



Ethernet

The term “Ethernet” actually refers to the lower level communication structure. Various different versions, or implementations, of Ethernet are available, such as Ethernet/IP™ and Modbus-TCP. It is important to note that while all of these different specifications use the same physical communication method and can operate on the same cable simultaneously, they cannot necessarily communicate with each other. For example, Modbus-TCP devices cannot communicate with Ethernet/IP devices. This is because the messages and communication protocol have been defined differently for these systems, even though the physical electrical structure is the same. Think of it as two people who speak different languages; they speak by moving air with their mouths, but the rules of the languages are different.

Typical System Configuration

The diagram illustrates a network installation setup. On the left, a dashed blue box labeled "Closet" contains two "Server" units connected to an "Enterprise Switch or Router". A "Patch Panel" is also shown. A "25 Pair Fan Cable" connects the switch/router to a "Transition Connector BIC-84-E424" (labeled A). This connector is part of an "Uplink RSC RSC 840-1M" (labeled D). The uplink cable connects to a "Sensor" (labeled B) and a "Valve" (labeled C). The "Valve" is connected to a "Sensor" (labeled C) and a "Power Supply" (labeled E). The "Power Supply" is connected to the "Transition Connector BIC-84-E424" (labeled A) via an "RSM RKM 50-1M" cable. The "Transition Connector BIC-84-E424" (labeled A) is also connected to the "Uplink RSC RSC 840-1M" (labeled D) via an "RSM 2RKM 50" cable. The "Uplink RSC RSC 840-1M" (labeled D) is connected to the "Sensor" (labeled B) via an "RSM RKM 50-1M" cable. The "Sensor" (labeled B) is connected to the "Valve" (labeled C) via an "RSM RKM 50-1M" cable. The "Valve" (labeled C) is connected to the "Sensor" (labeled C) via an "RSM RKM 50-1M" cable. The "Sensor" (labeled C) is connected to the "Power Supply" (labeled E) via an "RSM RKM 50-1M" cable. The "Power Supply" (labeled E) is connected to the "Transition Connector BIC-84-E424" (labeled A) via an "RSM RKM 50-1M" cable.

- A - Controller
- B - Switches
- C - Ethernet I/O modules
- D - Ethernet cable
- E - Power supply

TURCK Inc. 3000 Campus Drive Minneapolis, MN 55441 Application Support: 1-800-544-7769 Fax: (763) 553-0708 www.turck.com **H2**
 Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

Cordsets

TURCK offers a complete line of molded Ethernet cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. Cables are available with stranded or solid-core conductors, with or without shielding.

Most **TURCK** Ethernet equipment uses the 4 or 8-pin (M12) **eurofast**® connector specifications. These connectors provide a tough, rugged seal, and are IP 67 rated. In some cases (mainly in the control cabinet) a traditional RJ45 Ethernet connector needs to be used. **TURCK** provides RJ45 cordsets, as well as a variety of devices made to convert between RJ45 and **eurofast** connectors.

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




Addressing

Industrial Ethernet stations use the IP addressing scheme. An address defined by this scheme consists of four byte values usually displayed in decimal form, for example, 192.168.1.254. Different classifications of networks require different portions of this address to be constant for all devices on the network (referred to as a “subnet”). This means that the number of stations allowed on a particular network varies depending on what class of subnet is being used. If the first three bytes of the IP address are constant (which is common), then the remaining byte may be addressed between 2 and 254, resulting in 253 possible addresses.

Maximum Ratings

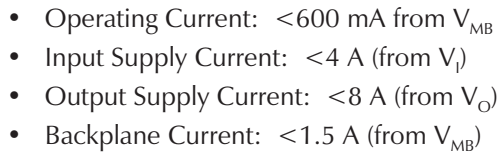
Ethernet allows different maximum cable lengths depending on the type of cable being used. Normally an Ethernet segment may be as long as 100 m, where 90 m must be solid core cable and the remaining 10 m can be stranded patch cords.

Ethernet™ Selection Guide

Item	Style	Type	Pages
Gateways 	BL67	4-Pin	H5 - H8
	AS-I	RJ45	H9 - H16
Switches 	Unmanaged	8-pin	J11, J27
		4-pin	J25
	Managed	4-pin	J29
Ethernet Media Selection Guide 	-----	-----	J2

Ethernet

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



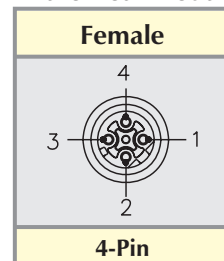
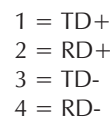
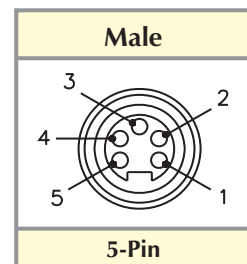
- Operating Temperature: -12 to +55°C (-13 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

- Housing: PC-V0 (Lexan)

- Diagnostic information available through the system I/O map

- LEDs to indicate status of Network and Module Bus communication

UL CE CSA


$$\begin{aligned} 1 &= \text{Gnd} \\ 2 &= \text{Gnd} \\ 3 &= \text{PE} \\ 4 &= V_I \\ 5 &= V_O \end{aligned}$$


Ethernet IP Ethernet Gateways



Gateway:
BL67-GW-EN-IP
Programmable Gateway
BL67-PG-EN-IP



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

Electrical

- Operating Current: <600 mA from V_{MB}
- Input Supply Current: <4 A (from V_I)
- Output Supply Current: <8 A (from V_O)
- Backplane Current: <1.5 A (from V_{MB})

Mechanical

- Operating Temperature: -12 to +55°C (-13 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

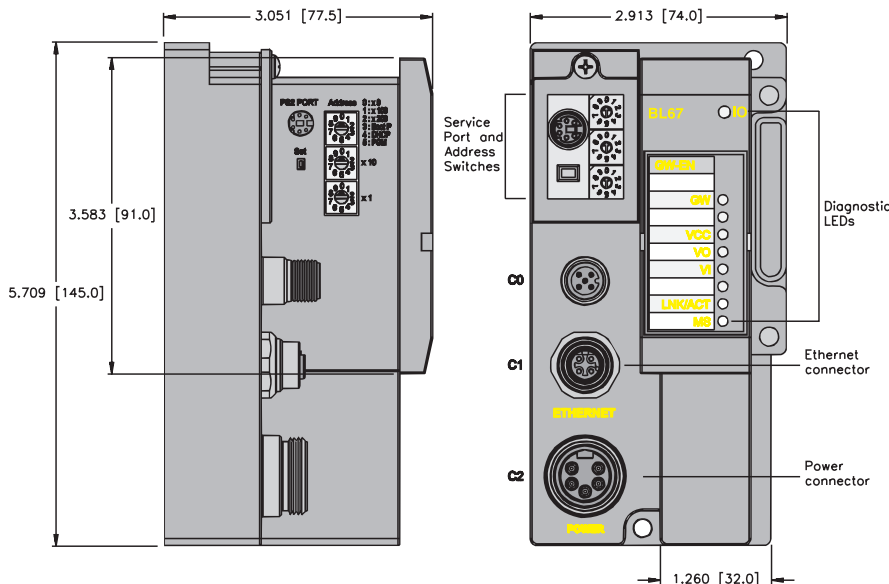
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

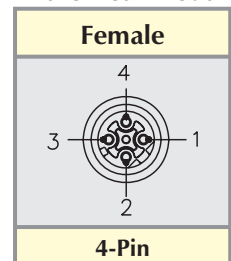
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

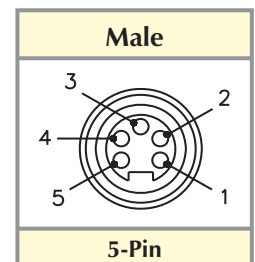


Ethernet Pinout



- 1 = TD+
2 = RD+
3 = TD-
4 = RD-

5-pin minifast® Power Pinout



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

**Profinet
Ethernet Gateways**



BL67-GW-EN-PN



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

Electrical

- Operating Current: <600 mA from V_{MB}
- Input Supply Current: <4 A (from V_I)
- Output Supply Current: <8 A (from V_O)
- Backplane Current: <1.5 A (from V_{MB})

Mechanical

- Operating Temperature: -12 to +55°C (-13 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

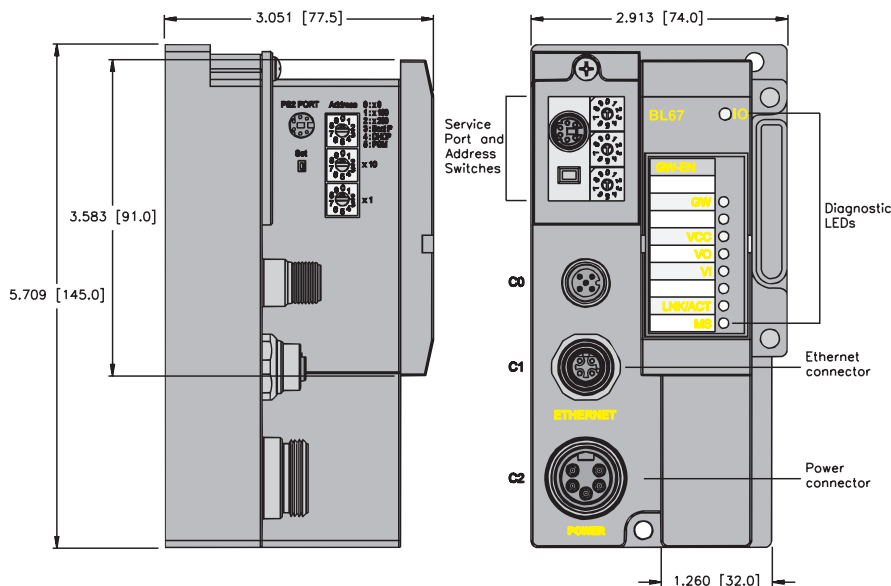
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

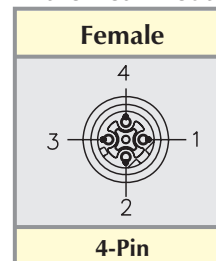
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

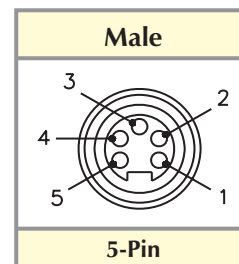


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



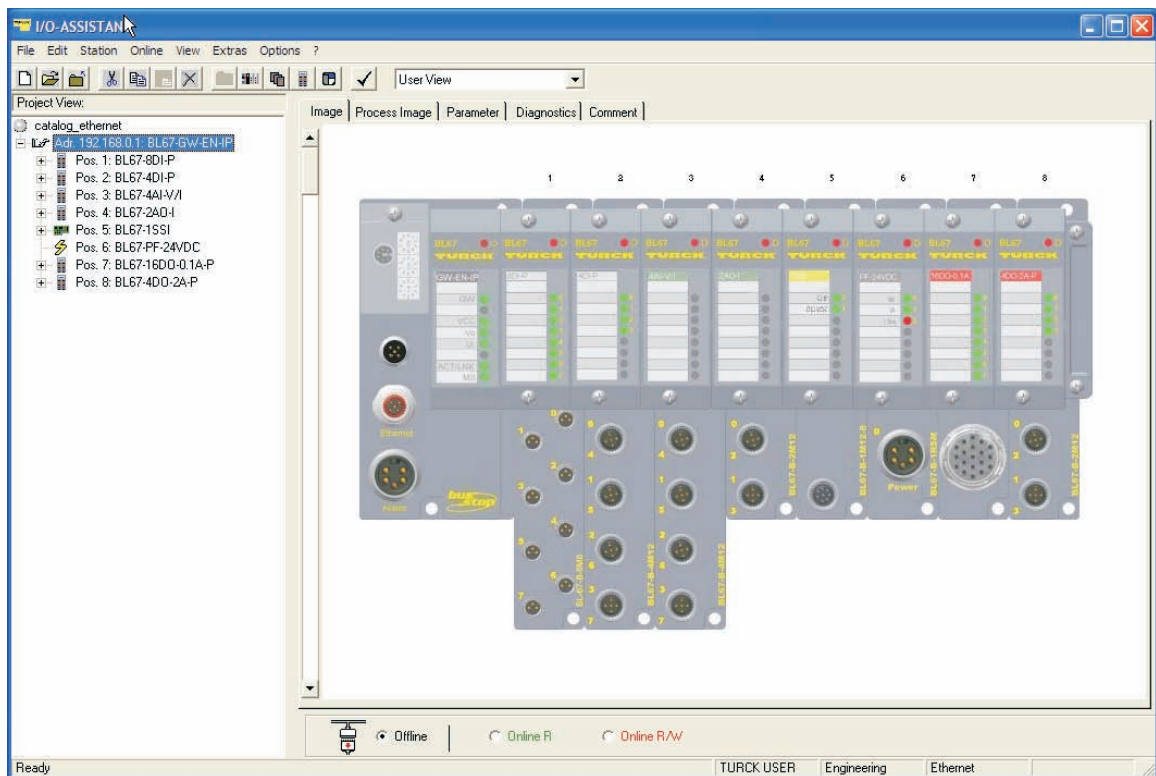
- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Ethernet 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 directly on a machine without the need to plan or purchase 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 Ethernet/IP™ and Modbus-TCP. A BL67 station consists of a gateway module that interfaces to the Ethernet 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.

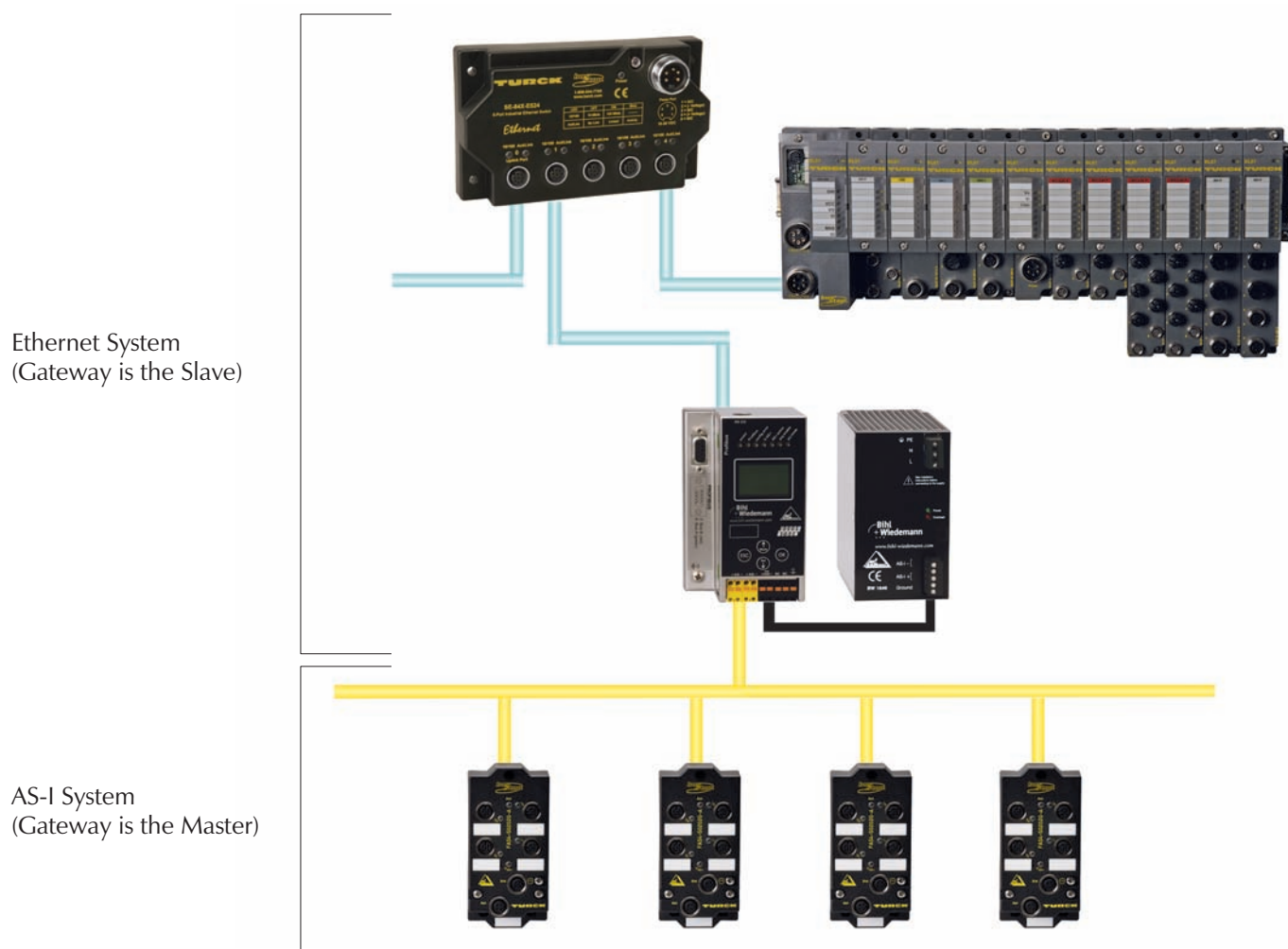
For more details on the BL67 system please see section G of this catalog.



Ethernet to AS-interface® Gateways

AS-I systems can be easily connected to a higher-level network, such as EtherNet/IP™ and Modbus-TCP, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the Ethernet system, mapping all of the AS-I data for Ethernet in a single block.

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



Addressing

Ethernet stations must have an IP address for communication. The address for AS-i/Ethernet 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/Ethernet gateways contain LEDs for diagnosing I/O and communication problems for Ethernet and AS-I. For a detailed description of the LED states, see the Bihl+Wiedemann AS-i/Ethernet Gateway User Manual available for download from www.bihl-wiedemann.com.

Power

Most AS-i/Ethernet 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 the gateway being selected meets the requirements of your system.

**Modbus TCP Gateways in
Stainless Steel**



ASI-ENG-SS BW1650*

ASI-ENG-SS BW1651*

ASI-ENG-SS BW1652*

ASI-ENG-SS-C1D2 BW1659

ASI-ENG-SS-C1D2 BW1660

ASI-ENG-SS-C1D2 BW1661

* 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

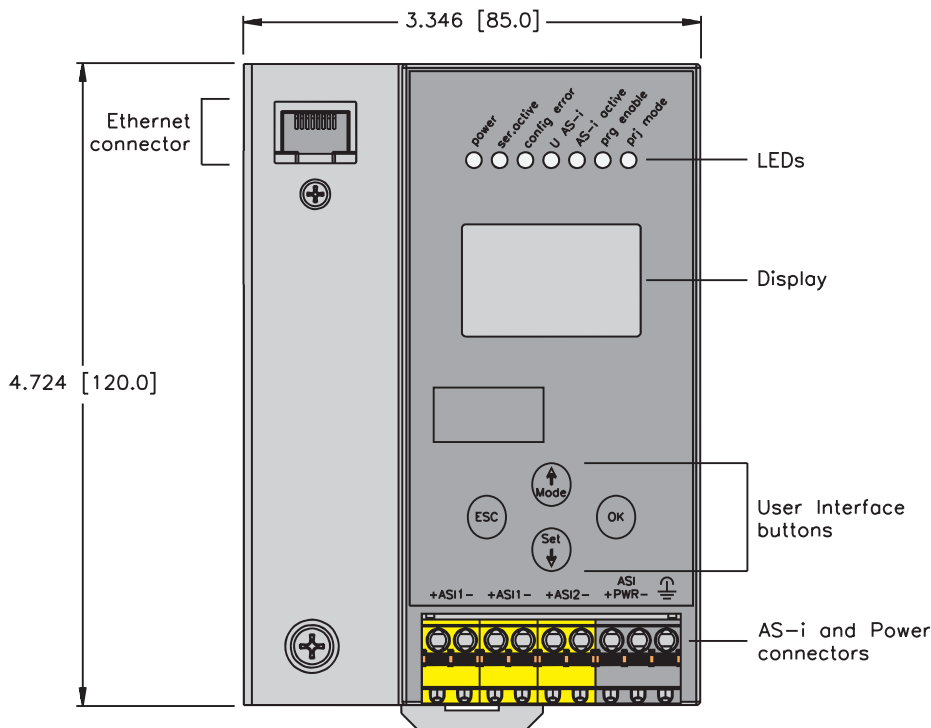
- Housing: Stainless Steel

Diagnostics (Logical)

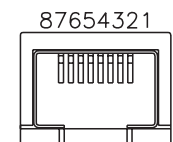
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

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



RJ45 Ethernet Standard

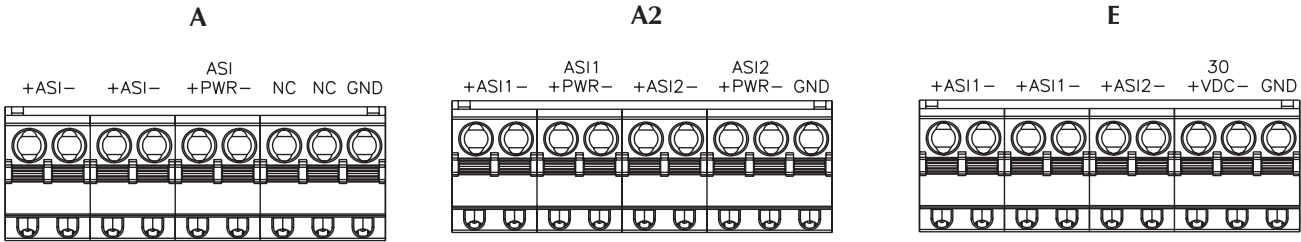


- 87654321
- 1 = WH/or (+TX)
 - 2 = OR (-TX)
 - 3 = WH/GN (+RX)
 - 4 = BU
 - 5 = WH/BU
 - 6 = GN (-RX)
 - 7 = WH/BN
 - 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-ENG-SS BW1650	ModbusTCP	A	3.0	1	X	X
ASI-ENG-SS BW1651	ModbusTCP	A2	3.0	2	X	X
ASI-ENG-SS BW1652	ModbusTCP	E	3.0	2	X	X
ASI-ENG-SS-C1D2 BW1659*	ModbusTCP	A	3.0	1		
ASI-ENG-SS-C1D2 BW1660*	ModbusTCP	A2	3.0	2		
ASI-ENG-SS-C1D2 BW1661*	ModbusTCP	E	3.0	2		

* Approved for use in Class 1, Division 2 areas

Input/Output Connectors



- 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 Ethernet/IP Gateways in Stainless Steel



ASI-EIPG-SS BW1828*

ASI-EIPG-SS BW1829*

ASI-EIPG-SS BW1833*

ASI-EIPG-SS-C1D2 BW1834

ASI-EIPG-SS-C1D2 BW1835

ASI-EIPG-SS-C1D2 BW1836

* not ETL listed

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

Electrical

- Operating Current: 300 mA from VAS₋₁ (Power Supply A)
200 mA from VAS_{-i1}, 70mA from VAS_{-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

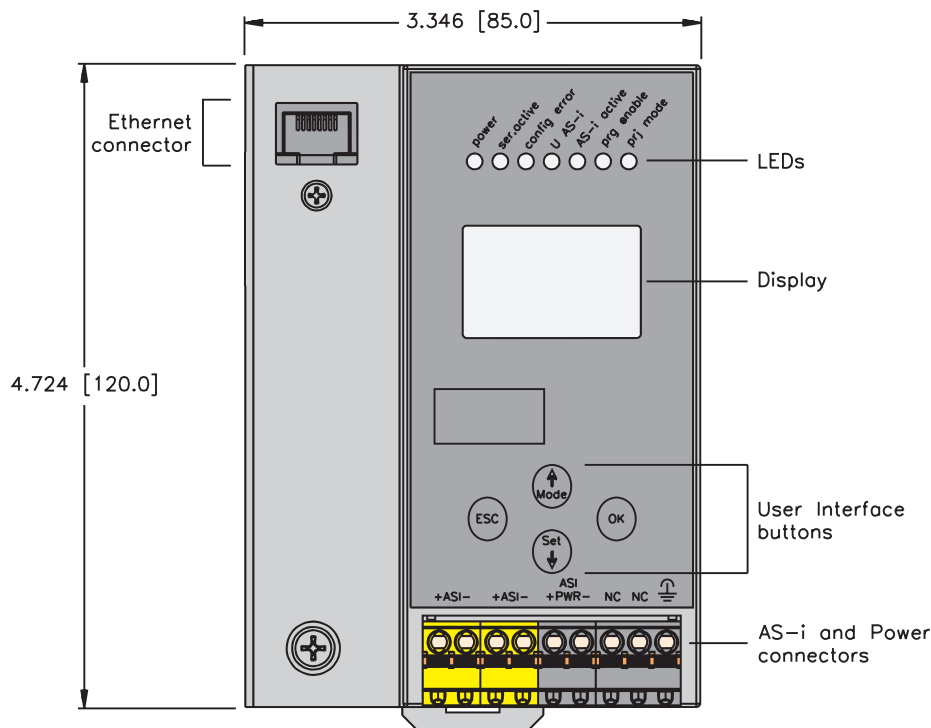
- Housing: Stainless Steel

Diagnostics (Logical)

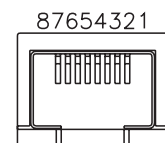
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

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



RJ45 Ethernet Standard



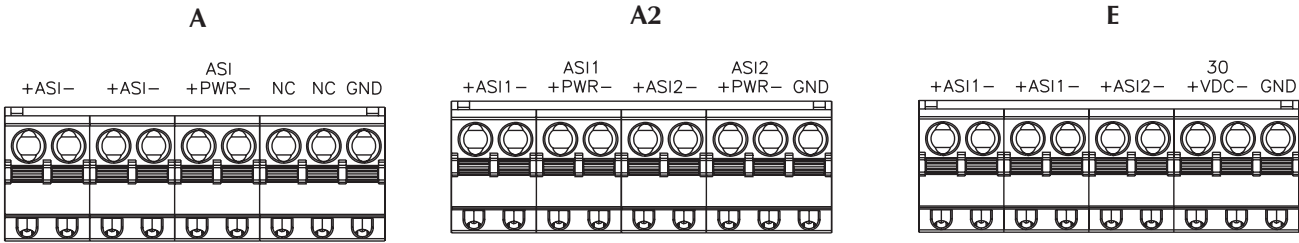
- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-EIPG-SS BW1828	Ethernet/IP	A	3.0	1	X	X
ASI-EIPG-SS BW1829	Ethernet/IP	A2	3.0	2	X	X
ASI-EIPG-SS BW1833	Ethernet/IP	E	3.0	2	X	X
ASI-EIPG-SS-C1D2 BW1834*	Ethernet/IP	A	3.0	1		
ASI-EIPG-SS-C1D2 BW1835*	Ethernet/IP	A2	3.0	2		
ASI-EIPG-SS-C1D2 BW1836*	Ethernet/IP	E	3.0	2		

Approved for use in Class 1, Division 2 areas

Ethernet

Input/Output Connectors



- 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 ProfiNET Gateways in Stainless Steel



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

Electrical

- Operating Current: 300 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply

Mechanical

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

Material

- Housing: Stainless Steel

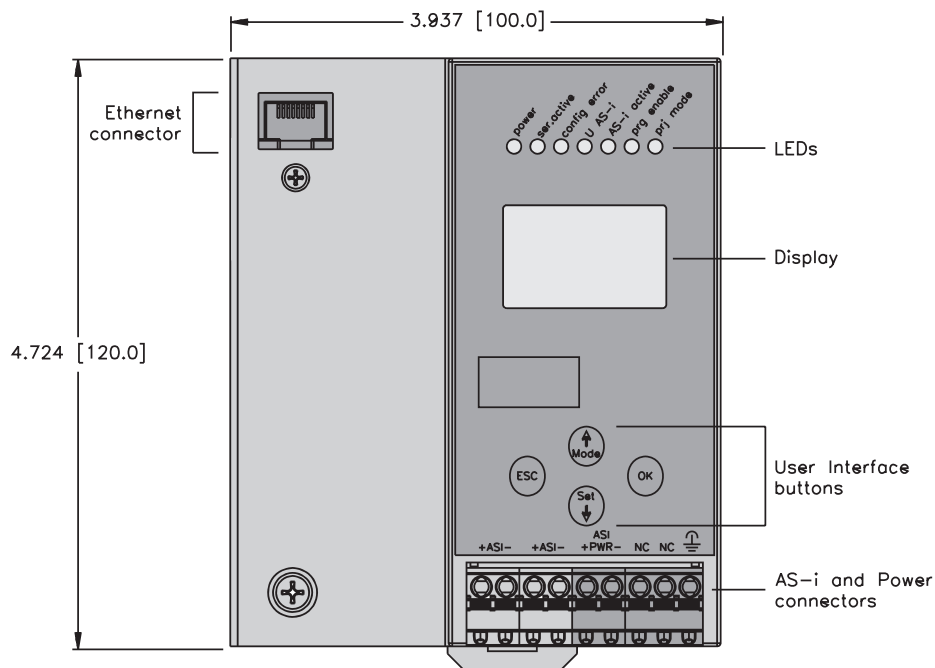
Diagnostics (Logical)

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

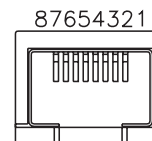
Diagnostics (Physical)

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

ASI-PNG-SS BW1912



RJ45 Ethernet Standard

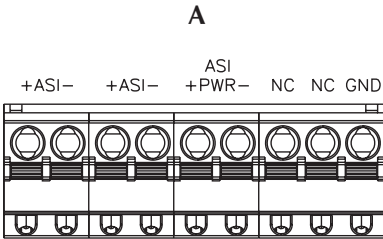


- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-PNG-SS BW1912	PROFINET	A	3.0	1	X	X

Ethernet

Input/Output Connectors



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

Ethernet Media



Ethernet, 8-wire Selection Guide



Cables	Unmanaged Switches	Conduit Adapters
J4 - J9	J11, J27	J13



Cabinet Adapters	Receptacles
J14	J15

Ethernet Media

Ethernet, 4-wire Selection Guide



Cables	Unmanaged Switches	Managed Switches
J19 - J23	J25	J29

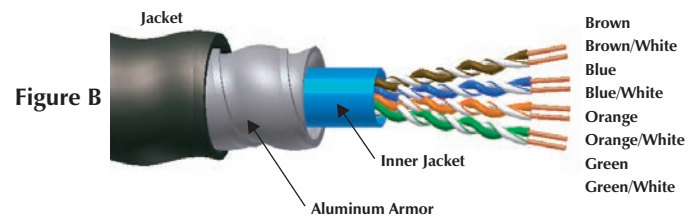
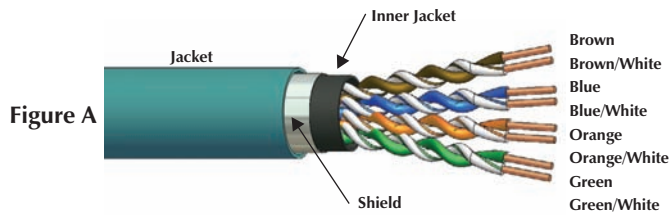


Conduit Adapters/Wall Plates	Cabinet Adapters	Receptacles/Field Wireables/RJ11
J31/J32	J33	J34/J35/J37

Notes:

Ethernet, Cable Specifications, 8-wire

- Cable that Meets the Requirements of TIA/EIA568-B.2 Category 5e Cable for 10 and 100 Base-T Ethernet
- Cable is UL Rated for Sunlight and Oil Resistant



Maximum 100 meters of cable of which:

- 90 meters Horizontal Cable (SOLID - 842 or 843)
- 2 x 5 meters Patch Cables (STRANDED - 840 or 841)
- Direct Connect 30 M STRANDED

Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type		
840 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Stranded	28.6 Ohms PE	PVC Teal 6.5 mm (.256 in)	None	RB50856-*M 39 lbs. <i>flexlife</i> ® ++	A
841 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Stranded	28.6 Ohms PE	PVC Teal 7.3 mm (.286 in)	Foil/Braid	RB50893-*M 50 lbs. <i>flexlife</i> ++	A
842 75°C 100 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Solid	28.6 Ohms PE	PVC Teal 5.9 mm (.231 in)	None	RB50857-*M 39 lbs. <i>flexlife</i> +	A
843 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Solid	28.6 Ohms PE	PVC Teal 7.3 mm (.286 in)	Foil/Braid	RB50894-*M 50 lbs. <i>flexlife</i> +	A
845 50°C 125 Volts	TSB-36 ISO/IEC 11801	8/26 AWG Stranded	37.3 Ohms PE	PUR Teal 6.3 mm (.248 in)	Foil/Braid	RB51305-*M 54 lbs. <i>flexlife</i> +++ Halogen Free	A
849A AWM 444 80°C 300 Volts	NEC CMG CEC HL CMG	8/24 AWG Solid	28.6 Ohms PO	PVC Black 15.3 mm (.530 in)	Foil/Braid Armor	RB51100-*M 159 lbs. <i>armorfast</i> ®	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.

+ 85 thousand cycles on c-track flexing machine at 1.5" bend radius.

++ 4 million cycles on c-track flexing machine at 1.5" bend radius.

+++ 2 million cycles on c-track flexing machine at 1.5" bend radius.

Ethernet, (M12x1) eurofast® Cable/Cordset Selection Matrix - Cable Type 840 & 842 Only

eurofast

See pages J7 - J8 for dimensional drawings.

* Indicates length in meters.

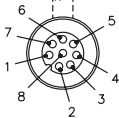
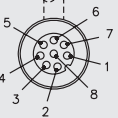
x Indicates cable type.

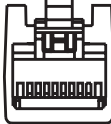
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

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

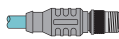
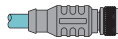

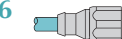

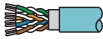
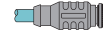


For stainless steel coupling nuts change part number RSC ... to RSCV, FKFD ... to FKFDV.

For cross-over cable, add "CR" to part number RJ45 RJ45 CR 84x-*M.

<i>eurofast</i>	Pinouts	<i>eurofast</i>
<p>Male</p>  <p>A circular diagram of a male eurofast connector. It has eight pins arranged in a circle. The pins are numbered 1 through 8. Pin 1 is at the top. Pin 2 is at the bottom. Pin 3 is at the bottom-right. Pin 4 is at the right. Pin 5 is at the top-right. Pin 6 is at the top-left. Pin 7 is at the left. Pin 8 is at the bottom-left. There are dashed lines connecting pins 1 and 6, 2 and 5, 3 and 4, and 7 and 8.</p>	<ol style="list-style-type: none"> 1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green 	<p>Female</p>  <p>A circular diagram of a female eurofast connector. It has eight pins arranged in a circle. The pins are numbered 1 through 8. Pin 1 is at the top. Pin 2 is at the bottom. Pin 3 is at the bottom-right. Pin 4 is at the right. Pin 5 is at the top-right. Pin 6 is at the top-left. Pin 7 is at the left. Pin 8 is at the bottom-left. There are dashed lines connecting pins 1 and 6, 2 and 5, 3 and 4, and 7 and 8.</p>

Standard Pinout	RJ45 Plug	(CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. Blue 5. White/Blue 6. Green 7. White/Brown 8. Brown	<p style="text-align: center;">Male</p>  <p style="text-align: center;">12345678</p>	1. White/Green 2. Green 3. White/Orange 4. Blue 5. White/Blue 6. Orange 7. White/Brown 8. Brown

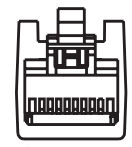
Ethernet, (M12x1) eurofast® Cable/Cordset Selection Matrix - Cable Type 841 & 843 Only

		eurofast					
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug	
		1  RSS	2  RKS	5  FSSDE	6  FKSDE	7  RJ45S	
 Bare		RSS 84x-*M	RKS 84x-*M	FSSDE 84x-*M	FKSDE 84x-*M	RJ45S 84x-*M	
eurofast	Pin (Male)	1  RSS	RSS RSS 84x-*M	RSS RKS 84x-*M	RSS FSSDE 84x-*M	RSS FKSDE 84x-*M	RSS RJ45S 84x-*M
	Socket (Female)	2  RKS		RKS RKS 84x-*M	RKSS FSSDE 84x-*M	RKS FKSDE 84x-*M	RKS RJ45S 84x-*M
	RJ45 Plug	7  RJ45S			RJ45S FSSDE 84x-*M	RJ45S FKSDE 84x-*M	RJ45S RJ45S 84x-*M

See pages J7 - J8 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 RSS ... to RSSV, FKSDE ... to FKSDEV.
For cross-over cable, add "CR" to part number RJ45S RJ45S CR 84x-*M.

eurofast	Pinouts	eurofast
Male 	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	Female 

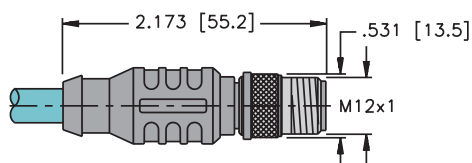
Standard Pinout	RJ45 Plug	(CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. Blue 5. White/Blue 6. Green 7. White/Brown 8. Brown	Male  12345678	1. White/Green 2. Green 3. White/Orange 4. Blue 5. White/Blue 6. Orange 7. White/Brown 8. Brown

Ethernet, eurofast® Cordset Connector Dimensions / Configuration

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:	60 V
Rated Current:	2 A
Ambient Temperature:	0° to +75°C (-22° to +167°F)

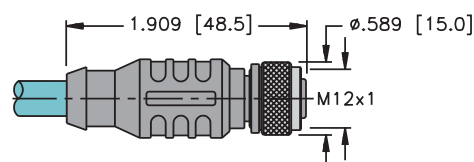
1



RSC/RSS ..

Pages J5 - J6

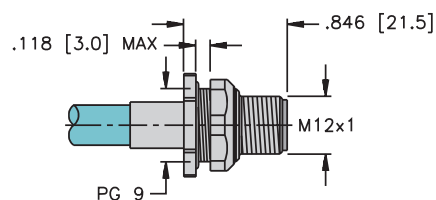
2



RKC/RKS ..

Pages J5 - J6

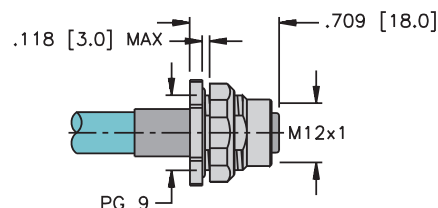
3



FSFD ..

Pages J5 - J6

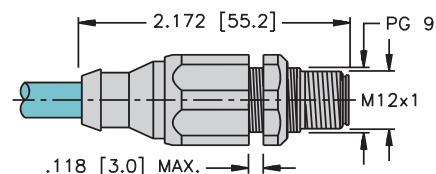
4



FKFD ..

Pages J5 - J6

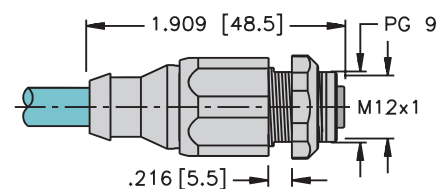
5



FSSDE ..

Pages J5 - J6

6



FKSDE ..

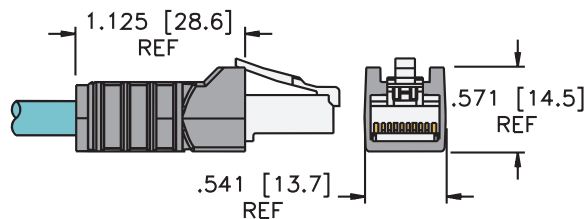
Pages J5 - J6

Ethernet, RJ45 Connector Dimensions / Configuration

Specifications

Housing:	Polyolefin
Protection:	NEMA 1 and IEC IP 20
Rated Voltage:	42 V
Rated Current:	1.5 A
Ambient Temperature:	0° to +80°C (-22° to +176°F)

7



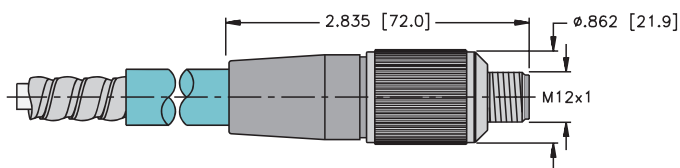
RJ45/RJ45S ..

Page J5 - J6

Ethernet Media

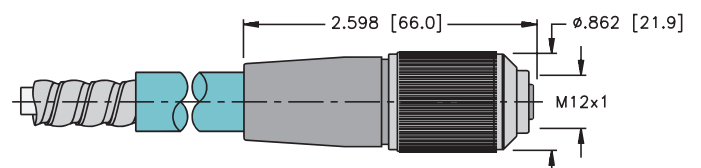
Specifications

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:	60 V
Rated Current:	2 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)



RSA ..

(armorfast® only)



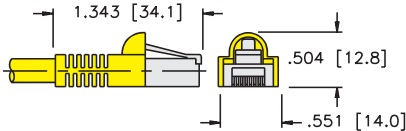

RKA ..


(armorfast only)

Ethernet, Economy RJ45 to RJ45 Cordsets

- For "In the Panel" Applications Where Industrial Cordsets are not Needed
- Available on Yellow, 3 FT and 7 FT Lengths Only



	Part Number	Application	Pinout
	RJ45 RJ45 840-3FT/ECON	<ul style="list-style-type: none">• Ethernet patch cordsets for panel connections• Economy, non industrial	Male  12345678
	RJ45 RJ45 840-7FT/ECON		

RJ45 Plug	Pinout
Male  12345678	<ol style="list-style-type: none">1. White/Orange2. Orange3. White/Green4. Blue5. White/Blue6. Green7. White/Brown8. Brown

Notes:

Unmanaged Switches



- 5 and 9 Ports Available
- 10/100 Mbps
- IP 67 Protection
- 8-pin Ethernet Connectors

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

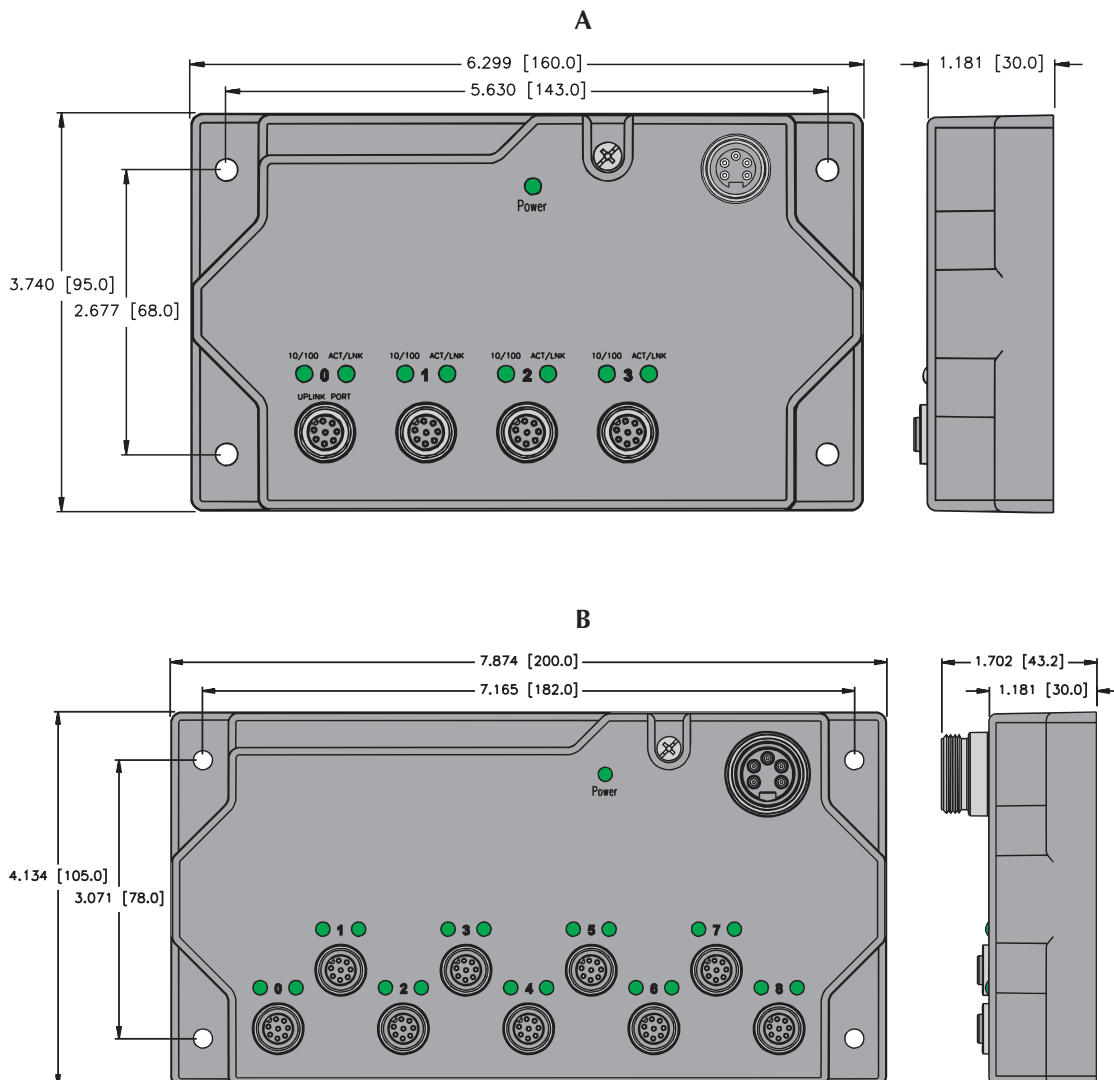
- Operating Temperature: -30 to +80°C (-22 to +176°F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

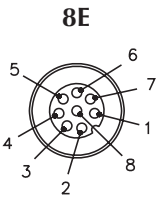
- LEDs to indicate status of Ethernet communication



Inputs				
Part Number	Ports*	Ethernet Pinouts	Power Pinout	Dimensions
SE-84X-E524	5	8E	5M	A
SE-84X-E924	9	8E	5M	B
SE-84X4-E524	5	8E	4M	A
SE-84X4-E924	9	8E	4M	B

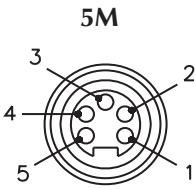
* Note: One port for each switch is a dedicated uplink port

Port/Power Connectors



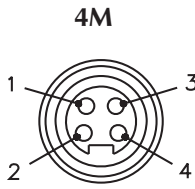
8-pin *eurofast*®

- 1 = WH/BU
- 2 = WH/BN
- 3 = BN
- 4 = OG (TX-)
- 5 = WH/GN (RX+)
- 6 = WH/OG (TX+)
- 7 = BU
- 8 = GN (RX-)



5-pin *minifast*®
Power

- 1 = NC
- 2 = V-
- 3 = NC
- 4 = V+
- 5 = NC



4-pin *minifast* Power

- 1 = V+
- 2 = NC
- 3 = NC
- 4 = V-

Ethernet, Conduit Adapters, 8-wire

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

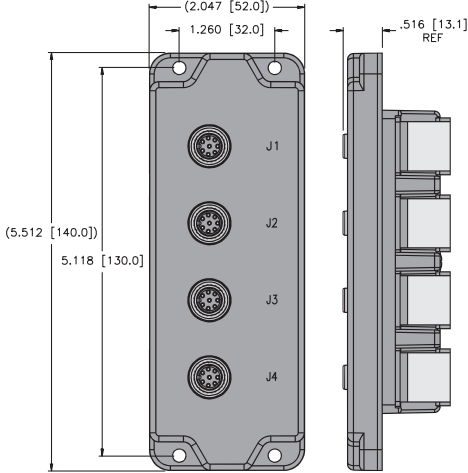
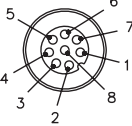


	Part Number	Specs	Application	Pinout
	BCA 84-E124		Attaches to standard conduit body* for transition to 8-wire (M12x1) eurofast ® connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	
	BCA 84-E224	Nylon Housing 60 V, 2 A -40° to +75°C	Attaches to standard conduit body* for transition to 8-wire (M12x1) eurofast connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	

Ethernet, Cabinet Adapter, 8-wire

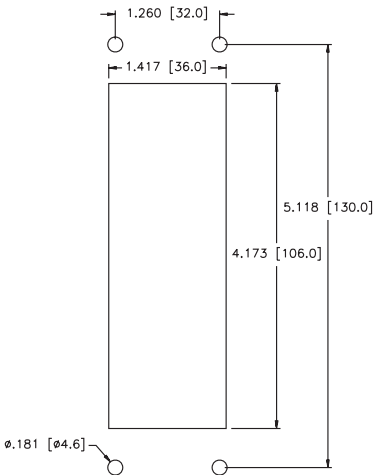
- Mounts to any Cabinet for Transition from (M12x1) *eurofast*® 8-Pin Connectors to RJ45 Connectors
- Gasket and Mounting Hardware Included (8-32 x 1/2")

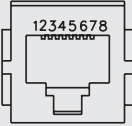


	Part Number	Specs	Application	Pinout
	BIC 84-E424	Nylon Housing 60 V, 2 A -40° to +75°C	Attaches to cabinet for transition to 4-wire (M12x1) <i>eurofast</i> connector	<p>Female</p> 

Ethernet Media

Panel Dimensions



RJ45 Plug	Pinouts
	1. White/Orange (+ TX) 2. Orange (-TX) 3. White/Green (+ RX) 4. Blue 5. White/Blue 6. Green (-RX) 7. White/Brown 8. Brown

Ethernet, Circuit Board Connectors and OEM Receptacles, 8-wire

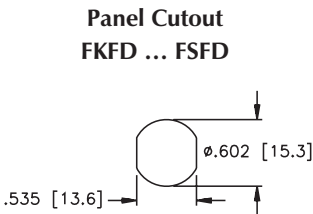
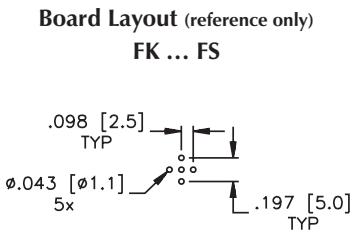
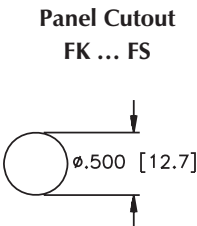
- Provides (M12x1) *eurofast*® 8-Pin Connection to Field Devices



	Part Number	Specs	Application	Pinouts	
10 	FS 84 PCB KIT	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male <i>eurofast</i> with mounting kit		Male
14 	FS 84 PCB		Male <i>eurofast</i>		
13 	FK 84 PCB KIT		Female <i>eurofast</i> with mounting kit		Female
16 	FK 84 PCB		Female <i>eurofast</i>		

See pages J17 - J18 for dimensional drawings.

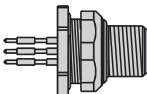
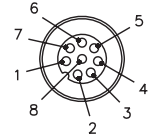
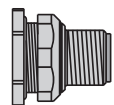
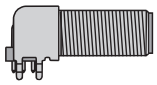
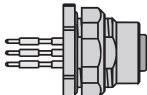
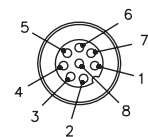
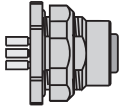
Standard housing material is nickel plated brass "FSV .."; "FKV .." indicates 316 stainless steel.



Ethernet, Circuit Board Connectors and OEM Receptacles, 8-wire

- Provides (M12x1) *eurofast*® 8-Pin Connection to Field Devices



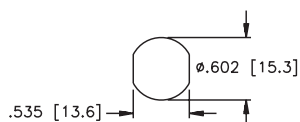
	Part Number	Specs	Application	Pinouts
9 	FSFD 84 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male <i>eurofast</i> PCB pins	Male 
8 	FSFDL 84		Male <i>eurofast</i> solder cups	
15 	WFS 84 PCB		Male <i>eurofast</i> right angle PCB pins	
12 	FKFD 84 PCB		Female <i>eurofast</i> PCB pins	Female 
11 	FKFDL 84		Male <i>eurofast</i> solder cups	

Ethernet Media

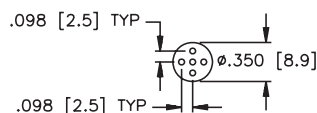
See pages J17 - J18 for dimensional drawings.

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

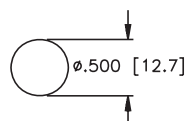
Panel Cutout
FKFD ... FSFD



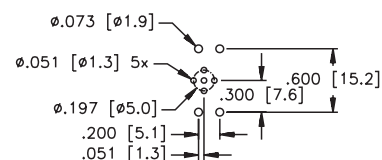
Board Layout (reference only)
FKFD ... FSFD



Panel Cutout
WFS

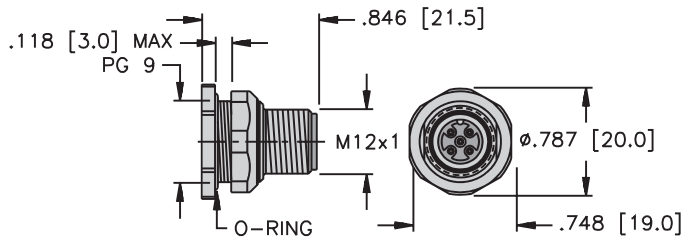


Board Layout (reference only)
WFS



euromast® PCB Mount Male and Female Receptacles

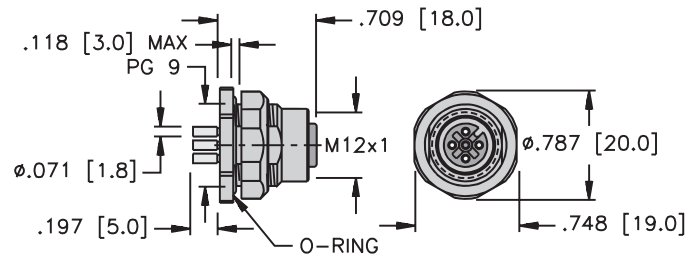
8



FSFDL ..

Page J16

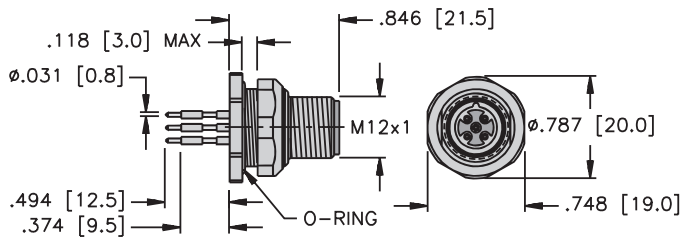
11



FKFDL ..

Page J16

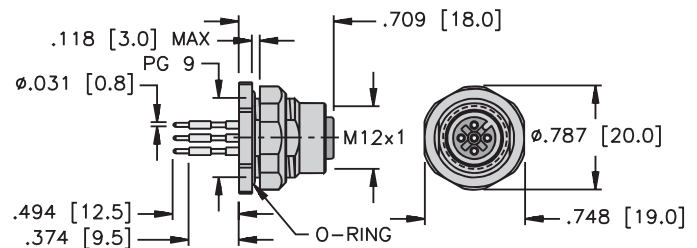
9



FSFD .. PCB

Page J16

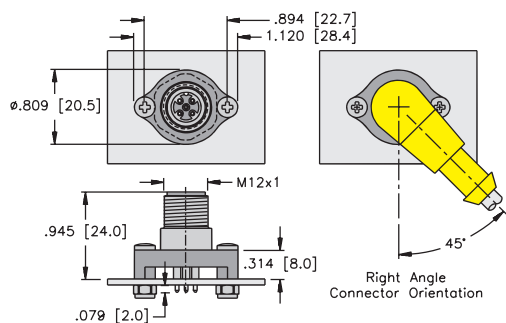
12



FKFD .. PCB

Page J16

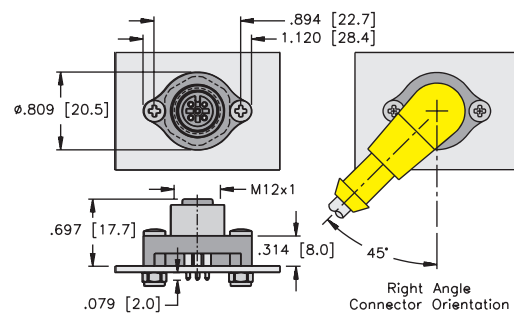
10



FS .. PCB KIT

Page J15

13

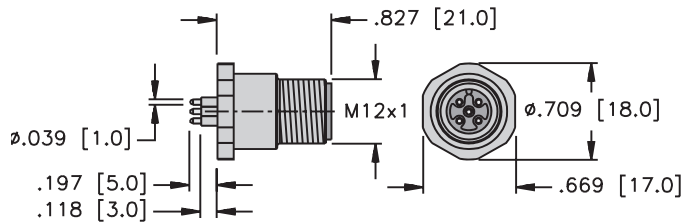


FK .. PCB KIT

Page J15

euromast® PCB Mount Male and Female Receptacles

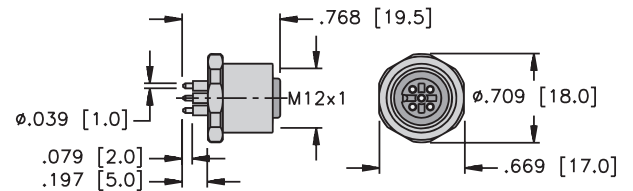
14



FS .. PCB KIT

Page J15

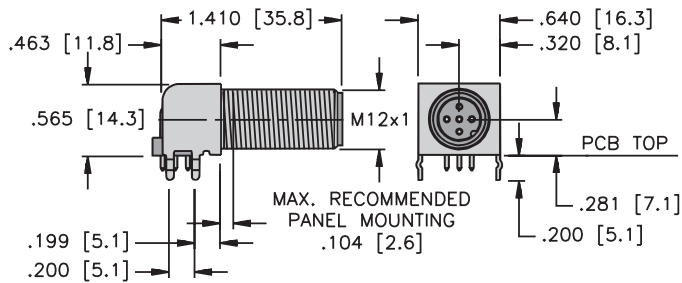
16



FK .. PCB KIT

Page J15

15

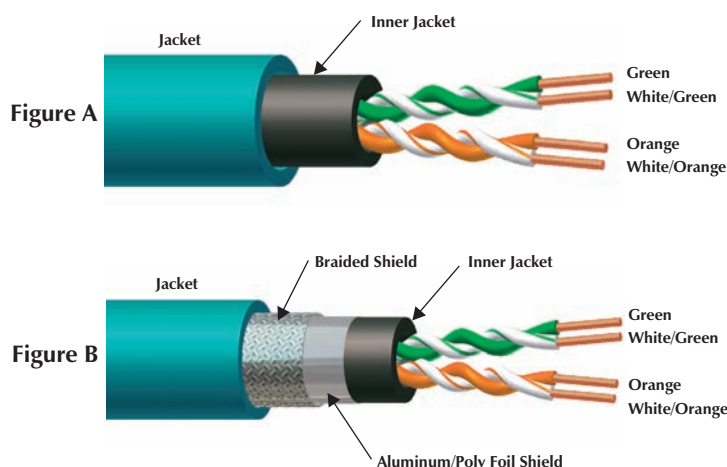


WFS .. PCB

Page J16

Ethernet, Cable Specifications, 4-wire

- Cable that Meets the Requirements of TIA/EIA568-B.2 Category 5e Performance Requirements Cable for 10 and 100 Base-T Ethernet
- Compliant with Ethernet/IP Standards
- Cable is UL Rated for Sunlight and Oil Resistant



Maximum 100 meters of cable of which:

- 90 meters Horizontal Cable (SOLID - 442 or 443)
- 2 x 5 meters Patch Cables (STRANDED - 440 or 441)


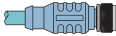







Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type		
440 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Stranded	28.6 Ohms PO	PVC Teal 6.9 mm (.270 in)	None	RB51210-*M 29 lbs.	A
441 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Stranded	28.6 Ohms PO	PVC Teal 7.2 mm (.285 in)	Foil/Braid	RB51211-*M 44 lbs.	B
442 75°C 100 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Solid	28.6 Ohms PO	PVC Teal 6.4 mm (.250 in)	None	RB51212-*M 27 lbs.	A
443 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Solid	28.6 Ohms PO	PVC Teal 7.1 mm (.280 in)	Foil/Braid	RB51213-*M 49 lbs.	B
4410 50°C 124 Volts	TSB-36 ISO/IEC 11801	4/26 AWG Stranded	37.3 Ohms PE	PUR Teal 6.1 mm (.240 in)	Foil/Braid	RB51306-*M 48 lbs. <i>flexlife</i> ®† Halogen Free	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.

† 2.5 million flex motions at 12.5x cable diameter bend radius.

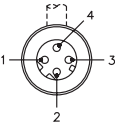
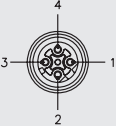
Ethernet, (M12x1) eurofast® Cables and Extensions - Cable Type 440 & 442 D-coded


		eurofast					
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug	
		8  RSCD	9  RKCD	12  FSFDD	13  FKFDD	14  RJ45	
eurofast		 Bare	RSCD 44x-*M	RKCD 44x-*M	FSFDD 44x-*M	FKFDD 44x-*M	RJ45 44x-*M
	Pin (Male)	8  RSCD	RSCD RSCD 44x-*M	RSCD RKCD 44x-*M	RSCD FSFDD 44x-*M	RSCD FKFDD 44x-*M	RSCD RJ45 44x-*M
	Socket (Female)	9  RKCD		RKCD RKCD 44x-*M	RKCD FSFDD 44x-*M	RKCD FKFDD 44x-*M	RKCD RJ45 44x-*M
	RJ45 Plug	14  RJ45			RJ45 FSFDD 44x-*M	RJ45 FKFDD 44x-*M	RJ45 RJ45 44x-*M

See pages J22 - J23 for dimensional drawings.

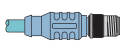
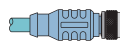
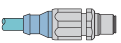
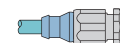
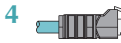

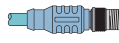
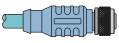

- * Indicates length in meters.
 - x Indicates cable type.
- Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.
For stainless steel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

Ethernet Media

eurofast	Pinouts	eurofast
Male 	1. White/Orange (+ tx) 2. White/Green (+rx) 3. Orange (-tx) 4. Green (-rx)	Female 

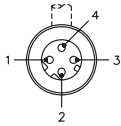
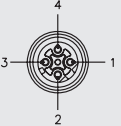
RJ45 Pinout	RJ45 Plug	RJ45 (CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. N/C 5. N/C 6. Green 7. N/C 8. N/C	Male  12345678	1. White/Green 2. Green 3. White/Orange 4. N/C 5. N/C 6. Orange 7. N/C 8. N/C

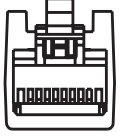
Ethernet, (M12x1) eurofast® Cables and Extensions - Cable Type 441 & 443 D-coded

		eurofast					
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug	
		8  RSSD	9  RKSD	10  FSSDED	11  FKSDED	14  RJ45S	
eurofast		 Bare	RSSD 44x-*M	RKSD 44x-*M	FSSDED 44x-*M	FKSDED 44x-*M	RJ45S 44x-*M
	Pin (Male)	8  RSSD	RSSD RSSD 44x-*M	RSSD RKSD 44x-*M	RSSD FSSDED 44x-*M	RSSD FKSDED 44x-*M	RSSD RJ45S 44x-*M
	Socket (Female)	9  RKSD		RKSD RKSD 44x-*M	RKSD FSSDED 44x-*M	RKSD FKSDED 44x-*M	RKSD RJ45S 44x-*M
	RJ45 Plug	14  RJ45S			RJ45S FSSDED 44x-*M	RJ45S FKSDED 44x-*M	RJ45S RJ45S 44x-*M

See pages J22 - J23 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 RSSD ... RSSDV, FSSDED ... FSSDEDV.

eurofast	Pinouts	eurofast
Male 	1. White/Orange (+ tx) 2. White/Green (+rx) 3. Orange (-tx) 4. Green (-rx)	Female 

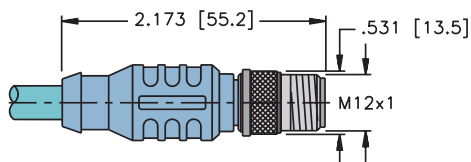
RJ45 Pinout	RJ45 Plug	RJ45 (CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. N/C 5. N/C 6. Green 7. N/C 8. N/C	Male  12345678	1. White/Green 2. Green 3. White/Orange 4. N/C 5. N/C 6. Orange 7. N/C 8. N/C

Ethernet, *euofast*® Cordset Connector Dimensions / Configuration

Specifications

Housing:	TPU (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:	0° to +75°C (-22° to +167°F)

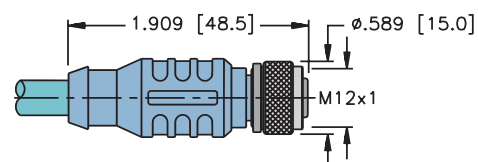
8



RSCD/RSSD ..

Pages J20 - J21

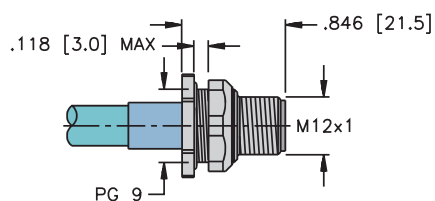
9



RKCD/RKSD ..

Pages J20 - J21

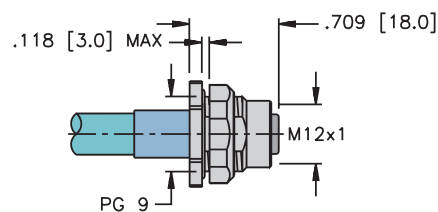
10



FSFDD ..

Pages J20 - J21

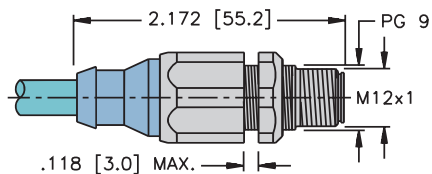
11



FKFD ..

Pages J20 - J21

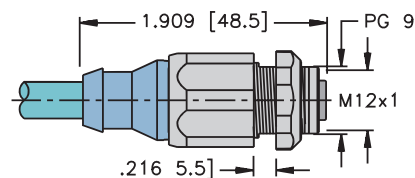
12



FSSDED ..

Pages J20 - J21

13



FKSD ..

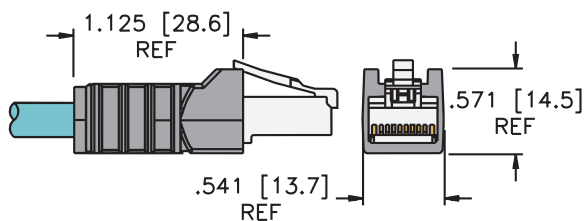
Pages J20 - J21

Ethernet, RJ45 Connector Dimensions / Configuration

Specifications

Housing:	Polyolefin
Protection:	NEMA 1, 3, 4, 6P and IEC IP 20
Rated Voltage:	42 V
Rated Current:	1.5 A
Ambient Temperature:	-25° to +80°C (-22° to +176°F)

14



RJ45/RJ45S ..

Pages J20 - J21

Notes:

Unmanaged Switches



- 5 and 9 Ports Available
- 10/100 Mbps
- IP 67 Protection
- 4-pin Ethernet Connectors

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

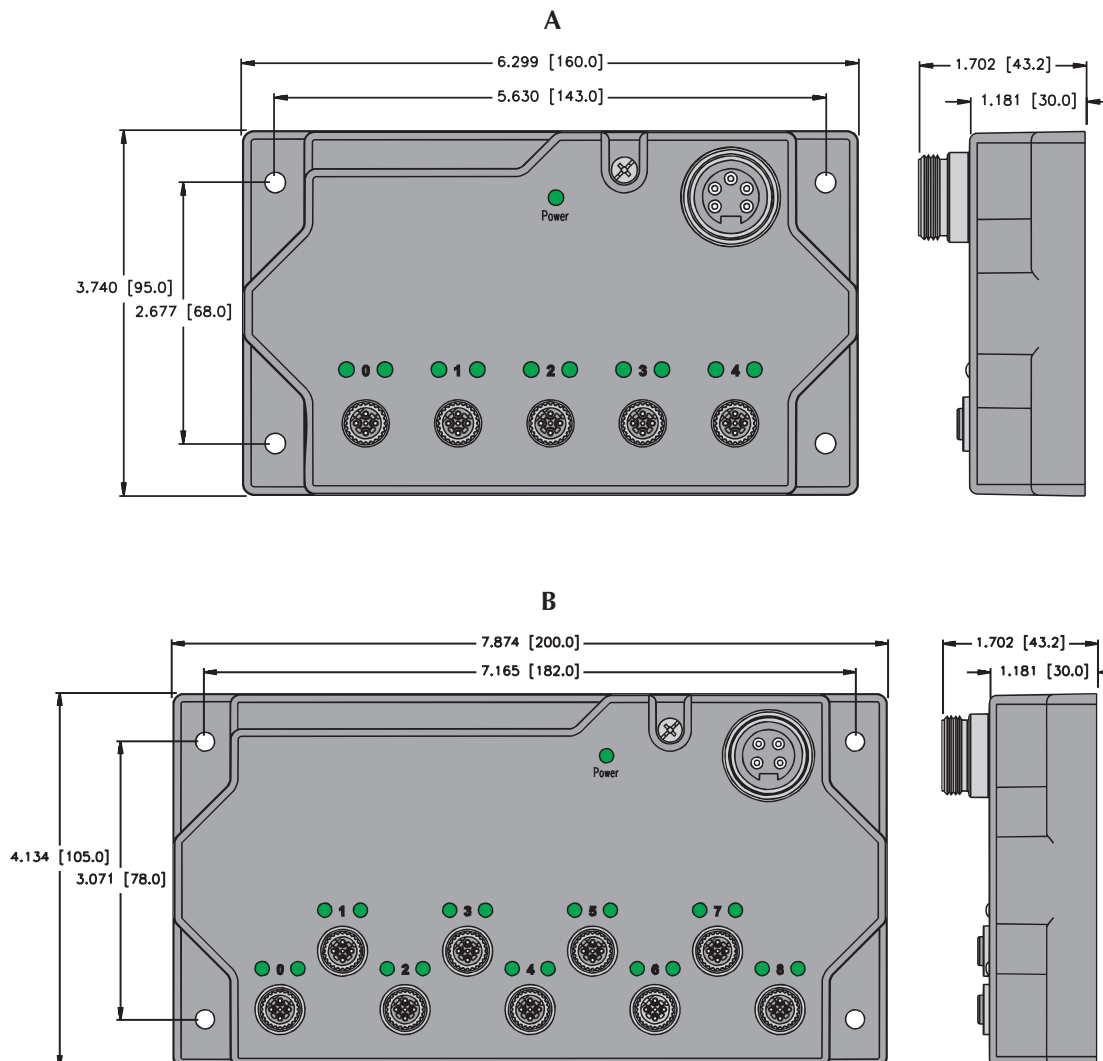
- Operating Temperature: -30 to +80°C (-22 to +176°F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

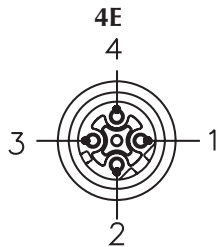
- LEDs to indicate status of Ethernet communication



Part Number	Ports*	Ethernet Pinouts	Power Pinout	Dimensions
SE-44X-E524	5	4E	5M	A
SE-44X-E924	9	4E	5M	B
SE-44X4-E524	5	4E	4M	A
SE-44X4-E924	9	4E	4M	B

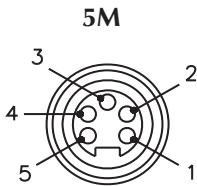
* Note: One port for each switch is a dedicated uplink port

Port/Power Connectors



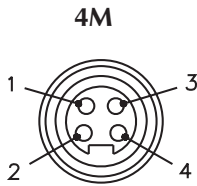
4-pin *eurofast*®
Female

- 1 = WH/OG (TX+)
- 2 = WH/GN (RX+)
- 3 = OG (TX-)
- 4 = GN (RX-)



5-pin *minifast*®
Power

- 1 = NC
- 2 = V-
- 3 = NC
- 4 = V+
- 5 = NC



4-pin *minifast* Power

- 1 = V+
- 2 = NC
- 3 = NC
- 4 = V-

Unmanaged switches



SE-84ST-E524/C1165

SE-84ST-E924/C1165

SE-84ST-E924/C1190

- Molded Cords for Panel Mounting
- 10/100 Mbps
- IP 67 Protection
- 8-pin Ethernet Connectors

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

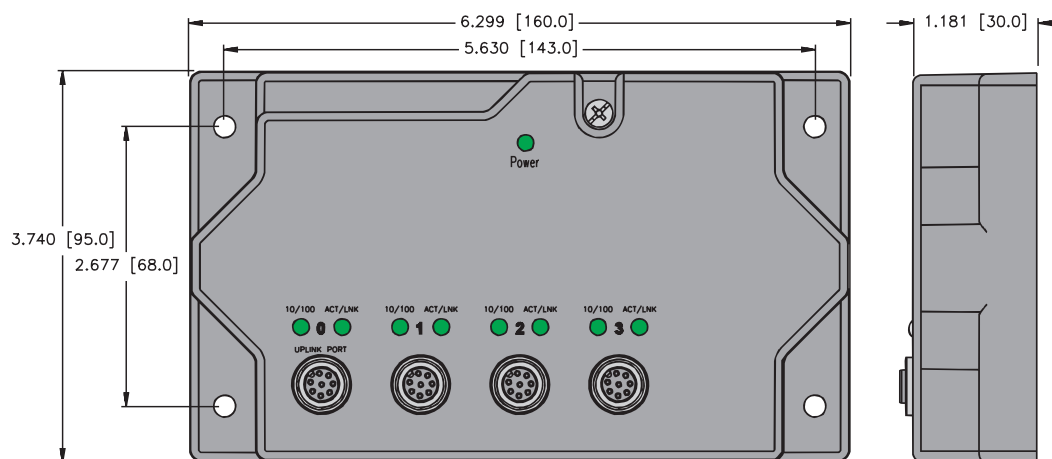
- Operating Temperature: -30 to +80 °C (-22 to +176 °F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of Ethernet communication



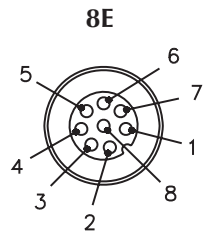
Part Number	Ports*	Ethernet Pinout	Power Pinout	Dimensions
SE-84ST-E524/C1165	5	8E	2Wire	A
SE-84ST-E924/C1165	9	8E	2Wire	B
SE-84ST-E924/C1190	9	8E	2Wire	B

Notes:

* One port for each switch is a dedicated uplink port.

.../C1165 have one port in the cabinet; .../C1190 has two ports in the cabinet.

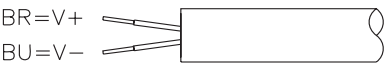
Port/Power Connectors



8-pin eurofast®

- 1 = WH/BU
- 2 = WH/BN
- 3 = BN
- 4 = OG (TX-)
- 5 = WH/GN (RX+)
- 6 = WH/OG (TX+)
- 7 = BU
- 8 = GN (RX-)

2-Wire



In-Cabinet Ethernet
Connector



12345678

- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Managed switches



SE-44M-E924

- 8 Ports Available
- Configuration Port
- IP 67 Protection
- 4-pin Ethernet Connectors

Electrical

- Power Consumption: 4 W
- Operating Voltage: 10-30 VDC

Mechanical

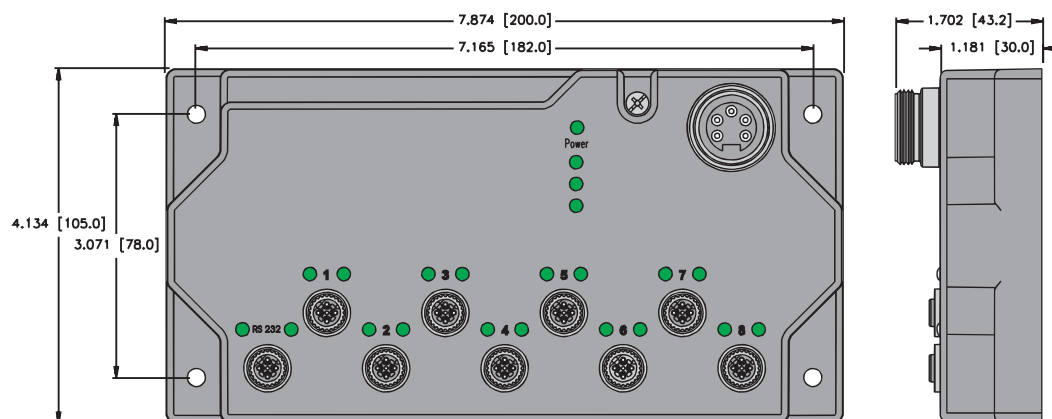
- Operating Temperature: -30 to +80 °C (-22 to +176 °F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

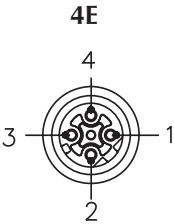
- LEDs to indicate status of Ethernet communication



Inputs				
Part Number	Ports*	Ethernet Pinout	Power Pinout	Dimensions
SE-44M-E924	8	4E	5M-2	A

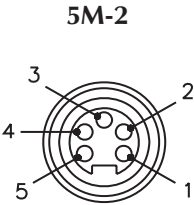
* Note: 8 Ethernet ports plus one RS232 configuration port

Port/Power Connectors



4-pin *eurofast*®
Female

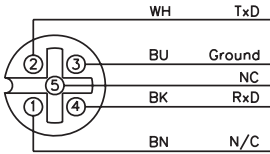
- 1 = WH/OG (TX+)
- 2 = WH/GN (RX+)
- 3 = OG (TX-)
- 4 = GN (RX-)



5-pin *minifast*® Power

- 1 = Gnd
- 2 = Gnd
- 3 = Ok
- 4 = V₁+
- 5 = V₂+

Configuration Port
232



Mating cordset:

RK 4.4T-* -RS 4.4T

Ethernet, Conduit Adapters, 4-wire

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



	Part Number	Specs	Application	Pinout
	BCA 44-E123	Nylon Housing 250 V, 9A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast ® connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	<p>Female</p>
	BCA 44-E223		Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	

Ethernet, Wall Plate Adapters, 4 and 8-wire

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



	BPA-44-E113	Stainless Steel 30 VAC/36 VDC, 1.5 A -40 to +70°C (-40 to +158°F)	Attaches to standard single gang electrical box for transition to 4-wire (7/8-16UN) eurofast connector w/punch-down blocks		
	BPA-84-E113		Attaches to standard single gang electrical box for transition to 8-wire (M12x1) eurofast connector w/punch-down blocks		

Ethernet Media

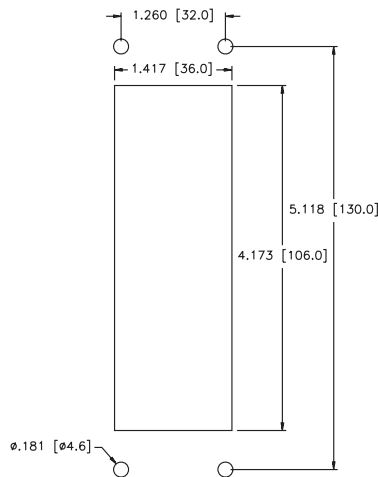
Ethernet, Cabinet Adapter, 4-wire

- Mounts to Any Cabinet for Transition from (M12x1) *eurofast*® 4-Pin Connectors to RJ45 Connectors
- Gasket and Mounting Hardware Included (8-32 x 1/2")



	Part Number	Specs	Application	Pinout
	BIC 44-E424	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to cabinet for transition to 4-wire (M12x1) <i>eurofast</i> connector	Female

Panel Dimensions

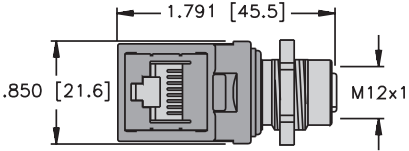


RJ45 Receptacle	Pinout
Female 	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C

Ethernet, Receptacle

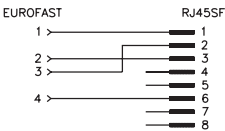
- Transitions from a RJ45 Connector to a 4-wire *eurofast*® Connector

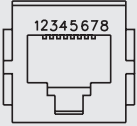
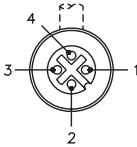


	Part Number	Application
	FKSD RJ45SF 44	Polyurethane PUR Overmold 42 V, 1.5 A -40° to +75°C

Panel mounting clearance hole 19/32" (15 mm). Panel thickness: .060-.120" (1.5-3 mm)

Wiring Diagram



RJ45 Receptacle	Pinouts	eurofast Female
Female 	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C	Female 

Ethernet Media

Ethernet, RJ45 Field Wireable

- Allows for Quick Connections in the Field
- Fully Shielded
- Includes Assembly Instructions



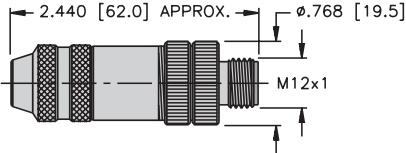
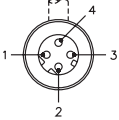
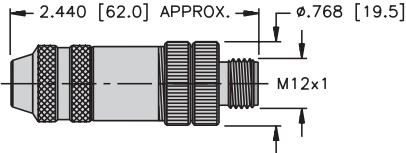
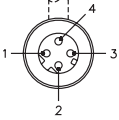
	Part Number	Application	Pinout
	Connector, RJ45S IDC	RJ45 4-wire field wireable	Male

RJ45 Plug	Pinout
Male 	1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C

Ethernet, 4-Pin D-coded Field Wireables

- Allows for Quick Connections when Pre-Molded Cables are not Available
- Available in Male, Straight and Right Angle Connector Configurations



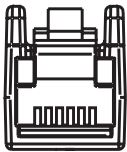
	Part Number	Application	Pinout
	CMBSD 8141-0/PG9	Mates with female 4-pin D-coded eurofast® cordsets and receptacles	Male 
	CMBSD 8241-0/PG9		Male 

Ethernet Media

Ethernet®, RJ11 Cordsets

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



Part Number	Specs	Application	Pinouts
RJ11S RJ11S 4412-*M	PVC 1.5 A 42 V -40° to +75°C	Industrial phone connection RJ11 connector	<div><div><div>1. N/C</div><div>2. White/Orange (+TX)</div><div>3. Orange (-TX)</div><div>4. White/Green (+RX)</div><div>5. Green (-RX)</div><div>6. N/C</div></div><div><div>123456</div></div></div>

Notes: