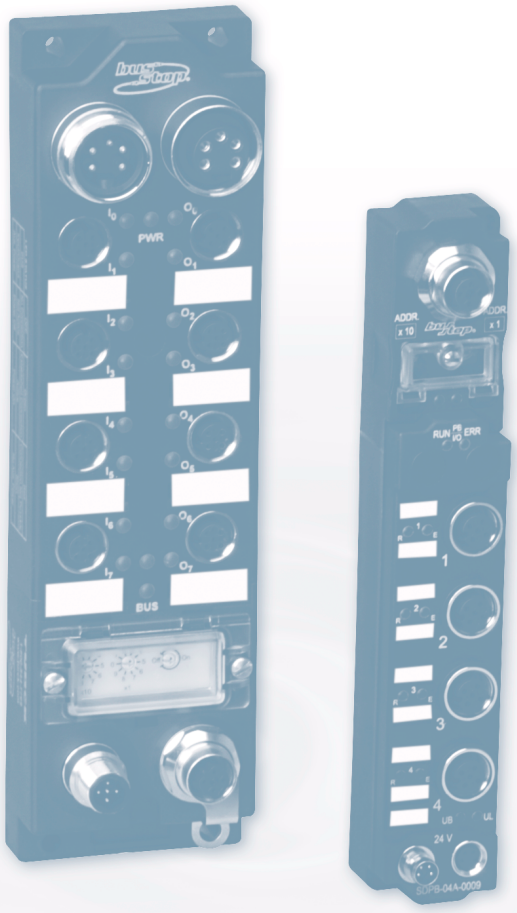


PROFIBUS®-DP System Description

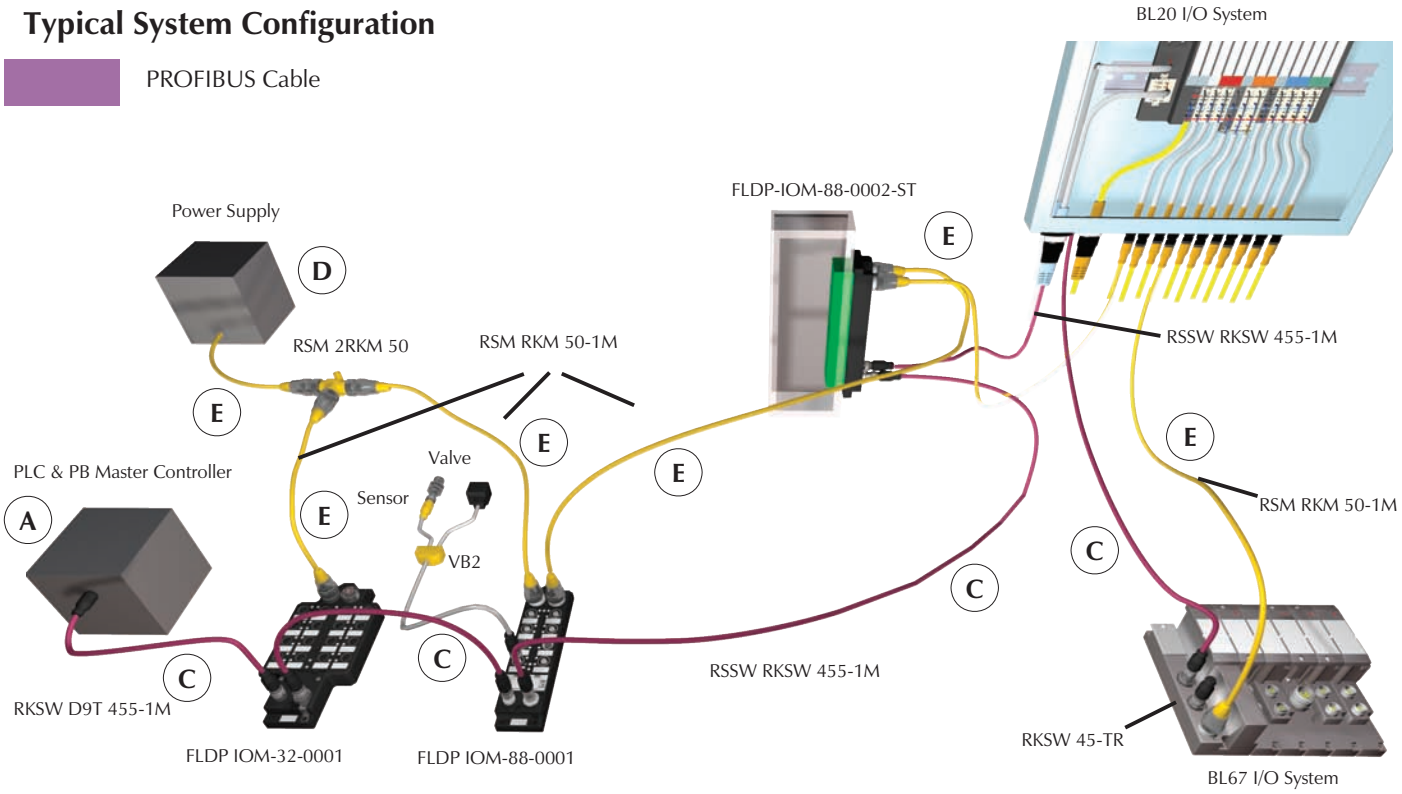
PROFIBUS-DP is an industrial network protocol that connects field I/O devices in order to eliminate hard wiring. The network connection increases device-level diagnostic capabilities, while also providing high-speed communication between devices.

PROFIBUS-DP is based on the RS-485 serial data transfer standard. In most cases, the termination and physical media rules for PROFIBUS-DP are the same as those required for RS-485 communication. A PROFIBUS-DP network supports up to 126 nodes and virtually an unlimited amount of I/O. The bus uses a trunkline/dropline topology. Power and communication are provided via separate cables, allowing easy segmentation of the power structure to avoid overloading.

PROFIBUS-DP is capable of running at data rates as high as 12 Mbaud. When used at high data rates, the cable drop length from the trunk to a node is severely limited. For example, when used at 12 Mbaud, nodes must be directly connected to the trunk, with no drop length allowed.

Typical System Configuration

PROFIBUS Cable



Basic Parts List

A typical PROFIBUS-DP system consists of the following parts:

- A - Master
- B - Slaves
- C - Communication cable
- D - Power supply
- E - Power cable

PROFIBUS-DP stations require a network master (also called a scanner) to interface the stations to the host controller. **TURCK** PROFIBUS-DP stations are designed to be fully compatible with PROFIBUS-DP equipment from other manufacturers.

Cordsets

TURCK offers a complete line of molded PROFIBUS-DP cordsets to facilitate network installation, resulting in a faster start-up and fewer 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. PROFIBUS-DP cables consist of a shielded and twisted data pair with a bare drain wire.

In most cases, connections of the bus cable to the stations are made using 5-pin reverse-key ***eurofast*** ® (M12) connectors. A variety of stations are also available that support D9 type connections. Power for most stations is provided through one or two 5-pin ***minifast*** ® (7/8-16UN) connectors.

TURCK cordsets for the PROFIBUS-DP system are available in standard lengths. Please contact your local sales representative to order custom lengths.

Diagnostics

TURCK network stations provide increased diagnostics over using traditional hard-wired I/O systems. **TURCK** stations also serve as a buffer between I/O devices and the PROFIBUS-DP network by detecting short circuits without disrupting communication.

The PROFIBUS-DP system includes a provision for special diagnostic data messages. These messages are triggered when a fault occurs at the station (for example a short circuit on a sensor). When the master asks the station for data, the station responds and includes a flag to indicate that diagnostic data is present. The master then asks for the diagnostic data, which is mapped to a special location in the controller's memory.

Addressing

The valid range of PROFIBUS-DP node addresses is 0 to 125. **TURCK** station's addresses are usually set via rotary dials or switches on the node. Changes to the address settings take effect when the station power is cycled or when the station receives a software reset. Care must be taken to prevent the same address from being assigned to more than one node in a system. Bihl+Wiedemann PROFIBUS-DP to AS-I gateways addresses are set in software using the on-unit display.

Communication Rate/Cycle Time

PROFIBUS-DP specifications define multiple transmission speeds ranging from 9.6 kbaud to 12 Mbaud. All nodes on a network must communicate at the same rate.

The complete cycle time of a PROFIBUS-DP system is affected by several factors:

- Number of nodes being scanned
- Amount of data produced and consumed by the nodes
- Network communication rate
- Cycle time of the control program

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

GSD Files

GSD files contain detailed information about a PROFIBUS-DP device, including I/O data size and the devices configurable parameters. The information in an GSD file, when used with a PROFIBUS-DP configuration tool, guides a user through the steps necessary to configure a device. GSD files are available on the **TURCK** website (www.turck.com).

Maximum Ratings

The PROFIBUS-DP bus uses a trunkline/dropline topology. The trunk is the main communication cable and requires the appropriate RS-485 termination at both ends of the trunk. Terminating resistors are available as plug-in ***eurofast***® modules or can be built into the D9 connectors. The length of the trunk depends on the communication rate. Drops or branches off the trunk are allowed, but are greatly limited as the communication rate increases. The table shows the maximum ratings for a trunk at different communication rates.

Communication Rate	Max. Segment Length
9.6 kbps	1200 m
19.2 kbps	1200 m
93.75 kbps	1200 m
187.5 kbps	1000 m
500 kbps	400 m
1.5 Mbps	200 m
12 Mbps	100 m

PROFIBUS-DP AIM™ Stations

TURCK's Advanced I/O Module (AIM) PROFIBUS stations are extremely rugged stations designed for machine mounting. These stations allow easy connection of standard I/O devices such as sensors, limit switches, valves and pilot lights to a PROFIBUS network, typically without a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

Mechanical Specifications

TURCK PROFIBUS AIM stations are designed for machine mounting with no separate enclosure or housing necessary. Quick-disconnect capability, combined with an epoxy-filled housing, creates an extremely durable station that can be mounted in most industrial environments. Detailed environmental specifications are as follows:

- Housing material: Nylon 6
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: FLDP style 0° to +55°C (-40° to +158°F)
- FXDP style -25° to +55°C (-40° to +158°F)
- Vibration: 50 g @ 10 to 500 Hz

Other housing and connector materials available upon request.

The station's components are identified in the following figure.

Connectors

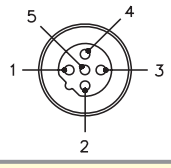
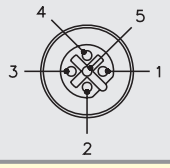
PROFIBUS® AIM™ stations provide connections for the bus, I/O and auxiliary power.

Bus Connectors

***eurofast*®** (M12) (reverse keyed) is the standard bus connector for PROFIBUS AIM stations.

1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

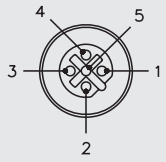
PROFIBUS *eurofast* Pinouts

Male	Female
	
5-Pin	5-Pin

Different I/O connector pinouts are used for different station types. Stations are available with one or two inputs per connector, one or two outputs per connector, or one input and one output per connector. The pin assignments for these styles are:

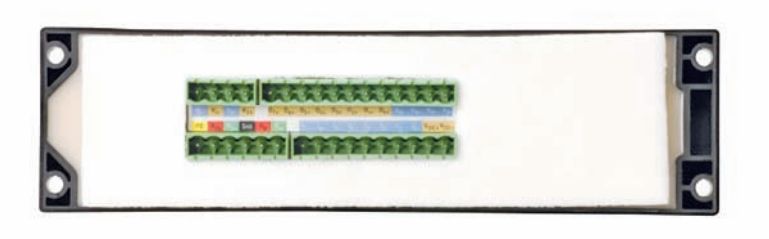
1 - V+ (24 VDC)
2 - Signal B (Odd numbered input)
3 - V- (0 VDC)
4 - Signal A (Even numbered input)
5 - N/C

***eurofast* Pinouts**

Female

5-Pin

Screw Terminal I/O Connection

AIM stations with part numbers ending in "ST" support screw terminal I/O and bus connections. The screw terminals for these stations are located on the back of the station. The back of the station is also fitted with a foam gasket to allow the station to be mounted to the outside of a cabinet or field I/O box (i.e. motor control center).

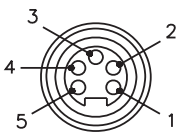
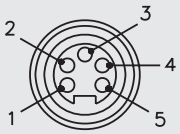


Auxiliary Power Connectors

PROFIBUS® AIM™ stations accept one or two 24 VDC power supplies via the ***minifast***® (7/8-16UN) connectors located at the top of the station. Stations with only inputs require the U_B supply to power station electronics and I/O. Stations with both inputs and outputs need both supplies (U_B and U_L) to be connected. In this case, UB powers the station electronics and the inputs, while U_L powers the outputs. For further details, see the individual station entries in this catalog.

***minifast* Power Pinouts**

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

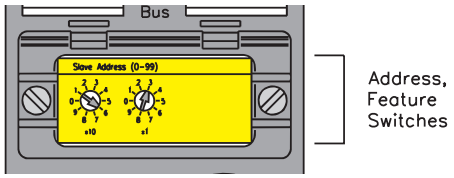
Power

Common power ratings for AIM stations include:

- Voltage: 18-30 VDC (both U_B and U_L)
- Input Voltage: 18-30 VDC (From U_B)
- Input Signal Current (each input): OFF < 2 mA; ON 4 mA (@ nominal 24 VDC)
- Input Delay: 2.5 ms

Addressing

PROFIBUS AIM stations must have a network address for communication. The address for AIM stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows on the switch point to the appropriate numbers for the chosen address. Some stations (with outputs) have a third switch. This switch is used to enable auxiliary power diagnostics. If the switch is on, the loss of output power (U_L) will trigger a PROFIBUS diagnostic message.

Diagnostics

AIM™ stations provide two LEDs for diagnosing communication and power problems.

Bus

- Green: Working properly
- Red: No communication

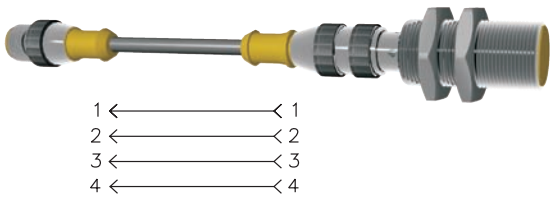
Power

- Off: No power
- Green: Power present
- Red: U_B present, but U_L missing (stations with outputs only)

There is an additional LED for each I/O point on the station. This LED indicates:

- Off: Point is off
- Green: Point is on
- Red: Point is in short-circuit state (advanced diagnostic stations only)

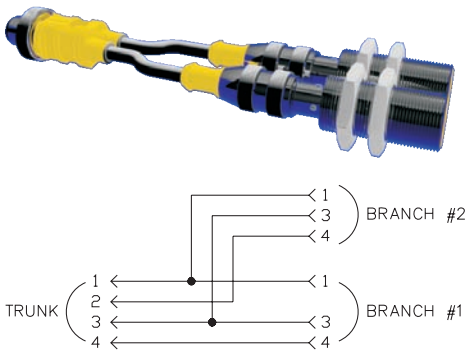
Abbreviations Used in Diagnostic Data Maps	
V_I	Missing input supply voltage
V_O	Missing output supply voltage
SC	Short circuit at the station (or at the particular I/O point if specified)



Connecting Devices to an AIM Station

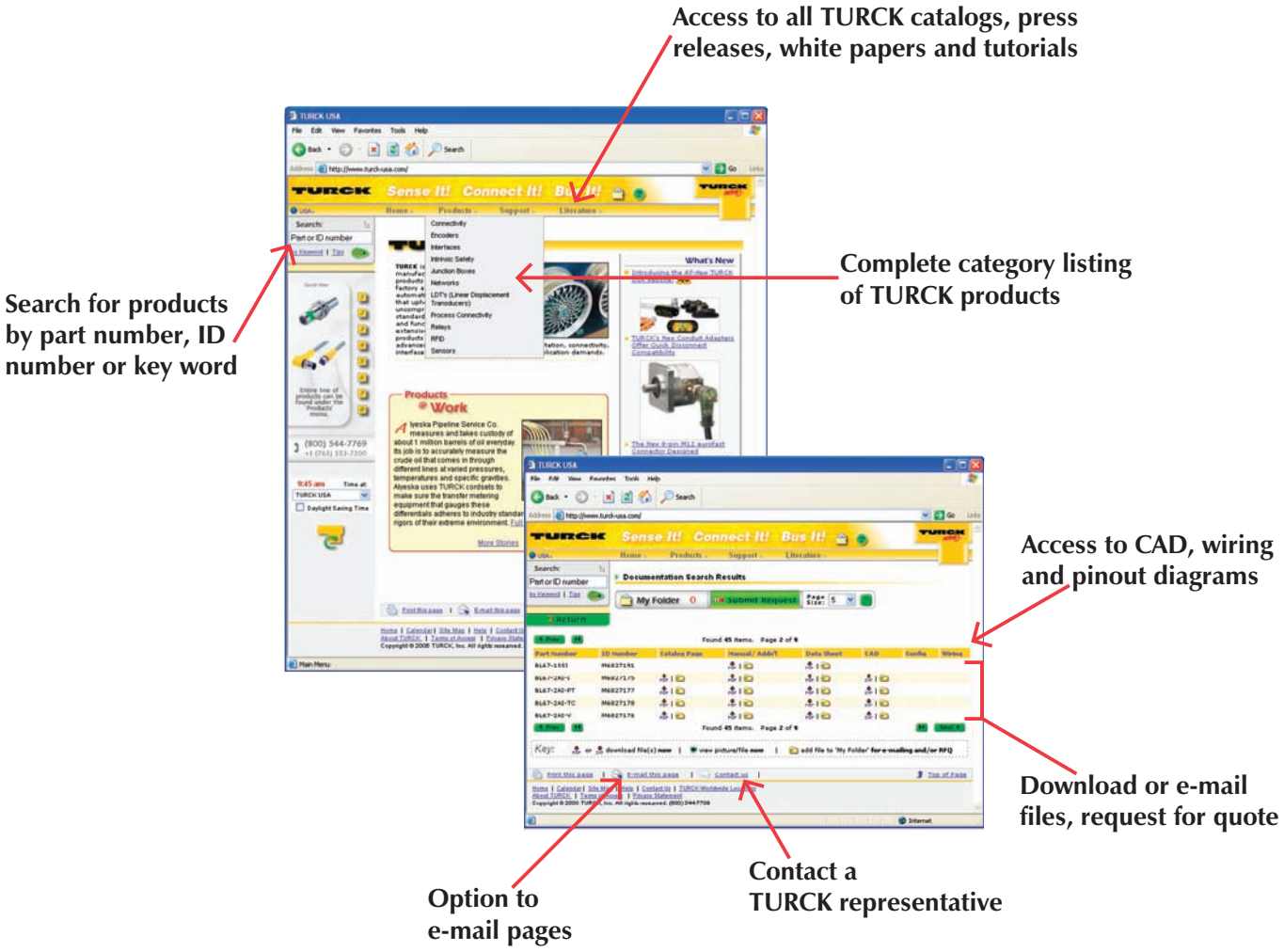
AIM stations typically provide a ***eurofast***® (M12) connection for each I/O point. Standard **TURCK** I/O cordsets can be used to connect physical devices in the field to the AIM station. Some AIM stations, specifically those with I/O counts greater than eight total points, connect two signals to each connector. If the signals being connected are on the same physical device (for example a sensor with two outputs), a simple four or five-wire cordset can be used for connection.

If the signals are on two separate devices, a splitter can be used to separate the AIM I/O connector into two individual ***eurofast*** connectors. The recommended splitter is wired such that the second signal pin on the AIM station (pin 2) is wired to the default signal pin (pin 4) on the second splitter arm - requiring no special wiring by the user. The splitter is simply plugged into the AIM I/O connector and each arm is plugged into the appropriate I/O devices, as shown:



TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.



www.turck.com

Ethernet™ Selection Guide

Housing	I/O Type	I/O Direction	Pages
AIM 	Discrete	Input	K11
		Output	K17
		Input & Output	K21
FDP20 	Discrete	Input & Output	K35
	Repeater	N/A	K37
Piconet 	Discrete	Input	K43
		Output	K47
		Input & Output	K45, K49
	Analog	Input	K51
		Output	K55
	Special Function	Counter	K57
		Encoder	K59
		Serial	K61
Gateways 	BL67	N/A	K75
	BL20		K77
	AS-I		K67
	Piconet		K65
PROFIBUS®-DP & ®-PA Media			L1

Standard Input Stations

FLDP-IM 8-0001
FLDP-IM 16-0001

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

Electrical
- Operating Current: <110 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per four inputs (from U_B)

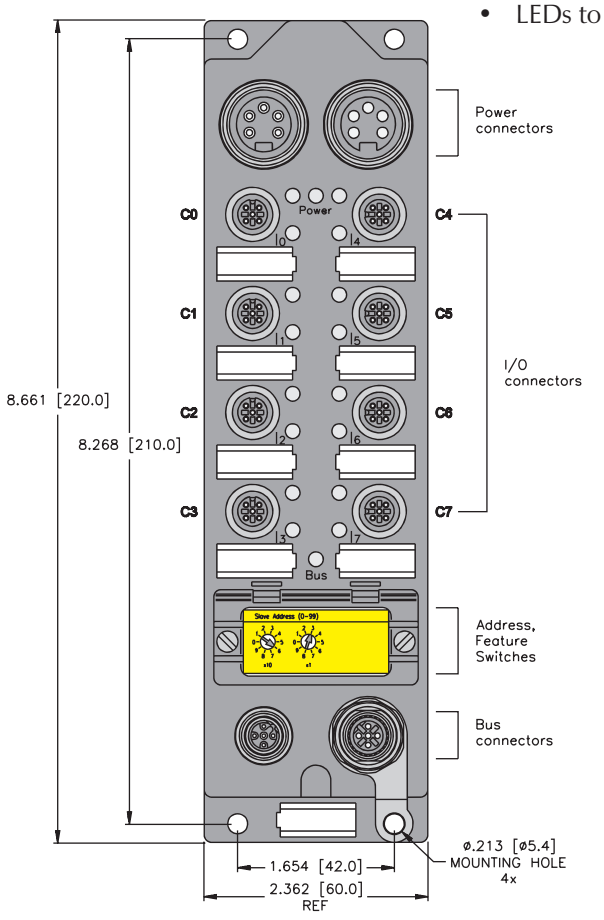
Power Distribution
- Inputs: U_B power supply

Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material
- Connectors: Nickel-plated brass
- Housing: Nylon 6

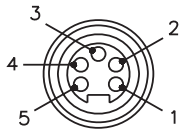
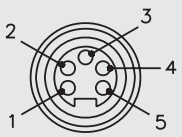
Diagnostics (Logical)
- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)
- One (...IM 8-0001) or two (...IM 16-0001) LEDs indicates short-circuit for I/O groups
- LEDs to indicate status of PROFIBUS communication and power supply



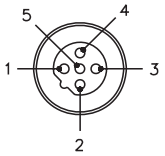
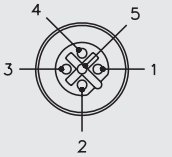
***minifast*® Power Pinouts**

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = NC

Male	Female
	
5-Pin	**5-Pin**

PROFIBUS *eurofast*® Pinouts

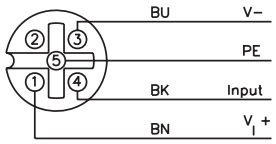
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	**5-Pin**

	Inputs								Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IM 8-0001	8	0-7	S	1	PNP	X			1
FLDP-IM 16-0001	16	0-7	2S	2	PNP	X			2

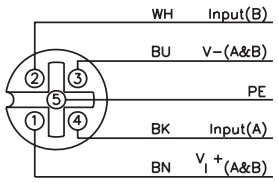
Input Connectors

S



Mating cordset:
RK 4.4T-*-RS 4.4T

2S



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	-	SC

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	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
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	-	SC

Standard Input Station

FLDP-IM 32-0001

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <110 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per eight inputs (from U_B)

Power Distribution

- Inputs: U_B power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

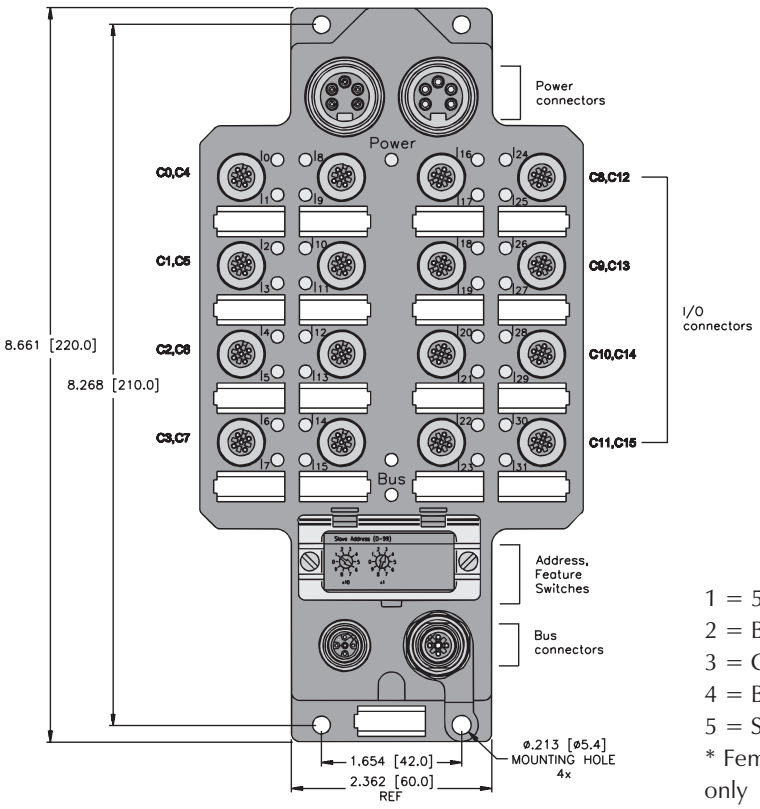
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

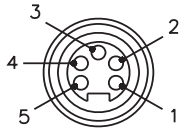
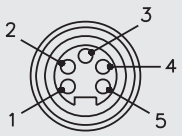
Diagnostics (Physical)

- Four LED short-circuits for I/O (groups of eight inputs)
- LEDs to indicate status of PROFIBUS communication and power supply



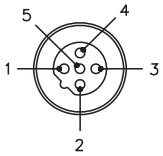
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = NC

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

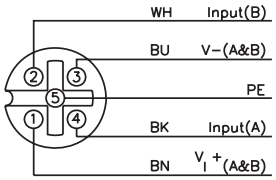
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IM 32-0001	32	0-15	2S	2	PNP	X			1

Input Connectors

2S



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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	I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16
	3	I-31	I-30	I-29	I-28	I-27	I-26	I-25	I-24
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	-	SC

Deluxe Input Stations

FXDP-IM 8-0001
FXDP-IM 16-0001

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <70 mA plus sum of input currents (from U_B)
- Sensor Current: <120 mA per connector (input or pair of inputs) (from U_B)

Power Distribution

- Inputs: U_B power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

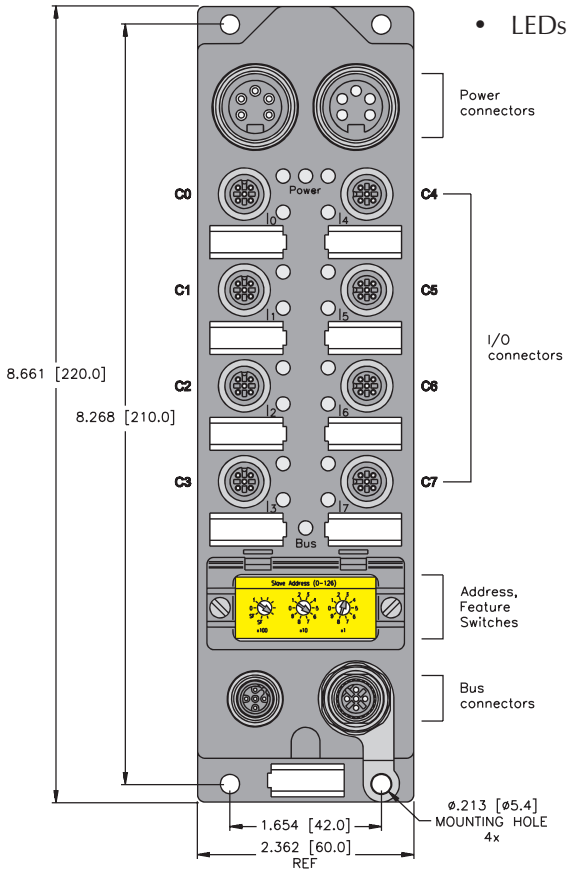
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit mapped to PROFIBUS diagnostic table, one bit indicating a fault for each connector (input or pair of inputs)
- One bit is mapped to PROFIBUS diagnostic table indicating the status of the power supply

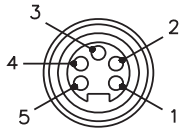
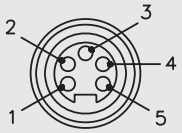
Diagnostics (Physical)

- One LED indicates short-circuit for each I/O point
- LEDs to indicate status of PROFIBUS communication and power supply



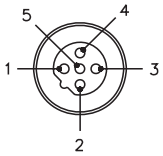
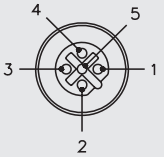
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = NC

Male	Female
	
5-Pin	5-Pin

PROFIBUS _eurofast_® Pinouts

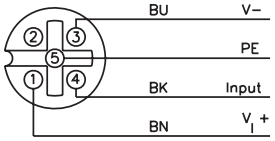
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

	Inputs								Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-IM 8-0001	8	0-7	S	1	PNP	X	X		1
FXDP-IM 16-0001	16	0-7	2S	2	PNP	X	X		2

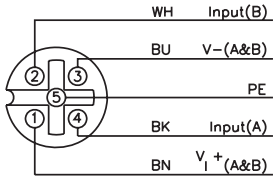
Input Connectors

S



Mating cordset:
RK 4.4T-*-RS 4.4T

2S



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Diag	0	-	-	-	-	-	V_I	-	SC
	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Diag	0	-	-	-	-	-	V_I	-	SC
	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	SC-15, 14	SC-13, 12	SC-11, 10	SC-9, 8	SC-7, 6	SC-5, 4	SC-3, 2	SC-1, 0

Standard Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

FLDP-OM 8-0001
FLDP-OM 8-0002
FLDP-OM 16-0001

Electrical

- Operating Current: <150 mA (from U_B)
- Output Current: <500 mA per output (...0001) or 2 A per output (...0002) (from U_L)

Power Distribution

- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55 °C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

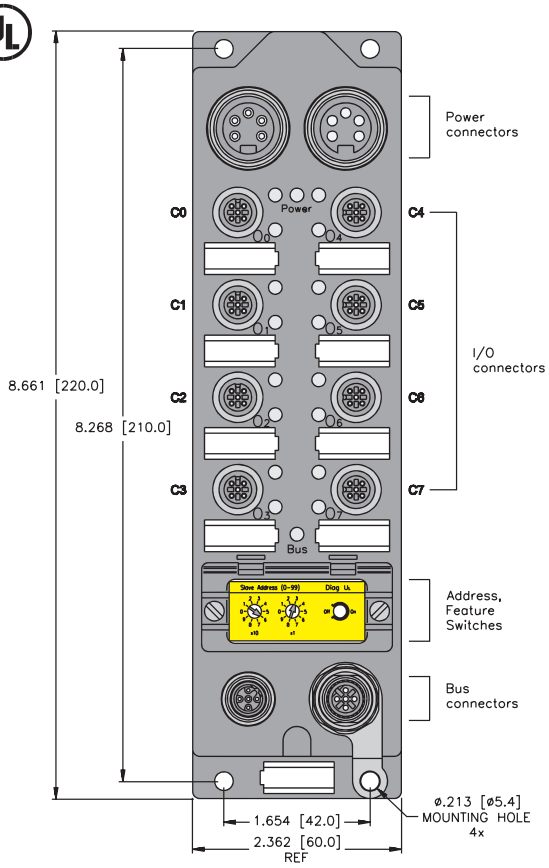
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- U_B and U_L power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

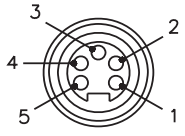
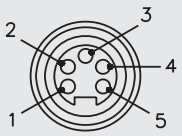
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS communication and power supplies



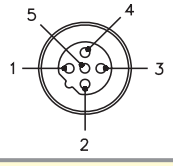
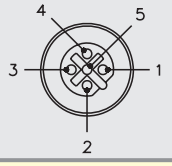
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

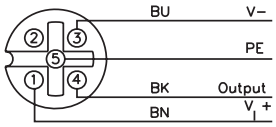
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

	Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-0M 8-0001	8	0-7	G	1	0.5 A				1
FLDP-0M 8-0002	8	0-7	H	1	2 A				1
FLDP-0M 16-0001	16	0-7	2G	2	0.5 A				2

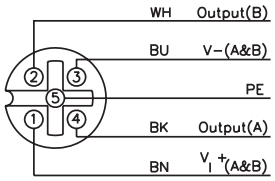
Input/Output Connectors

G



Mating cordset:
RK 4.4T-*-RS 4.4T

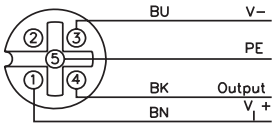
2G



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

H



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	-

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	-

Deluxe Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

FXDP-OM 8-0001
FXDP-OM 16-0001

Electrical

- Operating Current: <70 mA (from U_B)
- Output Current: <1.4 A per output (from U_L)

Power Distribution

- Outputs: U_L power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

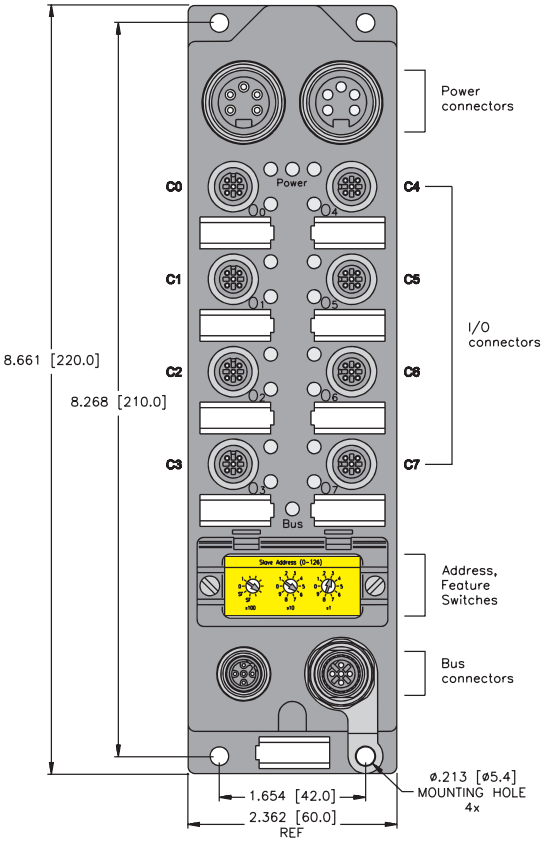
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Output short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating a fault for each output point

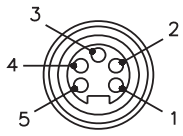
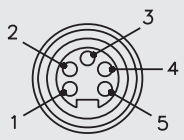
Diagnostics (Physical)

- One LED indicates short-circuit for each output point
- LEDs to indicate status of PROFIBUS communication and power supply



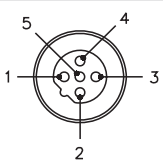
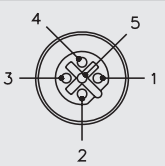
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

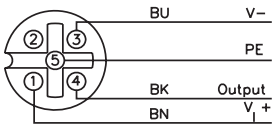
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

	Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-OM 8-0001	8	0-7	H	1	1.4 A	X	X		1
FXDP-OM 16-0001	16	0-7	2H	2	1.4 A	X	X		2

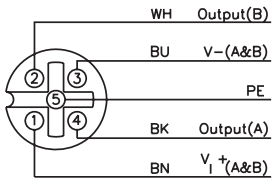
Input/Output Connectors

H



Mating cordset:
RK 4.4T-*-RS 4.4T

2H



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0
	2	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
	3	-	-	-	-	-	-	-	-

Standard Input/Output Stations

FLDP-IOM 84-0001
FLDP-IOM 88-0001
FLDP-IOM 88-0002
FLDP-IOM 88-0004

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <150 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per group inputs (from U_B group is all inputs for IOM 84 and IOM 88-0002, two groups of four inputs for IOM 88-0001))
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

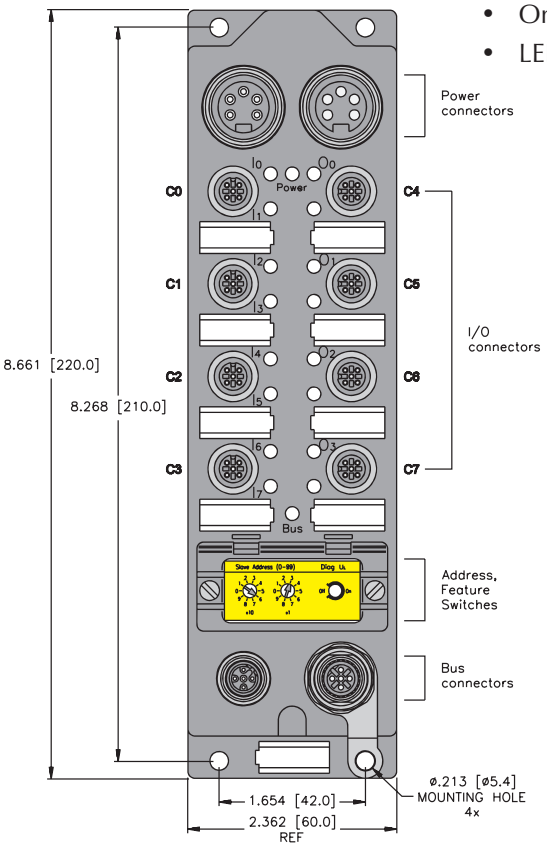
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

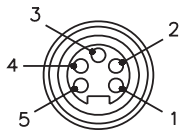
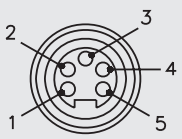
Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply



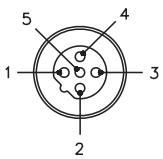
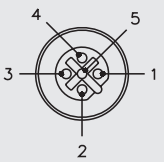
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

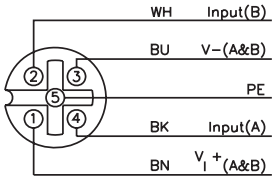
Male	Female
	
5-Pin	5-Pin

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 84-0001	8	0-3	2S	2	PNP	X			4	4-7	H	1	2 A			1
FLDP-IOM 88-0001	8	0-7	C	1	PNP	X			8	0-7	C	1	0.5 A			2
FLDP-IOM 88-0002	8	0-3	2S	2	PNP	X			8	4-7	2G	2	0.5 A			2
FLDP-IOM 88-0004*	8	0-3	2S	2	PNP	X			8	4-7	2G	2	0.5 A			2

* High speed (0.2 ms) inputs

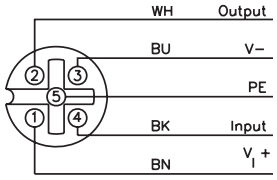
Input/Output Connectors

2S



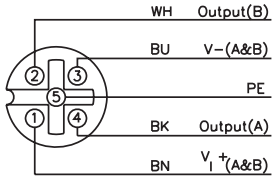
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

C



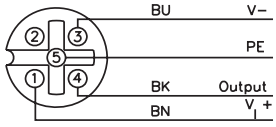
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

2G



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

H



Mating cordset:
RK 4.4T-*-RS 4.4T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	-	0-6	-	0-4	-	0-2	-	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	SC

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	SC

Standard Input/Output Station

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Screw Terminal Connections**
- **Automatic Baud Rate Sensing**

FLDP-IOM 88-0002-ST

CE

Electrical

- Operating Current: <150 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA sum of all inputs (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55 °C (+32 to +131 °F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

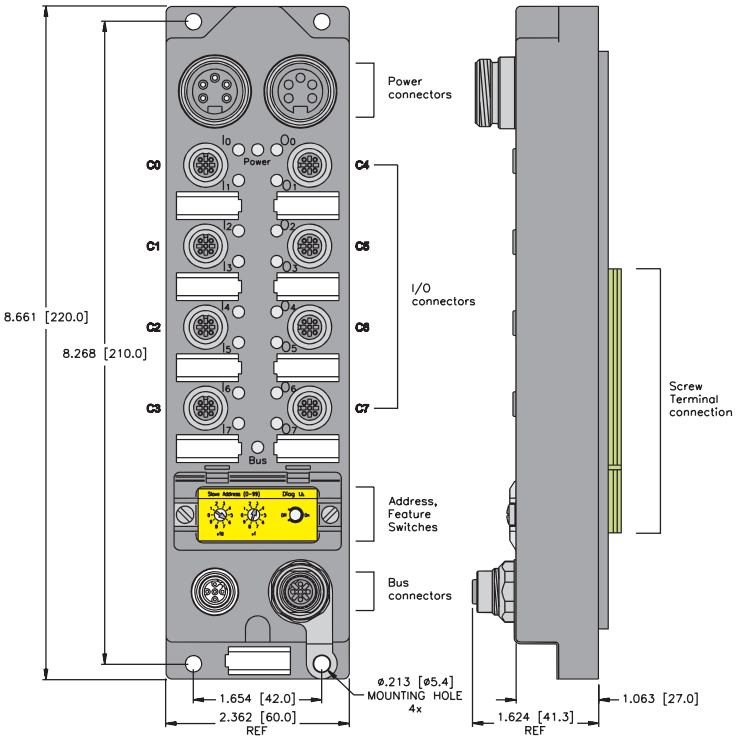
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

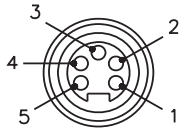
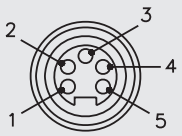
Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply



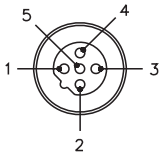
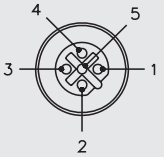
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS eurofast® Pinouts

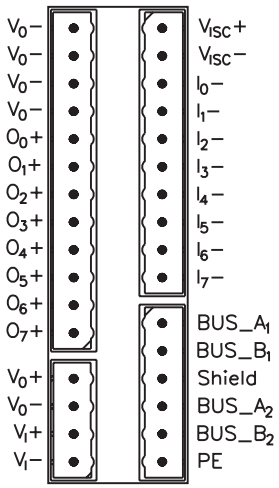
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

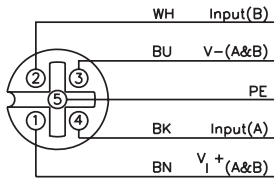
	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 88-0002-ST	8	0-3	ST, 2S	2	PNP	X			8	4-7	ST, 2G	2	0.5 A			1

Input/Output Connectors

ST

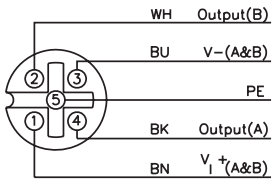


2S



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

2G



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_0	SC

Standard Input/Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

FLDP-IOM 1616-0001
FLDP-IOM 248-0001

Electrical

- Operating Current: <110 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per eight inputs (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

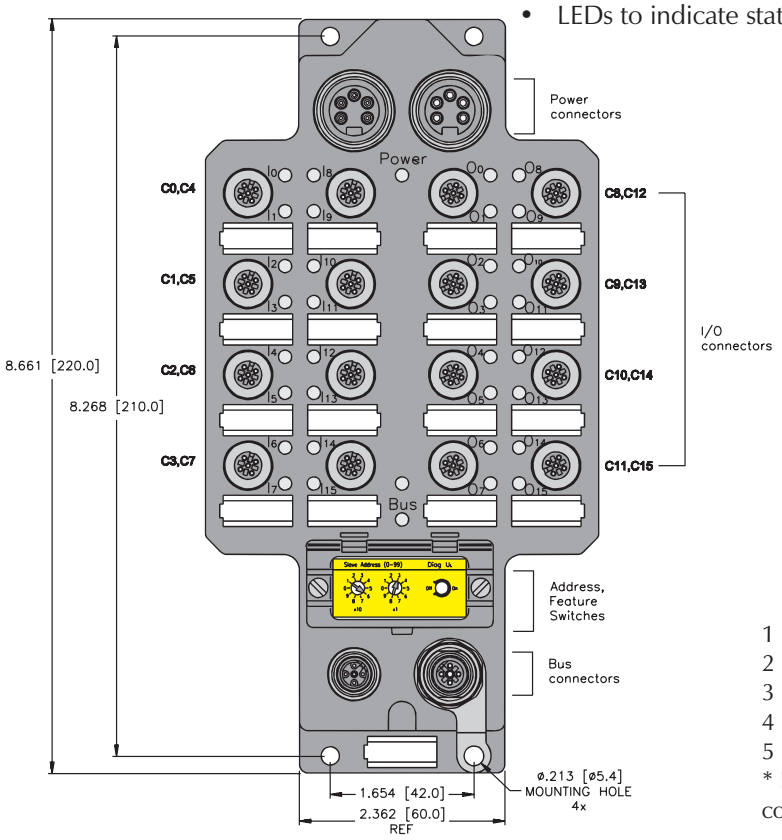
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

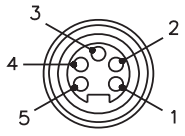
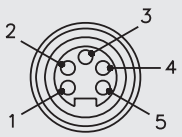
Diagnostics (Physical)

- One LED indicates short-circuit for each group of eight inputs
- LEDs to indicate status of PROFIBUS communication and power supply



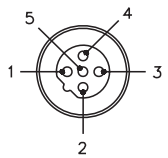
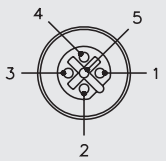
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

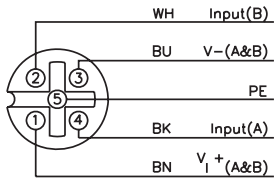
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 1616-0001	16	0-7	2S	2	PNP	X			16	8-15	2G	2	0.5 A			1
FLDP-IOM 248-0001	24	0-11	2S	2	PNP	X			8	12-15	2G	2	0.5 A			2

Input/Output Connectors

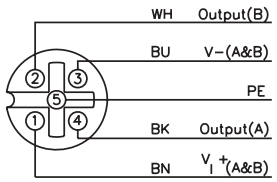
2S



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

2G



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0
	2	O-15	O-14	O-13	O-12	O-11	O-10	O-9	O-8
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_O	SC

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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	I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V_I	V_O	SC

Input/Output Station for Robot Control

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

FLDP-IOM 2012-0001

Electrical

- Operating Current: <110 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per group of eight or twelve inputs (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

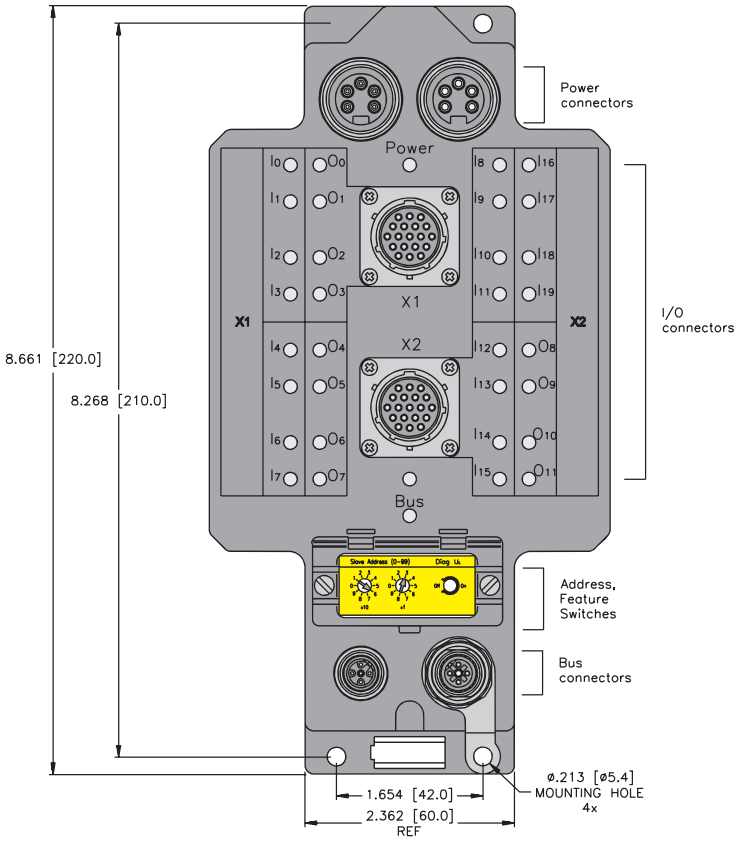
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

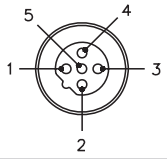
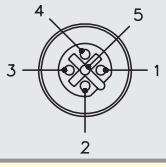
- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for each group of inputs
- LEDs to indicate status of PROFIBUS communication and power supply



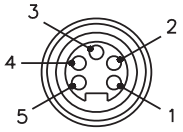
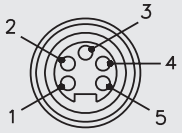
PROFIBUS *eurofast*® Pinouts

Male	Female
	
5-Pin	5-Pin

1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

minifast® Power Pinouts

1 = Gnd2
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 2012-0001	20	X1,X2	B2	8, 12	PNP	X			12	X1,X2	B2	8,4	0.5 A			1

Input/Output Connectors

B2

	X1	X2
A	V+	V+
B	V–	V–
S	I_0	I_0
R	I_1	I_1
M	I_2	I_2
L	I_3	I_3
H	I_4	I_4
G	I_5	I_5
D	I_6	I_6
C	I_7	I_7
U	O_0	I_8
T	O_1	I_9
P	O_2	I_{10}
N	O_3	I_{11}
K	O_4	O_0
J	O_5	O_1
F	O_6	O_2
E	O_7	O_3
V	PE	PE

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	X1I7	X1I6	X1I5	X1I4	X1I3	X1I2	X1I1	X1I0
	1	X2I7	X2I6	X2I5	X2I4	X2I3	X2I2	X2I1	X2I0
	2	-	-	-	-	X2I11	X2I10	X2I9	X2I8
Out	0	X107	X106	X105	X104	X103	X102	X101	X100
	1	-	-	-	-	X203	X202	X201	X200
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	U_I	U_0	SC

Standard Input/Output Stations

FLDP-IOM124-0001
FLDP-IOM124-0002

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <150 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per group inputs (from U_B group is all inputs for IOM 84 and IOM 88-0002, two groups of four inputs for IOM 88-0001))
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

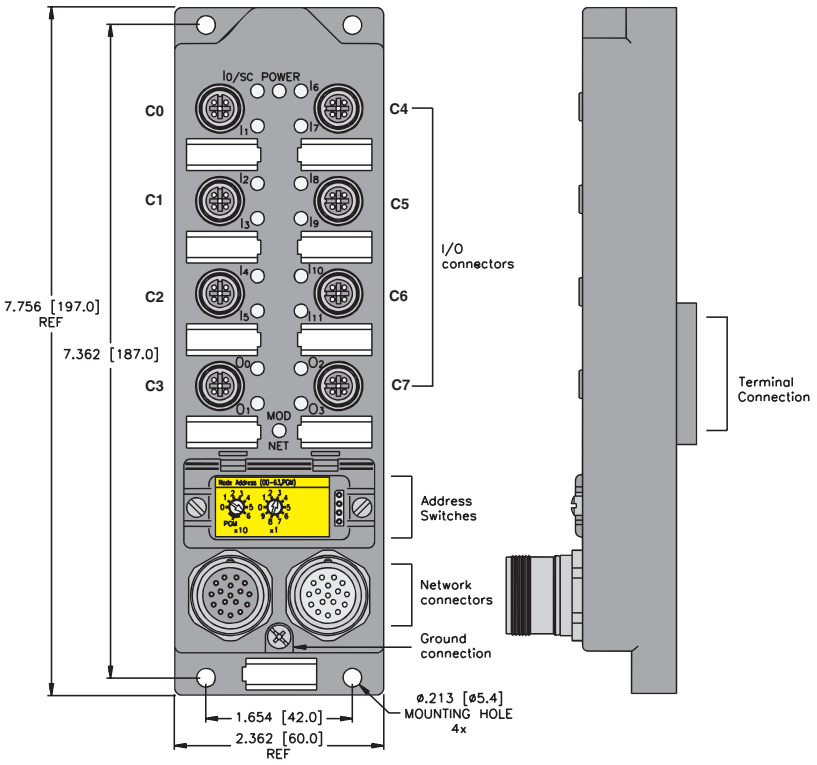
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

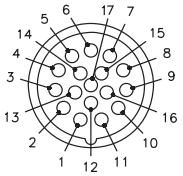
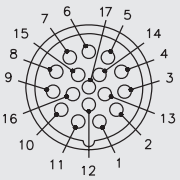
- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply



DeviceNet *multifast* Pinout

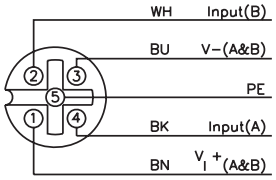
Male	Female
	
17-Pin	**17-Pin**

1 = 0 V, us1
2 = 0 V, US2
3 = +24, US2
4 = +24, US1
5 = PE
6 = *
7 = Us COM
8 = *
9 = KSR2
10 = KSR1
11 = *
12 = Us CAN high
13 = Devnet high
14 = Devnet low
15 = RBST
16 = UL
17 = Us CAN low

Part Number	Inputs								Outputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map	
FLDP-IOM124-0001	12	6	2S	2	PNP	X			4	2	2G	2	2 A			1	
FLDP-IOM124-0002	12	6	2S	2	PNP	X			4	2	2G	2	2 A			1	

Input/Output Connectors

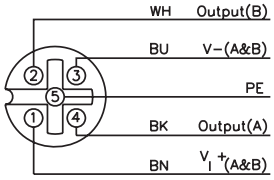
2S



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

2G



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	C4P2	C4P4	C2P2	C2P4	C1P2	C1P4	C0P2	C0P4
	1	-	-	-	-	C6P2	C6P4	C5P2	C5P4
Out	0	-	-	-	-	C7P2	C7P4	C3P2	C3P4
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	U_B	U_L	SC

Deluxe Input/Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Rotary Address Switches**
- **Automatic Baud Rate Sensing**

FXDP-IOM 88-0001
FXDP-CSG 88-0001
FXDP-XSG 16-0001

Electrical

- Operating Current: <70 mA plus sum of input currents (from U_B)
- Sensor Current: <120 mA per connector (input or pair of inputs) (from U_B)
- Output Current: 1.4 A per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

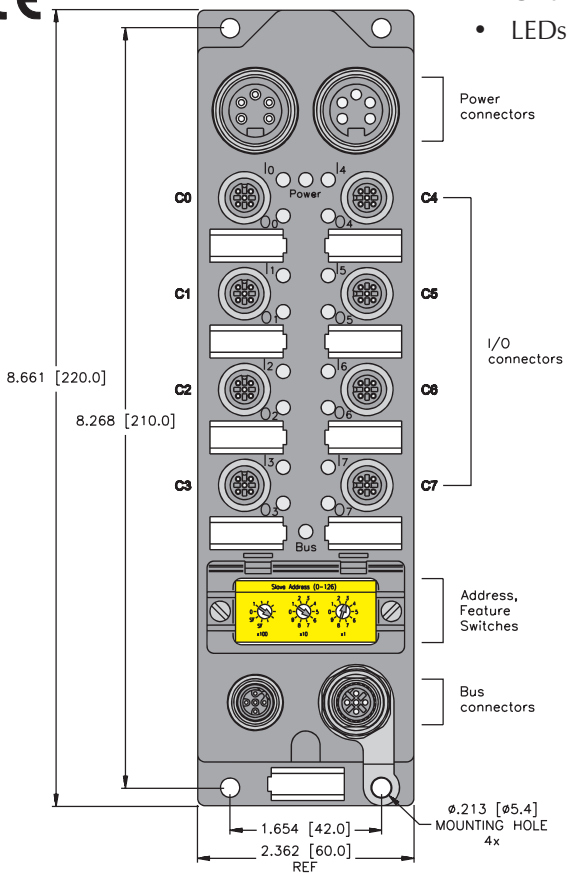
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- I/O and power supply faults mapped to PROFIBUS diagnostic table, one bit per output and one bit per input connector

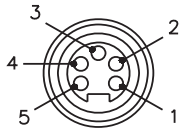
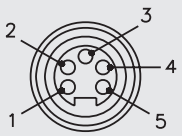
Diagnostics (Physical)

- One LED indicates short-circuit for each I/O point
- LEDs to indicate status of PROFIBUS communication and power supply



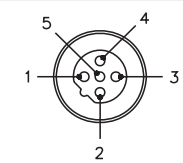
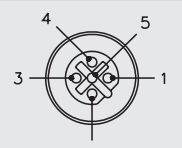
minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = U_L

Male	Female
	
5-Pin	5-Pin

PROFIBUS *eurofast*® Pinouts

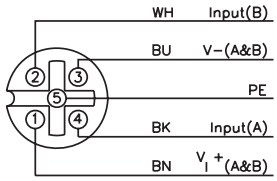
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-IOM 88-0001	8	0-3	2S	2	PNP		X		8	4-7	2G	2	1.4 A	X		1
FXDP-CSG 88-0001	8	0-7	C	1	PNP		X		8	0-7	C	1	1.4 A	X		2
FXDP-XSG 16-0001	16	0-7	2X	1	PNP		X		16	0-7	2X	1	1.4 A	X		3

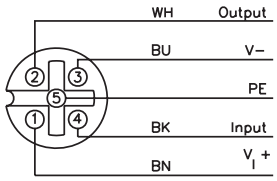
Input/Output Connectors

2S



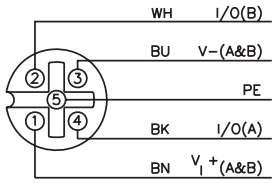
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

C



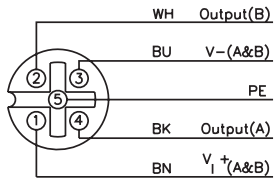
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

2X



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

2G



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	UB	UL	SC
	1	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
	2	-	-	-	-	SC-7,6	SC-5,4	SC-3,2	SC-1,0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	UB	UL	SC
	1	SC-7	-	SC-5	-	SC-3	-	SC-1	-
	2	SC-15	-	SC-13	-	SC-11	-	SC-9	-
	3	SC-I7	SC-I6	SC-I5	SC-I4	SC-I3	SC-I2	SC-I1	SC-I0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 3

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	UB	UL	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-1
	2	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
	3	SC-I 15,14	SC-I 13,12	SC-I 11,10	SC-I 9,8	SC-I 7,6	SC-I 5,4	SC-I 3,2	SC-I 1,0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8

PROFIBUS-DP FDP20 Stations

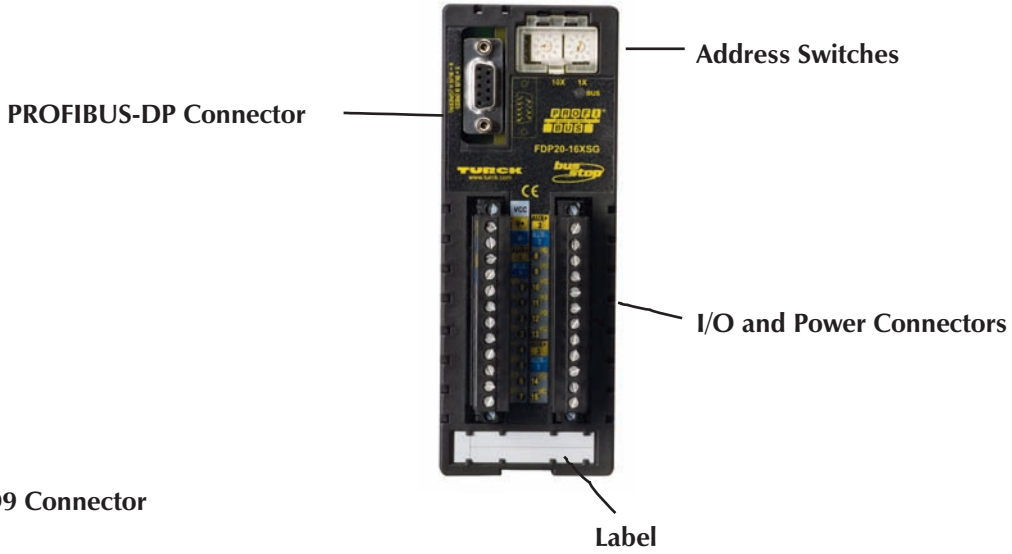
TURCK's FDP20 PROFIBUS stations are low-cost screw-terminal connection stations designed for mounting in an enclosure. These stations provide easy connection of standard I/O devices such as push buttons, pilot lights, motor starters and drives to a PROFIBUS network. FDP20 stations are designed to easily upgrade existing equipment to a PROFIBUS network.

Mechanical Specifications

TURCK FDP20 stations are designed to be mounted in standard equipment enclosures (operator stations, motor control centers, etc.). These stations use screw terminal connections for all I/O and network wiring. Detailed environmental specifications include:

- Housing material: Nylon 6
- Protection level: IP 20
- Operating temperature: 0 to +55°C (32 to +131°F)

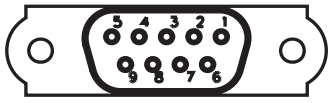
The station's components are identified in the figure below.



Connectors

Bus connectors

PROFIBUS-DP D9 Connector

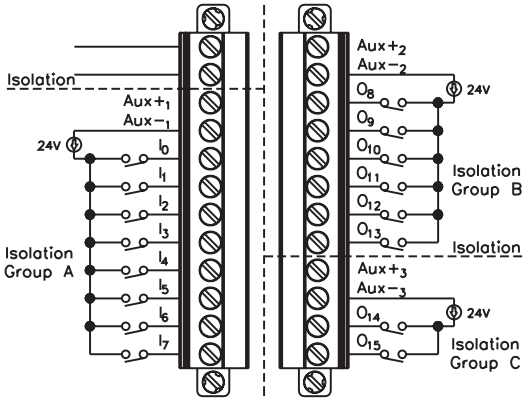


I/O connectors

Each FDP20 version uses a different screw terminal connector. Detailed pinout information is given in the product information on the following pages.

Power

FDP20 stations provide an auxiliary power connection for I/O devices and station electronics. Power can be applied separately to different I/O groups as shown in the following diagram.

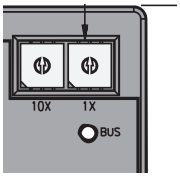


Power ratings for FDP20 stations:

- Operating Voltage: 18-30 VDC (24 VDC nominal)
- Internal Current Consumption: <75 mA (@ nominal 24 VDC) plus sum of I/O currents
- Input Signal Current (each input): OFF < 0.5 mA; ON 1-3.4 mA
- Input Delay: 2.5 ms
- Output Current: 1.8 A max per output (XSG version only)

Addressing

PROFIBUS® stations must have a network address for communication. The address for FDP20 stations may be set via the visible rotary switches on the front of the station.



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the stations, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

Diagnostics

FDP20 stations provide LEDs for diagnosing communication problems.

Bus

- Green: Normal operation
- Red: No communication

Voltage Supply

- Green: Power present
- Red: No power

Input/Output Status

- Off: Point is off
- Green: Point is on

Common short-circuit Indication (Two LEDs for entire station)

- Red: short-circuit within group of inputs

Enclosure Mounted Input/Output Station

FDP20-16XSG
FDP20-16S

- **In-Cabinet I/O**
- **IP 20 Protection**
- **Ideal for Retrofits**
- **Automatic Baud Rate Detection**

Electrical

- Operating Current: <75 mA plus sensor currents (from Auxiliary power)
- Input Current: <700 mA sum of all inputs (from Auxiliary power)
- Output Current: <1.8 A per output (from Auxiliary power)

Power Distribution

- Inputs: Auxiliary power
- Outputs: Auxiliary power supply

Mechanical

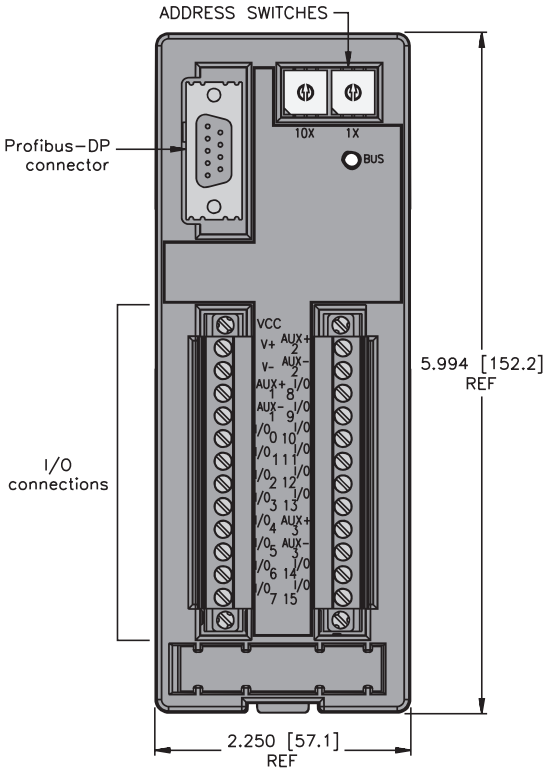
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 20

Material

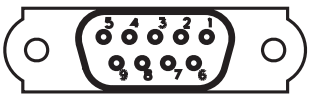
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP communication



PROFIBUS-DP D9 Connector

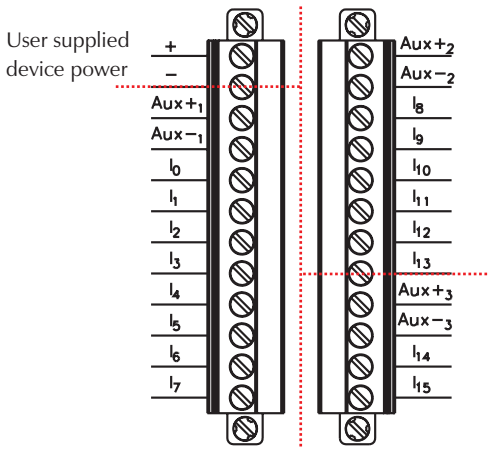


3 = BUS_B
5 = DGnd
6 = +5VDC
8 = BUS_A

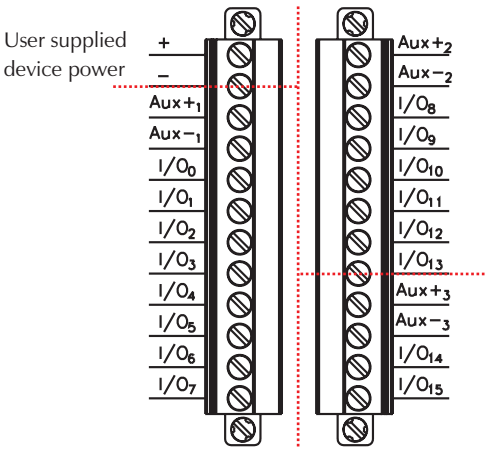
	Inputs						Outputs					Data
Part Number	Input Count	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Data Map
FDP20-16XSG	16	FLX-DP	PNP				16	FLX-DP	0.5 A			1
FDP20-16S	16	FL-DP	PNP				0					2

Input/Output Connectors

FL-DP



FLX-DP



Indicates I/O groups which can be powered from separate Aux. power supplies if desired

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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
Out	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

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	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

Profibus-DP Repeater

REP-DP-0002

- **Extend Network Length**
- **Extend Drop Lengths**
- **Allows More Than 32 Stations on Network**
- **Isolate Communication Segments**

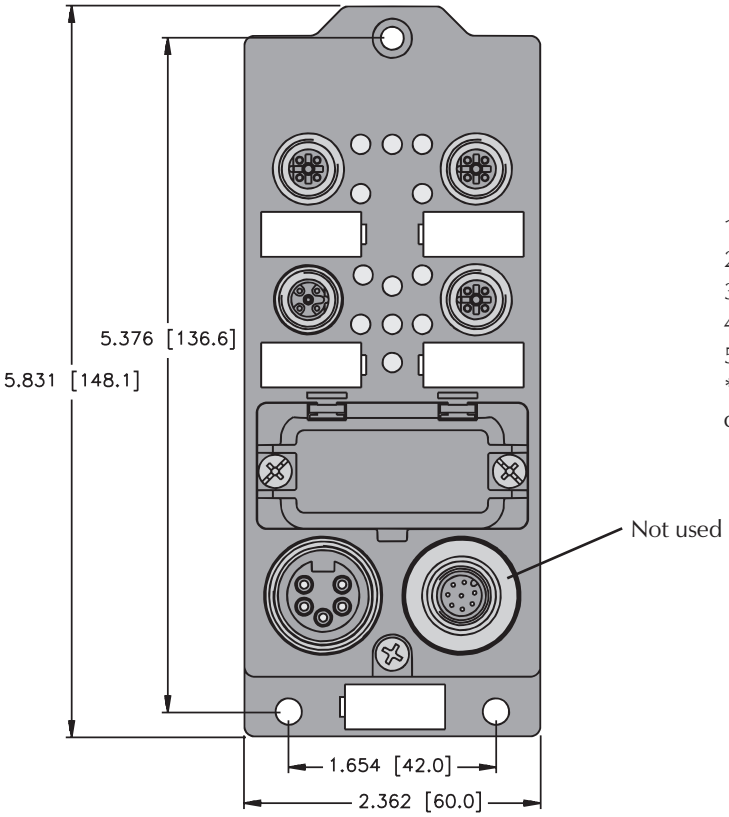
Electrical
- Operating Current: <60 mA

Power Distribution
- Station: Auxiliary power supply (U_B)

Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 and IEC IP 67
- Vibration: 50 g @ 10-500 Hz

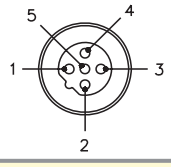
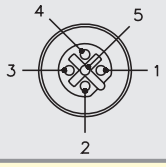
Material
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Physical)
- LEDs indicate communication status for each segment and power supply



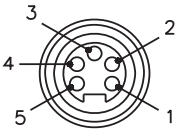
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

PROFIBUS *eurofast*® Pinouts

Male	Female
	
5-Pin	**5-Pin**

minifast® Power Pinouts

1 = Gnd
2 = Gnd
3 = PE
4 = U_B
5 = NC

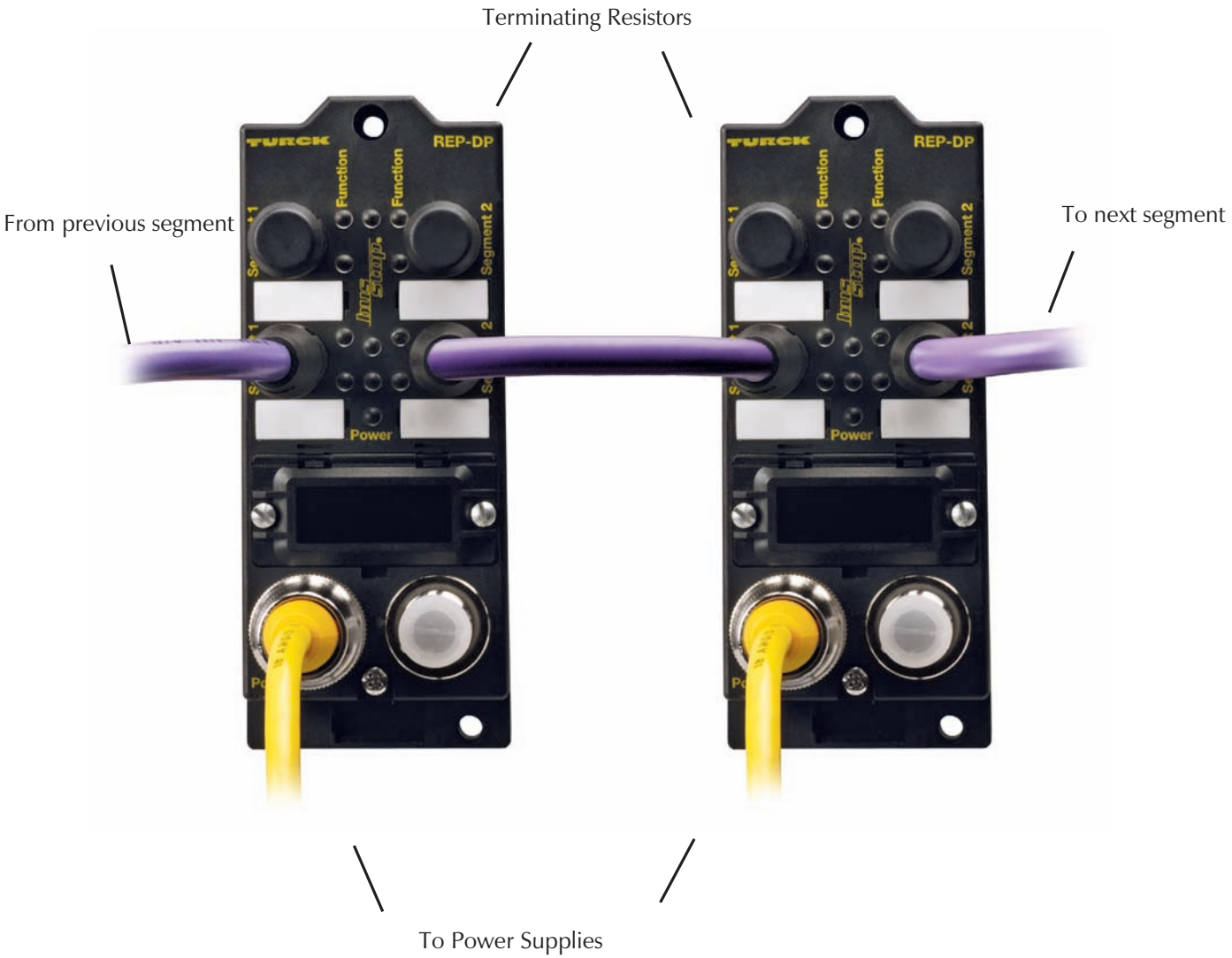
Male

5-Pin

PROFIBUS ®-DP Repeater

The **REP-DP** repeater serves to assemble two galvanically isolated PROFIBUS-DP segments in RS-485 technology with 32 participants each, and provides IP 67 protection. Up to four repeaters can be connected in series, so that up to 127 nodes can be operated via a single master; thus PROFIBUS networks can be extended significantly by using repeaters (depending on the baud rate).
The transmission rate is detected automatically (up to 12 Mbaud), and the signals are regenerated in amplitude. If there are faulty protocols in one of the segments (a wire-break, short-circuit in the bus line or by a defective node), that segment is decoupled and an error indication is provided by the LED.

Connection:

Individual PROFIBUS segments are connected via M12 connectors (see technical guidelines for PROFIBUS connection technology). The repeater is equipped with three female and one male connector; unused connections must be terminated with a terminating resistor (type: RSSW 45-TR). The shield of the PROFIBUS cable can be grounded directly via a grounding screw (internally the shield is coupled capacitively with the ground). Power (24 VDC) is supplied via standard 7/8 inch connectors.



PROFIBUS-DP *piconet*® Stations

TURCK's PROFIBUS ***piconet*** stations are compact rugged stations designed for on-machine mounting. These stations allow easy connection to standard I/O devices such as sensors, limit switches, valves and pilot lights to a PROFIBUS network, typically without the need for a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

piconet's small size sets them apart from other stations. ***piconet*** stations are the smallest rugged I/O modules available, with a standard housing footprint of 30 x 175 mm. They are also available with M8 connectors for I/O, making them ideally suited for small-space applications.

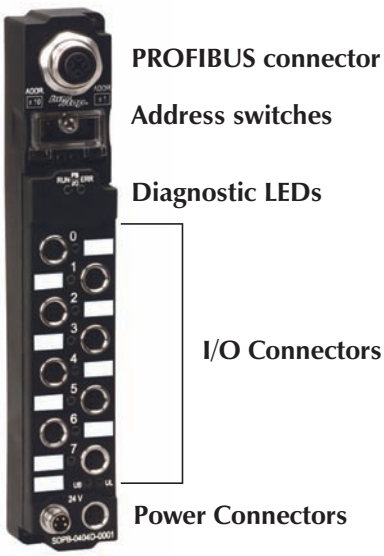
piconet stations are able to create a small distributed subnetwork from the PROFIBUS system, allowing the user to choose a gateway node (identified by the part number SDPL…) to connect to a PROFIBUS system. A fiber-optic network connects the gateway to the chosen I/O modules, creating a distributed system visible to PROFIBUS stations as a single node.

Mechanical Specifications

TURCK PROFIBUS ***piconet*** stations are designed to be mounted directly on machines and work cells with no separate enclosure or housing necessary. The epoxy-filled housing creates a durable station that allows it to be mounted in most industrial environments. Detailed environmental specifications include:

- Housing material: Glass filled nylon
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: 0 to +55°C

The station's components are identified in the figure below.



Connectors

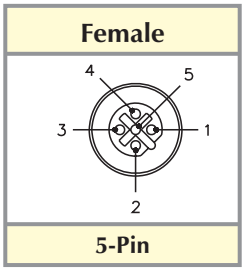
PROFIBUS ***piconet*** stations have connectors for the bus and I/O power, as well as for subnetwork communication for gateways. ***piconet*** stations power all I/O from auxiliary power.

Bus Connector:

PROFIBUS ***piconet*** stations use ***eurofast*** ® (M12) connectors for bus connection.

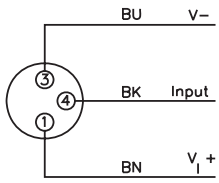
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield



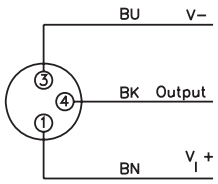
piconet stations with discrete I/O are available with ***picofast*** connectors.

PI



Mating cordset:
PSG 3M-*

PO



Mating cordset:
PSG 3M-*

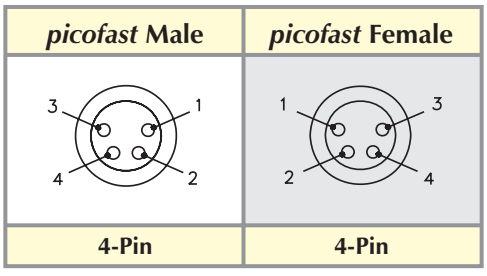
piconet stations with analog and special function I/O are available with ***eurofast*** connectors.

Auxiliary Power Connectors

piconet stations have two auxiliary power connectors, one male and one female, so the stations may be "daisy-chained" without requiring a T-connector. 4-pin ***picofast*** auxiliary power connectors are used to connect two power supplies: one for station electronics and inputs and one for outputs.

Aux. Power

1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd



Subnetwork Connectors (Gateway modules only)

The ***piconet*** subnetwork uses a fiber-optic medium for communication. This is a ring network system, so it is important to connect the fiber-optic output from the last station back to the input on the gateway. The fiber used is plastic and features a simple snap-in connector. Some stations may be available with different connector options than the standards mentioned in this text. Consult your local sales representative if you need different connector options.

Power

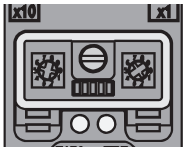
Power ratings for ***piconet***® stations are listed below.

- Aux Power Voltage: 24 VDC (nominal)
- Input Voltage: 13-26 VDC (From auxiliary supply, V_B)
- Output Voltage: From auxiliary supply, V_L

Addressing

PROFIBUS stations must have a network address for communication. The address for ***piconet*** stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.

Address = 6x10 + 3x1 = 63



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

Diagnostics

piconet® stations provide LEDs for diagnosing communication problems.

Bus

- Green - Normal operation
- Red - No communication

Module Status

- Green - OK
- Red - Error

There is an additional LED for each I/O point on the station. This LED indicates:

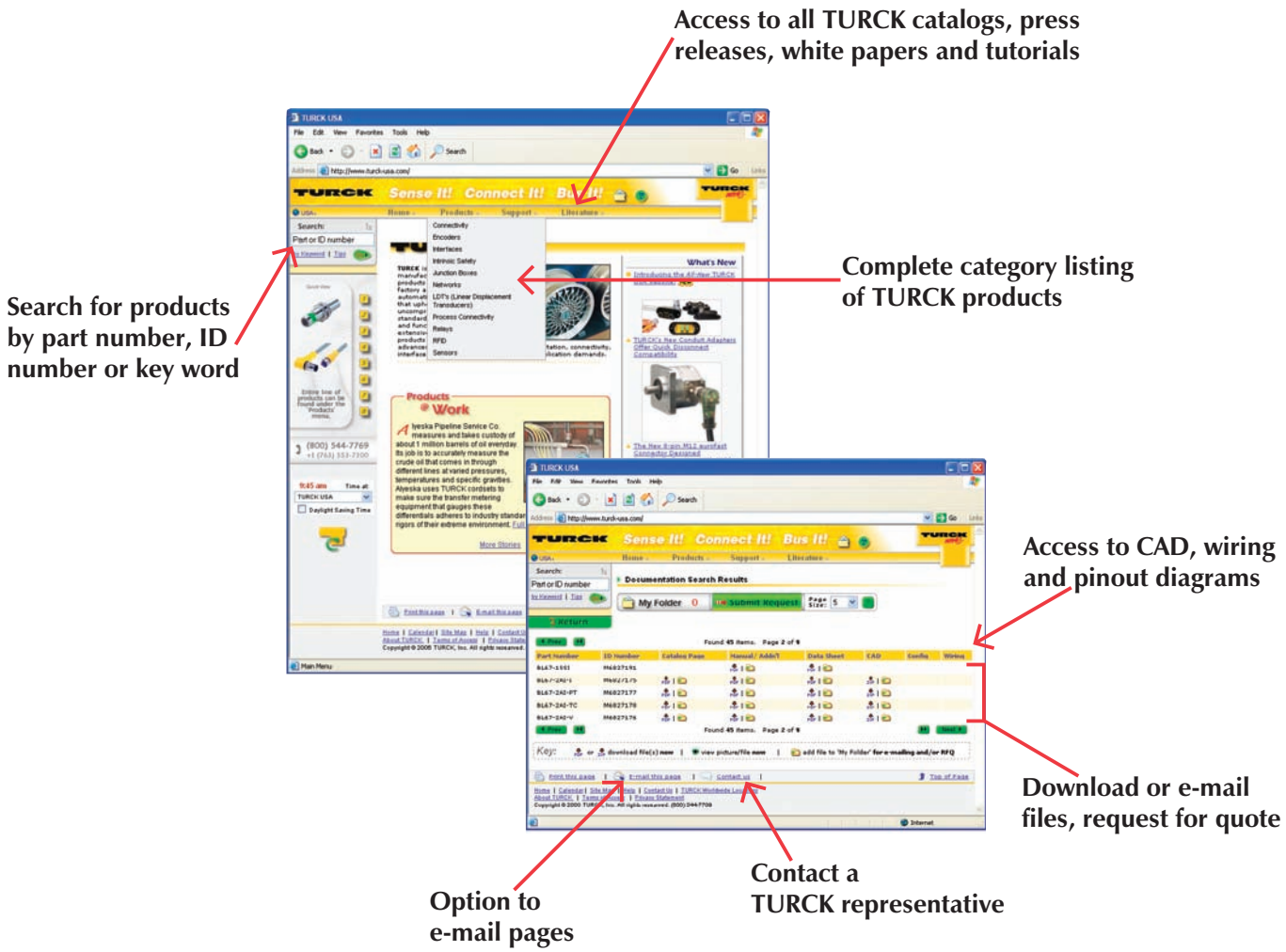
- Off - Point is off
- Green - Point is on

There is also an LED to indicate the status of each of the two auxiliary power supplies.

- Off - Power is missing
- On - Power is present

TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.



www.turck.com

Input Station

SDPB-0800D-0008

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

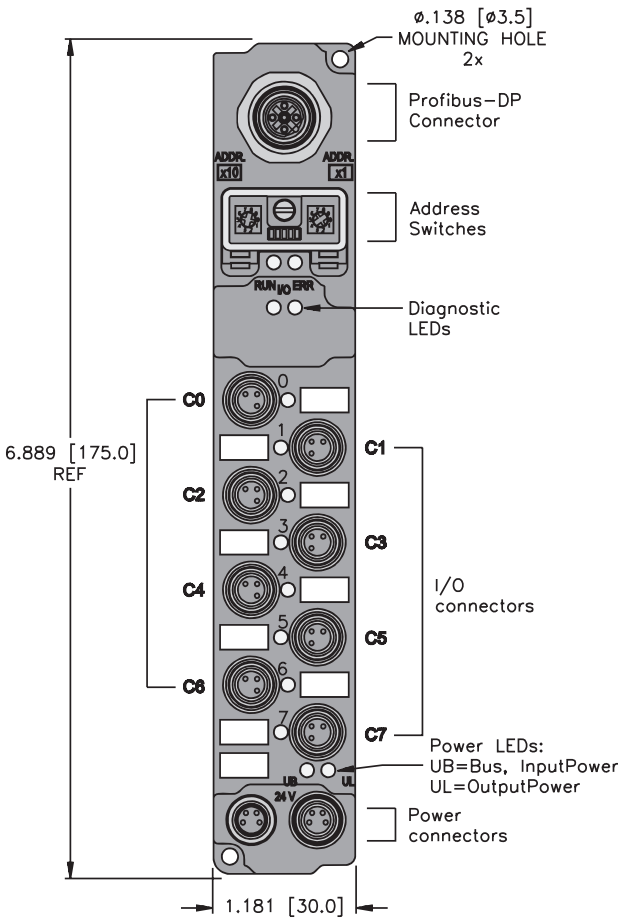
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

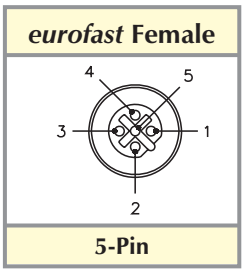
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



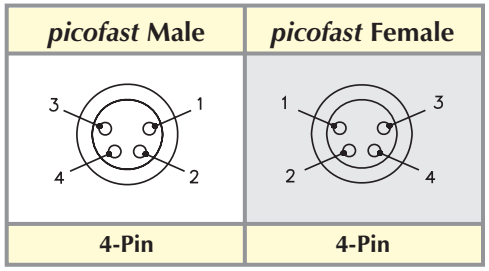
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield



Aux. Power

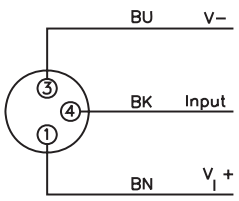
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd



Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Map
SDPB-0800D-0008	8	0-7	PI	1	PNP				1

Input Connectors

PI



Mating cordset:
PSG 3M-*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0

Input/Output Stations

SDPB-0808D-0001

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

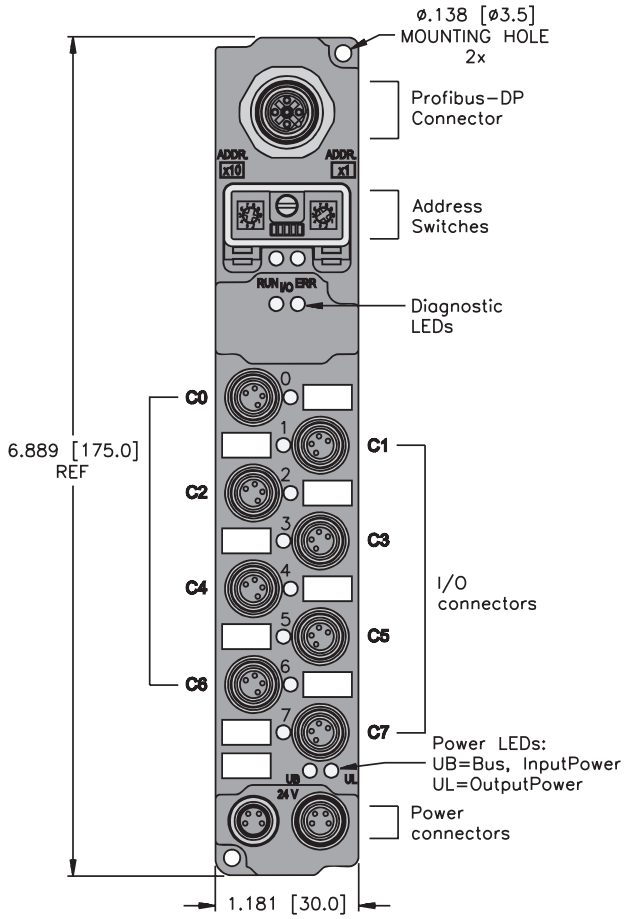
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

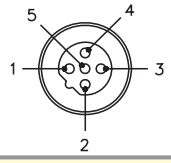
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



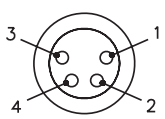
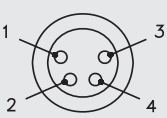
Profibus-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Male

5-Pin

Aux. Power

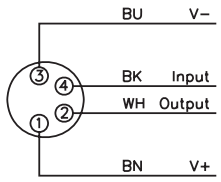
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

picofast Male	*picofast* Female
	
4-Pin	**4-Pin**

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0808D-0001	8	0-7	PIO	1	PNP				8	0-7	PIO	1	0.5 A			1

Input/Output Connectors

PIO



Mating cordset:
PSG 4M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

Output Stations

SDPB-0008D-0006
SDPB-0008D-0002

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Outputs: U_L Power supply

Mechanical

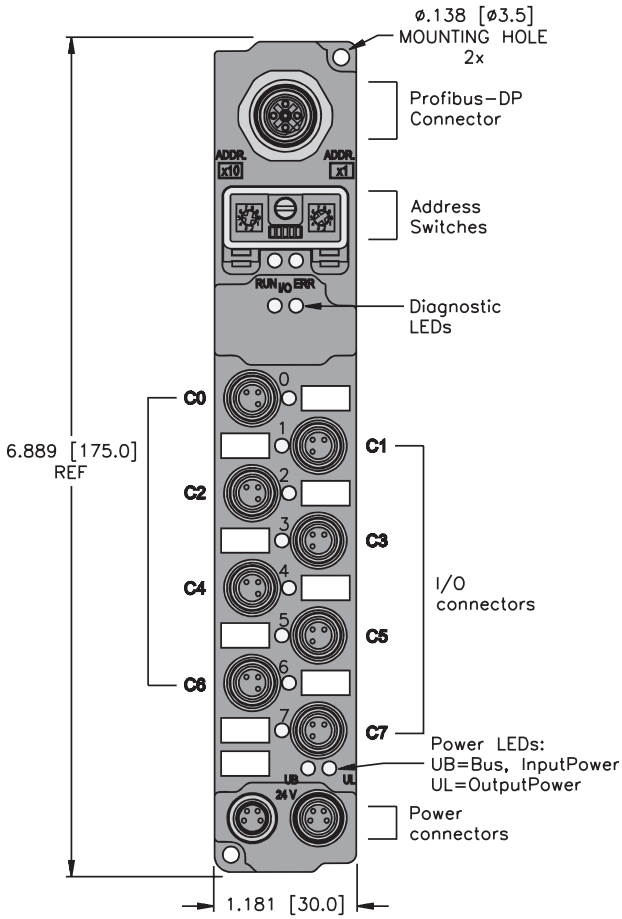
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

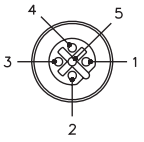
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



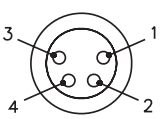
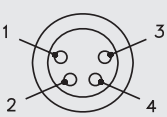
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Male

5-Pin

Aux. Power

1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

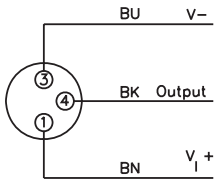
picofast® Male	*picofast*® Female
	
4-Pin	4-Pin

	Outputs							Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0008D-0006	8	0-7	PO	1	0.5 A			1
SDPB-0008D-0002	8	0-7	PO	1	2 A*			1

*Note: Total output current is limited to 4 A.

Output Connectors

PO



Mating cordset:
PSG 3M-*

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Discrete Input/Output Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

SDPB-0404D-0005
SDPB-0404D-0001

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: See table on facing page from U_L

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

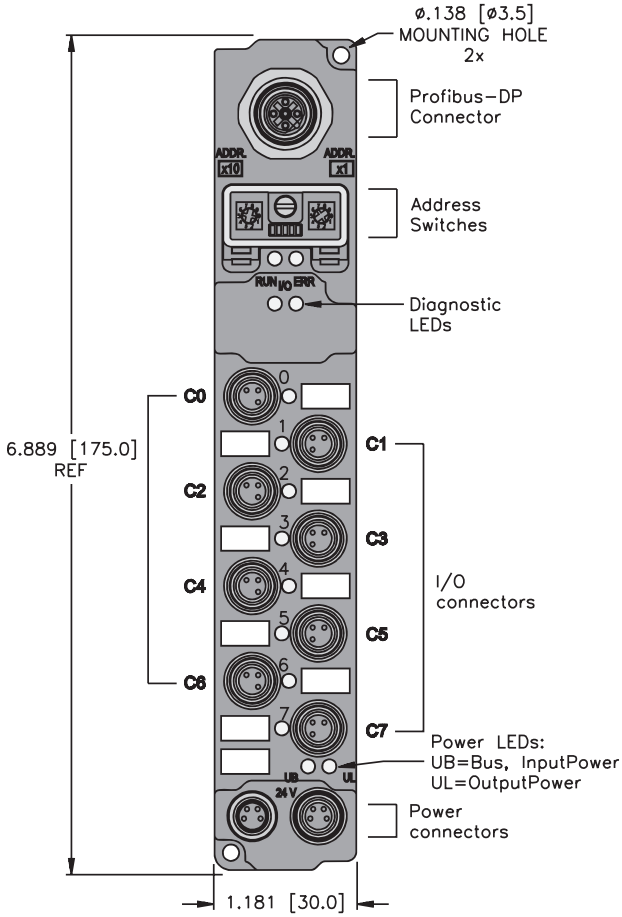
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

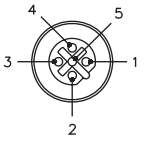
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



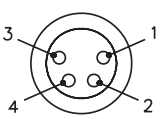
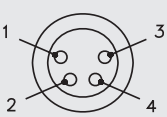
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Male

5-Pin

Aux. Power

1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

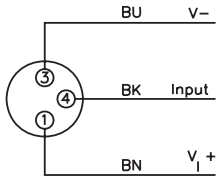
picofast® Male	*picofast*® Female
	
4-Pin	4-Pin

	Inputs								Outputs							Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0404D-0005	4	0-3	PI	1	PNP				4	4-7	PO	1	2 A*			1
SDPB-0404D-0001	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

*Note: Total output current is limited to 4 A.

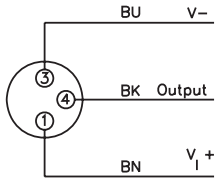
Input/Output Connectors

PI



Mating cordset:
PSG 3M-*

PO



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	-	-	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	O-3	O-2	O-1	O-0

Analog Input Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

SDPB-40A-0005
SDPB-40A-0007

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

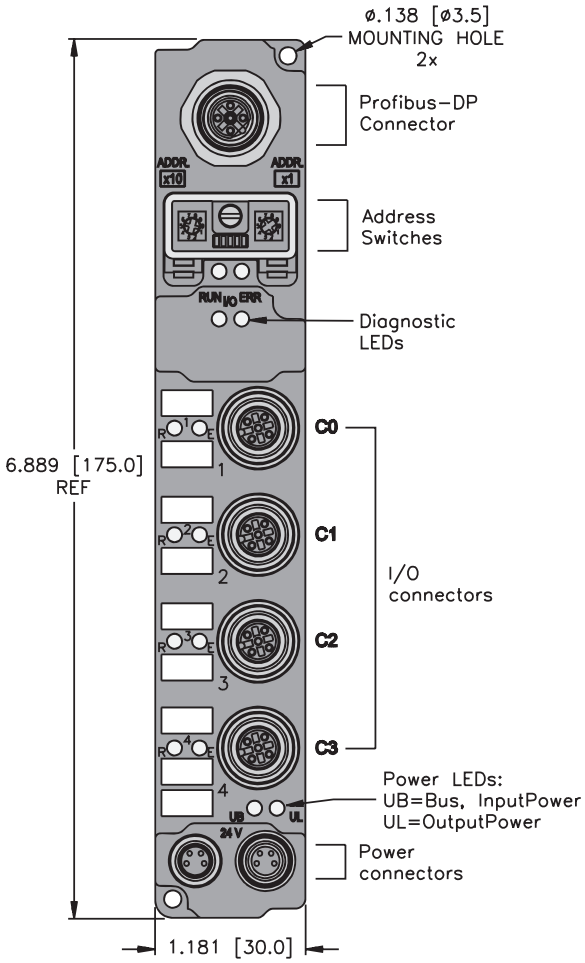
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

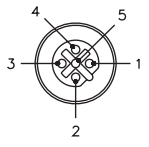
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



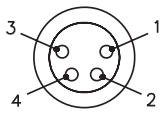
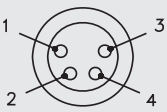
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Male

5-Pin

Aux. Power

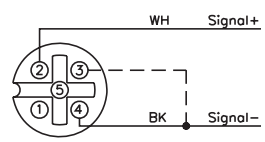
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

picofast Male	*picofast* Female
	
4-Pin	**4-Pin**

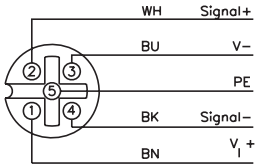
Part Number	Inputs: Input Count	Inputs: Connectors	Inputs: Pinout	Inputs: Inputs per Connector	Inputs: Sensor Style	Inputs: Group Diagnostics	Inputs: Individual Diagnostics	Inputs: Wire-Break Detection	Data: I/O Map
SDPB-40A-0005	4	0-3	AI	1	0 to 10 V				1
SDPB-40A-0007	4	0-3	AI	1	0 to 20 mA				1

Input/Output Connectors

AI



Loop Powered (Isolated)



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

Applications:
TURCK Sensors:
LU; RK 4.4T-*-RS 4.4T/S1118

LI; RK 4.4T-*-*RS 4.4T/S1120

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0, MSB							
	1	Channel 0, LSB							
	2	Channel 1, MSB							
	3	Channel 1, LSB							
	4	Channel 2, MSB							
	5	Channel 2, LSB							
	6	Channel 3, MSB							
	7	Channel 3, LSB							

Temperature Input Stations

SDPB-40A-0004
SDPB-40A-0009

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

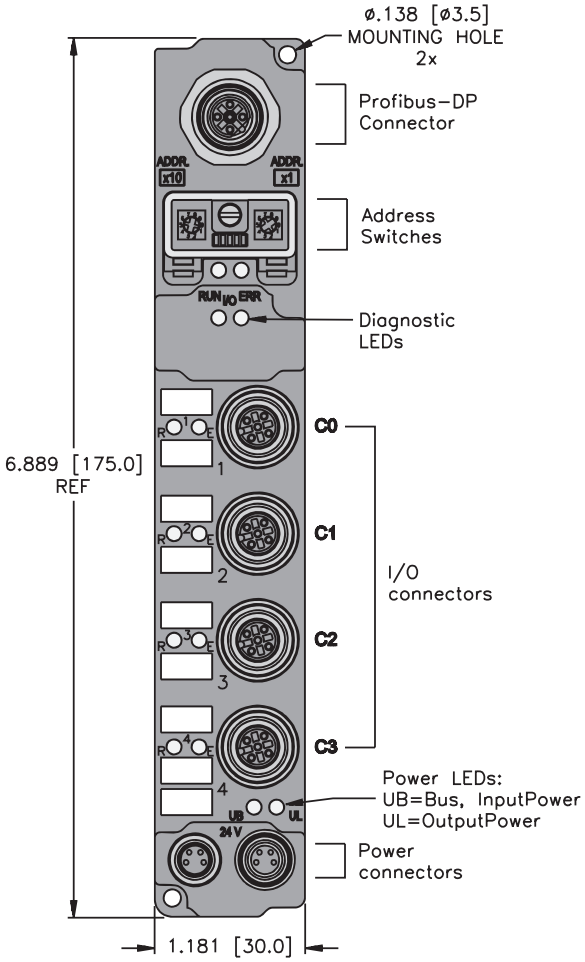
Electrical
- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution
- Inputs: U_B Power supply

Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

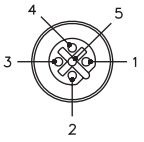
Material
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Profibus-DP communication



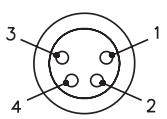
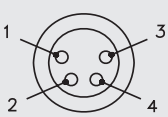
DeviceNet Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Female

5-Pin

Aux. Power

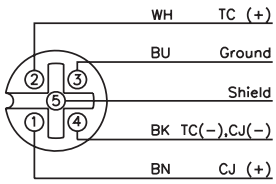
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

picofast® Male	*picofast*® Female
	
4-Pin	**4-Pin**

	Inputs								Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-40A-0004	4	0-3	TC	1	TC				1
SDPB-40A-0009	4	0-3	RTD	1	RTD				1

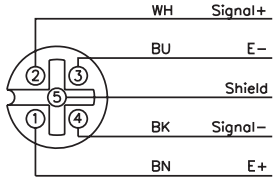
Input/Output Connectors

TC



Mating connector (field wireable):
WAS5-THERMO
(includes cold junction compensation)

RTD



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0, MSB							
	1	Channel 0, LSB							
	2	Channel 1, MSB							
	3	Channel 1, LSB							
	4	Channel 2, MSB							
	5	Channel 2, LSB							
	6	Channel 3, MSB							
	7	Channel 3, LSB							

Analog Output Stations

SDPB-04A-0009
SDPB-04A-0007

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

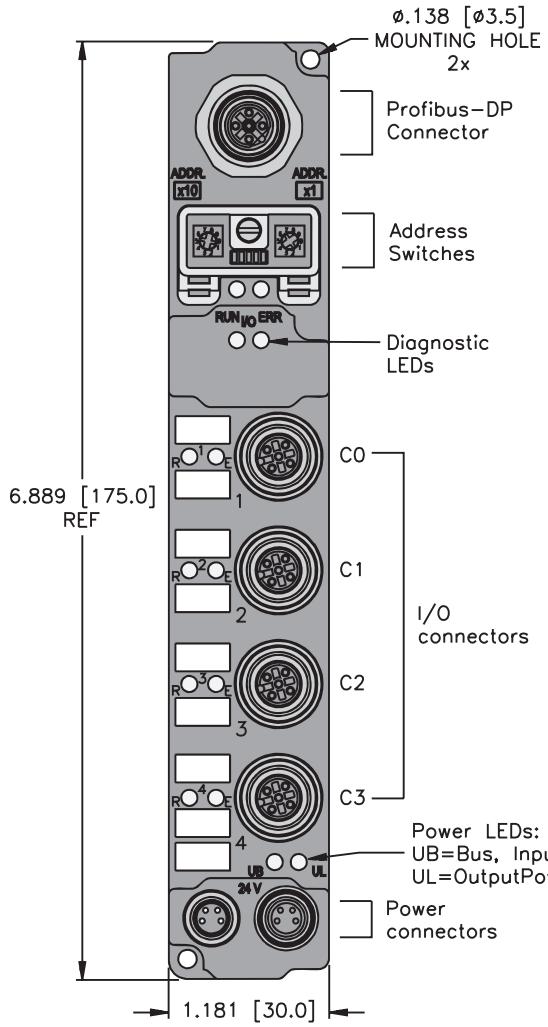
Electrical
- Operating Current: <75 mA (from U_B)

Power Distribution
- Outputs: U_L Power supply

Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

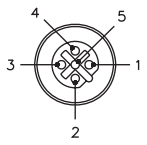
Material
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Profibus-DP communication



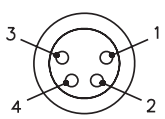
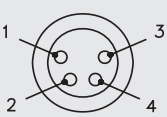
Proximus-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Male

5-Pin

Aux. Power

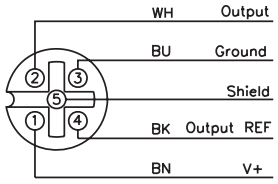
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

picofast Male	*picofast* Female
	
4-Pin	**4-Pin**

Part Number	Outputs: Output Count	Outputs: Connectors	Outputs: Pinout	Outputs: Output Style	Outputs: Outputs per Connector	Outputs: Individual Diagnostics	Outputs: Wire-Break Detection	Data: I/O Map
SDPB-04A-0009	4	0-3	AOI	0 to 20 mA	1			1
SDPB-04A-0007	4	0-3	AOV	-10/0 to 10 V	1			1

Output Connectors

AOV

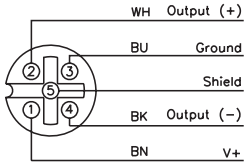


Mating cordset:
RK 4.5T-*-RS 4.5T

Applications:
TURCK Sensors:
LU; RK 4.4T-*-RS 4.4T/S1118

LI; RK 4.4T-*-*RS 4.4T/S1120

AOI



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	Channel 0, MSB							
	1	Channel 0, LSB							
	2	Channel 1, MSB							
	3	Channel 1, LSB							
	4	Channel 2, MSB							
	5	Channel 2, LSB							
	6	Channel 3, MSB							
	7	Channel 3, LSB							

Counter Station

SDPB-0202D-0003

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus device currents (from U_B)
- Input Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

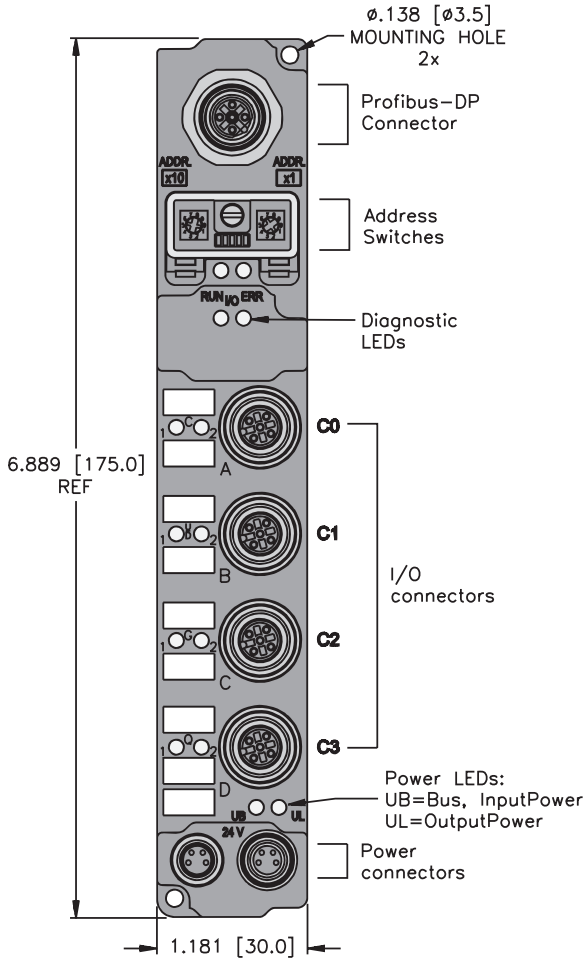
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

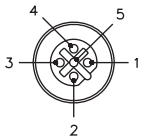
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

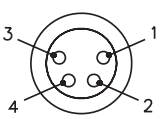
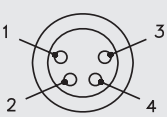
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



PROFIBUS-DP Pinout

eurofast Female	
1 = 5 VDC 2 = BUS_A 3 = Gnd 4 = BUS_B 5 = Shield	
5-Pin	

Aux. Power

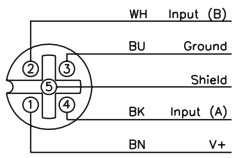
	picofast Male	*picofast* Female
1 = U_B+ 2 = U_L+ 3 = Gnd 4 = Gnd		
	4-Pin	4-Pin

Inputs									Outputs								Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0202D-0003	2	0-3	PCNT	2	Counter				2	0-3	PCNT	2	0.5 A			1

Input/Output Connectors

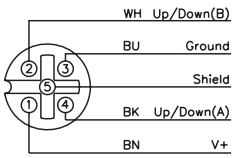
PCNT

C_0



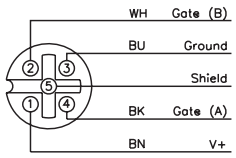
Mating cordset:
RK 4.5T-*-RS 4.5T

C_1



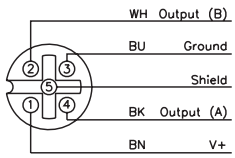
Mating cordset:
RK 4.5T-*-RS 4.5T

C_2



Mating cordset:
RK 4.5T-*-RS 4.5T

C_3



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0 - Status							
	1	Channel 0, Byte 3 (MSB)							
	2	Channel 0, Byte 2							
	3	Channel 0, Byte 1							
	4	Channel 0, Byte 0 (LSB)							
	5	Channel 1 - Status							
	6	Channel 1, Byte 3 (MSB)							
	7	Channel 1, Byte 2							
	8	Channel 1, Byte 1							
	9	Channel 1, Byte 0 (LSB)							
Out	0	Channel 0 - Control							
	1	Channel 1 - Control							

Incremental Encoder Station

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

SDPB-10S-0001

Electrical

- Operating Current: <75 mA plus device currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

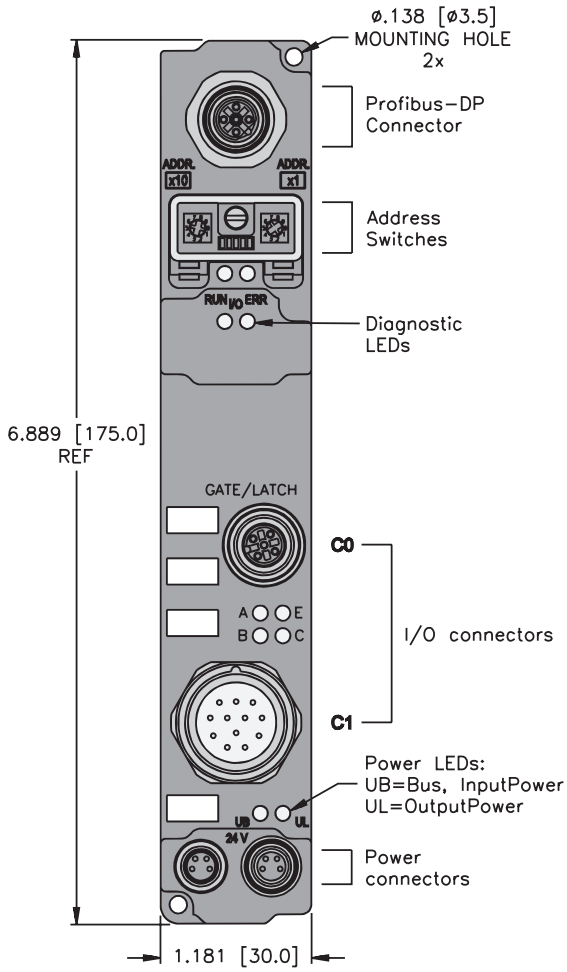
- Operating Temperature: 0 to +55°C
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

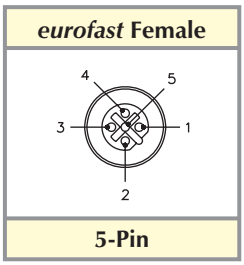
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



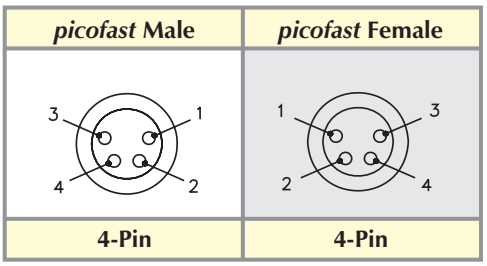
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield



Aux. Power

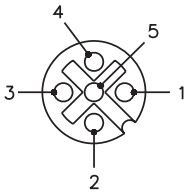
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd



	Inputs								Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0001	1	0-1	ENC	1	Encoder				1

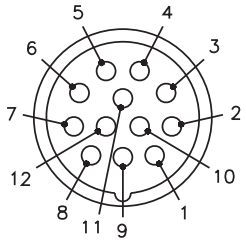
Input/Output Connectors

ENC



C_0

1 = V+
2 = Gate
3 = Gnd
4 = Latch
5 = Shield



C_1

1 = $\overline{B}$
2 = +5VDC
3 = Zero
4 = $\overline{Zero}$
5 = A
6 = $\overline{A}$
7 = $\overline{Status}$
8 = B
9 = NC
10 = Gnd
11 = Gnd
12 = V+

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Counter - Status							
	1	Count Value - High (MSB)							
	2	Count Value - Low (LSB)							

Serial Interface Stations

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

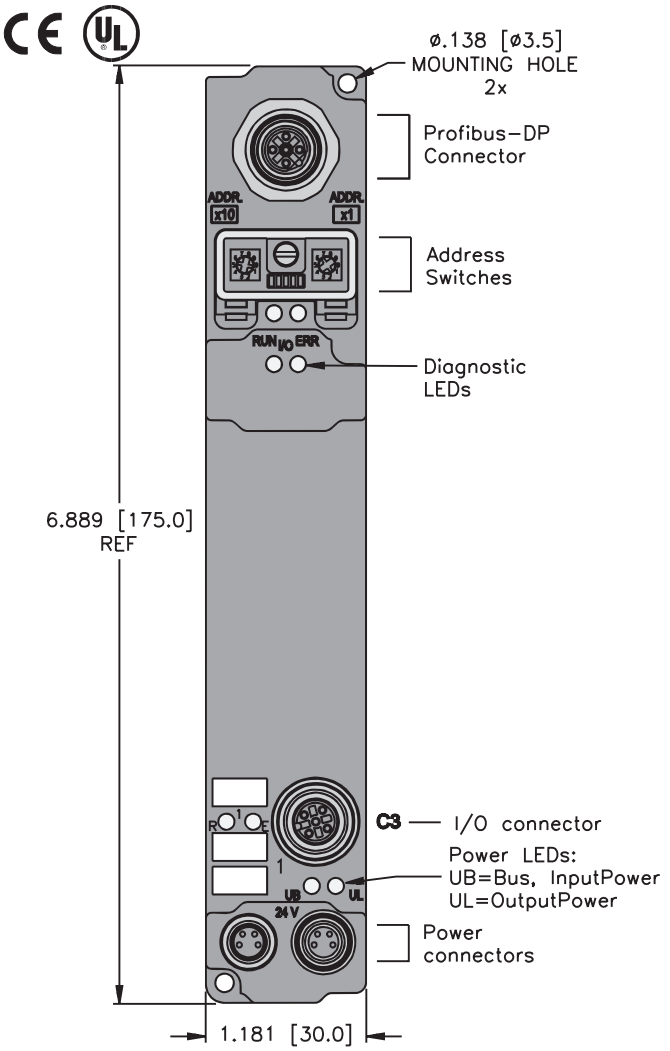
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

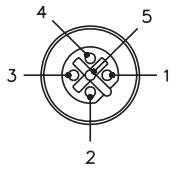
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

SDPB-10S-0002
SDPB-10S-0004



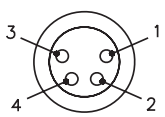
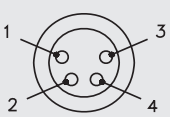
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Female

5-Pin

Aux. Power

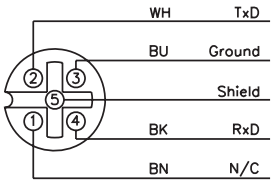
1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

picofast® Male	*picofast*® Female
	
4-Pin	4-Pin

	I/O								Data
Part Number	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0002	0	3	232	1	RS232	3 to 5			1
SDPB-10S-0004	0	3	485	1	RS485/422	3 to 5			1

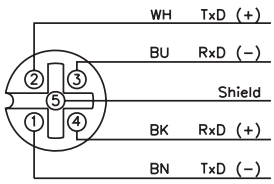
Input/Output Connectors

232



Mating cordset:
RK 4.5T-*-RS 4.5T

485



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data Byte 0							
	1	Status							
	2	Data Byte 2							
	3	Data Byte 1							
Out	0	Data Byte 0							
	1	Control							
	2	Data Byte 2							
	3	Data Byte 1							

Note: Default configuration shown. Up to five bytes can be transferred.

SSI Station

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

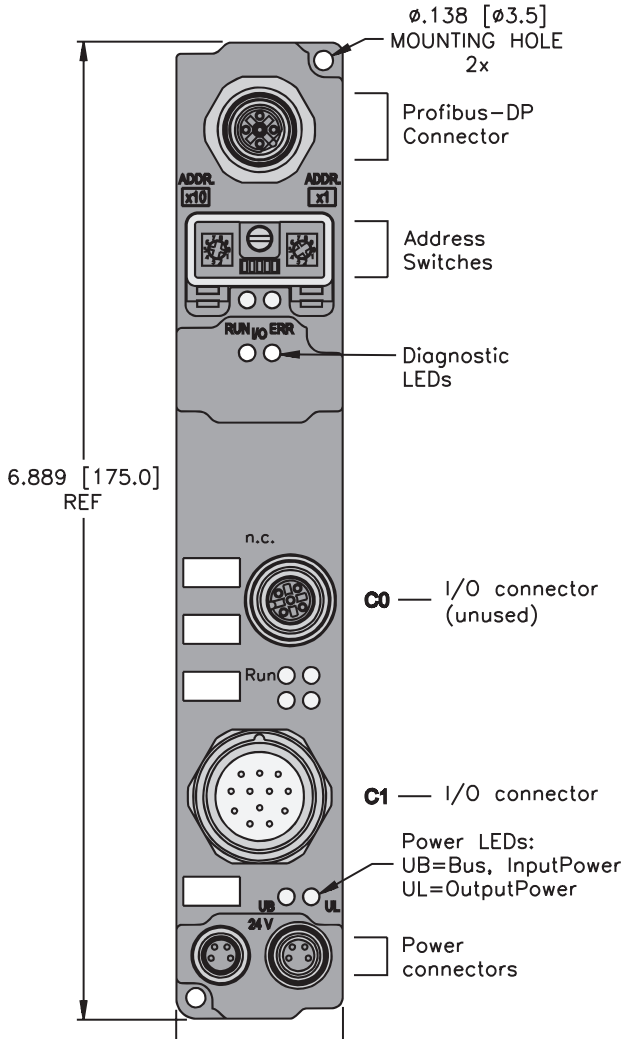
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

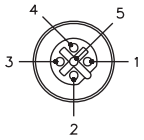
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

SDPB-10S-0005



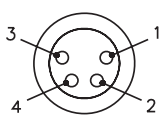
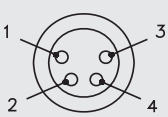
PROFIBUS-DP Pinout

1 = 5 VDC
2 = BUS_A
3 = Gnd
4 = BUS_B
5 = Shield

eurofast Female

5-Pin

Aux. Power

1 = U_B+
2 = U_L+
3 = Gnd
4 = Gnd

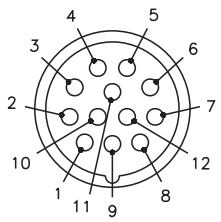
picofast Male	*picofast* Female
	
4-Pin	**4-Pin**

	Inputs								Data
Part Number	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0005	1	0	SSI	1	SSI	4			1

Input/Output Connectors

1 = Clock-
2 = Clock+
3 = Data+
4 = Data-
5 = NC
6 = NC
7 = NC
8 = NC
9 = NC
10 = NC
11 = V+
12 = Ground

SSI



Mating cordset:
CKM 12-12-*/S817

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data Byte 1							
	1	Data Byte 0 (LSB)							
	2	Data Byte 3 (MSB)							
	2	Data Byte 2							

Piconet Gateways

- **Rugged, Fully Potted Stations**
- **IP 67 Protection**
- **Small Footprint**
- **Automatic Baud Rate Sensing**

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

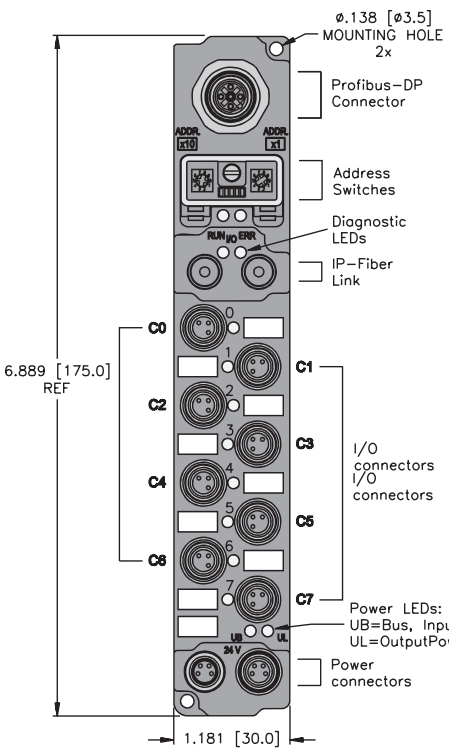
Material

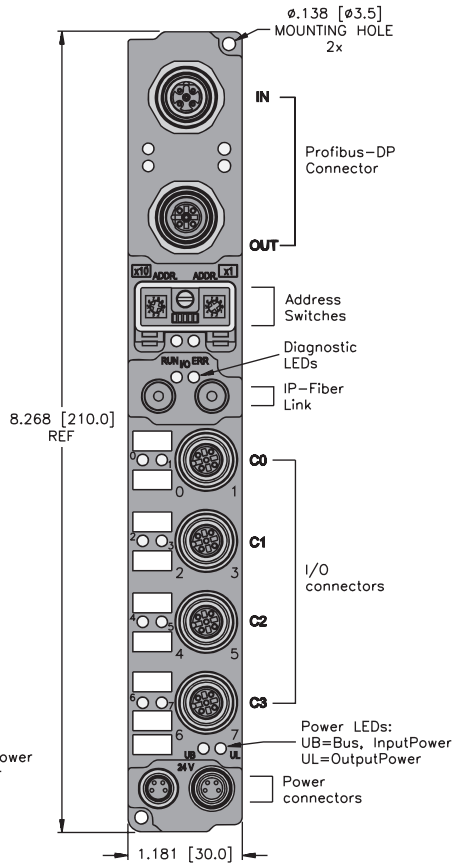
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

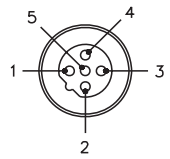
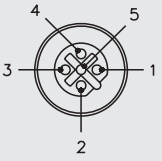
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

SDPL-0404D-0003
SDPL-0404D-0004
SDPL-0404D-1003
SDPL-0404D-1004





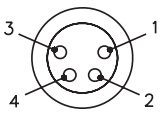
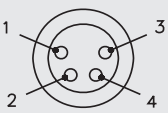
PROFIBUS *eurofast*® Pinouts

Male	Female
	
5-Pin	**5-Pin**

1 = 5 VDC 4 = BUS_B
2 = BUS_A 5 = Shield
3 = Gnd

...1003 and ...1004 have both male and female PROFIBUS-DP connectors

Aux. Power

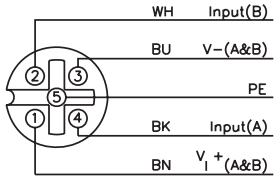
picofast® Male	*picofast*® Female
	
4-Pin	**4-Pin**

1 = U_B+ 3 = Gnd
2 = U_L+ 4 = Gnd

Part Number	Inputs								Outputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map	
SDPL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1	
SDPL-0404D-0004	4	0-3	2S	2	PNP				4	2-3	2G	2	0.5 A			1	
SDPL-0404D-1003	4	0-3	PI	1	PNP				4	4-7	PO	2	0.5 A			1	
SDPL-0404D-1004	4	0-3	2S	1	PNP				4	2-3	2G	2	0.5 A			1	

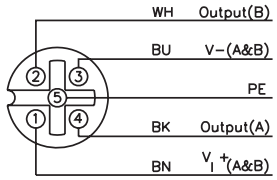
Input/Output Connectors

2S



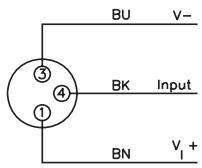
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

2G



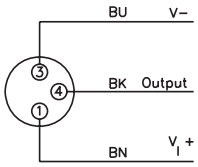
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

PI



Mating cordset:
PSG 3M-*

PO



Mating cordset:
PSG 3M-*

I/O Data Map 1

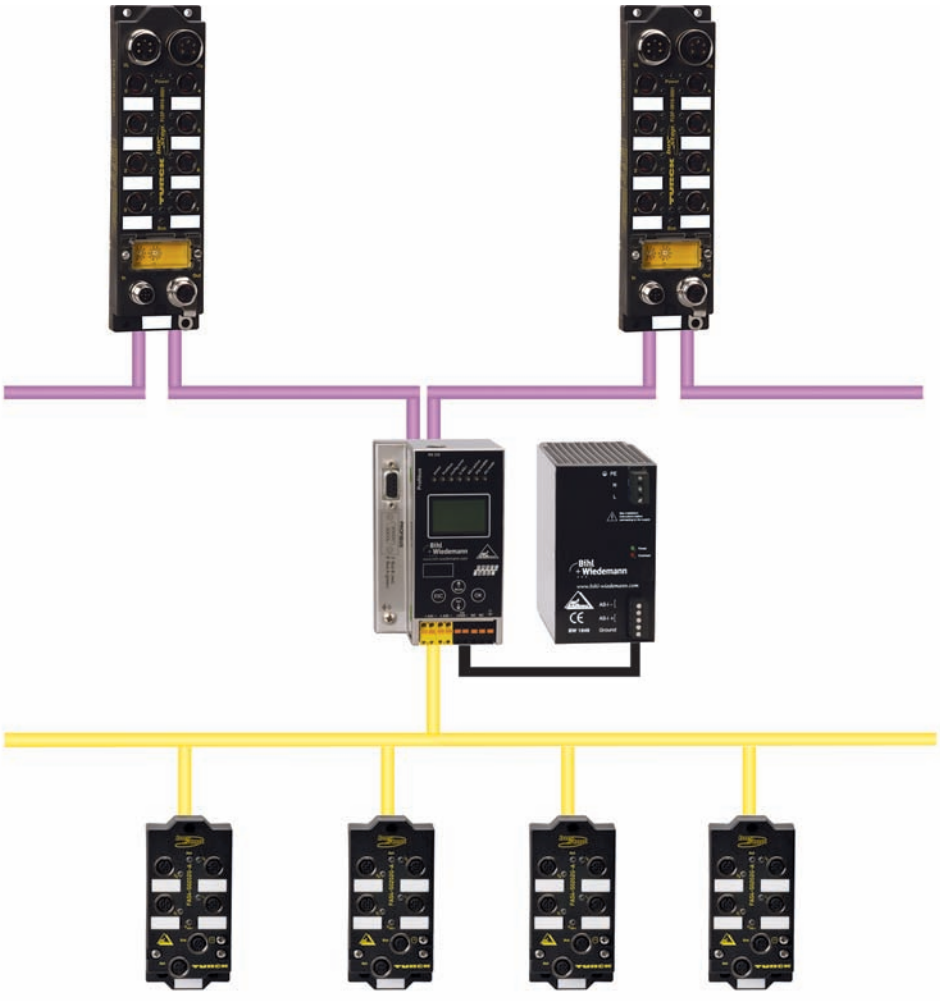
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				O-3	O-2	O-1	O-0

PROFIBUS-DP to AS-interface Gateways

AS-I systems can be easily connected to a higher-level network, like PROFIBUS, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the PROFIBUS system, mapping all of the AS-I data for PROFIBUS in a single block.

For AS-I specifications and rating details see section E of this catalog.

PROFIBUS-DP System
(Gateway is the Slave)



AS-I System
(Gateway is the Master)

Addressing

PROFIBUS ® stations must have a network address for communication. The address for AS-I/ PROFIBUS gateways may be set via the on-unit display and push buttons. Please consult the manual for a particular gateway for instruction on the procedure.

Diagnostics

AS-I/ PROFIBUS gateways contain LEDs for diagnosing I/O and communication problems for AS-I and PROFIBUS. For a detailed description of the LED states please see the Bihl+Wiedemann AS-I/ PROFIBUS Gateway User Manual available for download from www.bihl-wiedemann.com.

Power

Most AS-I/ PROFIBUS gateways draw power from the AS-I power supply. The option to use a separate, non-AS-I power supply is also available. Consult the gateway documentation to ensure that the gateway being selected meets the requirements of your system.

AS-I Profibus-DP Gateways in Stainless Steel

ASI-DPG-SS BW1567*
ASI-DPG-SS BW1568*
ASI-DPG-SS BW1569*
ASI-DPG-SS-SE BW1773*
ASI-DPG-SS-SE BW1774*
ASI-DPG-SS-C1D2 BW1653
ASI-DPG-SS-C1D2 BW1654
ASI-DPG-SS-C1D2 BW1655

* Not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
  200 mA from V_{AS-i1}, 70mA from V_{AS-i2} (Power Supply A2)
  250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

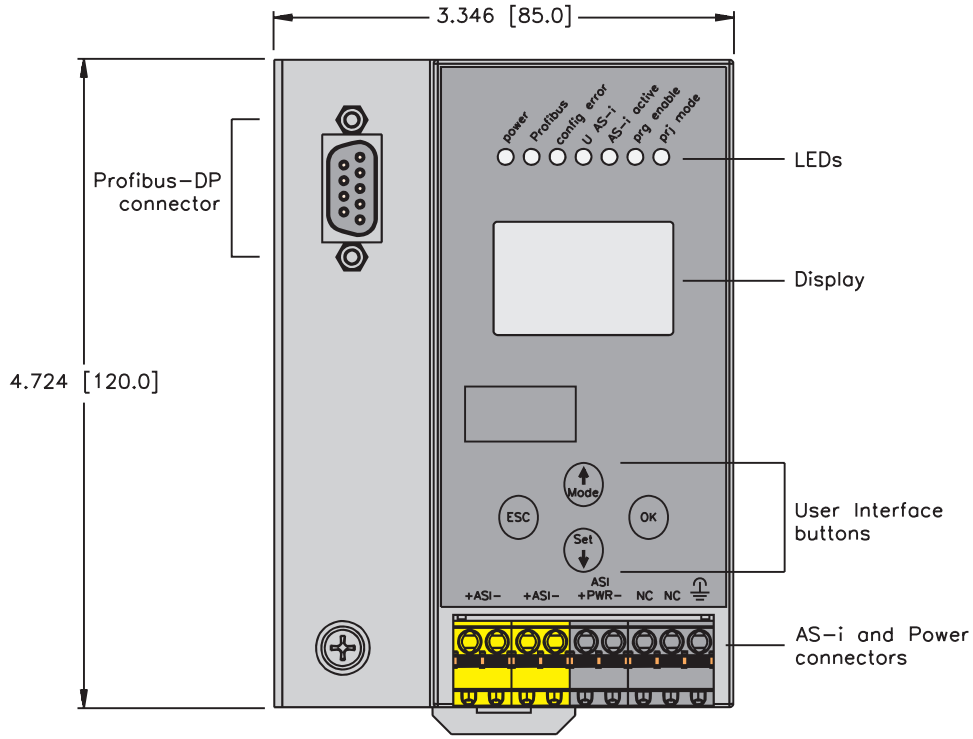
- Housing: Stainless Steel

Diagnostics (Logical)

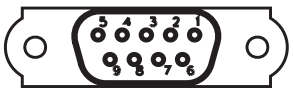
- Health of AS-I network is available via Proximus-DP interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



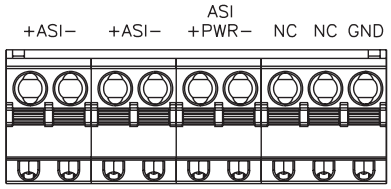
PROFIBUS-DP Connector



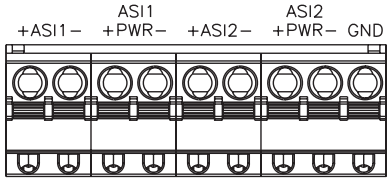
1 = Shield
3 = BUS_B
5 = DGnd
6 = +5 VDC
8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG-SS BW1567	PROFIBUS-DP	A	2.1	1	X	X
ASI-DPG-SS BW1568	PROFIBUS-DP	A2	2.1	2	X	X
ASI-DPG-SS BW1569	PROFIBUS-DP	E	2.1	2	X	X
ASI-DPG-SS-SE BW1773	PROFIBUS-DP	A	2.1	1		
ASI-DPG-SS-SE BW1774	PROFIBUS-DP	A2	2.1	2		
ASI-DPG-SS-C1D2 BW1653	PROFIBUS-DP	A	3.0	1		
ASI-DPG-SS-C1D2 BW1654	PROFIBUS-DP	A2	3.0	2		
ASI-DPG-SS-C1D2 BW1655	PROFIBUS-DP	E	3.0	2		

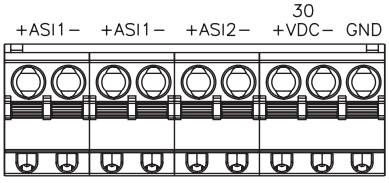
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

AS-I PROFIBUS-D Economy Gateways

- **AS-I v3.0 Supported**
- **LED Display**
- **PROFIBUS-DP Support**
- **Integrated AS-I Diagnostics**

Electrical
- Operating Current: <300 mA from AS-I

Power Distribution
- From AS-I supply

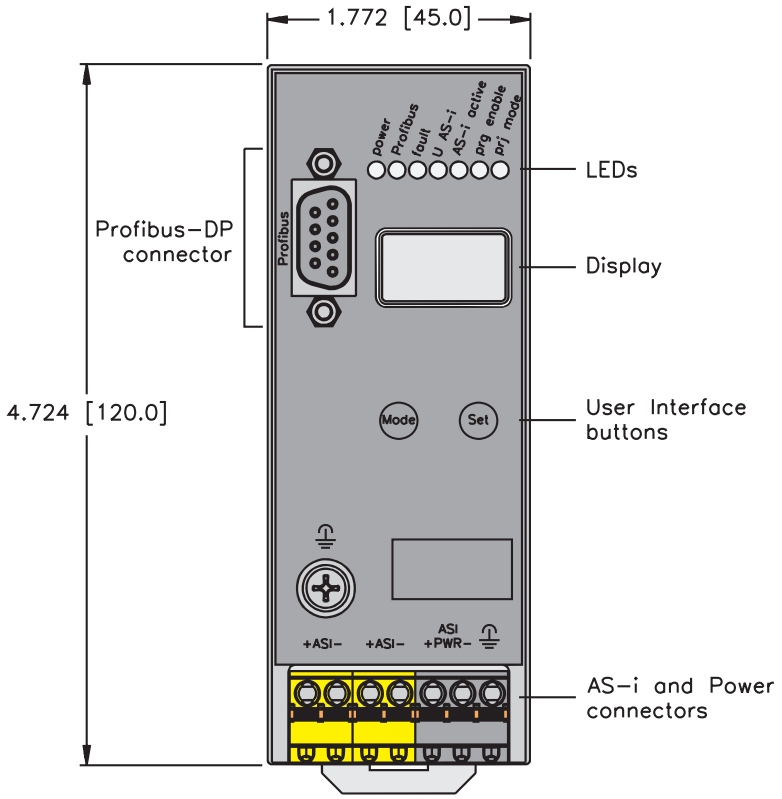
Mechanical
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material
- Housing: Stainless Steel

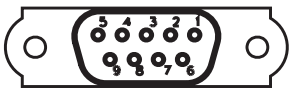
Diagnostics (Logical)
- AS-I diagnostic data is available via Network interface

Diagnostics (Physical)
- LEDs to indicate status of network and AS-I communication and power supply

ASI-DPG-SS-B BW1746



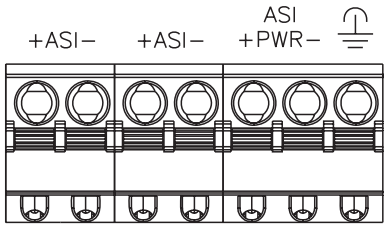
PROFIBUS-DP Connector



1 = Shield
3 = BUS_B
5 = DGnd
6 = +5 VDC
8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DPB-SS BW1746	PROFIBUS-DP	A	2.1	A	1

A



AS-I PROFIBUS-DP Gateways

ASI-DPG BW1253
ASI-DPG BW1371

CE

- **AS-I v2.1 Supported**
- **2-Digit Display**
- **IP 65 Protection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I}

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

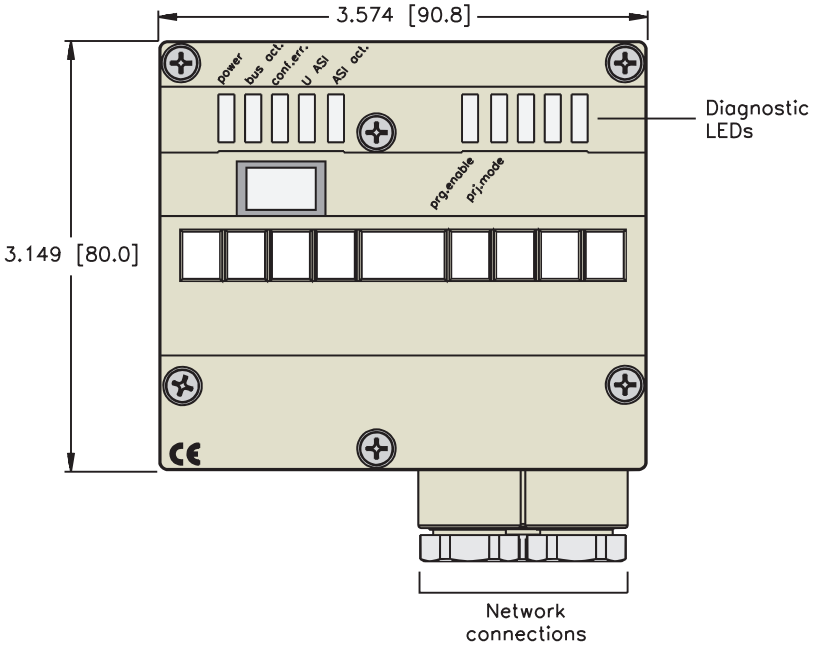
- Housing: Plastic

Diagnostics (Logical)

- Health of AS-I network is available via Network interface

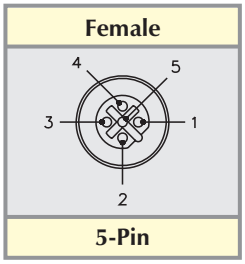
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

PROFIBUS *eurofast*® Pinouts

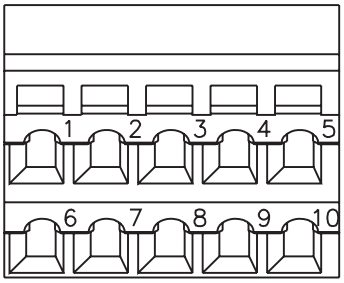


BW1371 only

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG BW1253	PROFIBUS-DP	A	2.1	1	1		
ASI-DPG BW1371	PROFIBUS-DP	A	2.1	1	1		

A - Single AS-I network is powered by and AS-I power supply

1



1	BUS_A
2	BUS_B
3	BUS_A
4	BUS_B
5	0V
6	Shield
7	FG (Function Gnd)
8	FG (Function Gnd)
9	Shield
10	+5V

Note: AS-I connections are made via standard AS-I base modules ASI-BM BW1180 or ASI-BM BW1182 (see p. E103-104)

BL67 Gateway

- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 67 Protection**
- **Various I/O Styles**

BL67-GW-DP

CE

Electrical

- Operating Current: <50 mA from V_I
- Supply Current: <10 A to I/O (from V_I and V_O)
- Backplane Current: <1.5 A (from V_I)

Mechanical

- Operating Temperature: -25 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

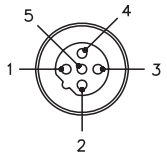
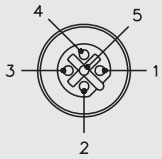
- Diagnostic information available through the PROFIBUS-DP interface

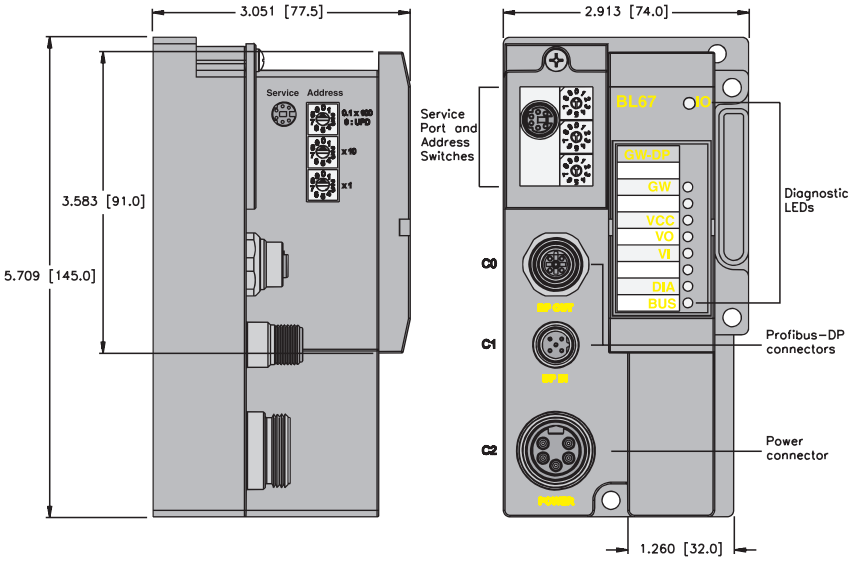
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

PROFIBUS *eurofast*® Pinouts

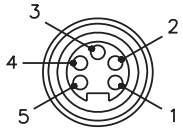
1 = 5 VDC*
2 = BUS _A
3 = Gnd
4 = BUS_B
5 = Shield
* Female connector only

Male	Female
	
5-Pin	5-Pin



***minifast*® Power Pinouts**

1 = Gnd
2 = Gnd
3 = PE
4 = V_I
5 = V_O

Male

5-Pin

Note: Power feeding modules may be used for I/O current supply to prevent overloading the gateway power supply.

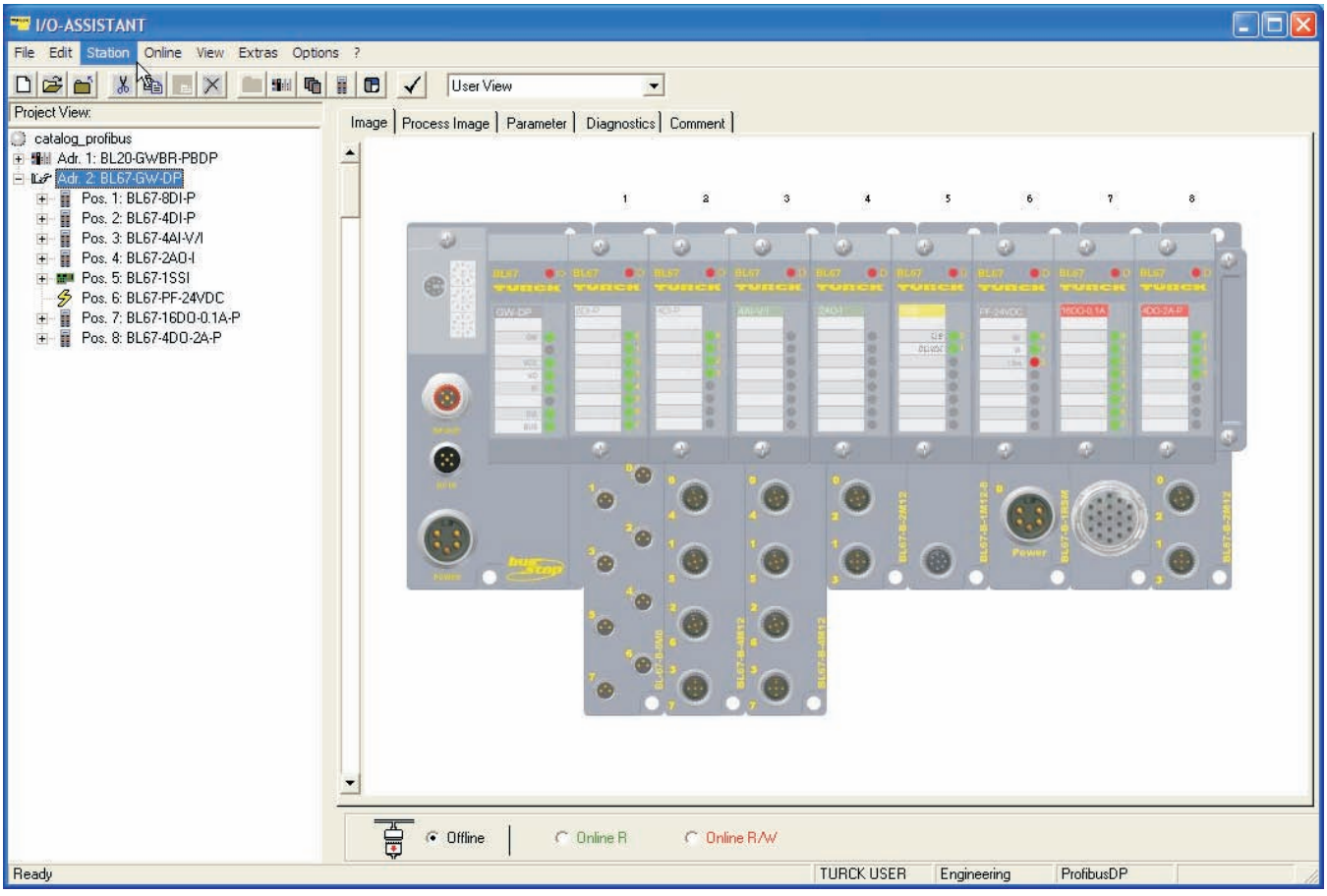
PROFIBUS ®-DP BL67 Stations

TURCK's BL67 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 67 protection and metal threaded connectors, the BL67 can often be mounted in the physical process environment or directly on a machine without a separate enclosure for the I/O. This saves planning and installation time, as well as the cost of the enclosure itself.

The BL67 system supports several different network protocols, including PROFIBUS-DP. A BL67 station consists of a gateway module that interfaces to the PROFIBUS system, and several I/O modules that interface with the physical I/O in the field. Different connector options are available to allow a greater level of customization to the user.

For more details on the BL67 system, please see section G of this catalog.

TURCK's I/O Assistant software package is used to configure the BL67 system.



BL20 Gateway

BL20-GWBR-PBDP

- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 20 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: <430 mA from BR power supply (U_{SYS})
- Supply Current: <10 A to I/O (from U_L)
  <1.5 A to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5...100 Hz

Material

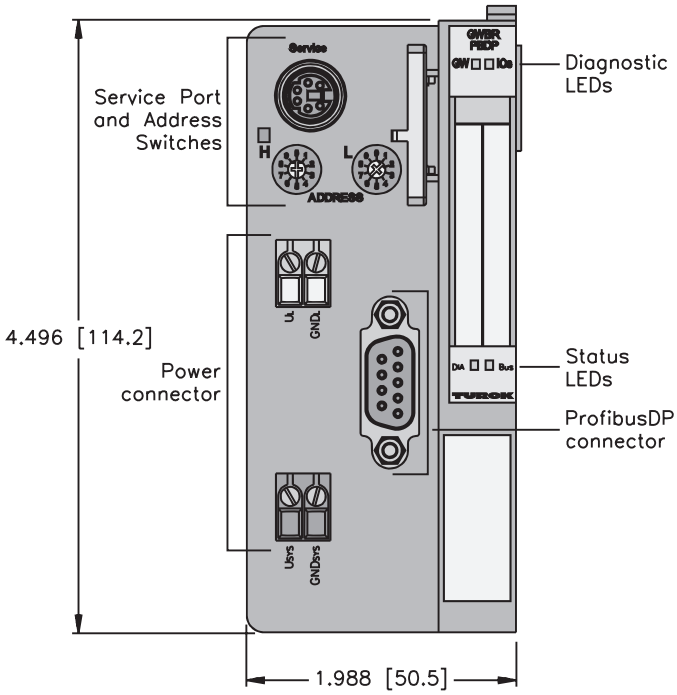
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

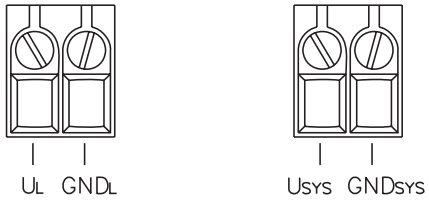
- Diagnostic information available through the PROFIBUS-DP interface

Diagnostics (Physical)

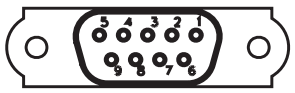
- LEDs to indicate status of PROFIBUS-DP and Module Bus communication



Power Connectors



PROFIBUS-DP Connector



1 = Shield
3 = BUS_B
5 = Gnd
6 = +VDC
8 = BUS_A

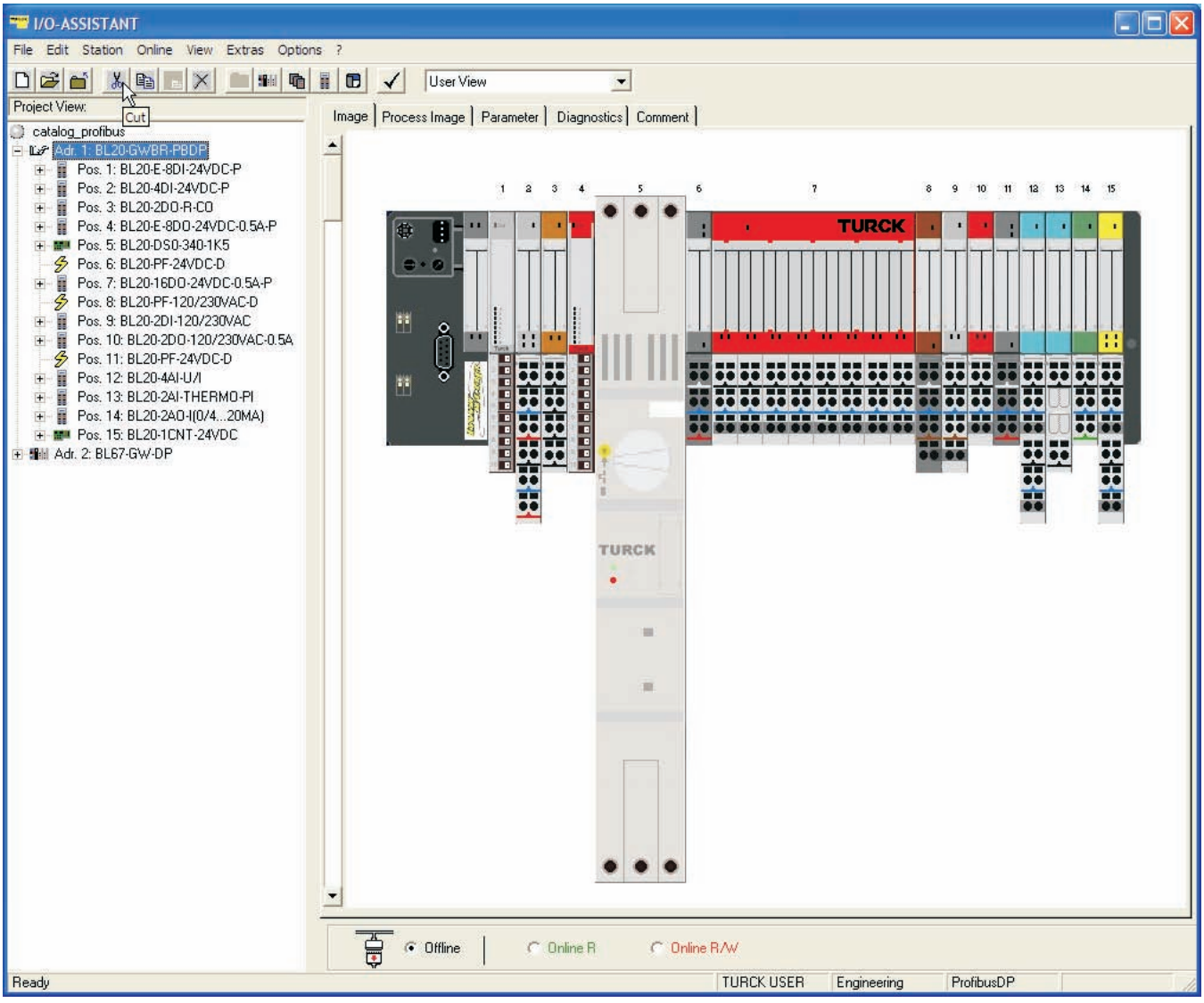
PROFIBUS ®-DP BL20 Stations

TURCK's BL20 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 20 protection and terminal point connections, the BL20 is intended to be mounted in the control cabinet or in a field enclosure.

The BL20 system supports several different network protocols, including PROFIBUS-DP. A BL20 station consists of a gateway module that interfaces to the PROFIBUS system, and several I/O modules that interface with the physical I/O in the field. The terminal bases are available with tension clamp or screw terminal connector types.

For more details on the BL20 system, please see section H of this catalog.

TURCK's I/O Assistant software package is used to configure the BL20 system.



PROFIBUS®-DP Media

PROFIBUS®-DP, Selection Guide

Cables
L4 - L10

Terminating Resistors
L12

Feed Through Connectors
L13

Bus Tees
L14

Field Wireable Connectors
L11, L15

Receptacles
L16

Wall Plate Adapters
L20

PROFIBUS®-PA Media
L19

Notes:

PROFIBUS®-DP, Cable Specifications

- **Cable that Meets the Requirements of EN50170-2-2:1996 for Communications Up to 12 Mbaud**

Figure B

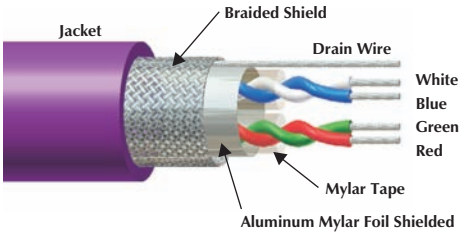


Figure A

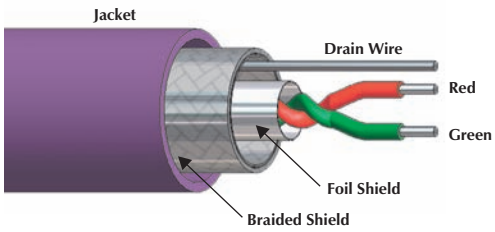
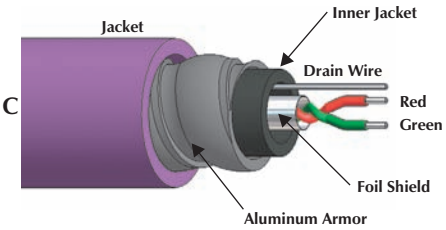


Figure C



Baud Rate (k baud)	9.6	19.2	93.75	187.5	500	1500	1200
Maximum Trunk Length	1200 meters	1200 meters	1200 meters	1000 meters	400 meters	200 meters	100 meters

Type	Approvals	Data Pair		2nd Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire		
455 AWM 2464 75°C 300 Volts	**NEC** PLTC **CEC** AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 8.5 mm (.335 in)	Foil/Braid 22 AWG	RB50672-*M 62 lbs.	**A**
456 AWM 20233 80°C 300 Volts	**NEC** AWM **CEC** AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 7.9 mm (.310 in)	Foil/Braid 22 AWG	RB50683-*M 48 lbs.	A
457 75°C 300 Volts	**NEC** CMX	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 8.0 mm (0.315 in)	Foil/Braid No Drain	RB50708-*M 51 lbs.	**A**
458 AWM 20233 80°C 300 Volts	**NEC** AWM **CEC** AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	TPU Plum 8.5 mm (0.335 in)	Foil/Braid 22 AWG	RB50692-*M 58 lbs. ***flexlife-10*** ® †	**A**
4511 AWM 2464 75°C 300 Volts	**NEC** PLTC **CEC** AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 8.5 mm (.319 in)	Foil/Braid 22 AWG	RB50881-*M 64 lbs. ***flexlife-10*** †	**A**
4510A 75°C 300 Volts	**NEC** PLTC **CEC** CM-CMG HL ABCD	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	Aluminum Armor/PVC 15.4 mm (.605 in)	Foil/Braid 22 AWG	RB50875-*M 112 lbs. ***armorfast*** ®	**C**
4515 80°C 300 Volts		2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 7.5 mm (0.295 in)	Foil/Braid 22 AWG	RB51225-*M 42 lbs. **Halogen-Free**††	**A**
4516 105° 300 Volt	NEC PLTC/ISO Open Wiring **CEC** CMG	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 11.1 mm (.435 in)	Foil/Braid 22 AWG	RB51259-*M 93 lbs.	**A**
590 AWM 2464 75°C 300 Volts	**NEC** PLTC **CEC** AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	2/22 AWG BU/WH	16.5 Ohms PE	PVC Purple 9.6 mm (.380 in)	Foil/Braid 22 AWG	RB51057-*M 75 lbs.	**B**

* Indicates length in meters.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
† See page A6 for ***flexlife*** performance.
†† Zero Halogen: to DIN VDE 0472 part 815 + IEC 60754-1

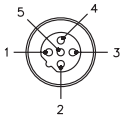
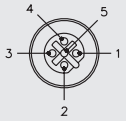
PROFIBUS®-DP, (M12x1) *eurofast* ®Cable and Cordset Selection Matrix

			eurofast			
			Pin (Male)		Socket (Female)	
			1 RSSW	3 WSSW	2 RKSW	4 WKSW
		Bare	RSSW 45x-*M	WSSW 45x-*M	RKSW 45x-*M	WKSW 45x-*M
eurofast	Pin (Male)	1 RSSW	RSSW RSSW 45x-*M	RSSW WSSW 45x-*M	RSSW RKSW 45x-*M	RSSW WKSW 45x-*M
		3 WSSW		WSSW WSSW 45x-*M	WSSW RKSW 45x-*M	WSSW WKSW 45x-*M
	Socket (Female)	2 RKSW			RKSW RKSW 45x-*M	RKSW WKSW 45x-*M
		4 WKSW				WKSW WKSW 45x-*M

See page L6 for dimensional drawings.

* Indicates length in meters.
x Indicates cable type.
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSSW...RSSWV.
Change 45 to 59 for 59x series cordsets.

Pinouts

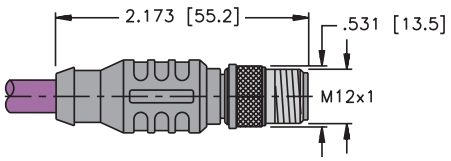
eurofast	45 series pinout	59 series pinout	*eurofast*
Male 	1. N/C 2. Green (TxD) 3. N/C 4. Red (RxD) 5. Bare (Shield Drain Wire)	1. Blue (TxD_1) 2. Green (TxD) 3. White (RxD_1) 4. Red (RxD) 5. Bare (Shield Drain Wire)	**Female** 

PROFIBUS®-DP, (M12x1) *eurofast*® Cable and Cordsets

Specifications

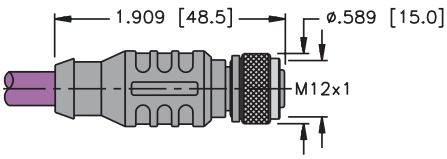
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

1



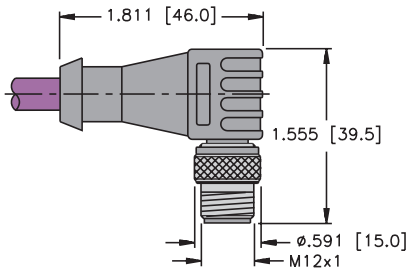
RSSW .. **Page L5, L7, L8**

2



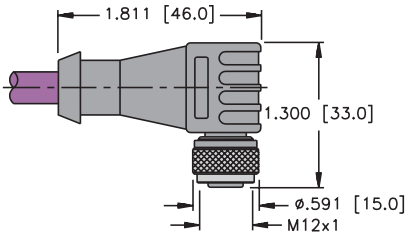
RKSW .. **Page L5, L7, L8**

3

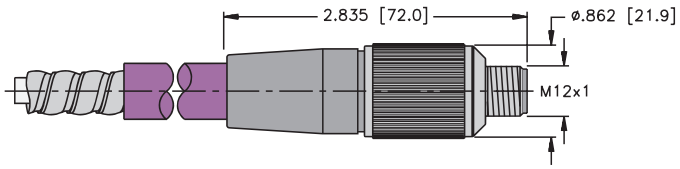


WSSW .. **Page L5, L7, L8**

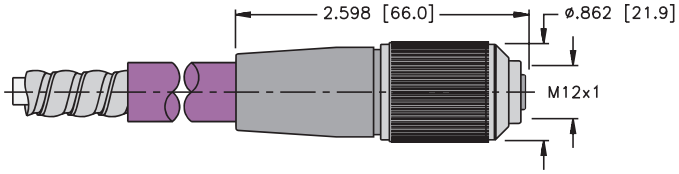
4



WKSW .. **Page L5, L7, L8**



RSAW .. (***armorfast*** **only)**



RKAW .. (***armorfast*** **only)**

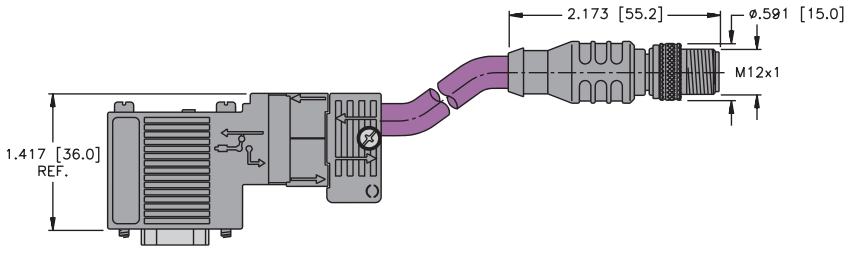
PROFIBUS®-DP, (M12x1) *eurofast*® Cable and Cordset Selection Matrix

			eurofast						
				Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)
			Bare	1 RSSW	3 WSSW	2 RKSW	4 WKSW	10 FSSDWE	11 FKSDWE
9-Pin Sub D Connector	Terminator	7 D9S/T	D9S/T 45x-*M	RSSW D9S/T 45x-*M	WSSW D9S/T 45x-*M	RKSW D9S/T 45x-*M	WKSW D9S/T 45x-*M	FSSDWE D9S/T 45x-*M	FKSDWE D9S/T 45x-*M
	Master	8 D9SM/T	D9SM/T 45x-*M	RSSW D9SM/T 45x-*M	WSSW D9SM/T 45x-*M	RKSW D9SM/T 45x-*M	WKSW D9SM/T 45x-*M	FSSDWE D9SM/T 45x-*M	FKSDWE D9SM/T 45x-*M

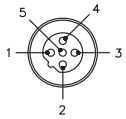
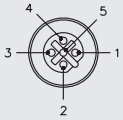
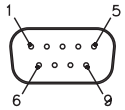
See page L6 - L10 for dimensional drawings.

* Indicates length in meters.
x Indicates cable type.
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSSW...RSSW.

Extension example:



Pinouts

eurofast	45 series pinout	*eurofast*	D9	D9 pinout
Male 	1. N/C 2. Green (TxD) 3. N/C 4. Red (RxD) 5. Bare (Shield Drain Wire)	Female 	Male 	1 = N/C 2 = N/C 3 = RD (RXD) 4 = N/C 5 = N/C 6 = N/C 7 = N/C 8 = GN (TXD) 9 = N/C

PROFIBUS®-DP, (M12x1) *eurofast*® Cable and Cordset Selection Matrix

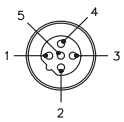
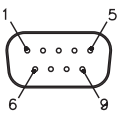
			eurofast						
				Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)
			Bare	1 RSSW	3 WSSW	2 RKSW	4 WKSW	10 FSSDWE	11 FKSDWE
	Node	7 D9S	D9S 45x-*M	RSSW D9S RSSW 45x-*M-*M	WSSW D9S WSSW 45x-*M-*M	RKSW D9S RKSW 45x-*M-*M	WKSW D9S WKSW 45x-*M-*M	FSSDWE D9S FSSDWE 45x-*M-*M	FKSDWE D9S FKSDWE 45x-*M-*M
	Straight	9 SD9S	SD9S 45x-*M	RSSW SD9S RSSW 45x-*M-*M	WSSW SD9S WSSW 45x-*M-*M	RKSW SD9S RKSW 45x-*M-*M	WKSW SD9S WKSW 45x-*M-*M	FSSDWE SD9S FSSDWE 45x-*M-*M	FKSDWE SD9S FKSDWE 45x-*M-*M

			eurofast			
				Pin (Male)		Socket (Female)
			Bare	1 2 RSSW/RKSW	3 4 WSSW/WKSW	10 11 RSSW/RKSW
	Node	7 D9S	D9S 45x-*M	RSSW D9S RKSW 45x-*M-*M	WSSW D9S WKSW 45x-*M-*M	FSSDWE D9S FKSDWE 45x-*M-*M
	Straight	9 SD9S	SD9S 45x-*M	RSSW SD9S RKSW 45x-*M-*M	WSSW SD9S WKSW 45x-*M-*M	FSSDWE SD9S FKSDWE 45x-*M-*M

See page L6 - L10 for dimensional drawings.

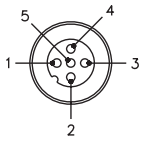
* Indicates length in meters.
x Indicates cable type.
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSSW...RSSW.

Pinouts

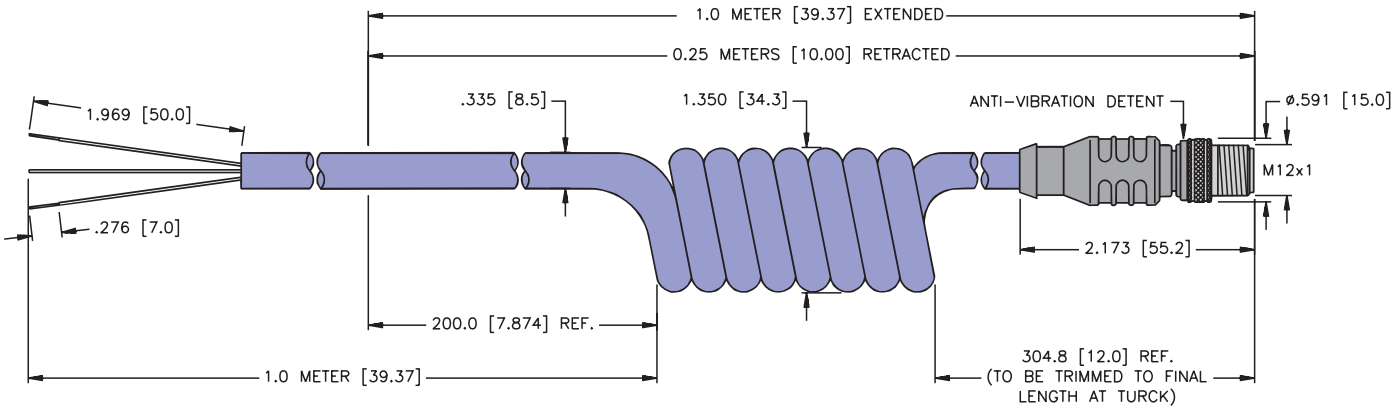
eurofast	45 series pinout	*eurofast*	D9	D9 pinout
Male 	1. N/C 2. Green (TxD) 3. N/C 4. Red (RxD) 5. Bare (Shield Drain Wire)	Female 	Male 	1 = N/C 2 = N/C 3 = RD (RXD) 4 = N/C 5 = N/C 6 = N/C 7 = N/C 8 = GN (TXD) 9 = N/C

PROFIBUS®-DP (M12x1), *eurofast* ® Retractile Cordsets

- **Single or Double Ended**
- **Available in 1, 2, 5 Meter Extended Lengths**

Part Number	Specs	Application	Pinouts	
RSSW 456SP-1M	PUR (Polyurethane) 250 V, 4 A -40° to +80°C	(M12x1) eurofast male connector 1 M extended length .25 M retracted length	1. NC 2. GN 3. NC 4. RD 5. Drain	
RSSW 456SP-2M		(M12x1) eurofast male connector 2 M extended length .5 M retracted length		
RSSW 456SP-5M		(M12x1) eurofast male connector 5 M extended length 1.12 M retracted length		

Single ended cordset part numbers shown. Also available in double ended (M12x1) eurofast connectors.



PROFIBUS®-DP, Field Wireable D9 Connectors

Specifications - (D9)

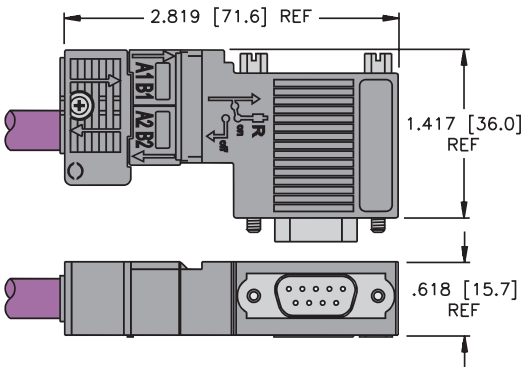
Housing:	TPU (Polyurethane)
Terminating Switch:	Yes
Protection:	IEC IP 20
Rated Voltage:	250 V
Rated Current:	5 A
Temperature Rating:	-25° to +60°C

*Max. Cable diameter: 8.5 mm

Specifications (FKSDWE .. FSFDWE)

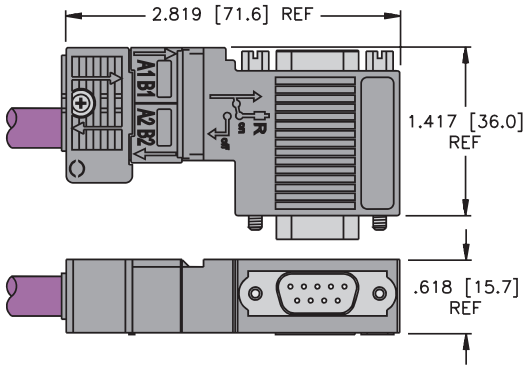
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Temperature Rating:	-40° to +75°C

7



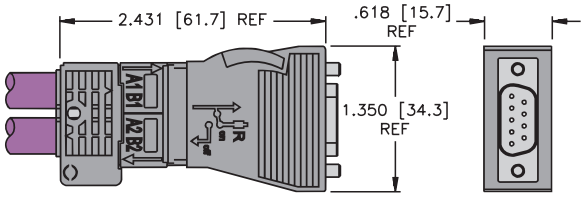
Connector, PDP, D9S **Page L7**

8



Connector, PDP, D9SM **Page L7**

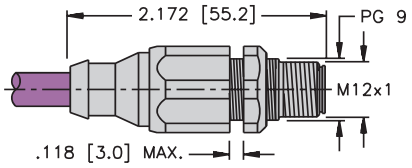
9



Connector, PDP, SD9S **Page L7**

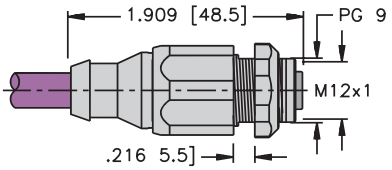
Note: Part numbers are for ordering connector only.
Cable must be ordered separately.

10



FSSDWE .. **Page L8**

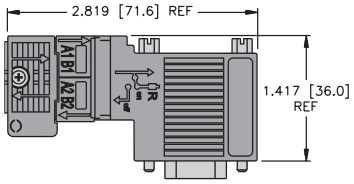
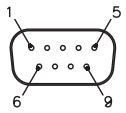
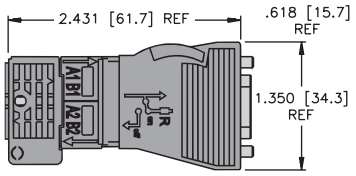
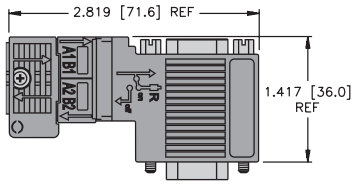
11



FKSDWE .. **Page L8**

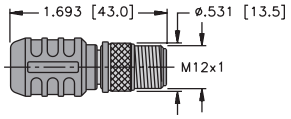
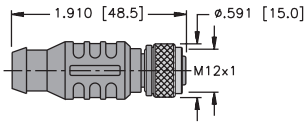
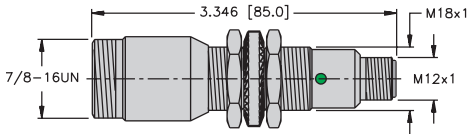
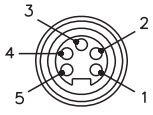
PROFIBUS®-DP, Field Wireable D9 Connectors

- **Provides Connection to Master or Node in the field**
- **Maximum Cable O.D. is 8.5 mm**

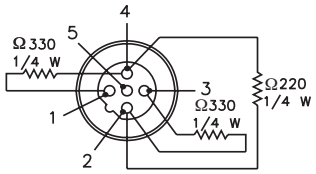
Housing	Part Number	Specs	Application	Pinouts	
	Connector,PDP,D9S	250 V, 5 A -25° to +80°C	*Right Angle, Terminating Switch*	1. N/C 2. N/C 3. RD (Bus_B) 4. N/C 5. N/C 6. N/C 7. N/C 8. Green (Bus_A) 9. N/C	**Male** 
	Connector,PDP,SD9S		*Straight, Terminating Switch*		
	Connector,PDP,D9SM	250 V, 4 A -25° to +80°C	*Right Angle, Master, Terminating Switch*		

PROFIBUS®-DP, Terminating Resistors

- **Terminating Resistors Stabilize and Minimize Reflections on the Bus Line**
- **A Terminating Resistor is Required at the Beginning and End of the Main Bus Line**

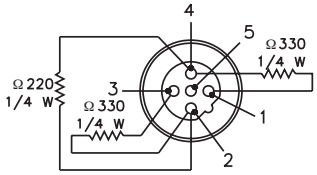
Housing	Part Number	Specs	Application	Pinouts	
	**RSSW 45-TR**	Nickel Plated Brass 250 V, 4 A -40° to +75°C	***eurofast*** ® Terminating Resistor • Internal resistor • Male ***eurofast*** connector • Reverse keyed	1. N/C 2. GN 3. N/C 4. RD 5. BARE	See Below
	**RKSW 45-TR**		***eurofast*** Terminating Resistor • Internal resistor • Female ***eurofast*** connector • Reverse keyed	1. N/C 2. GN 3. N/C 4. RD 5. BARE	See Below
	**PDP-TRA**		Active Terminating Resistor • External power supply ***minifast*** ® and ***eurofast*** connector • LED signal for power status	1. N/C 2. BUS_A 3. N/C 4. BUS_B 5. N/C	See Below
				1. N/C 2. GND 3. N/C 4. U_I=24 VDC 5. N/C	**Male** 

Pinout Diagram, RSSW 45-TR



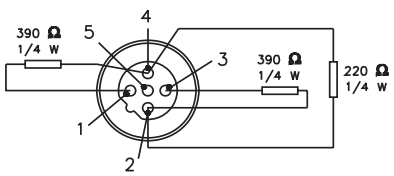
eurofast **Male Connector**

Pinout Diagram, RKSW 45-TR



eurofast **Female Connector**

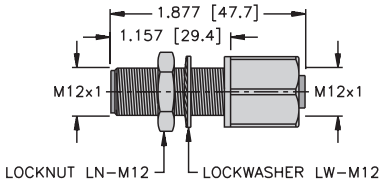
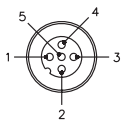
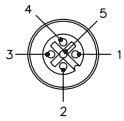
Pinout Diagram, PDP-TRA



eurofast **Male Connector**

PROFIBUS®-DP, *eurofast* ® Feed Through Receptacle

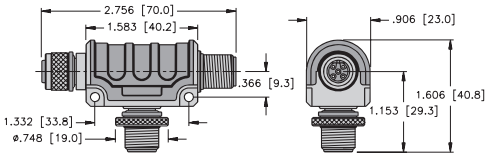
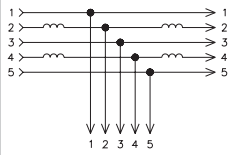
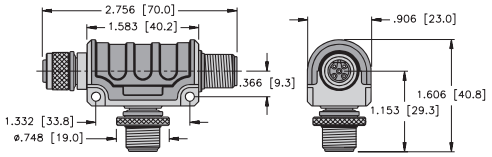
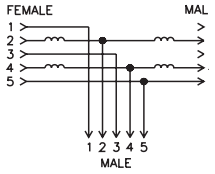
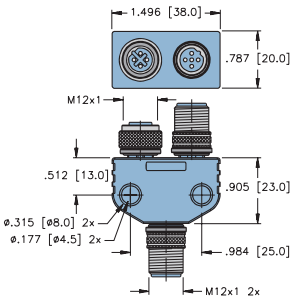
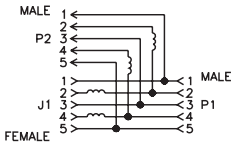
- **Provides Bulkhead Panel Mount Connection**

Housing	Part Number	Specs	Application	Pinouts
	**FKW FSW 45/M12**	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C	***eurofast*** Feed Through Connection • Straight male/female connector • For pre-molded reverse keyed ***eurofast*** cables	**Male**  **Female** 

For stainless steel change part number to FKWV FSWV 45/M12

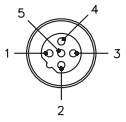
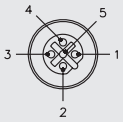
PROFIBUS®-DP, *eurofast*® Bus Tees

- **Creates a Branch from the Main Bus Line**

Housing	Part Number	Specs	Application	Wiring Diagrams
	**RKSW 2RSSW 45**	PUR (Polyurethane) Nickel Plated Brass 250 V, 4 A -40° to +75°C	***eurofast*** Bus Tee • Male ***eurofast*** drop connector • Fully shielded ***eurofast*** tee	
	*** RKSW 2RSSW 45-0001**		***eurofast*** Terminating Resistor • Male ***eurofast*** connector • Fully shielded ***eurofast*** tee	
	**VB2/FSW/FKW/FSW 45**		Y Junction • Fully shielded ***eurofast*** connectors	

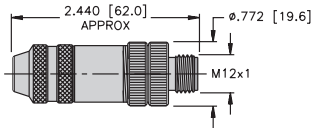
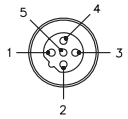
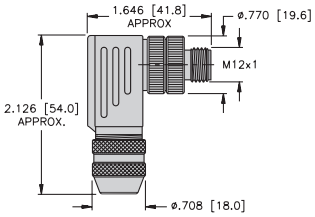
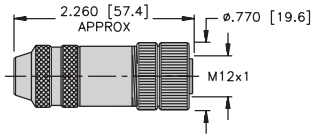
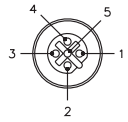
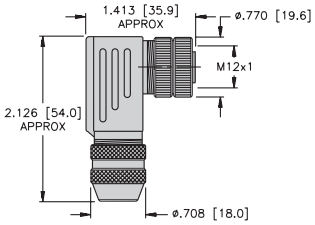
* This part must be used when joining two tees together directly. A female terminating resistor will not work with this tee since there is no ground and power connection on the male side.

Pinouts

eurofast	
Male	**Female**
	

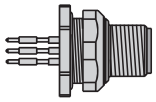
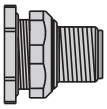
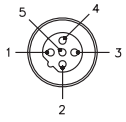
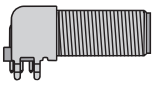
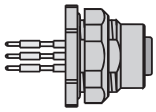
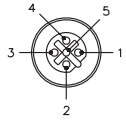
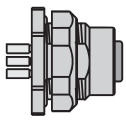
PROFIBUS®-DP, *eurofast*® Field Wireable Connectors

- **Allows Transition from Hard Wiring to Quick Connection to Network**

Housing	Part Number	Specs	Application	Pinouts
	**BMSWS 8151-8.5**	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A	• Metal, fully shielded • Mates with reverse key 5-pin cordsets and receptacles	**Male** 
	**BMSWS 8251-8.5**	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A		
	**BMWS 8151-8.5**	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A		**Female** 
	**BMWS 8251-8.5**	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A		

PROFIBUS®-DP, Circuit Board Connectors and OEM Receptacles

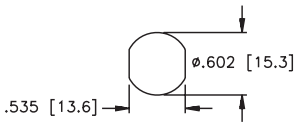
- **Provides (M12x1) *eurofast*® Connection to Field Devices**

Housing	Part Number	Specs	Application	Pinouts
13 	FSFDW 45 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male ***eurofast*** PCB pins	1. N/C 2. GN 3. N/C 4. RD 5. BARE
12 	FSFDLW 45		Male ***eurofast*** solder cups	**Male** 
14 	WFSW 45 PCB		Male ***eurofast*** right angle PCB pins	
16 	FKFDW 45 PCB		Female ***eurofast*** PCB pins	**Female** 
15 	FKFDLW 45		Male ***eurofast*** solder cups	

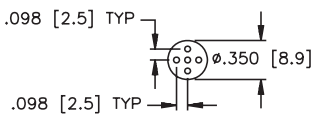
See pages L18 for dimensional drawings.

Standard housing material is nickel plated brass "FKFD .."; "FKFDV .." indicates 316 stainless steel.

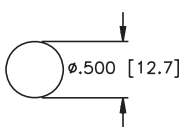
Panel Cutout
FKFD ... FSFD



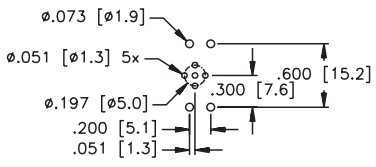
Board Layout (reference only)
FKFD ... FSFD



Panel Cutout
WFS

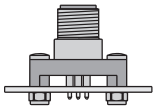
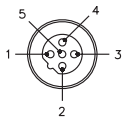
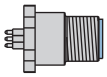
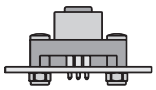
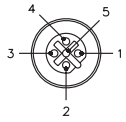


Board Layout (reference only)
WFS



PROFIBUS®-DP, Circuit Board Connectors and OEM Receptacles

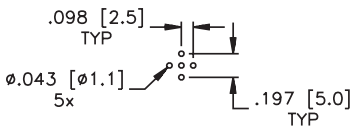
- **Provides (M12x1) *eurofast*® Connection to Field Devices**

Housing	Part Number	Specs	Application	Pinouts	
17 	FSW 45 PCB KIT	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -30° to +75°C	• Male ***eurofast*** with mounting kit • Reverse key	1. N/C 2. GN 3. N/C 4. RD 5. BARE	Male 
18 	FSW 45 PCB		• Male ***eurofast*** • Reverse key		
19 	FKW 45 PCB KIT		• Female ***eurofast*** with mounting kit • Reverse key		Female 
20 	FK 45 PCB		• Female ***eurofast*** • Reverse key		

See pages L19 for dimensional drawings.

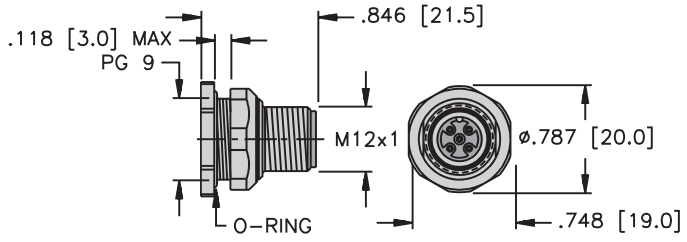
Standard housing material is nickel plated brass "FKFD .."; "FKFDV .." indicates 316 stainless steel.

Board Layout (reference only)
FK ... FS



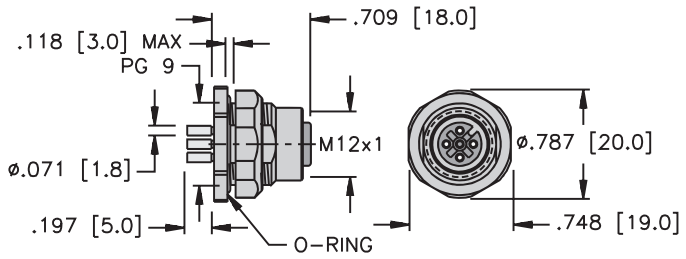
eurofast® PCB Mount Male and Female Receptacles

12



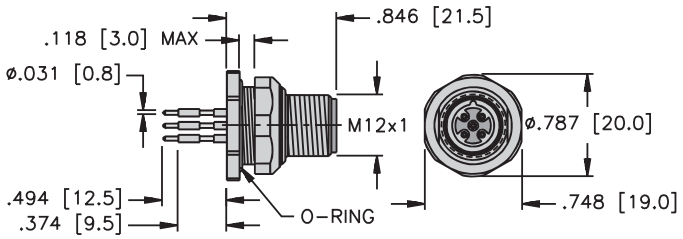
FSFDLW .. **Page L16**

15



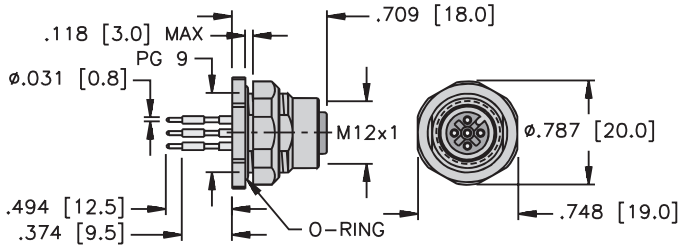
FKFDLW .. **Page L16**

13



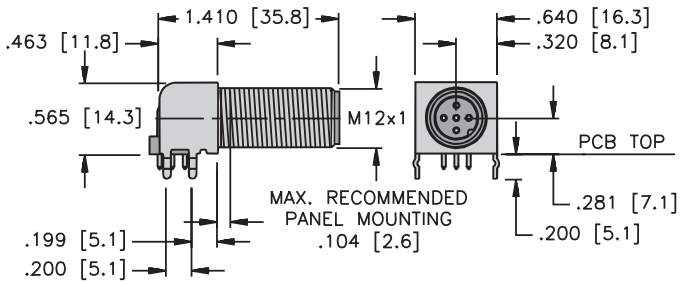
FSFDW ..PCB **Page L16**

16



FKFDW ..PCB **Page L16**

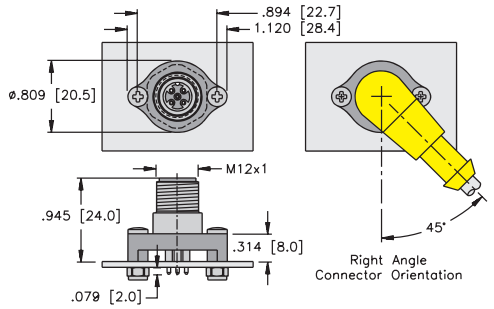
14



WFSW ..PCB **Page L16**

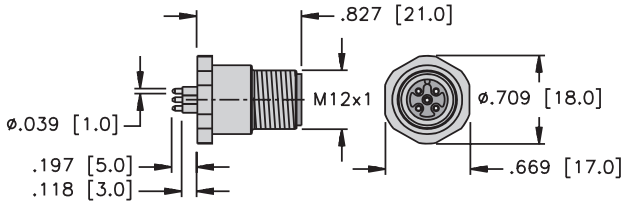
eurofast® PCB Mount Male and Female Receptacles

17



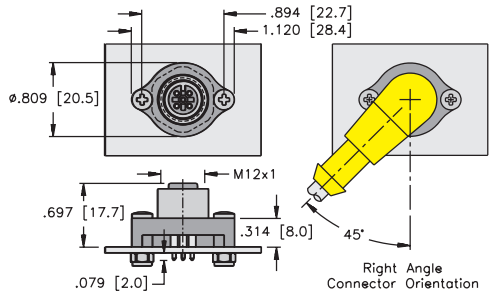
FSW 45 PCB KIT **Page L17**

18



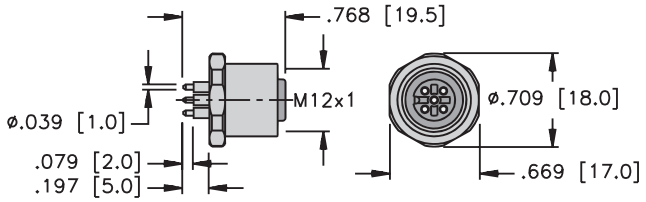
FSW 45 PCB **Page L17**

19



FKW 45 PCB KIT **Page L17**

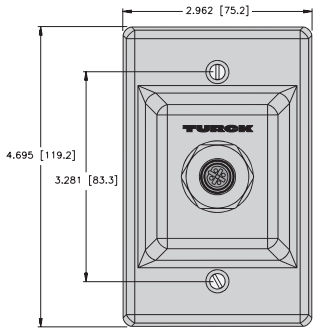
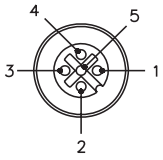
20

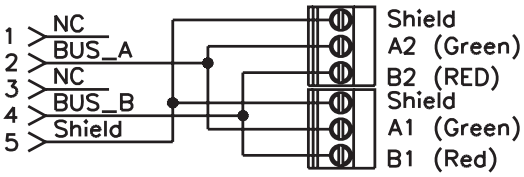


FK 45 PCB **Page L17**

PROFIBUS®-DP, *eurofast* ® Wall Plate Adapters

- **Gasket and Mounting Screws Provided**
- **For Use with a Single Gang Electrical Box**

Housing	Part Number	Specs	Application	Pinouts	
	**BPA-45-E113**	Stainless Steel 250 V, 4.0 A -40 to +70°C (-40 to +158°F)	Attaches to standard single gang electrical box for transition to 5-wire (M12x1) ***eurofast*** connector		



PROFIBUS®-PA

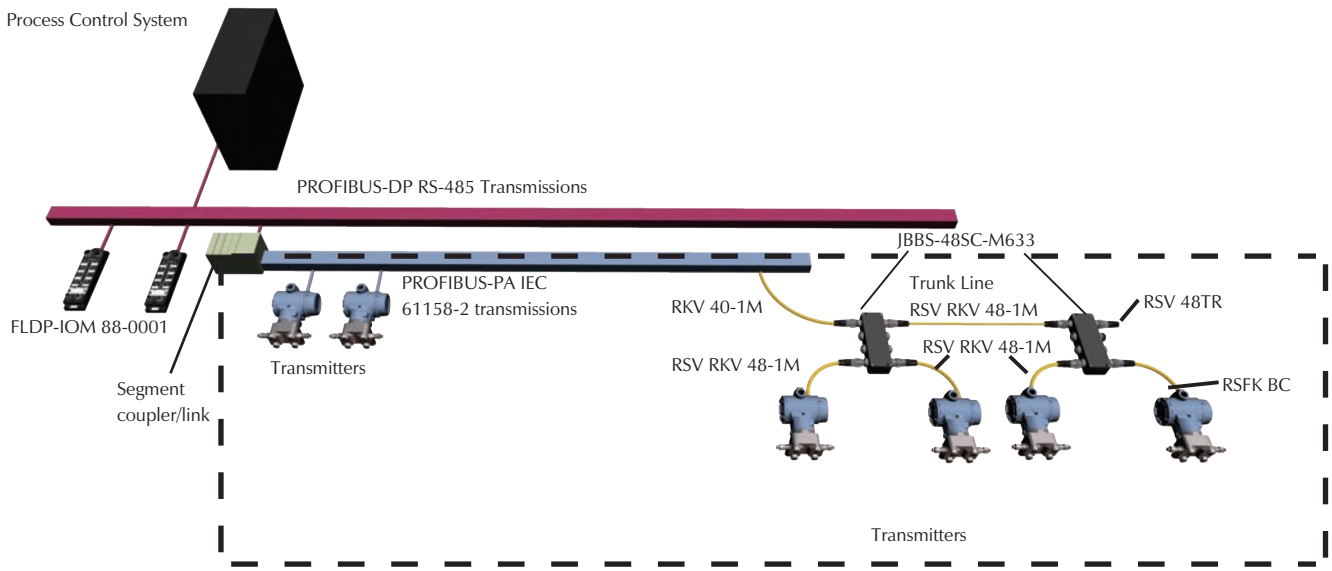
PROFIBUS®-PA Overview

PROFIBUS-PA (Process Automation) uses synchronous transfer mode technology, as defined in IEC 61158-2, to communicate between field devices and the RS 485 backbone of PROFIBUS®-DP. A segment coupler, or gateway is installed to bridge PROFIBUS-DP with PROFIBUS-PA. Otherwise, the protocols are identical, allowing transparent communication between general purpose automation systems and decentralized field devices.

PROFIBUS-PA is a master-slave bus. Transmitters used in the process industry are typically slave devices or passive stations which only communicate at the request of the master.

General Layout Topologies

The topology for PROFIBUS-DP is a linear bus. Branching can be accomplished with repeaters or, in the case of PROFIBUS-PA, this can be accomplished with the segment couplers. The PROFIBUS-PA topology follows the physical layer as defined in ISA SP50.02. Daisy chain or star topologies are allowed.



PROFIBUS®-PA, Selection Guide

Cables
L24 - L28

Terminating Resistors
L29

Feed Through Connectors
L30

Junctions
L31 - L43

Conduit Adapters
L45

Tees
L47

Gender Changers
L48

Surge Suppressor
L49

Field Wireable Tees
L50

Receptacles
L51 - L58

Field Wireable Connectors
L59

PROFIBUS®-PA, Cable Specifications

- **Cable that Meets the Requirements of ISA/SP50 and PROFIBUS-PA Requirements for Type A Cable**
- **All Cables are Rated -40° to +105°C and are Sunlight Resistant**
- **Available in 3-wire Versions with a Device Ground or 2-wire Versions**

Type A Cable Specifications

- Designed for harsh environments
- Temperature range: -40° to +105°C
- Governed by: ISA SP50.02 specification
- Sunlight resistant per test
- PLTC and ITC rated (CSA FT4)
- Impedence [Z_0 at f_r (31.25 kHz)] = 100 Ohms ± 20 %
- Maximum attenuation at 1.25 f_r (39 kHz) = 3.0 dB/km
- Maximum capacitive unbalance to shield = 2 nF/km
- Maximum DC resistance (per conductor) = 24 Ohms /km
- Maximum propagation delay variance 0.25 f_r to 1.25 f_r = 1.7 µs/km
- Conductor cross-sectional area (wire size) = nominal 0.8 mm² (#18 AWG)
- Minimum shield coverage shall be 90%.

Figure A

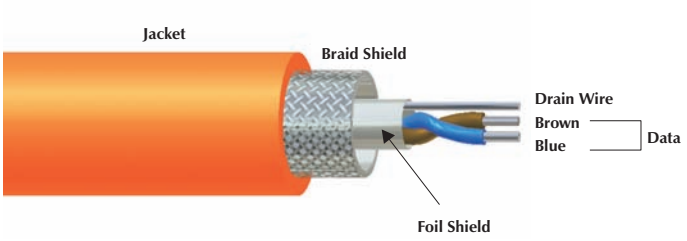
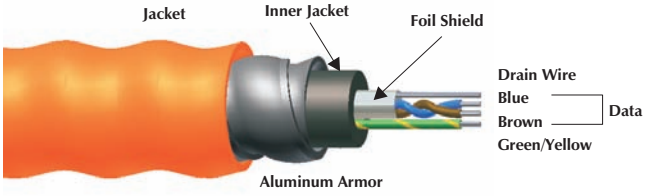


Figure B



Type	Approvals	Data Pair		Device Ground	Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	Material Color Nominal O.D.	Type Drain Wire		
483 105°C 300 Volts	**NEC ITC** PLTC Open Wiring **CEC** [CMG]	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Orange 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50785-*M 59 lbs.	**A**
483B 105°C 300 Volts	**NEC ITC** PLTC Open Wiring **CEC** [CMG]	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Blue 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50786-*M 59 lbs.	**A**
482A 105°C 300 Volts	**NEC ITC** PLTC/CM **CEC** [CMG HLBCD]	2/18 AWG BU/BN	6.5 Ohms PVC	18 AWG GN/YE	Armor/PVC Orange 14.9 mm (0.585 in)	Foil 20 AWG	RB50929-*M 96 lbs.	**B**
482BA 105°C 300 Volts	**NEC ITC** PLTC **CEC** [CMG]	2/18 AWG BU/BN	6.5 Ohms PE	18 AWG GN/YE	Armor/PVC Blue 14.9 mm (0.585 in)	Foil 20 AWG	RBS50929-*M 96 lbs.	**B**
483BK 105°C 300 Volts	**NEC ITC** PLTC Open Wiring **CEC** [CMG]	2/18 AWG BU/BN	6.5 Ohms PE	None	PVC Black 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50860-*M 59 lbs.	**A**

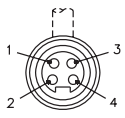
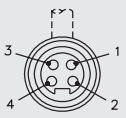
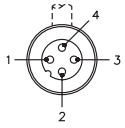
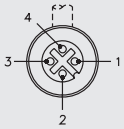
* Indicates length in meters.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

PROFIBUS®-PA, Cable and Cordset Selection Matrix

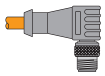
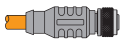
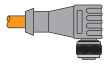
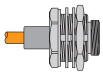
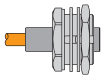
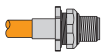
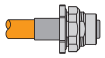
			minifast ®				*eurofast* ®
			Pin (Male)		Socket (Female)		Pin (Male)
			1 RSV	2 WSV	3 RKV	4 WKV	5 RSCV
		Bare	RSV 48x-*M	WSV 48x-*M	RKV 48x-*M	WKV 48x-*M	RSCV 48x-*M
minifast	Pin (Male)	1 RSV	RSV RSV 48x-*M	RSV WSV 48x-*M	RSV RKV 48x-*M	RSV WKV 48x-*M	RSV RSCV 48x-*M
		2 WSV		WSV WSV 48x-*M	WSV RKV 48x-*M	WSV WKV 48x-*M	WSV RSCV 48x-*M
	Socket (Female)	3 RKV			RKV RKV 48x-*M	RKV WKV 48x-*M	RKV RSCV 48x-*M
		4 WKV				WKV WKV 48x-*M	WKV RSCV 48x-*M
eurofast	Pin (Male)	5 RSCV					RSCV RSCV 48x-*M
		6 WSCV					
	Socket (Female)	7 RKCV					
		8 WKCV					

See pages L27 - L28 for dimensional drawings.

* Indicates length in meters.
x Indicates cable type.
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

minifast		Pinouts	*eurofast*	
Male	Female		Male	Female
		1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. Bare (Shield Drain Wire)		

PROFIBUS®-PA, Cable and Cordset Selection Matrix

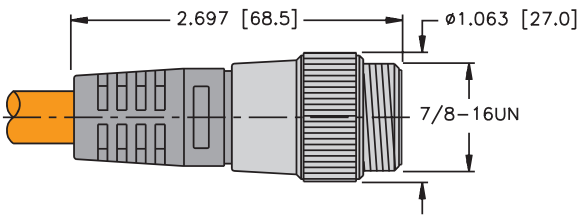
eurofast®			*minifast*® Bulkhead		*eurofast* Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6  WSCV	7  RKCV	8  WKCV	9  RSFPV	10  RKFPV	11  FSFDV	12  FKFDV
WSCV 48x-*M	RKCV 48x-*M	WKCV 48x-*M	RSFPV 48x-*M	RKFPV 48x-*M	FSFDV 48x-*M	FKFDV 48x-*M
RSV WSCV 48x-*M	RSV RKCV 48x-*M	RSV WKCV 48x-*M	RSV RSFPV 48x-*M	RSV RKFPV 48x-*M	RSV FSFDV 48x-*M	RSV FKFDV 48x-*M
WSV WSCV 48x-*M	WSV RKCV 48x-*M	WSV WKCV 48x-*M	WSV RSFPV 48x-*M	WSV RKFPV 48x-*M	WSV FSFDV 48x-*M	WSV FKFDV 48x-*M
RKV WSCV 48x-*M	RKV RKCV 48x-*M	RKV WKCV 48x-*M	RKV RSFPV 48x-*M	RKV RKFPV 48x-*M	RKV FSFDV 48x-*M	RKV FKFDV 48x-*M
WKV WSCV 48x-*M	WKV RKCV 48x-*M	WKV WKCV 48x-*M	WKV RSFPV 48x-*M	WKV RKFPV 48x-*M	WKV FSFDV 48x-*M	WKV FKFDV 48x-*M
RSCV WSCV 48x-*M	RSCV RKCV 48x-*M	RSCV WKCV 48x-*M	RSCV RSFPV 48x-*M	RSCV RKFPV 48x-*M	RSCV FSFDV 48x-*M	RSCV FKFDV 48x-*M
WSCV WSCV 48x-*M	WSCV RKCV 48x-*M	WSCV WKCV 48x-*M	WSCV RSFPV 48x-*M	WSCV RKFPV 48x-*M	WSCV FSFDV 48x-*M	WSCV FKFDV 48x-*M
	RKCV RKCV 48x-*M	RKCV WKCV 48x-*M	RKCV RSFPV 48x-*M	RKCV RKFPV 48x-*M	RKCV FSFDV 48x-*M	RKCV FKFDV 48x-*M
		WKCV WKCV 48x-*M	WKCV RSFPV 48x-*M	WKCV RKFPV 48x-*M	WKCV FSFDV 48x-*M	WKCV FKFDV 48x-*M

PROFIBUS®-PA, *minifast*® Cordset and Receptacle Connector Dimensions

Specifications

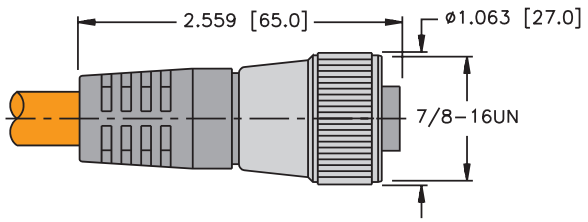
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40°C to +105°C (-40° to +221°F)

1



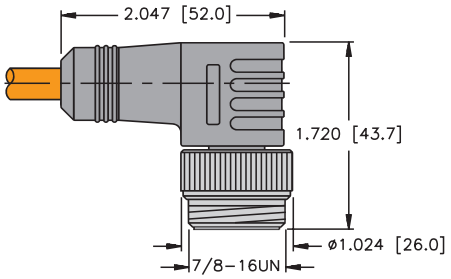
RSV .. **Pages L25 - L26**

3



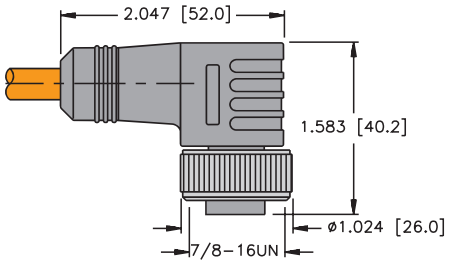
RKV .. **Pages L25 - L26**

2



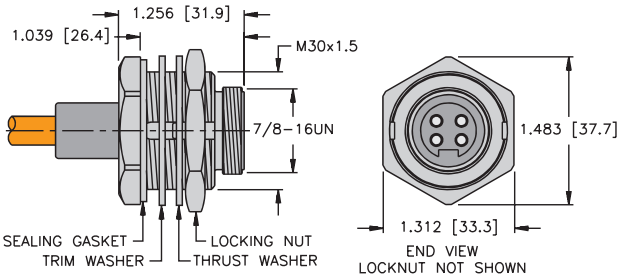
WSV .. **Pages L25 - L26**

4



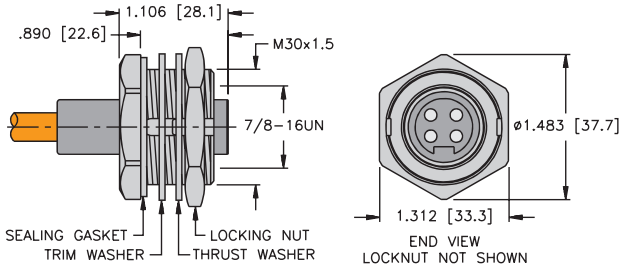
WKV .. **Pages L25 - L26**

9



RSFPV .. **Pages L25 - L26**

10



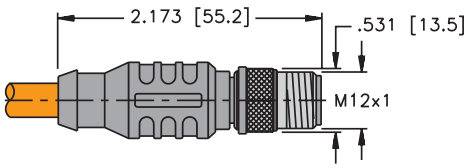
RKFPV .. **Pages L25 - L26**

PROFIBUS®-PA, *eurofast*® Cordset and Receptacle Connector Dimensions

Specifications

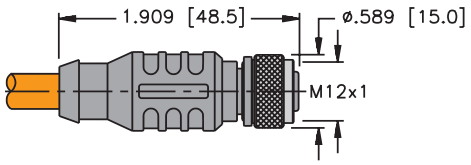
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

5



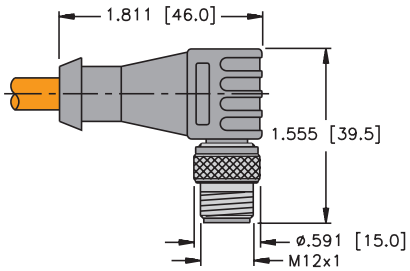
RSCV .. **Pages L25 - L26**

7



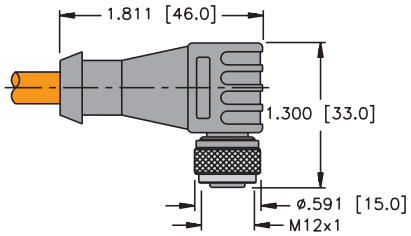
RKCV .. **Pages L25 - L26**

6



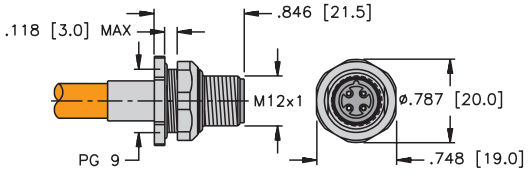
WSCV .. **Pages L25 - L26**

8



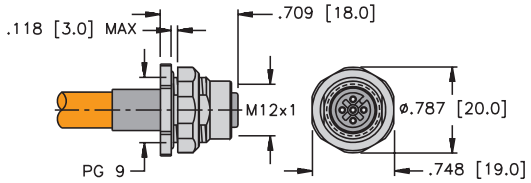
WKCV .. **Pages L25 - L26**

11



FSFDV .. **Pages L25 - L26**

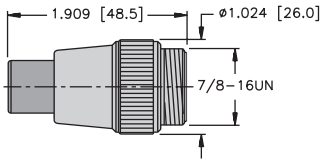
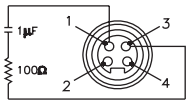
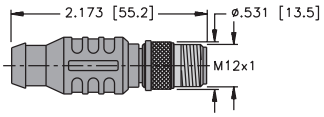
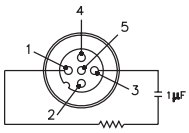
12



FKFDV .. **Pages L25 - L26**

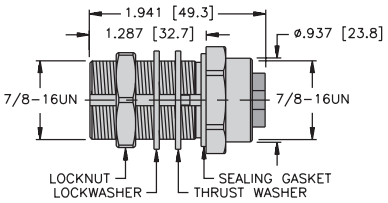
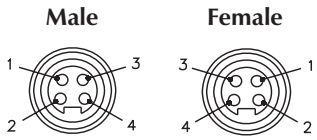
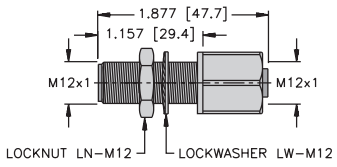
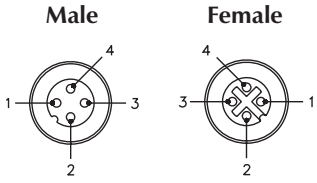
PROFIBUS®-PA, Terminating Resistors

- **Terminating Resistors Stabilize and Minimize Reflections on the Bus Line**
- **A Terminating Resistor is Required at the Beginning and End of the Main Bus Line**

Housing	Part Number	Specs	Application	Pinouts
	**RSV 48-TR**	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40° to +75°C	***minifast*®** Terminating Resistor • Male ***minifast*** connector	**Male** 
	**RSEV 48-TR**	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C	***eurofast*®** Terminating Resistor • Male ***eurofast*** connector	**Male** 

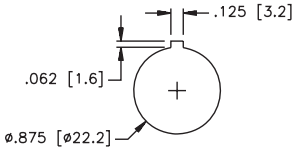
PROFIBUS®-PA, Feed Through Connectors

- **Receptacles Provide Transition from Male to Female Connectors**
- **Available for Bulkhead and Feed Through Applications**

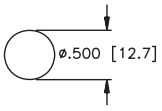
Housing	Part Number	Specs	Application	Pinouts
	**RSFV RKFV 48/22**	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +75°C	***minifast*®** Bulkhead Receptacle • Straight male/female feed through • For use with DeviceNet ***minifast*** cordsets	
	**FKV FSV 48/M12**	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	***eurofast*®** Feed Through Connection • straight male/female connector • for pre-molded ***eurofast*** cables	

Standard housing material is nickel plated brass. "RSF RKF.."; "RSFV RKFV.." indicates stainless steel housing.

Panel Cutout
RSFV RKFV 48/22



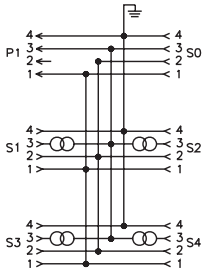
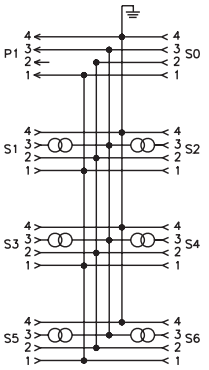
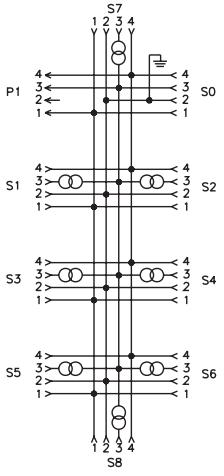
Panel Cutout
FKV FSV 48/M12



PROFIBUS®-PA, *minifast*® Passive Multiport Junctions (Bricks)

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

FM APPROVED

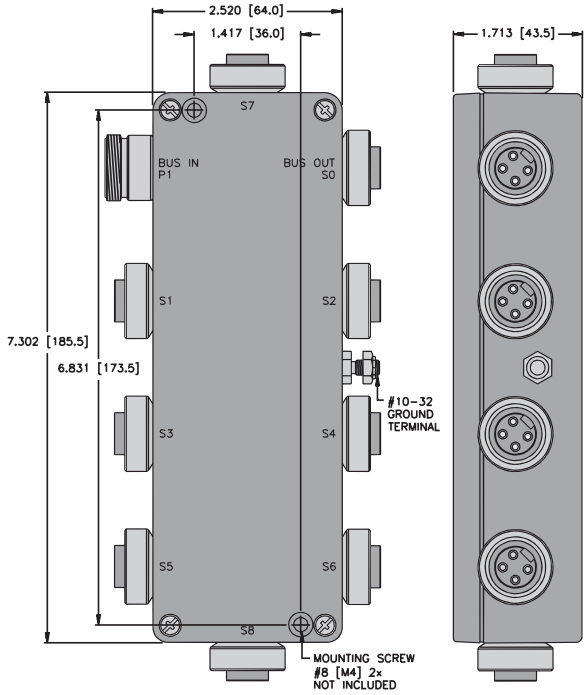
Part Number	Specs	Application	Wiring Diagrams
JBBS-48-M413	No short-circuit protection	4-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Four (7/8-16UN) ***minifast*** connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-M413	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JBBS-48-M613	No short-circuit protection	6-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Six (7/8-16UN) ***minifast*** connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-M613	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JBBS-48-M813	No short-circuit protection	8-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Eight (7/8-16UN) ***minifast*** connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-M813	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		

Specifications

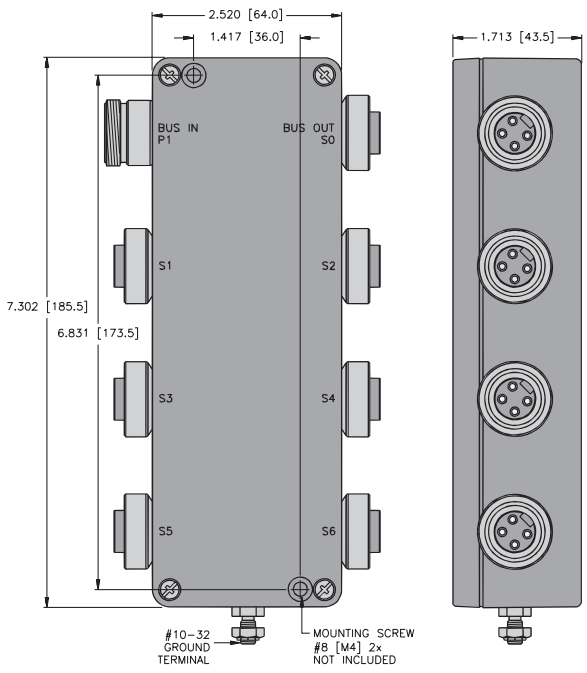
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

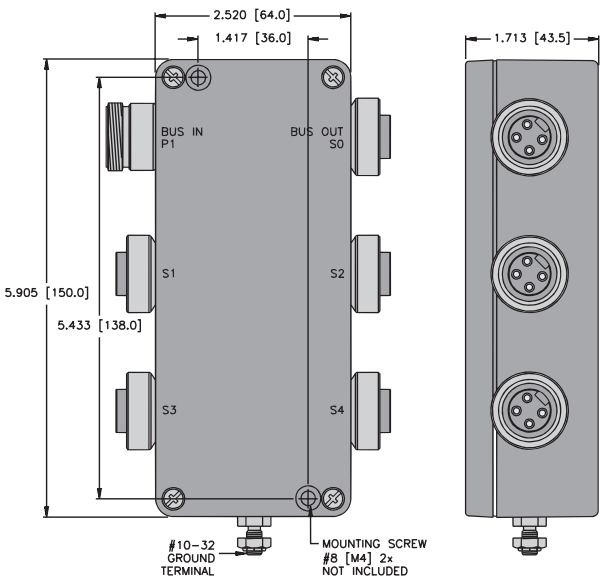
8-Port



6-Port



4-Port



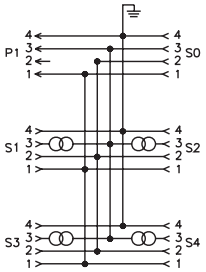
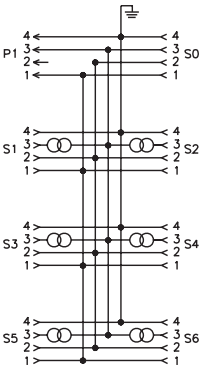
Pinouts

minifast	
Male	**Female**
	

PROFIBUS®-PA, *minifast*® Passive Multiport Junctions (Bricks)

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

FM APPROVED

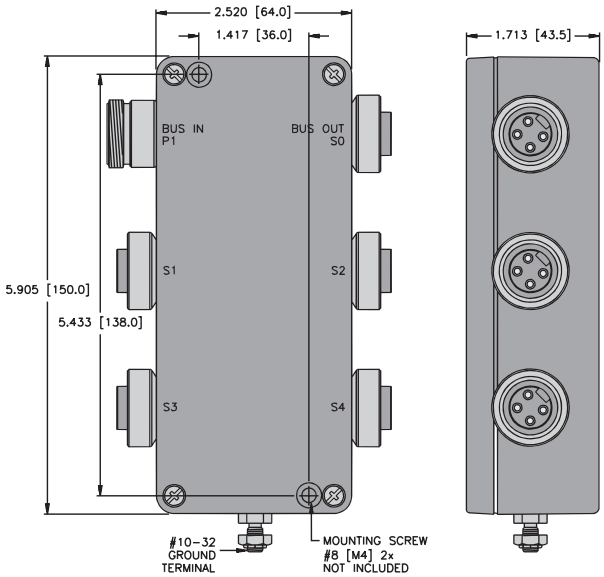
Part Number	Specs	Application	Wiring Diagrams
JBBS-48-M423	No short-circuit protection Fiberglass housing	4-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Four (7/8-16UN) ***minifast*** connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48-M623	No short-circuit protection Fiberglass housing	6-port Junction • Bus in/bus out connections (7/8-16UN) ***minifast*** • Six (7/8-16UN) ***minifast*** connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	

Specifications

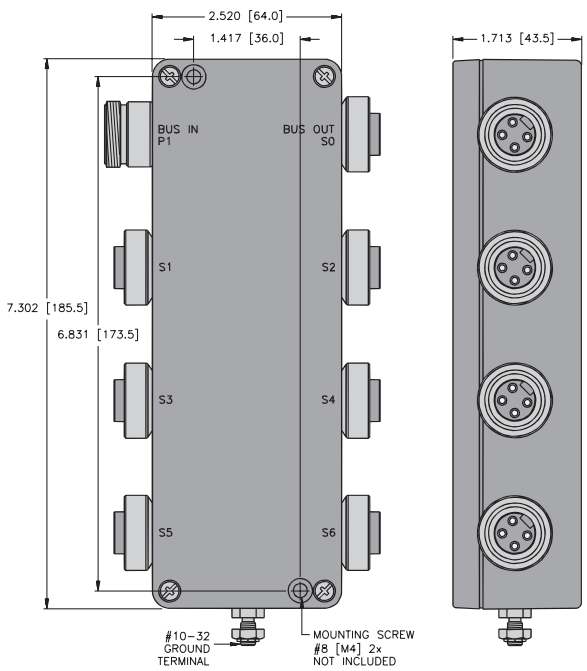
Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

4-Port



6-Port



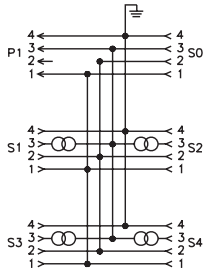
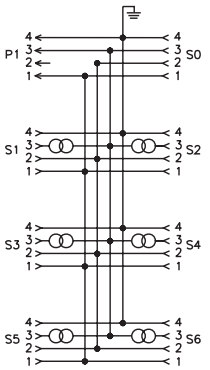
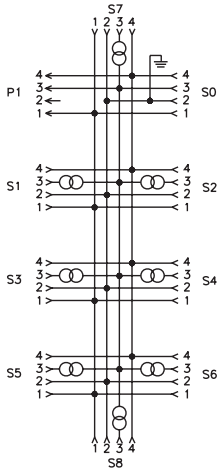
Pinouts

minifast	
Male	**Female**
	

PROFIBUS®-PA, *eurofast*® Passive Multiport Junctions (Bricks)

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

FM APPROVED

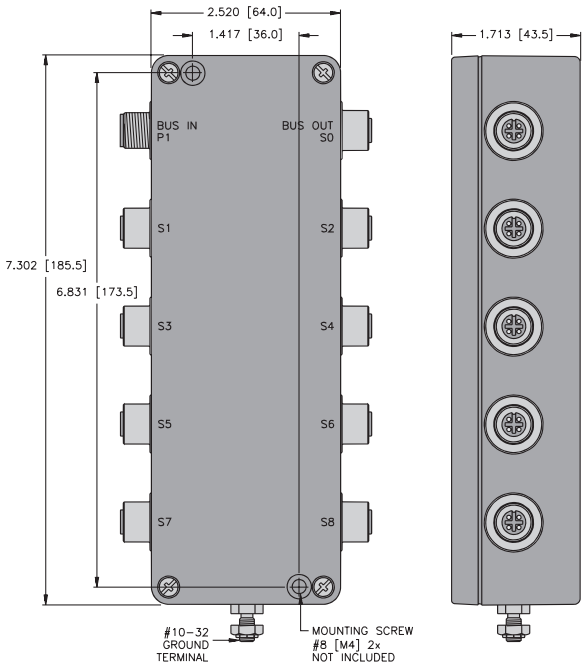
Part Number	Specs	Application	Wiring Diagrams
JBBS-48-E413	No short-circuit protection	4-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Four (M12x1) ***eurofast*** connectors for field devices • CL I, DIv 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-E413	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JBBS-48-E613	No short-circuit protection	6-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Six (M12x1) ***eurofast*** connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-E613	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JBBS-48-E813	No short-circuit protection	8-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Eight (M12x1) ***eurofast*** connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48SC-E813	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		

Specifications

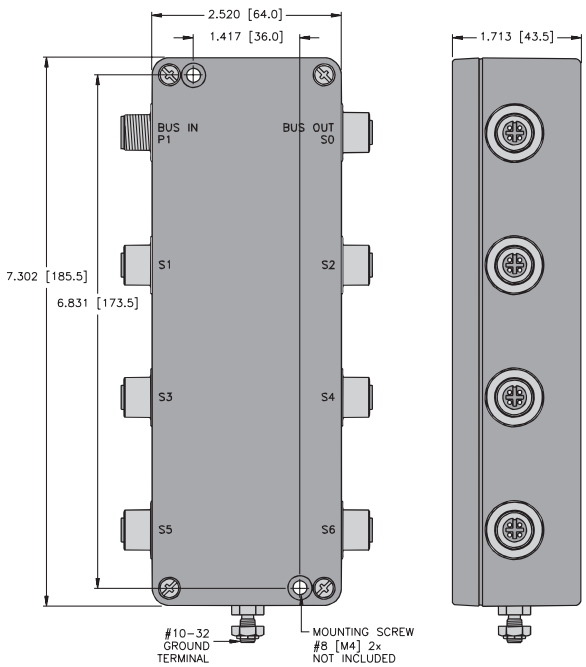
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

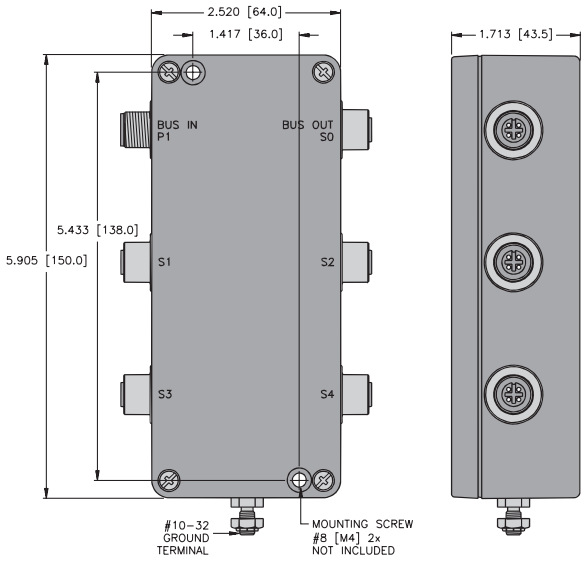
8-Port



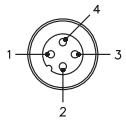
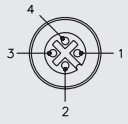
6-Port



4-Port



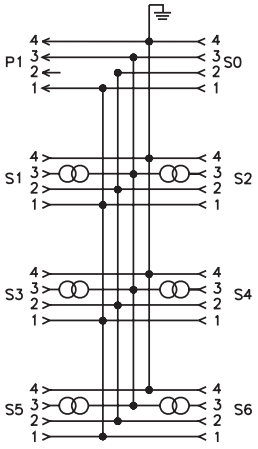
Pinouts

eurofast	
Male	**Female**
	

PROFIBUS®-PA, *eurofast*® Passive Multiport Junctions (Bricks), Short-Circuit Protected

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

FM APPROVED

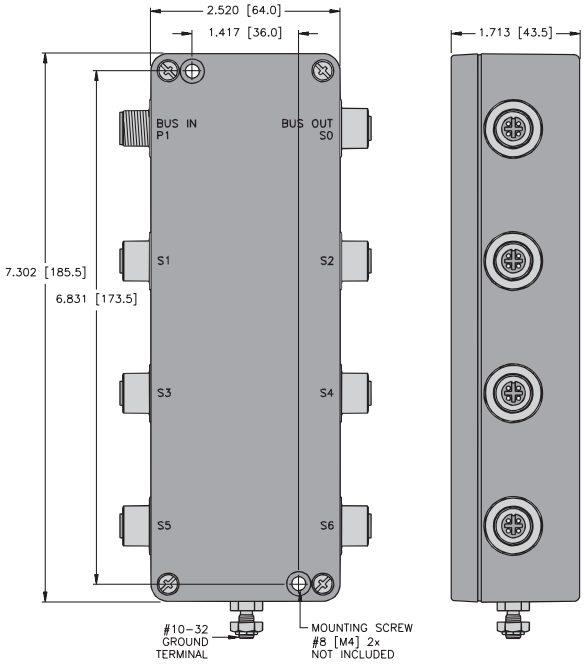
Part Number	Specs	Application	Wiring Diagrams
JBBS-48SC-E613/EX	**Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted • Short-Circuit Protection ≤35 mA • Current consumption ≤7 mA • Voltage drop ≤0.3 V	6-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Six (M12x1) ***eurofast*** connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) FISCO/ENTITY Field Device	

Specifications

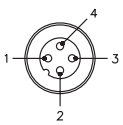
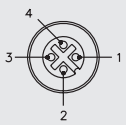
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

6-Port



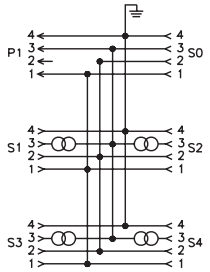
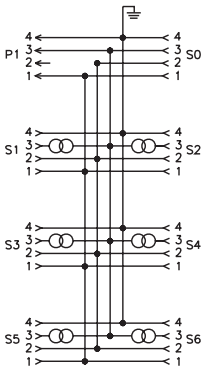
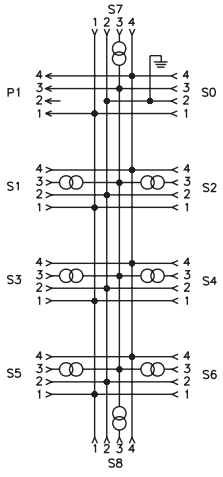
Pinouts

eurofast	
Male	**Female**
	

PROFIBUS®-PA, *eurofast*® Passive Multiport Junctions (Bricks)

- **Rugged, Fully Encapsulated Enclosure**
- **For Connecting I/O in Concentrated Areas**
- **Suitable for Outdoor Applications**

FM APPROVED

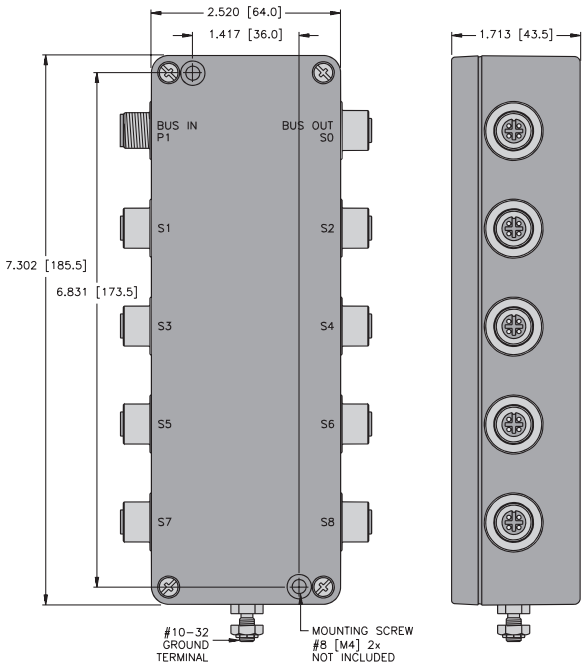
Part Number	Specs	Application	Wiring Diagrams
JBBS-48-E414	No short-circuit protection	4-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Four (M12x1) ***eurofast*** connectors for field devices CL I, DIv 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48-E614	No short-circuit protection	6-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Six (M12x1) ***eurofast*** connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48-E814	No short-circuit protection	8-port Junction • Bus in/bus out connections (M12x1) ***eurofast*** • Eight (M12x1) ***eurofast*** connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	

Specifications

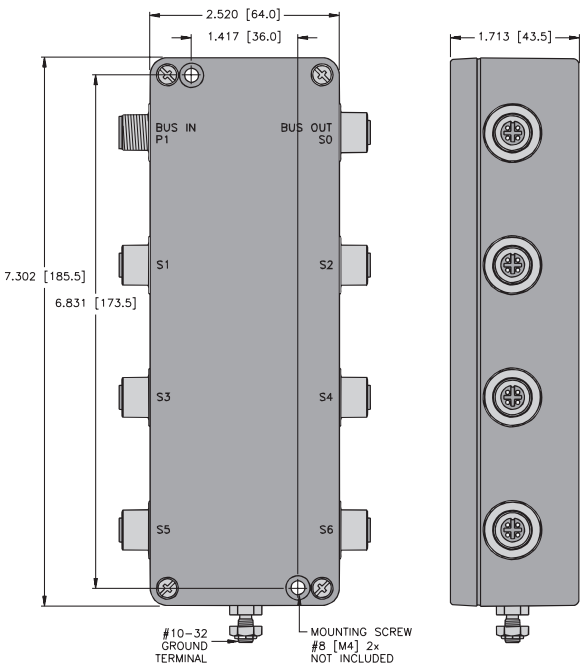
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

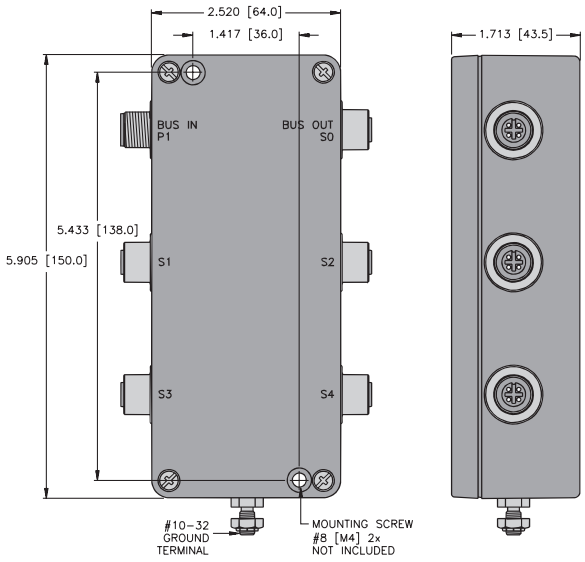
8-Port



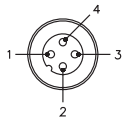
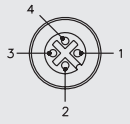
6-Port



4-Port



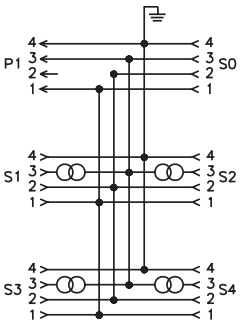
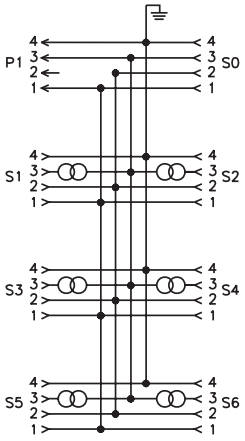
Pinouts

eurofast	
Male	**Female**
	

PROFIBUS®-PA, *minifast*® Junction Tees

- **Indoor Use Only**
  (*for outdoor applications use JBBS family*)
- **Multi-port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**

FM APPROVED

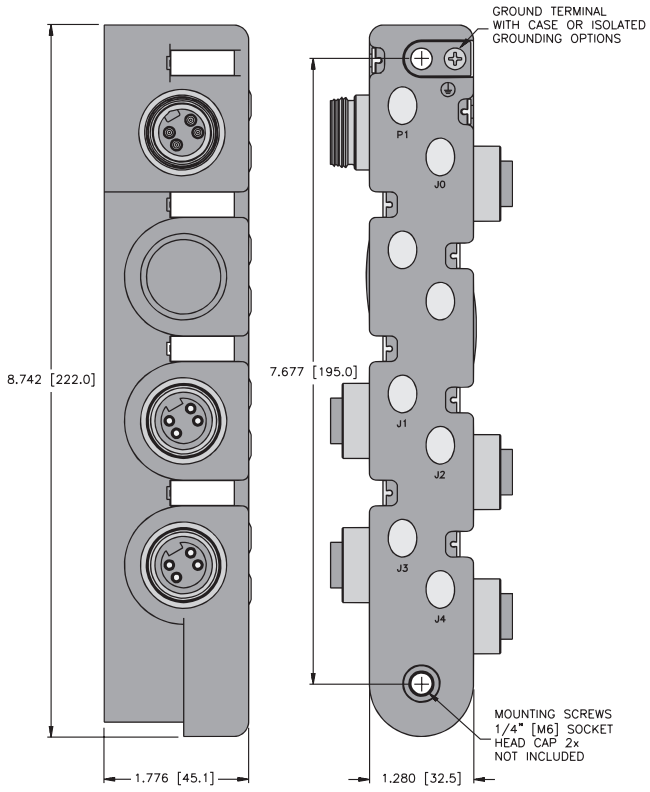
Part Number	Specs	Application	Wiring Diagrams
JTBS-48-M433	No short-circuit protection	4-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Four (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 48SC-M434 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JTBS-48SC-M433	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JTBS-48-M633	No short-circuit protection	6-port Junction Tee • (7/8-16UN) ***minifast*** bus in/bus out connections • Six (7/8-16UN) ***minifast*** device ports • For nickel plated brass connectors change part number to JTBS 48SC-M634 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JTBS-48SC-M633	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		

Specifications

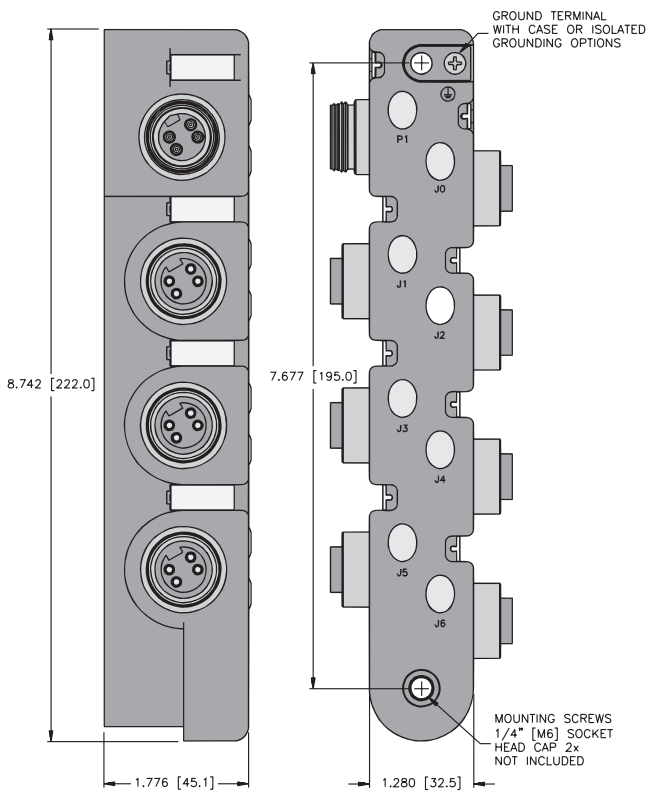
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

4-port



6-port



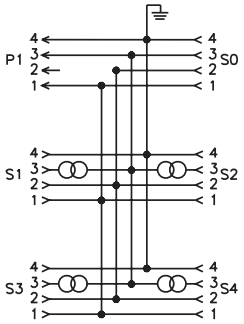
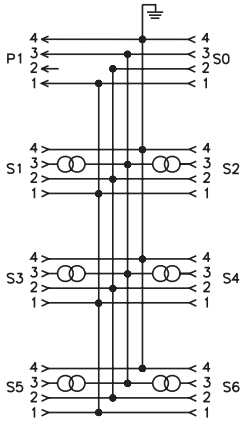
Pinouts

minifast	
Male	**Female**
	

PROFIBUS®-PA, *eurofast*® Junction Tee

- **Indoor Use Only**
  (*for outdoor applications use JBBS family*)
- **Multi-port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**

FM APPROVED

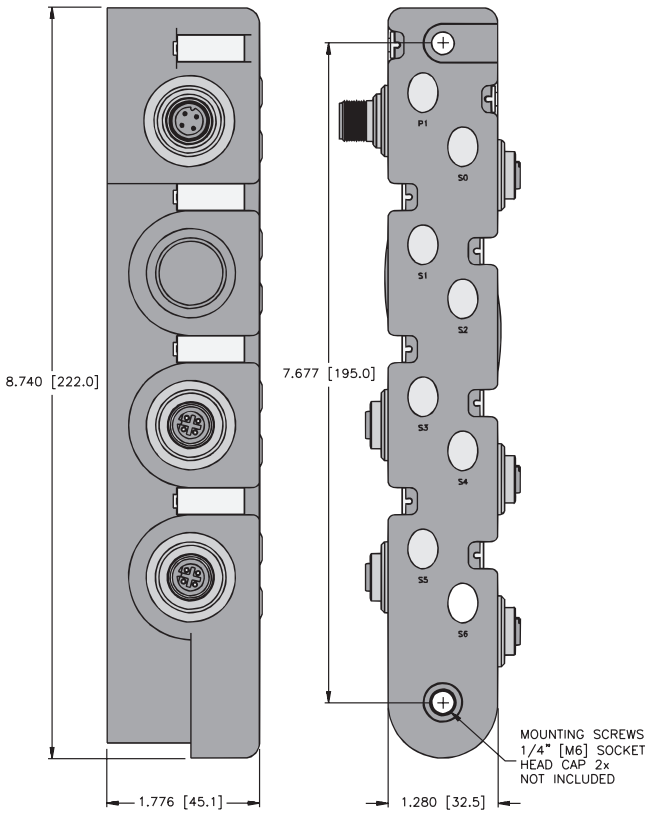
Part Number	Specs	Application	Wiring Diagrams
JTBS-48-E433	No short-circuit protection	4-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Four (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 48SC-E434 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JTBS-48SC-E433	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		
JTBS-48-E633	No short-circuit protection	6-port Junction Tee • (M12x1) ***eurofast*** bus in/bus out connections • Six (M12x1) ***eurofast*** device ports • For nickel plated brass connectors change part number to JTBS 48SC-E634 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JTBS-48SC-E633	**Electrical** • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA **Diagnostic** • LED indicators Power: Green = On Short-circuit: Red = Shorted		

Specifications

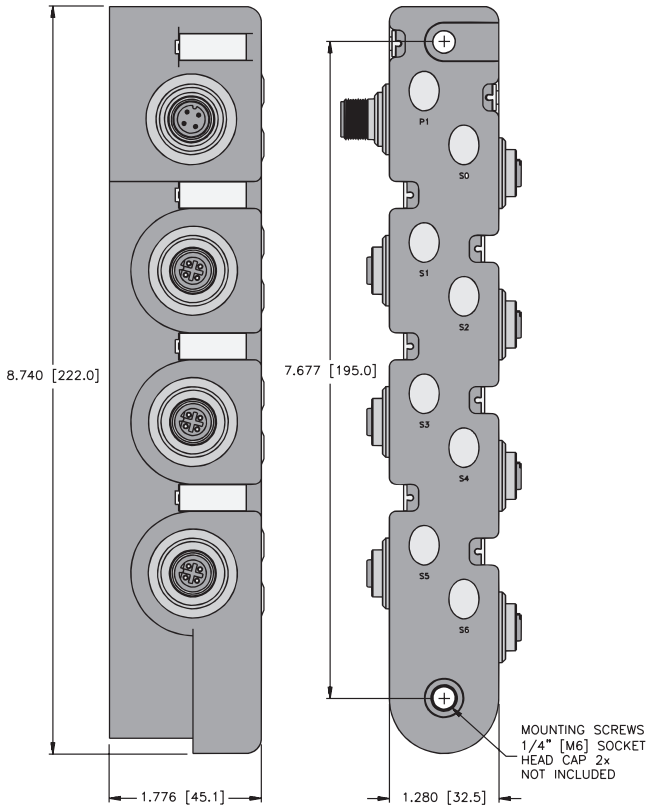
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

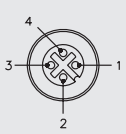
4-port



6-port

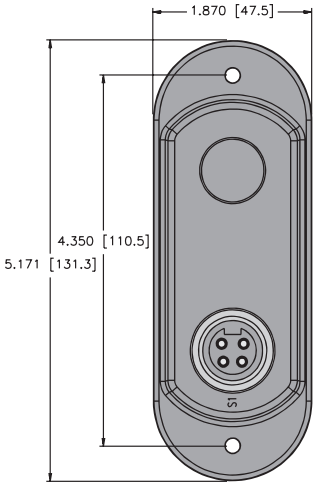
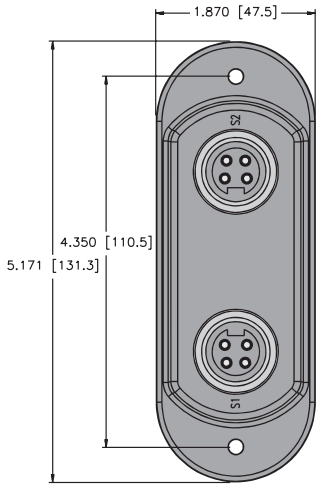


Pinouts

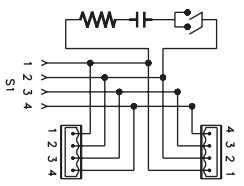
minifast		*eurofast*
Male	**Female**	**Female**
		

PROFIBUS®-PA, *minifast*® Conduit Adapters

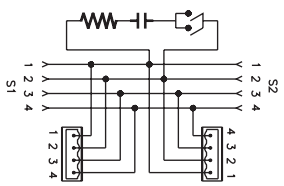
- **Gasket and Mounting Screws Provided**
- **Same Housing Style for Single or Double Port**

Housing	Part Number	Specs	Application	Pinout
	**BCA 48-M123**	Nylon Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) ***minifast*** connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	**Male** 
	**BCA 48-M223**		Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) ***minifast*** connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	

1-port Wiring Diagram

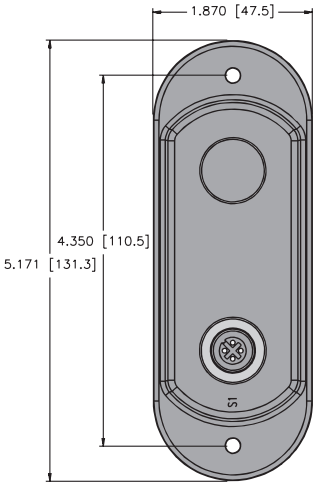
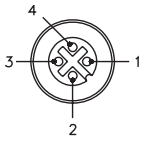
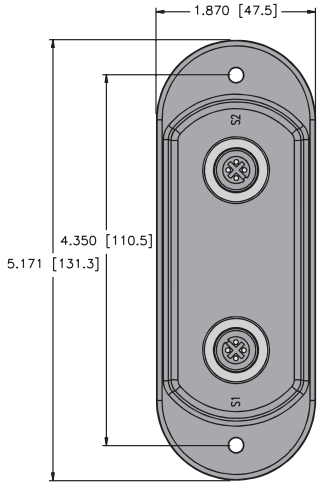


2-port Wiring Diagram

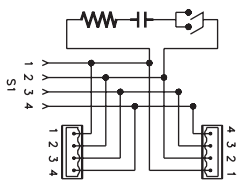


PROFIBUS®-PA, *eurofast*® Conduit Adapters

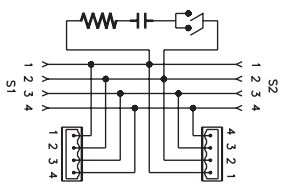
- **Gasket and Mounting Screws Provided**
- **Same Housing Style for Single or Double Port**

Housing	Part Number	Specs	Application	Pinout
	**BCA 48-E123**	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) ***eurofast*** connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	**Female** 
	**BCA 48-E223**		Attaches to standard conduit body* for transition to 4-wire (M12x1) ***eurofast*** connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	

1-port Wiring Diagram

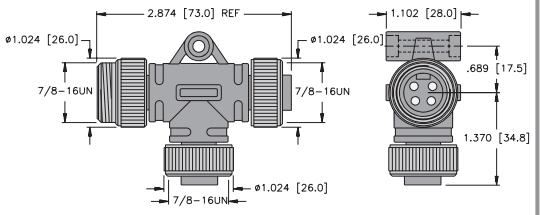
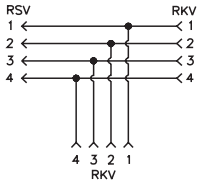
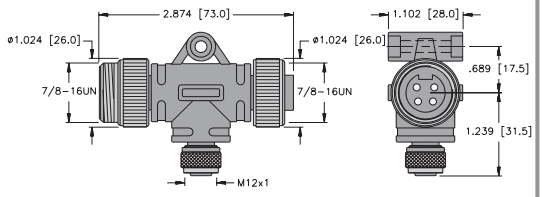
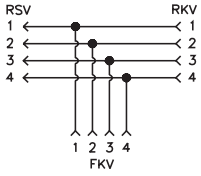
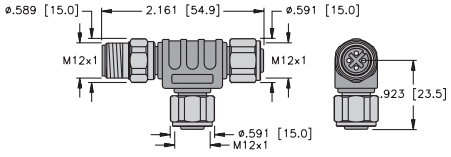
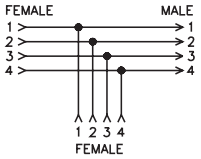


2-port Wiring Diagram

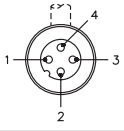
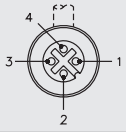


PROFIBUS®-PA, Tees

- **Creates a Drop or Branch from the Main Bus Line**
- ***minifast*® Connectors on Bus or Drop Lines**

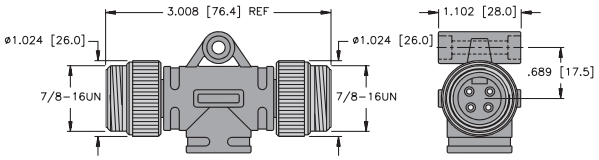
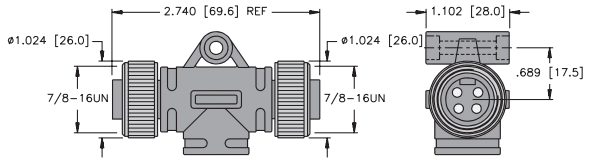
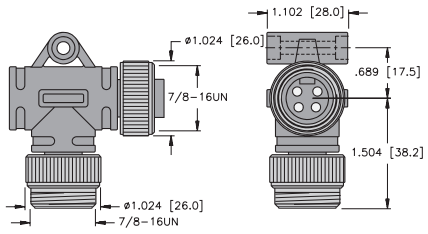
Housing	Part Number	Specs	Application	Wiring Diagrams
	**RSV 2RKV 48**	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	***minifast*** Tee • Data, ground, shield • Stainless steel coupling nuts	
	**RSV FKV RKV 48**		***minifast*** to ***eurofast***® Drop • Data, ground, shield • Stainless steel coupling nuts	
	**RSCS 2RKCS 48**		***eurofast*** Tee • Stainless steel coupling nuts	

Pinouts

minifast		*eurofast*	
Male	Female	Male	Female
			

PROFIBUS®-PA, Gender Changers and Elbow Connectors

- **Allows Quick and Easy Changes from Male to Female *minifast*® Connectors**

Housing	Part Number	Specs	Application
	**RSV RSV 48**	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	Male ***minifast*** Gender Changer • Changes female cordset to male receptacle
	**RKV RKV 48**		Female ***minifast*** Gender Changer • Changes female cordset to male receptacle
	**WSV RKV 48**		***minifast*** Elbow • Right angle male to female connector

Pinouts

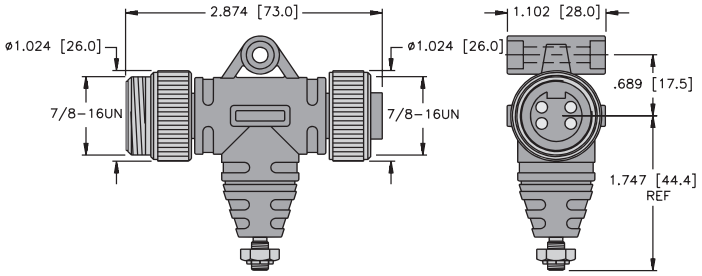
minifast	
Male	Female
	

PROFIBUS®-PA, Surge Suppressor

- **Protects Data Communication Lines (V+ and V-)**
- **Absorbs the Front End of the Transient, Responding in Less Than a Nanosecond**
- **Diverts the Surge Energy to Ground**
- **Automatically Resets and waits for Next Surge**

Housing	Part Number	Specs	Application	Pinouts
See Drawing 1	RSV RKV 48 SS	**Electrical** • Maximum operating voltage: 27 Volts • Maximum operating current: 200 mA • Clamping Action Turn-on: 28.5 Volts • Maximum clamping at 2 kA: (8 x 20 Sec): 44 Volts • Maximum surge voltage: 20 kV • Maximum surge current: 2.5 kA • Current leakage/line at operating voltage: 5 A • Capacitance /line at operating voltage: 500 pF • Response time: Less than 1 nanosecond **Mechanical** • Ground Stud: 10-32 stainless steel • Operating temperature: -40° to +85°C	Male and female ***minifast***®, 4-pin	**Male**  **Female** 

1

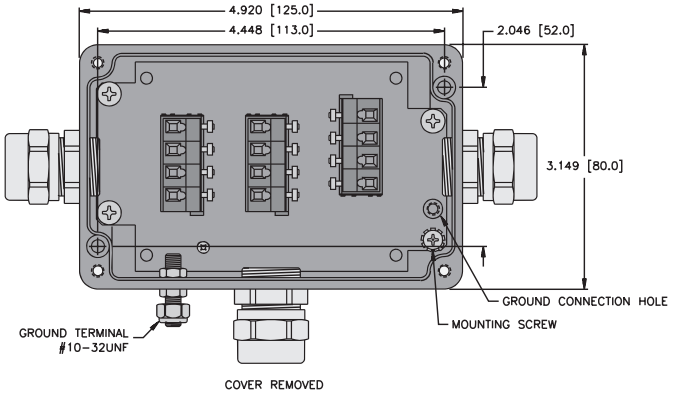


PROFIBUS®-PA, Field Wireable Tee

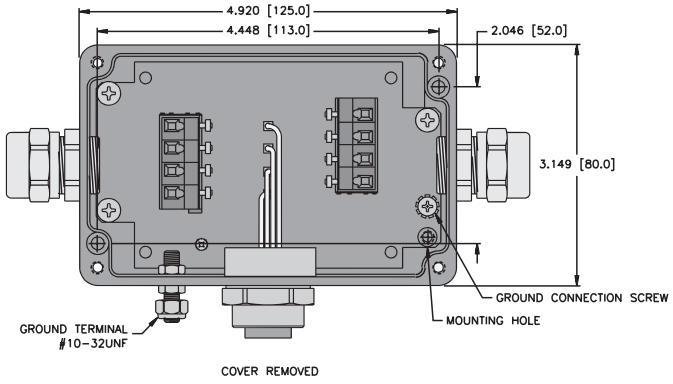
- **A Hybrid Connection System Offering Reliable Connections on the Short Drops and Ease of Installation on the Long Trunk Runs**
- **Features Standard *minifast*® Connector for the Drop Connection and Terminal Connectors on the Trunk Connections**

Housing Style	Part Number	Specs	Application	Pinout
See Drawing 1	SPTT1-A48	Anodized Aluminum 250 V, 4 A -40° to +75°C NEMA 1, 3, 4, 6P and IEC IP 68	(7/8-16UN) ***minifast*** connector for drop connection, and field wireable terminals on the trunk connections.	**Female** 
See Drawing 2	SPTTM13-A48			

1

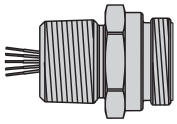
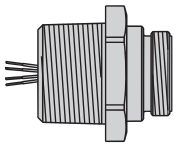
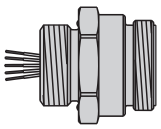
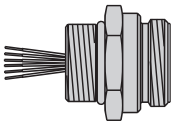
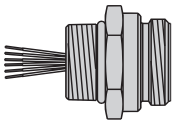


2



PROFIBUS®-PA, (7/8-16UN) *minifast*® Male Receptacles

- **Provides Quick Connection to Field Devices**
- **Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads**

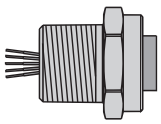
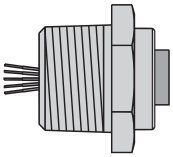
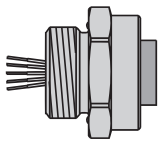
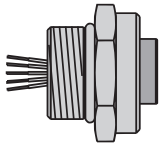
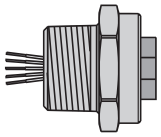
Housing	Part Number	Specs	Application	Pinouts	
13 	RSFV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 600 V, 9 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Male 
15 	RSFV 48-*M/14.75		3/4-14NPT full length threads		
14 	RSFV 48-*M/M20		M20x1.5 threads		
16 	RSFV 48-*M		1/2-14NPSM threads		
17 	RSFV 48-*M/NPT		1/2-14NPT modified length threads		

See page L53 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.
For locknuts to be included, add "W/LN" to the end of the part number.

PROFIBUS®-PA, (7/8-16UN) *minifast*® Female Receptacles

- **Provides Quick Connection to Field Devices**
- **Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads**

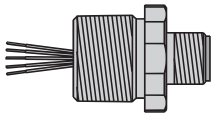
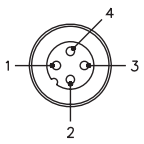
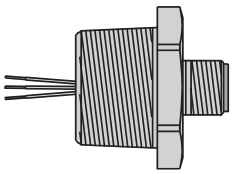
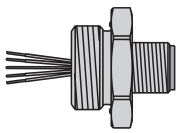
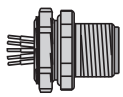
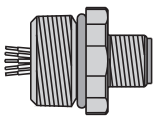
Housing	Part Number	Specs	Application	Pinouts	
18 	RKFV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 600 V, 9 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. GY	Female 
20 	RKFV 48-*M/14.75		3/4-14NPT full length threads		
19 	RKFV 48-*M/M20		M20x1.5 threads		
21 	RKFV 48-*M		1/2-14NPSM threads		
22 	RKFV 48-*M/NPT		1/2-14NPT modified length threads		

See page L54 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKFV ..."; indicates 316 stainless steel housing.
For locknuts to be included, add "W/LN" to the end of the part number.

PROFIBUS®-PA, (M12x1) *eurofast*® Male Receptacles

- **Mounted for Quick Connection to Enclosures**
- **Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads**

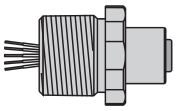
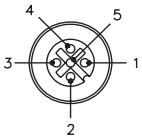
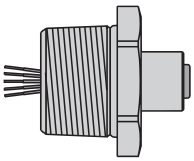
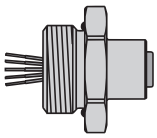
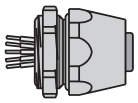
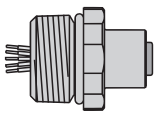
Housing	Part Number	Specs	Application	Pinout	
23 	FSV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. N/C	Male 
25 	FSV 48-*M/14.75		3/4-14NPT full length threads		
24 	FSV 48-*M/M20		M20x1.5 threads		
26 	FSV 48-*M		PG 9 threads		
27 	FSV 48-*M/NPT		1/2-14NPT modified length threads		

See page L55 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.

PROFIBUS®-PA, (M12x1) *eurofast*® Female Receptacles

- **Mounted for Quick Connection to Enclosures**
- **Available for 1/2-14 NPT, 1/2-14 NPSM, 3/4-14 NPT and M20 Threads**

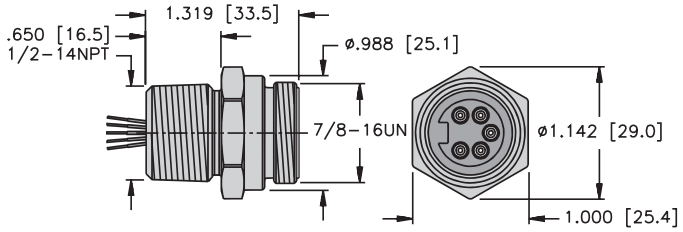
Housing	Part Number	Specs	Application	Pinouts
28 	**FKV 48-*M/14.5**	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	1. BN 2. N/C 3. BU 4. GY  Female
30 	**FKV 48-*M/14.75**		3/4-14NPT full length threads	
29 	**FKV 48-*M/M20**		M20x1.5 threads	
31 	**FKV 48-*M**		PG 9 threads	
32 	**FKV 48-*M/NPT**		1/2-14NPT modified length threads	

See page L56 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.

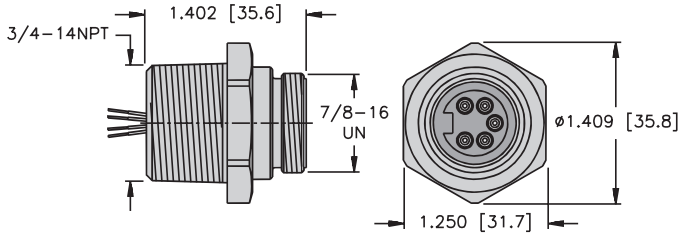
minifast® Male Receptacles

13



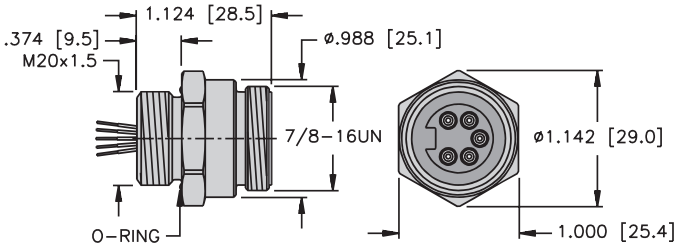
RSFV .. 14.5 **Page L49**

15



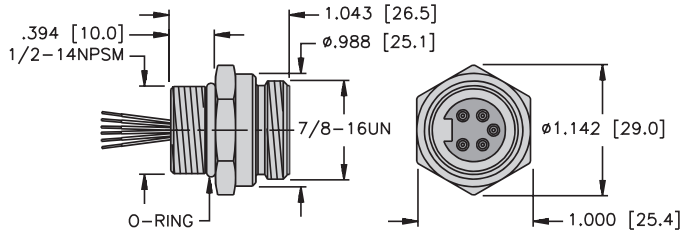
RSFV .. 14.75 **Page L49**

14



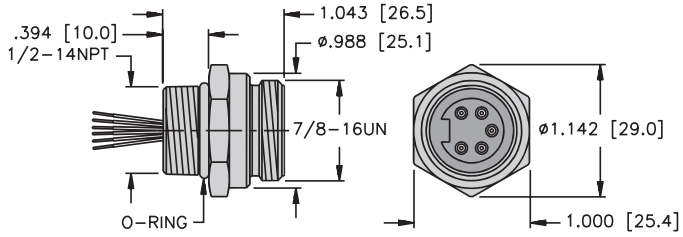
RSFV .. M20 **Page L49**

16



RSFV .. **Page L49**

17



RSFV .. NPT **Page L49**

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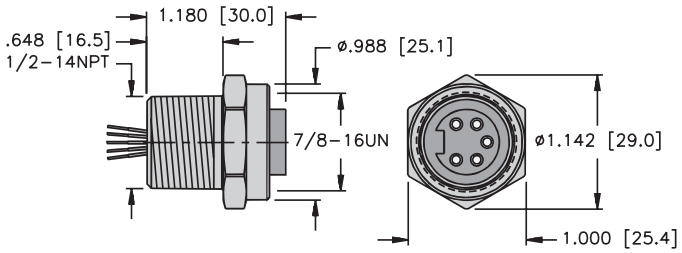

RKFV .. 14.5 **Page L50**

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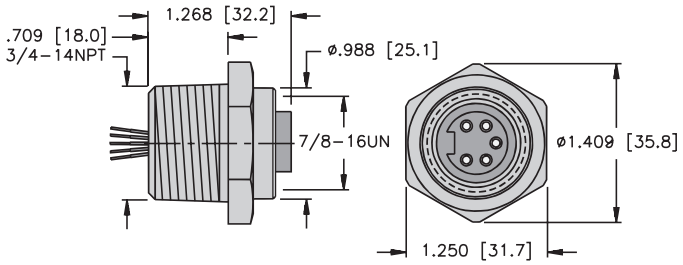

RKFV .. 14.75 **Page L50**

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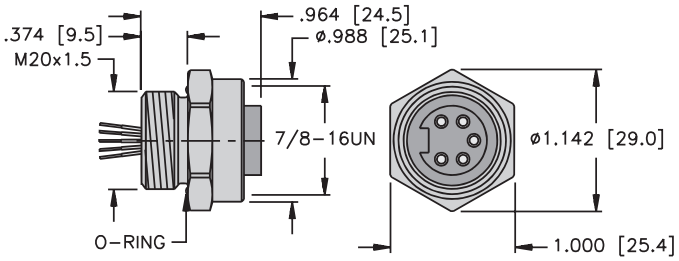

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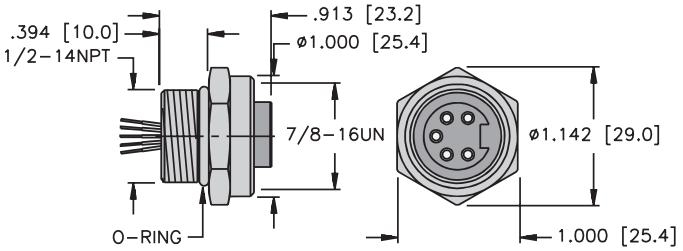

RKFV .. **Page L50**

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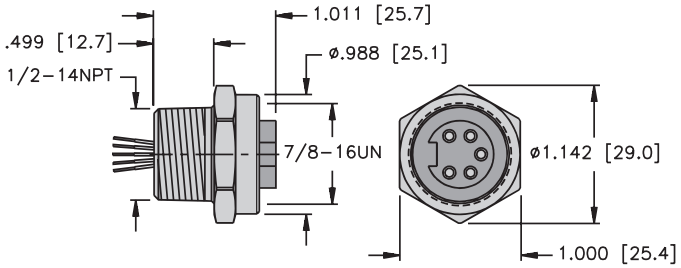
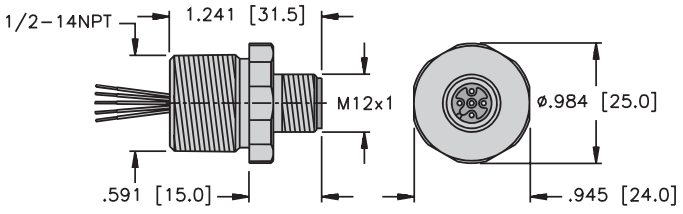


RKFV .. NPT **Page L50**

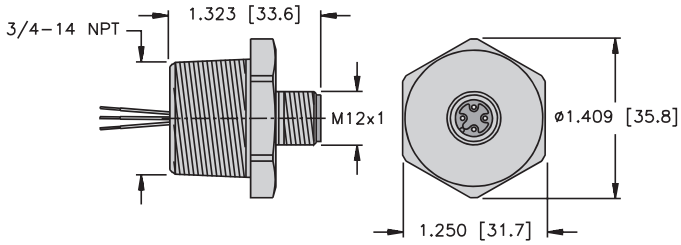
eurofast® Male Receptacles

23



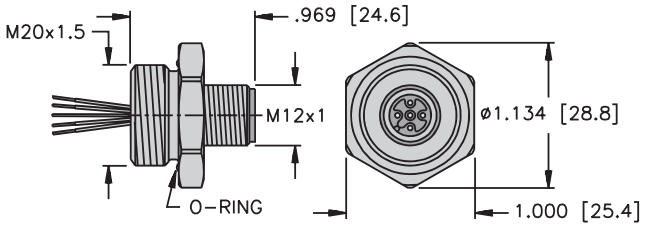
FSV .. 14.5 **Page L51**

25



FSV .. 14.75 **Page L51**

24



FSV .. M20 **Page L51**

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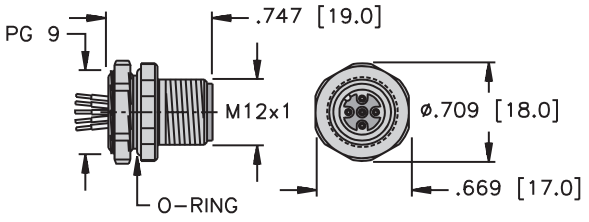

FSV .. **Page L51**

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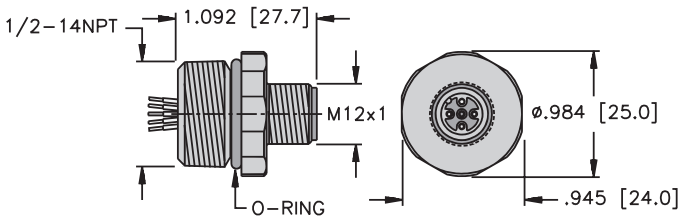

FSV .. NPT **Page L51**

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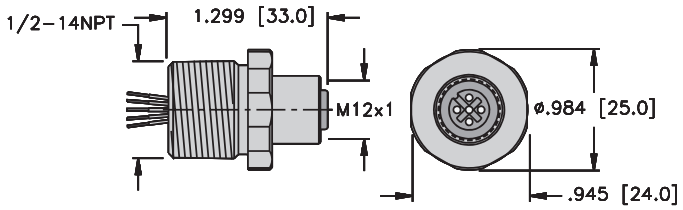

FKV .. 14.5 Page L52

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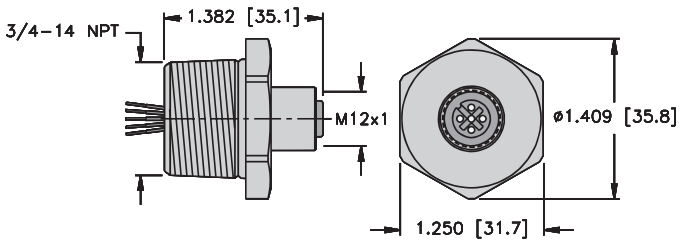

FKV .. 14.75 Page L52

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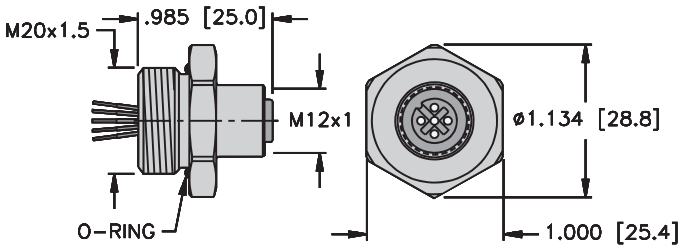
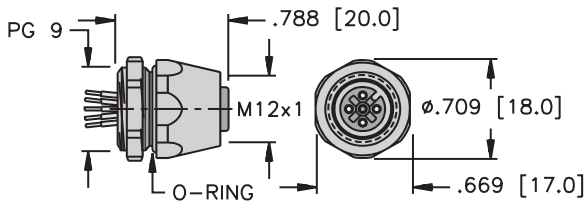


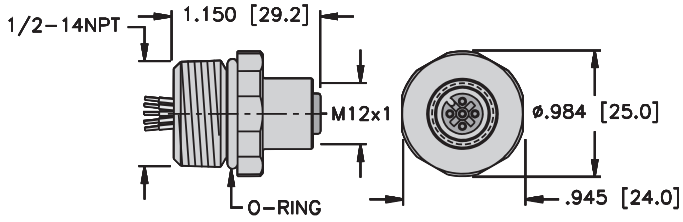
FKV .. M20 Page L52

31



FKV .. Page L52

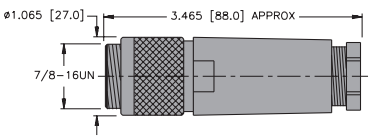
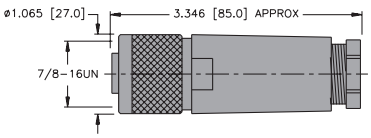
32



FKV .. NPT Page L52

PROFIBUS®-PA, *minifast*® Field Wireable Connectors

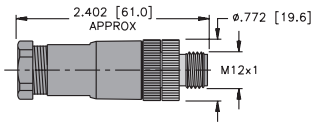
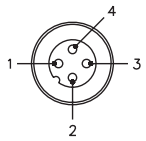
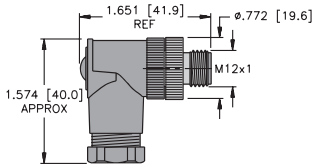
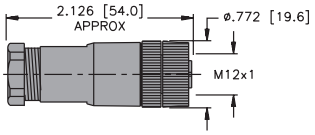
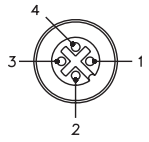
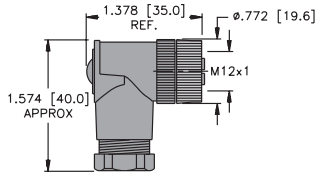
- **Screw Terminals Accept up to 16 AWG Conductors**

Housing	Part Number	Specs	Application	Pinout
	**BS 4148-0/9**	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A	Mates with all 4-pin ***minifast*** cordsets and receptacles	**Female** 
	BS 4148-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		
	**BK 4140-0/9**	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A		**Male** 
	B 4148-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		

For stainless steel coupling nuts change part number BS ... to BSV … BK … To BV

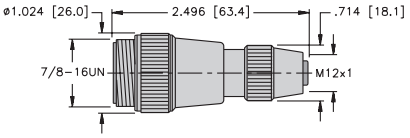
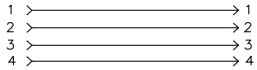
PROFIBUS®-PA, *eurofast* ® Field Wireable Connectors

- **Screw Terminals Accept up to 18 AWG Conductors**

Housing	Part Number	Specs	Application	Pinouts
	**BS 8141-0/PG9**	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 125 V, 4 A	Mates with standard key 4-pin ***eurofast*** cordsets and receptacles	**Male** 
	**BS 8241-0/PG9**	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 125 V, 4 A		
	**B 8141-0/PG9**	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 250 V, 4 A		**Female** 
	**B 8241-0/PG9**	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 250 V, 4 A		

PROFIBUS®-PA, Gender Changers and Elbow Connectors

- **Allows Quick and Easy Changes from Male to Female and *minifast*® to *eurofast*® Connectors**

Housing	Part Number	Specs	Application	Wiring Diagram
	**RSM 48-FK 4.4**	Nickel plated brass CuZn or Stainless Steel 250 V, 4 A -40° to +80°C	Female ***eurofast,*** male ***minifast,*** 4-pin	

Pinouts

minifast	*eurofast*
Male	Female
	

Notes: