types of digital and analogue I/O, as well as serial, high-speed and motion control modules. Simple applications or even complex applications such as test stands can be done with these advanced terminal I/O systems.

The next node, address 3, is an output station. It is connected to another power supply. This power is often used to drive solenoids and other electromechanical devices. By separating this power from the busline the potential for noise induced in the bus signals is greatly reduced. The other advantage is that most smart nodes can recognize a short in an electromechanical device, and report the problem back to the host. This could not occur if the short were also dragging down the power to the smart device.

Until now all of the communication has gone on through the main bus cable, called a trunkline. The next item after address 3 is a tee, and from it extends a branch. In some bus nomenclature this is called a drop or spur. Some high-speed buses cannot branch beyond a few centimeters without some active device to either condition or repeat the signal.

In Figure 1 this branch leads to a smart photoelectric sensor with all of the communication hardware built into the sensor. The sensor is node address 4 and is specific to the bus protocol.

The last part on this network is the terminating resistor. In some buses it is a simple resistor connected to the two data lines. The resistor conditions the signal on the rest of the network by expending energy when the signal goes from an energized state to a de-energized state.

Serial Data Communication

Serial data transmission is a conventional method of industrial data transfer. It is used to program the control system via a PC or programming device. The signal mode on both lines, defined as „ON – OFF“ or „1 – 0“ or „HIGH – LOW“, dates back to telegraphing technology, but today the speed of transmission is some million times faster.
Some terms used in the context of serial data transfer are:

Serial data transmission – transmission of information which is divided into parts and transferred consecutively
Bit – one part of the information, either „1“ or „0“
Byte – 8 bits
Word – 2 bytes

Signal

The signals that represent the bits are either electrical oscillations or pulses. Pulses are digital square wave signals and oscillations are modulated signals. The digital signal has the advantage of cost and the modulated signal is better over long distances, especially if the transmission lines are subject to electrical noise.
A simple modulated signal uses two frequencies to represent the “High - Low” bit states.
Common digital signals have two states - “ON or ”OFF". One is binary logic state. Here the “High” may mean “ON” but the “Low” is either “OFF” or no signal (nothing is being sent). Two meanings for the low state is obviously a problem, so a certain number of “High” bits must be sent to warn a receiver that a message is coming and a certain number of “High” bits are needed to end the message. In between, all the “Lows” are then considered “OFF”, not an absent signal.

Terms used to describe the signals and signal transmission are:

Bit encoding – data bits („0“- and „1“) are encoded within a defined time pattern
FSK – Frequency **S**hift **K**ey – data bits are transferred via two frequencies (0 = f_1 and 1 = f_2)
Manchester – a common bit encoding method for digital signals
EIA RS485 – a standard which describes signal generators, receivers and a combination of both (transceivers). It also describes the electrical values of the signal. The cable and the signal contents are not defined.
Carrier – the bit-encoded signal can be sent on an AC or DC carrier. The advantage of using such a carrier is that both data and power can be transferred via a 2-wire cable. Another benefit is the possibility of transfer over long distances without distortion
NRZ – Non **R**eturn to **Z**ero – an encoding method of differential buses such as RS485 and CAN.

Protocol

All bits need to be organised to have a meaning. A specialised program is implemented in the transmitter and receiver units to carry out the required decoding. A single bit may sometimes have a defined meaning, but usually a group of bits is needed to understand the contents of a telegram.

Start of message – a certain number of high bits which indicate the start of a message or a telegram; consecutive bits enable the receiver to adjust to the telegram.
Address – a unique connection point on the bus. It allows identification of the transmitter and receiver. Depending on the type of protocol, the address of the transmitter and/or receiver may be contained in the telegram.
Check sum – with the help of defined algorithms the transmitter computes a check sum which is transferred to the receiver as part of the telegram. After receipt of the telegram, the receiver also performs the check sum calculation according to the same algorithm. The results are then compared: if they are not identical, the received data are rejected and usually a new telegram request is gerenerated (depending on the type of bus).
End of message – this lets other occupants of the bus know the transmission is over and other messages can be sent.

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Occupants on the Bus

When analysing the different kinds of buses, it is possible to distinguish between two basic categories: active and passive components. Active components either generate a signal or receive a signal or provide both possibilities. Passive components are cables, junction, tee-pieces etc.

Active components:

Node	– an „addressable“ device on the bus line
Bus station or bus module	– an active component - but not a master or a gateway
Gateway	– a special node connecting two different buses electrically and logically.
Repeater	– a device for amplification of signals. It typically delays signal transfer from one segment to the next. Repeaters are used in case of signal distortions or long distance transfer.
Bridge	– there are two types of bridges, called either „intelligent“ or „dumb“. A „dumb“ bridge connects two segments (portions) of the same bus type, but with different transmission speeds. An „intelligent“ bridge also connects two segments, but in addition to this it transfers only certain pre-programmed telegrams with special addresses from one segment to the next.
Router	– a higher level bridge which is preferably used in larger networks.
Master	– PC card or PLC card for control of the bus and for data mapping. A master typically consists of hardware and software.
Scanner module	– DeviceNet™ specification for a gateway between the fieldbus and a PLC or PC.
Interface card, interface module	– generic term for the gateway, either in a PLC or PRC that interfaces to a device-level bus.

Passive components:

Tee	– a T-shaped component which enables creation of a drop line from the main bus branch.
Passive hub	– the same as a tee but with the capacity of creating more branches
Terminating resistor	– a resistor which terminates the bus on both cable ends and thus avoids reflexions and disturbances.
Bus cable	– usually a shielded 2-wire cable. Electrical features such as resistance, capacitance etc. may vary depending on the type of the bus. There are various bus cables for use in different environments, e.g. oil and chemical resistant versions, trailing cables etc.
Trunk line	– the main bus line
Drop line	– a bus branch

Bus Topology

Topology is the term used to describe the geometrical structure of the bus. It describes how the bus line connects the individual devices:

Typical versions are:

Bus	–	the most simple and line-shaped topology is called a bus
Tree	–	a simple bus can have brances and drops which quite often may be only a few centimetres long. These may also have branches so that a tree-like structure is created.
Star	–	a further cabling topology is the star. This method is mainly used in computer networks. The long individual bus lines are disadvantageous.
Ring	–	the ring is a topoloy which quite often is not immediately identified as such because the cables may be routed back in the same branch. When using this structure, each node performs like a repeater. The node takes its data from the telegram and adds new information. Specific hardware within the node enables distribution of the telegram.

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Bus Types

There are several different bus types utilizing the following technologies:

Media Access - this is the “right-of-way” for talking on the bus.

There are 3 main types:

– **Master Control** - one super node controls all transmission, sequence and time. Remaining nodes do not talk unless told to by the master.
– **Token Passing** - this is a message shift method that is incremented in a manner that allows each node a chance to talk each cycle.
– **CSMA** - an access method allowing each node to speak, provided that it has something to say and no other node is on the line.

Message Collision Avoidance - when two people talk simultaneously there is a verbal collision. A few humans can talk and listen to some one else at the same time but nodes can’t. Both token passing and master control do not have that problem. A field node can only access the bus when it is its turn to talk or when it has been told to talk. The CSMA type buses do have this problem. Sometimes they are operated as a master-to-slave, so the problem goes away. When operating in the native CSMA access method, two nodes could start talking simultaneously.

Two major ways have been developed to handle the potential collision:

CD – collision detection - all senders must also be receivers. If two nodes start talking at the same time, they will hear a collision. Both stop talking, wait a random length of time, then look for a clear line to start talking again.
BA – bitwise arbitration - all senders must also be receivers. The busline must be of a specific length or less so that all nodes hear the bit at the same time (actually the first node and the last node can be approximately 1/6 bit apart).

Messaging – there are three major types in the run mode, but many more during startup and initialization:

Solicited – a response to another node or a response when it is the node’s predetermined time to speak (token passing).
Unsolicited – a response to a change-of-state at that node.
Explicit – this is a command order. It may command an output be turned “On” or “Off”. It may command any node to report its diagnostic status or identify itself in full detail.

One last distinction must be made for the output nodes. How do they get the information so they know what to do? There is an overlap with the terms used for messaging, but there is also a difference.

Explicit Message – this is a command from another node.

Limited Peer-to-Peer – exclusive one-to-one relationship between the input node and the output node. This could also be called exclusive peer-to-peer.

Unlimited Peer-to-Peer – similar to limited peer-to-peer, but the output node may get information from several input nodes.

DeviceNet™ Housings

Version 1:

Version 2:

Version 3:

Version 4:

Version 5:

Version 6:

Version 7:

Version 8:

piconet®

- Stand-alone modules

(more information about *piconet*® system see pages 144-147)

Version 9:

Version 10:

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TURCK DeviceNet™ modules are available in ten different housing types. All modules have IP67 rating.

Version 1
Version 1 is made of high-grade plastics and is fully potted. It is equipped with eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Addresses and the communication rate are set via software or coded rotary switches, which are located in good view under a transparent cover.

Version 2
The housing design and connection of inputs and outputs are identical to version one, but the bus is connected via a single 7/8'' *minifast*® connector. The bus tee RSM-2RKM57-KF can be used for the bus connection. Addresses are set via software or coded rotary switches, which are located in good view under a transparent cover. The communication rate is detected automatically.

Version 3
Version 3 is made of high-grade plastics and is fully potted. It is equipped with eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Auxiliary power is connected via two 7/8'' *minifast*® connectors. Addresses and the communication rate are set via software or coded rotary switches, which are located in good view under a transparent cover.

Version 4
The housing design and connection of inputs and outputs are identical to version one, but the bus is connected via a single 7/8'' *minifast*® connector. Auxiliary power is also connected via one 7/8'' *minifast*® connectors. The bus tee RSM-2RKM57-KF and the power tee RSM-2RKM40-KF can be used. Addresses are set via software or coded rotary switches, which are located in good view under a transparent cover. The communication rate is detected automatically.

Version 5
Version 5 is made of high-grade plastics and is fully potted. It is equipped with four M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus-cables. Addresses and the communication rate are set via software or coded rotary switches, which are located in good view under a transparent cover.

Version 6
Version 6 is made of die-cast aluminium and is fully potted. It is equipped with four or eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Addresses and the communication rate are set via software or DIP-switches, which are located under the module's cover.

Version 7
Version 7 is made of die-cast aluminium and is fully potted. It is equipped with four or eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Auxiliary power is connected via two 7/8'' *minifast*® connectors. Addresses and the communication rate are set via software or DIP-switches which are located under the module's cover.

Version 8
Version 8 is made of high-density Noryl. It is equipped with four or eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via one 7/8'' *minifast*® connectors. The bus tee RSM-2RKM57-KF can be used. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Addresses and the communication rate are set via software.

Version 9
Version 9 is made of high-density Noryl. It is equipped with four or eight M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via one 7/8'' *minifast*® connectors. The bus tee RSM-2RKM57-KF can be used. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus-cables. Auxiliary power is connected via two 7/8'' *minifast*® connectors. The power tee type RSM-2RKM40-KF can be used. Addresses and the communication rate are set via software.

Version 10
Version 10 is made of high-density Noryl. It is equipped with one or two M12 *eurofast*® connectors for the inputs and outputs. The bus is connected via two 7/8'' *minifast*® connectors. There are premoulded DeviceNet™ cables available (bus "in" and bus "out") to exclude wiring errors. Power for the modules is connected via the bus cables. Addresses and the communication rate are set via software.

Functions – Selection guide

Type code	Input parameters						Output parameters					
Advanced I/O Modules:	Page number	Number of inputs	Inputs per connector	Compatible with npn/pnp sensor	Short-circuit protection	Open-circuit detection	Number of outputs	Outputs per connector	Maximum output load	Bus power or auxiliary power	Short-circuit protection	Open-circuit detection
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FDNL-CSG88-W	54	8	1	pnp	group	N	8	1	0.5 A	bus	Y	N
FDNP-CPG88-TT	56	8	1	pnp	individual	Y	8	1	0.5 A	aux	Y	Y
FDNP-XSG16-TT	58	16	2	pnp	group	N	16	2	0.5 A	aux	Y	N
CDN-IM4-0046	60	4	1	npn/pnp	individual	Y	–	–	–	–	–	–
CDN-IM16-0003	62	16	2	npn/pnp	individual	N	–	–	–	–	–	–
CDN-IOM44-0045	64	4	1	npn/pnp	individual	Y	4	1	2 A	aux	Y	Y
CDN-OM4-0049	66	–	–	–	–	–	4	1	2 A	aux	Y	Y
BD8D4EP0	68	4	1	pnp	group	N	–	–	–	–	–	–
BD8D4EX0	70	4 x 2	2	pnp	group	N	–	–	–	–	–	–
BD8D8EP0	72	8	1	pnp	group	N	–	–	–	–	–	–
BD8D8EX0	74	8 x 2	2	pnp	group	N	–	–	–	–	–	–
BD8D2EP2ET	76	2	1	pnp	group	N	2	1	2 A	aux	Y	N
BD8D2EX2ET	78	2 x 2	2	pnp	group	N	2	1	2 A	aux	Y	N
BD8D4EP4ET	80	4	1	pnp	group	N	4	1	2 A	aux	Y	N
BD8D4EX4ET	82	4 x 2	2	pnp	group	N	4	1	2 A	aux	Y	N
BD2DT1EP0	84	1	1	pnp	individual	N	–	–	–	–	–	–
BD2DT1EX0	86	1 x 2	2	pnp	group	N	–	–	–	–	–	–
BD2DT2EP0	88	2	1	pnp	group	N	–	–	–	–	–	–
BD2DT2EX0	90	2 x 2	2	pnp	group	N	–	–	–	–	–	–
BD2DT1EP1EU	92	1	1	pnp	individual	N	1	1	150 mA	bus	Y	N
BD2DT1EX1EU	94	1 x 2	2	pnp	group	N	1	1	150 mA	bus	Y	N
BD2DT2EU	96	–	–	–	–	–	2	1	150 mA	bus	Y	N

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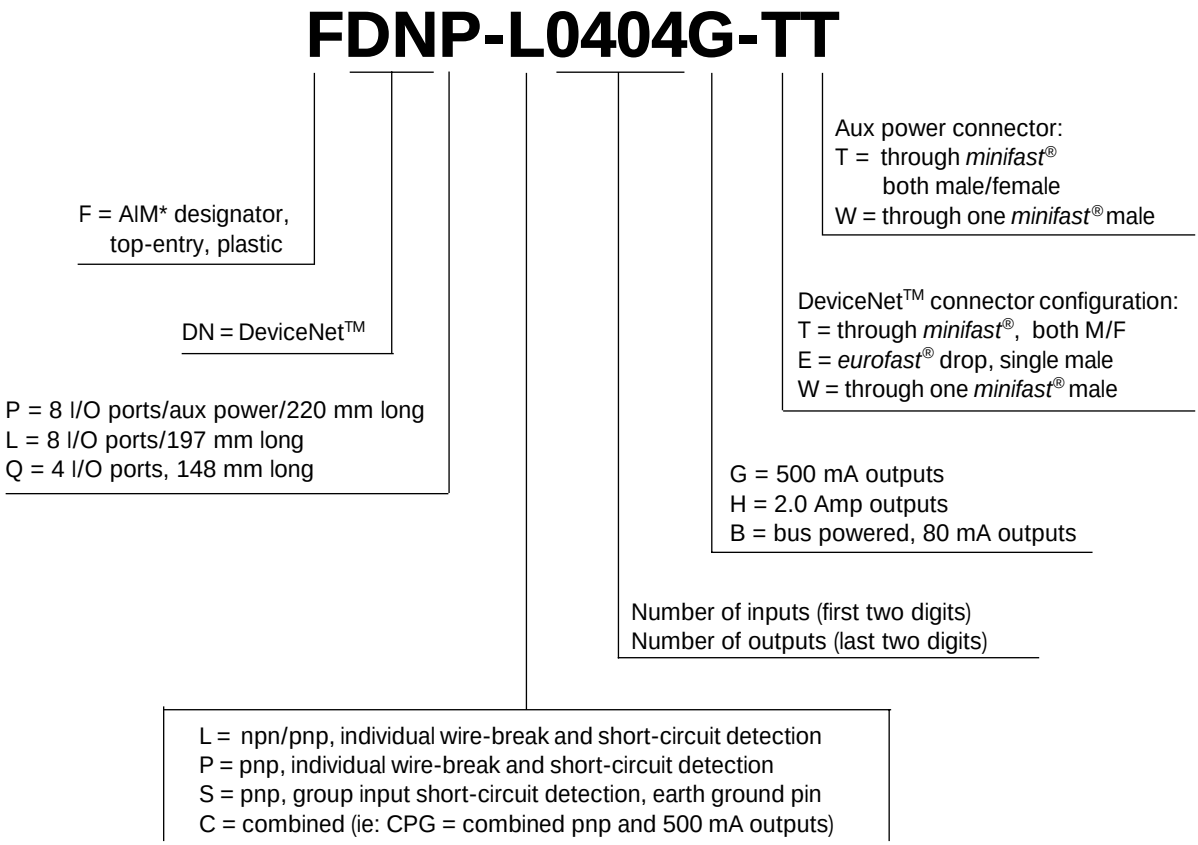
Type codes

The AIM* type codes are designed to identify the features of each unit easily and quickly. Based on the alpha/numeric characters used, you can determine the size of the module, I/O type, number of I/O points and network and auxiliary connector type.

The model type code shown below will help you identify the meaning of each character.



Following are two sample type codes and their specifications.

FDNP-L0404G-TT

This model is a DeviceNet™ AIM* station with top-entry and a plastic housing. It has 8 I/O points, aux power and is 220 mm long. It has both npn and pnp with individual short-circuit and open-circuit detection. There are 4 inputs and 4 outputs, with each output supplying up to 500 mA. The connector configuration is through minifast connections, both male and female.

FDNL-CPG88-T

This model is a DeviceNet™ AIM station with top-entry and a plastic housing. It has 8 I/O points and is 197 mm long. There are 8 combined input and output points, with each output supplying up to 500 mA. The connector configuration is through *minifast*® connections, both male and female.

***** (AIM = advanced I/O modules)

System Description

DeviceNet™ is a low-cost communication link to connect industrial devices such as limit switches, photoelectric sensors, valve manifolds, motor starters, process sensors, bar code readers, variable frequency drives, panel displays and operator interfaces to a network and eliminate hard-wiring. The direct connectivity provides improved communication between devices as well as important device-level diagnostics not easily accessible or available through hard-wired I/O interfaces.

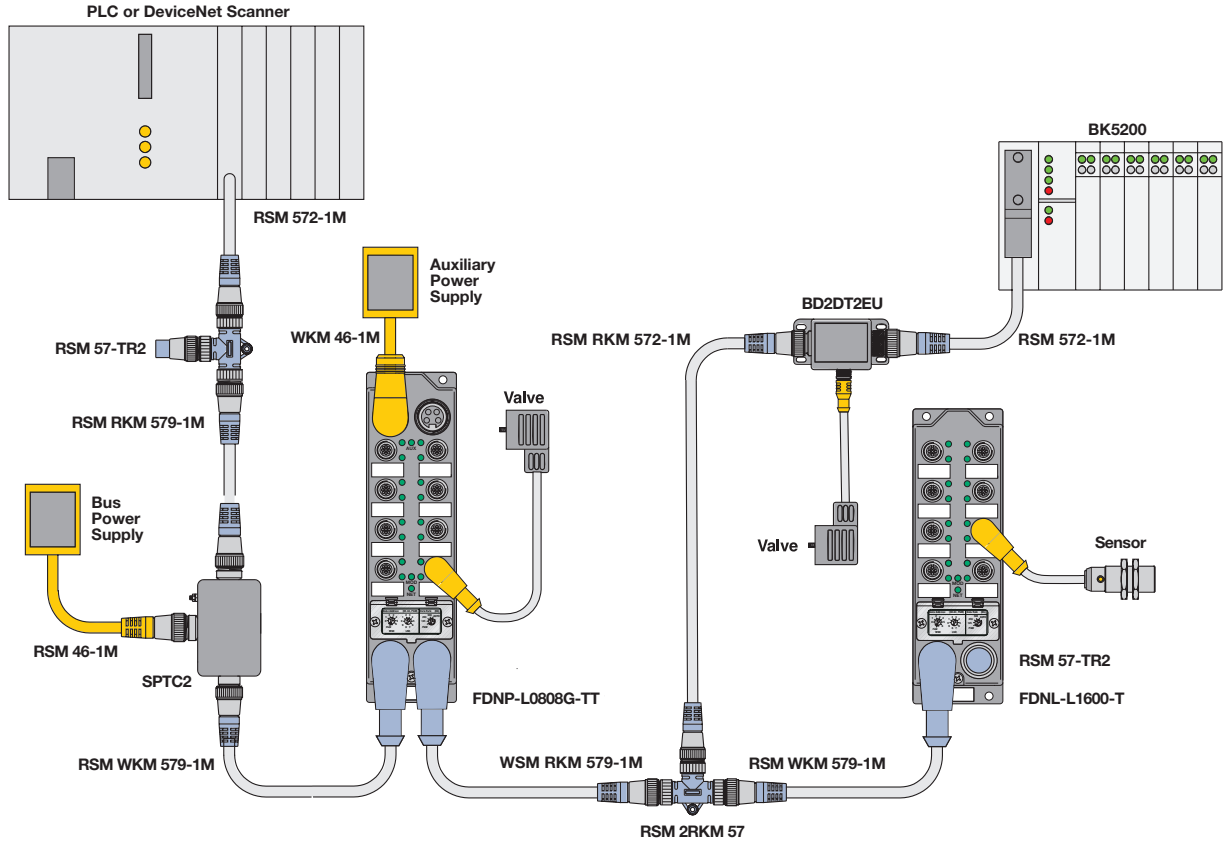
DeviceNet™ is based on a broadcast-oriented communications architecture - the Controller Area Network (CAN). CAN uses the CSMA/BA bus arbitration method. CSMA/BA assures that the highest priority message always gets transmitted. The DeviceNet™ protocol further defines message priorities such that I/O messages are given top priority and configuration messages have lower priority.

A DeviceNet™ network supports up to 64 nodes and an unlimited amount of I/O. The bus uses a trunkline-dropline topology. Bus power and communication are supplied on a single cable. Bus power is 24 VDC and supplies current to operate the node as well as current to power input devices. TURCK stations require an additional 24 VDC auxiliary power to supply current for the outputs.

DeviceNet™ allows Peer-to-Peer data exchange (in which any DeviceNet™ product can produce and consume messages) and Master/Slave operation (called the Predefined Master/Slave Connection Set.) TURCK stations support the slave capabilities of the predefined master/slave connection set. The stations do not support peer-to-peer data exchange.

Electronic data sheets, or EDS files, are specifically formatted ASCII files that contain detailed information about the device, including I/O data size and the device's configurable parameters. The information in an EDS guides a user through the steps necessary to configure a device. EDS files are available on disk or from the TURCK web site (www.turck.com).

System Configuration



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Basic Parts List

A DeviceNet™ system like the one shown on the previous page consists of the following parts:

Nodes		Physical Media	
(1) FDNL-L1600-T	input/output station	(1) SPTC2	bus power tap
(1) FDNP-L0808G-TT	input station	(2) RSM-2RKM57	bus tee
(1) BD2DT2EU	output station	(2) RSM57-TR2	terminator
(1) BK5200	Beckhoff coupler	(1) RSM-RKM579-1M	bus cordset
		(2) RSM-WKM579-1M	bus cordset
		(1) WSM-RKM579-1M	bus cordset
		(1) RSM-RKM572-1M	drop dordset
		(2) RSM572-1M	drop cordset
		(1) WSM46-1M	auxiliary power cable
		(1) RSM46-1M	bus power cable

PLC / Controller Connectivity

TURCK stations require a network master (also called a scanner) to interface the stations to the host controller. Here is a partial list of PLCs and PC interface products that support DeviceNet™:

DeviceNet™ compatible PLCs
– Allen-Bradley (MicroLogix, SLC and PLC series)
– GE Fanuc (90/30, 90/70)
– Omron (CV/CVM1, C200HS/X/G/E series)
– Siemens (S5, TI505)
– Toshiba (T2E, T3)

DeviceNet™ compatible PC interfaces
– Allen-Bradley (PCI)
– Cutler-Hammer (ISA, PCMCIA)
– National Instruments (ISA, PCI, PCMCIA)
– Softing (ISA, PCMCIA)
– SST (ISA, PC/104, PCMCIA, VME)
– Synergetic Micro Systems (ISA, PC/104)

Cordsets

TURCK offers a complete line of moulded DeviceNet™ cordsets to facilitate network installation, resulting in faster start-up and reduced wiring errors.
The bus and drop cables are specially designed foil-shielded, high-flex cables with very low inductance and capacitance to minimize propagation delay time.
DeviceNet™ cables consist of a shielded and twisted data pair and a shielded and twisted power pair for the 24 VDC bus power, with an additional outer shield.
The data lines for the CAN-High and CAN-Low differential signals conform to the CAN standard and can handle data exchange on the network at the maximum transmission speed of 500 kbps.
The two 24 VDC lines provide bus power to the stations' communication electronics and input circuits.
All connections of the bus cable to the stations are achieved with 5-pin *minifast*® (7/8'') connectors.
Stations with output circuits for DC actuators require 24 VDC auxiliary power that is fed through a 4-pin *minifast*® (7/8'') connection.
All input and output connections are accomplished with industry standard *eurofast*® (M12) connectors.
TURCK cordsets for the DeviceNet™ system are available in standard lengths. Contact factory for custom lengths and configurations.

CAUTION: Stations, junctions and bus cables should not be mounted where there is risk of damage from moving machine parts.
A short-circuit or wire-break on the bus cable would result in a breakdown of the communication network.

Diagnostics

A key benefit of TURCK stations is increased diagnostics when using standard proximity or photoelectric sensors and digital actuators.
TURCK stations also serve as a buffer between I/O devices and the DeviceNet™ bus by detecting short-circuits without disrupting DeviceNet™ communication.
Each I/O point on the station provides "state" and "status" data. State represents the real world value of the I/O device - for example, the sensor is on, or the actuator is off. Status data indicates short-circuits in the I/O device or the wiring between the device and the station. Some models also use the status to indicate open circuits. The state and status data are transferred to the DeviceNet™ scanner where they are available for fault handling in the control program.
In addition, each input and output has a multicoloured LED to indicate its state and status. These LEDs pinpoint I/O problems quickly. A detailed description of input and output LED indications is shown on each product page.
There is a "Module Status LED" that indicates the internal functionality of the station and a "Network Status LED" that indicates the station's communication on the DeviceNet™ network. A detailed description of module status and network status LED indications is shown on page 17.

Addressing

The valid range of DeviceNet™ node addresses is 0 to 63. The station default node address is 63 and the default communication rate is 125 kbps (kilobits per second). The node address and communication attributes can be set through hardware or software node commissioning. The default is software node programming.
Hardware node commissioning is accomplished using the DIP or rotary switches under the device cover.
Changes to the DIP-/Rotary-switch settings take effect when the station power is cycled or when the station receives a software reset.
Care must be taken that the same address is not assigned to more than one node in a system. If the same address is set on multiple nodes, one node will take control of the address and the others will go into the “Critical Link Failure” state and the network status LED will illuminate red.

Communication Rate / Cycle Time

The DeviceNet™ specification defines three transmission speeds: 125, 250 and 500 kbps. All nodes on a network must communicate at the same rate.

The complete cycle time of a DeviceNet™ system is affected by several factors:

– the number of nodes being scanned
– the amount of data produced and consumed by the nodes
– type of I/O messaging (change of state, strobe, poll)
– network communication rate
– device timeout and explicit messaging traffic
– zhe cycle time of the control program

All of these factors must be considered when calculating the cycle time of a particular network.

Maximum Ratings

The DeviceNet™ bus uses a trunk and drop topology. The trunk is the main communication cable and requires a 121 Ω resistor at both ends of the trunk. The length of the trunk depends on the communication rate and the cable type. Drops are branches off of the trunk and may be from 0 to 6 m (20 ft). The cumulative drop lengths are dependent on the communication rate. The table below shows the maximum ratings for a trunk using InterlinkBT 570 type cable:

Communication rate	Trunk length (maximum)	Drop length (maximum)	Drop length (cumulative)	Nodes (max.)
125 kbps	500 m (1640 ft)	6 m (20 ft)	156 m (512 ft)	64
250 kbps	250 m (820 ft)	6 m (20 ft)	78 m (256 ft)	64
500 kbps	100 m (328 ft)	6 m (20 ft)	39 m (128 ft)	64

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LED Indications

Module Status LED

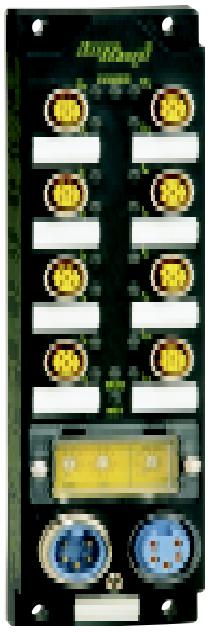
State	LED is	Indication
Power off	off	mo bus power
Device operational	green	device is operating normally
Device in standby (Device needs commissioning)	flashing green	device needs commissioning due to configuration missing, incomplete, or incorrect.
Minor fault	flashing red	recoverable fault
Unrecoverable fault	red	device cannot recover; it may need replacing
Device self-testing	flashing red-green	device is in self-test

Network Status LED and MOD/NET Status LED

State	LED is	Indication
Not powered / not on-line	off	- cevice is not on-line - device has not completed the Duplicate MAC ID test - device may not be powered
On-line, not connected	flashing green	device is on-line but is not allocated to a master
On-line, connected	green	device is allocated to a master and is operating normally
Connection time-out	flashing red	the I/O connection is in the time-out state
Critical link failure	red	device has detected an error that has rendered it incapable of network communication (Duplicate MAC ID or Bus-Off)
Device self-testing	flashing red-green	device is in self-test

Auxiliary Power LED

State	LED is	Indication
Power off	off	no auxiliary power
Normal operation	green	auxiliary power is present



This *busstop*® station is designed for connection of up to 8 binary 3-wire sensors. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used.

Each connector produces 3 bits of data - one input state bit, one short-circuit status bit and one open-circuit status bit. The state bit is set when the binary input device closes. The LED at each input point indicates its status.

Each input is monitored for short-circuit and open-circuit. The input LED turns red if the point current draw exceeds 80 mA; the LED turns yellow if the point current draw is less than 1 mA. Open-circuit detection is enabled using a software configuration tool. The status bits automatically reset when the fault is cleared.

The node address and communication rate are set by rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically.
The FDNL-L0800-T supports explicit messages, bit strobe, polled, change of state and cyclic I/O messages.

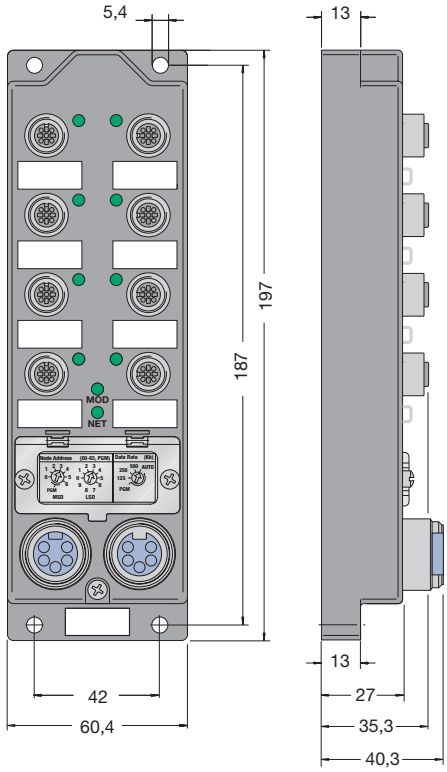
Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field-wireable)

FDNL-L0800-T

- Advanced DeviceNet™ station
- 8 binary inputs

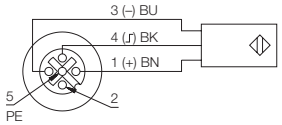
Applications
- For high-density applications
- For use with eight 3-wire sensors

Features
- Wire-break detection and short-circuit protection of pnp / npn inputs
- Polyethylene housing with nickel-plated brass connectors
- Rotary address switches
- Automatic detection of network communication rate

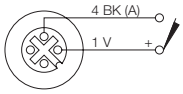


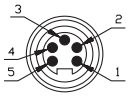
Wiring diagrams

Inputs		Bus line	
3-wire npn/pnp sensor	Mechanical contacts	male	female

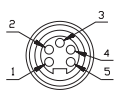


1 = V +
2 = N/C
3 = V –
4 = Input
5 = PE





1 = Shield
2 = V +
3 = V –
4 = CAN_H
5 = CAN_L



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Input Module FDNL-L0800-T
8 Inputs DC

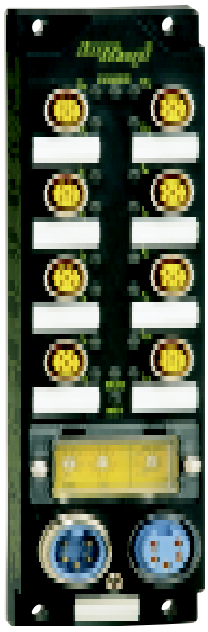
Type	FDNL-L0800-T
Ident-no.	66 033 35
Supply Voltage	
Bus power	11...26 VDC
Internal current consumption	100 mA plus sum of sensor currents (from bus power)
Input Circuits	(8) pnp or npn 3-wire sensors or dry contacts
Input voltage	11...26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.3...3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input off green = input on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	
Address	0...63 via node address switches
Comm rate	auto/125/250/500 kbps via data rate switch
Internal adjustments	address and comm rate from internal EEPROM (rotary switches in PGM positions)
DeviceNet Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1201 (4B1 hex)
I/O Data Mapping	
I/O message types	strobe, polled, change of state or cyclic
Produced data size	3 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status
IOS = input open-circuit status

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	HDPE, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to 8 binary 3-wire sensors.

Inputs are monitored for short-circuits as a group. A short-circuit condition is indicated by a red MOD status LED and IGS bit. The LED and status bit automatically reset when the fault is cleared.

The node address and communication rate are set by the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate.

The FDNL-S0800-T supports explicit messages, bit strobe, polled, change of state and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

FDNL-S0800-T

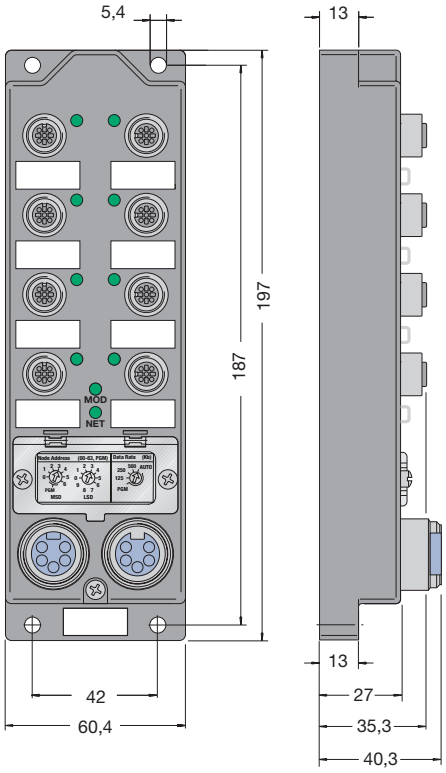
Advanced DeviceNet™ station
8 binary inputs

Applications

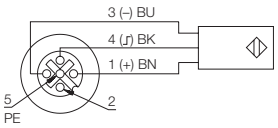
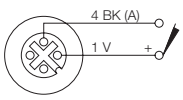
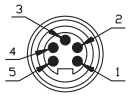
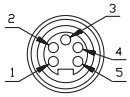
For high-density applications
For use with eight 3-wire sensors

Features

Short-circuit protected pnp inputs
Polyethylene housing with nickel-plated brass connectors
Rotary address switches
Automatic detection of network communication rate



Wiring diagrams

Inputs	Bus line
3-wire npn/pnp sensor  1 = V + 2 = N/C 3 = V – 4 = Input 5 = PE Mechanical contacts  	 male 1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  female

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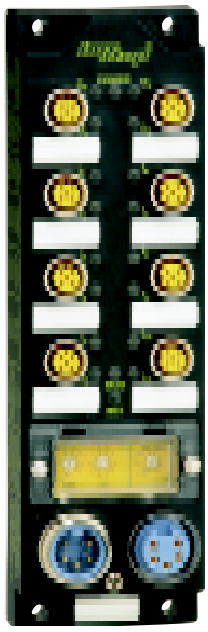
Input Module FDNL-S0800-T
8 Inputs DC

Type	FDNL-S0800-T
Ident-no.	66 033 36
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	100 mA plus sum of sensor currents (from bus power)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Sensor current	< 300 mA total, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
I/O LED Indications	off = input off on = input on
Module Status LED	green = working properly flashing green = detecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	
Address	0...63 via node address switches
Comm rate	auto/125/250/500 kbps via data rate switch
Internal adjustments	address and comm rate from internal EEPROM (rotary switches in PGM positions)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1217 (4C1 hex)
I/O Data Mapping	
I/O message types	strobe, polled, change of state or cyclic
Produced data size	2 bytes

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IGS = input group short-circuit status (0 = OK, 1 = shorted)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	IGS	–	–	–	–	–	–	

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	HDPE, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to sixteen binary 3-wire sensors or eight binary 4-wire sensors. There are two inputs per connector - one on pin 4 and one on pin 2. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used.

Each connector input produces 6 bits of data - two input state bits, two short-circuit status bits and two open-circuit status bits. The state bit is set when the binary input device closes. The LED at each input point indicates its status.

Each input pair is monitored for short-circuits and open-circuits. The input LED turns red if the point current draw exceeds 80 mA; the LED turns yellow if the point current draw is less than 1 mA. Open-circuit detection is enabled using a software configuration tool. The status bits automatically reset when the fault is cleared.

The node address and communication rate are set by the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate.
The FDNL-L1600-T supports explicit messages, bit strobed, polled, change of state and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

FDNL-L1600-T

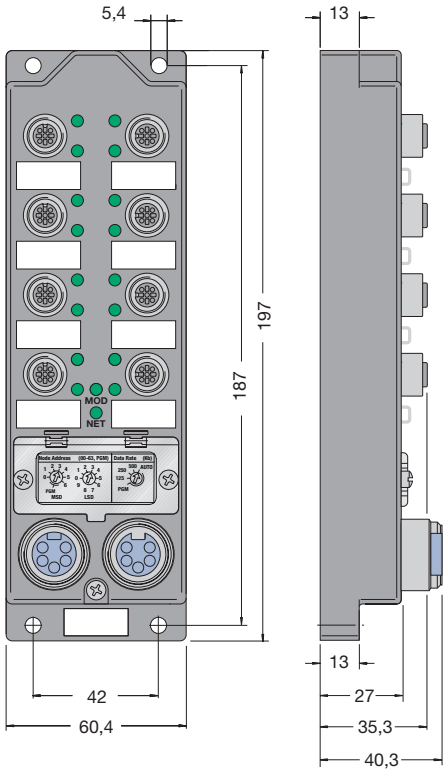
- Advanced DeviceNet™ station
- 8 x 2 binary inputs

Applications

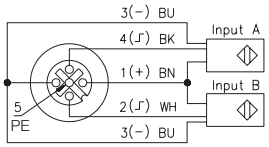
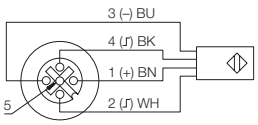
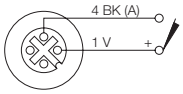
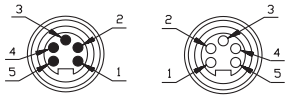
- For high-density applications
- For use with eight 4-wire sensors or sixteen 3-wire sensors through input splitters

Features

- Wire-break detection and short-circuit protection of pnp / npn inputs
- Polyethylene housing with nickel-plated brass connectors
- Rotary address switches
- Automatic detection of network communication rate



Wiring diagrams

Splitter and 2 sensors	Single sensor	Mechanical contacts*	Bus line
		 * disable open-circuit detection	1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female

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Input Module FDNL-L1600-T
8 x 2 Inputs DC

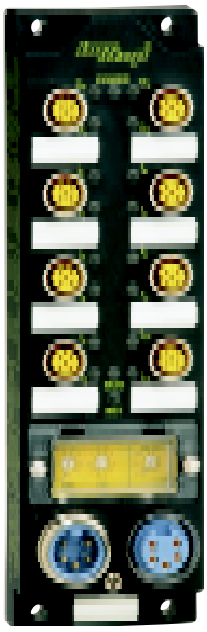
Type	FDNL-L1600-T
Ident-no.	66 023 35
Supply Voltage	
Bus power	11...26 VDC
Internal current consumption	140 mA plus sum of sensor currents (from bus power)
Input Circuits	(16) pnp or npn 3-wire sensors or dry contacts
Input voltage	11...26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5... 3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input off green = input on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	
Address	0...63 via node address switches
Comm rate	auto/125/250/500 kbps via data rate switch
Internal adjustments	address and comm rate from internal EEPROM (rotary switches in PGM positions)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1521 (5F1 hex)
I/O Data Mapping	
I/O message types	strobe, polled, change of state or cyclic
Produced data size	3 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status
IOS = input open-circuit status

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-09	I-08
	2	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	3	ISS-15	ISS-14	ISS-13	ISS-12	ISS-11	ISS-10	ISS-9	ISS-8
	4	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	5	IOS-15	IOS-14	IOS-13	IOS-12	IOS-11	IOS-10	IOS-9	IOS-8

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	HDPE, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to sixteen binary 3-wire sensors or eight binary 4-wire sensors. There are two inputs per connector - one on pin 4 and one on pin 2.

Inputs are monitored for short-circuits as a group. A short-circuit condition is indicated by a red MOD status LED and IGS bit. The LED and status bit automatically reset when the fault is cleared.

The node address and communication rate are set by the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically.

The FDNL-S1600-T supports explicit messages, bit strobe, polled, change of state and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

FDNL-S1600-T

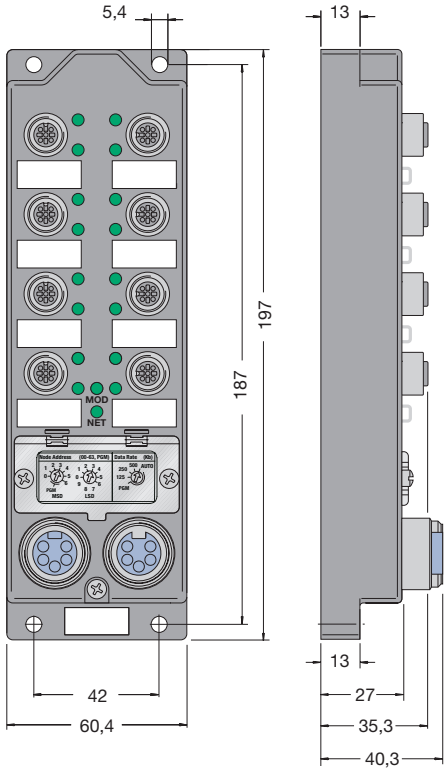
Advanced DeviceNet™ station
8 x 2 binary inputs

Applications

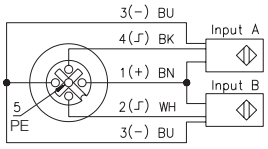
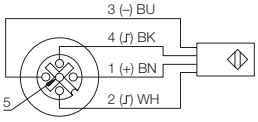
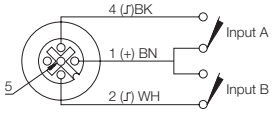
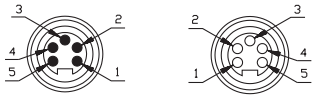
For high-density applications
For use with eight 4-wire sensors or sixteen 3-wire sensors through input splitters

Features

Short-circuit protected pnp inputs
Polyethylene housing with nickel-plated brass connectors
Rotary address switches
Automatic detection of network communication rate



Wiring diagrams

Splitter and 2 sensors	Single sensor	Mechanical contacts	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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Input Module FDNL-S1600-T
8 x 2 Inputs DC

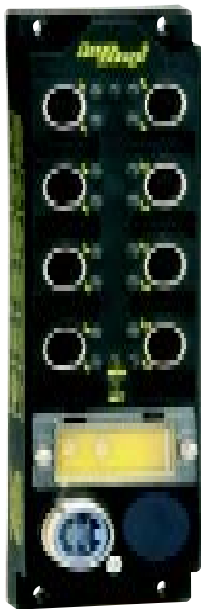
Type	FDNL-S1600-T
Ident-no.	66 033 16
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	100 mA plus sum of sensor currents (from bus power)
Input Circuits	(16) pnp 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 400 mA total, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
I/O LED Indications	off = input off on = input on
Module Status LED	green = working properly flashing green = detecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	
Address	0…63 via node address switches
Comm rate	auto/125/250/500 kbps via data rate switch
Internal adjustments	address and comm rate from internal EEPROM (rotary switches in PGM positions)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1217 (4C1 hex)
I/O Data Mapping	
I/O message types	strobe, polled, change of state or cyclic
Produced data size	3 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IGS = input group short-circuit status (0 = OK, 1 = shorted)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-09	I-08
	2	IGS	–	–	–	–	–	–	–

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	HDPE, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to sixteen binary 3-wire sensors or eight binary 4-wire sensors. There are two inputs per connector - one on pin 4 and one on pin 2.

Inputs are monitored for short-circuits as a group. A short-circuit condition is indicated by a red MOD status LED and the IGS bit. The LED and status bit automatically reset when the fault is cleared.

The node address is set by the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate.

The FDNL-S1600-W supports explicit messages, polled, change of state, and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Inputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
	BS8141-0 (male field wireable)
Bus tee:	RSM 2RKM 57 KF

FDNL-S1600-W

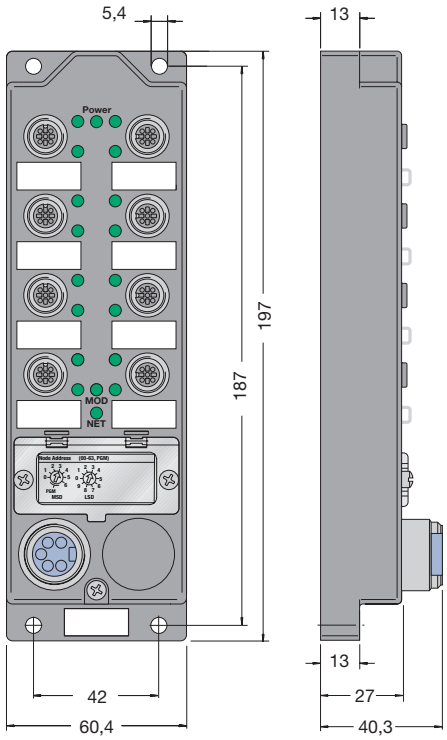
- Advanced DeviceNet™ station
- 8 x 2 binary inputs

Applications

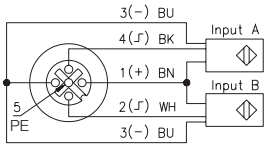
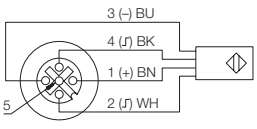
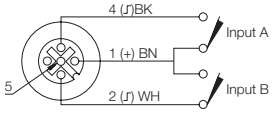
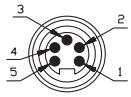
- For high-density applications
- For use with eight 4-wire sensors or sixteen 3-wire sensors through input splitters

Features

- Short-circuit protected pnp inputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches
- Automatic detection of network communication rate



Wiring diagrams

Splitter and 2 sensors	Single sensor	Mechanical contacts	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male

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Input Module FDNL-S1600-W
8 x 2 Inputs DC

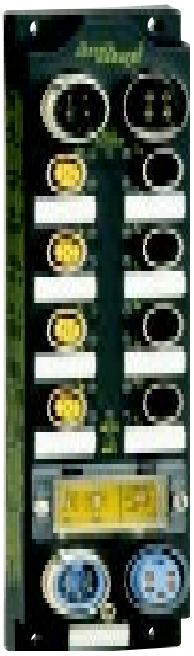
Type	FDNL-S1600-W
Ident-no.	66 033 37
Supply Voltage	
Bus power	11…26 VDC, powers communication
Internal current consumption	< 50 mA (at 24 VDC) plus sum of sensor currents (from bus power)
Input Circuits	(16) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from bus power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
I/O LED Indications	off = input off green = input on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	
Address	0…63 via node address switches
Internal adjustments	address from internal EEPROM (rotary switch must be in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2001 (7D1 hex)
I/O Data Mapping	
I/O message types	strobe, polled, change of state or cyclic
Produced data size	3 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IGS = input group short-circuit status (0 = OK, 1 = shorted)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-09	I-08
	2	IGS	–	–	–	–	–	–	–

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to four binary 3-wire sensors and four binary actuators. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Each input connector produces three bits of data - one input state bit, one short-circuit status bit and one open-circuit status bit. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80 mA. The LED is yellow if the point current draw is less than 1 mA. Open-circuit detection can be enabled for each input pair using a software configuration tool. The status bits automatically reset when the fault is cleared.

Each output supplies up to 500 mA. Each output connector consumes one output control bit and produces one output status bit. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 500 mA. The LED is yellow if the output current draw is less than 1 mA. The node address and communication rate are set using the rotary address switches located under the device cover or through software node commissioning. This unit automatically detects the network communication rate. The FDNP-L0404G-TT supports explicit messaging, poll, change of state and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs /outputs:	WAK4-5-WAS4/P00, BS8141-0 (male field-wireable)

FDNP-L0404G-TT

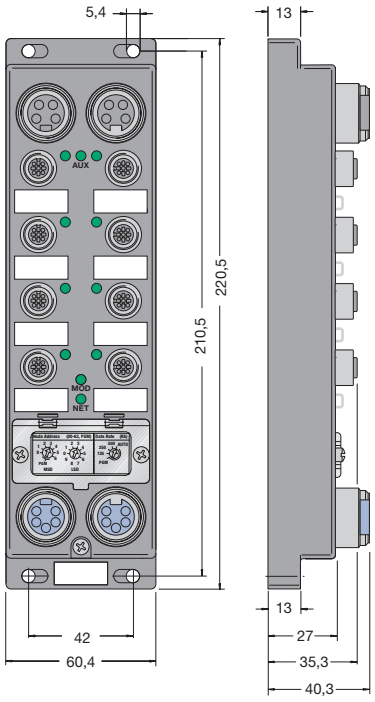
- Advanced DeviceNet™ station
- 4 binary inputs and 4 binary outputs

Applications

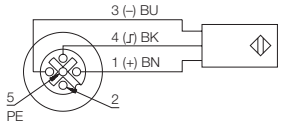
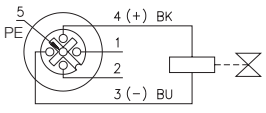
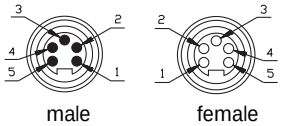
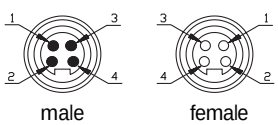
- For wet or dry environments
- For use with four 3-wire proximity and photoelectric sensors, and four actuators

Features

- Short-circuit protected npn / pnp inputs with open-circuit monitoring
- 0.5 A short-circuit protected outputs with open-circuit monitoring
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

npn/pnp sensor	Outputs	Bus line	Auxiliary power
		1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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Input/Output Module FDNP-L0404G-TT
4 Inputs DC / 4 Outputs DC

Type	FDNP-L0404G-TT
Ident-no.	66 033 27
Supply Voltage	
Bus power	11...26 VDC
Internal current consumption	140 mA plus sum of sensor currents (from bus power)
Auxiliary power	18...26 VDC, optically isolated
Input Circuits	(4) pnp or npn 3-wire sensors or dry contacts
Input voltage	11...26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5... 3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output circuits	(4) DC actuators
Output voltage	11...26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output fff green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0...63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1153 (481 hex)
I/O Data Mapping	
Produced data size	4 bytes
Consumed data size	1 byte

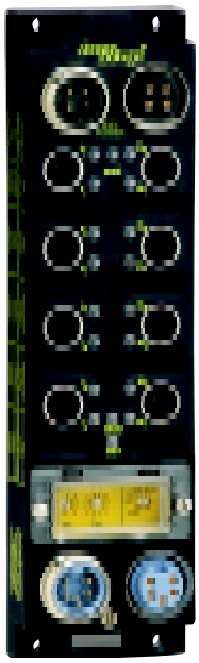
Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OSS = output short-circuit status *)
OOS = output open-circuit status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	–	–	–	–	I-3	I-2	I-1	I-0
	1	IOS-3	IOS-2	IOS-1	IOS-0	ISS-3	ISS-2	ISS-1	ISS-0
	2	OOS-3	OOS-2	OOS-1	OOS-0	OSS-3	OSS-2	OSS-1	OSS-0
	3	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing, nickel-plated brass connectors
Mounting	4 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to four binary 3-wire pnp sensors, or four binary 4-wire sensors, and 4 binary actuators.

There are two inputs per connector – one on pin 4 and one on pin 2. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Inputs are monitored for short-circuits as a group. The short-circuit status bit automatically resets when the fault is cleared.

There are two outputs per connector – one on pin 4 and one on pin 2, each supplying up to 500 mA. The LED at each output point turns green when the output is on. The outputs are monitored for short-circuits in groups.

The node address and communication rate are set using the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate .

The FDNP-S0404G-TT supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Auxiliary power: RSM-RKM46-2M
Inputs/outputs: WAK4-5-WAS4/P00, BS8141-0 (male field-wireable)

FDNP-S0404G-TT

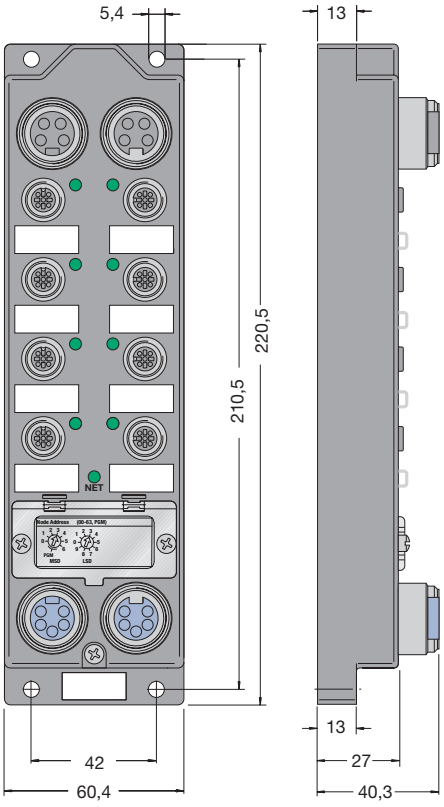
- Advanced DeviceNet™ station
- 4 binary inputs and 4 binary outputs

Applications

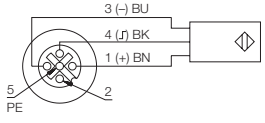
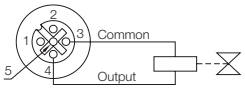
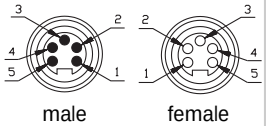
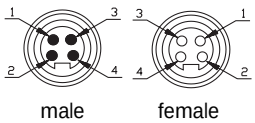
- For wet or dry environments
- For use with four 3-wire or four 4-wire proximity and photoelectric sensors, and four actuators

Features

- Short-circuit protected pnp inputs
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Single sensor	Single output	Bus line	Auxiliary power
		1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 	1 = Aux + 2 = E + 3 = E – 4 = Aux – 

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Input/Output Module FDNP-S0404G-TT
4 Inputs DC/4 Outputs DC

Type	FDNP-S0404G-TT
Ident-no.	66 033 31
Supply Voltage	
Bus power	11…26 VDC, powers communication
Internal current consumption	≤ 100 mA (from bus power)
Auxiliary power	18…26 V, optically isolated, powers all I/O
Input Circuits	(4) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from auxiliary power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(4) DC actuators or indicators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1185 (4A1 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

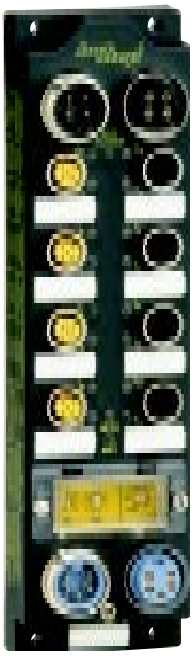
Abbreviations:

I = input data (0 = OFF, 1 = ON)
IGS = input group short-circuit status *)
O = output data (0 = OFF, 1 = ON)
OGS = output group short-circuit status *)

*) 0 = working, 1 = fault

Input	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	I-3	I-2	I-1	I-0
	1	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to eight binary 3-wire sensors, or four binary 4-wire sensors, and eight binary actuators. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn or pnp devices may be used, but both inputs on a connector must be the same type. There are two inputs per connector - one on pin 4 and one on pin 2. Each input connector produces six bits of data - two input state bits, two short-circuit status bits and two open-circuit status bits. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input pair is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80 mA. The LED is yellow if the point current draw is less than 1 mA. Open-circuit detection can be enabled for each input pair using a software configuration tool. The status bits automatically reset when the fault is cleared.
There are two output points per connector - one on pin 4 and one on pin 2, each supplying up to 500 mA. Each output connector consumes two output control bits and produces two output status bits - one control bit and one status bit for each output. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 500 mA. The LED is yellow if the output current draw is less than 1 mA. The node address and communication rate are set using the rotary address switches located under the device cover or through software node commissioning. This unit automatically detects the network communication rate.
The FDNP-L0808G-TT supports explicit messaging, poll, change of state and cyclic I/O messages.
Recommended cordsets:
Bus line: RSM-RKM570-2M
Auxiliary power: RSM-RKM46-2M
Inputs / outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-L0808G-TT

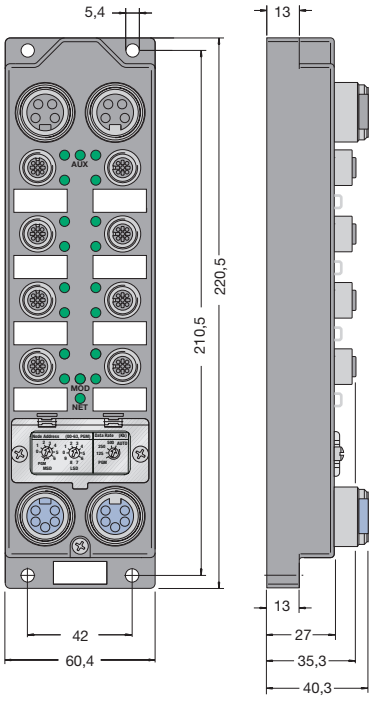
- Advanced DeviceNet™ station
- 4 x 2 binary inputs and 4 x 2 binary outputs

Applications

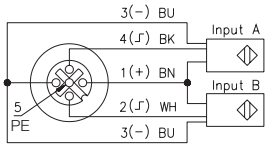
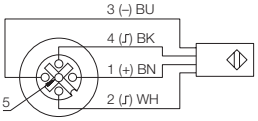
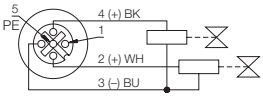
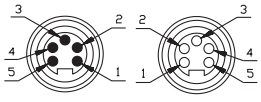
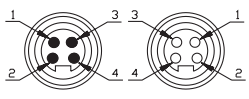
- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

Features

- Short-circuit protected npn / pnp inputs with open-circuit detection
- 0.5 amp short-circuit protected outputs with open circuit detection
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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Input/Output Module FDNP-L0808G-TT
4 x 2 Inputs DC / 4 x 2 Outputs DC

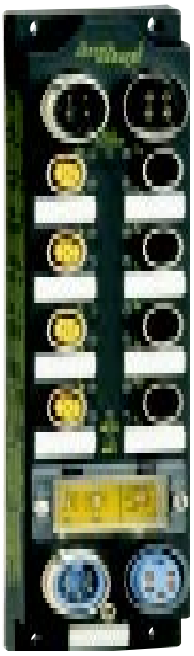
Type	FDNP-L0808G-TT
Ident-no.	66 023 89
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Auxiliary power	18…26 VDC, optically isolated
Input Circuits	(8) pnp or npn 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1105 (451 hex)
I/O Data Mapping	
Produced data size	5 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-/	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-/	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to eight binary 3-wire sensors, or four binary 4-wire sensors, and eight binary actuators. There are two inputs per connector - one on pin 4 and one on pin 2. Each input connector produces six bits of data - two input state bits, two short-circuit status bits and two open-circuit status bits. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input pair is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80 mA. The LED is yellow if the point current draw is less than 1 mA. Open-circuit detection can be enabled for each input pair using a software configuration tool. The status bits automatically reset when the fault is cleared.
There are two output points per connector - one on pin 4 and one on pin 2, each supplying up to 2 A. Each output connector consumes two output control bits and produces two output status bits - one control bit and one status bit for each output. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 2 A. The LED is yellow if the output current draw is less than 1 mA. The node address and communication rate are set using the rotary address switches located under the device cover or through software node commissioning. This unit automatically detects the network communication rate. The FDNP-P0808H-TT supports explicit messaging, poll, change of state and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-P0808H-TT

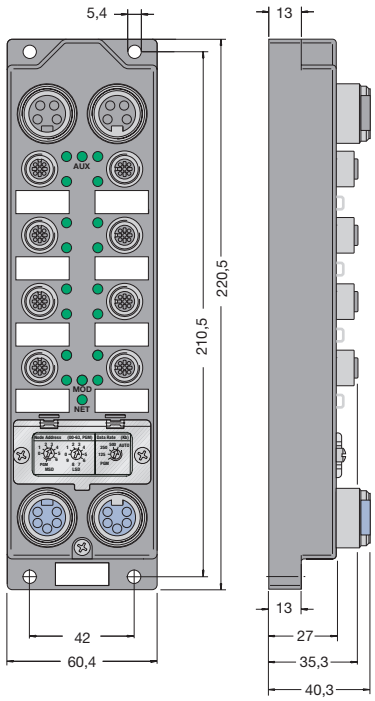
- Advanced DeviceNet™ station
- 4 x 2 binary inputs and
  4 x 2 binary outputs

Applications

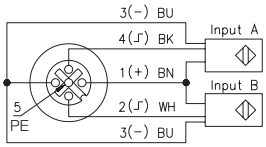
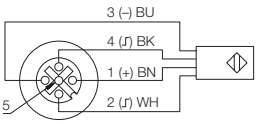
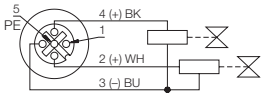
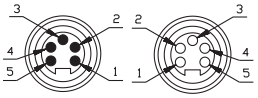
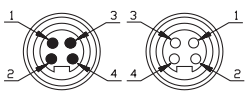
- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

Features

- Short-circuit protected pnp inputs with open-circuit detection
- 2 amp short-circuit protected outputs with open circuit detection
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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Input/Output Module FDNP-P0808H-TT
4 x 2 Inputs DC / 4 x 2 Outputs DC

Type	FDNP-P0808H-TT
Ident-no.	66 033 29
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Auxiliary power	18…26 VDC, optically isolated
Input Circuits	(8) pnp 3-wire sensors or dry contacts or (4) pnp 4-wire sensors
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	2 A per output (from auxiliary power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1793 (701hex)
I/O Data Mapping	
Produced data size	5 bytes
Consumed data size	1 byte

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-/	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-/	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Abbreviations:
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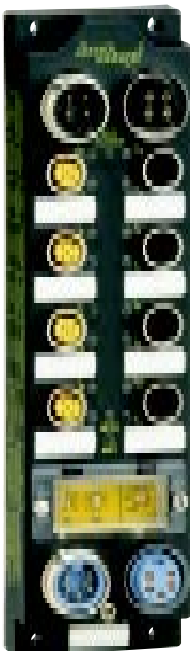
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



FDNP-L0808H-TT

- Advanced DeviceNet™ station
- 4 x 2 binary inputs and
  4 x 2 binary outputs

Applications

- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

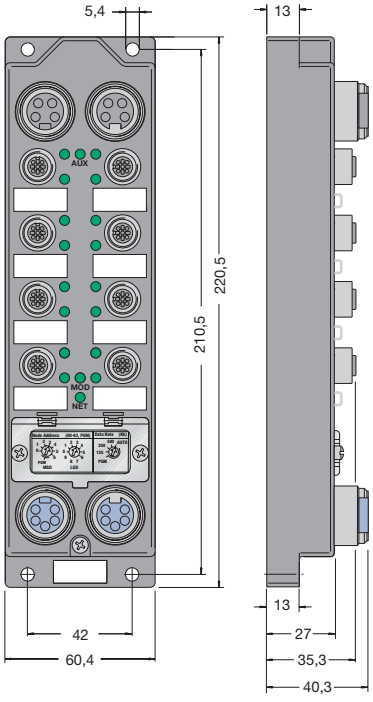
Features

- Short-circuit protected npn/pnp inputs with open-circuit detection
- 2 amp short-circuit protected outputs with open circuit detection
- Glass-fibre reinforced plastic housings with nickel-plated brass connectors
- Rotary address switches

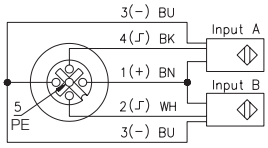
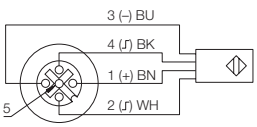
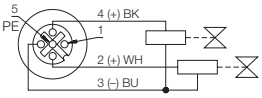
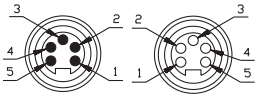
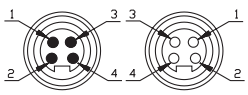
This *busstop*® station is designed for connection of up to eight binary 3-wire sensors, or four binary 4-wire sensors, and eight binary actuators. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used, but both inputs on a connector must be the same. There are two inputs per connector - one on pin 4 and one on pin 2. Each input connector produces six bits of data - two input state bits, two short-circuit status bits and two open-circuit status bits. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input pair is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80 mA. The LED is yellow if the point current draw is less than 1 mA. Open-circuit detection can be enabled for each input pair using a software configuration tool. The status bit automatically resets when the fault is cleared.
There are two output points per connector - one on pin 4 and one on pin 2, each supplying up to 2 A. Each output connector consumes two output control bits and produces two output status bits - one control bit and one status bit for each output. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 2 A. The LED is yellow if the output current draw is less than 1 mA. The node address and communication rate are set using the rotary address switches located under the device cover or through software node commissioning. This unit automatically detects the network communication rate. The FDNP-L0808H-TT supports explicit messaging, poll, change of state and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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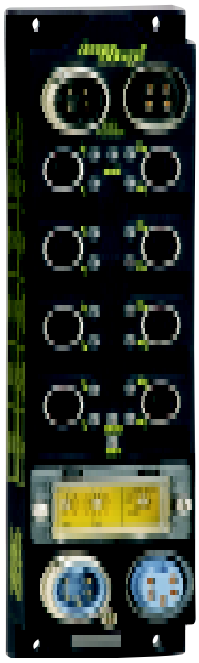
Input/Output Module FDNP-L0808H-TT
4 x 2 Inputs DC / 4 x 2 Outputs DC

Type	FDNP-L0808H-TT
Ident-no.	66 033 28
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Auxiliary power	18…26 VDC, optically isolated
Input Circuits	(8) pnp or npn 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1537 (601 hex)
I/O Data Mapping	
Produced data size	5 bytes
Consumed data size	1 byte

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	ISS-/	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-/	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Abbreviations:
I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux.. power status (0 = OFF, 1 = ON)
*) 0 = working, 1 = fault

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to eight binary 3-wire pnp sensors, or four binary 4-wire sensors, and eight binary actuators.

There are two inputs per connector – one on pin 4 and one on pin 2. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Inputs are monitored for short-circuits as a group. The short-circuit status bit automatically resets when the fault is cleared.

There are two outputs per connector – one on pin 4 and one on pin 2, each supplying up to 500 mA. The LED at each output point turns green when the output is on. The outputs are monitored for short-circuits as a group.

The node address and communication rate are set using the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate.
The FDNP-S0808G-TT supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs/outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-S0808G-TT

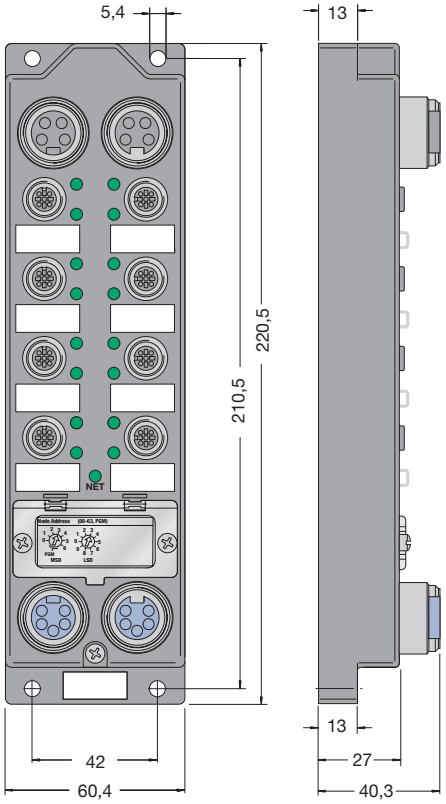
- Advanced DeviceNet™ station
- 4 x 2 binary inputs and 4 x 2 binary outputs

Applications

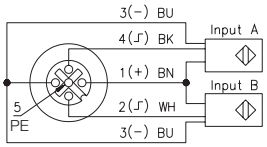
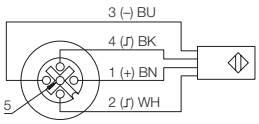
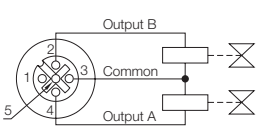
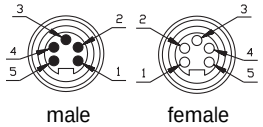
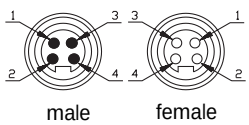
- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

Features

- Short-circuit protected pnp inputs
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 	1 = Aux + 2 = E + 3 = E – 4 = Aux – 

male female

male female

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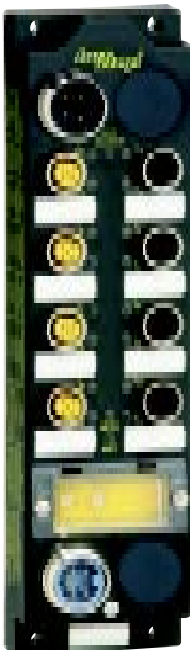
Input/Output Module FDNP-S0808G-TT
4 x 2 Inputs DC / 4 x 2 Outputs DC

Type	FDNP-S0808G-TT
Ident-no.	66 033 48
Supply Voltage	
Bus power	11…26 VDC, powers communication
Internal current consumption	< 100 mA (from bus power)
Auxiliary power	18…26 VDC, optically-isolated, powers all I/O
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from auxiliary power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1169 (491 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OGS = output group status (0 = working, 1 = fault)
IGS = input group status (0 = working, 1 = fault)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to eight binary 3-wire pnp sensors, or four binary 4-wire sensors, and eight binary actuators.

There are two inputs per connector – one on pin 4 and one on pin 2. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Inputs are monitored for short-circuits as a group. The short-circuit status bit automatically resets when the fault is cleared.

There are two outputs per connector – one on pin 4 and one on pin 2, each supplying up to 500 mA. The LED at each output point turns green when the output is on.
The outputs are monitored for short-circuits as a group.

The node address is set using the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically. The FDNP-S0808G-WW supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs/outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
Bus tee:	RSM 2RKM 57 KF
Auxiliary power tee:	RSM 2RKM 40 KF

FDNP-S0808G-WW

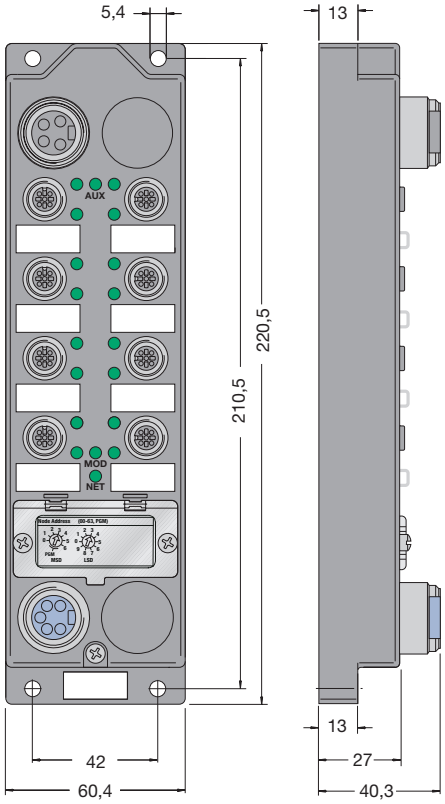
- Advanced DeviceNet™ station
- 4 x 2 binary inputs and 4 x 2 binary outputs

Applications

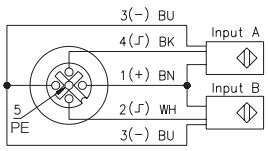
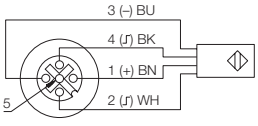
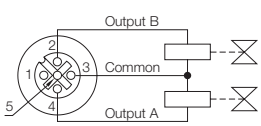
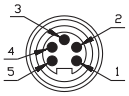
- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

Features

- Short-circuit protected pnp inputs
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male

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Input/Output Module FDNP-S0808G-WW
4 x 2 Inputs DC / 4 x 2 Outputs DC

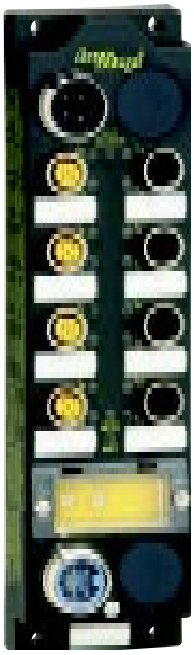
Type	FDNP-S0808G-WW
Ident-no.	66 033 26
Supply Voltage	
Bus power	11…26 VDC, powers communication
Auxiliary power	18…26 VDC, optically-isolated, powers all I/O
Internal current consumption	< 100 mA (from bus power)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from auxiliary power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2017 (7E1 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OGS = output group status (0 = working, 1 = fault)
IGS = input group status (0 = working, 1 = fault)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to eight binary 3-wire pnp sensors, or four binary 4-wire sensors, and eight binary actuators.

There are two inputs per connector – one on pin 4 and one on pin 2. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Inputs are monitored for short-circuits as a group. The short-circuit status bit automatically resets when the fault is cleared.

There are two outputs per connector – one on pin 4 and one on pin 2, each supplying up to 2 A. The LED at each output point turns green when the output is on. The outputs are monitored for short-circuits in groups.

The node address is set using the rotary switches located under the device cover or through software node commissioning. The unit automatically detects the network communication rate. The FDNP-S0808H-WW supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs/outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
Bus tee:	RSM 2RKM 57 KF
Auxiliary power tee:	RSM 2RKM 40 KF

FDNP-S0808H-WW

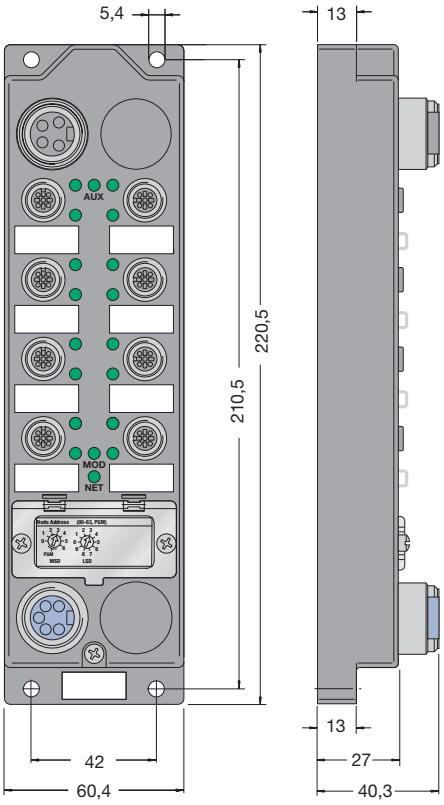
- Advanced DeviceNet™ station
- 4 x 2 binary inputs and 4 x 2 binary outputs

Applications

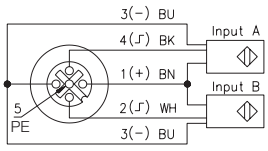
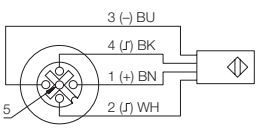
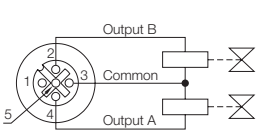
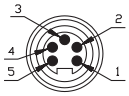
- For wet or dry environments
- For use with eight 3-wire or four 4-wire proximity and photoelectric sensors, and eight actuators

Features

- Short-circuit protected pnp inputs
- 2 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male

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Input/Output Module FDNP-S0808H-WW
4 x 2 Inputs DC / 4 x 2 Outputs DC

Type	FDNP-S0808H-WW
Ident-no.	66 033 30
Supply Voltage	
Bus power	11…26 VDC, powers communication
Auxiliary power	18…26 VDC, optically-isolated, powers all I/O
Internal current consumption	< 100 mA (from bus power)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from auxiliary power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2033 (7F1 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OGS = output group status (0 = working, 1 = fault)
IGS = input group status (0 = working, 1 = fault)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)

This *busstop*® station is designed for connection of up to twelve binary 3-wire sensors, or six binary 4-wire sensors, and four binary actuators.
There are two inputs per connector – one on pin 4 and one on pin 2. Each input connector produces four bits of data – two input state bits, one short-circuit status bit and one open-circuit status bit. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input pair is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80 mA. The LED is yellow if the point current draw is less than 1 mA. Open-circuit detection is enabled for each input pair using a software configuration tool. The status bits automatically reset when the fault is cleared.
There are two outputs per connector – one on pin 4 and one on pin 2, each supplying up to 500 mA. Each output connector consumes two output control bits and produces two output status bits – one control bit and one status bit for each output. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 500 mA. The LED is yellow if the output current draw is less than 1 mA.

The node address and communication rate are set using the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically. The FDNL-P1204G-T supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs/outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNL-P1204G-T

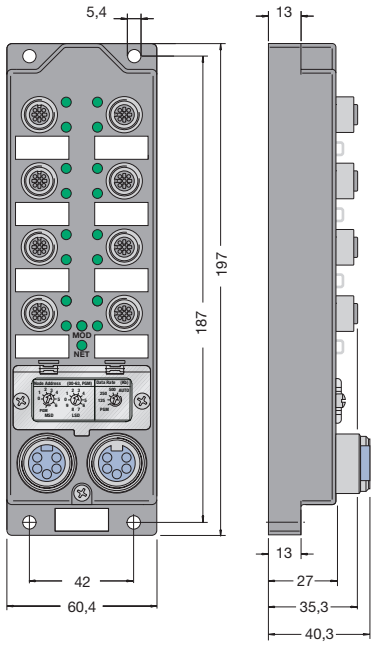
- Advanced DeviceNet™ Station
- 6 x 2 binary inputs and 2 x 2 binary outputs

Applications

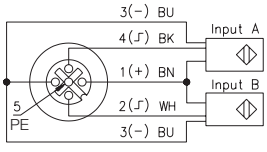
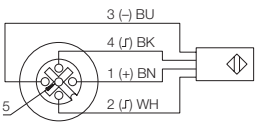
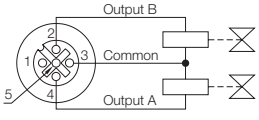
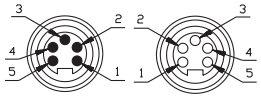
- For wet or dry environments
- For use with twelve 3-wire or six 4-wire proximity and photoelectric sensors, and four actuators

Features

- Short-circuit protected pnp inputs, with open-circuit detection
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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Input/Output Module FDNL-P1204G-T
6 x 2 Inputs DC / 2 x 2 Outputs DC

Type	FDNL-P1204G-T
Ident-no.	66 033 52
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Input Circuits	(12) pnp or npn 3-wire sensors or dry contacts or (&) pnp 4-wire sensors
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(4) DC actuators, optically isolated, short-circuit protected
Output voltage	18…26 VDC (from bus power)
Output load current	0.5 A per output (from bus power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1533 (611 hex)
I/O Data Mapping	
Produced data size	6 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OSS = output short-circuit status *)
OOS = output open-circuit status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	–	APS	–	–	I-11	I-10	I-9	I-8
	2	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	3	OSS-4	OSS-2	OSS-1	OSS-0	ISS-11	ISS-10	ISS-9	ISS-8
	4	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	5	OOS-3	OOS-2	OOS-1	OOS-0	IOS-11	IOS-10	IOS-9	IOS-8
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	O-3	O-2	O-1	O-0

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)

This *busstop*® station is designed for connection of up to twelve binary 3-wire sensors or six binary 4-wire sensors, and four binary actuators. There are two inputs per connector - one on pin 4 and one on pin 2. Each input connector produces four bits of data - two input state bits, one short-circuit status bit and one open-circuit status bit. The state bit is set when the binary input device closes. The LED at each input point turns green when the input is on. Each input pair is monitored for short-circuits and open-circuits. The input LED is red if the point current draw exceeds 80mA. The LED is yellow if the point current draw is less than 1mA. Open-circuit detection is enabled for each input pair using a software configuration tool. The status bits automatically reset when the fault is cleared.

There are two outputs per connector - one on pin 4 and one on pin 2, each supplying up to 500 mA. Each output connector consumes two output control bits and produces two output status bits - one control bit and one status bit for each output. The LED at each output point turns green when the output is on. Each output pair is monitored for short-circuits and open-circuits. The output LED is red if the output current draw exceeds 500 mA. The LED is yellow if the output current draw is less than 1 mA.
The node address and communication rate are set using the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically. The FDNP-P1204G-TT supports explicit messaging, poll, change of state and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Auxiliary power: RSM-RKM46-2M
Inputs/outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-P1204G-TT

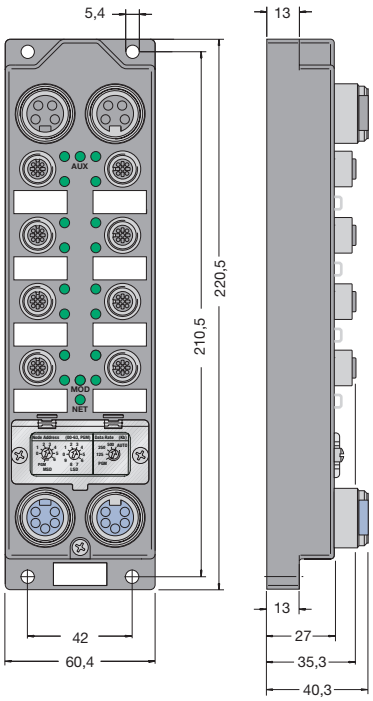
- Advanced DeviceNet™ station
- 6 x 2 binary inputs and 2 x 2 binary outputs

Applications

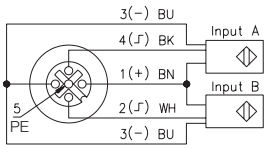
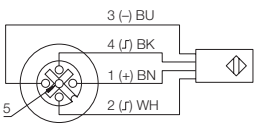
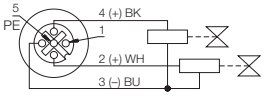
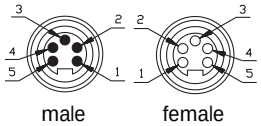
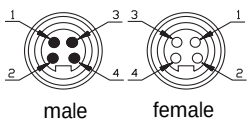
- For wet or dry environments
- For use with twelve 3-wire or six 4-wire proximity and photoelectric sensors, and four actuators

Features

- Short-circuit protected pnp inputs with open-circuit detection
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 	1 = Aux + 2 = E + 3 = E – 4 = Aux – 

Input/Output Module FDNP-P1204G-TT
6 x 2 Inputs DC / 2 x 2 Outputs DC

Type	FDNP-P1204G-TT
Ident-no.	66 026 72
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Auxiliary power	18…26 VDC
Input Circuits	(12) pnp 3-wire sensors or dry contacts or (6) pnp 4-wire sensors
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 80 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(4) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Open circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and comm rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 993 (3E1 hex)
I/O Data Mapping	
Produced data size	6 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OSS = output short-circuit status *)
OOS = output open-circuit status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	–	APS	–	–	I-11	I-10	I-9	I-8
	2	ISS-/	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	3	OSS-4	OSS-2	OSS-1	OSS-0	ISS-11	ISS-10	ISS-9	ISS-8
	4	IOS-/	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	5	OOS-3	OOS-2	OOS-1	OOS-0	IOS-11	IOS-10	IOS-9	IOS-8
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)

This *busstop*® station has four I/O connectors for connection of up to four 3-wire sensors and 4 actuators. Each connector provides one input and one output.

The LED at each input point turns green when the input is on. Inputs are protected against short-circuit as a group. If one of the inputs is shorted, the entire group is disconnected from the bus power.

Each output supplies up to 80 mA. The LED at each output point turns green when the output is on. All output points are protected individually against short-circuit conditions. If a short-circuit occurs, the affected output is disconnected from the bus power. The other outputs continue to function.
The PLC is informed about short-circuit conditions via the input data map. The IGS bit indicates if the inputs are no longer powered. The OS bits indicate if one of the outputs is disconnected from the bus power.

The node address and communication rate are set using the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically. The FDNQ-CSB44-T supports explicit messaging, poll, change of state and cyclic I/O messages. These connections are established through UCMM or predefined master/slave connection set.

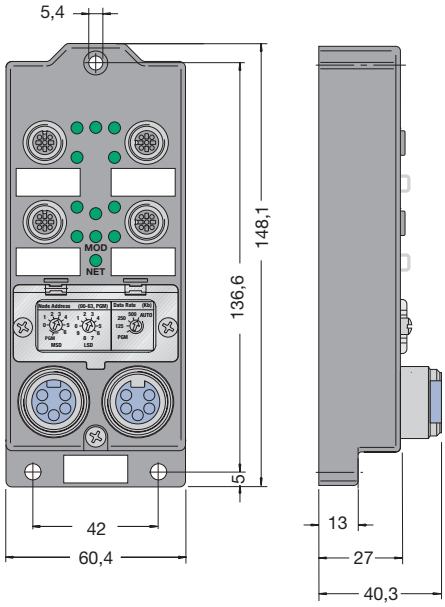
Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs / outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNQ-CSB44-T

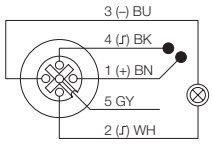
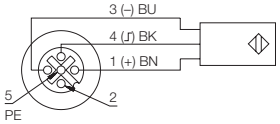
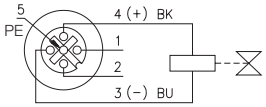
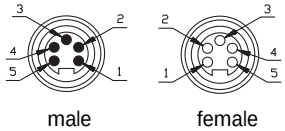
- Advanced DeviceNet™ stations
- 4 combined input and output points

Applications
- For wet or dry environments
- For use with four 3-wire sensors and four actuators

Features
- Short-circuit protected pnp inputs
- 80 mA short-circuit protected outputs powered via bus
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Push button	Singlesensor	Single output	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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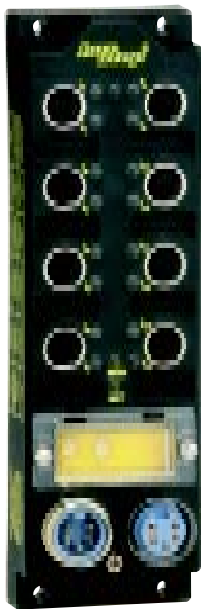
Input/Output Module FDNQ-CSB44-T
4 Combined Inputs and Outputs

Type	FDNQ-CSB44-T
Ident-no.	66 033 32
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor currents (from bus power)
Input Circuits	(4) pnp 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Sensor current	< 160 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Output Circuits	(4) DC actuators
Output voltage	18…26 VDC (from bus power)
Output load current	80 mA per output (from bus power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	5-pin *eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1921 (781 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OS = output status (0 = working, 1 = fault)
IGS = input group status
(0 = working, 1 = fault)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	OS-3	OS-2	OS-1	OS-0	I-3	I-2	I-1	I-0
Data	**1**	IGS	–	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	–	–	–	–	O-3	O-2	O-1	O-0

Housing (millimetres)	148 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	3 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station provides 8 inputs and 8 outputs. The input and output circuits are combined in one connector. The unit is specifically designed to operate in conjunction with I/O devices that have both an input and output,, such as part verification arrays and push buttons. The station also accepts 3-wire pnp sensors or simple single outputs.

Each *eurofast*® connector provides the following: V+, V-, input and output. V+ provides power to the connected sensor. V+ is short-circuit protected. V- is the sensor and output ground. The input is suited for connection of pnp type sensors or dry contacts.
The output is short-circuit protected. Each connector is monitored by an input and an output LED. The LED turns green if the I/O point is on.

The node address is set using the rotary switches located under the cover or through software. The unit automatically detects the communication rate. Poll, change of state, and cyclic I/O messages are supported.

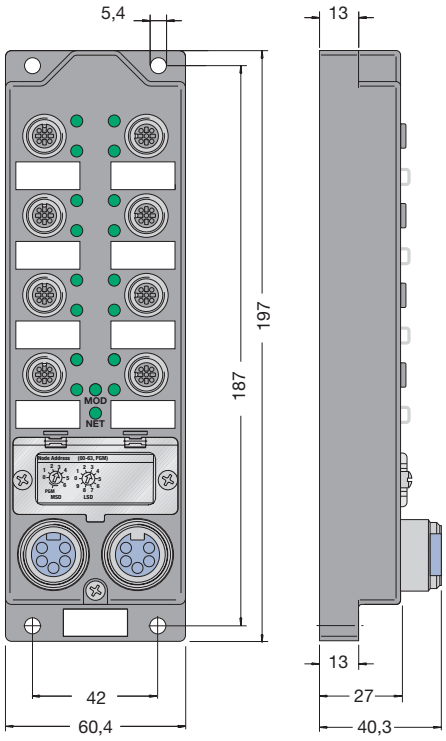
Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

FDNL-CSG88-T

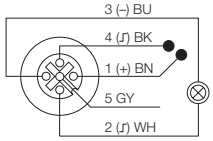
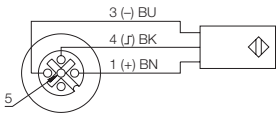
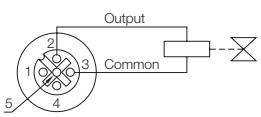
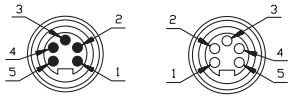
- Advanced DeviceNet™ station
- 8 combined input and output points

Applications
- For use with push buttons
- For use with eight 3-wire sensors and eight actuators

Features
- Short-circuit protected pnp inputs with open-circuit monitoring
- 0.5 amp short-circuit protected outputs with open-circuit monitoring
- Rotary address switches
- Automatic detection of network communication rate



Wiring diagrams

Push button	Single sensor	Single output	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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Input/Output Module FDNL-CSG88-T
8 Combined Inputs and Outputs

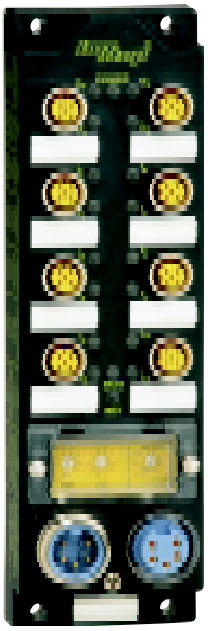
Type	FDNL-CSG88-T
Ident-no.	66 033 51
Supply Voltage	
Bus power	11…26 VDC, powers communication
Internal current consumption	< 100 mA (plus sum of sensor and output currents)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC
Output load current	0.5 A per output
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2081 (821 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OGS = output status (0 = working, 1 = fault)
IGS = input group status (0 = working, 1 = fault)

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station provides 8 inputs and 8 outputs. The input and output circuits are combined in one connector. The unit is specifically designed to operate in conjunction with I/O devices that have both an input and output, such as part verification arrays and push buttons. The station also accepts 3-wire pnp sensors or simple single outputs.

Each *eurofast*® connector provides the following: V+, V-, input and output. V+ provides power to the connected sensor and is short-circuit protected and open-circuit monitored. V- is the sensor and output ground. The input is suited for connection of pnp type sensors or dry contacts. The output is short-circuit protected.

Each connector is monitored by an input and an output LED. The LED turns green if the I/O point is on. The LED turns red if the I/O point is shorted. The input LED turns yellow if an open-circuit is detected between V+ and V-. The output LED turns yellow if there is an open-circuit between the output and V-. Open-circuit detection is enabled using a software configuration tool.

The node address is set using the rotary switches located under the cover or through software. The unit automatically detects the communication rate.
Poll, change of state and cyclic I/O messages are supported.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

FDNL-CPG88-T

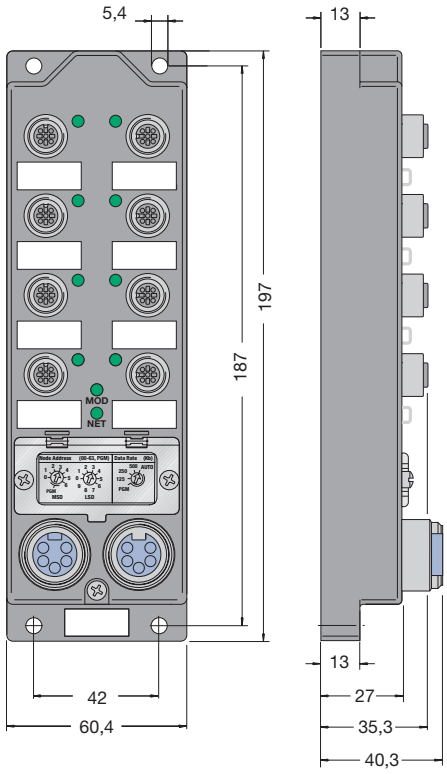
- Advanced DeviceNet™ stations
- 8 combined input and output points

Applications

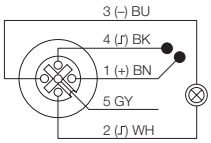
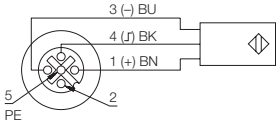
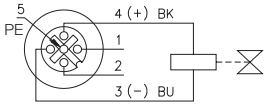
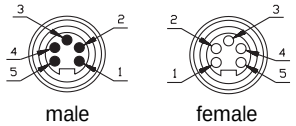
- For wet or dry environments
- For use with eight 3-wire sensors and eight actuators

Features

- Short-circuit protected pnp inputs, with open-circuit monitoring
- 0.5 amp short-circuit protected outputs with open-circuit monitoring
- Rotary address switches
- Automatic detection of network communication rate



Wiring diagrams

Push button	Single sensor	Single output	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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Input/Output Module FDNL-CPG88-T
8 Combined Inputs and Outputs

Type	FDNL-CPG88-T
Ident-no.	66 033 33
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor and output currents (from bus power)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Open circuit current	< 1 mA
Sensor current	< 120 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators or indicators
Output voltage	18…26 VDC
Output load current	0.5 A per output
Output circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1329 (531 hex)
I/O Data Mapping	
Produced data size	5 bytes
Consumed data size	1 byte

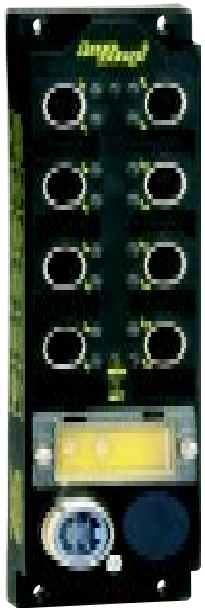
Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station provides 8 inputs and 8 outputs. The input and output circuits are combined in one connector. The unit is specifically designed to operate in conjunction with I/O devices that have both an input and output, such as part verification arrays and push buttons. The station also accepts 3-wire pnp sensors or simple single outputs.

Each *eurofast*® connector provides the following: V+, V-, input and output. V+ provides power to the connected sensor and is short-circuit protected. V- is the sensor and output ground. The input is suited for connection of pnp type sensors or dry contacts. The output is short-circuit protected.

Each connector is monitored by an input and an output LED. The LED turns green if the I/O point is on.

The node address is set using the rotary switches located under the cover or through software. The unit automatically detect the communication rate.
Poll, change of state, and cyclic I/O messages are supported.

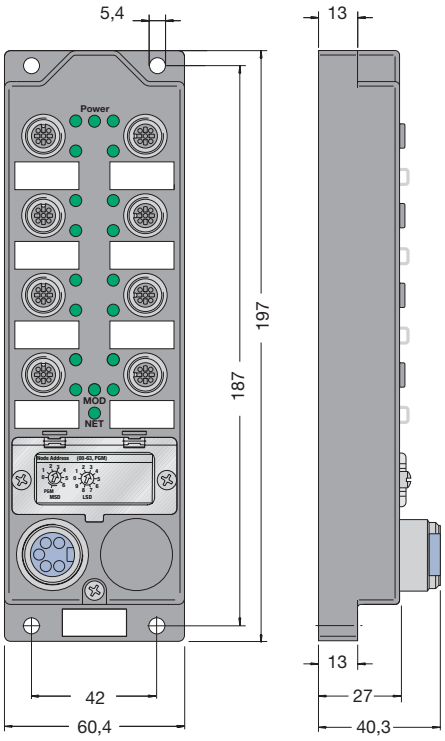
Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)
Bus tee: RSM 2RKM 57 KF

FDNL-CSG88-W

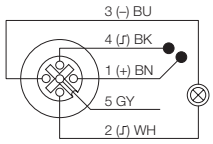
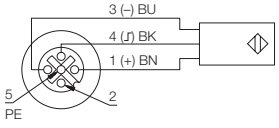
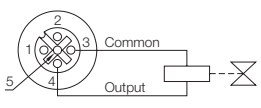
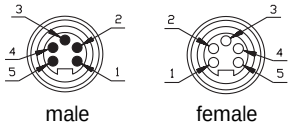
- Advanced DeviceNet™ station
- 8 combined input and output points

Applications
- For use with push buttons
- For use with eight 3-wire sensors and eight actuators

Features
- Short-circuit protected pnp inputs
- 0.5 amp short-circuit protected outputs
- Rotary address switches
- Automatic detection of network communication rate



Wiring diagrams

Push button	Single sensor	Single output	Bus line
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L 

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Input/Output Module FDNL-CSG88-W
8 Combined Inputs and Outputs DC

Type	FDNL-CSG88-W
Ident-no.	66 033 34
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	< 100 mA plus sum of sensor and output currents
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from bus power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(8) DC actuators
Output voltage	18…26 VDC
Output load current	0.5 A per output
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing yellow = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2049 (801 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

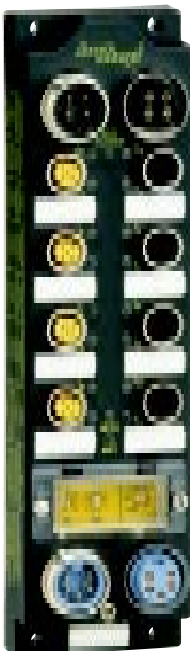
Abbreviations:

I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	197 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station provides 8 inputs and 8 outputs. The input and output circuits are combined in one connector. This unit is specifically designed to operate in conjunction with I/O devices that have both an input and output, such as part verification arrays and push buttons. The station also accepts 3-wire pnp sensors or simple single outputs. Each *eurofast*® connector provides the following: V+, V-, input and output. V+ provides power to the connected sensor and features short-circuit and open-circuit monitoring. V- is the sensor and output ground. The input is suited for connection of pnp type sensors or dry contacts. The output is short-circuit protected.

Each connector is monitored by an input and an output LED. The LED turns green if the I/O point is on. The LED turns red if the I/O point is shorted. The input LED turns yellow if an open circuit is detected between V+ and V-. The output LED turns yellow if there is an open circuit between the output and V-. Open-circuit detection is enabled using a software configuration tool.

The FDNP-CPG88-TT is powered entirely by the auxiliary power connector. This reduces the amount of bus power consumed significantly. The node address is set using the rotary switches located under the cover or through software. This unit automatically detects the communication rate.Poll, change of state and cyclic I/O messages are supported.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-CPG88-TT

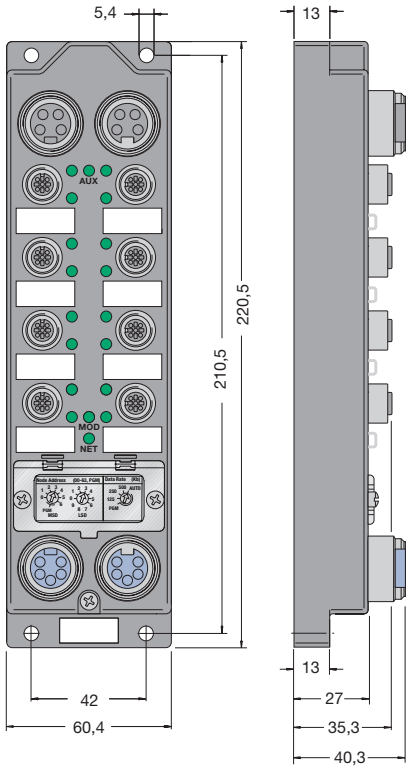
- Advanced DeviceNet™ stations
- 8 combined input and output points

Applications

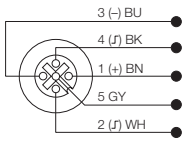
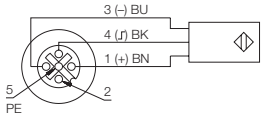
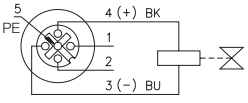
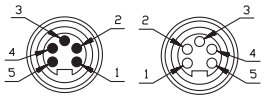
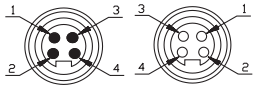
- For wet or dry environments
- For use with eight 3-wire sensors and eight actuators

Features

- Short-circuit protected pnp inputs with open-circuit monitoring
- 0.5 amp short-circuit protected outputs with open-circuit monitoring
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Part verification array	Single sensor	Single output	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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Input/Output Module FDNP-CPG88-TT
8 Combined Inputs and Outputs

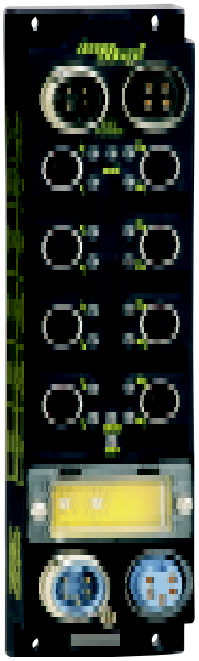
Type	FDNP-CPG88-TT
Ident-no.	66 033 24
Supply Voltage	
Bus power	11…26 VDC
Internal current consumption	≤ 30 mA plus sum of sensor and output currents
Auxiliary power	18…26 V, optically isolated
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage	11…26 VDC (from bus power)
Open-circuit current	< 1 mA
Sensor current	< 120 mA per input, short-circuit protected
Input signal current	OFF < 2 mA / ON 2.5…3.2 mA at 24 VDC
Maximum switching frequency	100 Hz
Output Circuits	(8) DC actuators or indicators
Output voltage	18…26 VDC
Output load current	0.5 A per output
Output circuit current	< 1 mA per output
Maximum switching frequency	100 Hz
I/O LED Indications	yellow = open-circuit off = input/output off green = input/output on red = short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Comm rate	auto/125/250/500 kbps via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1569 (621 hex)
I/O Data Mapping	
Produced data size	5 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
ISS = input short-circuit status *)
IOS = input open-circuit status *)
O = output data (0 = OFF, 1 = ON)
OS = output status *)
APS = aux. power status (0 = OFF, 1 = ON)

*) 0 = working, 1 = fault

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Data	**1**	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	–	APS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station provides a connection for up to sixteen 3-wire sensors or sixteen binary actuators. There are two I/O points per connector. Each connector supports two inputs, two outputs, or one input and one output. This extremely flexible station is suited for any combination of inputs and outputs.

To use an I/O point as an input, simply leave the corresponding output OFF. The I/O point LED will turn green to indicate that the sensor is ON.

To use an I/O point as an output, simply turn on the corresponding output bit. The output will switch high and the I/O LED will turn green. Please note that this will in turn cause the corresponding input bit to turn on. If the corresponding input does not turn on, the output is shorted.

The node address is set using the rotary switches located under the device cover or through software node commissioning. The unit detects the network communication rate automatically.

The FDNP-XSG16-TT supports explicit messaging, poll, change of state, and cyclic I/O messages.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Auxiliary power: RSM-RKM46-2M
Inputs/outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

FDNP-XSG16-TT

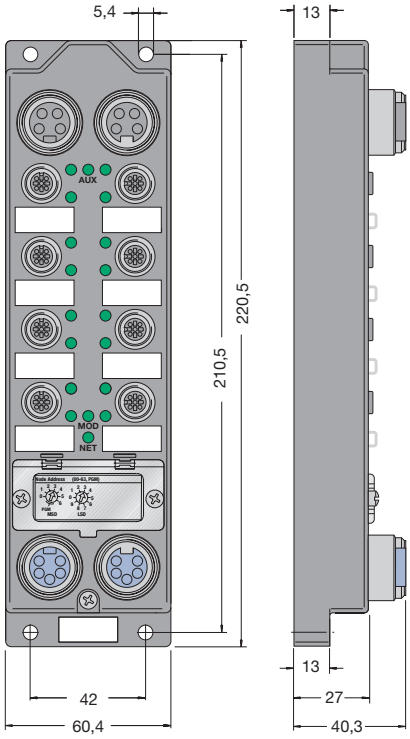
- Extremely flexible DeviceNet™ station
- 16 inputs or outputs

Applications

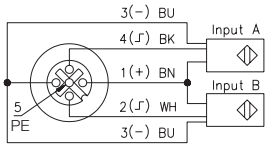
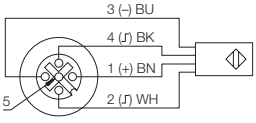
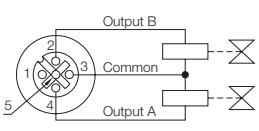
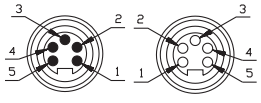
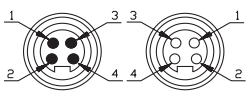
- For wet or dry environments
- For use with sixteen 3-wire proximity and photoelectric sensors, or sixteen binary actuators

Features

- Short-circuit protected pnp inputs
- 0.5 amp short-circuit protected outputs
- Glass-fibre reinforced plastic housing with nickel-plated brass connectors
- Rotary address switches



Wiring diagrams

Splitter and 2 sensors	Single sensor	Outputs	Bus line	Auxiliary power
			1 = Shield 2 = V + 3 = V – 4 = CAN_H 5 = CAN_L  male female	1 = Aux + 2 = E + 3 = E – 4 = Aux –  male female

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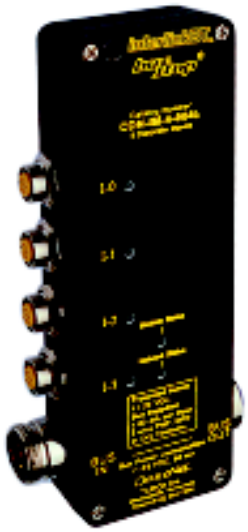
Input/Output Module FDNP-XSG16-TT
16 Inputs or Outputs DC

Type	FDNP-XSG16-TT
Ident-no.	66 033 23
Supply Voltage	
Bus power	11…26 VDC, powers communication
Internal current consumption	< 100 mA (from bus power)
Auxiliary power	18…26 VDC, optically-isolated, powers all I/O
Input Circuits	(16) pnp 3-wire sensors or dry contacts
Input voltage (V+)	11…26 VDC (from auxiliary power)
Input short-circuit (V+)	700 mA – 2.0 A (total)
Input signal current (I)	OFF < 2 mA / ON 3.0…3.4 mA at 24 VDC
Input delay	2.5 ms
Output Circuits	(16) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output load current	0.5 A per output (from auxiliary power)
Maximum switching frequency	100 Hz
I/O LED Indications	off = input/output off green = input/output on
Module Status LED	green = working properly flashing green = dectecting autobaud rate flashing red = I/O short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via rotary switches
Address	0…63 (binary) via rotary switch
Internal adjustments	address and communication rate from internal EEPROM (when in PGM mode)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2065 (811 hex)
I/O Data Mapping	
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
O = output data (0 = OFF, 1 = ON)
OGS = output group status (0 = working, 1 = fault)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Data	**0**	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
	2	IGS	OGS	–	–	–	–	–	–
Output	**Byte**	**Bit 7**	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Data	**0**	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0
	1	O-15	O-14	O-13	O-12	O-11	O-10	O-9	O-8

Housing (millimetres)	220 x 60 x 40 (h x w x d)
Material	glass-fibre reinforced plastic housing with nickel-plated brass connectors
Mounting	4 through-holes, 5.3 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25 to + 70 °C (-13 to +158 °F)



This *busstop*® station is designed for connection of up to four binary 3-wire sensors. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used.

Each input point produces 2 bits of data - input state and input status. The state bit is set when the binary input device closes. A green LED at an input point indicates that this point is energized.

The inputs are individually monitored for short-circuits and open circuits. The input LED is red if the point current draw exceeds 80 mA; the LED turns yellow if the point current draw is less than 0.7 mA. The status bit automatically resets when the fault is cleared.

The node address and communication rate can be set by the DIP-switches located under the device cover or through software node commissioning.
The CDN-IM-4-0046 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages, bit strobe I/O messages and polled I/O messages of the predefined master/slave connection set. The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

CDN-IM-4-0046

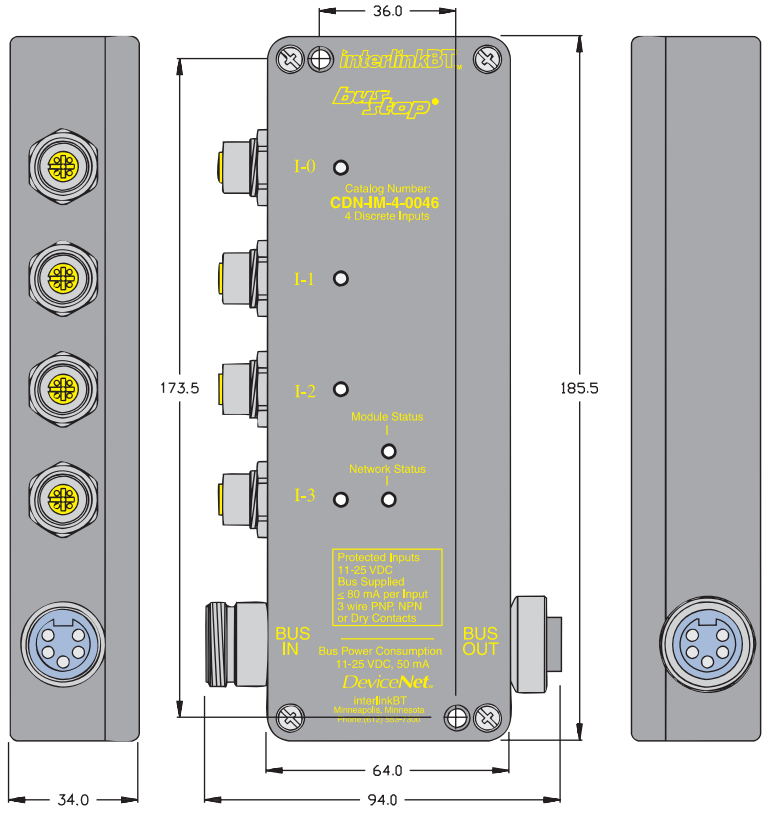
- Heavy duty DeviceNet™ station
- 4 binary inputs

Applications

- For conveyor and other field applications
- For use with 3-wire proximity and photoelectric sensors

Features

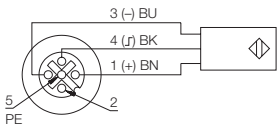
- Short-circuit protected pnp/npn inputs with open-circuit monitoring
- Die-cast housing with nickel-plated brass connectors
- Address and communication rate settable via DIP-switch or software



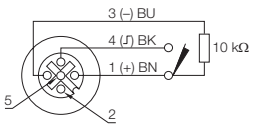
Wiring diagrams

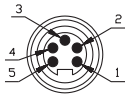
Inputs	Bus line

3-wire npn/pnp sensor



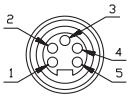
Mechanical contacts





male

1 = Shield
2 = + Voltage
3 = – Voltage
4 = CAN_H
5 = CAN_L



female

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Input Module CDN-IM-4-0046
4 Inputs DC

Type	CDN-IM-4-0046
Ident-no.	66 033 43
Supply Voltage	
Bus power	11…30 VDC
Node current consumption	80 mA plus sum of sensor currents (from bus power)
Input Circuits	(4) pnp or npn 3-wire sensors or dry contacts
Input voltage	11…30 VDC (from bus line)
Open circuit current	< 0.7 mA
Sensor current	< 80 mA per input, short-circuit protected
Maximum switching frequency	100 Hz
LED Indications	yellow: open circuit green: input on off: input off red: short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via built-in 8-pole DIP-switch
Address	0-63 (binary) via DIP-switch S1-S6
Comm rate	125/250/500 kbps via DIP-switch S7, S8
Internal adjustments	address and comm rate from internal EEPROM (DIP-switch S7, S8 in ON position)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 737 (2E1 hex)

I/O Data Mapping

I/O message type	strobe or polled
Produced data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = Fault)

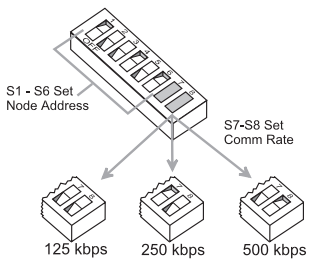
Input Data 1 Byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS-3	IS-2	IS-1	IS-0	I-3	I-2	I-1	I-0

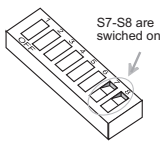
Housing (millimeters)	185.5 x 64 x 34 (h x w x d)
Material	die-cast aluminum, black powder coated, nickel-plated brass connectors
Mounting	2 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

Adjustments

Hardware mode



Software mode



Node address and comm rate stored in nonvolatile memory

This *busstop*® station is designed for connection of up to 16 binary 3-wire sensors or eight binary 4-wire sensors. There are two inputs per connector - one on pin 4 and one on pin 2. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used on a given *busstop*® station, but both inputs on a connector must be of the same type.

Each connector input produces 4 bits of data - two input state bits and two status bits. The state bit is set when the binary input device closes. A bi-color LED at an input point indicates which point is active. Each input is individually monitored for short-circuits. The status bit is set and the input LED turns red if the point current draw exceeds 80 mA. The status bit automatically resets when the short-circuit is cleared.

The node address can be set by DIP-switches located under the device cover or through software node commissioning. The CDN-IM-16-0003 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages, bit strobe I/O messages and polled I/O messages of the predefined master/slave connection set.
The device produces 4 bytes of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00,
BS8151-0 (male field wireable)

CDN-IM-16-0003

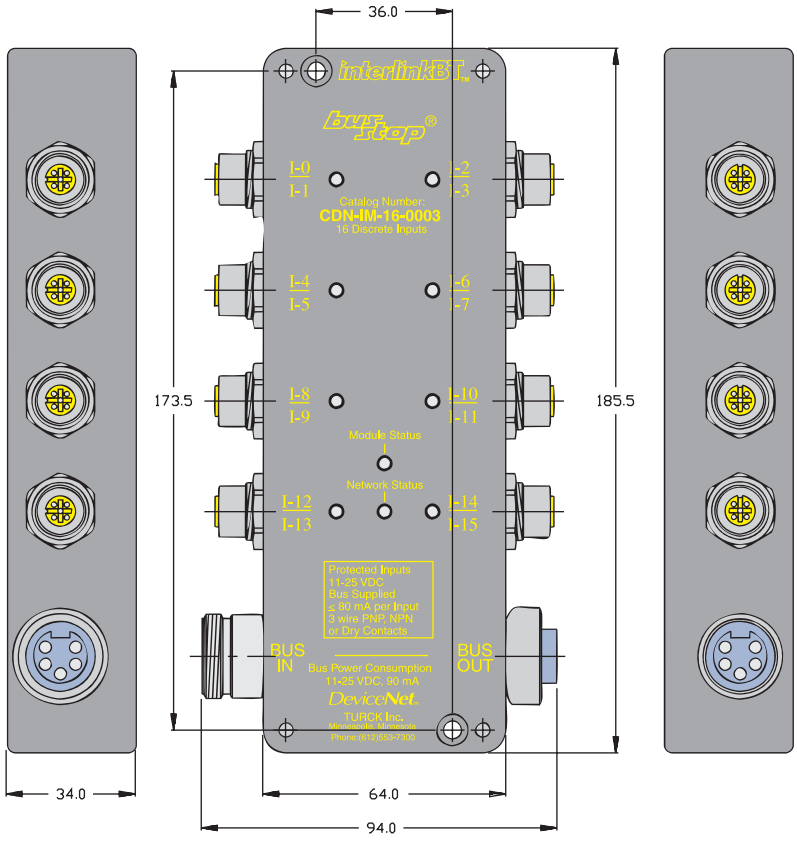
- Heavy duty DeviceNet™ station
- 8 x 2 binary inputs

Applications

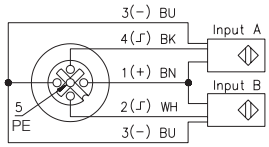
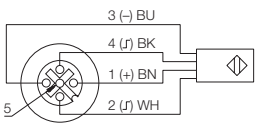
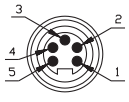
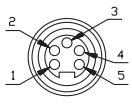
- For conveyor and other field applications
- For use with eight 4-wire sensors or sixteen 3-wire sensors through input splitters

Features

- Short-circuit protected pnp/npn inputs with open-circuit monitoring
- Die-cast housing with nickel-plated brass connectors
- Address and communication rate settable via DIP-switches or software



Wiring diagrams

Inputs	Bus line
3-wire npn/pnp sensor  4-wire npn/pnp sensor  	 male 1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L  female

Input Module CDN-IM-16-0003
8 x 2 Inputs DC

Type	CDN-IM-16-0003
Ident-no.	68 220 06
Supply Voltage	
Bus power	11…30 VDC
Node current consumption	160 mA plus sum of sensor currents (from bus power)
Input Circuits	(16) pnp or npn 3-wire sensors or dry contacts
Input voltage	11…30 VDC (from bus line)
Sensor current	< 80 mA per input, short-circuit protected
Maximum switching frequency	100 Hz
LED Indications	OFF: Both inputs off yellow: open circuit green: input on off: input off red: short-circuit
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via built-in 8-pole DIP-switch
Address	0…63 (binary) via DIP-switch S1-S6
Comm rate	125/250/500 kbps via DIP-switch S7, S8
Internal adjustments	address and comm rate from internal EEPROM (DIP-switch S7, S8 in ON position)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 51 (33 hex)
I/O Data Mapping	
I/O message type	strobe or polled
Produced data size	4 bytes

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)

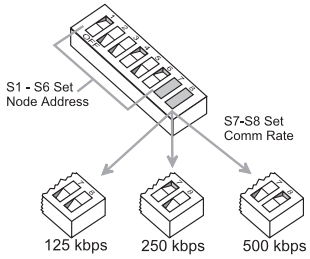
Input data 4 bytes

Input Data	Bit	7	6	5	4	3	2	1	0
	Meaning	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
	Bit	23	22	21	20	19	18	17	16
	Meaning	IS-7	IS-6	IS-5	IS-4	IS-3	IS-2	IS-1	IS-0
	Bit	31	30	29	28	27	26	25	24
	Meaning	IS-15	IS-14	IS-13	IS-12	IS-11	IS-10	IS-9	IS-8

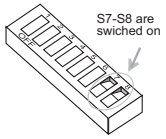
Housing (millimeters)	185.5 x 64 x 34 (h x w x d)
Material	die-cast aluminum, black powder coated, nickel-plated brass connectors
Mounting	2 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

Adjustments

Hardware mode



Software mode



Node address and comm rate stored in nonvolatile memory

This *busstop*® station is designed to connect up to four binary 3-wire inputs and to drive four binary output devices. Each input automatically detects a sourcing (pnp) or sinking (npn) open-collector signal. Any combination of npn and pnp devices may be used. Each input point produces 2 bits of data - input state and input status. The input state bit is set when the binary input device closes. The green LED at an input point indicates that the input is energized. The input status bit is set when the input device short-circuits or an open circuit occurs. The input and alarm LED's turn red if the sensor current draw exceeds 80 mA or yellow if the sensor current draw is less than 0.7mA. The status bit automatically resets when the fault is cleared, and the red LED's turn off (or green if the input is energized.)

Each output point supplies up to 2 amps of load current at an output voltage between 18 and 26 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power. A green LED at an output point indicates that this point is energized. The output status bit is set under four conditions: no auxiliary power present, thermal overload, short-circuited output or open circuited output. A red LED indicates a short circuit, overload or no auxiliary power. A yellow LED indicates an open circuit. When the output fault is cleared, the status bit automatically resets and the LED turns off (or green, if the output is energized).

The node address and communication rate are set by the DIP-switches located under the device cover or through software node commissioning. The CDN-IOM-44-0045 operates as a "Group 2 Only Server" on a DeviceNet™ network. The unit supports Explicit Messages and Polled I/O Messages of the predefined master/slave connection set. The device produces 2 bytes of input data and consumes 1 byte of output data.

CDN-IOM-44-0045

- Heavy duty DeviceNet™ station
- 4 binary inputs and 4 binary outputs

Applications

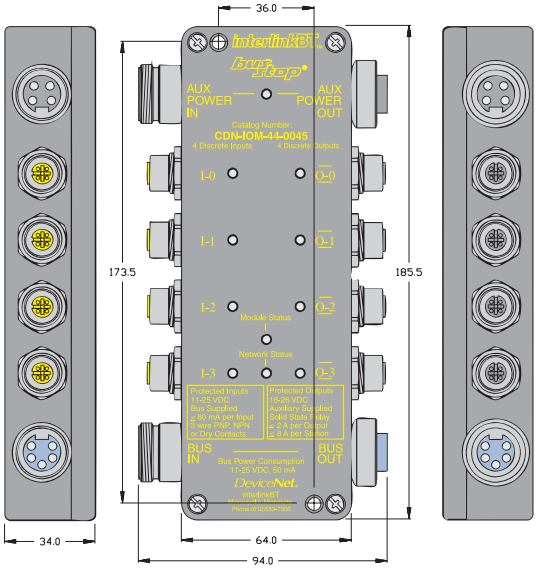
- For conveyor and other field applications
- For use with four 3-wire proximity and photoelectric sensors, and four open/closed actuators

Features

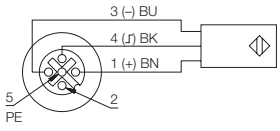
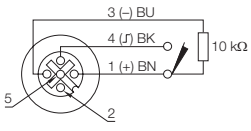
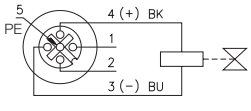
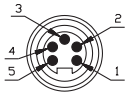
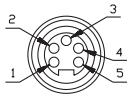
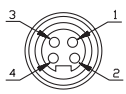
- Short-circuit protected pnp/npn inputs with open-circuit monitoring
- 2 amp short-circuit protected outputs with open-circuit monitoring
- Die-cast housing with nickel-plated brass connectors
- Address and communication rate settable via DIP-switches or software

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	WAK4-5-WAS4/P00, BS8141-0 (male field-wireable)



Wiring diagrams

Inputs	Outputs	Bus line	Auxiliary power
3-wire npn/pnp sensor  Mechanical contacts 	DC actuator 	 male  female	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L  male  female 1 = + Voltage 2 = E + 3 = E – 4 = – Voltage

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Input/Output Module CDN-IOM-44-0045
4 Inputs DC/4 Outputs DC

Type	CDN-IOM-44-0045
Ident-no.	68 220 18
Supply Voltage	
Bus power	11…30 VDC
Node current consumption	90 mA plus sum of sensor currents (from bus power)
Auxiliary power	18…26 VDC, isolated from bus power
Input Circuits	(4) pnp or npn 3-wire sensors or dry contacts
Input voltage	11…30 VDC (from bus line)
Open circuit current	< 0.7 mA
Sensor current	< 80 mA per input, short-circuit protected
Maximum switching frequency	100 Hz
LED indications	yellow: open circuit green: input on off: input off red: short-circuit
Output Circuits	(4) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output current	0.07…2 A per output
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
LED indications	yellow: open circuit green: output on off: output off red: short-circuit / no auxiliary power
Connections	
Auxiliary power	4-pin *minifast*® connectors
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via built-in 8-pole DIP-switch
Address	0-63 (binary) via DIP-switch S1-S6
Comm rate	125/250/500 kbps via DIP-switch S7, S8
Internal adjustments	address and comm rate from internal EEPROM (DIP-switch S7, S8 in ON position)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 723 (2D3 hex)
I/O Data Mapping	
I/O message type	polled
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
IS = output status (0 = working, 1 = fault)

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	IS-3	IS-2	IS-1	IS-0	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	Reserved				OS-3	OS-2	OS-1	OS-0
Output Data	Bit	07	06	05	04	03	02	01	00
	Meaning	Reserved				O-3	O-2	O-1	OS-0

Housing (millimeters)	185.5 x 64 x 34 (h x w x d)
Material	die-cast aluminum, black powder coated, nickel-plated brass connectors
Mounting	2 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67

This *busstop*® station drives up to 4 binary output devices. Each output point supplies up to 2 amps of load current at an output voltage between 18 and 26 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power on the bus line.

Each output point consumes one bit of state data and produces one bit of status data. A green LED at an output point indicates that this point is energized. The status bit is set under four conditions: no auxiliary power present, thermal overload, short-circuited output, or an open circuit on the output. A red LED indicates a short circuit, overload, or no auxiliary power. A yellow LED indicates an open circuit.

The node address and comm rate are set by the DIP-switches located under the device cover or through software node commissioning. The CDN-OM-4-0049 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O-messages of the predefined master/slave connection set. The device produces 1 byte of input data and consumes 1 byte of output data.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Outputs:	WAK4-5-WAS4/P00 or BS8141-0 (male field wireable)

CDN-OM-4-0049

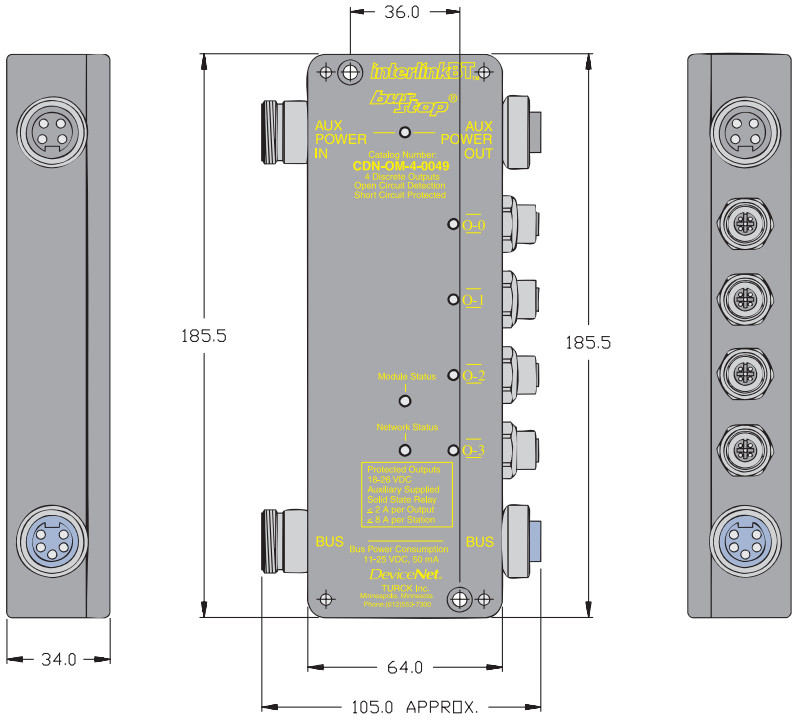
- Heavy duty DeviceNet™ station
- 4 binary outputs

Applications

- For conveyor and other field applications
- For use with 4 open/closed actuators

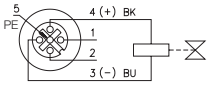
Features

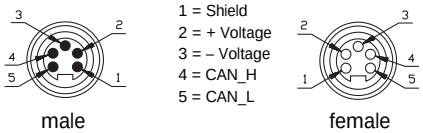
- 2 amp short-circuit protected outputs with open-circuit monitoring
- Die-cast housing with nickel-plated brass connectors
- Address and communication rate settable via DIP-switches or software

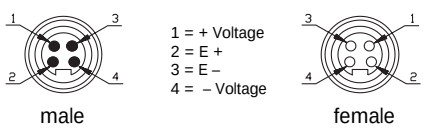


Wiring diagrams

Outputs	Bus line	Auxiliary power
DC actuator	male: 1 = Shield, 2 = + Voltage, 3 = – Voltage, 4 = CAN_H, 5 = CAN_L; female	male: 1 = + Voltage, 2 = E +, 3 = E –, 4 = – Voltage; female







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Output Module CDN-OM-4-0049
4 Outputs DC

Type	CDN-OM-4-0049
Ident-no.	66 033 44
Supply Voltage	
Bus power	11…30 VDC
Node current consumption	55 mA (from bus power)
Auxiliary power	18…30 VDC, isolated
Output Circuits	(4) DC actuators
Output voltage	18…26 VDC (from auxiliary power)
Output current	0.07…2 A per output
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
LED indications	yellow: open circuit green: output on off: output off red: short-circuit / no auxiliary power
Connections	
Auxiliary power	4-pin *minifast*® connectors
Bus line	5-pin *minifast*® connectors
Outputs	*eurofast*® connectors
Adjustments	via built-in 8-pole DIP-switch
Address	0…63 (binary) via DIP-switch S1-S6
Comm rate	125/250/500 kbps via DIP-switch S7, S8
Internal adjustments	address and comm rate from internal EEPROM (DIP-switch S7, S8 in ON position)
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 786 (312 hex)
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte
Consumed data size	1 byte

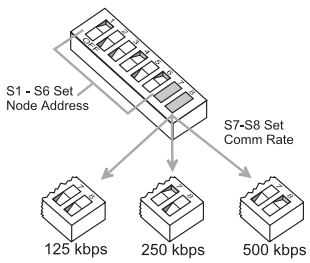
Abbreviations:
O = output data (0 = OFF, 1 = ON)
OS = output status (0 = working, 1 = fault)

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning		Reserved			OS-3	OS-2	OS-1	OS-0
Output Data	Bit	07	06	05	04	03	02	01	00
	Meaning	Reserved				O-3	O-2	O-1	OS-0

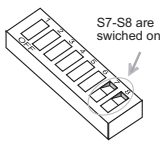
Housing (millimeters)	185.5 x 64 x 34 (h x w x d)
Material	die-cast aluminum, black powder coated, nickel-plated brass connectors
Mounting	2 through-holes, 4.5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

Adjustments

Hardware mode



Software mode



Node address and comm rate stored in nonvolatile memory

This *busstop*® station is designed to connect up to four binary 3-wire sourcing (pnp) inputs.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total current draw exceeds 500 mA.

The node address and communication rate are set through software node commissioning.

The BD8D4EP0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00 or BS8141-0 (male field wireable)

BD8D4EP0

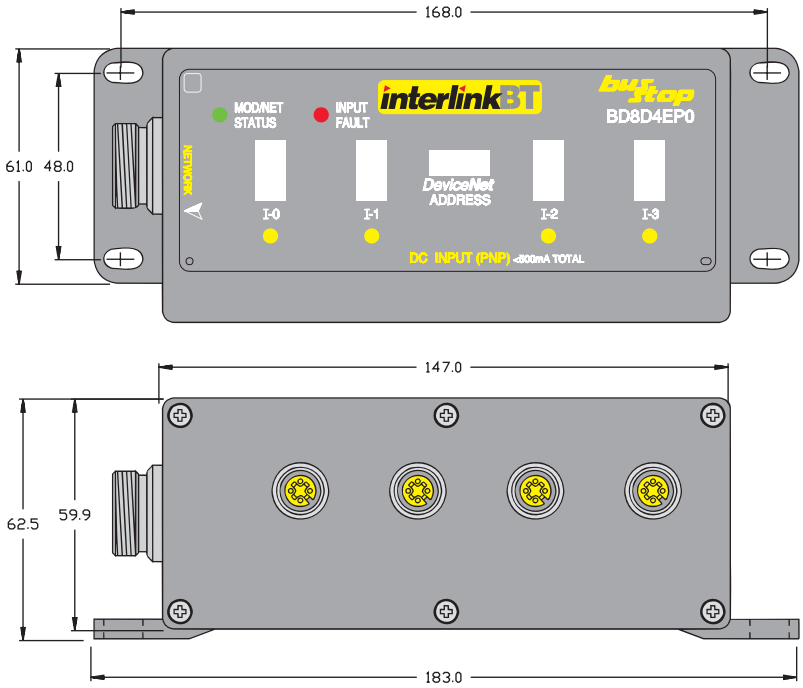
- General duty DeviceNet™ station
- 4 binary inputs

Applications

- For packaging machine and conveyor applications
- For use with 3-wire proximity and photoelectric sensors or dry contacts

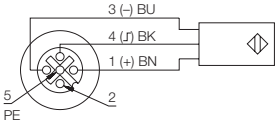
Features

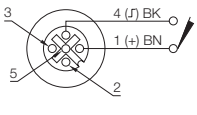
- Short-circuit protected inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate

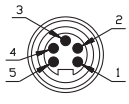


Wiring diagrams

Inputs		Bus line
3-wire pnp sensor	Mechanical contacts	







male

1 = Shield
2 = + Voltage
3 = – Voltage
4 = CAN_H
5 = CAN_L

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Input Module BD8D4EP0
4 Inputs DC

Type	BD8D4EP0
Ident-No.	66 022 59
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Input Circuits	(4) pnp 3-wire sensors or dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(4) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 8
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = shorted)

Input data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved			I-3	I-2	I-1	I-0

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to four binary 4-wire inputs or eight dry contacts. There are 2 input signals per connector.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total current draw exceeds 500 mA.
The node address and communication rate are set through software node commissioning.

The BD8D4EX0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 2 bytes of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

BD8D4EX0

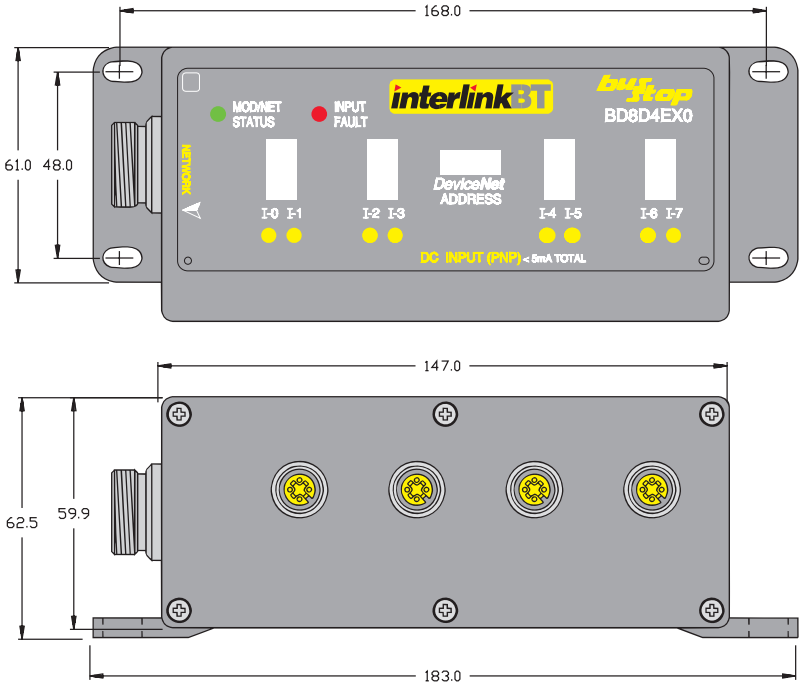
- General duty DeviceNet™ station
- 4 x 2 binary inputs

Applications

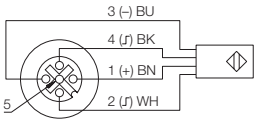
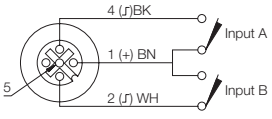
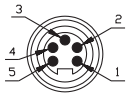
- For packaging machine and conveyor applications
- For use with four 4-wire proximity and photoelectric sensors or eight dry contacts

Features

- Short-circuit protected pnp inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Bus line
4-wire pnp sensor  1 = V + 2 = Input B (odd numbers) 3 = V – 4 = Input A (even numbers) 5 = Not used	Mechanical contacts  	 male 1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L

Input Module BD8D4EX0
4 x 2 Inputs DC

Type	BD8D4EX0
Ident-no.	66 033 42
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Input Circuits	(4) pnp 4-wire sensors or (8) dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(8) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 9
I/O Data Mapping	
I/O message type	polled
Produced data size	2 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)

IS = input status (0 = working, 1 = shorted)

Input data 2 bytes

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	IS	Reserved						

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to eight binary 3-wire sourcing (pnp) input devices.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total current draw exceeds 500 mA.

The node address and communication rate are set through software node commissioning.

The BD8D8EP0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 2 bytes of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00 or BS8141-0 (male field wireable)

BD8D8EP0

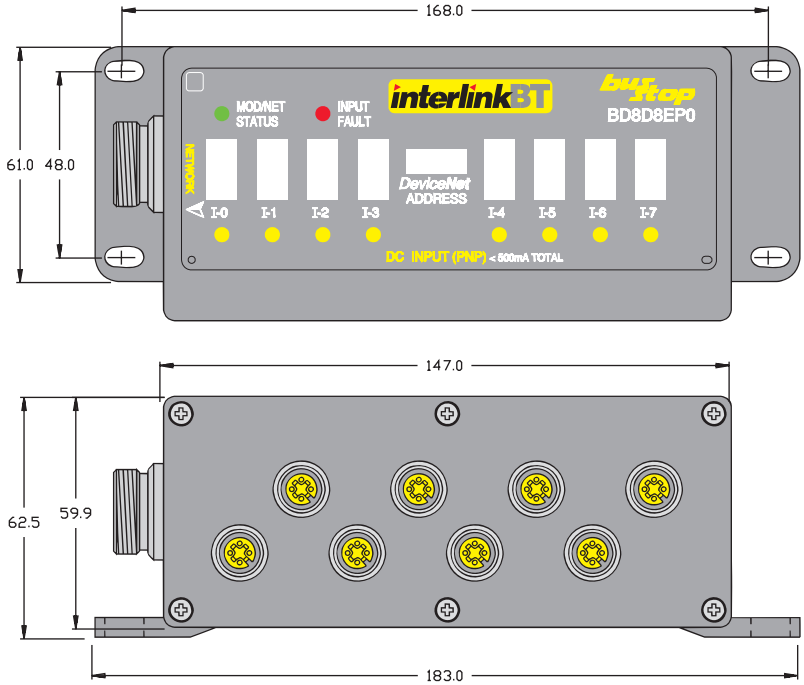
- General duty DeviceNet™ station
- 8 binary inputs

Applications

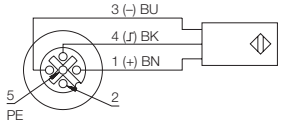
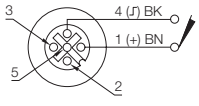
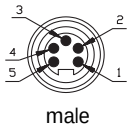
- For packaging machine and conveyor applications
- For use with 3-wire proximity and photoelectric sensors or dry contacts

Features

- Short-circuit protected pnp inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Bus line
3-wire pnp sensor  Mechanical contacts  	 male 1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L

Input Module BD8D8EP0
8 Inputs DC

Type	BD8D8EP0
Ident-no.	66 022 61
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Input Circuits	(8) pnp 3-wire sensors or dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(8) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 10
I/O Data Mapping	
I/O message type	polled
Produced data size	2 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)

IS = input status (0 = working, 1 = shorted)

Input data 2 bytes

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	IS	Reserved						

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to eight binary 4-wire inputs or 16 dry contacts. There are two input signals per connector.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if input current draw exceeds 500 mA.

The node address and communication rate are set through software node commissioning.

The BD8D8EX0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 3 bytes of input data.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

BD8D8EX0

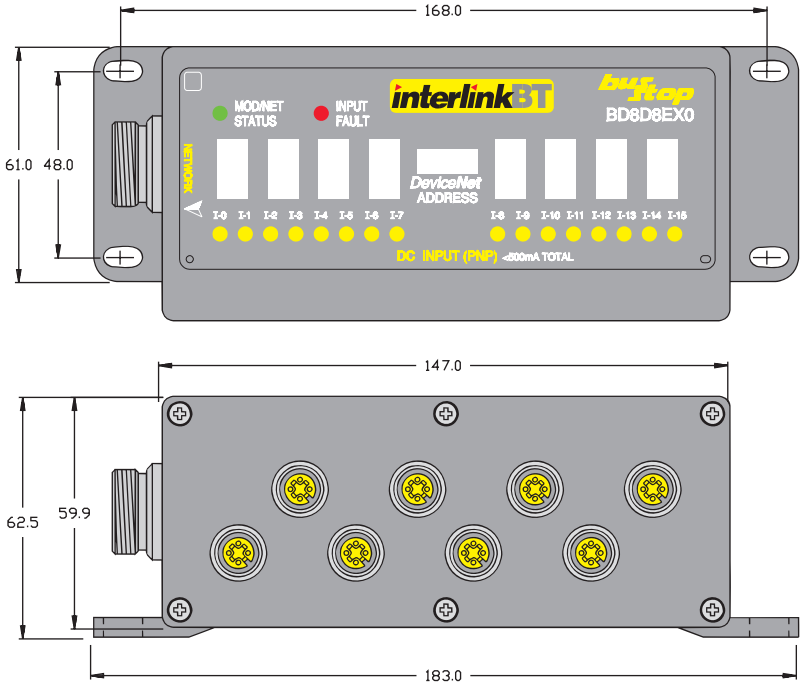
- General duty DeviceNet™ station
- 8 x 2 binary inputs

Applications

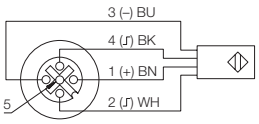
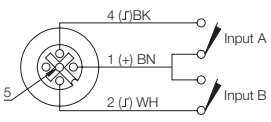
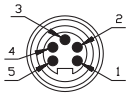
- For packaging machine and conveyor applications
- For use with eight 4-wire proximity and photoelectric sensors or 16 dry contacts

Features

- Short-circuit protected pnp inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Bus line
4-wire pnp sensor  1 = V + 2 = Input B (odd numbers) 3 = V – 4 = Input A (even numbers) 5 = Not used	Mechanical contacts 
	 male 1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L

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Input Module BD8D8EX0
8 x 2 Inputs DC

Type	BD8D8EX0
Ident-no.	66 023 74
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Input Circuits	(8) pnp 4-wire sensors or (16) dry contacts
Input voltage	11–25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(16) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 11
I/O Data Mapping	
I/O message type	polled
Produced data size	3 bytes

Abbreviations:

I = input data (0 = OFF, 1 = ON)

IS = input status (0 = working, 1 = shorted)

Input data 3 bytes

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
	Bit	23	22	21	20	19	18	17	16
	Meaning	IS-1	Reserved						

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to two binary 3-wire inputs and to drive up to 2 binary output devices. Each output point supplies up to 2 amps of load current at an output voltage between 10 and 30 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power. The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total input current draw exceeds 500 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD8D2EP2ET is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 1 byte of input data and consumes 1 byte of output data.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	WAK4-5-WAS4/P00

BD8D2EP2ET

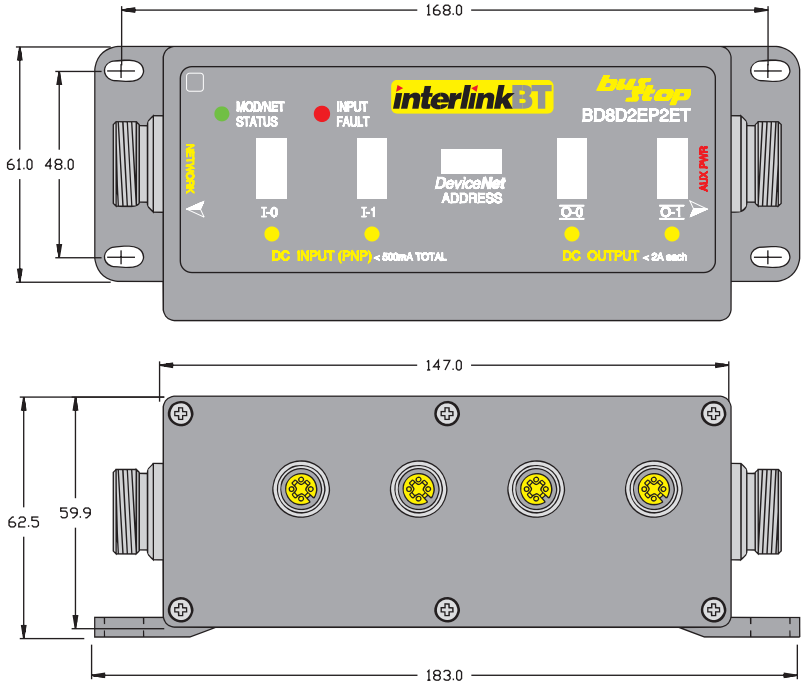
- General duty DeviceNet™ station
- 2 binary inputs and 2 binary outputs

Applications

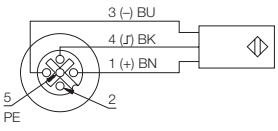
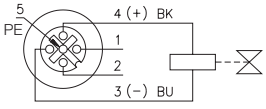
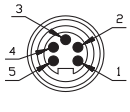
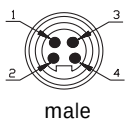
- For packaging machine and conveyor applications
- For use with two 3-wire proximity and photoelectric sensors and two open/closed actuators

Features

- Short-circuit protected pnp inputs
- 2 amp short-circuit protected outputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Outputs	Bus line	Auxiliary power
3-wire pnp-sensor	DC actuator	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L	1 = + Voltage 2 = not used 3 = not used 4 = – Voltage
		 male	 male

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Input/Output Module BD8D2EP2ET
2 Inputs DC/2 Outputs DC

Type	BD8D2EP2ET
Ident-no.	66 022 58
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Auxiliary power	10…30 VDC, isolated
Input Circuits	(2) pnp 3-wire sensors or dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(2) DC actuator
Output voltage	10…30 VDC (from auxiliary power)
Output current	2 A per output at 25 °C, 1.3 A at 70 °C
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(2) yellow: input on
Output	(2) yellow / red: output ON / short-circuit
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 12
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
OS = ouput status (0 = working, 1 = shorted)

Input data 1 byte/Output data 1 byte

Input	Bit	07	06	05	04	03	02	01	00
Data	Meaning	IS	Reserved			OS-1	OS-2	I-1	I-0
Output	Bit	07	06	05	04	03	02	01	00
Data	Meaning	Reserved						O-1	O-0

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to two binary 4-wire inputs or four dry contacts and to drive up to two binary output devices. Each input connector provides two input signals. Each output point supplies up to 2 amps of load current at an output voltage between 10 and 30 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power.
The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total input current draw exceeds 500 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD8D2EX2ET is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 1 byte of input data and consumes 1 byte of output data.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

BD8D2EX2ET

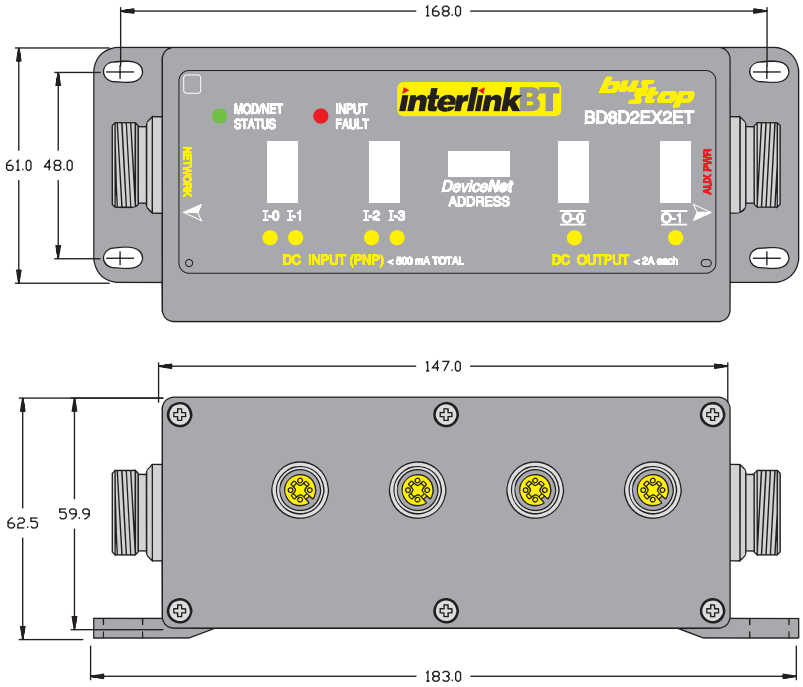
- General duty DeviceNet™ station
- 2 x 2 binary inputs and 2 binary outputs

Applications

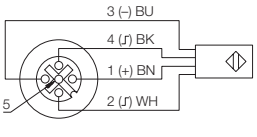
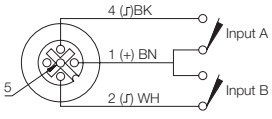
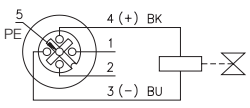
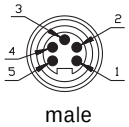
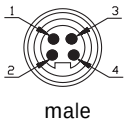
- For packaging machine and conveyor applications
- For use with two 4-wire proximity and photoelectric sensors or four dry contacts, and two open/closed actuators

Features

- Short-circuit protected pnp inputs
- 2 amp short-circuit protected outputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Outputs	Bus line	Auxiliary power
4-wire pnp-sensor  Mechanical contacts  	DC actuator  	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L  male	1 = + Voltage 2 = not used 3 = not used 4 = – Voltage  male

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Input/Output Module BD8D2EX2ET
2 x 2 Inputs DC/2 Outputs DC

Type	BD8D2EX2ET
Ident-no.	66 033 41
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Auxiliary power	10…30 VDC, isolated
Input Circuits	(2) pnp 4-wire sensors or (4) dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(2) DC actuator
Output voltage	10…30 VDC (from auxiliary power)
Output current	2 A per output at 25 °C, 1.3 A at 70 °C
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input	(4) yellow: input on
Output	(2) yellow / red: output ON / short-circuit
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 13
I/O Data Mapping	
I/O message types	polled
Produced data size	1 byte
Consumed data size	1 byte

Abbreviations:

I = Input data (0 = OFF, 1 = ON)
IS = Input status (0 = working, 1 = fault)
O = Output data (0 = OFF, 1 = ON)
OS = Ouput status (0 = working, 1 = shorted)

Input data 1 byte/Output data 1 byte

Input	Bit	07	06	05	04	03	02	01	00
Data	Meaning	IS	Reserved	OS-1	OS-0	I-3	I-2	I-1	I-0
Output	Bit	07	06	05	04	03	02	01	00
Data	Meaning	Reserved						O-1	O-0

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect up to four binary 3-wire inputs and to drive up to four binary output devices. Each output point supplies up to 2 amps of load current at an output voltage between 10 and 30 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power. The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total input current draw exceeds 500 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD8D4EP4ET is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.The device produces 2 bytes of input data and consumes 1 byte of output data.

Recommended cordsets:

Bus line:	RSM-RKM570-2M
Auxiliary power:	RSM-RKM46-2M
Inputs / outputs:	WAK4-5-WAS4/P00

BD8D4EP4ET

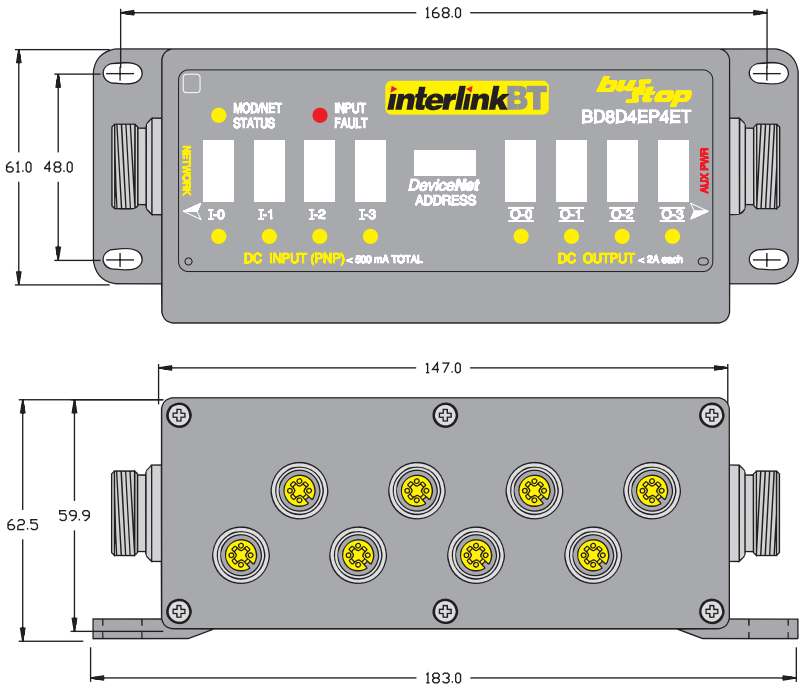
- General duty DeviceNet™ station
- 4 binary inputs and 4 binary outputs

Applications

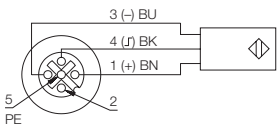
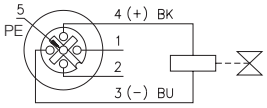
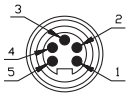
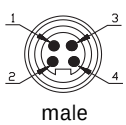
- For packaging machine and conveyor applications
- For use with four 3-wire proximity and photoelectric sensors, and four open/closed actuators

Features

- Short-circuit protected pnp inputs
- 2 amp short-circuit protected outputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs	Outputs	Bus line	Auxiliary power
3-wire pnp-sensor	**DC actuator**	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L	1 = + Voltage 2 = not used 3 = not used 4 = - Voltage
		 male	 male

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Input/Output Module BD8D4EP4ET
4 Inputs DC/4 Outputs DC

Type	BD8D4EP4ET
Ident-no.	66 022 60
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Auxiliary power	10…30 VDC, isolated
Input Circuits	(4) pnp 3-wire sensors or dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(4) DC actuator
Output voltage	10…30 VDC (from auxiliary power)
Output current	2 A per output at 25 °C, 1.3 A at 70 °C
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input/output	(4) yellow: input on/(4) yellow / red: output on / short-circuit
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 14
I/O Data Mapping	
I/O message type	polled
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
OS = ouput status (0 = working, 1 = shorted)

Input data 2 bytes/Output data 1 byte

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	OS-3	OS-2	OS-1	OS-0	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	IS							
Output Data	Bit	07	06	05	04	03	02	01	00
	Meaning	Reserved				O-3	O-2	O-1	O-0

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

Bus Components for Sensors and Actuators

This *busstop*® station is designed to connect up to four binary 4-wire inputs or eight dry contacts and to drive up to four binary output devices. Each input connector provides two input signals. Each output point supplies up to 2 amps of load current at an output voltage between 10 and 30 VDC. The output voltage must be supplied by an auxiliary power supply. The auxiliary power is optically isolated from the bus power.
The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total input current draw exceeds 500 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD8D4EX4ET is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 2 bytes of input data and consumes 1 byte of output data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Auxiliary power: RSM-RKM46-2M
Inputs / outputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00

BD8D4EX4ET

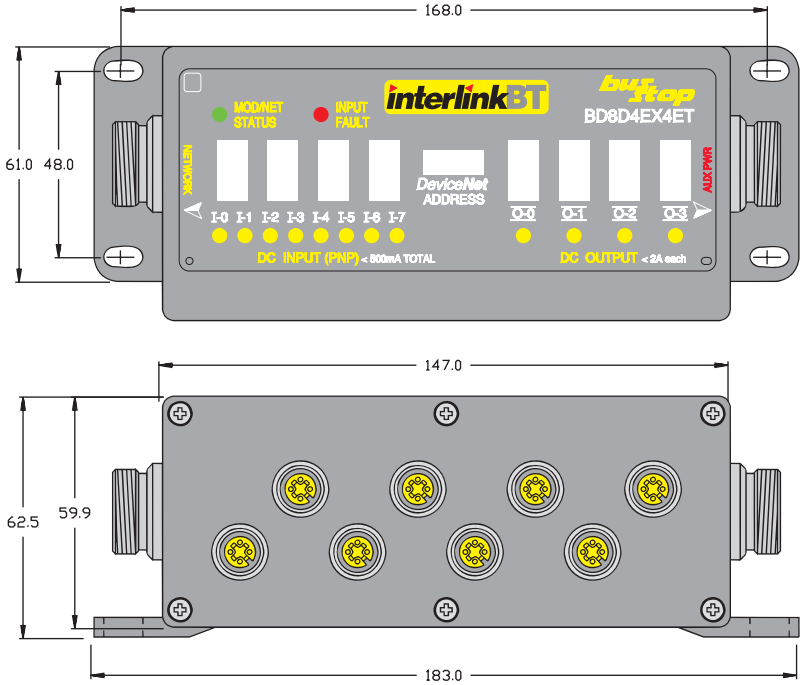
- General duty DeviceNet™ station
- 4 x 2 binary inputs and 4 binary outputs

Applications

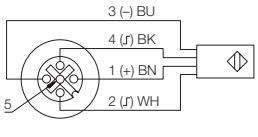
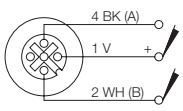
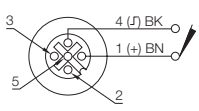
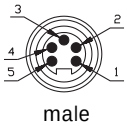
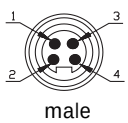
- For packaging machine and conveyor applications
- For use with four 4-wire proximity and photoelectric sensors or eight dry contacts, and four open/closed actuators

Features

- Short-circuit protected pnp inputs
- 2 amp short-circuit protected outputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate



Wiring diagrams

Inputs		Outputs	Bus line	Auxiliary power
4-wire pnp-sensor	Mechanical contacts	DC actuator	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L	1 = + Voltage 2 = not used 3 = not used 4 = – Voltage
			 male	 male

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Input/Output Module BD8D4EX4ET
4 x 2 Inputs DC/4 Outputs DC

Type	BD8D4EX4ET
Ident-no.	66 023 73
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 80 mA (from bus power)
Auxiliary power	10…30 VDC, isolated
Input Circuits	(4) pnp 4-wire sensors or (8) dry contacts
Input voltage	11…25 VDC (from bus power)
Sensor current	< 500 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(4) DC actuator
Output voltage	10…30 VDC (from auxiliary power)
Output current	2 A per output at 25 °C, 1.3 A at 70 °C
Maximum switching frequency	100 Hz
Isolation	optical isolation between bus and auxiliary power
Connections	
Bus line	5-pin *minifast*® connectors
Auxiliary power	4-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tools
Address	0…63
Communication rate	125/250/500 kbps
ON delay	0…60.000 seconds ± 1 ms
OFF delay	0…60.000 seconds ± 1 ms
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: polled time-out
Input/output	(8) yellow: input on/(4) yellow / red: output on / short-circuit
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 15
I/O Data Mapping	
I/O message type	polled
Produced data size	2 bytes
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
OS = output status (0 = working, 1 = shorted)

Input data 2 bytes/Output data 1 byte

Input Data	Bit	07	06	05	04	03	02	01	00
	Meaning	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Bit	15	14	13	12	11	10	09	08
	Meaning	IS				OS-3	OS-2	OS-1	OS-0
Output Data	Bit	07	06	05	04	03	02	01	00
	Meaning	Reserved				O-3	O-2	O-1	O-0

Housing (millimeters)	61 x 183 x 62.5 (H x W x D)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station serves to connect one binary 3-wire sourcing (pnp) input or dry contact.

The input is monitored for short-circuits. The status bit is set and the input fault LED turns red if the total current draw exceeds 150 mA.

The node address and communication rate are set through software node commissioning.

The BD2DT1EP0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.

The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

BD2DT1EP0

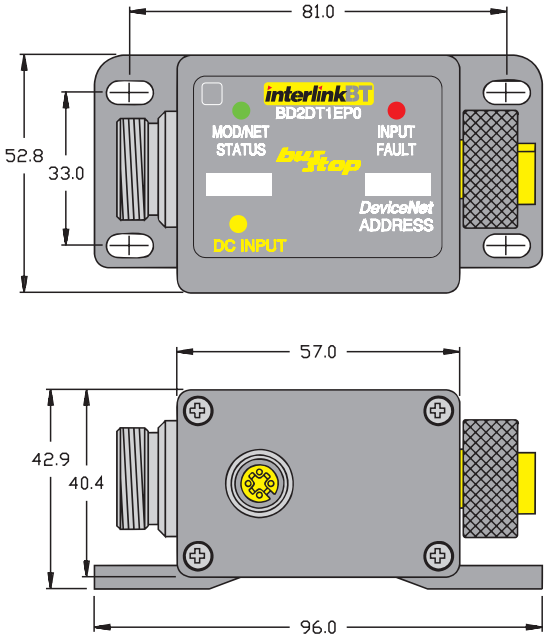
- General duty DeviceNet™ smart tee station
- 1 binary input

Applications

- For solitary sensor applications
- For use with 3-wire proximity and photoelectric sensor or dry contacts

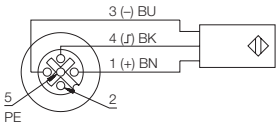
Features

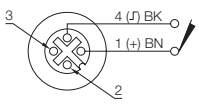
- Short-circuit protected pnp input
- High-density Noryl housing with nickel-plated brass connectors
- Address and communication rate adjustable via software

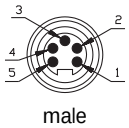


Wiring diagrams

Inputs		Bus line
3-wire npn/pnp sensor	Mechanical contacts	

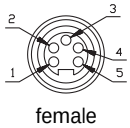






male

1 = Shield
2 = + Voltage
3 = – Voltage
4 = CAN_H
5 = CAN_L



female

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Input Module BD2DT1EP0
1 Input DC

Type	BD2DT1EP0
Ident-no.	66 033 38
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(1) pnp 3-wire sensor or dry contact
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	(1) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 1
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)

Input data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved						I-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station serves to connect one binary 4-wire sourcing (pnp) input or two dry contacts. There are 2 input signals per connector.

The input is monitored for short-circuits. The status bit is set and the input fault LED turns red if the total current draw exceeds 150 mA.

The node address and communication rate are set through software node commissioning.

The BD2DT1EX0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.

The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

BD2DT1EX0

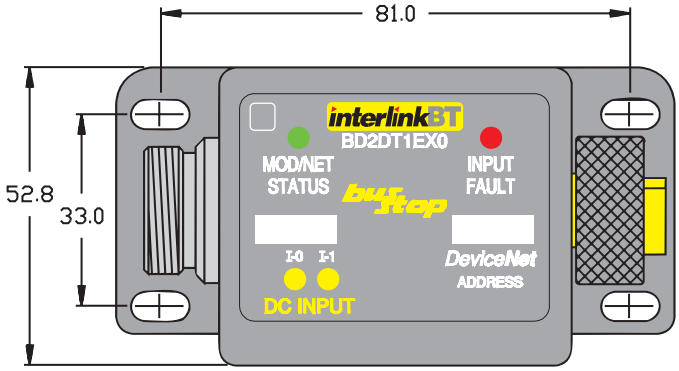
- General duty DeviceNet™ smart tee station
- 1 x 2 binary inputs

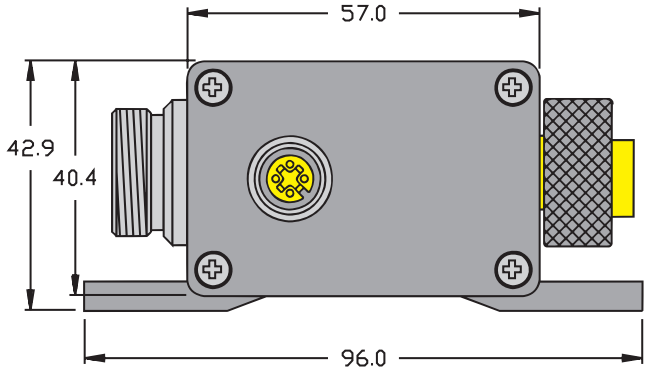
Applications

- For solitary sensor applications
- For use with one 4-wire proximity and photoelectric sensor or two dry contacts

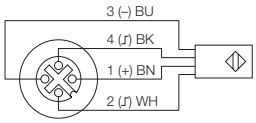
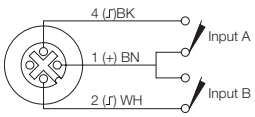
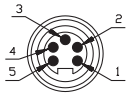
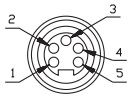
Features

- Short-circuit protected pnp input
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate





Wiring diagrams

Inputs		Bus line		
4-wire pnp sensor	Mechanical contacts			
		 male	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L	 female

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Input Module BD2DT1EX0
1 x 2 Inputs DC

Type	BD2DT1EX0
Ident-no.	66 033 39
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(1) pnp 4-wire sensor or (2) dry contacts
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	(2) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 2
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)

Input data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved					I-1	I-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station serves to connect two binary 3-wire sourcing (pnp) inputs or dry contacts.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total current draw exceeds 150 mA.

The node address and communication rate are set through software node commissioning.

The BD2DT2EP0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.

The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

BD2DT2EP0

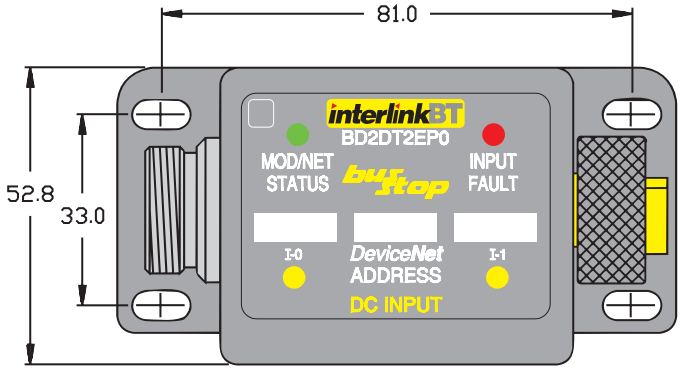
- General duty DeviceNet™ smart tee station
- 2 binary inputs

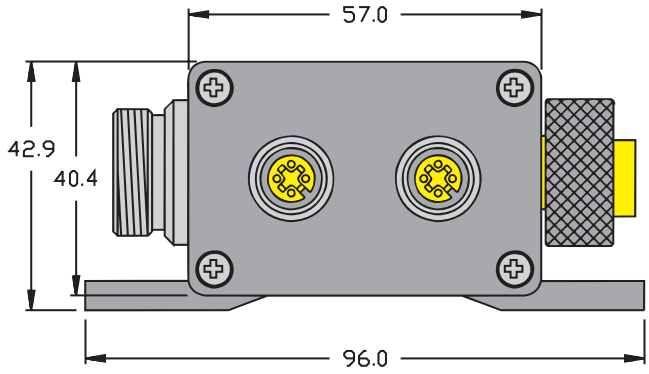
Applications

- For solitary sensor applications
- For use with two 3-wire proximity and photoelectric sensors or two dry contacts

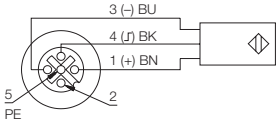
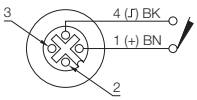
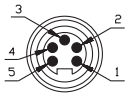
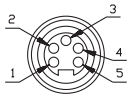
Features

- Short-circuit protected pnp inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate





Wiring diagrams

Inputs	Bus line
3-wire npn/pnp sensor  Mechanical contacts 	 male 1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L  female

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Input Module BD2DT2EP0
2 Inputs DC

Type	BD2DT2EP0
Ident-no.	66 022 56
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(2) pnp 3-wire sensors or dry contacts
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	(2) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 3
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)

Input data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved					I-1	I-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station serves to connect two binary 4-wire sourcing (pnp) inputs or four dry contacts. There are 2 input signals per connector.

The inputs are monitored for short-circuits as a group. The status bit is set and the input fault LED turns red if the total current draw exceeds 150 mA.

The node address and communication rate are set through software node commissioning.

The BD2DT2EX0 is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.

The device produces 1 byte of input data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs: FSM4-2WAK3-2/2/P00 or WAK4-5-WAS4/P00
BS8141-0 (male field wireable)

BD2DT2EX0

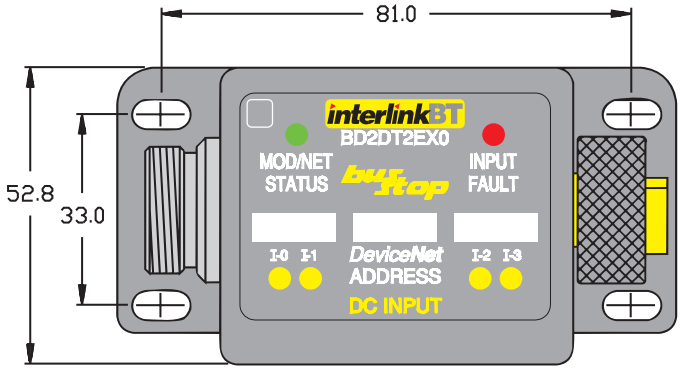
- General duty DeviceNet™ smart tee station
- 2 x 2 binary inputs

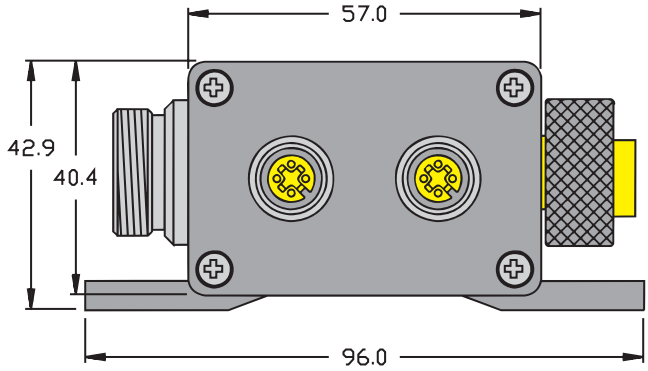
Applications

- For solitary sensor applications
- For use with two 4-wire proximity and photoelectric sensors or four dry contacts

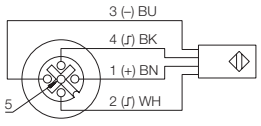
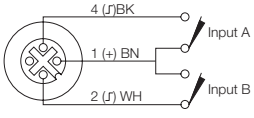
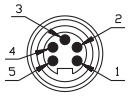
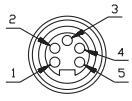
Features

- Short-circuit protected pnp inputs
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate





Wiring diagrams

Inputs		Bus line		
4-wire pnp sensor	Mechanical contacts			
		 male	1 = Shield 2 = + Voltage 3 = – Voltage 4 = CAN_H 5 = CAN_L	 female

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Input Module BD2DT2EX0
2 x 2 Inputs DC

Type	BD2DT2EX0
Ident-no.	66 022 57
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(2) pnp 4-wire sensors or (4) dry contacts
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA total, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module / network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	(4) yellow: input on
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 4
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte

Abbreviations:
I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)

Input data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved			I-3	I-2	I-1	I-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect one binary 3-wire input or dry contact and to drive one binary output. The output point can supply up to 150 mA of load current at an output voltage between 11 and 25 VDC. The output is powered by the bus power. Auxiliary supply is not needed.

The input is monitored for short-circuits. The status bit is set and the input short LED turns red if the sensor current draw exceeds 150 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs. A red LED indicates a short-circuit or overload at that point. The node address and communication rate are set through software node commissioning.

The BD2DT1EP1EU is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.
The device produces 1 byte of input data and consumes 1 byte of output data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs / outputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

BD2DT1EP1EU

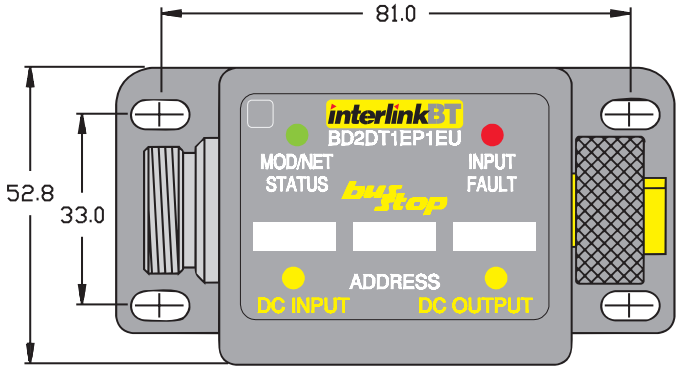
- General duty DeviceNet™ smart tee station
- 1 binary input and 1 binary bus-powered output

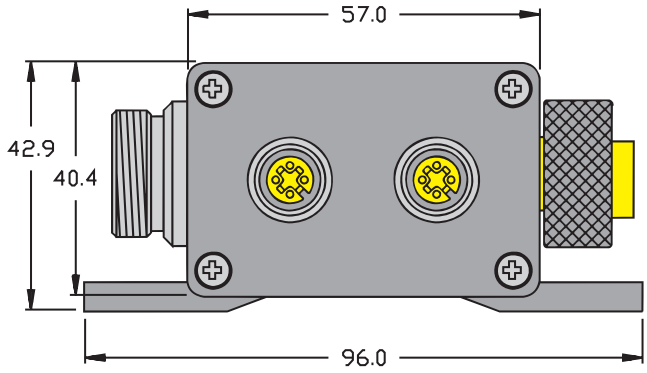
Applications

- For sensor-actuator pair applications
- For use with 3-wire proximity and photoelectric sensors or dry contacts, and open/closed actuators

Features

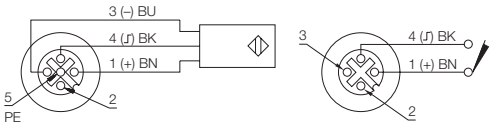
- Short-circuit protected pnp input
- 0.15 amp short-circuit protected output
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate

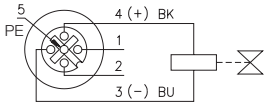


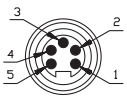


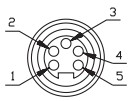
Wiring diagrams

Inputs	Output	Bus line
3-wire pnp sensor Mechanical contacts	1 = Not used 2 = Output signal 3 = Aux – 4 = Not used 5 = PE DC Actuator	male 1 = Shield 2 = + Voltage 3 = - Voltage 4 = CAN_H 5 = CAN_L female









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Input/Output Module BD2DT1EP1EU
1 Input DC/1 Output DC

Type	BD2DT1EP1EU
Ident-no.	66 022 92
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(1) pnp 3-wire sensor or dry contact
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(1) DC actuator
Output voltage	11…25 VDC (from bus line)
Sensor current	150 mA, short-circuit protected
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module/network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	yellow: input on
Output	yellow / red: output on / short-circuit
Input fault	red: Input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 6
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
OS = output status (0 = working, 1 = fault)

Input data 1 byte/Output data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved					OS	I-0
Output	Bit	7	6	5	4	3	2	1	0
Data	Meaning	Reserved							O-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station is designed to connect one binary 4-wire sensor or two dry contacts and to drive one binary output. The input connector provides two input signals. The output point can supply up to 150 mA of load current at an output voltage between 11 and 25 VDC. The output is powered by the bus power.

The input is monitored for short-circuits as a group. The status bit is set and the input short LED turns red if the sensor current draw exceeds 150 mA.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD2DT1EX1EU is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set. The device produces 1 byte of input data and consumes 1 byte of output data.

Recommended cordsets:
Bus line: RSM-RKM570-2M
Inputs / outputs: WAK4-5-WAS4/P00

BD2DT1EX1EU

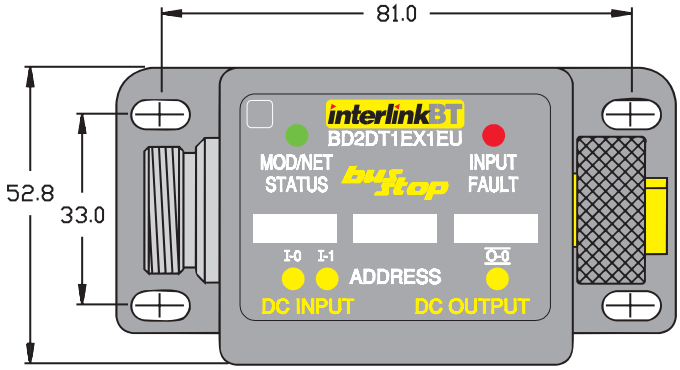
- General duty DeviceNet™ smart tee station
- 1 x 2 binary inputs and one binary bus-powered output

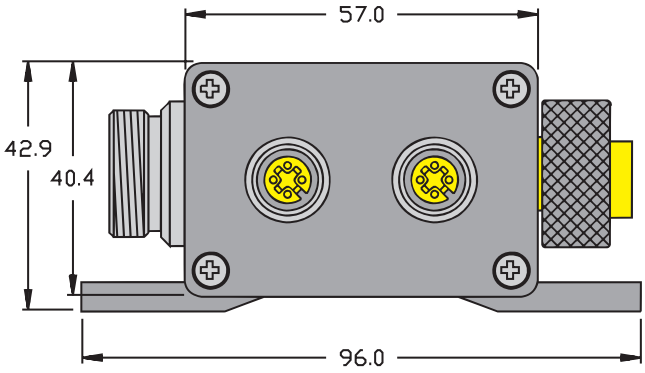
Applications

- For sensor-actuator pair applications
- For use with one 4-wire proximity and photoelectric sensor or two dry contacts, and open/closed actuators

Features

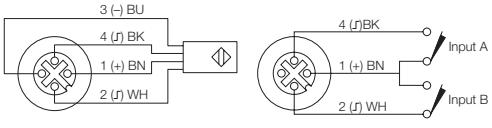
- Short-circuit protected pnp input
- 0.15 amp short-circuit protected output
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate

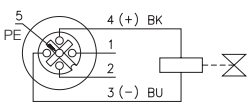


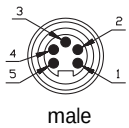


Wiring diagrams

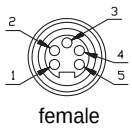
Inputs	DC Actuator	Bus line
4-wire sensors / Mechanical contacts	1 = Not used 2 = Output signal 3 = Aux – 4 = Not used 5 = PE	male / female







1 = Shield
2 = + Voltage
3 = - Voltage
4 = CAN_H
5 = CAN_L



male female

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Input/Output Module BD2DT1EX1EU
1 x 2 Inputs DC/1 Output DC

Type	BD2DT1EX1EU
Ident-no.	66 022 55
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Input Circuits	(1) 4-wire sensor, (2) dry contacts
Input voltage	11…25 VDC (from bus line)
Sensor current	< 150 mA, short-circuit protected
Maximum switching frequency	100 Hz
Output Circuits	(1) DC actuator
Output current	150 mA
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module/network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Input	(2) yellow: input on
Output	(1) yellow / red: output on / short-circuit
Input fault	red: input power shorted
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 7
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte
Consumed data size	1 byte

Abbreviations:

I = input data (0 = OFF, 1 = ON)
IS = input status (0 = working, 1 = fault)
O = output data (0 = OFF, 1 = ON)
OS = output status (0 = working, 1 = fault)

Input data 1 byte/Output data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	IS	Reserved				OS	I-1	I-0
Output	Bit	7	6	5	4	3	2	1	0
Data	Meaning	Reserved							O-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

This *busstop*® station drives up to 2 binary output devices. Each output point supplies up to 150 mA of load current at an output voltage between 11 and 25 VDC.
The outputs are powered directly by the bus power.

A yellow LED at an output point indicates that this point is energized. The status bit is set when a short-circuit or overload occurs and a red LED indicates a short-circuit or overload at that point.

The node address and communication rate are set through software node commissioning.

The BD2DT02EU is a "Group 2 Only Server" on a DeviceNet™ network. The device supports explicit messages and polled I/O messages of the predefined master/slave connection set.
The device produces 1 byte of input data and consumes 1 byte of output data.

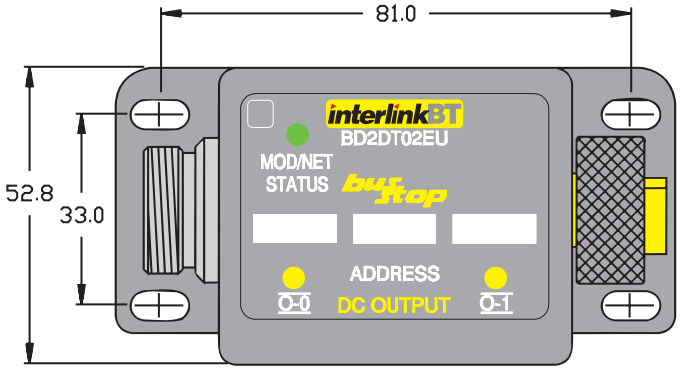
Recommended cordsets:
Bus line: RSM-RKM570-2M
Outputs: WAK4-5-WAS4/P00, BS8141-0 (male field wireable)

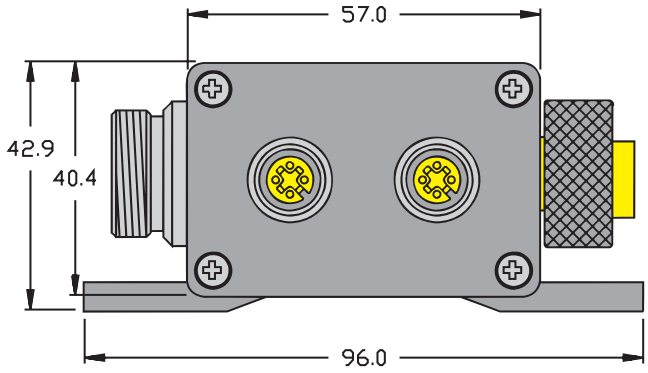
BD2DT2EU

- General duty DeviceNet™ smart tee station
- 2 binary bus-powered outputs

Applications
- For solitary output applications
- For low-power relays

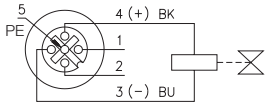
Features
- 0.15 amp short-circuit protected output
- High-density Noryl housing with nickel-plated brass connectors
- Software setting of address and communication rate

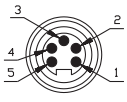




Wiring diagrams

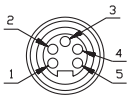
Output	Bus line
DC actuator	





male

1 = Shield
2 = + Voltage
3 = - Voltage
4 = CAN_H
5 = CAN_L



female

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Output Module BD2DT2EU
2 Outputs DC

Type	BD2DT2EU
Ident-no.	66 033 40
Supply Voltage	
Bus power	11…25 VDC
Internal current consumption	< 35 mA (from bus power)
Output Circuits	(2) DC actuators
Output voltage	11…25 VDC (from bus power)
Output current	150 mA per output
Maximum switching frequency	100 Hz
Connections	
Bus line	5-pin *minifast*® connectors
Inputs and outputs	*eurofast*® connectors
Adjustments	via DeviceNet™ configuration tool
Address	0…63
Communication rate	125/250/500 kbps
LED Indications	
Module/network status	green: normal operation flashing green: station needs allocation red: communication error flashing red: poll time-out
Output	(2) yellow / red: output on / short-circuit
DeviceNet™ Identity Attributes	
Vendor ID	256 (100 hex)
Product type / code	7 / 5
I/O Data Mapping	
I/O message type	polled
Produced data size	1 byte
Consumed data size	1 byte

Abbreviations:
O = output data (0 = OFF, 1 = ON)
IOS = output status (0 = working, 1 = fault)

Input data 1 byte/Output data 1 byte

Input	Bit	7	6	5	4	3	2	1	0
Data	Meaning	Reserved						–	OS
Output	Bit	7	6	5	4	3	2	1	0
Data	Meaning	Reserved						O-1	O-0

Housing (millimeters)	53 x 96 x 43 (h x w x d)
Material	black Noryl PPO, nickel-plated brass connectors
Mounting	(4) through-holes, 5 mm diameter
Enclosure	NEMA 1, 3, 4, 12, 13 and IEC IP67
Operating temperature	-25° to +70 °C (-13° to +158 °F)

DeviceNet™ – 572 thin cable and premoulded connectors

Colour coded for DeviceNet™ systems
High flex construction, compact size
Tough polyurethane premoulded connectors
Oil and abrasion resistant
2-pair individually shielded and overall third shield

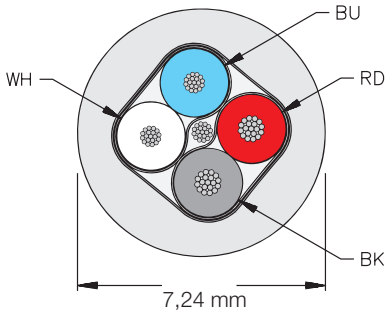
Complete line of *eurofast*® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate <1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance									
Flex Cycles*				☆					
NEC/UL Type Rating						☆			
Oil Resistance								☆	

* Flex cycle life may vary by application.

Specifications

Cable: cable 572
Ident-no. 69 580 26
Rating: 300 V, 80 °C
Materials: PVC outer jacket
polyethylene inner construction insulation
Power pair: – black, red
– 2/22 AWG (2 x 0.32 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 54.13 Ω/km (1000 ft. 16.5 Ω)
– current rating - 6.4 A
Data pair: – blue, white
– 2/22 AWG (2 x 0.32 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 54.13 Ω/km (1000 ft. 16.5 Ω)
– current rating - 6.4 A
– nominal impedance 126 Ω at 1 MHz
– nominal capacitance - conductor to conductor 37.17 pF/m (11.33 pF/ft)
– velocity of propagation 0.75
Signal attenuation: – at 125kHz - 0.34776 dB/100 m (0.1060 dB/100 ft)
– at 500kHz - 0.34875 dB/100 m (0.1063 dB/100 ft)
– at 1 MHz - 0.34908 dB/100 m (0.1064 dB/100 ft)
Shield/drain: – Aluminium foil (100 % coverage)
– 22 AWG (0,32 mm²), stranded tinned copper
Approvals: UL recognized, AWM type 2476, 80 °C, 300 V
CSA AWM I/II A/B, 80 °C, 300 V, FT1



Connector: *eurofast*® (M12)
Plug body: moulded polyurethane, spacings to VDE 0110, Group C (250 VAC/300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass, stainless steel optional
Temperature: -40 ° to +70 °C
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *eurofast*® - 4.0 A
minifast® (7/8“) - 9.0 A

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DeviceNet™ – 577 *Flexlife*™ thin cable and premoulded connectors

Colour coded for DeviceNet™ systems
FlexLife™ high flex construction
Tough polyurethane premoulded connectors
Rugged construction with braided shield
2-pair individually shielded and overall third shield

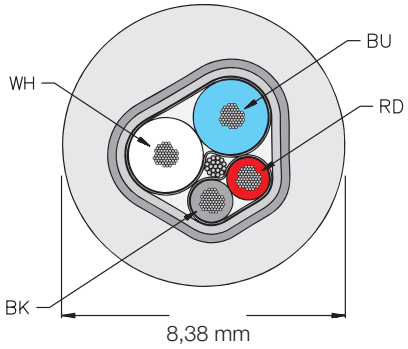
Complete line of
eurofast® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate <1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance									
Flex Cycles*					☆				
NEC/UL Type Rating						☆			
Oil Resistance									☆

* Flex cycle life may vary by application.

Specifications

Cable: cable 577
Ident-no. 69 580 25
Rating: 300 V, 80 °C
Materials: PUR outer jacket
PUR inner construction insulation
Power pair: – black, red
– 2/22 AWG (2 x 0.32 mm²), stranded bare copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 54.13 Ω/km (1000 ft. 16.5 Ω)
– current rating - 6.4 A
Data pair: – blue, white
– 2/22 AWG (2 x 0.32 mm²), stranded bare copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 54.13 Ω/km (1000 ft. 16.5 Ω)
– current rating - 6.4 A
– nominal impedance 118 Ω at 1 MHz
– nominal capacitance - conductor to conductor 39.37pF/m (12 pF/ft)
– velocity of propagation 0.75
Signal attenuation: – at 125kHz - 0.34776 dB/100 m (0.1060 dB/100 ft)
– at 500kHz - 0.34875 dB/100 m (0.1063 dB/100 ft)
– at 1 MHz - 0.34908 dB/100 m (0.1064 dB/100 ft)
Shield/drain: – 36 AWG (0,013 mm²), tinned copper braid (65 % coverage)
– 22 AWG (0,32 mm²), stranded tinned copper
Approvals: UL recognized, AWM type 2476, 80 °C, 300 V; CSA AWM I/II A/B, 80 °C, 300 V, FT1
ODVA Cable I approval pending; ODVA Release 2.0 compliant



Connector:
Plug body: moulded polyurethane, spacings to VDE 0110, Group C (250 VAC/300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass, stainless steel optional
Temperature: -40 ° to +70 °C
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *eurofast*® (M12) - 4.0 A
minifast® (7/8“) - 9.0 A

DeviceNet™ – 5711 mid cable and premoulded connectors

Colour coded for DeviceNet™ systems
High flex construction; longer distances
Tough polyurethane premoulded connectors
Oil and abrasion resistant
2-pair individually shielded and overall third shield

Complete line of
eurofast® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate <1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance		☆							
Flex Cycles*				☆					
NEC/UL Type Rating						☆			
Oil Resistance								☆	

* Flex cycle life may vary by application.

Specifications

Cable: cable 5711
Ident-no. 69 581 16
Rating: 300 V, 80 °C
Materials: PVC outer jacket
polyethylene inner construction insulation

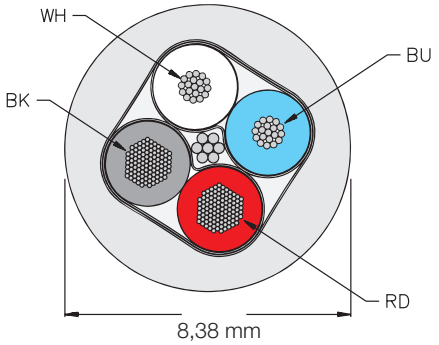
Power pair:
– black, red
– 2/16 AWG (2 x 1.3 mm²), stranded tinned copper, twisted pair
– insulation AWM 1569, 300 V, PVC, 80 °C,
– DC resistance - 13 Ω/km (1000 ft. 4.1 Ω)
– current rating - 15.2 A

Data pair:
– blue, white
– 2/20 AWG (2 x 0.5 mm²), stranded bare copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 34.1 Ω/km (1000 ft. 10.4 Ω)
– current rating - 9.6 A
– nominal impedance 110 Ω at 1 MHz
– nominal capacitance - conductor to conductor 40.52 pF/m (12.35 pF/ft)
– velocity of propagation 0.75

Signal attenuation:
– at 125 kHz - 0.02624 dB/100 m (0.0080 dB/100 ft)
– at 500 kHz - 0.02624 dB/100 m (0.0080 dB/100 ft)
– at 1 MHz - 0.02624 dB/100 m (0.0080 dB/100 ft)

Shield/drain:
– aluminium foil (100 % coverage)
– 20 AWG (0,5 mm²), stranded tinned copper

Approvals: UL recognized, AWM type 2464, 80 °C, 300 V; CSA AWM I/II A/B, 80 °C, 300 V, FT1
ODVA Cable I approval pending; ODVA Release 2.0 compliant



Connector:
Plug body: moulded polyurethane, spacings to VDE 0110, Group C (250 VAC/300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass, stainless steel optional
Temperature: -40 ° to +70 °C
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *eurofast*® (M12) - 4.0 A
minifast® (7/8“) - 9.0 A

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DeviceNet™ – 5710 Flexlife™ mid cable and premoulded connectors

Colour coded for DeviceNet™ systems
FlexLife™ high flex cable
Tough polyurethane premoulded connectors
Oil and abrasion resistant
2-pair individually shielded and overall third shield

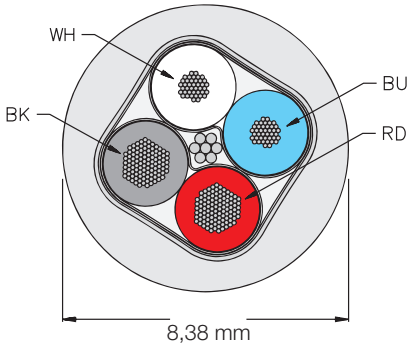
Complete line of
eurofast® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate <1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance		☆							
Flex Cycles*					☆				
NEC/UL Type Rating						☆			
Oil Resistance									☆

* Flex cycle life may vary by application.

Specifications

Cable: cable 5710
Ident-no. 69 581 15
Rating: 300 V, 80 °C
Materials: PUR outer jacket
polyethylene inner construction insulation
Power pair: – black, red
– 2/17 AWG (2 x 1.03 mm²), stranded bare copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 13 Ω/km (1000 ft. 5.16 Ω)
– current rating - 13.6 A
Data pair: – blue, white
– 2/20 AWG (2 x 0.5 mm²), stranded bare copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C,
– DC resistance - 34.1 Ω/km (1000 ft. 10.4 Ω)
– current rating - 9.6 A
– nominal impedance 110 Ω at 1 MHz
– nominal capacitance - conductor to conductor 40.52 pF/m (12.35 pF/ft)
– velocity of propagation 0.75
Signal attenuation: – at 125 kHz - 0.2624 dB/100 m (0.080 dB/100 ft)
– at 500 kHz - 0.2624 dB/100 m (0.080 dB/100 ft)
– at 1 MHz - 0.2624 dB/100 m (0.080 dB/100 ft)
Shield/drain: – aluminium foil (100 % coverage)
– 20 AWG (0,5 mm²), stranded tinned copper
Approvals: UL recognized, AWM type 2476, 80 °C, 300 V; CSA AWM I/II A/B, 80 °C, 300 V, FT1
ODVA Cable I approval pending; ODVA Release 2.0 compliant



Connector:
Plug body: moulded polyurethane, spacings to VDE 0110, Group C (250 VAC/300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass, stainless steel optional
Temperature: -40 ° to +70 °C
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *eurofast*® (M12) - 4.0 A
minifast® (7/8“) - 9.0 A

DeviceNet™ – 570 thick cable and cordsets

Colour coded for DeviceNet™ systems
Rugged construction with braided shield
Tough polyurethane moulded connectors
Oil and abrasion resistant
2-pair individually shielded and overall third shield

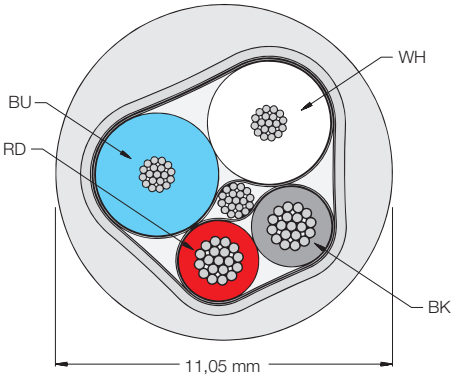
Complete line of *minifast*® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate<1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance			☆						
Flex Cycles*				☆					
NEC/UL Type Rating						☆			
Oil Resistance								☆	

* Flex cycle life may vary by application.

Specifications

Cable: cable 570
Ident-no. 69 581 14
Rating: 300 V, 80 °C
Materials: PVC outer jacket
polyethylene inner construction insulation
Power pair: – black, red
– 2/15 AWG (2 x 1.65 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 10.6 Ω/km (1000 ft. 3.25 Ω)
– rated current - 17.6 A
Data pair: – blue, white
– 2/18 AWG (2 x 0.83 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 21.3 Ω/km (1000 ft. 6.5 Ω)
– rated current - 13.6 A
– nominal impedence 126 Ω at 1 MHz
– nominal capacitance - conductor to conductor 35.27pF/m (10.75 pF/ft)
– velocity of propagation - 0.75
– signal attenuation
– at 125 kHz - 0.057 dB/100 m (0.1870 dB/100 ft)
– at 500 kHz - 0.057 dB/100 m (0.1870 dB/100 ft)
– at 1 MHz - 0.057 dB/100 m (0.1870 dB/100 ft)
Shield/Drain: – 36 AWG (2 x 0.013 mm²), tinned copper braid (65 % coverage)
– 18 AWG (2 x 0.83 mm²), stranded tinned copper
Approvals: UL recognized, AWM type 2476, 80 °C, 300 V; CSA AWM I/II A/B, 80 °C, 300 V, FT1
ODVA Cable II approval pending; ODVA Release 2.0 compliant



Connector:
Plug body: moulded polyurethane, spacings to VDE 0110 Group C (250 VAC / 300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass; stainless steel optional
Temperature: -40° to 70 °C (-40° to 158 °F)
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *minifast*® (7/8“) - 9.0 A

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DeviceNet™ – 579 thick cable and cordsets

Colour couded for DeviceNet™ systems
Rugged construction with braided shield
Tough polyurethane moulded connectors
Oil and abrasion resistant, CL2 rating
2-pair individually shielded and overall third shield

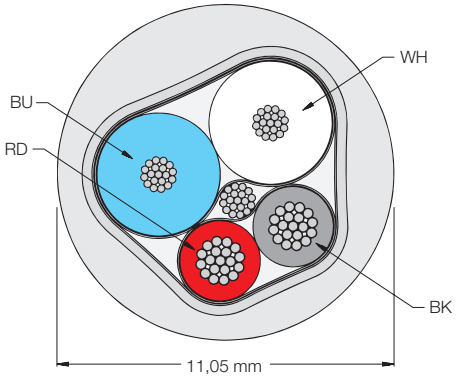
Complete line of *minifast*® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate <1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance			☆						
Flex Cycles*				☆					
NEC/UL Type Rating							☆		
Oil Resistance								☆	

* Flex cycle life may vary by application.

Specifications

Cable: cable 579
Ident-no. 66 033 14
Rating: 600 V, 80 °C
Materials: PVC outer jacket
polyethylene inner construction insulation



Power pair:
– black, red
– 2/15 AWG (2 x 1.65 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 10.6 Ω/km (1000 ft. 3.25 Ω)
– rated current - 17.6 A

Data pair:
– blue, white
– 2/18 AWG (2 x 0.83 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 21.3 Ω/km (1000 ft. 6.5 Ω)
– rated current - 13.6 A
– nominal impedence 126 Ω at 1 MHz
– nominal capacitance - conductor to conductor 35.27pF/m (10.75 pF/ft)
– velocity of propagation - 0.75
– signal attenuation
– at 125 kHz - 0.057 dB/100 m (0.1870 dB/100 ft)
– at 500 kHz - 0.057 dB/100 m (0.1870 dB/100 ft)
– at 1 MHz - 0.057 dB/100 m (0.1870 dB/100 ft)
– 36 AWG (2 x 0.013 mm²), tinned copper braid (65 % coverage)
– 18 AWG (2 x 0.83 mm²), stranded tinned copper

Approvals: UL recognized CL2, 80 °C, 600 V; CSA AWM I/II A/B, 80 °C, 600 V, FT4
ODVA Cable II approval pending; ODVA Release 2.0 compliant

Connector:
Plug body: moulded polyurethane, spacings to VDE 0110 Group C (250 VAC / 300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass; stainless steel optional
Temperature: -40° to 70 °C (-40° to 158 °F)
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *minifast*® (7/8“) - 9.0 A

DeviceNet™ – 575 thick cable and cordsets

Colour coded for DeviceNet™ systems
Rugged construction with braided shield
Tough polyurethane moulded connectors
Oil and abrasion resistant
2-pair individually shielded and overall third shield

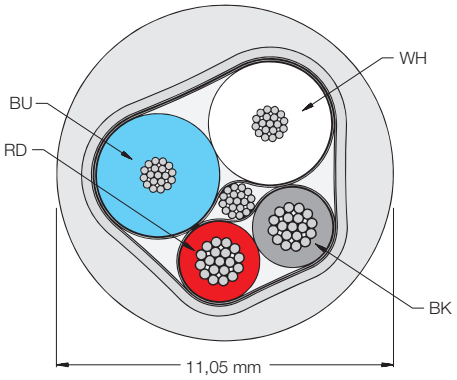
Complete line of *minifast*® connectors available.

Application Suitability	„Thin“ 100 m max.	„Mid“ 175 m max.	„Thick“ 500 m max.	Moderate<1 million	High >1 million	Type AWM	Type CL2	PVC Good	PUR Excellent
Distance			☆						
Flex Cycles*				☆					
NEC/UL Type Rating						☆			
Oil Resistance									☆

* Flex cycle life may vary by application.

Specifications

Cable: cable 575
Ident-no. 69 581 17
Rating: 300 V, 80 °C
Materials: PUR outer jacket
polyethylene inner construction insulation



Power pair:
– black, red
– 2/15 AWG (2 x 1.65 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 10.6 Ω/km (1000 ft. 3.25 Ω)
– rated current - 17.6 A

Data pair:
– blue, white
– 2/18 AWG (2 x 0.83 mm²), stranded tinned copper, twisted pair
– insulation AWM 10233, 300 V, polyethylene, 80 °C
– DC resistance - 21.3 Ω/km (1000 ft. 6.5 Ω)
– rated current - 13.6 A
– nominal impedence 126 Ω at 1 MHz
– nominal capacitance - conductor to conductor 35.27pF/m (10.75 pF/ft)
– velocity of propagation - 0.75
– signal attenuation
– at 125 kHz - 0.049 dB/100 m (0.1608 dB/100 ft)
– at 500 kHz - 0.049 dB/100 m (0.1608 dB/100 ft)
– at 1 MHz - 0.049 dB/100 m (0.1608 dB/100 ft)

Shield/Drain:
– 36 AWG (2 x 0.013 mm²), tinned copper braid (65 % coverage)
– 18 AWG (2 x 0.83 mm²), stranded tinned copper

Approvals: UL recognized, AWM type 2476, 80 °C, 300 V; CSA AWM I/II A/B, 80 °C, 300 V, FT1
ODVA Cable II approval pending; ODVA Release 2.0 compliant

Connector:
Plug body: moulded polyurethane, spacings to VDE 0110 Group C (250 VAC / 300 VDC)
Contacts: gold-plated brass
Coupling nuts: nickel-plated brass; stainless steel optional
Temperature: -40° to 70 °C (-40° to 158 °F)
Protection: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13
Rated current: *minifast*® (7/8“) - 9.0 A

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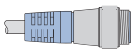
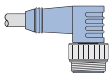
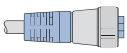
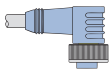
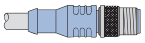
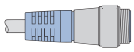
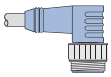
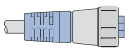
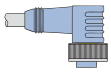
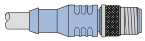
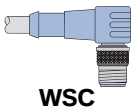
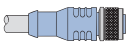
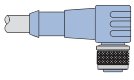
DeviceNet™ – Thin/mid cable and cordsets - 572, 577, 5710, 5711

			minifast®				eurofast®
			Pin (Male)		Socket (Female)		Pin (Male)
			 RSM	 WSM	 RKM	 WKM	 RSC
		 57X-*M	RSM-57X-*M	WSM-57X-*M	RKM-57X-*M	WKM-57X-*M	RSC-57X-*M
minifast®	Pin (male)	 RSM	RSM RSM-57X-*M	RSM WSM-57X-*M	RSM RKM-57X-*M	RSM WKM-57X-*M	RSM RSC-57X-*M
		 WSM		WSM WSM-57X-*M	WSM RKM-57X-*M	WSM WKM-57X-*M	WSM RSC-57X-*M
	Socket (female)	 RKM			RKM RKM-57X-*M	RKM WKM-57X-*M	RKM RSC-57X-*M
		 WKM				WKM WKM-57X-*M	WKM RSC-57X-*M
eurofast®	Pin (male)	 RSC					RSC RSC-57X-*M
		 WSC					
	Socket (female)	 RKC					
		 WKC					

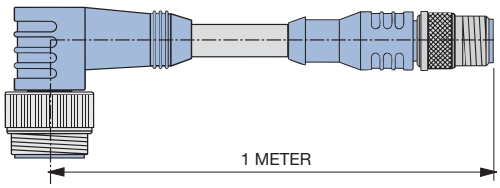
X Indicates cable type.
* Indicates length in metres.

For stainless steel coupling nut change part number: RSM... to RSV... RSC... to RSCV...

Bulk cable, see page 109 for standard lengths

Example

WSM RSC 572-1M



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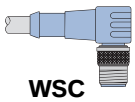
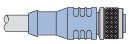
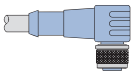
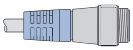
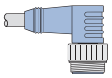
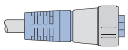
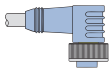
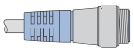
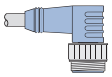
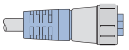
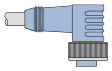
eurofast®**			*minifast*® bulkhead		*eurofast*® bulkhead**	
Pin (male)	Socket (female)		Pin (male)	Socket (female)	Pin (male)	Socket (female)
 WSC	 RKC	 WKC	 RSFP	 RKFP	 FSFD	 FKFD
WSC-57^{X}-*M	RKC-57^{X}-*M	WKC-57^{X}-*M	RSFP-57^{X}-*M	RKFP-57^{X}-*M	FSFD-57^{X}-*M	FKFD-57^{X}-*M
RSM WSC-57^{X}-*M	RSM RKC-57^{X}-*M	RSM WKC-57^{X}-*M	RSM RSFP-57^{X}-*M	RSM RKFP-57^{X}-*M	RSM FSFD-57^{X}-*M	RSM FKFD-57^{X}-*M
WSM WSC-57^{X}-*M	WSM RKC-57^{X}-*M	WSM WKC-57^{X}-*M	WSM RSFP-57^{X}-*M	WSM RKFP-57^{X}-*M	WSM FSFD-57^{X}-*M	WSM FKFD-57^{X}-*M
RKM WSC-57^{X}-*M	RKM RKC-57^{X}-*M	RKM WKC-57^{X}-*M	RKM RSFP-57^{X}-*M	RKM RKFP-57^{X}-*M	RKM FSFD-57^{X}-*M	RKM FKFD-57^{X}-*M
WKM WSC-57^{X}-*M	WKM RKC-57^{X}-*M	WKM WKC-57^{X}-*M	WKM RSFP-57^{X}-*M	WKM RKFP-57^{X}-*M	WKM FSFD-57^{X}-*M	WKM FKFD-57^{X}-*M
RSC WSC-57^{X}-*M	RSC RKC-57^{X}-*M	RSC WKC-57^{X}-*M	RSC RSFP-57^{X}-*M	RSC RKFP-57^{X}-*M	RSC FSFD-57^{X}-*M	RSC FKFD-57^{X}-*M
WSC WSC-57^{X}-*M	WSC RKC-57^{X}-*M	WSC WKC-57^{X}-*M	WSC RSFP-57^{X}-*M	WSC RKFP-57^{X}-*M	WSC FSFD-57^{X}-*M	WSC FKFD-57^{X}-*M
	RKC RKC-57^{X}-*M	RKC WKC-57^{X}-*M	RKC RSFP-57^{X}-*M	RKC RKFP-57^{X}-*M	RKC FSFD-57^{X}-*M	RKC FKFD-57^{X}-*M
		WKC WKC-57^{X}-*M	WKC RSFP-57^{X}-*M	WKC RKFP-57^{X}-*M	WKC FSFD-57^{X}-*M	WKC FKFD-57^{X}-*M

DeviceNet™ – Thick cable and cordsets - 570, 579, 575

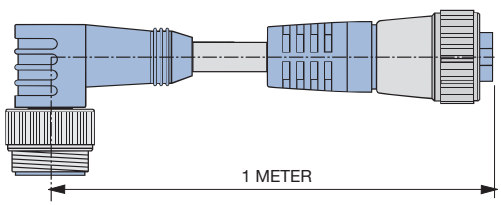
		minifast®			
		Pin (Male)		Socket (Female)	
		 RSM	 WSM	 RKM	 WKM
	 57X-*M	RSM-57X-*M	WSM-57X-*M	RKM-57X-*M	WKM-57X-*M
minifast® Pin (male)	 RSM	RSM RSM-57X-*M	RSM WSM-57X-*M	RSM RKM-57X-*M	RSM WKM-57X-*M
minifast® Pin (male)	 WSM		WSM WSM-57X-*M	WSM RKM-57X-*M	WSM WKM-57X-*M
minifast® Socket (female)	 RKM			RKM RKM-57X-*M	RKM WKM-57X-*M
minifast® Socket (female)	 WKM				WKM WKM-57X-*M

X Indicates cable type.
* Indicates length in metres.
For stainless steel coupling nut change part number: RSM... to RSV...

Bulk cable, see next page for standard lengths

Example

WSM RKM570-1M



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DeviceNet™ – Thick cable and cordsets - 570, 579, 575

minifast® bulkhead	
Pin (male)	**Socket (female)**
 **RSFP**	 **RKFP**
RSFP 570-*M	**RKFP 570-*M**
RSM RSFP 570-*M	**RSM RKFP 570-*M**
WSM RSFP 570-*M	**WSM RKFP 570-*M**
RKM RSFP 570-*M	**RKM RKFP 570-*M**
WKM RSFP 570-*M	**WKM RKFP 570-*M**

Standard cable lengths			
Cordsets		**Bulk cable**	
metres	**feet**	**metres**	**feet**
0.3 0.5 1.0	1.0 1.6 3.3	30	98
1.5 2.0 2.5	4.9 6.6 8.2	75	246
3.0 4.0 5.0	9.8 13 16	150	492
6.0 8.0 10	20 26 33	225	738
15 20 25	49 66 82	300	984
30 40 50	98 131 164	- - -	- - -

Notes:

1. Other cable lengths on request
2. Cable conversions:
   1 metre = 3.2808 feet
   1 metre = 39.37 inch
3. Tolerances:
   0 - 1 metre : +25 / -0 mm
   1 - 12.5 metres : +50 / -0 mm
   > 12.5 metres : +4 % of length / -0 mm

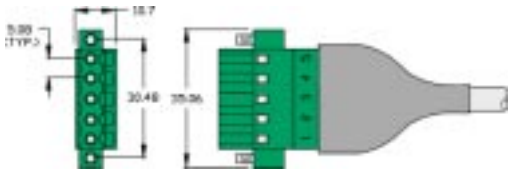
DeviceNet™ – Open connector cordsets

			minifast®				*eurofast*®**
			Pin (Male)		Socket (Female)		Pin (Male)
		Bare	RSM	WSM	RKM	WKM	RSC
Device	CBC5	CBC5-57X-*M	RSM CBC5-57X-*M	WSM CBC5-57X-*M	RKM CBC5-57X-*M	WKM CBC5-57X-*M	RSC CBC5-57X-*M
Beckhoff	BK52C	BK52C-57X-*M	RSM BK52C-57X-*M	WSM BK52C-57X-*M	RKM BK52C-57X-*M	WKM BK52C-57X-*M	RSC BK52C-57X-*M
		Thin, Mid and Thick					➪
		Thin 572, 577		Mid 5711, 5710		Thick 570, 579, 575	

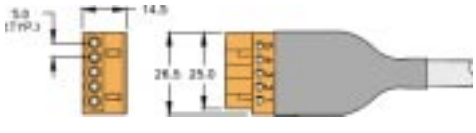
X Indicates cable type (example 572).
* Indicates length in metres.
** Consult factory for availability

Part Number	Application	Pinouts		
		CBC5	*minifast*®	*eurofast*®
CBC5-57X-*M	● Open connector for devices	1 = black (– voltage) 2 = blue (CAN_L) 3 = bare (shield drain) 4 = white (CAN_H) 5 = red (+ voltage) 5 4 3 2 1	male 3 2 4 5 1	male 4 1 3 2 5
BK52C-57X-*M	● Open connector for devices	BK52C 1 = black (– voltage) 2 = blue (CAN_L) 3 = bare (shield drain) 4 = white (CAN_H) 5 = red (+ voltage) 5 4 3 2 1	female 2 3 1 4 5 see page 112	female 3 4 5 1 2 see page 113

CBC5-57X-*M



BK52C-57X-*M



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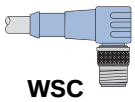
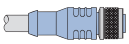
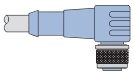
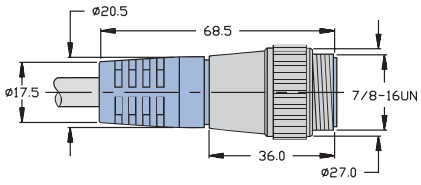
eurofast®**			*minifast*® bulkhead		*eurofast*® bulkhead**	
Pin (male)	Socket (female)		Pin (male)	Socket (female)	Pin (male)	Socket (female)
 WSC	 RKC	 WKC	 RSFP	 RKFP	 FSFD	 FKFD
WSC CBC5-57X-*M	RKC CBC5-57X-*M	WKC CBC5-57X-*M	RSFP CBC5-57X-*M	RKFP CBC5-57X-*M	FSFD CBC5-57X-*M	FKFD CBC5-57X-*M
WSC BK52C-57X-*M	RKC BK52C-57X-*M	WKC BK52C-57X-*M	RSFP BK52C-57X-*M	RKFP BK52C-57X-*M	FSFD BK52C-57X-*M	FKFD BK52C-57X-*M
Thin and Mid** only			Thin, Mid** and Thick		Thin and Mid** only	

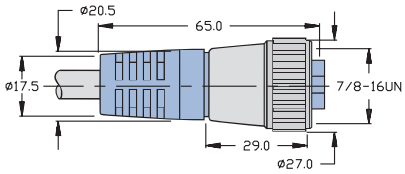
Thin 572, 577 Mid 5711, 5710 Thick 570, 579, 575

minifast® – Cordset and receptacle connector dimensions and pinouts

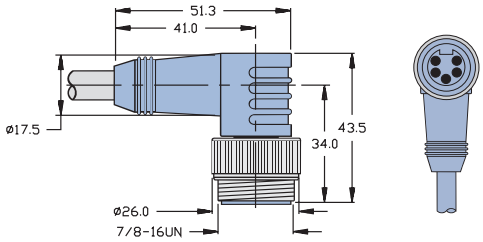
RSM-*



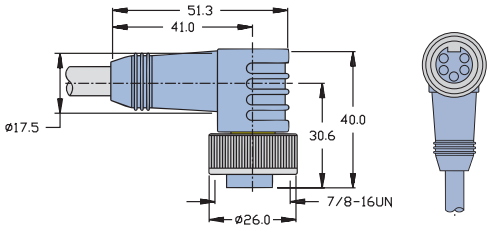
RKM-*



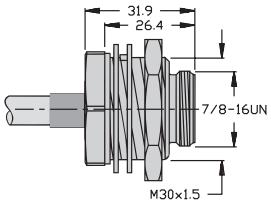
WSM-*



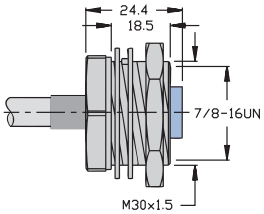
WKM-*



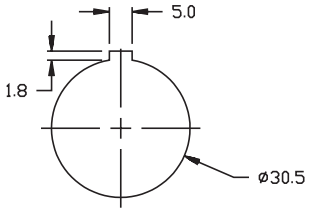
RSFP-*



RKFP-*

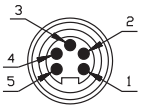


Mounting installation



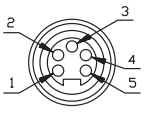
Pinouts

Male



1. bare (shield drain wire)
2. red (+ voltage)
3. black (– voltage)
4. white (CAN_H)
5. blue (CAN_L)

Female



* CENELEC EN 50044 numbering standard
Note: All dimensions in millimeters.

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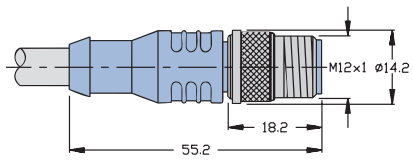
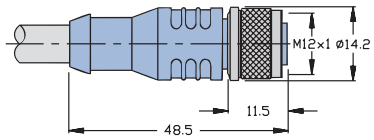
eurofast® – Cordset and receptacle connector dimensions and pinouts

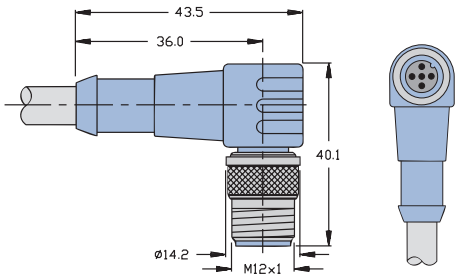
RSC-*



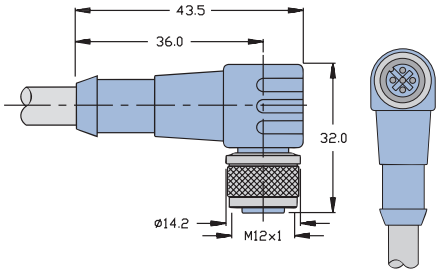
RKC-*



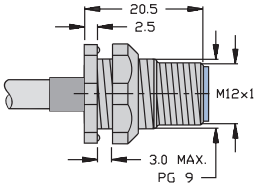
WSC-*



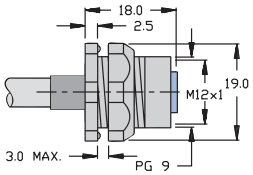
WKC-*



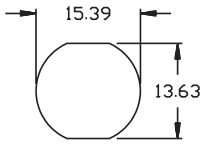
FSFD-*



FKFD-*

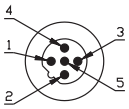


Mounting installation



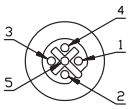
Pinouts

Male



1. bare (shield drain wire)
2. red (+ voltage)
3. black (– voltage)
4. white (CAN_H)
5. blue (CAN_L)

Female

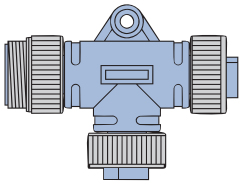
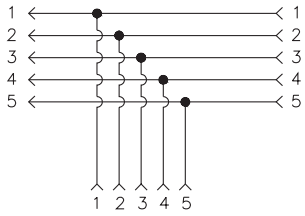
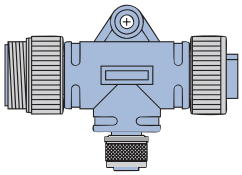
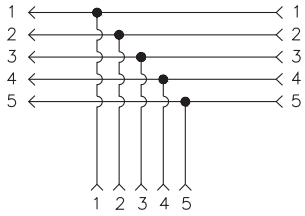
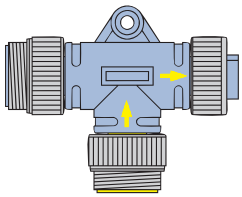
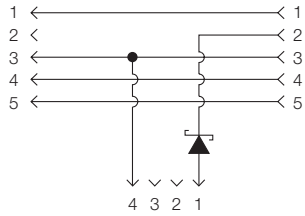
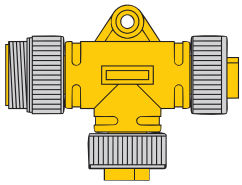
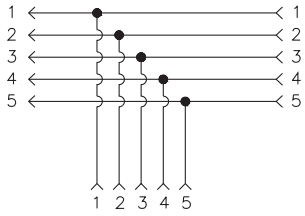
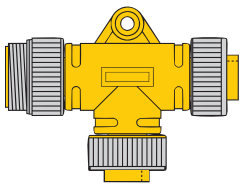
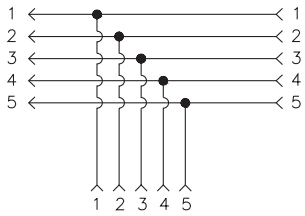
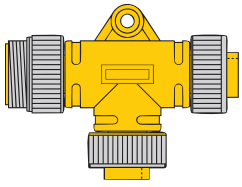
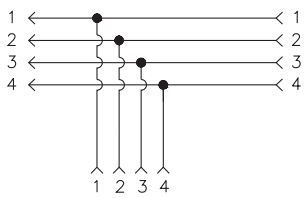


Bus drop, power and diagnostic tees

Keyed for DeviceNet™ systems
Tough moulded polyurethane body
Heavy duty internal wiring

Selection guide

For stainless steel coupling nuts:
change part number (RSM 2RKM .. to RSV 2RKV..)

Part number	Applications	Schematic
RSM 2RKM 57 	*minifast*® drop off bus line • full power and data drop • maximum 6 meter branch	
RSM FKM RKM 57 	*eurofast*® drop off bus line • reduced power and data drop • maximum 6 meter branch	
RSM RKM 57 WSM 40 	*busstop*® power tee • provides segment power • includes reverse current protection	
RSM 2RKM 57 DGT 	*busstop*® diagnostic tee • provides easy connection for diagnostic tools • tap protected with cover when not in use (not shown)	
RSM 2RKM 57 KF 	*minifast*® drop off bus line • full power and data drop • maximum 6 meter branch	
RSM 2RKM 40 KF 	*minifast*® power tee • power tee for DeviceNet™ stations	

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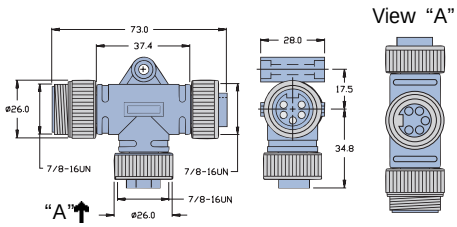
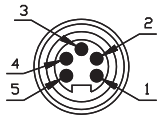
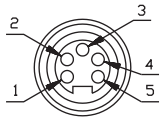
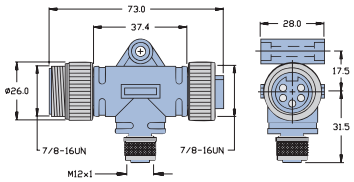
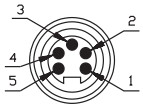
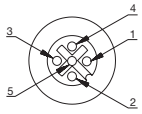
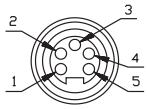
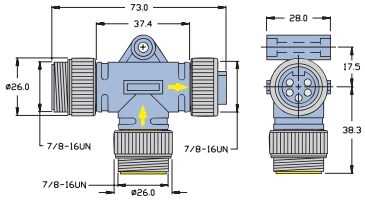
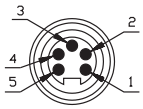
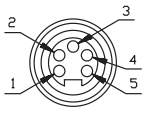
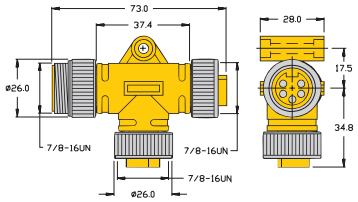
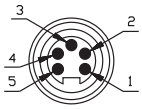
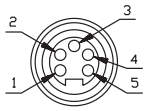
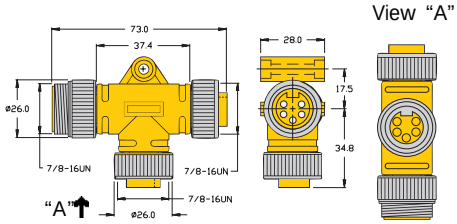
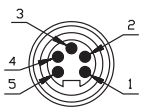
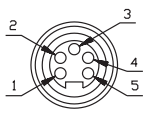
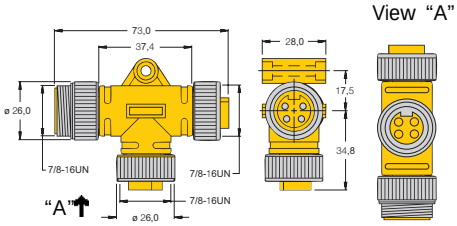
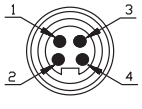
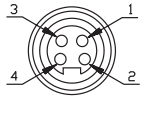
Specifications

Connector:	moulded polyurethane construction, spacings to VDE 0110 group C (250 VAC / 300 VDC)
Contact materials:	gold-plated brass
Coupling nuts:	nickel-plated brass
Temperature:	-40 °C to +80 °C (-40 °F to +170 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13

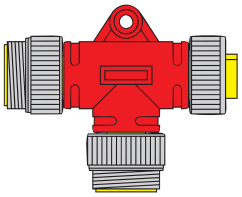
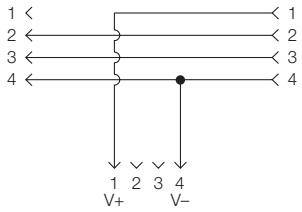
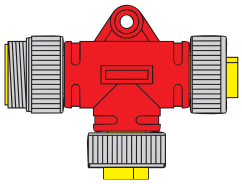
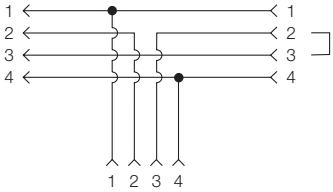
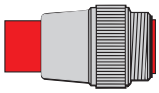
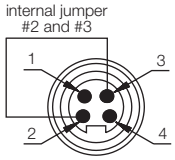
* CENELEC EN 50044 numbering convention

Dimensions	Pinouts		
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V	
	RSM Male ***minifast®***  Rating: 9 A, 600 V	FKM Female ***eurofast®***  Rating: 4 A, 300 V	RKM Female ***minifast®***  Rating: 9 A, 600 V
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V	WSM 40* Male ***minifast®***  Rating: 9 A, 600 V
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V	
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V	
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V	

E & M Stop tees

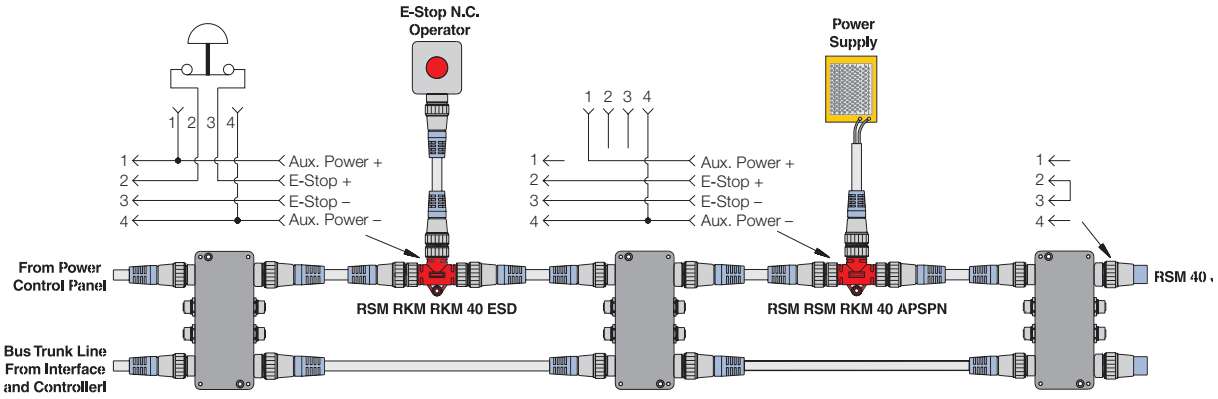
Keyed for DeviceNet™ systems
Provide emergency & machine (E & M) stop interface
Tough moulded polyurethane body

Selection guide

Part number	Applications	Schematic
RSM RSM RKM 40 APSPN 	Auxiliary power tee • provides input power for auxiliary system • uninterrupted E & M stop signals	
RSM RKM RKM 40 ESD 	E & M stop drop tee • provides interuption to auxiliary power • terminate with *minifast*® internal jumper	
RSM 40 J32R 	*minifast*® with internal jumper • internally jumpered to complete E & M stop circuit	

For stainless steel coupling nuts: change part number (RSM RKM … to RSV RKV…)

Typical Application



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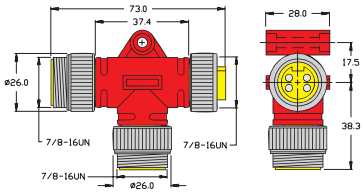
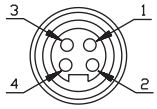
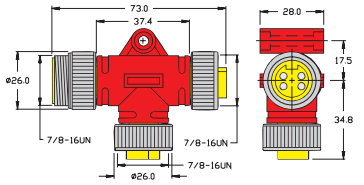
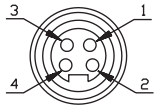
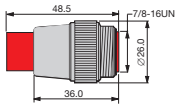
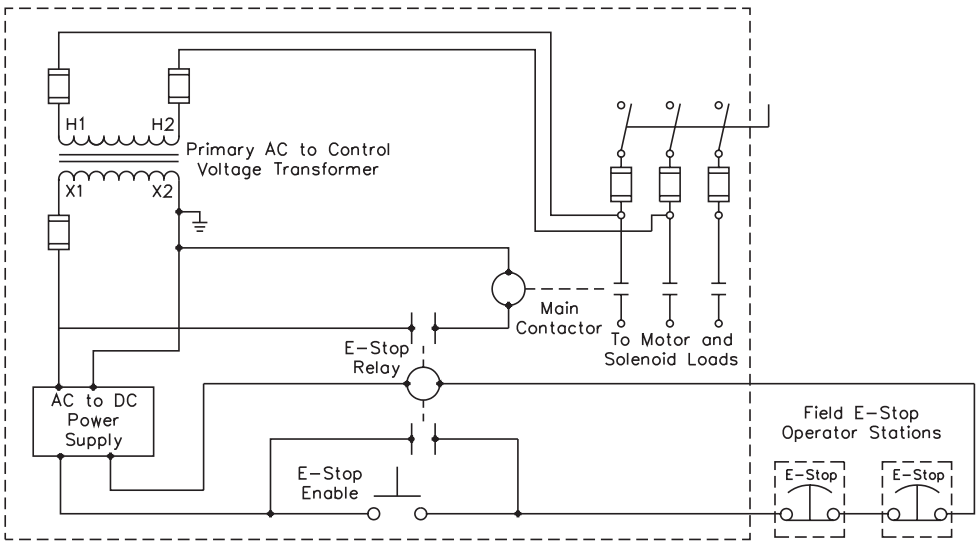
Specifications

Connector:	moulded polyurethane construction, spacings to VDE 0110 group C (250 VAC / 300 VDC).
Contact materials:	gold-plated brass
Coupling nuts:	nickel-plated brass
Temperature:	-40 °C to +80 °C (-40 °F to +170 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13

Dimensions	Pinouts	
	RSM* Male ***minifast®***  Rating: 9 A, 600 V	RKM* Female ***minifast®***  Rating: 9 A, 600 V
	RSM* Male ***minifast®***  Rating: 9 A, 600 V	RKM* Female ***minifast®***  Rating: 9 A, 600 V
	RSM* Male ***minifast®***  Rating: 9 A, 600 V	

* CENELEC EN 50044 numbering standard

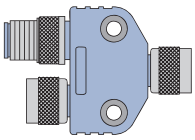
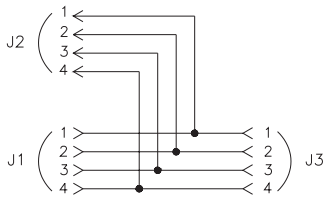
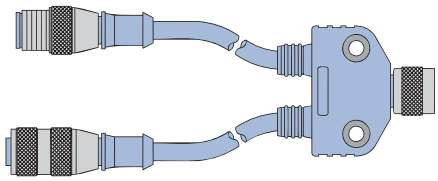
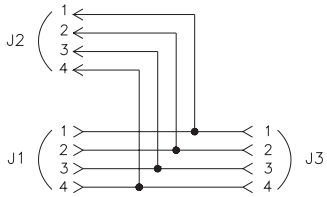
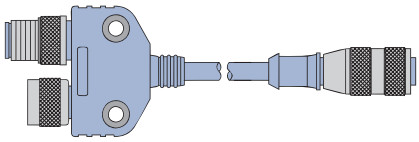
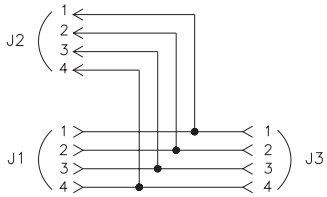
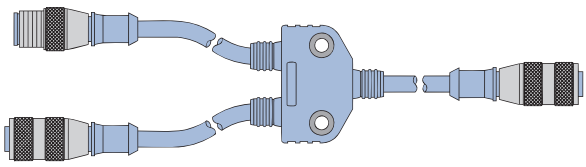
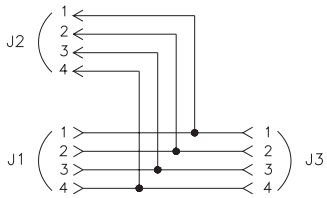
System schematic



VB2 *eurofast*® drop junctions

eurofast® branch from *eurofast*® bus line
Keyed for DeviceNet™ systems
Tough moulded polyurethane body
Heavy duty internal wiring

Selection guide

Part number	Applications	Schematic
VB2-FKM FSM FKM 57 	VB2 junction • ready for *eurofast*® cordsets branch and bus • maximum 6 meter branch	
VB2-FKM/RKC RSC 572 *M *M 	VB2 junction with 572 “thin” bus line • reduced power and data drop • maximum 6 meter branch	
VB2-RKC 572 *M/FKM FSM 	VB2 junction with 572 “thin” branch line • ready for *eurofast*® bus line • maximum 6 meter branch	
VB2-RKC 572 *M/RKC RSC 572 *M *M 	VB2 junction with 572 “thin” branch and bus line • maximum 6 meter branch	

For stainless steel coupling nuts change part numbers RKC to RKCV.

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Specifications

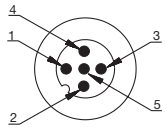
Connector:	moulded polyurethane construction, spacings to VDE 0110 Group C (250 VAC / 300 VDC).
Contact materials:	gold-plated brass
Coupling nuts:	nickel-plated brass
Temperature:	-40 °C to +80 °C (-40 °F to +170 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13

Cable specification

DeviceNet™ thin cable
- Type 572
- Type 578

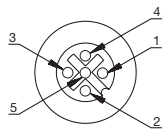
Pinouts

FSM or RSC
Male ***eurofast®***



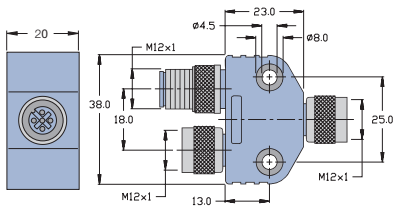
Rating: 4 A, 250 V

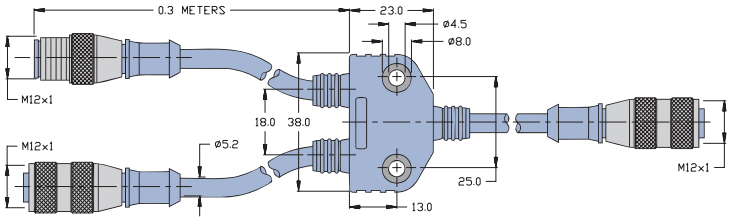
FKM or RKC
Female ***eurofast®***



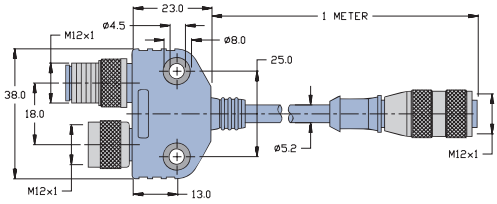
Rating: 4 A, 250 V

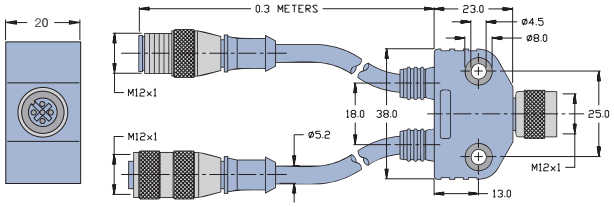
Dimensional drawings



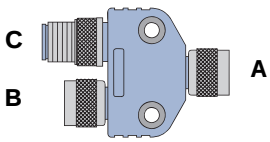


Dimensional drawings





Part number definition



Connector* VB2 FKM ___ __ / FKM FSV 57 _____
Cordset* VB2 RKC 572 *M / RKC RSC 572 *M *M

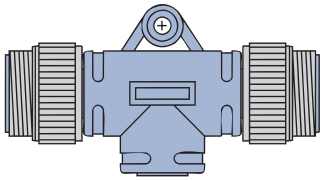
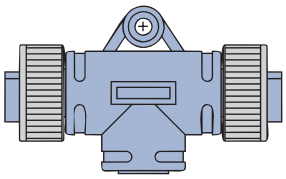
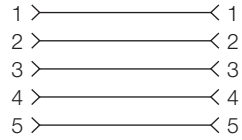
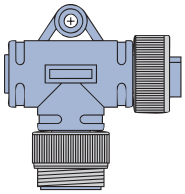
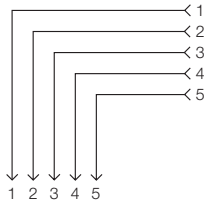
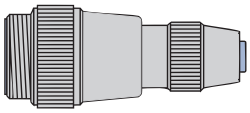
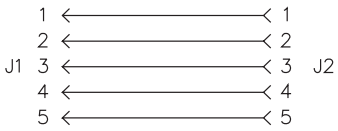
Family type
Connector / dordset A
Cable type A
Length A
Length C
Length B
Cable type B and C
Connector / cordset C
Connector / cordset B

* Example: FKM in position A is a *eurofast®* connector; RKC in position A is a *eurofast®* cordset.
FKM - female *eurofast®* connector, FSM - male *eurofast®* connector, RKC - female *eurofast®* cordset, RSC - male *eurofast®* cordset.

Gender changers and elbow connectors

Keyed for DeviceNet™ systems
Tough moulded polyurethane body
Heavy duty internal wiring

Selection guide

Part number	Applications	Schematic
RSM RSM 57 	*minifast*® male gender changer • changes female cordset to male receptacle	
RKM RKM 57 	*minifast*® female gender changer • changes male cordset to female receptacle	
WSM RKM 57 	*minifast*® elbow • right angle male to female connector	
RSM 57-FK 4.5* 	*minifast*® to *eurofast*® adapter • *minifast*® male to *eurofast*® female connector	

For stainless steel coupling nuts:
change part number (RKM RKM .. to RKV RKV..).
* = Not available in stainless steel.

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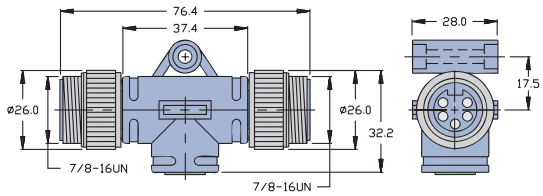
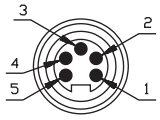
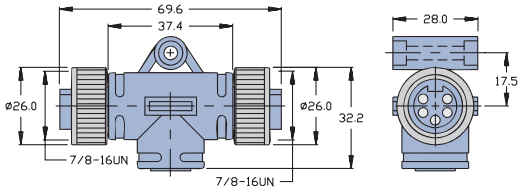
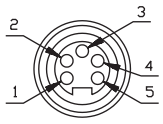
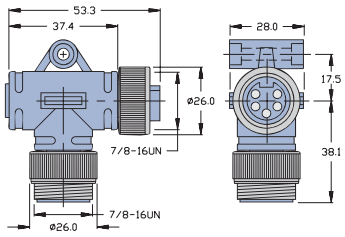
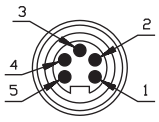
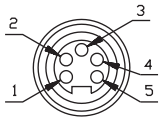
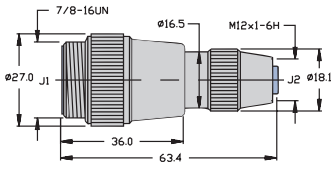
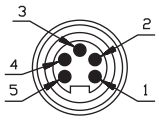
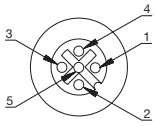
Specifications

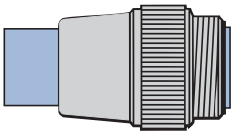
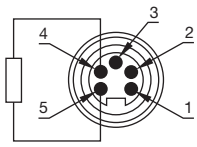
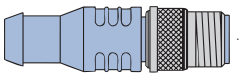
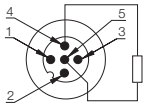
Connector:	moulded polyurethane construction, spacings to VDE 0110 Group C (250 VAC / 300 VDC).
Contact materials:	gold-plated brass
Coupling nuts:	nickel-plated brass
Temperature:	-40 °C to +80 °C (-40 °F to +170 °F)
Protection:	IP67 (IEC 60529/EN 60529), NMA 1, 3, 4, 6, 13

Dimensions	Pinouts	
	RSM Male ***minifast®***  Rating: 9 A, 600 V	
	RKM Female ***minifast®***  Rating: 9 A, 600 V	
	RSM Male ***minifast®***  Rating: 9 A, 600 V	RKM Female ***minifast®***  Rating: 9 A, 600 V
	RSM Male ***minifast®***  Rating: 9 A, 600 V	FKM Female ***eurofast®***  Rating: 9 A, 600 V

Terminating resistors

Terminating resistors with *minifast*® and *eurofast*® connectors
Tough moulded polyurethane body
Heavy duty internal wiring

Selection guide

Part number	Applications	Schematic and pinout
RSM 57-TR2 	*minifast*® terminating resistor • internal resistor • male *minifast*® connector	 Rating: 24 VDC Internal resistor: 120 Ω, 1/2 W
RSE 57-TR2 	*eurofast*® terminating resistor • internal resistor • male *eurofast*® connector	 Rating: 24 VDC Internal resistor: 120 Ω, 1/2 W

For stainless steel coupling nuts change part number: RSM 57-TR2 to RSV 57-TR2
RSE 57-TR2 to RSEV 57-TR2

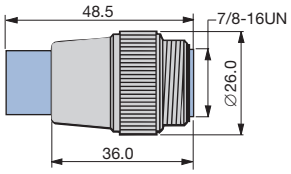
For female connector change part number: RSM 57-TR2 to RKM 57-TR2
RSE 57-TR2 to RKE 57-TR2

Specifications

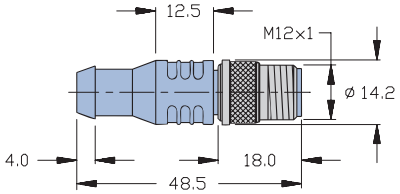
Connector:	oil resistant grey polyurethane body material and contact carrier, 300 V rating
Contact materials:	gold-plated copper alloy
Coupling nuts:	nickel-plated brass or stainless steel
Temperature:	-40 °C to +80 °C (-40 °F to +170 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6P

Dimensions

RSM 57-TR2



RSE 57-TR2



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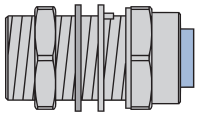
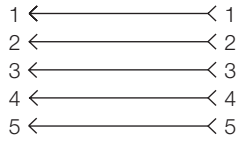
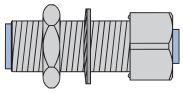
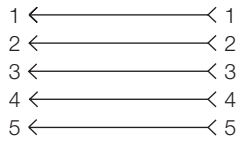
minifast®, *eurofast*® – bulkhead feed-thru receptacles

Keyed for DeviceNet™ systems
Easy panel or enclosure mounting
minifast® - standard push button panel cutout size (22.5 millimeters)
eurofast® - standard cutout size (∅ 0.5 inches)
Rugged IP67 (IEC 60529/EN 60529), NEMA 6

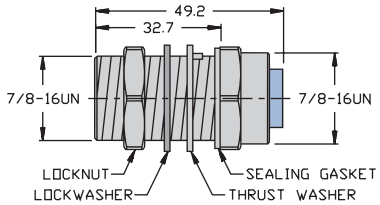
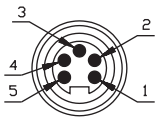
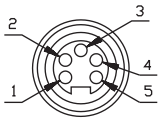
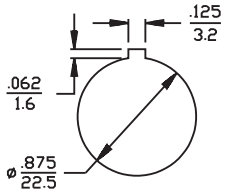
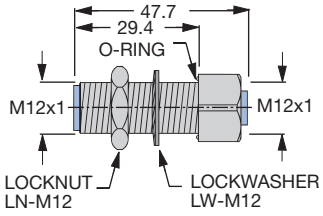
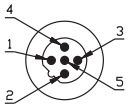
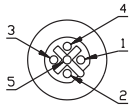
Selection guide

Part number	Applications	Schematic
RSF RKF 57/22 	*minifast*® bulkhead receptacle • straight male/female feed-thru • for use with DeviceNet™ *minifast*® cordsets	
FKM FS 57/M12 	*eurofast*® bulkhead receptacle • straight male/female feed-thru • for use with DeviceNet™ *eurofast*® cordsets	

Consult factory for availability of stainless steel housings.

Specifications

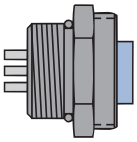
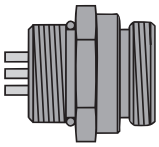
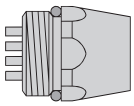
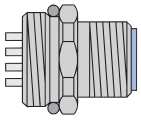
Connector housing:	nickel-plated brass (CuZn) spacings to VDE 0110 Group C (250 VAC / 300 VDC)
Contact carrier:	*minifast*®: Polyurethane (PUR); *eurofast*®: PA 6 (plastic)
Contact materials:	gold-plated brass
Temperature:	-40 °C to +105 °C (-40 °F to +221 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6

Dimensions	Pinouts	Recommended panel cutout
	Male ***minifast***®  Female ***minifast***®  Rating: 9 A, 600 V	
	Male ***eurofast***®  Female ***eurofast***®  Rating: 4 A, 250 V	

minifast®, *eurofast*® – field solderable receptacles

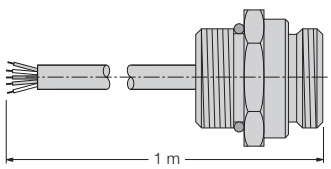
Field solderable receptacles for bus cables
Easy panel or enclosure mountings
Facilitate field installation

Selection guide

Part number	Applications	Schematic
RKF 57 	*minifast*® field solderable receptacle • straight female connector • for use with DeviceNet™ thin and mid cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5
RSF 57 	*minifast*® field solderable receptacle • straight male connector • for use with DeviceNet™ thin and mid cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5
FK 57 	*eurofast*® field solderable receptacle • straight female connector • for use with DeviceNet™ thin cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5
FS 57 	*eurofast*® field solderable receptacle • straight male connector • for use with DeviceNet™ thin cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5

For stainless housing change part number: RKF 57 to RKFV 57
Panel locknuts: LN 1/2-14/10 (10 pieces) for RSF and RKF styles
Receptacles also available with DeviceNet™ cable; see cable types on pages 98 - 104 for cable specifications

Example: RSF 572-1M



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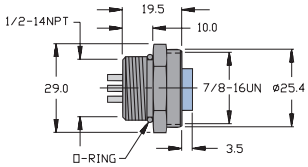
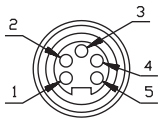
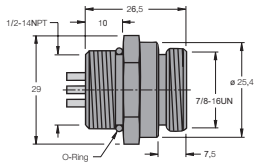
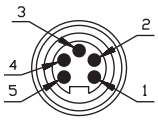
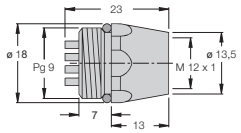
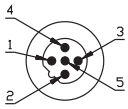
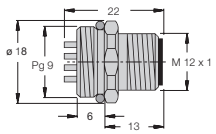
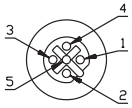
Specifications

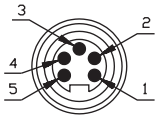
Contact carrier:	*minifast*®: Polyurethane, 300 V rating; *eurofast*®: PA 6 (plastic), 250 V rating
Housing materials:	*minifast*®: anodized aluminum, black; *eurofast*®: nickel-plated brass, machined from solid stock
Contact materials:	gold-plated brass, machined from solid stock
Solder lugs:	*minifast*®: 16 AWG capacity; *eurofast*®: 22 AWG capacity
Temperature:	*minifast*®: -40 °C to +90 °C (-40 °F to +194 °F); *eurofast*®: -40 °C to +90 °C (-40 °F to +194 °F)
Protection:	*minifast*®: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6P *eurofast*®: IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6P

Dimensions	Pinouts	Wire capacity
 Mounting: 13/16" (21 mm) hole	Female ***minifast***®  Rating: 9 A, 600 V	16 AWG DeviceNet™ cable Type 572 Type 577, Type 5710, Type 5711
 Mounting: 13/16" (21 mm) hole	Male ***minifast***®  Rating: 9 A, 600 V	16 AWG DeviceNet™ cable Type 572 Type 577 Type 5710 Type 5711
 Mounting: 5/8" (16 mm) hole	Female ***eurofast***®  Rating: 4 A, 300 V	22 AWG DeviceNet™ cable Type 572 Type 577
 Mounting: 5/8" (16 mm) hole	Male ***eurofast***®  Rating: 4 A, 300 V	22 AWG DeviceNet™ cable Type 572 Type 577

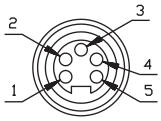
Pinouts

minifast®

Male



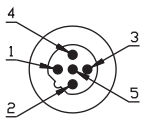
Female



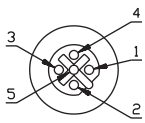
1. bare (shield drain wire)
2. red (+ voltage)
3. black (– voltage)
4. white (CAN_H)
5. blue (CAN_L)

eurofast®

Male



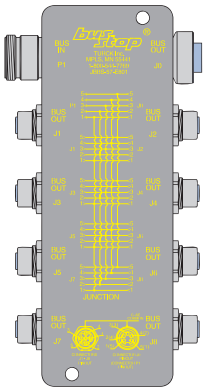
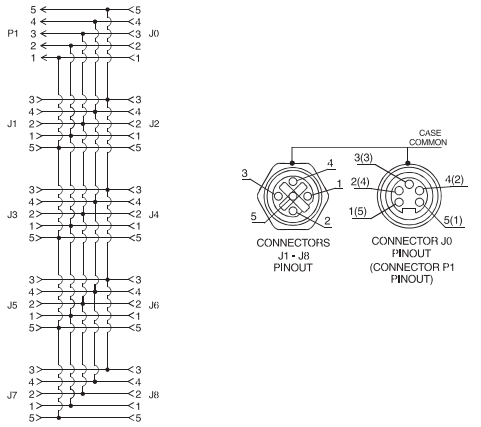
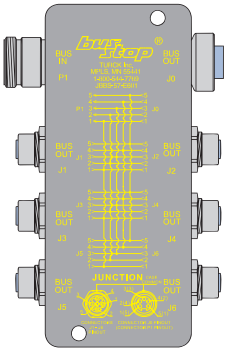
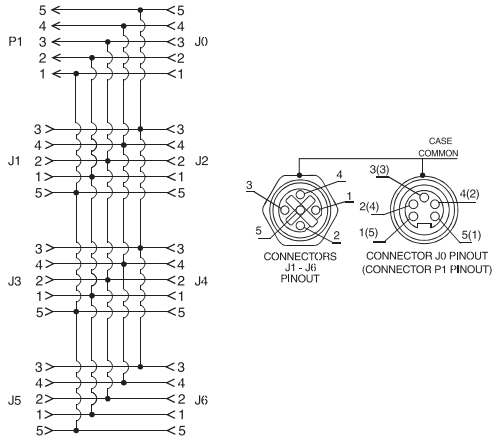
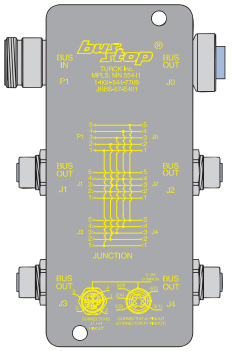
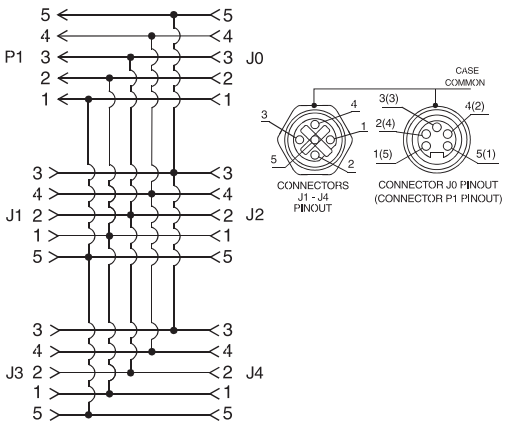
Female



eurofast® – passive multiport junctions

Keyed for DeviceNet™ systems
Rugged, fully encapsulated die-cast aluminum enclosures
Bus-in / bus-out eliminate need for splitter tee

Selection guide

Part number	Applications	Schematic
JBBS-57-E801 	8-port *busstop*® junction • bus-in / bus-out straight through-ports • eight device ports with *eurofast*® connectors	
JBBS-57-E601 	6-port *busstop*® junction • bus-in / bus-out straight through-ports • six device ports with *eurofast*® connectors	
JBBS-57-E401 	4-port *busstop*® junction • bus-in / bus-out straight through-ports • four device ports with *eurofast*® connectors	

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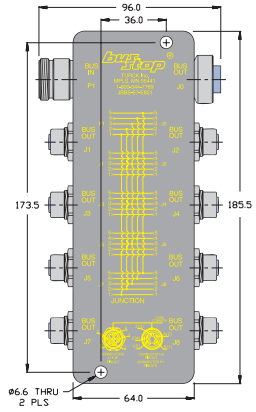
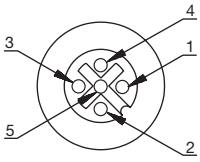
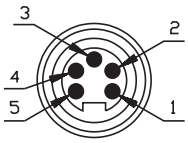
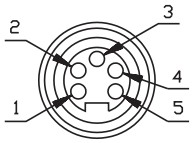
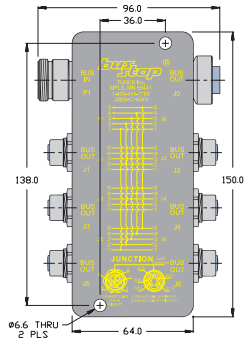
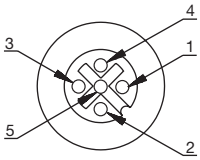
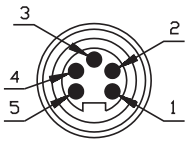
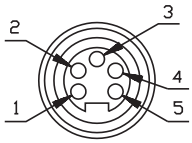
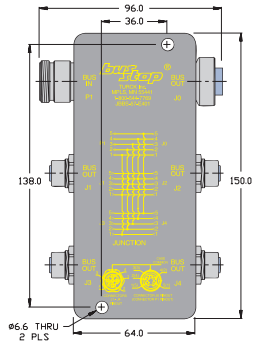
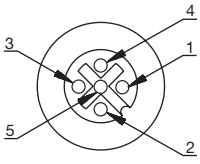
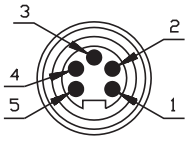
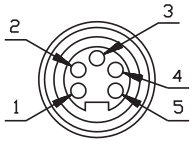
Specifications

Housing:	die-cast aluminum, black powder coated
Mounting:	1/4-20 UNC or M6 x1 screw, 2 places on centers per dimensional drawing
Temperature:	-40 °C to +70 °C (-40 °F to +158 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 12, 13

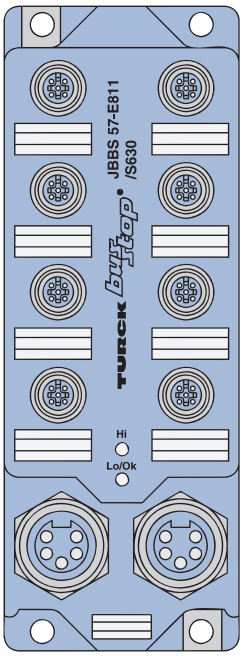
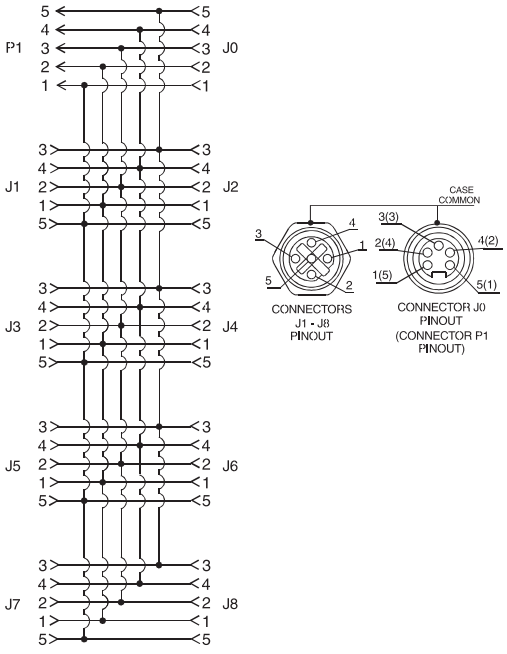
Dimensions	Pinouts		
	Female ***eurofast***® Drop  Rating: 4 A, 300 V	Male ***minifast***® Bus-in  Rating: 9 A, 300 V	Female ***minifast***® Bus-out  Rating: 9 A, 300 V
	Female ***eurofast***® Drop  Rating: 4 A, 300 V	Male ***minifast***® Bus-in  Rating: 9 A, 300 V	Female ***minifast***® Bus-out  Rating: 9 A, 300 V
	Female ***eurofast***® Drop  Rating: 4 A, 300 V	Male ***minifast***® Bus-in  Rating: 9 A, 300 V	Female ***minifast***® Bus-out  Rating: 9 A, 300 V

Note: 4-port and 6-port junctions are 36.0 mm high, 8-port junctions are 34.0 mm high, closure caps available for all receptacles

eurofast® – passive multiport junctions

Keyed for DeviceNet™ systems
Rugged, fully encapsulated plastic enclosures
Bus-in / bus-out eliminate need for splitter tee
Ideal with right-angle connectors

Selection guide

Part number	Applications	Schematic
JBBS-57-E811 	8-port *busstop*® junction • bus-in / bus-out straight through-ports • eight device ports with *eurofast*® connectors	

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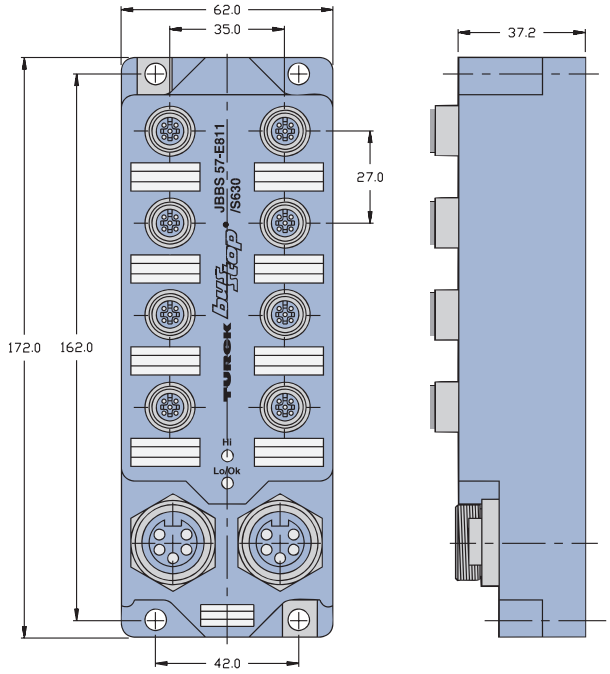
Specifications

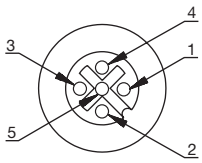
Housing:	plastic, 30 % glass reinforced; nickel-plated brass connectors
Mounting:	no. 8 screw, 4 places on centers per dimensional drawing
Temperature:	-25 °C to +70 °C (-13 °F to +158 °F)
Protection:	IP67 (IEC 60529/EN 60529), NMA 1, 3, 4, 12, 13

Dimensions



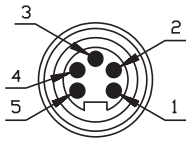
Pinouts

Female ***eurofast***®
Drop



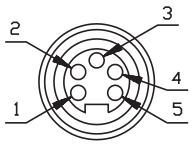
Rating: 4 A, 300 V

Male ***minifast***®
Bus-in



Rating: 9 A, 300 V

Female ***minifast***®
Bus-out



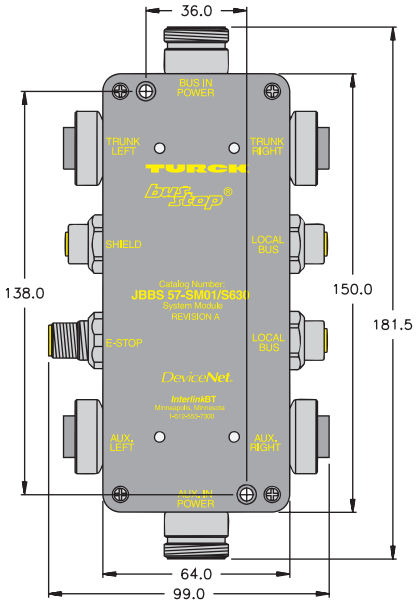
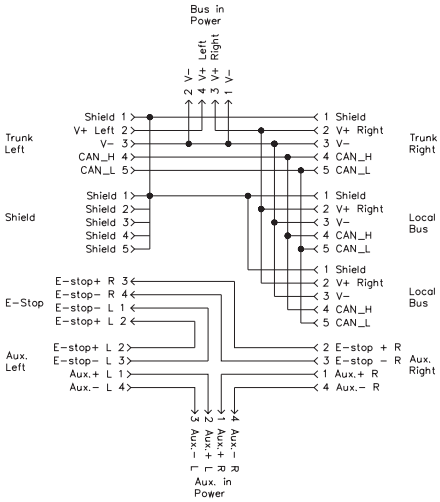
Rating: 9 A, 300 V

Note: closure caps available for all receptacles

eurofast® – system module junctions

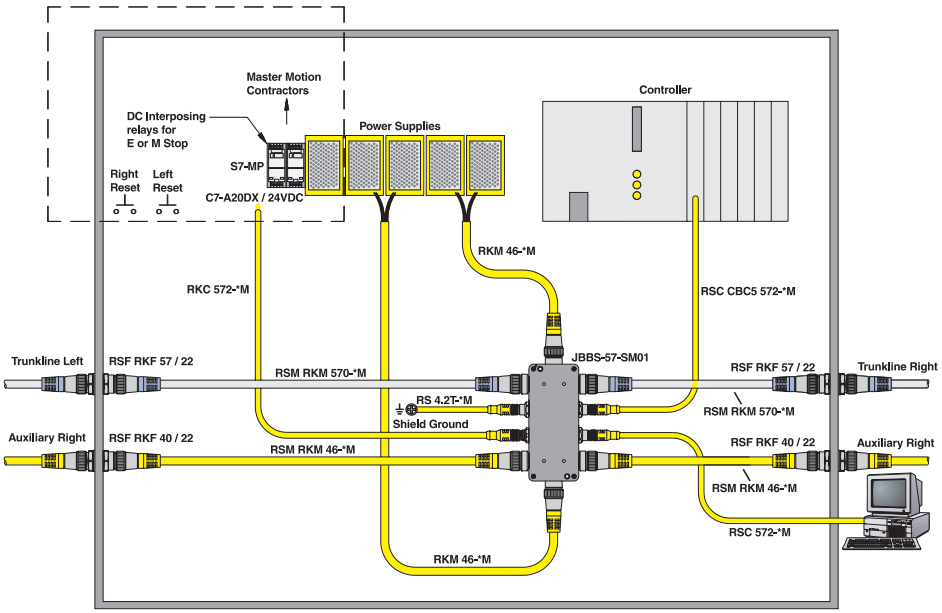
Multifunction junctions combine all system connections
Keyed for DeviceNet™ Systems
Rugged, fully encapsulated die-cast aluminum enclosures

Selection guide

Part number	Applications	Schematic
JBBS-57-SM01 	System module with two circuit groups • DeviceNet™ circuit – supplies DC power – two drops • Auxiliary power – supplies DC power – E & M stop junction	

Typical Application

Note:
See facing page for descriptions of part numbers.



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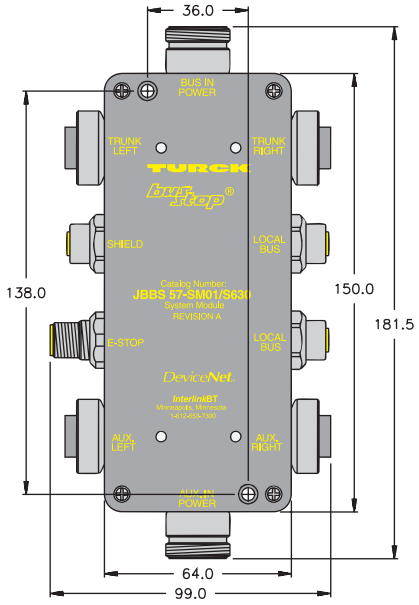
Specifications

Housing:	die-cast aluminum, black powder coated
Mounting:	1/4-20 UNC or M 6 X 1 screw, 2 places on centers per dimensional drawing
Temperature:	-40 °C to +70 °C (-40 °F to +158 °F)
Protection:	NEMA 1, 3, 4, 12, 13 and IEC IP67

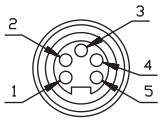
Dimensions



Pinouts

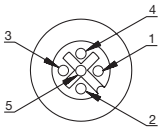
1 = shield
2 = V +
3 = V –
4 = CAN_H
5 = CAN_L

Female ***minifast***®
Trunk left & right



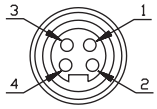
1 = shield
2 = shield
3 = shield
4 = shield
5 = shield

Female ***eurofast***®
shield



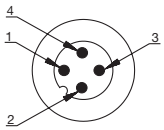
1 = V +
2 = E-Stop +
3 = V –
4 = E-Stop –

Female ***minifast***®*
Aux power
left & right



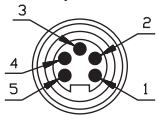
1 = E-Stop – left
2 = E-Stop + left
3 = E-Stop – right
4 = E-Stop + right

Male ***eurofast***®*
E-Stop



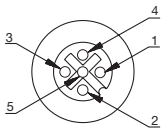
1 = V + right
2 = V + left
3 = V – left
4 = V – right

Male ***minifast***®*
Bus power in
Aux power in



1 = shield
2 = V +
3 = V –
4 = CAN_H
5 = CAN_L

Female ***eurofast***®*
Drop line local



* CENELEC EN 50044 numbering convention

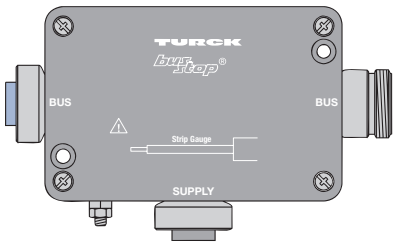
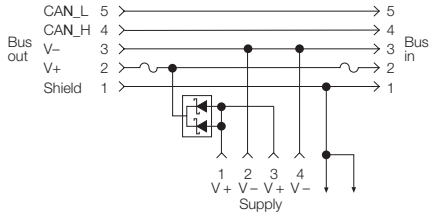
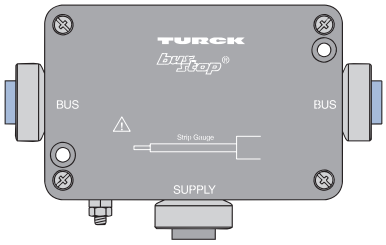
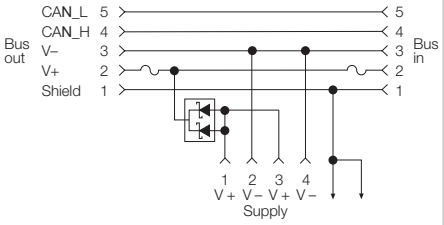
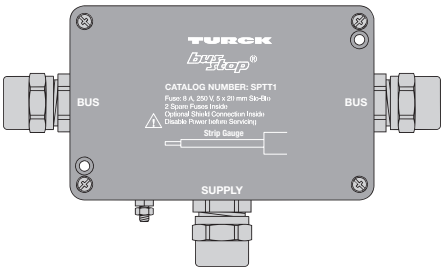
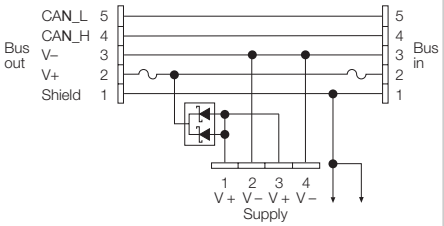
TURCK products

RSC CBC5 572-xM	x-meter, DeviceNet™ 5-pin *eurofast*® connector to 5 combicon connectors
RSM RKM 570-xM	x-meter, full trunk line (bus line) DeviceNet™ cable, male / female moulded ends
RSF RKF 57/22	male / female, 5-pin *minifast*® through-wall connector
RKC 572-xM	x-meter, 5-wire DeviceNet™ thin cable, female / tinned ends
RSC 572-xM	x-meter, 5-wire DeviceNet™ thin cable, male / tinned ends
JBBS-57-SM01	system module
WAS3-x/P00	x-meter, 2-wire *eurofast*® cable, male / tinned ends, 20 AWG, grey PVC, BR/BU, ground either or both
RSF RKF 40/22	male / female, 4-pin *minifast*® through-wall connector
RSM RKM 46-xM	x-meter, 4-wire, male / female moulded *minifast*® cable, 16 AWG, yellow PVC jacket
RKM 46-xM	x-meter, 4-wire, female / tinned ends *minifast*® cable, 16 AWG, yellow PVC jacket
S7-M	relay base, DIN and panel mount, with relay locking tab

Power taps

Connection of power supply to the DeviceNet™ bus line
Schottky diode reverse-current protected
Fused to protect the bus from excess current
Continuous connection for signal, drain and V -

Selection guide

Part number	Applications	Schematic
SPTC1 	*busstop*® power tap with *minifast*® connectors • *minifast*® male to female bus connector • *minifast*® female power connector	
SPTC2 	*busstop*® power tap with *minifast*® connectors • *minifast*® female to female bus connector • *minifast*® female power connector	
SPTT1 	*busstop*® power tap with terminal connectors • terminal strip bus connectors • terminal strip power connector	

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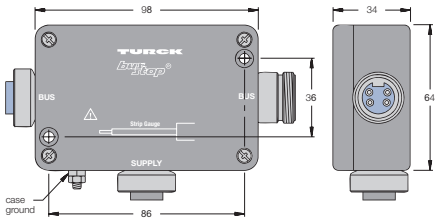
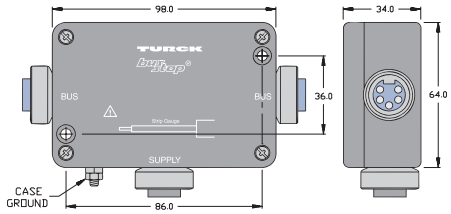
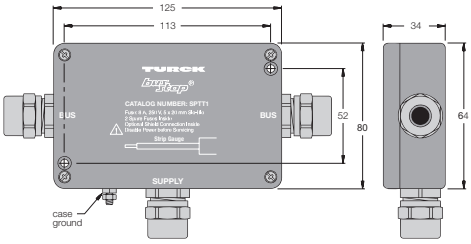
Specifications

Housing:	die-cast aluminum, black powder coated
Mounting:	M4 or 0.138-32 socket head screw, 2 places on 36.0 x 86.0 mm center
Temperature:	-40 °C to +70 °C (-40 °F to +158 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 12, 13

Dimensions

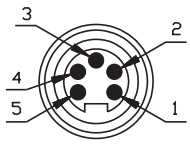






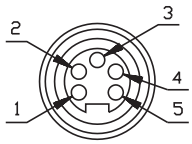
Pinouts

RSM
Male ***minifast®***



Rating: 8 A, 45 V

RKM
Female ***minifast®***

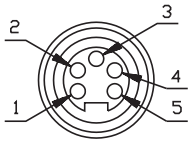


Rating: 8 A, 45 V

RKM*
Female ***minifast®***

Rating: 8 A, 45 V

RKM
Female ***minifast®***



Rating: 8 A, 45 V

RKM*
Female ***minifast®***

Rating: 8 A, 45 V

		Reference
5	CAN_L	blue
4	CAN_H	white
3	V –	black
2	V +	red
1	1 shield	bare

4	V –
3	V +
2	V –
1	V +

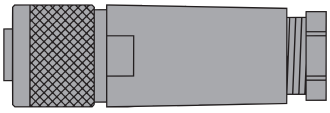
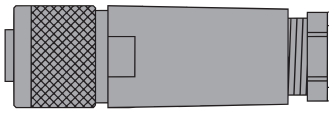
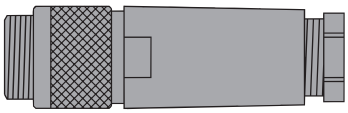
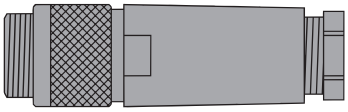
* CENELEC EN 50044 numbering convention

Bus Line	Auxiliary Power
1. shield	1. + voltage
2. + voltage	2. – voltage
3. – voltage	3. + voltage
4. CAN_H	4. – voltage
5. CAN_L	

minifast® – Field wireable connectors

Field wireable connectors for bus lines and drops
Convert hardwiring to *minifast*® connectors
Facilitate field replacement

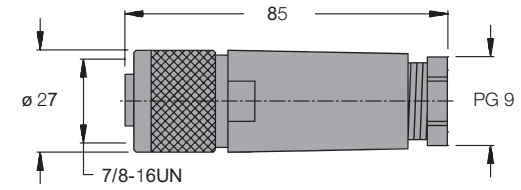
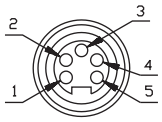
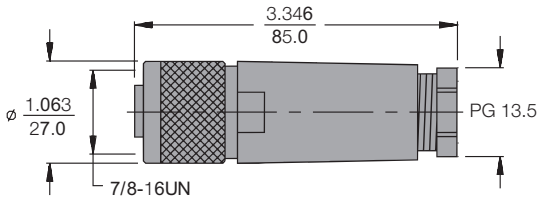
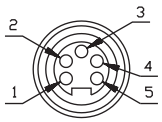
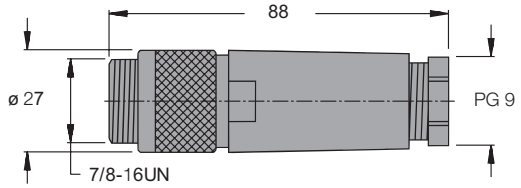
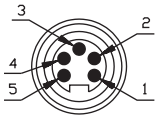
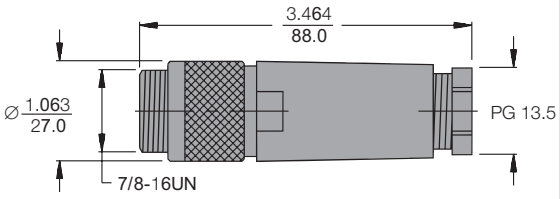
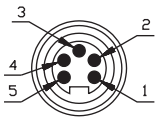
Selection guide

Part number	Applications	Schematic
B4151-0/9 	*minifast*® field wireable • straight female connector • for use with DeviceNet™ thin cables	1 – Bare 2 – Red 3 – Black 4 – White 5 – Blue
B4151-0/13.5 	*minifast*® field wireable • straight female connector • for use with DeviceNet™ thick cables	1 – Bare 2 – Red 3 – Black 4 – White 5 – Blue
BS4151-0/9 	*minifast*® field wireable • straight male connector • for use with DeviceNet™ thin cables	1 – Bare 2 – Red 3 – Black 4 – White 5 – Blue
BS4151-0/13.5 	*minifast*® field wireable • straight male connector • for use with DeviceNet™ thick cables	1 – Bare 2 – Red 3 – Black 4 – White 5 – Blue

Hans Turck GmbH & Co. KG • D–45466 Mülheim an der Ruhr • Tel. 02 08/57 52-0 • Fax 02 08/57 52-264 • E-Mail: turckmh@mail.turck-globe.de

Specifications

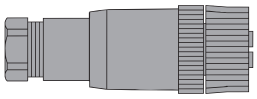
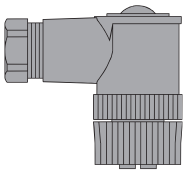
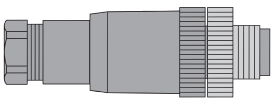
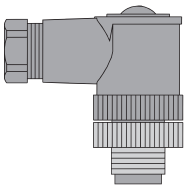
Housing:	plastic, type PA 6.6 GV
Connector insert:	Polyurethane; V2 acc. UL 94
Contact materials:	CuZn-plated copper alloy
Coupling nuts:	anodized aluminum
Temperature:	-40 °C to +85 °C (-40 °F to +185 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6, 13

Dimensions	Pinouts	Cable range (inch/mm)
	Female ***minifast***®  Rating: 9 A, 300 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™cable Type 572, 577, 5710, 5711
	Female ***minifast***®  Rating: 9 A, 300 VDC	0.394 - 0.472 / 10 - 12 DeviceNet™ cable Type 570, 579, 575
	Male ***minifast***®  Rating: 9 A, 300 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™ cable Type 572, 577, 5710, 5711
	Male ***minifast***®  Rating: 9 A, 300 VDC	0.394 - 0.472 / 10 - 12 DeviceNet™ cable Type 570, 579, 575

eurofast® – Field wireable connectors

Field wireable connectors for bus lines and drops
Convert hardwiring to *eurofast*® connectors
Facilitate field replacement

Selection guide

Part number	Applications	Schematic
B8151-0/9 	*eurofast*® field wireable • straight female connector • for use with DeviceNet™ thin / mid cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5
B8251-0/9 	*eurofast*® field wireable • right angle female connector • for use with DeviceNet™ thin / mid cables	Bare → 1 Red → 2 Black → 3 White → 4 Blue → 5
BS8151-0/9 	*eurofast*® field wireable • straight male connector • for use with DeviceNet™ thin / mid cables	Bare — 1 Red — 2 Black — 3 White — 4 Blue — 5
BS8251-0/9 	*eurofast*® field wireable • right angle male connector • for use with DeviceNet™ thin / mid cables	Bare → 1 Red → 2 Black → 3 White → 4 Blue → 5

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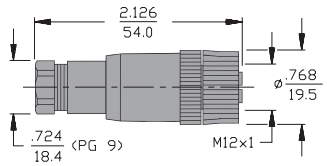
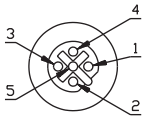
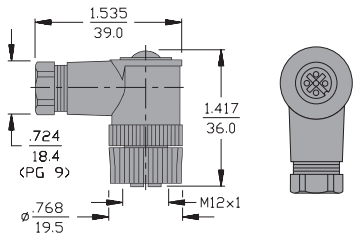
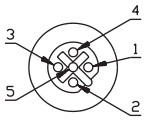
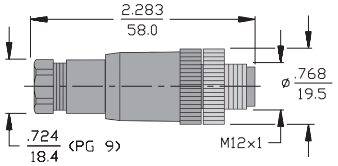
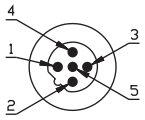
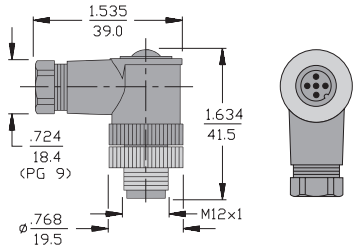
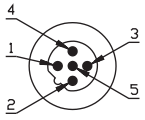
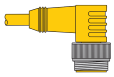
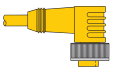
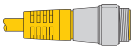
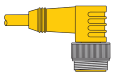
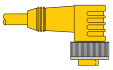
Specifications

Housing:	Polyester, PBT black
Connector insert:	PBT; spacings to VDE 0110 Group C
Contact materials:	nickel-plated copper alloy
Coupling nuts:	Female - PBT; Male - nckel-plated brass
Temperature:	-40 °C to +85 °C (-40 °F to +185 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6p

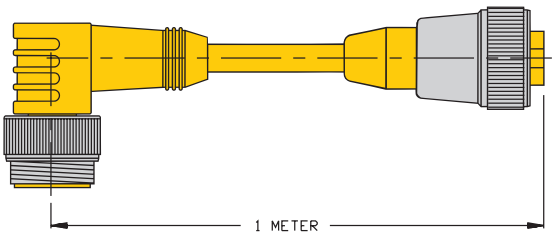
Dimensions	Pinouts	Cable range (inch/mm)
	Female ***eurofast***®  Rating: 3 A, 36 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™ cable Type 572, 577, 5710, 5711
	Female ***eurofast***®  Rating: 3 A, 36 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™ cable Type 572, 577, 5710, 5711
	Male ***eurofast***®  Rating: 3 A, 36 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™ cable Type 572, 577, 5710, 5711
	Male ***eurofast***®  Rating: 3 A, 36 VDC	0.236 - 0.330 / 6 - 8.5 DeviceNet™ cable Type 572, 577, 5710, 5711

DeviceNet™ power cordsets – *minifast*® connectors

			minifast®			
			Pin (male)		Socket (female)	
			 RSM	 WSM	 RKM	 WKM
			RSM 46X-*M	WSM 46X-*M	RKM 46X-*M	WKM 46X-*M
minifast®	Pin (male)	 RSM	RSM RSM 46X-*M	RSM WSM 46X-*M	RSM RKM 46X-*M	RSM WKM 46X-*M
		 WSM		WSM WSM 46X-*M	WSM RKM 46X-*M	WSM WKM 46X-*M
	Socket (female)	 RKM			RKM RKM 46X-*M	RKM WKM 46X-*M
		 WKM				WKM WKM 46X-*M

Example

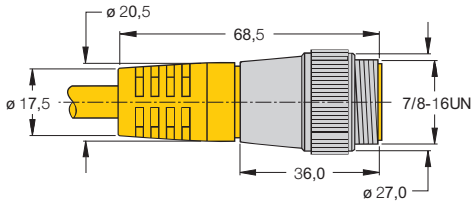
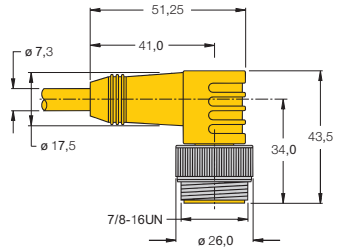
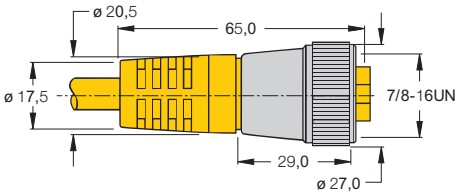
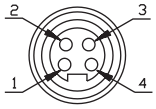
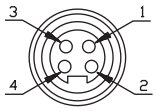
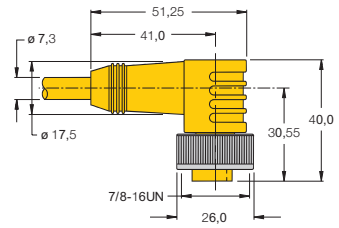
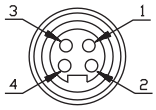
WSM RKM 46-1M



Hans Turck GmbH & Co. KG • D–45466 Mülheim an der Ruhr • Tel. 02 08/57 52-0 • Fax 02 08/57 52-264 • E-Mail: turckmh@mail.turck-globe.de

Specifications

Connector:	Oil resistant polyurethane body material and contact carrier, 600 V rating
Contacts:	gold-plated brass, machined from solid stock
Coupling nuts:	nickel-plated brass (CuZn) or optional stainless steel
Cable:	16 AWG oil-resistant yellow PVC jacket, 600 V, 105 °C, STOW-A, 11.0 mm diameter non-wicking, non-hygroscopic, UL recognized, CSA certified, cable end is stripped and tinned
Temperature:	-40 °C to +105 °C (-40 °F to +221 °F)
Protection:	IP67 (IEC 60529/EN 60529), NEMA 1, 3, 4, 6P

Dimensions	Cordset pinouts (per SAE-J-1738 A)	Station pinouts (per EN 50044)
	RSM Male ***minifast®*** 	RSM Male ***minifast®*** 
	WSM Male ***minifast®*** 	WSM Male ***minifast®*** 
	RKM Female ***minifast®*** 	RKM Female ***minifast®*** 
	WKM Female ***minifast®*** 	WKM Female ***minifast®*** 
	Colour codes	
	1. black (– voltage) 2. white (E –) 3. red (+ voltage)	1. red (+ voltage) 2. green (E +) 3. white (E –)

DeviceNet™ – Index of types

Type	Page	Type	Page	Type	Page
B4151-0/13,5	134	FDNP-S0808H-WW	42	RKC5711-*M	106
B4151-0/9	134	FDNP-XSG16-TT	58	RKC572-*M	106
B8151-0/9	136	FDNQ-CSB44-T	48	RKC577-*M	106
B8251-0/9	136	FK57	124	RKC-BK52C570-*M	110
BD2DT1EP0	84	FK572-*M	124	RKC-BK52C5710-*M	110
BD2DT1EP1EU	92	FK577-*M	124	RKC-BK52C5711-*M	110
BD2DT1EX0	86	FKFD5710-*M	106	RKC-BK52C572-*M	110
BD2DT1EX1EU	94	FKFD5711-*M	106	RKC-BK52C575-*M	110
BD2DT2EP0	88	FKFD572-*M	106	RKC-BK52C577-*M	110
BD2DT2EU	96	FKFD577-*M	106	RKC-BK52C579-*M	110
BD2DT2EX0	90	FKFD-BK52C570-*M	110	RKC-CBC5-570-*M	110
BD8D2EP2ET	76	FKFD-BK52C5710-*M	110	RKC-CBC5-5710-*M	110
BD8D2EX2ET	78	FKFD-BK52C5711-*M	110	RKC-CBC5-5711-*M	110
BD8D4EP0	68	FKFD-BK52C572-*M	110	RKC-CBC5-572-*M	110
BD8D4EP4ET	80	FKFD-BK52C575-*M	110	RKC-CBC5-575-*M	110
BD8D4EX0	70	FKFD-BK52C577-*M	110	RKC-CBC5-577-*M	110
BD8D4EX4ET	82	FKFD-BK52C579-*M	110	RKC-CBC5-579-*M	110
BD8D8EP0	72	FKFD-CBC5-570-*M	110	RKC-FKFD5710-*M	106
BD8D8EX0	74	FKFD-CBC5-5710-*M	110	RKC-FKFD5711-*M	106
BK52C570-*M	110	FKFD-CBC5-5711-*M	110	RKC-FKFD572-*M	106
BK52C5710-*M	110	FKFD-CBC5-572-*M	110	RKC-FKFD577-*M	106
BK52C5711-*M	110	FKFD-CBC5-575-*M	110	RKC-FSFD5710-*M	106
BK52C572-*M	110	FKFD-CBC5-577-*M	110	RKC-FSFD5711-*M	106
BK52C575-*M	110	FKFD-CBC5-579-*M	110	RKC-FSFD572-*M	106
BK52C577-*M	110	FKM-FS57/M12	123	RKC-FSFD577-*M	106
BK52C579-*M	110	FS57	124	RKC-RKC5710-*M	106
BS4151-0/13,5	134	FS572-*M	124	RKC-RKC5711-*M	106
BS4151-0/9	134	FS577-*M	124	RKC-RKC572-*M	106
BS8151-0/9	136	FSFD5710-*M	106	RKC-RKC577-*M	106
BS8251-0/9	136	FSFD5711-*M	106	RKC-RKFP5710-*M	106
CBC5-570-*M	110	FSFD572-*M	106	RKC-RKFP5711-*M	106
CBC5-5710-*M	110	FSFD577-*M	106	RKC-RKFP572-*M	106
CBC5-5711-*M	110	FSFD-BK52C570-*M	110	RKC-RKFP577-*M	106
CBC5-572-*M	110	FSFD-BK52C5710-*M	110	RKC-RSFP5710-*M	106
CBC5-575-*M	110	FSFD-BK52C5711-*M	110	RKC-RSFP5711-*M	106
CBC5-577-*M	110	FSFD-BK52C572-*M	110	RKC-RSFP572-*M	106
CBC5-579-*M	110	FSFD-BK52C575-*M	110	RKC-RSFP577-*M	106
CDN-IM16-0003	62	FSFD-BK52C577-*M	110	RKC-WKC5710-*M	106
CDN-IM4-0046	60	FSFD-BK52C579-*M	110	RKC-WKC5711-*M	106
CDN-IOM44-0045	64	FSFD-CBC5-570-*M	110	RKC-WKC572-*M	106
CDN-OM4-0049	66	FSFD-CBC5-5710-*M	110	RKC-WKC577-*M	106
FDNL-CPG88-T	52	FSFD-CBC5-5711-*M	110	RKF57	124
FDNL-CSG88-T	50	FSFD-CBC5-572-*M	110	RKF5710-*M	124
FDNL-CSG88-W	54	FSFD-CBC5-575-*M	110	RKF5711-*M	124
FDNL-L0800-T	8	FSFD-CBC5-577-*M	110	RKF572-*M	124
FDNL-L1600-T	22	FSFD-CBC5-579-*M	110	RKF577-*M	124
FDNL-P1204G-T	44	JBBS-57-E401	126	RKF577-*M	124
FDNL-S0800-T	20	JBBS-57-E601	126	RKFP570-*M	108
FDNL-S1600-T	24	JBBS-57-E801	126	RKFP5710-*M	106
FDNL-S1600-W	26	JBBS-57-E811	128	RKFP5711-*M	106
FDNP-CPG88-TT	56	JBBS-57-SM01	130	RKFP572-*M	106
FDNP-L0404G-TT	28	Cable570	102	RKFP575-*M	108
FDNP-L0808G-TT	32	Cable5710	101	RKFP577-*M	106
FDNP-L0808H-TT	36	Cable5711	100	RKFP579-*M	108
FDNP-P0808H-TT	34	Cable572	98	RKFP-BK52C570-*M	110
FDNP-P1204G-TT	46	Cable575	104	RKFP-BK52C5710-*M	110
FDNP-S0404G-TT	30	Cable577	99	RKFP-BK52C5711-*M	110
FDNP-S0808G-TT	38	Cable579	103	RKFP-BK52C572-*M	110
FDNP-S0808G-WW	40	RKC5710-*M	106	RKFP-BK52C575-*M	110

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Type	Page
RKFP-BK52C577-*M	110
RKFP-BK52C579-*M	110
RKFP-CBC5-570-*M	110
RKFP-CBC5-5710-*M	110
RKFP-CBC5-5711-*M	110
RKFP-CBC5-572-*M	110
RKFP-CBC5-575-*M	110
RKFP-CBC5-577-*M	110
RKFP-CBC5-579-*M	110
RKM46-*M	138
RKM570-*M	108
RKM5710-*M	106
RKM5711-*M	106
RKM572-*M	106
RKM575-*M	108
RKM577-*M	106
RKM579-*M	108
RKM-BK52C570-*M	110
RKM-BK52C5710-*M	110
RKM-BK52C5711-*M	110
RKM-BK52C572-*M	110
RKM-BK52C575-*M	110
RKM-BK52C577-*M	110
RKM-BK52C579-*M	110
RKM-CBC5-570-*M	110
RKM-CBC5-5710-*M	110
RKM-CBC5-5711-*M	110
RKM-CBC5-572-*M	110
RKM-CBC5-575-*M	110
RKM-CBC5-577-*M	110
RKM-CBC5-579-*M	110
RKM-FKFD5710-*M	106
RKM-FKFD5711-*M	106
RKM-FKFD572-*M	106
RKM-FKFD577-*M	106
RKM-FSFD5710-*M	106
RKM-FSFD5711-*M	106
RKM-FSFD572-*M	106
RKM-FSFD577-*M	106
RKM-RKC5710-*M	106
RKM-RKC5711-*M	106
RKM-RKC572-*M	106
RKM-RKC577-*M	106
RKM-RKFP570-*M	108
RKM-RKFP5710-*M	106
RKM-RKFP5711-*M	106
RKM-RKFP572-*M	106
RKM-RKFP575-*M	108
RKM-RKFP577-*M	106
RKM-RKFP579-*M	108
RKM-RKM46-*M	138
RKM-RKM57	120
RKM-RKM570-*M	108
RKM-RKM5710-*M	106
RKM-RKM5711-*M	106
RKM-RKM572-*M	106
RKM-RKM575-*M	108
RKM-RKM577-*M	106
RKM-RKM579-*M	108
RKM-RSC5710-*M	106
RKM-RSC5711-*M	106
RKM-RSC572-*M	106
RKM-RSC577-*M	106
RKM-RSFP570-*M	108
RKM-RSFP5710-*M	106
RKM-RSFP5711-*M	106
RKM-RSFP572-*M	106
RKM-RSFP575-*M	108
RKM-RSFP577-*M	106
RKM-RSFP579-*M	108
RKM-WKC5710-*M	106
RKM-WKC5711-*M	106
RKM-WKC572-*M	106
RKM-WKC577-*M	106
RKM-WKM46-*M	138
RKM-WKM570-*M	108
RKM-WKM5710-*M	106
RKM-WKM5711-*M	106
RKM-WKM572-*M	106
RKM-WKM575-*M	108
RKM-WKM577-*M	106
RKM-WKM579-*M	108
RKM-WSC5710-*M	106
RKM-WSC5711-*M	106
RKM-WSC572-*M	106
RKM-WSC577-*M	106
RSC5710-*M	106
RSC5711-*M	106
RSC572-*M	106
RSC577-*M	106
RSC-BK52C570-*M	110
RSC-BK52C5710-*M	110
RSC-BK52C5711-*M	110
RSC-BK52C572-*M	110
RSC-BK52C575-*M	110
RSC-BK52C577-*M	110
RSC-BK52C579-*M	110
RSC-CBC5-570-*M	110
RSC-CBC5-5710-*M	110
RSC-CBC5-5711-*M	110
RSC-CBC5-572-*M	110
RSC-CBC5-575-*M	110
RSC-CBC5-577-*M	110
RSC-CBC5-579-*M	110
RSC-FKFD5710-*M	106
RSC-FKFD5711-*M	106
RSC-FKFD572-*M	106
RSC-FKFD577-*M	106
RSC-FSFD5710-*M	106
RSC-FSFD5711-*M	106
RSC-FSFD572-*M	106
RSC-FSFD577-*M	106
RSC-RKC5710-*M	106
RSC-RKC5711-*M	106
RSC-RKC572-*M	106
RSC-RKC577-*M	106
RSC-RKFP5710-*M	106
RSC-RKFP5711-*M	106
RSC-RKFP572-*M	106
RSC-RKFP577-*M	106
RSC-RSC5710-*M	106
RSC-RSC5711-*M	106
RSC-RSC572-*M	106
RSC-RSC577-*M	106
RSC-RSFP5710-*M	106
RSC-RSFP5711-*M	106
RSC-RSFP572-*M	106
RSC-RSFP577-*M	106
RSC-WKC5710-*M	106
RSC-WKC5711-*M	106
RSC-WKC572-*M	106
RSC-WKC577-*M	106
RSC-WSC5710-*M	106
RSC-WSC5711-*M	106
RSC-WSC572-*M	106
RSC-WSC577-*M	106
RSE57-TR2	122
RSF57	124
RSF5710-*M	124
RSF5711-*M	124
RSF572-*M	124
RSF577-*M	124
RSF577-*M	124
RSFP570-*M	108
RSFP5710-*M	106
RSFP5711-*M	106
RSFP572-*M	106
RSFP575-*M	108
RSFP577-*M	106
RSFP579-*M	108
RSFP-BK52C570-*M	110
RSFP-BK52C5710-*M	110
RSFP-BK52C5711-*M	110
RSFP-BK52C572-*M	110
RSFP-BK52C575-*M	110
RSFP-BK52C577-*M	110
RSFP-BK52C579-*M	110
RSFP-CBC5-570-*M	110
RSFP-CBC5-5710-*M	110
RSFP-CBC5-5711-*M	110
RSFP-CBC5-572-*M	110
RSFP-CBC5-575-*M	110
RSFP-CBC5-577-*M	110
RSFP-CBC5-579-*M	110
RSF-RKF57/22	123
RSM-2RKM40-KF	114
RSM-2RKM57	114
RSM-2RKM57-DGT	114
RSM-2RKM57-KF	114
RSM40-J32R	116
RSM46-*M	138
RSM570-*M	108
RSM5710-*M	106
RSM5711-*M	106
RSM572-*M	106
RSM575-*M	108
RSM577-*M	106

DeviceNet™ – Index of types

Type	Page	Type	Page	Type	Page
RSM579-*M	108	RSM-RSM57	120	WKC-FKFD5711-*M	106
RSM57-FK4.5	120	RSM-RSM570-*M	108	WKC-FKFD572-*M	106
RSM57-TR2	122	RSM-RSM5710-*M	106	WKC-FKFD577-*M	106
RSM-BK52C570-*M	110	RSM-RSM5711-*M	106	WKC-FSFD5710-*M	106
RSM-BK52C5710-*M	110	RSM-RSM572-*M	106	WKC-FSFD5711-*M	106
RSM-BK52C5711-*M	110	RSM-RSM575-*M	108	WKC-FSFD572-*M	106
RSM-BK52C572-*M	110	RSM-RSM577-*M	106	WKC-FSFD577-*M	106
RSM-BK52C575-*M	110	RSM-RSM579-*M	108	WKC-RKFP5710-*M	106
RSM-BK52C577-*M	110	RSM-RSM-RKM40-APSPN	116	WKC-RKFP5711-*M	106
RSM-BK52C579-*M	110	RSM-WKC5710-*M	106	WKC-RKFP572-*M	106
RSM-CBC5-570-*M	110	RSM-WKC5711-*M	106	WKC-RKFP577-*M	106
RSM-CBC5-5710-*M	110	RSM-WKC572-*M	106	WKC-RSFP5710-*M	106
RSM-CBC5-5711-*M	110	RSM-WKC577-*M	106	WKC-RSFP5711-*M	106
RSM-CBC5-572-*M	110	RSM-WKM46-*M	138	WKC-RSFP572-*M	106
RSM-CBC5-575-*M	110	RSM-WKM570-*M	108	WKC-RSFP577-*M	106
RSM-CBC5-577-*M	110	RSM-WKM5710-*M	106	WKC-WKC5710-*M	106
RSM-CBC5-579-*M	110	RSM-WKM5711-*M	106	WKC-WKC5711-*M	106
RSM-FKFD5710-*M	106	RSM-WKM572-*M	106	WKC-WKC572-*M	106
RSM-FKFD5711-*M	106	RSM-WKM575-*M	108	WKC-WKC577-*M	106
RSM-FKFD572-*M	106	RSM-WKM577-*M	106	WKM46-*M	138
RSM-FKFD577-*M	106	RSM-WKM579-*M	108	WKM570-*M	108
RSM-FKM-RKM57	114	RSM-WSC5710-*M	106	WKM5710-*M	106
RSM-FSFD5710-*M	106	RSM-WSC5711-*M	106	WKM5711-*M	106
RSM-FSFD5711-*M	106	RSM-WSC572-*M	106	WKM572-*M	106
RSM-FSFD572-*M	106	RSM-WSC577-*M	106	WKM575-*M	108
RSM-FSFD577-*M	106	RSM-WSM46-*M	138	WKM577-*M	106
RSM-RKC5710-*M	106	RSM-WSM570-*M	108	WKM579-*M	108
RSM-RKC5711-*M	106	RSM-WSM5710-*M	106	WKM-BK52C570-*M	110
RSM-RKC572-*M	106	RSM-WSM5711-*M	106	WKM-BK52C5710-*M	110
RSM-RKC577-*M	106	RSM-WSM572-*M	106	WKM-BK52C5711-*M	110
RSM-RKFP570-*M	108	RSM-WSM575-*M	108	WKM-BK52C572-*M	110
RSM-RKFP5710-*M	106	RSM-WSM577-*M	106	WKM-BK52C575-*M	110
RSM-RKFP5711-*M	106	RSM-WSM579-*M	108	WKM-BK52C577-*M	110
RSM-RKFP572-*M	106	SPTC1	132	WKM-BK52C579-*M	110
RSM-RKFP575-*M	108	SPTC2	132	WKM-CBC5-570-*M	110
RSM-RKFP577-*M	106	SPTT1	132	WKM-CBC5-5710-*M	110
RSM-RKFP579-*M	108	VB2-RKC572-*M-RKC-RSC572-*M-*M	118	WKM-CBC5-5711-*M	110
RSM-RKM46-*M	138	VB2-FKM-FSM-FKM57	118	WKM-CBC5-572-*M	110
RSM-RKM570-*M	108	VB2-FKM-RKC-RSC572-*M-*M	118	WKM-CBC5-575-*M	110
RSM-RKM5710-*M	106	VB2-RKC572-*M-FKM-FSM	118	WKM-CBC5-577-*M	110
RSM-RKM5711-*M	106	WKC5710-*M	106	WKM-CBC5-579-*M	110
RSM-RKM572-*M	106	WKC5711-*M	106	WKM-FKFD5710-*M	106
RSM-RKM575-*M	108	WKC572-*M	106	WKM-FKFD5711-*M	106
RSM-RKM577-*M	106	WKC577-*M	106	WKM-FKFD572-*M	106
RSM-RKM579-*M	108	WKC-BK52C570-*M	110	WKM-FKFD577-*M	106
RSM-RKM57-WSM40	114	WKC-BK52C5710-*M	110	WKM-FSFD5710-*M	106
RSM-RKM-RKM40-ESD	116	WKC-BK52C5711-*M	110	WKM-FSFD5711-*M	106
RSM-RSC5710-*M	106	WKC-BK52C572-*M	110	WKM-FSFD572-*M	106
RSM-RSC5711-*M	106	WKC-BK52C575-*M	110	WKM-FSFD577-*M	106
RSM-RSC572-*M	106	WKC-BK52C577-*M	110	WKM-RKC5710-*M	106
RSM-RSC577-*M	106	WKC-BK52C579-*M	110	WKM-RKC5711-*M	106
RSM-RSFP570-*M	108	WKC-CBC5-570-*M	110	WKM-RKC572-*M	106
RSM-RSFP5710-*M	106	WKC-CBC5-5710-*M	110	WKM-RKC577-*M	106
RSM-RSFP5711-*M	106	WKC-CBC5-5711-*M	110	WKM-RKFP570-*M	108
RSM-RSFP572-*M	106	WKC-CBC5-572-*M	110	WKM-RKFP5710-*M	106
RSM-RSFP575-*M	108	WKC-CBC5-575-*M	110	WKM-RKFP5711-*M	106
RSM-RSFP577-*M	106	WKC-CBC5-577-*M	110	WKM-RKFP572-*M	106
RSM-RSFP579-*M	108	WKC-CBC5-579-*M	110	WKM-RKFP575-*M	108
RSM-RSM46-*M	138	WKC-FKFD5710-*M	106	WKM-RKFP577-*M	106

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Type	Page
WKM-RKFP579-*M	108
WKM-RSC5710-*M	106
WKM-RSC5711-*M	106
WKM-RSC572-*M	106
WKM-RSC577-*M	106
WKM-RSFP570-*M	108
WKM-RSFP5710-*M	106
WKM-RSFP5711-*M	106
WKM-RSFP572-*M	106
WKM-RSFP575-*M	108
WKM-RSFP577-*M	106
WKM-RSFP579-*M	108
WKM-WKC5710-*M	106
WKM-WKC5711-*M	106
WKM-WKC572-*M	106
WKM-WKC577-*M	106
WKM-WKM46-*M	138
WKM-WKM570-*M	108
WKM-WKM5710-*M	106
WKM-WKM5711-*M	106
WKM-WKM572-*M	106
WKM-WKM575-*M	108
WKM-WKM577-*M	106
WKM-WKM579-*M	108
WKM-WSC5710-*M	106
WKM-WSC5711-*M	106
WKM-WSC572-*M	106
WKM-WSC577-*M	106
WSC5710-*M	106
WSC5711-*M	106
WSC572-*M	106
WSC577-*M	106
WSC-BK52C570-*M	110
WSC-BK52C5710-*M	110
WSC-BK52C5711-*M	110
WSC-BK52C572-*M	110
WSC-BK52C575-*M	110
WSC-BK52C577-*M	110
WSC-BK52C579-*M	110
WSC-CBC5-570-*M	110
WSC-CBC5-5710-*M	110
WSC-CBC5-5711-*M	110
WSC-CBC5-572-*M	110
WSC-CBC5-575-*M	110
WSC-CBC5-577-*M	110
WSC-CBC5-579-*M	110
WSC-FKFD5710-*M	106
WSC-FKFD5711-*M	106
WSC-FKFD572-*M	106
WSC-FKFD577-*M	106
WSC-FSFD5710-*M	106
WSC-FSFD5711-*M	106
WSC-FSFD572-*M	106
WSC-FSFD577-*M	106
WSC-RKC5710-*M	106
WSC-RKC5711-*M	106
WSC-RKC572-*M	106
WSC-RKC577-*M	106
WSC-RKFP5710-*M	106
WSC-RKFP5711-*M	106
WSC-RKFP572-*M	106
WSC-RKFP577-*M	106
WSC-RSFP5710-*M	106
WSC-RSFP5711-*M	106
WSC-RSFP572-*M	106
WSC-RSFP577-*M	106
WSC-WKC5710-*M	106
WSC-WKC5711-*M	106
WSC-WKC572-*M	106
WSC-WKC577-*M	106
WSC-WSC5710-*M	106
WSC-WSC5711-*M	106
WSC-WSC572-*M	106
WSC-WSC577-*M	106
WSM46-*M	138
WSM570-*M	108
WSM5710-*M	106
WSM5711-*M	106
WSM572-*M	106
WSM575-*M	108
WSM577-*M	106
WSM579-*M	108
WSM-BK52C570-*M	110
WSM-BK52C5710-*M	110
WSM-BK52C5711-*M	110
WSM-BK52C572-*M	110
WSM-BK52C575-*M	110
WSM-BK52C577-*M	110
WSM-BK52C579-*M	110
WSM-CBC5-570-*M	110
WSM-CBC5-5710-*M	110
WSM-CBC5-5711-*M	110
WSM-CBC5-572-*M	110
WSM-CBC5-575-*M	110
WSM-CBC5-577-*M	110
WSM-CBC5-579-*M	110
WSM-FKFD5710-*M	106
WSM-FKFD5711-*M	106
WSM-FKFD572-*M	106
WSM-FKFD577-*M	106
WSM-FSFD5710-*M	106
WSM-FSFD5711-*M	106
WSM-FSFD572-*M	106
WSM-FSFD577-*M	106
WSM-RKC5710-*M	106
WSM-RKC5711-*M	106
WSM-RKC572-*M	106
WSM-RKC577-*M	106
WSM-RKFP570-*M	108
WSM-RKFP5710-*M	106
WSM-RKFP5711-*M	106
WSM-RKFP572-*M	106
WSM-RKFP575-*M	108
WSM-RKFP577-*M	106
WSM-RKFP579-*M	108
WSM-RKM46-*M	138
WSM-RKM57	120
WSM-RKM570-*M	108
WSM-RKM5710-*M	106
WSM-RKM5711-*M	106
WSM-RKM572-*M	106
WSM-RKM575-*M	108
WSM-RKM577-*M	106
WSM-RKM579-*M	108
WSM-RSC5710-*M	106
WSM-RSC5711-*M	106
WSM-RSC572-*M	106
WSM-RSC577-*M	106
WSM-RSFP570-*M	108
WSM-RSFP5710-*M	106
WSM-RSFP5711-*M	106
WSM-RSFP572-*M	106
WSM-RSFP575-*M	108
WSM-RSFP577-*M	106
WSM-RSFP579-*M	108
WSM-WKC5710-*M	106
WSM-WKC5711-*M	106
WSM-WKC572-*M	106
WSM-WKC577-*M	106
WSM-WKM46-*M	138
WSM-WKM570-*M	108
WSM-WKM5710-*M	106
WSM-WKM5711-*M	106
WSM-WKM572-*M	106
WSM-WKM575-*M	108
WSM-WKM577-*M	106
WSM-WKM579-*M	108
WSM-WSC5710-*M	106
WSM-WSC5711-*M	106
WSM-WSC572-*M	106
WSM-WSC577-*M	106
WSM-WSM46-*M	138
WSM-WSM570-*M	108
WSM-WSM5710-*M	106
WSM-WSM5711-*M	106
WSM-WSM572-*M	106
WSM-WSM575-*M	108
WSM-WSM577-*M	106
WSM-WSM579-*M	108

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If you work with TURCK's *busstop*® products you are not tied down to company-specific fieldbus technologies.
Within our versatile product range you will find exactly the products you need to match your application.
No matter whether stations, junctions or connection products, *busstop*® fieldbus components provide the connection to all customary fieldbus systems such as:

- bus system *sensoplex*® *2*
- bus system *sensoplex*® *2Ex*
- bus system *sensoplex*® *MC*
- bus system AS-Interface®
- bus system DeviceNet™
- bus system FOUNDATION™ fieldbus
- bus system PROFIBUS-DP
- bus system PROFIBUS-PA
- bus system *piconet*®
- bus system *excom*

busstop® fieldbus components are manufactured to the highest quality standards and are suited for direct use on the machine and at the process.

busstop® fieldbus components enable plug & play connection of binary sensors and actuators to the bus system. A product line, ranging from miniature modules incorporated in plastic housings with M8 connectors (a design which is especially suited for the tooling industry) to robust metal versions with 7/8" connectors for harsh industrial environments, caters for all requirements.

busstop® cables and premoulded cables for data transfer and power supply are available in various different materials and with different connector types. They match various fieldbus standards and ensure secure and error-free communication. The gold-plated plug-in connections guarantee data-integrity and provide sufficient power to different kinds of actuators.

piconet® – miniature bus stations

piconet®, the new miniature bus system, comprises modules sized 175 x 30 x 27 mm only, making it the ideal solution for serial machine engineering.

– stand-alone modules for direct connection to the fieldbus
– the coupler module as the interface between the fieldbus and the *piconet*® fibre-optic network
– the extension modules

The matching plug-in or screw connectors feature IP67 rating. Our *piconet*® modules adapt perfectly to all kinds of applications by a flexible design, e.g. our programmable combined I/O stations (8 inputs, 8 outputs – any combination is possible). The stand-alone and coupler modules are connected directly to PROFIBUS-DP (12 Mbit/s) or DeviceNet™. Further interfaces are in preparation.
Analogue I/O modules for standard signals such as 0...10 V or 0/4...20 mA as well as function groups and fast counters supplement this new product line.

A detailed *piconet*® system description is contained in our *piconet*® catalogue D300131/02.

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DeviceNet™ – Stand-alone modules

Type	Ident-no.	Description	Connector [1]
SDNB-0800D-0007	68 240 43	8 digital inputs, 24 VDC, filter 3.0 ms	M 8 x 1
SDNB-0800D-0007S	68 240 92	8 digital inputs, 24 VDC, filter 3.0 ms,	∅ 8 mm
SDNB-0800D-0004	68 240 91	8 digital inputs, 24 VDC, filter 3.0 ms,	M 12 x 1
SDNB-0800D-0008	68 240 44	8 digital inputs, 24 VDC, filter 0.2 ms,	M 8 x 1
SDNB-0800D-0008S	68 240 93	8 digital inputs, 24 VDC, filter 0.2 ms,	∅ 8 mm
SDNB-0800D-0002	68 240 90	8 digital inputs, 24 VDC, filter 0.2 ms,	M 12 x 1
SDNB-0008D-0006	68 240 41	8 digital outputs, 24 VDC, 0.5 A	M 8 x 1
SDNB-0008D-0006S	68 240 87	8 digital outputs, 24 VDC, 0.5 A	∅ 8 mm
SDNB-0008D-0001	68 240 81	8 digital outputs, 24 VDC, 0.5 A	M 12 x 1
SDNB-0008D-0002	68 240 53	8 digital outputs, 24 VDC, 2 A (I_Σ = 4 A)	M 8 x 1
SDNB-0008D-0002S	68 240 82	8 digital outputs, 24 VDC, 2 A (I_Σ = 4 A)	∅ 8 mm
SDNB-0008D-0003	68 240 83	8 digital outputs, 24 VDC, 2 A (I_Σ = 4 A)	M 12 x 1
SDNB-0008D-0004	68 240 84	8 digital outputs, 24 VDC, 2 A (I_Σ = 12 A)	M 8 x 1
SDNB-0008D-0004S	68 240 85	8 digital outputs, 24 VDC, 2 A (I_Σ = 12 A)	∅ 8 mm
SDNB-0008D-0005	68 240 86	8 digital outputs, 24 VDC, 2 A (I_Σ = 12 A)	M 12 x 1
SDNB-0404D-0003	68 241 03	4 digital inputs and outputs, 24 VDC, 0.5A, filter 3.0 ms	M 8 x 1
SDNB-0404D-0003S	68 241 04	4 digital inputs and outputs, 24 VDC, 0.5A, filter 3.0 ms	∅ 8
SDNB-0404D-0004	68 241 05	4 digital inputs and outputs, 24 VDC, 0.5A, filter 3.0 ms	M 12 x 1
SDNB-0404D-0001	68 240 45	4 digital inputs and outputs, 24 VDC, 0.5A, filter 0.2 ms	M 8 x 1
SDNB-0404D-0001S	68 241 01	4 digital inputs and outputs, 24 VDC, 0.5A, filter 0.2 ms	∅ 8 mm
SDNB-0404D-0002	68 241 02	4 digital inputs and outputs, 24 VDC, 0.5A, filter 0.2 ms	M 12 x 1
SDNB-0404D-0007	68 241 09	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 3.0 ms	M 8 x 1
SDNB-0404D-0007S	68 241 10	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 3.0 ms	∅ 8 mm
SDNB-0404D-0008	68 241 00	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 3.0 ms	M 12 x 1
SDNB-0404D-0005	68 241 06	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 0.2 ms	M 8 x 1
SDNB-0404D-0005S	68 241 07	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 0.2 ms	∅ 8 mm
SDNB-0404D-0006	68 241 08	4 digital inputs and outputs, 24 VDC, 2 A (I_Σ = 4 A), filter 0.2 ms	M 12 x 1
SDNB-0808D-0001	68 241 69	8 digital inputs/outputs, 24 VDC, 0.5 A, filter 3.0 ms	M 8 x 1 [2]
SDNB-0808D-0001S	68 241 68	8 digital inputs/outputs, 24 VDC, 0.5 A, filter 3.0 ms	∅ 8 mm [2]
SDNB-0002D-0001	68 240 99	2-channel pulse-width output, 24 VDC, 0.1 A	M 12 x 1
SDNB-0002D-0002	68 240 80	2-channel pulse-width output, 24 VDC, 2.5 A	M 12 x 1
SDNB-40A-0005	68 240 47	4 analogue differential inputs, ±10 V, 16 bit	M 12 x 1
SDNB-40A-0007	68 241 72	4 analogue differential inputs, 0(4)...20 mA, 16 bit	M 12 x 1
SDNB-40A-0009	68 240 54	4 analogue inputs for resistance temperature detectors,	
		preset for PT100, 16 bit	M 12 x 1
SDNB-40A-0004	68 240 46	4 analogue inputs for thermoelements,	
		present for type K, with wire-break indication, 16 bit	M 12 x 1
SDNB-04A-0009	68 240 42	4 analogue outputs, 0...20 mA, 16 bit	M 12 x 1
SDNB-04A-0007	68 240 89	4 analogue outputs, ±10 V, 16 bit	M 12 x 1
SDNB-0202D-0003	68 240 88	Up/dowon counter, 24 VDC, 100 kHz,	M 12 x 1
SDNB-10S-0001	68 240 94	Incremental encoder interface	
		with complementary inputs, 1 MHz	M 23 x 1
SDNB-10S-0005	68 240 98	SSI input interface	M 23 x 1
SDNB-10S-0002	68 240 95	serial interface RS232C	M 12 x 1
SDNB-10S-0003	68 240 96	serial interface 0...20 mA (TTY)	M 12 x 1
SDNB-10S-0004	68 240 97	serial interface RS485	M 12 x 1

[1] ∅ 8 mm: I/O connection with connector ∅ 8 mm, 3-pole, snap-on type
M 8 x 1: I/O connection with connector M 8 x 1, 3-pole, screw-type
M 12 x 1: I/O connection with connector M 12 x 1, 5-pole, screw-type
M 23 x 1: connection via connector M 23 x 1, 12-pole, screw-type

[2] ∅ 8 mm: I/O connection with connector ∅ 8 mm, 4-pole, snap-on type
M 8 x 1: I/O connection with connector M 8 x 1, 4-pole, screw-type

piconet® - Stand-alone modules

In the stand-alone mode, each *piconet*® I/O module is connected directly to the fieldbus to ensure fully transparent data transfer. This is especially useful if event-controlled transmission is concerned (e. g. CANopen).

The module range comprises standard digital signals, analogue I/O modules and special function devices, such as incremental encoder interfaces, fast counter and communication modules.

For temperature detection there are thermocouple modules and resistance temperature detectors (Pt100…) available.

The compact robust housing with fully encapsulated electronics enables direct intallation on the machine.

To provide the extra flexibility needed, we have developed digital, bidirectional combined modules which feature 8-channels for optional use as inputs or outputs. The separate circuitry design ensures separate supply of the inputs and outputs. Thus, secure operation also during an emergency stop is guaranteed. The combined stations enable installation of a complex system structure.
Voltage is supplied to the modules via an M8 connector. The next module is connected via another M8 connector, so that a ring-like topology is created. The high-current output modules (12 A) require two M8 connectors.

Electronics and inputs have a common supply. The outputs are powered via a separate pin. This concept enables simple grouping or using different isolation. types. All that needs to be considered is the total current capacity of the M8 connector which may not exceed 4 A for each the bus and load supply.

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piconet® – Coupler modules and extensions

Alongside the stand-alone modules, the coupler stations plus the extensions are the second important product group within the *piconet*® family.
The coupler module (as shown on the left) is equipped with two bus connections:

- the fieldbus connection to the next hierarchical level, e.g. PROFIBUS-DP
- and the *piconet*® fibre optic subnet for connection of the extensions (as shown on the right).

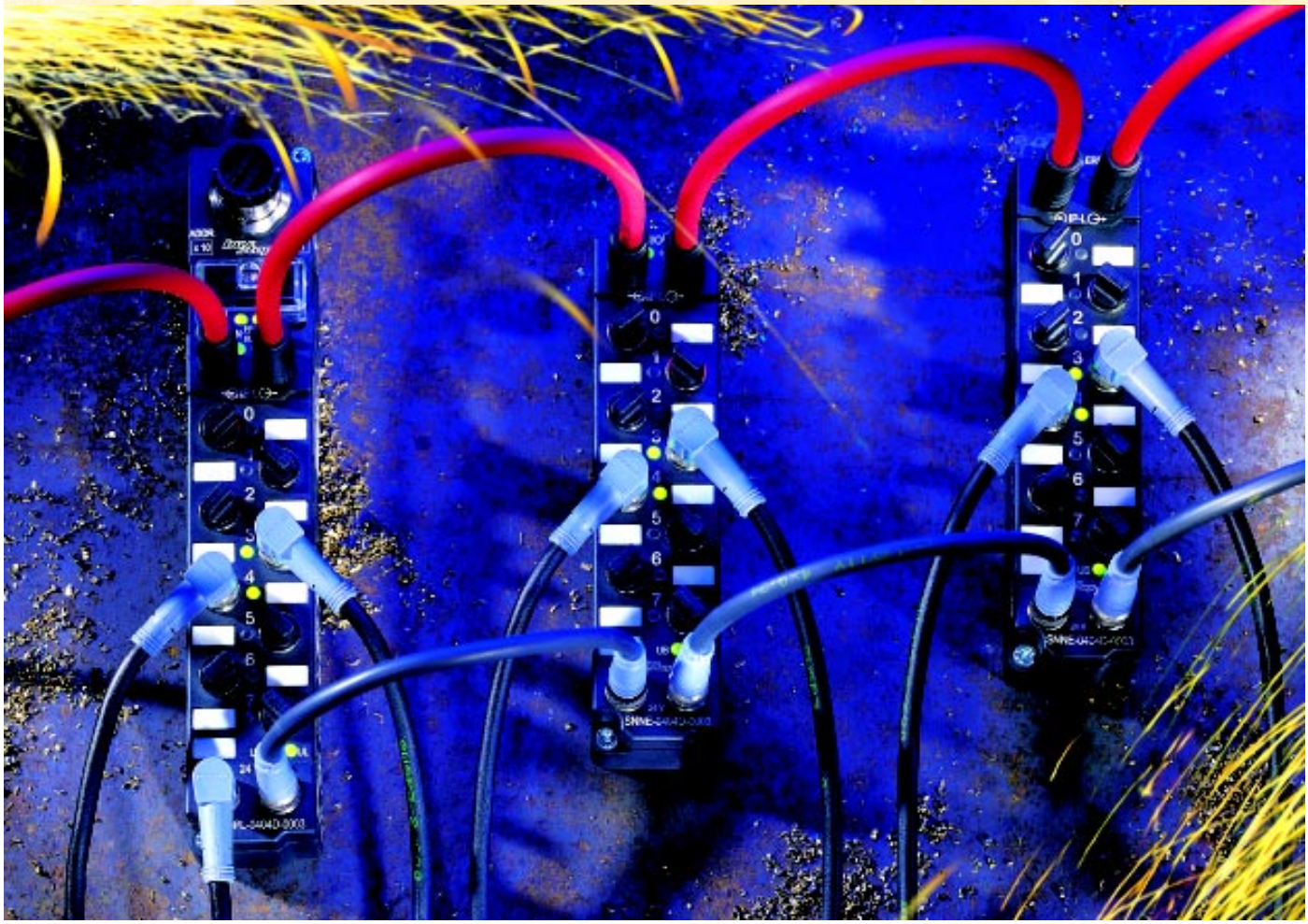
The coupler modules uses the extremely fast and interference-immune IP-Link fibre-optic network to collect the input/output data from the connected extensions.

The transmission rate is 2 Mbit/s, or approx. 1 ms for 1000 I/O points.
The less data are transmitted, the less time is needed. The a.m. specification clearly shows that the data transfer speed is not reduced when using our IP-Link fibre optic connection.

During start-up the coupler modules automatically generate a process image of the connected extensions. These data are then transferred to the higher-level fieldbus as if from a single bus participant together with the according number of I/O points.

Up to 255 extensions may be connected to one coupler module. The distance between two modules may not exceed 5 metres. The fibre-optics are connected directly in the field via new and inexpensive IP67 connectors. Alternatively, it is possible to use premoulded cables and pre-wired connectors.

4 inputs and 4 outputs can be connected directly to the coupler module. Just like with all other digital *piconet*® modules, it is possible to select the connection type, e.g. ø 8 mm, M8 or M12 connectors. Further signal types, e.g. digital and analogue signals or special functions are integrated into the system via the extensions.



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Sensortechnik
- ❑ Induktive Sensoren
- ❑ *uprox*® induktive Sensoren
- ❑ Kapazitive Sensoren
- ❑ Magnetfeldsensoren
- ❑ Opto-Sensoren
- ❑ Geräte für den Personenschutz
- ❑ Ultraschall-Sensoren
- ❑ Strömungswächter
- ❑ Druckwächter
- ❑ Temperaturwächter
- ❑ Steckverbinder
- ❑ CD-ROM Sensortechnik

Interfacetechnik
- ❑ Interfacetechnik im Aufbaugehäuse
  - – Bauform *multimodul*
  - – Bauform *multisafe*®

  Allgemeine Informationen
- ❑ Interfacetechnik auf 19"-Karte
  - – Bauform *multicart*®
- ❑ Miniaturrelais, Industrierelais, Zeitwürfel, Sockel
- ❑ Zeit- und Überwachungsrelais
- ❑ Ex-Schutz – Grundlagen für die Praxis (Übersichtsposter)
- ❑ CD-ROM Interfacetechnik

Feldbustechnik
- ❑ *busstop*®-Feldbuskomponenten
- ❑ Bussystem *sensoplex*®*2*
- ❑ Bussystem *sensoplex*®*2Ex*
- ❑ Bussystem *sensoplex*®*MC*
- ❑ Bussystem AS-Interface®
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Please send me more information:

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- ❑ inductive sensors
- ❑ *uprox*® inductive sensors
- ❑ capacitive sensors
- ❑ magnetic-field sensors
- ❑ photoelectric sensors
- ❑ machine safety equipment
- ❑ ultrasonic sensors
- ❑ flow controls
- ❑ pressure controls
- ❑ temperature controls
- ❑ connectors
- ❑ CD-ROM Sensors

Interface technology
- ❑ devices in modular housings
  - – *multimodul* style
  - – *multisafe*® style

  general information
- ❑ devices on 19" card
  - – *multicart*® style
- ❑ miniature relays, industrial relays, time cubes, sockets
- ❑ programmable relays and timers
- ❑ explosion protection – basics for practical application (overview poster)
- ❑ CD-ROM Interface technology

Fieldbus technology
- ❑ *busstop*® fieldbus components
- ❑ bus system *sensoplex*®*2*
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