

Global Plus Connector Cables



Multi-Connector Blocks



SmartWire-DT



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Unless otherwise noted, the products contained in this section should not be used for functional safety applications. These products were not designed or tested to IEC 60947-5-3 or recommended for functional safety.



Revision notes

Volume 8—Sensing Solutions, CA08100010E

Tab 10—Connectivity Solutions

Revision date	Section	Change page(s)	Description
09/08/2017	All	All	Content edits throughout entire tab, new content added
09/08/2017	All	All	Revision date changed to September 2017



Powering Business Worldwide



CHS Controls AB
Tel +46 42 38 61 00, Fax +46 42 38 61 29
chs@chscontrols.se www.chscontrols.se

Product Selection Guide

Global Plus Connector Cables



Page V8-T10-3

Overview

Finish your sensor installation with high quality Connector Cables from Eaton's Electrical Sector. Our Global Plus line is designed to give you everything you want without paying extra for the features you don't want. It includes a wide variety of single- and double-connector cables in a variety of sizes (mini, micro, nano), lengths and jacket materials to fit any application

Connector Types

Nano (M8)
Micro (M12)
Mini
Double-ended, straight, right-angle, and field-installable connector styles

Product Features

Industry standard connector types
Industrial-duty polymer jackets consisting of PVC, PUR, or Irradiated PUR
Stranded copper conductors and polymer jackets provide a high resistance to bending motions
Right angle units for applications that have constricted space

Technical Data and Specifications

Operating voltage—
0–600 Vac/dc
Maximum load current—
0–13 A
Enclosure ratings—
NEMA 6P, IP68

Approvals



Basic Multi-Connector Blocks



Page V8-T10-20

Overview

Junction Blocks from Eaton's Electrical Sector allow users to quickly connect multiple sensors through one source of power

Connector Types

4-, 6- or 8-ports
Cable or connector mode
Micro connector style

Product Features

LED status indicators for power and output status
Molded PUR cable models provide added protection from moisture and most cutting fluids
Pluggable terminal blocks provide easy and quick installation

Technical Data and Specifications

Operating voltage—
0–30 Vdc
Maximum load current—
4 A per port
Enclosure ratings—
IP65

Approvals



SmartWire-DT Machine Connectivity System



Page V8-T10-24

Overview

The SmartWire-DT® In-Panel and On-Machine wiring system uses a single green cable inside a machine control cabinet and across the machine itself to connect motor starters, variable frequency drives, soft starters, pushbuttons, sensors, pneumatic and hydraulic valves, stacklights and other indicator lights.

Connector Types

1-, 2-, 4- and 8-port I/O modules
Options for M12 and M8 sensors

Product Features

Integrated 24 Vdc power and communications with single 5-conductor cable using standard DC M12 connectors
I/O modules available in versions with 1–16 I/O channels
360-degree viewable indicator LEDs provide status of I/O channels

Technical Data and Specifications

Operating voltage—
24 Vdc
Maximum load current—
500 mA or 2 A per channel (see model listing)
Enclosure ratings—
IP69K

Approvals



Global Plus Connector Cables



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Global Plus Connector Cables

Product Description

Finish your sensor installation with high quality connector cables from Eaton's Electrical Sector. Our Global Plus line is designed to give you everything you want without paying extra for the features you don't want. It includes a wide variety of single- and double-connector cables. Custom lengths are available upon request from the factory.

Most connector cable models are built with economical PVC cable jackets and are well-suited to most industrial applications where minimal dynamic stress is placed on the cable in normal machine operation. Models with PUR jackets are available for applications where the cable is frequently flexed during normal machine operation, or where resistance to abrasion, oils, cutting fluids, and/or other chemicals is required.

Standards and Certifications

- UL Listed
- CSA Certified
- RoHS Compliant



For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

10.1

Connectivity Solutions

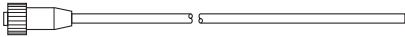

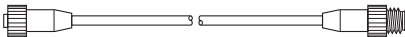
Global Plus Connector Cables

Product Selection Guide

What Type of Connector Cable Do You Need?

The majority of the sensors in this Product Guide are available with connectors for quick-disconnect installation.

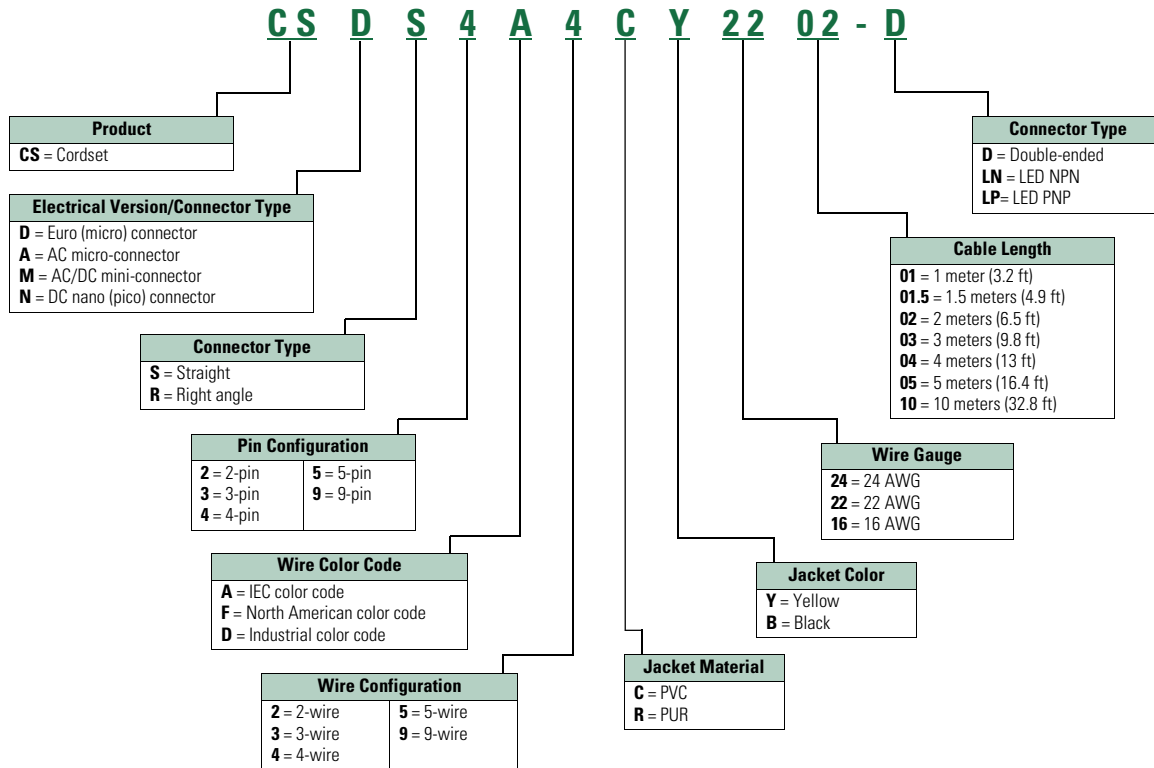
Global Plus Connector Cable Selection

Sensor	Connector Cable Type	Style	Configuration and Purpose
Single-Connector Cable			
		Micro (M12–1/2 inch) (see Page V8-T10-5)	Typically a single female connector that mates with the male connector built into many sensors and other command and control components. The opposite end is normally wired to terminals in a system control panel.
		Mini (7/8 inch) (see Page V8-T10-6)	
		Nano (M8) (see Page V8-T10-8)	
Double-Connector Cable			
		Micro (M12–1/2 inch) (see Page V8-T10-9)	Used to make the junction between a sensor or other command and control device and a junction box, remote I/O, or control panel that has a receptacle connector interface.
		Mini (7/8 inch) (see Page V8-T10-9)	

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Catalog Number Selection

Global Plus Connector Cables ①



Note

① This is a representative guide to the catalog numbering system. All possible combinations may not be available for ordering. Please verify the number with the following pages or call Application Support at (800) 426-9194 before ordering.

Product Selection

Single Connector Cables

Micro-Style Straight Female



Micro-Style Straight Female

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number ①		
Standard Cables								
AC	3-pin, 3-wire	18 AWG	6.0 ft (2 m)		1-Green 2-Red/Black 3-Red/White	CSAS3F3CY1802	—	
			16.4 ft (5 m)			CSAS3F3CY1805	—	
			32.8 ft (10 m)			CSAS3F3CY1810	—	
		22 AWG	6.0 ft (2 m)	CSAS3F3CY2202	CSAS3F3RY2202			
			16.4 ft (5 m)	CSAS3F3CY2205	CSAS3F3RY2205			
			32.8 ft (10 m)	CSAS3F3CY2210	CSAS3F3RY2210			
	4-pin, 4-wire	18 AWG	6.0 ft (2 m)		1-Red/Black 2-Red/White 3-Red 4-Green	CSAS4F4CY1802	—	
			16.4 ft (5 m)			CSAS4F4CY1805	—	
			32.8 ft (10 m)			CSAS4F4CY1810	—	
		22 AWG	6.0 ft (2 m)	CSAS4F4CY2202	CSAS4F4RY2202			
			16.4 ft (5 m)	CSAS4F4CY2205	CSAS4F4RY2205			
			32.8 ft (10 m)	CSAS4F4CY2210	CSAS4F4RY2210			
5-pin, 5-wire	22 AWG	6.0 ft (2 m)		1-Brown 2-Blue 3-Black 4-White	CSAS4A4CY2202	—		
		16.4 ft (5 m)			CSAS4A4CY2205	—		
		32.8 ft (10 m)			CSAS4A4CY2210	—		
	22 AWG	6.0 ft (2 m)	CSAS5A5CY2202	—				
		16.4 ft (5 m)	CSAS5A5CY2205	—				
		32.8 ft (10 m)	CSAS5A5CY2210	—				
DC	4-pin, 3-wire	22 AWG	6.0 ft (2 m)		1-Brown 2-No Wire 3-Blue 4-Black	CSDS4A3CY2202	CSDS4A3RY2202	
			16.4 ft (5 m)			CSDS4A3CY2205	CSDS4A3RY2205	
			32.8 ft (10 m)			CSDS4A3CY2210	CSDS4A3RY2210	
	4-pin, 4-wire	22 AWG	6.0 ft (2 m)		1-Brown 2-White 3-Blue 4-Black	CSDS4A4CY2202	CSDS4A4RY2202	
			16.4 ft (5 m)			CSDS4A4CY2205	CSDS4A4RY2205	
			32.8 ft (10 m)			CSDS4A4CY2210	CSDS4A4RY2210	
	65.6 ft (20 m)	—	CSDS4A4CY2220	—				
		5-pin, 5-wire	22 AWG	6.0 ft (2 m)		1-Brown 2-White 3-Blue 4-Black 5-Green/Yellow	CSDS5A5CY2202	—
				16.4 ft (5 m)			CSDS5A5CY2205	—
	32.8 ft (10 m)			CSDS5A5CY2210			—	
	8-pin, 8-wire	24 AWG	16.4 ft (5 m)		1-White 5-Gray 2-Brown 6-Pink 3-Green 7-Blue 4-Yellow 8-Red	CSDS8A8CB2405	—	
			32.8 ft (10 m)			CSDS8A8CB2410	—	

Micro-Style Straight Male



Micro-Style Straight Male

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Male Shown)	Catalog Number	
Standard Cables						
DC	5-pin, 5-wire	22 AWG	1 ft (0.3 m)		1-Brown 2-White 3-Blue 4-Black	SWD4-M3LR5-1-S
			2 ft (0.6 m)			SWD4-M6LR5-1-S
			3.2 ft (1 m)			SWD4-1LR5-1-S
			6.5 ft (2 m)			SWD4-2LR5-1-S

Note

① PUR-jacketed versions available for applications where the cable is frequently flexed during normal machine operation, or where resistance to abrasion, oils, cutting fluids, and/or other chemicals is required.

Micro-Style Right Angle Female



Micro-Style Right Angle Female

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number ^①			
Standard Cables									
AC	3-pin, 3-wire	18 AWG	6.0 ft (2 m)		CSAR3F3CY1802	—			
			16.4 ft (5 m)				CSAR3F3CY1805		
			32.8 ft (10 m)				CSAR3F3CY1810		
	22 AWG	6.0 ft (2 m)		CSAR3F3CY2202	CSAR3F3RY2202				
		16.4 ft (5 m)		CSAR3F3CY2205	CSAR3F3RY2205				
		32.8 ft (10 m)		CSAR3F3CY2210	CSAR3F3RY2210				
4-pin, 4-wire	18 AWG	18 AWG	6.0 ft (2 m)		CSAR4F4CY1802	—			
			16.4 ft (5 m)				CSAR4F4CY1805		
			32.8 ft (10 m)				CSAR4F4CY1810		
	22 AWG	6.0 ft (2 m)		CSAR4F4CY2202	CSAR4F4RY2202				
		16.4 ft (5 m)		CSAR4F4CY2205	CSAR4F4RY2205				
		32.8 ft (10 m)		CSAR4F4CY2210	CSAR4F4RY2210				
DC	4-pin, 3-wire	22 AWG	6.0 ft (2 m)		CSDR4A3CY2202	CSDR4A3RY2202			
			16.4 ft (5 m)				CSDR4A3CY2205	CSDR4A3RY2205	
			32.8 ft (10 m)				CSDR4A3CY2210	CSDR4A3RY2210	
	4-pin, 4-wire	22 AWG	22 AWG	6.0 ft (2 m)		CSDR4A4CY2202	CSDR4A4RY2202		
				16.4 ft (5 m)				CSDR4A4CY2205	CSDR4A4RY2205
				32.8 ft (10 m)				CSDR4A4CY2210	CSDR4A4RY2210
5-pin, 5-wire	22 AWG	22 AWG	6.0 ft (2 m)		CSDR5A5CY2202	—			
			16.4 ft (5 m)				CSDR5A5CY2205		
			32.8 ft (10 m)				CSDR5A5CY2210		

Mini-Style Straight Female



Mini-Style Straight Female

Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number ^②
Standard Cables						
13 A	AC/DC	2-pin, 2-wire	16 AWG	6 ft (2 m)		CSMS2D2CY1602
				12 ft (4 m)		CSMS2D2CY1604
13 A		3-pin, 3-wire	16 AWG	6 ft (2 m)		CSMS3F3CY1602
				12 ft (4 m)		CSMS3F3CY1604
10 A		4-pin, 4-wire	16 AWG	6 ft (2 m)		CSMS4F4CY1602
				12 ft (4 m)		CSMS4F4CY1604

Notes

- ① PUR-jacketed versions available for applications where the cable is frequently flexed during normal machine operation, or where resistance to abrasion, oils, cutting fluids, and/or other chemicals is required.
- ② Models beginning with "C..." are yellow in color with yellow molded connector. Models beginning with "S..." are black in color with black molded connector.

Mini-Style Straight Female



Mini-Style Straight Female, continued

Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number ^①
Standard Cables						
10 A	AC/DC	4-pin, 4-wire	16 AWG	6 ft (2 m)		CSMS4A4CY1602
				13.12 ft (4 m)		CSMS4A4CY1604
				19.69 ft (6 m)		CSMS4A4CY1606
				32.5 ft (10 m)		SWD4-10LR4P-S
65 ft (20 m)	SWD4-20LR4P-S					
8 A		5-pin, 5-wire	16 AWG	6 ft (2 m)		CSMS5D5CY1602
				12 ft (4 m)		CSMS5D5CY1604
8 A		5-pin, 5-wire	16 AWG	6 ft (2 m)		CSMS5A5CY1602
				13.12 ft (4 m)		CSMS5A5CY1604
				19.69 ft (6 m)		CSMS5A5CY1606
7 A		9-pin, 9-wire	16 AWG	6 ft (2 m)		CSMS9D9CY1602

Mini-Style Right Angle Female



Mini-Style Right Angle Female

Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Male Shown)	Catalog Number ^②
Standard Cables						
10 A	AC/DC	4-pin, 4-wire	16 AWG	6.5 ft (2 m)		SWD4-2LR4P-R
				13 ft (4 m)		SWD4-4LR4P-R
				19.5 ft (6 m)		SWD4-6LR4P-R
				32.5 ft (10 m)		SWD4-10LR4P-R
				65 ft (20 m)		SWD4-20LR4P-R

Note

① Models beginning with "C..." are yellow in color with yellow molded connector.
 Models beginning with "S..." are black in color with black molded connector.

10.1

Connectivity Solutions

Global Plus Connector Cables

Nano-Style Straight Female



Nano-Style Straight Female

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number ^①
Standard Cables						
—	3-pin, 3-wire	24 AWG	6.0 ft (2 m)		CSNS3A3CY2402	CSNS3A3RY2402
			16.4 ft (5 m)		CSNS3A3CY2405	CSNS3A3RY2405
			32.8 ft (10 m)		CSNS3A3CY2410	CSNS3A3RY2410
DC	4-pin, 4-wire	24 AWG	6.5 ft (2 m)		CSNS4A4CY2402	—
			16.4 ft (5 m)		CSNS4A4CY2405	—
			32.8 ft (10 m)		CSNS4A4CY2410	—

Nano-Style Right Angle Female



Nano-Style Right Angle Female

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number ^①
Standard Cables						
—	3-pin, 3-wire	24 AWG	6.0 ft (2 m)		CSNR3A3CY2402	CSNR3A3RY2402
			16.4 ft (5 m)		CSNR3A3CY2405	CSNR3A3RY2405
			32.8 ft (10 m)		CSNR3A3CY2410	CSNR3A3RY2410
—	4-pin, 4-wire	24 AWG	6.5 ft (2 m)		CSNR4A4CY2402	—
			16.4 ft (5 m)		CSNR4A4CY2405	—
			32.8 ft (10 m)		CSNR4A4CY2410	—

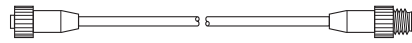
Note

① PUR-jacketed versions available for applications where the cable is frequently flexed during normal machine operation, or where resistance to abrasion, oils, cutting fluids, and/or other chemicals is required.

Double Connector Cables

Micro-Style Straight Female/Male

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors	Catalog Number ^①
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Standard Cables

Micro-Style Straight Female/Male



DC	4-pin	22 AWG	3.0 ft (1 m)		CSDS4A4CY2201-D
			5.0 ft (1.5 m)		CSDS4A4CY2201.5-D
			6.0 ft (2 m)		CSDS4A4CY2202-D
			10.0 ft (3 m)		CSDS4A4CY2203-D
			16.4 ft (5 m)		CSDS4A4CY2205-D

Micro-Style Straight Female/Male



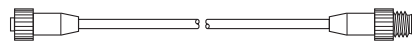
DC	5-pin	22 AWG	6 in (0.1 m)		SWD4-M1LR5-2S
			1.0 ft (0.3 m)		SWD4-M3LR5-2S
			2.0 ft (0.6 m)		SWD4-M6LR5-2S
			3.0 ft (1 m)		SWD4-1LR5-2S
			3.0 ft (1 m)		CSDS5A5CY2201-D
			4.9 ft (1.5 m)		SWD4-1M5LR5-2S
			6.5 ft (2 m)		SWD4-2LR5-2S
			10.0 ft (3 m)		SWD4-3LR5-2S
			10.0 ft (3 m)		CSDS5A5CY2203-D
			13.1 ft (4 m)		SWD4-4LR5-2S
			16.4 ft (5 m)		SWD4-5LR5-2S
			16.4 ft (5 m)		CSDS5A5CY2205-D
			32.8 ft (10 m)		SWD4-10LR5-2S
			65.6 ft (20 m)		SWD4-20LR5-2S

Micro-Style Straight Female/Right Angle Male



Micro-Style Straight Female/Right Angle Male

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors	Catalog Number ^①
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Standard Cables

DC	4-pin	22 AWG	3.0 ft (1 m)		CSDR4A4CY2201-D
			5.0 ft (1.5 m)		CSDR4A4CY2201.5-D
			6.0 ft (2 m)		CSDR4A4CY2202-D
			10.0 ft (3 m)		CSDR4A4CY2203-D
			16.4 ft (5 m)		CSDR4A4CY2205-D

DC	5-pin	22 AWG	6 in (0.1 m)		SWD4-M1LR5-RS
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Note

- ^① Models beginning with "C..." are yellow in color with gray molded connector.
Models beginning with "S..." are green in color with green molded connector.

10.1

Connectivity Solutions

Global Plus Connector Cables

Mini-Style Straight Female/Male



Mini-Style Straight Female/Male

Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Male Shown)	Catalog Number ^①
Standard Cables						
10 A	AC/DC	4-pin, 4-wire	16 AWG	1 ft (0.3 m)		SWD4-M3LR4P-2S
				2 ft (0.6 m)		SWD4-M6LR4P-2S
				3.2 ft (1 m)		SWD4-1LR4P-2S
				4.9 ft (1.5 m)		SWD4-1M5LR4P-2S
				6.5 ft (2 m)		SWD4-2LR4P-2S
				10 ft (3 m)		SWD4-3LR4P-2S
				13 ft (4 m)		SWD4-4LR4P-2S
				16.4 ft (5 m)		SWD4-5LR4P-2S
				32.5 ft (10 m)		SWD4-10LR4P-2S
				65 ft (20 m)		SWD4-20LR4P-2S

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Mini-Style Right Angle Female/Male



Mini-Style Right Angle Female/Male










Current Rating at 600V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Male Shown)	Catalog Number ^①
Standard Cables						
10 A	AC/DC	4-pin, 4-wire	16 AWG	1 ft (0.3 m)		SWD4-M3LR4P-2S
				2 ft (0.6 m)		SWD4-M6LR4P-2S
				3.2 ft (1 m)		SWD4-1LR4P-2S
				4.9 ft (1.5 m)		SWD4-1M5LR4P-2S
				6.5 ft (2 m)		SWD4-2LR4P-2S
				10 ft (3 m)		SWD4-3LR4P-2S
				13 ft (4 m)		SWD4-4LR4P-2S
				16.4 ft (5 m)		SWD4-5LR4P-2S
				32.5 ft (10 m)		SWD4-10LR4P-2S
				65 ft (20 m)		SWD4-20LR4P-2S

Note

- ① Models beginning with "C..." are yellow in color with gray molded connector.
Models beginning with "S..." are black in color with black molded connector.

Receptacles—Micro and Mini

Micro and Mini

	Voltage Style	Number of Pins	Gauge	Length	Mounting Hole Size	Pin Configuration	Catalog Number
Standard Receptacles—Micro-Style Straight Male							
	DC	4-pin, 4-wire	22 AWG	1.0 ft (0.3 m)	1/2 in NPT	 1-Brown 2-White 3-Blue 4-Black 5-Gray	CSDS4A4CMR22.3
	DC	5-pin, 5-wire	22 AWG	5 in (13 cm)	M20 front threads	 1-Brown 2-White 3-Blue 4-Black 5-Gray	SWD4-PRM5-2-S
				1.6 ft (0.5 m)	PG9 back threads		CSDS5A5CMR.5
				3.2 ft (1 m)	1/2 in NPT back threads		SWD4-PRM5-1-S
Standard Receptacles—Micro-Style Straight Female							
	DC	5-pin, 5-wire	22 AWG	5 in (13 cm)	M20 front threads	 1-Brown 2-White 3-Blue 4-Black 5-Gray	SWD4-PRF5-2-S
				3.2 ft (1 m)	1/2 in NPT back threads		SWD4-PRF5-1-S
Standard Receptacle—Mini-Style Straight Male							
	AC/DC	4-pin, 4-wire	22 AWG	1.6 ft (0.5 m)	1/2 in NPT	 1-Brown 2-White 3-Blue 4-Black	CSMS4A4CMR16.5
Standard Receptacle—Mini-Style Straight Female							
	AC/DC	4-pin, 4-wire	16 AWG	3.2 ft (1 m)	1/2 in NPT back threads	 1-Black 2-Blue 3-Brown 4-White	SWD4-PRF4P-1-S

Accessories

Closure Cap



Closure Cap

Description	Catalog Number
Seals off unused connector ports on multi-connector blocks, Micro (M12) female type	CBCAP
Seals off unused parts on micro (M12) male type	CBMCAP
Seals off unused connector ports on Mini (7/8-inch) male type	SWD4-PCAPP-M
Seals off unused connector ports on Mini (7/8-inch) female type	SWD4-PCAPP-F

Bulk Cable, Micro-Style



Bulk Cable, Micro-Style

Description	Catalog Number
Standard, 4-conductor, 22 AWG, yellow jacket (blue, brown, white, black), compatible with Micro (M12)-style field wireable connectors shown on next page	CS4ACY22XX ①
SmartWire-DT, 5-conductor, 20/22 AWG, green jacket (blue, brown, white, black, gray), compatible with Micro (M12)-style field wireable connectors shown on next page	SWD4-XXXLR5 ①

Bulk Cable, Mini-Style



Bulk Cable, Mini-Style

Description	Catalog Number
Standard, 4-conductor, 16 AWG, black jacket (blue, brown, white, black), compatible with Mini (7/8"-style field wireable connectors shown on next page	SWD4-XXXLR4P ②

Bulk Cable, Nano Style



Bulk Cable, Nano-Style

Description	Catalog Number
3-conductor, 24 AWG, yellow jacket (brown, blue, black), compatible with Nano (M8)-style field wireable connectors shown on next page	CS3ACY24XX ③

V-M20



Cord Grips

Description	Catalog Number
Round cable cord grip, M20	V-M20
Round cable cord grip, 1/2 inch NPT	V-12NPT

SWD4-SML5-12



Panel Transition Components

Description	Pkg Qty.	Catalog Number
Cabinet Cable Pass-Through Adapter		
For passing an M12 round cable connection easily through a panel or a cabinet wall.	1	SWD4-SML5-12

Notes

- ① Quantity ordered indicates length in feet (for example, order quantity 5 equals 5 ft of bulk cable).
- ② Quantity ordered indicates length in meters (for example, order quantity 5 equals 5 meters of bulk cable).
- ③ See Wiring Diagrams on **Page V8-T10-14**.

**Field Wireable,
Plastic****Global Plus Accessories****Description****Catalog Number**

Mini (7/8 in) female style, straight, 4-pin

SWD4-SF4P-67

Mini (7/8 in) male style, straight, 4-pin

SWD4-SM4P-67

Mini (7/8 in) female style, right angle, 4-pin

SWD4-SF4P-67R

Mini (7/8 in) male style, right angle, 4-pin

SWD4-SM4P-67R

Micro (M12) female style, straight, 5-pin

SWD4-SF5-67

Micro male style, straight, 5-pin

SWD4-SM5-67

Micro female style, straight, 4-pin

CSDS4

Micro female style, right angle, 4-pin

CSDR4

Micro male style, straight, 4-pin

CSDSM4

Micro male style, right angle, 4-pin

CSDRM4

Nano (M8) female style, straight, 3-pin

CSNS3

Nano male style, straight, 3-pin

CSNSM3

Nano male style, straight, 4-pin

CSNSM4

Nano female style, straight, 4-pin

CSNS4

Nano female style, right angle, 4-pin

CSNR4**Splitters****Splitters**

Micro female style, y-splitter, three-position

CSDY3 ^①

Micro female style, y-splitter, five-position

CSDY5 ^①

Combines two devices into a single I/O connection point. Both device connections are 4-pin DC M12. Power is common between devices, and the splitter module is wired to Pin 4 for each connected sensor, actuator or other device.

SWD4-SP-4124

Combines two devices into a single I/O connection point. Both device connections are 4-pin DC M12. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.

SWD4-SP-4122

Combines two devices into a single I/O connection point. Both device connections are 4-pin M8. Power is common between devices, and the splitter module is wired to Pin 4 for each connected sensor, actuator or other device.

SWD4-SP-4084

Combines two devices into a single I/O connection point. Both device connections are 4-pin M8. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.

SWD4-SP-4082

Combines two devices into a single I/O connection point. Both device connections are 3-pin M8. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.

SWD4-SP-3084**Note**

^① For wiring diagrams explaining the difference between three- and five-position models, see Wiring Diagrams on **Page V8-T10-14**.

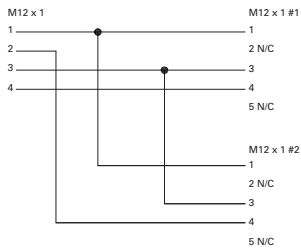
Technical Data and Specifications

Global Plus Connector Cables

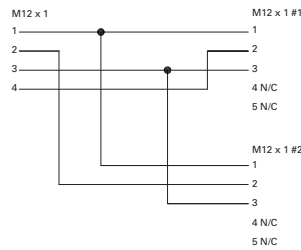
Description	Micro-Style Specification	Mini-Style Specification	Nano-Style Specification
Jacket material	PVC/PUR/Irradiated PUR ①	PVC	PVC/PUR ①
Contact material	Gold-plated copper alloy	Gold-plated brass	Gold-plated copper alloy
Coupling nut material	Nickel-plated die-cast zinc	Nickel-plated die-cast zinc	Nickel-plated die-cast zinc
O-ring	Nitrile rubber	None	Nitrile rubber
Cable	PVC/PUR/Irradiated PUR, insulation and jacket, stranded copper conductors	PVC/PUR/Irradiated PUR, insulation and jacket, stranded copper conductors	PVC/PUR/Irradiated PUR, insulation and jacket, stranded copper conductors
Cable strain relief	35 lbs minimum	35 lbs minimum	35 lbs minimum
Voltage rating	300 V (24 Vdc for LED plugs) (30 Vdc for 8-pin, versions)	600 V	125 Vdc
Current rating	4 A	See model selection chart	4 A
Contact resistance	5M ohms maximum	5 M ohms maximum	5 M ohms maximum
Isolation resistance	1000 M ohms minimum	1000 M ohms minimum	1000 M ohms minimum
Protection	IP67 (C... models), IP69 (S... models)	NEMA 6P, IP68	IP67
Temperature range	-13 ° to 176 °F (-25 ° to 80 °C)	-4 ° to 221 °F (-20 ° to 105 °C)	-4 ° to 221 °F (-20 ° to 105 °C)
Cable diameter	See Dimensions on Page V8-T10-15 .	See Dimensions on Page V8-T10-15 .	See Dimensions on Page V8-T10-15 .
Bend radius	Minimum recommended bend radius is 12X cable diameter	Minimum recommended bend radius is 12X cable diameter	Minimum recommended bend radius is 12X cable diameter

Wiring Diagrams

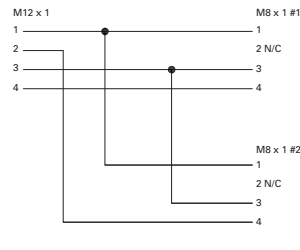
SWD4-SP-4124



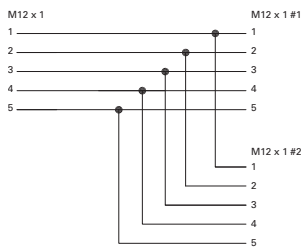
SWD4-SP-4122



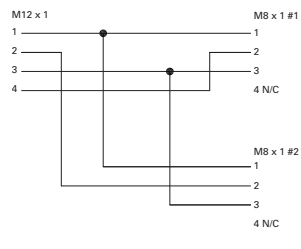
SWD4-SP-4084



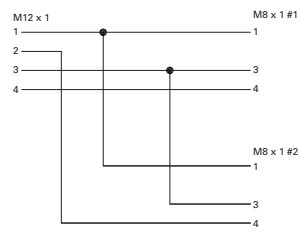
CSDY5



SWD4-SP-4082



SWD4-SP-3084



Note

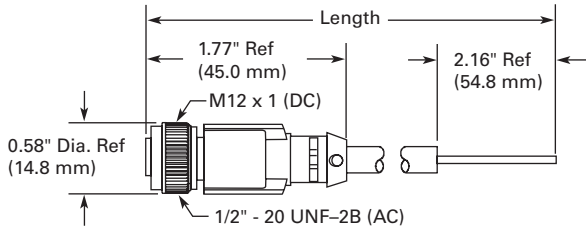
① Jacket material dependent upon model selection.

Dimensions

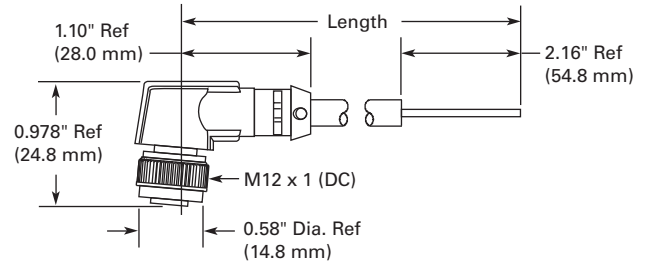
Approximate Dimensions in Inches (mm)

Single Connector Cable Dimensions

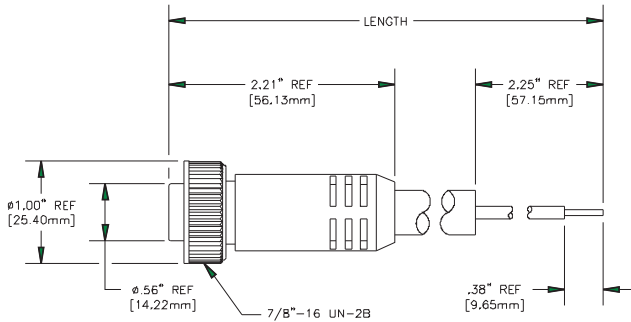
Micro-Style Single Connector Cables, Straight Female



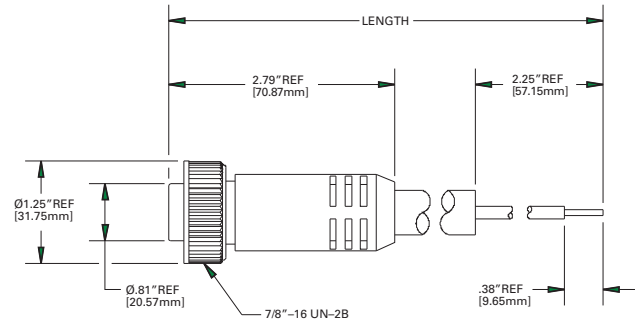
Micro-Style Single Connector Cables, Right Angle Female



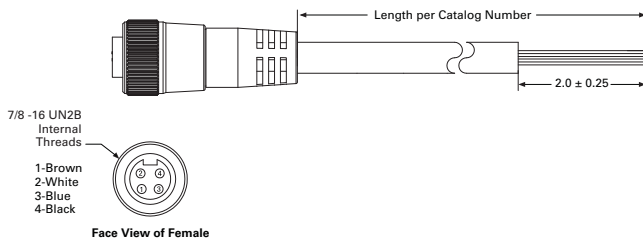
Mini-Style Single Connector Cables, 2-, 3-, 4- and 5-pin, Versions



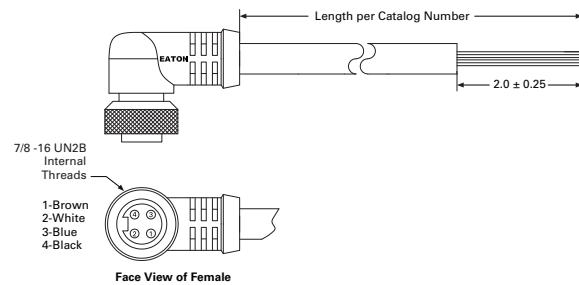
Mini-Style Single Connector Cables, 9-pin, Version



Mini-Style Single Connector Cables, Straight, 4-pin "SWD4..." Versions



Mini-Style Single Connector Cables, Right Angle, 4-pin "SWD4..." Versions



10.1

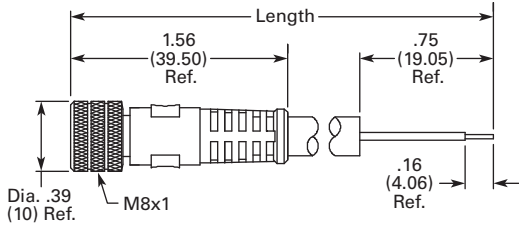
Connectivity Solutions

Global Plus Connector Cables

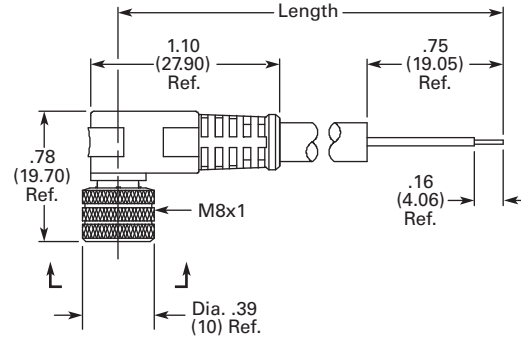
Approximate Dimensions in Inches (mm)

Single Connector Cable Dimensions

Nano-Style Single Connector Cables, Straight Female



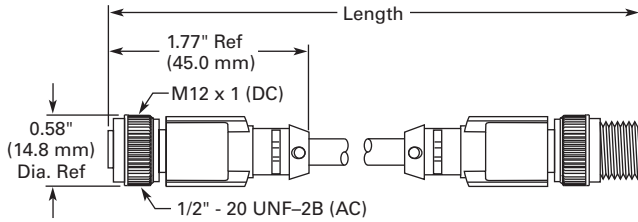
Nano-Style Single Connector Cables, Right Angle Female (Standard and LED)



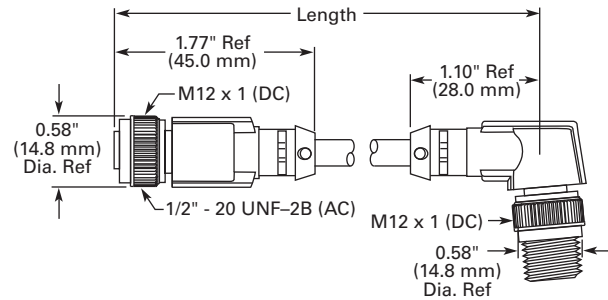
10

Double Connector Cable Dimensions

Micro-Style Double Connector Cables, Straight Female/Male



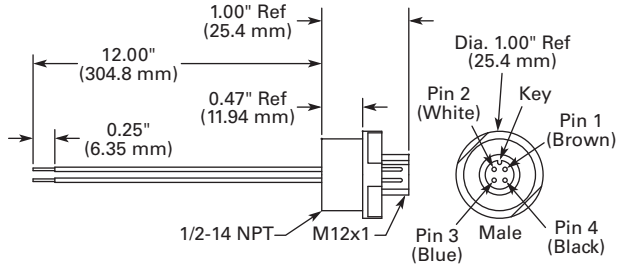
Micro-Style Double Connector Cables, Straight Female/Right Angle Male



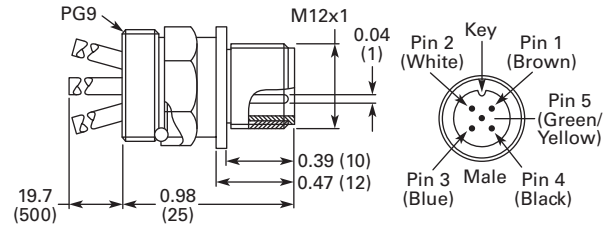
Approximate Dimensions in Inches (mm)

Receptacle Dimensions

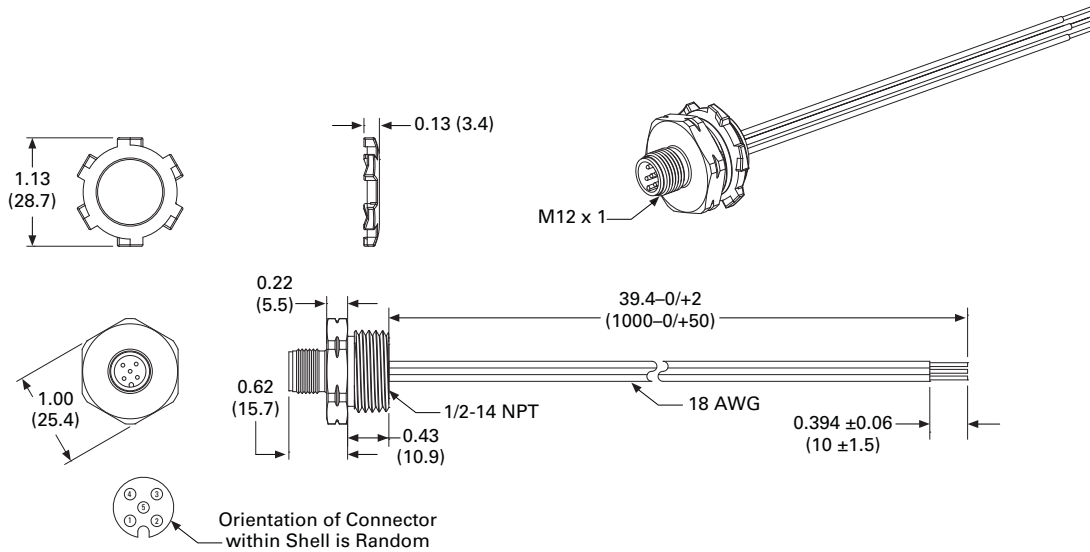
Micro-Style Receptacles, Straight Male (1/2 in NPT Mounting)



Micro-Style Receptacles, Straight Male (PG9 Mounting)



SWD4-PRM5-1-S



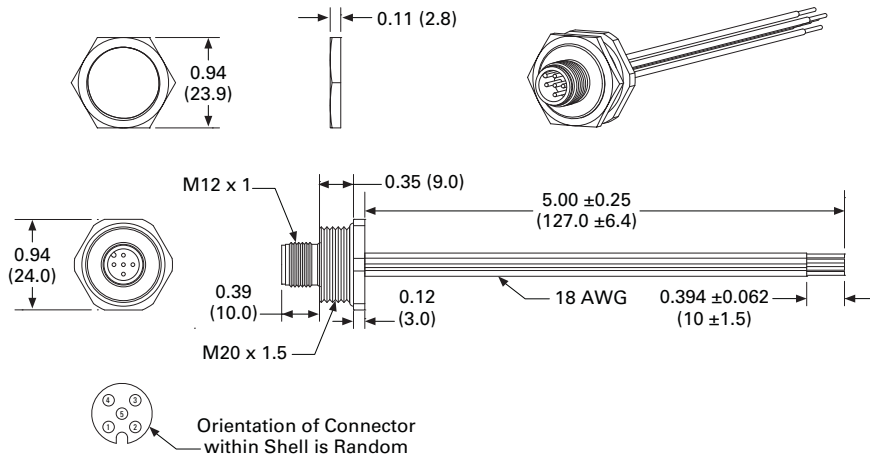
10.1

Connectivity Solutions

Global Plus Connector Cables

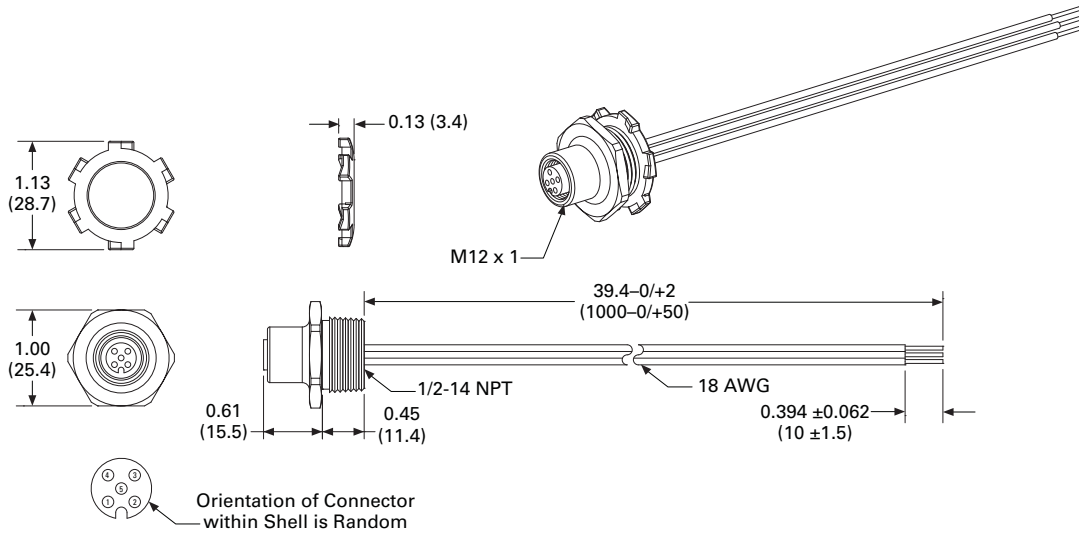
Approximate Dimensions in Inches (mm)

SWD4-PRM5-2-S



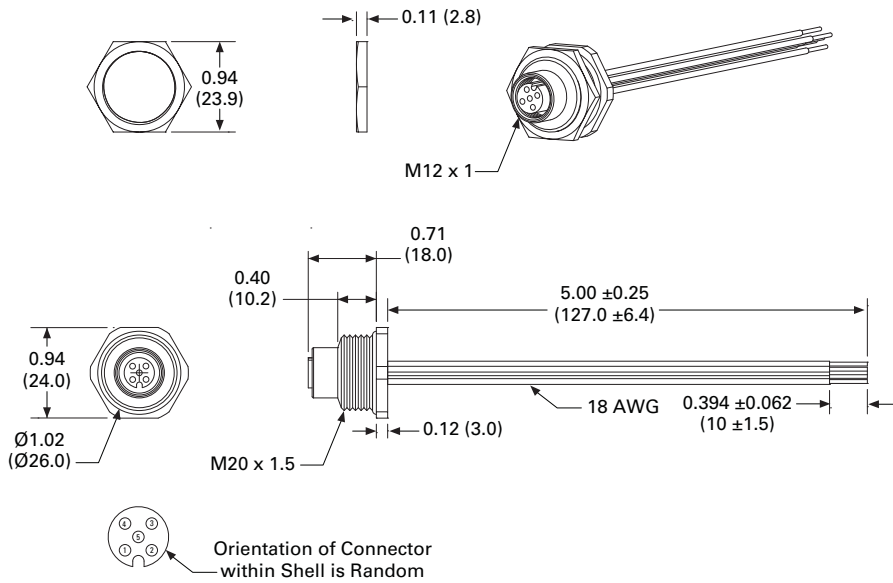
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SWD4-PRF5-1-S

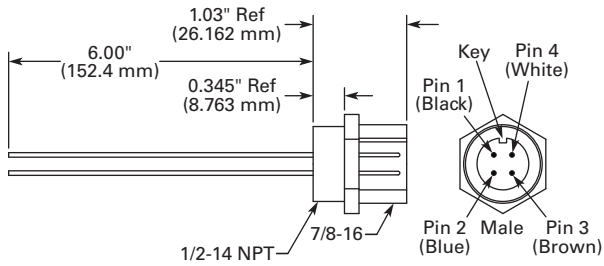


Approximate Dimensions in Inches (mm)

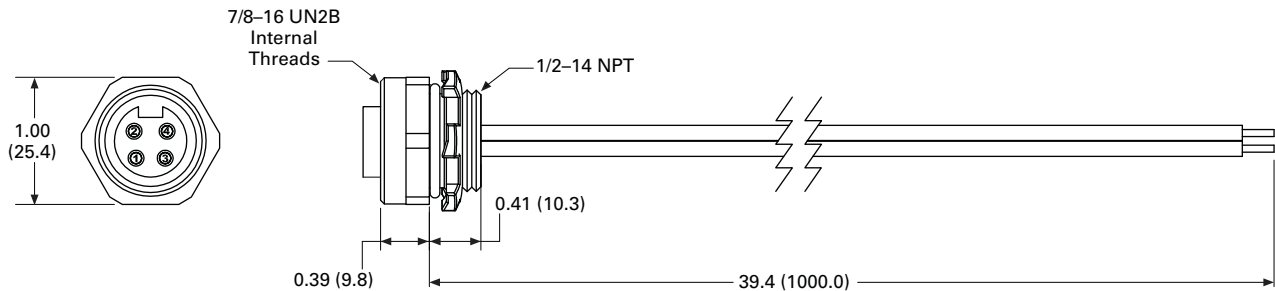
SWD4-PRF5-2-S



Mini-Style Receptacles, Straight Male



Mini-Style Receptacles, Straight Female



Basic Multi-Connector Blocks



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Technical Data and Specifications	V8-T10-21
Wiring Diagrams	V8-T10-22
Dimensions	V8-T10-22

Basic Multi-Connector Blocks

Product Description

The Basic Multi-Connector Block from Eaton's Electrical Sector is an easy way to quickly connect sensors to a control system. Using a variety of double-ended, industry-standard M12 micro-connector cables, a system can be wired up in minutes, therefore saving installation time and money.

For further convenience and installation troubleshooting, LEDs provide both power and output status on the block.

Global Plus Multi-Connector Blocks were designed with the most heavy-duty applications in mind—such as automotive manufacturing, metalworking and machinery OEMs. Put Eaton's Global Plus Multi-Connector Blocks to the test for your next machine design.

Application Description

Typical Applications

- Automotive assembly equipment
- Metalworking equipment
- Packaging machines
- Material handling equipment
- Pharmaceutical systems
- Power control and panel shops

Features

- Model options with four, six or eight sensor ports in one block
- Block capacity can be doubled with micro splitter accessory
- Capacity of up to 4A per port and 12A per block
- Robust design to resist vibration and moisture penetration
- Ideal for extreme temperature environments from -13° to 167°F (-25° to 75°C)

Standards and Certifications

- UL Recognized
- CSA Certified



For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

Multi-Connector Block

Micro-Style Molded Cable



Micro-Style Molded Cable

Voltage Style	Number of Ports	Connection	Pin Configuration/Wire Colors	Catalog Number
DC PNP	4-port	5m cable	See Wiring Diagrams on Page V8-T10-22	CBDR4P05
		10m cable		CBDR4P10
	6-port	5m cable		CBDR6P05
		10m cable		CBDR6P10
	8-port	5m cable		CBDR8P05
		10m cable		CBDR8P10

Accessories

Closure Cap



Closure Cap

Description	Catalog Number
Seals off unused connector ports on multi-connector blocks, micro female type	CBCAP

Technical Data and Specifications

Multi-Connector Blocks

Description	Specification
General	
Nominal voltage (Vdc)	24
Maximum operating voltage (Vdc)	30
Current capacity per port (A)	4
Residual current (A)	12
Operating current of each LED (mA)	≤5
Protection type (IEC 60 529 / EN 60 529 / DIN VDE 0470-1)	IP65
Ambient temperature	−13° to 167°F (−25° to 75°C)
Jacket material	Nylon with brass receptacles
Contact material	Gold-plated copper alloy
O-ring	Nitrile rubber
Voltage rating	10–30 Vdc
Current rating	4A per port; 12A max. per unit
Contact resistance	5M ohms max.
Isolation resistance	1000M ohms min.
Protection	NEMA 6P, IP67
Temperature range	−13° to 194°F (−25° to 90°C)
LED Status Indication	
Supply voltage	Green
Status display of I/O	Yellow

Master Cable—Pre-Wired Cable Connection

Description	Specification
Signal line, stranded in mm ² (AWG)	0.34 (22)
Voltage supply, stranded in mm ² (AWG)	3 x 1.0 (17)
Cable diameter in mm [in]	
4- and 6-port	8.7 [0.3425]
8-port	9.2 [0.3622]
Material	PUR
Cable strain relief	30 lbs. min.

10.2

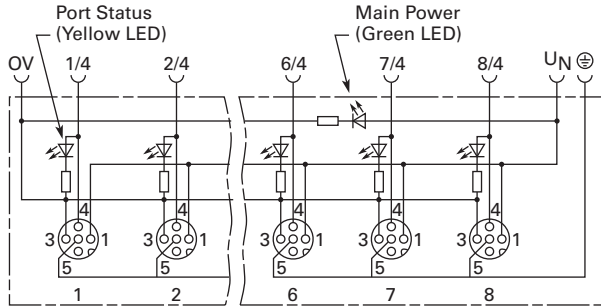
Connectivity Solutions

Basic Multi-Connector Blocks

Wiring Diagrams

Micro-Style Connector Blocks

PNP Block



Wiring Diagram for Molded Cable Blocks

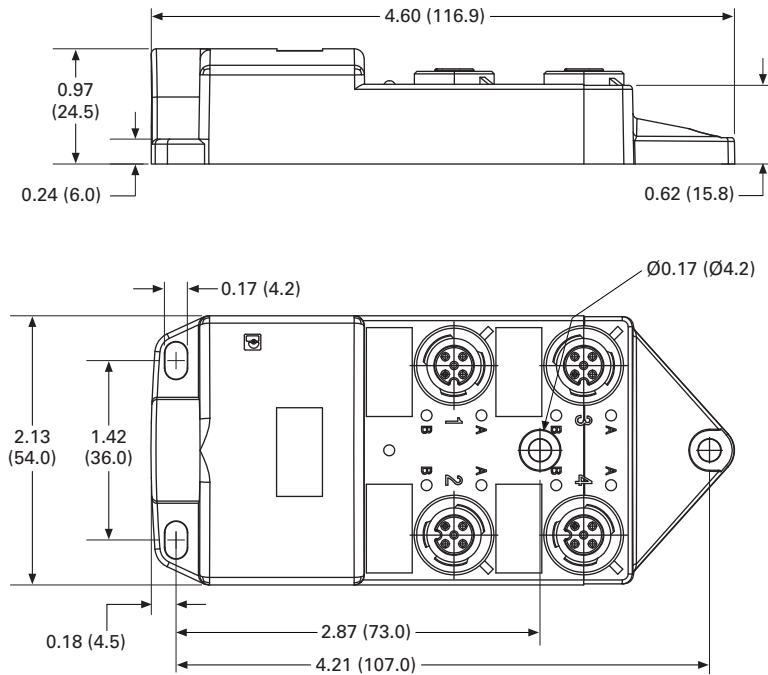
Micro DC Port/pin,	4-Port Wire Color	6-Port Wire Color	8-Port Wire Color
1/4	WH	WH	WH
2/4	GN	GN	GN
3/4	YE	YE	YE
4/4	GY	GY	GY
5/4	—	PK	PK
6/4	—	RD	RD
7/4	—	—	BK
8/4	—	—	VT
1-8/1; U _N (+V)	BN	BN	BN
1-8/3; OV (-)	BU	BU	BU
1-8/5; PE (GND)	GN/YE	GN/YE	GN/YE

Dimensions

Approximate Dimensions in Inches (mm)

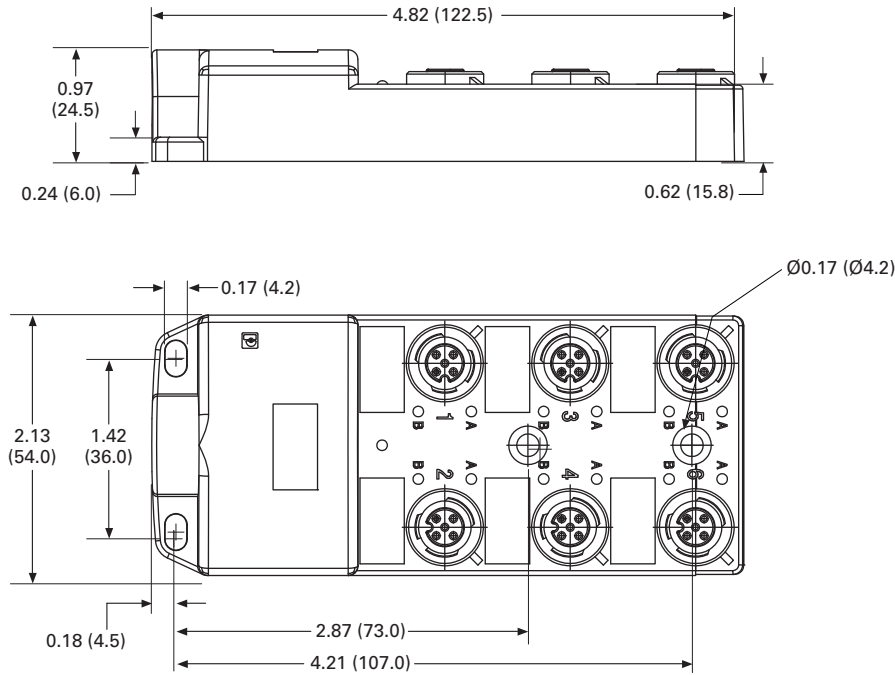
Micro-Style Connector Blocks

Four Sensor Ports

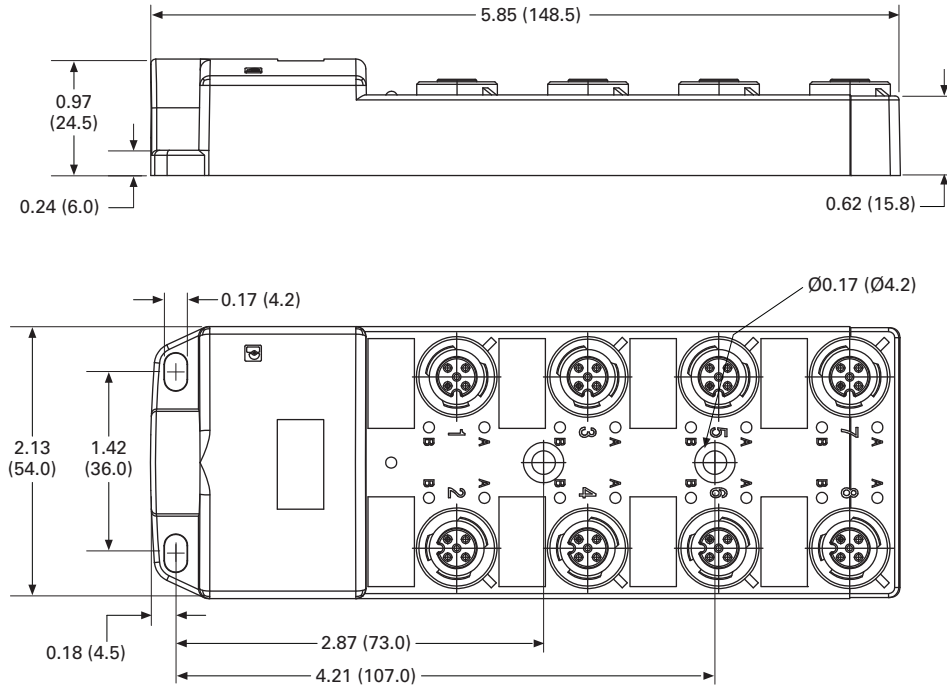


Approximate Dimensions in Inches (mm)

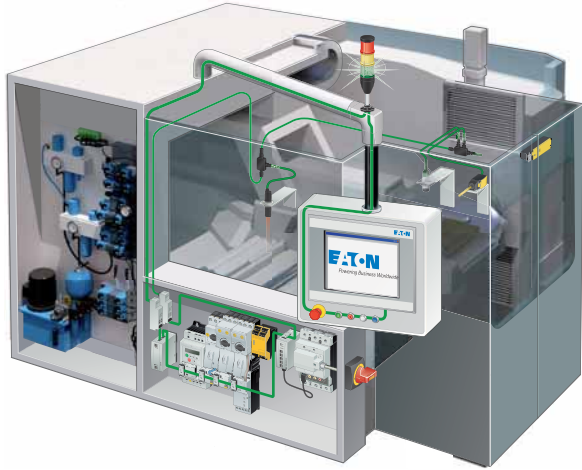
Six Sensor Ports



Eight Sensor Ports



SmartWire-DT In-Panel and On-Machine Wiring Solution



Contents

Description

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System Overview	
Features	V8-T10-25
Standards and Certifications	V8-T10-25
System Components	V8-T10-26
System Overview Diagram	V8-T10-28
System Control Overview	V8-T10-30

System Overview

Product Description

The SmartWire-DT® In Panel and On Machine wiring system uses a single green cable inside a machine control cabinet and across the machine itself to connect motor starters, variable frequency drives, soft starters, pushbuttons, sensors, pneumatic and hydraulic valves, stacklights and other indicator lights.

Inside the machine control cabinet the continuous SmartWire-DT green cable is flat. The flat cable connects directly to in panel motor starters, variable frequency drives, soft starters, panel-mounted pushbutton actuators, stacklights and other indicator lights. It eliminates the need for most of the conventional point-to-point control wiring done in a traditionally wired control panel—and even integrates 24 Vdc control power for contactor coils on the single SmartWire-DT cable.

The start of the SmartWire-DT system is either an Eaton PLC or a combination HMI/PLC with SmartWire-DT embedded or a simple gateway.

These SmartWire-DT gateways establish the connection between a SmartWire-DT system and standard programmable logic controller (PLC) fieldbuses, such as EtherNet/IP, Modbus TCP, EtherCAT, PROFINET, POWERLINK, PROFIBUS DP, SERCOS and CANopen. The gateway works without any conventional PLC I/O required because SmartWire-DT directly integrates the input/output (I/O) level in the switching devices.

Inside the control cabinet, typical faults such as loose connections and miswired terminations are eliminated using the flat cable and the specialized connectors. Outside the cabinet on the machine, the SmartWire-DT machine mount I/O modules connect using industry standard keyed M12 connectors to eliminate the possibility of miswiring. Further, dramatic wiring reductions are possible given the single SmartWire-DT cable connection that brings 24 Vdc power to and carries signals to and from devices.

Each SmartWire-DT machine mount I/O module has diagnostic LEDs built in, reducing commissioning time and troubleshooting in the field.

Nodes on the SmartWire-DT network both inside and outside the main control cabinet are automatically assigned addresses by the gateway or the HMI/PLC device with the simple push of a button—assigning addresses in the order that the nodes are connected. The system employs time monitoring and a watchdog timeout using the established target configuration as a reference—safely monitoring the integrity of the control scheme. SmartWire-DT has a maximum network length of 2000 feet and can connect up to 99 nodes per gateway. A software program called SWD-Assist enables the layout, planning and system configuration of a SmartWire-DT network.

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Features

Connects directly to:

- XTPE electronic manual motor protectors
- XTCE contactors
- XTRE control relays
- Electronic motor starters
- DS7 soft start controllers
- DE1 variable speed starters
- DC1 VFDs
- DA1 VFDs
- M22 pilot devices
- SL4 and SL7 stacklights
- On Machine devices including sensors, limit switches, pneumatic and hydraulic valves, remote contactors, pushbuttons, stacklights and other command and control components

Gateways support fieldbus integration, including:

- EtherNet/IP
- Modbus TCP
- EtherCAT
- PROFINET
- POWERLINK
- PROFIBUS DP
- SERCOS
- CANopen
- Supports up to 99 nodes (58 nodes when connected to PROFIBUS DP Gateway)
- Automatically assigns node addresses
- Integrates and supplies 24 Vdc power to contactor coils
- Includes diagnostic bi-color LEDs on each node connection

Standards and Certifications

- UL listed
- UL tested to Canadian safety standards
- CE Certified
- RoHS compliant



System Components



Contents

Description

Page

System Components	
System Overview Diagram	V8-T10-28
System Control Overview	V8-T10-30

System Components

Product Description

The start of the SmartWire-DT system is usually a gateway module connected to a PLC or controller fieldbus. This means that SmartWire-DT connected components will work with most third-party PLCs without having to create a new program. These devices are typically located within the main control cabinet for a machine.

To plan and lay out a SmartWire-DT network, an MS Windows-compatible software program called SWD-Assist is available as a free download from the Eaton website. The SWD-Assist configuration software allows a user to drag-and-drop system components like motor starters, drives, pushbuttons and indicator lights, and will calculate the control power requirements needed and generate a bill of materials of all the required SmartWire-DT components.

To download the SWD-Assist configuration software, visit www.eaton.com/smartwiredt.

In Panel Components

Gateway Modules

Gateway modules connect the SmartWire-DT system to the PLC. They are connected as nodes to the existing PLC fieldbus and are the start of the SmartWire-DT connection system. Gateways are available with EtherNet/IP, Modbus TCP, EtherCAT, PROFINET, POWERLINK, PROFIBUS DP, SERCOS III and CANopen protocols.

System Controllers

In the event that the Gateway module plus third-party PLC architecture is not used, system controllers from Eaton can operate a SmartWire-DT system. System controllers include an integrated SmartWire-DT gateway and are available as PLCs or HMI-PLCs using a CoDeSys programming platform or as programmable relays using simple ladder logic programming.

Motor Control Modules

Contactors fit into standard XT contactors and control relays directly on top, in place of a top-mounted auxiliary contact block. The modules fit all XTCE size B and C frame contactors and XTRE control relays.

Variable Speed Starters and Variable Frequency Drives connect to the SmartWire-DT system with plug-in modules similar to the approach with contactor modules.

Soft Start Controllers and Electronic Motor Starters with built-in SmartWire-DT functionality connect directly to the SmartWire-DT flat cable without the need for a supplemental module.

Pilot Device Modules

Pilot device modules fit into standard M22 pilot devices in both front-mount and base-mount configurations and replace the standard contact block and light units. Single and double contact modules with and without LEDs are available to meet a wide variety of control circuit requirements.

Stacklight Base Modules

Stacklight modules connect SL4 and SL7 Series stacklights when mounted to the control cabinet with Eaton's Fast Mount Base. A variety of incandescent, LED, high-power LED and audible signal modules are available to meet machine indication requirements.

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578. For Application Assistance in the U.S. and Canada call 1-800-426-9184.

In Panel Components**Digital and Analog I/O Modules**

Digital and analog I/O modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They can be connected anywhere along the flat cable network and can therefore be positioned in the control panel to help reduce I/O wiring.

Powerfeed Modules

Powerfeed modules feed auxiliary 24 Vdc power and/or 15 Vdc network power into the SmartWire-DT flat cable. The auxiliary 24 Vdc power is needed for the power supply of contactors and the 15 Vdc network power is used for supplying power to additional SmartWire-DT nodes. Powerfeed modules are also used to create zone control or groups of devices controlled by a single Emergency Stop.

SmartWire-DT Flat Cable

The flat cable is an 8-conductor cable that is flexible, durable and rated for 600 V so that it can be placed in the panel wiring duct along with 480 V or 600 V power conductors. It has two prominent features: (a) arrows indicating the front of the cable and the direction away from the gateway and (b) black edging indicating the polarity of the flat cable, the 15 Vdc wire and the reference mark for installing the device plugs and flat plugs.

Other System Accessories

Other accessories for the SmartWire-DT system include connectors, jumpers, bushings, plugs and sockets, terminating resistors and crimping tools.

On Machine Components

At the edge of the control cabinet the SmartWire-DT system transitions from the 8-conductor flat cable to a 5-conductor round cable with standard DC M12 barrel connectors, using simple transition adapters that mount through the panel wall.

SmartWire-DT Round Cable

The round cable has 5 conductors, uses standard DC M12 barrel connectors, and is 300 V rated. It is used outside the control panel to connect SmartWire-DT machine mount I/O modules to the SmartWire-DT system for use with peripherals such as sensors, enclosed pushbuttons, pneumatic and hydraulic valves, stacklights and other remote devices. This single cable is used both to provide power to connected devices and to carry I/O signals.

Machine Mount I/O Modules

Machine mountable I/O modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They are suitable for washdown environments and can be connected anywhere around the machine with up to 2000 feet and 99 devices possible with a single cable connection.

Accessory Cables

A variety of accessory cables are available to make the connection between remote devices (including sensors, stacklights, hydraulic and pneumatic valves, enclosed pilot devices, and other command and control devices) and the SmartWire-DT machine mounted I/O modules.

Enclosed Pilot Device Stations

Pilot device modules mounted in IP67 enclosures for use in remote machine locations can be assembled from standard components supplied by Eaton, and contacts can be wired for direct connection to a SmartWire-DT machine mount I/O module using a standard device accessory cable as described in the section above. Examples of such devices include pilot lights, pushbuttons, illuminated pushbuttons, selector switches and key switches.

Remote Stacklights

Stacklights for use in remote machine locations can be assembled from standard components supplied by Eaton with contacts wired for direct connection to a SmartWire-DT machine mount I/O module using a standard device accessory cable.

Machine Mount Powerfeed Modules

Powerfeed modules feed 4 A of auxiliary 24 Vdc power into the SmartWire-DT round cable when needed to supply power to additional SmartWire-DT nodes. Eaton's SWD-Assist software can be used to quickly and easily calculate the need for Powerfeed modules in a round cable system.

High-Speed Operations

Normal SmartWire-DT system bus speeds of 125 Kbaud and 250 Kbaud are sufficient for most machine operations, but certain machine processes require higher speeds. In those cases, certain SmartWire-DT system controllers can operate the On Machine components in the SmartWire-DT system up to 2 Mbaud bus speeds. Consult later sections in this catalog for specific details.



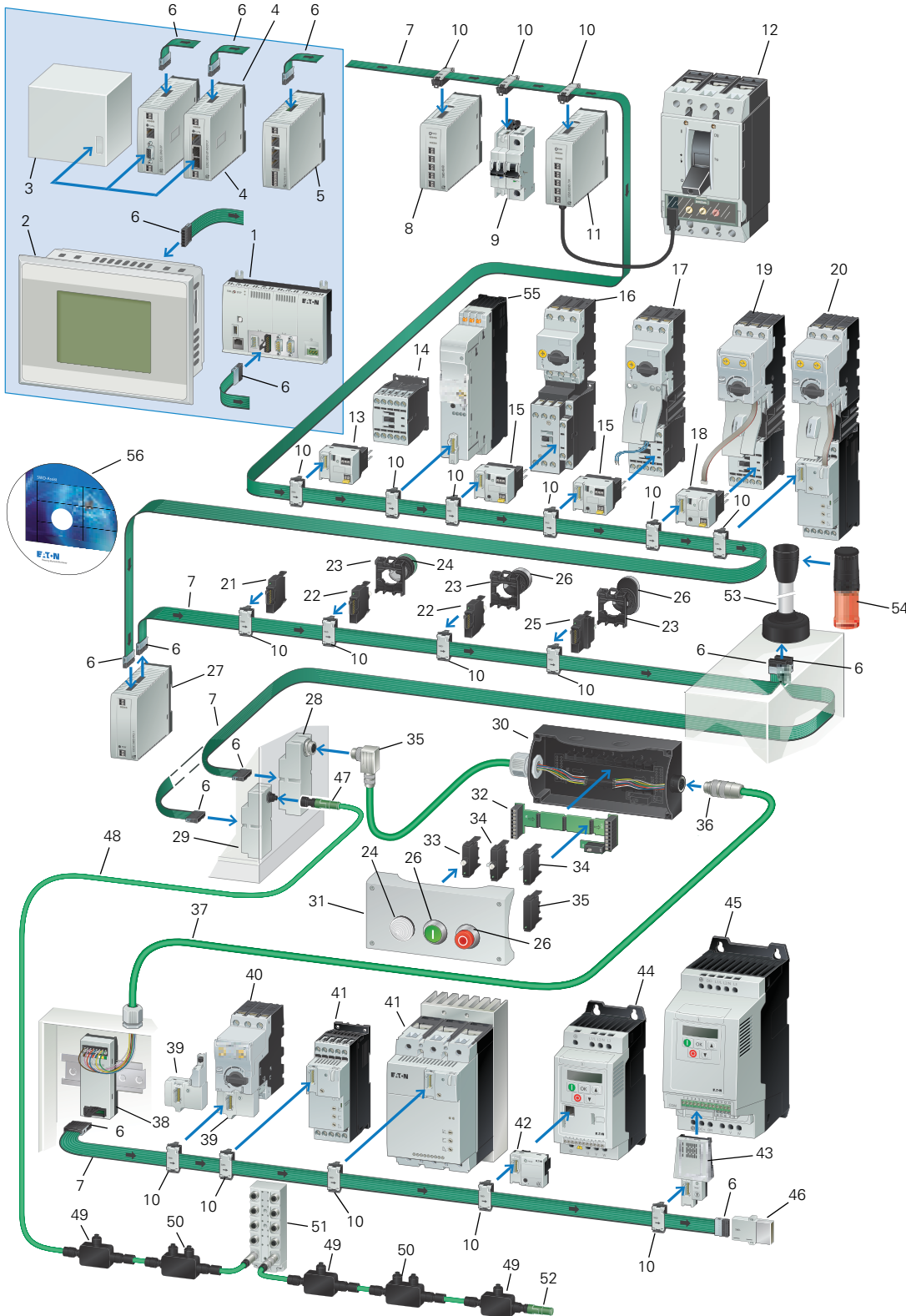
10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

System Overview Diagram

SmartWire-DT Contactor Modules



Item Number	Description
1	SmartWire-DT PLC XC-152
2	SmartWire-DT HMI-PLC
3	PLC with field bus interface
4	SmartWire-DT Gateways
5	Control relay easy800 with SmartWire-DT
6	SmartWire-DT blade terminal, 8-pole
7	SmartWire-DT 8-pin ribbon cable
8	SmartWire-DT I/O module
9	SmartWire-DT module for miniature circuit-breakers and residual-current circuit breakers
10	SmartWire-DT external device plug, 8-pole
11	SmartWire-DT connection for NZM
12	NZM circuit-breakers
13	SmartWire-DT contactor module
14	DILM contactor
15	SmartWire-DT contactor module with Hand-Off-Automatic switch
16	Motor protective circuit-breakers
17	Motor starter MSC
18	SmartWire-DT PKE module (motor starter)
19	Motor starter with PKE electronic motor protection
20	Soft starter DS7 with electronic motor protection from PKE
21	SmartWire-DT universal module, front mount
22	SmartWire-DT LED elements, front mount
23	RMQ-Titan mounting clamp for flush mounting plates
24	RMQ-Titan indicator light
25	SmartWire-DT function elements for front mount
26	SmartWire-DT operating elements
27	SmartWire-DT powerfeed card
28	SmartWire-DT enclosure cable gland for converting a ribbon cable to an 8-pin round cable, M20

Item Number	Description
29	SmartWire-DT enclosure cable gland for converting a ribbon cable to a 5-pin round cable, M12
30	Surface mounting enclosure RMQ-Titan
31	Surface mounting enclosure RMQ-Titan
32	SmartWire-DT card for function elements, base fixing
33	SmartWire-DT LED elements for base fixing
34	SmartWire-DT function elements for base fixing
35	SmartWire-DT Universal slave for base fixing
36	SmartWire-DT 8-pin connector
37	SmartWire-DT round cable, 8-pole
38	SmartWire-DT adapter for flat/round cable for top-hat rail mounting
39	SmartWire-DT PKE (motor-protective circuit-breaker)
40	PKE motor-protective circuit-breakers
41	DS7 soft starter
42	SmartWire-DT function element for DC1 variable frequency drives
43	SmartWire-DT function element for DA1 variable frequency drives
44	DC1 variable frequency drives
45	DA1 variable frequency drives
46	SmartWire-DT bus termination resistor for 8-pin ribbon cable
47	5-pin M12 plug connector
48	Round cable, 5-pole
49	SmartWire-DT IP67 I/O module, 2 I/O
50	SmartWire-DT IP67 I/O module, 4 I/O
51	SmartWire-DT IP67 I/O module, max. 16 I/O
52	SmartWire-DT IP67 bus termination resistor for 5-pin round cable, M12
53	SmartWire-DT connection to SL4/SL7 signal tower
54	Signal towers SL4 /SL7
55	Electronic motor starter EMS
56	SmartWire-DT planning and ordering aid, SWD-Assist

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

System Control Overview

Lean Solution Architecture #1

Gateway SmartWire-DT to any PLC

- Advantages of SmartWire-DT without changing your control architecture
- Optimize and standardize your control cabinet
- Simplify PLC transitions



Lean Solution Architecture #2

XV HMI-PLC with Integrated SmartWire-DT

- Fully optimize your machine design
- Powerful control and visualization capabilities
- Combine SmartWire-DT with broad fieldbus and enterprise networking capabilities



Lean Solution Architecture #3

XC152 SmartWire-DT PLC

- When local visualization is not required
- Powerful CoDeSys-based control
- Combine SmartWire-DT with broad fieldbus and enterprise networking capabilities
- Web visualization and remote access



Lean Solution Architecture #4

easy802/806 Programmable Relays with SmartWire-DT

- Bring the value of SmartWire-DT to small machines
- Simple configuration using easySoft-Pro ladder logic programming software with integrated SWD-Assist configuration utility



On Machine Components



Contents

Description

Page

On Machine Components	
Machine Mount I/O Modules—Digital	V8-T10-32
Machine Mount I/O Modules—Analog	V8-T10-34
I/O Splitters	V8-T10-35
Other I/O Connections	V8-T10-35
Machine Mount Powerfeed Modules	V8-T10-36
Panel Transition Components	V8-T10-37
SmartWire-DT Round Bus Cables	V8-T10-38
Power Cables—Externally Powered	
I/O Models	V8-T10-39
Other System Components	V8-T10-41

On Machine Components

Product Description

At the edge of the control cabinet, the SmartWire-DT system transitions from the 8-conductor flat cable to a 5-conductor round cable with standard DC M12 barrel connectors, using simple transition adapters that mount through the panel wall.

This round cable has five conductors, uses standard DC M12 barrel connectors, and is 300 V rated. It is used outside the control panel to connect machine mount (IP69K washdown-rated) I/O modules to the SmartWire-DT system for use with peripherals such as sensors, enclosed pushbuttons, remote enclosed contactors, pneumatic and hydraulic valves, stacklights and other remote devices. This single cable is used both to provide power to connected devices and to carry I/O signals.

Machine mountable I/O modules are connected as nodes on the SmartWire-DT network and allow standard or generic devices to be connected to the SmartWire-DT system. They can be connected anywhere around the machine with up to 2000 ft and 99 machine mount I/O modules possible with a single cable connection.

Features

- Modules with digital and analog channels to accommodate a wide variety of input and output devices
- Modules available in, single connector (1–2 I/O channel), dual connector (2–4 I/O channel), quad connector (4–8 I/O channel), and octal connector (8–16 I/O channel) versions to size exactly to your machine I/O needs at a particular device mounting location (quad and octal versions available in Q4 2016)
- Quad and octal block versions with separate power connection for discrete control of dedicated output channels
- Compatible with a wide range of sensors and actuators for easy integration into any machine design
- Most models offer 2 I/O channels per connection point when used with accessory splitters
- Special version available with 3 I/O channels on a single connection point to be compatible with 3-element stacklights and 3-element pushbutton stations using a single I/O cable
- Most versions provide configurable I/O channels to allow for selection as input or output in any combination
- Integrated 24 Vdc power and communications with single 5-conductor cable using standard DC M12 connectors
- Complete Plug & Play solution, integrated with In Panel SmartWire-DT wiring components including auto-addressing feature
- Connection of up to 99 modules and up to 2000 feet of cable on a single branch of the wiring system
- Built-in diagnostic bi-color LEDs on each module
- IP69K enclosure ratings for use in harsh washdown applications
- Tool-free mounting options
- Vertical and flat mounting possible

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

Machine Mount I/O Modules—Digital

SmartWire-DT I/O modules for connection to most digital input and output devices. All EU1E and EU2E models receive power and I/O communications signals on the SmartWire-DT round bus cable shown on **Page V8-T10-38**. EU6E and EU8E models are offered in two versions—the first version is similar to the EU1E/EU2E models and receives power and I/O communications signals on the SmartWire-DT round bus cable. The second version offers an external power connection that gives the user discrete control of machine actuation outputs. This can be useful in a variety of different machine control situations including machine safety applications.

EU1E Models



EU2E Models



EU6E Models No external power



EU8E Models No external power





EU6E Models External power






EU8E Models External power



Description	Number of Dedicated Inputs	Number of Dedicated Outputs	Number of Configurable Input/Output Channels	Catalog Number
 EU1E-SWD_ One digital input channel Messages: Status of the digital input 1 Commands: None	1	0	0	EU1E-SWD-1DX
	2	0	0	EU1E-SWD-2DX
	0	0	2	EU1E-SWD-2DD
 EU2E-SWD_ Two digital input channels Messages: Status of the digital inputs 1 and 2 Commands: None	2	0	0	EU2E-SWD-2DX
	4	0	0	EU2E-SWD-4DX
	0	0	4	EU2E-SWD-4DD
	0	0	4	EU2E-SWD-4DD-1

Machine Mount I/O Modules—Digital, continued

SmartWire-DT I/O modules for connection to most digital input and output devices.

	Description	Number of Dedicated Inputs	Number of Dedicated Outputs	Number of Configurable Input/Output Channels	Catalog Number
	Quad: 4/8-Channel Multiblock Modules—no external power required Eight digital input channels Messages: Status of the digital inputs 1, 2, 3, 4, 5, 6, 7 and 8 Commands: None Note: This model receives power from regular SmartWire-DT cabling and does not require any external power connection	8	0	0	EU6E-SWD-8DX
	Eight configurable digital input/output channels Messages: Status of the digital inputs 1 and/or 2 and/or 3 and/or 4 and/or 5 and/or 6 and/or 7 and/or 8 (if configured as inputs) Commands: Actuation of the digital outputs 1 and/or 2 and/or 3 and/or 4 and/or 5 and/or 6 and/or 7 and/or 8 (if configured as outputs) Note: This model receives power from regular SmartWire-DT cabling and does not require any external power connection	0	0	8	EU6E-SWD-8DD
	4/8-Channel Multiblock Modules—external power required Two digital input channels, two digital output channels Messages: Status of the digital inputs 1 and 2 Commands: Actuation of the digital outputs 1 and 2 Note: This model has an external power connection for power to output channels only	2	2	0	EU6E-SWD-2D2D-1
	Two digital input channels, two digital output channels Messages: Status of the digital inputs 1 and 2 Commands: Actuation of the digital outputs 1 and 2 Note: This model has an external power connection for power to output channels only Note: This model has high-current output channels rated for 2 A each channel	2	2	0	EU6E-SWD-2D2D-2
	Four digital output channels Messages: None Commands: Actuation of the digital outputs 1, 2, 3 and 4 Note: This model has an external power connection for power to output channels only	0	4	0	EU6E-SWD-4XD-1
	Four digital output channels Messages: None Commands: Actuation of the digital outputs 1, 2, 3 and 4 Note: This model has an external power connection for power to output channels only Note: This model has high-current output channels rated for 2 A each channel	0	4	0	EU6E-SWD-4XD-2
	Four digital input channels, four digital output channels Messages: Status of the digital inputs 1, 2, 3 and 4 Commands: Actuation of the digital outputs 1, 2, 3 and 4 Note: This model has an external power connection for power to output channels only	4	4	0	EU6E-SWD-4D4D-1
	Four digital input channels, four digital output channels Messages: Status of the digital inputs 1, 2, 3 and 4 Commands: Actuation of the digital outputs 1, 2, 3 and 4 Note: This model has an external power connection for power to output channels only Note: This model has high-current output channels rated for 2 A each channel	4	4	0	EU6E-SWD-4D4D-2
	Eight digital output channels Messages: None Commands: Actuation of the digital outputs 1, 2, 3, 4, 5, 6, 7 and 8 Note: This model has an external power connection for power to output channels only	0	8	0	EU6E-SWD-8XD-1
	Octal: 8/16-Channel Multiblock Modules—no external power required				
	Sixteen digital input channels Messages: Status of the digital inputs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 Commands: None Note: This model receives power from regular SmartWire-DT cabling and does not require any external power connection	16	0	0	EU8E-SWD-16DX
	Sixteen configurable digital input/output channels Messages: Status of the digital inputs 1 and/or 2 and/or 3 and/or 4 and/or 5 and/or 6 and/or 7 and/or 8 and/or 9 and/or 10 and/or 11 and/or 12 and/or 13 and/or 14 and/or 15 and/or 16 (if configured as inputs) Commands: Actuation of the digital outputs 1 and/or 2 and/or 3 and/or 4 and/or 5 and/or 6 and/or 7 and/or 8 and/or 9 and/or 10 and/or 11 and/or 12 and/or 13 and/or 14 and/or 15 and/or 16 (if configured as outputs) Note: This model receives power from regular SmartWire-DT cabling and does not require any external power connection	0	0	16	EU8E-SWD-16DD

Machine Mount I/O Modules—Digital, continued

SmartWire-DT I/O modules for connection to most digital input and output devices.

EU8E-SWD_



Description	Number of Dedicated Inputs	Number of Dedicated Outputs	Number of Configurable Input/Output Channels	Catalog Number
8/16-Channel Multiblock Modules—external power required				
Four digital input channels, four digital output channels Messages: Status of the digital inputs 1, 2, 3 and 4 Commands: Actuation of the digital outputs 1, 2, 3 and 4 Note: This model has an external power connection for power to output channels only	4	4	0	EU8E-SWD-4D4D-1
Eight digital input channels, eight digital output channels Messages: Status of the digital inputs 1, 2, 3, 4, 5, 6, 7 and 8 Commands: Actuation of the digital outputs 1, 2, 3, 4, 5, 6, 7 and 8 Note: This model has an external power connection for power to output channels only	8	8	0	EU8E-SWD-8D8D-1
Eight digital output channels Messages: None Commands: Actuation of the digital outputs 1, 2, 3, 4, 5, 6, 7 and 8 Note: This model has an external power connection for power to output channels only	0	8	0	EU8E-SWD-8XD-1
Sixteen digital output channels Messages: None Commands: Actuation of the digital outputs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 Note: This model has an external power connection for power to output channels only	0	16	0	EU8E-SWD-16XD-1

Machine Mount I/O Modules—Analog

SmartWire-DT I/O modules for connection to various analog input and output devices.

EU1E-SWD_




EU2E-SWD_



Description	Number of Dedicated Inputs	Number of Dedicated Outputs	Number of Configurable Input/Output Channels	Catalog Number
One analog input channel 0–10 Vdc Messages: Analog input level Commands: None	1	0	0	EU1E-SWD-1AX-1
One analog input channel 0–20 mA Messages: Analog input level Commands: None	1	0	0	EU1E-SWD-1AX-2
One analog output channel 0–10 Vdc Messages: None Commands: Analog output level	0	1	0	EU1E-SWD-1XA-1
One analog output channel 0–20 mA Messages: None Commands: Analog output level	0	1	0	EU1E-SWD-1XA-2
One encoder input channel 30 kHz Messages: Encoder count signals Commands: None	1	0	0	EU1E-SWD-1CX
Two RTD temperature input channels Messages: Temperature input level Commands: None	2	0	0	EU2E-SWD-2PT





I/O Splitters

To allow for use of both available channels on applicable digital input/output modules.

	Description	Pkg Qty.	Catalog Number
	Combines two devices into a single I/O connection point. Both device connections are 4-pin DC M12. Power is common between devices, and the splitter module is wired to Pin 4 for each connected sensor, actuator or other device.	1	SWD4-SP-4124
	Combines two devices into a single I/O connection point. Both device connections are 4-pin DC M12. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.	1	SWD4-SP-4122
	Combines two devices into a single I/O connection point. Both device connections are 4-pin M8. Power is common between devices, and the splitter module is wired to Pin 4 for each connected sensor, actuator or other device.	1	SWD4-SP-4084
	Combines two devices into a single I/O connection point. Both device connections are 4-pin M8. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.	1	SWD4-SP-4082
	Combines two devices into a single I/O connection point. Both device connections are 3-pin M8. Power is common between devices, and the splitter module is wired to Pin 2 for each connected sensor, actuator or other device.	1	SWD4-SP-3084


Other I/O Connections


For connection to I/O devices with and without built-in M12 connections.


	Description	Pkg Qty.	Catalog Number
	Enclosure and Remote Device M12 Receptacles		
	M12 5-pin male receptacle, 1/2 inch NPT back threads, 3.2 ft (1 m) wiring leads. For use with Eaton SL4/SL7 Series Stacklights with post-mount bases. Also for connection of remote panel Contactors and other devices to On Machine I/O modules.	1	SWD4-PRM5-1-S
	M12 5-pin female receptacle, 1/2 inch NPT back threads, 3.2 ft (1 m) wiring leads. For use where needed in remote panel wiring situations.	1	SWD4-PRF5-1-S
	M12 5-pin male receptacle, M20 front threads, 5 inch wiring leads. For use with Eaton SL4/SL7 Series Stacklights with fast-mount bases. Also for use with Eaton M22 Series remote pushbutton enclosures.	1	SWD4-PRM5-2-S
	I/O Device Cables Double-Ended		
	6 in (0.1 m) length	1	SWD4-M1LR5-1-2S
	1 ft (0.3 m) length	1	SWD4-M3LR5-1-2S
	2 ft (0.6 m) length	1	SWD4-M6LR5-1-2S
	3.2 ft (1 m) length	1	SWD4-1LR5-1-2S
6.5 ft (2 m) length	1	SWD4-2LR5-1-2S	
	I/O Device Cables Single-Ended		
	1 ft (0.3 m) length	1	SWD4-M3LR5-S
	2 ft (0.6 m) length	1	SWD4-M6LR5-S
	3.2 ft (1 m) length	1	SWD4-1LR5-S
	Cord Grips		
	Round cable cord grip, M20	1	V-M20
	Round cable cord grip, 1/2 inch NPT	1	V-12NPT

Valve Connectors

For connections to Proportional and ON/OFF valves with EN 175301803 / DIN 43650, Industry Standard and M12 connections.

Description	Pkg Qty.	Catalog Number
EU3E-SWD-X1H-1  Proportional/ON/OFF Valve Connectors EN/DIN Proportional/ON/OFF Valve Connectors are designed for compact, electronic control of non-feedback hydraulic proportional and switching valves conforming to ISO 4400/DIN 43650. No separate T-Connector is required as the SmartWire-DT round bus cables found on Page V8-T10-38 wire directly in and out of two M12 connection points. Interface: ISO 4400/DIN 43650 Type A (18 mm)	1	EU3E-SWD-X1H-1

Description	Valve Power Limit	Pkg Qty.	Catalog Number
SWD4-V_  ON/OFF Valve Connectors – EN/DIN/IS Connectors mount directly to valves and have single M12 connectors for wiring to T-Connectors. When used with standard "I/O Device Cables Double-Ended" listed on Page V8-T10-35 to make the connection between T-Connectors and these valve connectors, these connectors will support up to 10 W hydraulic and pneumatic valves. When used with "Valve Device Cables Double-Ended" listed below, up to 30 W valves are supported.			
EN 175301803 / DIN 43650 Type A 18 mm (terminal spacing) ON/OFF valve	30 W	1	SWD4-VA3-1-S
EN 175301803 / DIN 43650 Type B 10 mm (terminal spacing) ON/OFF valve	30 W	1	SWD4-VB3-1-S
Industry standard mini/Form B 11 mm (terminal spacing) ON/OFF valve	30 W	1	SWD4-VB3-2-S
EN 175301803 / DIN 43650 Type C 8 mm (terminal spacing) ON/OFF valve	30 W	1	SWD4-VC3-1-S
Industry standard sub-micro/Form C 9.4 mm (terminal spacing) ON/OFF valve	30 W	1	SWD4-VC3-2-S

Description	Pkg Qty.	Catalog Number
SWD4-2LR5-3-2S  Valve Device Cables Double-Ended Connector cables with special wiring to allow higher-wattage valves to be used with standard T-Connectors. In these connectors, all three potential output channels from standard T-Connectors are wired to the valve terminals. Each output channel is nominally rated at 500 mA. If two or three output channels are used and are turned on simultaneously, the use of these special cable versions will connect those multiple outputs to the valve coil terminals. With two channels simultaneously energized, up to 20 W valves are supported. With three channels simultaneously energized, up to 30 W valves are supported.		
1 ft (0.3 m) length	1	SWD4-M3LR5-3-2S
2 ft (0.6 m) length	1	SWD4-M6LR5-3-2S
3.2 ft (1 m) length	1	SWD4-1LR5-3-2S
6.5 ft (2 m) length	1	SWD4-2LR5-3-2S

EU1S-SWD-PF1-2








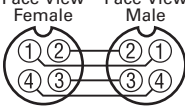
Machine Mount Powerfeed Modules

Machine mount Powerfeed modules feed auxiliary 24 Vdc power into the On Machine SmartWire-DT round cable system. Supplemental 24 Vdc power is only needed if the total power consumption of devices connected to the On Machine SmartWire-DT system exceeds the available power from the main control cabinet connection. These modules can be connected at any location in the system, and there is no limit to the number of Powerfeed modules that can be connected in a system branch.

Description	Maximum Powerfeed Capacity	Pkg Qty.	Catalog Number
Provides connection point for external 24 Vdc power supply input.	4 A	1	EU1S-SWD-PF1-2




Powerfeed Cables

Powerfeed cables are used to connect from a source of 24 Vdc power to the power input connection on the EU1S-SWD-PF1-2 Powerfeed module.

	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number	PUR Jacket Catalog Number
 <p>CSDS4A4_</p>	DC	4-pin, 4-wire	22 AWG	6.0 ft (2 m)	 <p>1-Brown 2-White 3-Blue 4-Black</p>	CSDS4A4CY2202	CSDS4A4RY2202
				16.4 ft (5 m)		CSDS4A4CY2205	CSDS4A4RY2205
				32.8 ft (10 m)		CSDS4A4CY2210	CSDS4A4RY2210
				65.6 ft (20 m)		CSDS4A4CY2220	—
 <p>CSDR4A4_</p>	DC	4-pin, 4-wire	22 AWG	6.0 ft (2 m)	 <p>1-Brown 2-White 3-Blue 4-Black</p>	CSDR4A4CY2202	CSDR4A4RY2202
				16.4 ft (5 m)		CSDR4A4CY2205	CSDR4A4RY2205
				32.8 ft (10 m)		CSDR4A4CY2210	CSDR4A4RY2210
 <p>CSDS4A4_</p>	DC	4-pin, 4-wire	22 AWG	3.0 ft (1 m)	 <p>Face View Female Face View Male</p>	CSDS4A4CY2201-D	—
				5.0 ft (1.5 m)		CSDS4A4CY2201.5-D	—
				6.0 ft (2 m)		CSDS4A4CY2202-D	—
				10.0 ft (3 m)		CSDS4A4CY2203-D	—
				16.4 ft (5 m)		CSDS4A4CY2205-D	—

10

Panel Transition Components

	Description	Pkg Qty.	Catalog Number
 <p>SWD4-SFL8-12</p>	Flat-to-Round Cabinet Transition Adapter		
	To transition between in-cabinet flat cabling and on machine round cabling. Wiring terminals allow external 24 Vdc power supply at this location if desired. Jumper these terminals to utilize 24 Vdc power from the incoming flat cable.	1	SWD4-SFL8-12
 <p>SWD4-SML8-12</p>	Round-to-Flat Cabinet Transition Adapter		
	To transition between on machine round cabling and in-cabinet flat cabling. Wiring terminals allow external 24 Vdc power supply at this location if desired. Jumper these terminals to utilize 24 Vdc power from the incoming round cable.	1	SWD4-SML8-12
 <p>SWD4-SML5-12</p>	Cabinet Cable Pass-Through Adapter		
	For passing the SmartWire-DT round cable connection easily through a panel or a cabinet wall.	1	SWD4-SML5-12

Note

① SmartWire-DT round bus cables shown on **Page V8-T10-38** have 22 AWG power conductors and can also be used as Powerfeed cables, offering additional length options.

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Right Angle Adapter Cables

These adapters are typically used to create a lower profile at the panel transition wiring point.

Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	PVC Jacket Catalog Number
SWD4-M1LR5-RS					
Right Angle					
DC	5-pin	22 AWG	6 in (0.1 m)		SWD4-M1LR5-RS
SWD4-M1LR5-SR					
Micro-Style Right Angle Female/Straight Male					
DC	5-pin	22 AWG	6 in (0.1 m)		SWD4-M1LR5-SR











SmartWire-DT Round Bus Cables

These cables are used to connect between the panel transition wiring adapter and the Machine Mount I/O modules on the system.

Description	Pkg Qty.	Catalog Number
SWD4- Round Cable		
Each cable is 5-conductor, with one male DC M12 and one female DC M12 connector at each end.		
6 in (0.1 m) length	1	SWD4-M1LR5-2S
1 ft (0.3 m) length	1	SWD4-M3LR5-2S
2 ft (0.6 m) length	1	SWD4-M6LR5-2S
3.2 ft (1 m) length	1	SWD4-1LR5-2S
4.9 ft (1.5 m) length	1	SWD4-1M5LR5-2S
6.5 ft (2 m) length	1	SWD4-2LR5-2S
9.8 ft (3 m) length	1	SWD4-3LR5-2S
13.1 ft (4 m) length	1	SWD4-4LR5-2S
16.4 ft (5 m) length	1	SWD4-5LR5-2S
32.8 ft (10 m) length	1	SWD4-10LR5-2S
65.6 ft (20 m) length	1	SWD4-20LR5-2S
SWD4-XXXLR5 Bulk Cable and Field-Wireable Connectors for Non-Standard Cable Lengths		
Non-standard cable lengths can be easily constructed using the raw cable and field-installable connectors in this section.		
Bulk cable (to build non-standard lengths)	Order in meters	SWD4-XXXLR5
SWD4-SF5-67		
Female (to terminate raw cable)	1	SWD4-SF5-67
SWD4-SM5-67		
Male (to terminate raw cable)	1	SWD4-SM5-67

Power Cables—Externally Powered I/O Models

To bring power to and pass power between externally powered EU6E and EU8E models starting on **Page V8-T10-32**.

	Current Rating at 600 V	Voltage Style	Number of Pins	Gauge	Length	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
Mini-Style Straight Female 	10 A	AC/DC	4-pin, 4-wire	16 AWG	6.5 ft (2 m)	 1-Brown 2-White 3-Blue 4-Black	SWD4-2LR4P-S
					13 ft (4 m)		SWD4-4LR4P-S
					19.5 ft (6 m)		SWD4-6LR4P-S
					32.5 ft (10 m)		SWD4-10LR4P-S
					65 ft (20 m)		SWD4-20LR4P-S
Mini-Style Right-Angle Female 	10 A	AC/DC	4-pin, 4-wire	16 AWG	6.5 ft (2 m)	 1-Brown 2-White 3-Blue 4-Black	SWD4-2LR4P-R
					13 ft (4 m)		SWD4-4LR4P-R
					19.5 ft (6 m)		SWD4-6LR4P-R
					32.5 ft (10 m)		SWD4-10LR4P-R
					65 ft (20 m)		SWD4-20LR4P-R
Mini-Style Straight Female/Male 	10 A	AC/DC	4-pin, 4-wire	16 AWG	1 ft (0.3 m)	Face View Male  Face View Female 	SWD4-M3LR4P-2S
					2 ft (0.6 m)		SWD4-M6LR4P-2S
					3.2 ft (1 m)		SWD4-1LR4P-2S
					4.9 ft (1.5 m)		SWD4-1M5LR4P-2S
					6.5 ft (2 m)		SWD4-2LR4P-2S
					10 ft (3 m)		SWD4-3LR4P-2S
					13 ft (4 m)		SWD4-4LR4P-2S
					16.4 ft (5 m)		SWD4-5LR4P-2S
					32.5 ft (10 m)		SWD4-10LR4P-2S
					65 ft (20 m)		SWD4-20LR4P-2S
Mini-Style Right-Angle Female/Male 	10 A	AC/DC	4-pin, 4-wire	16 AWG	1 ft (0.3 m)	Face View Male  Face View Female 	SWD4-M3LR4P-2R
					2 ft (0.6 m)		SWD4-M6LR4P-2R
					3.2 ft (1 m)		SWD4-1LR4P-2R
					4.9 ft (1.5 m)		SWD4-1M5LR4P-2R
					6.5 ft (2 m)		SWD4-2LR4P-2R
					10 ft (3 m)		SWD4-3LR4P-2R
					13 ft (4 m)		SWD4-4LR4P-2R
					16.4 ft (5 m)		SWD4-5LR4P-2R
					32.5 ft (10 m)		SWD4-10LR4P-2R
					65 ft (20 m)		SWD4-20LR4P-2R




10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution


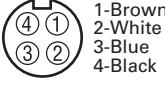
Power Cables—Externally Powered I/O Models, continued

To bring power to and pass power between externally powered EU6E and EU8E models starting on **Page V8-T10-32**.









	Description	Pkg Qty.	Catalog Number
	Bulk Cable and Field-Wireable Connectors for Non-Standard Cable Lengths		
	Non-standard cable lengths can be easily constructed using the raw cable and field-installable connectors in this section.		
	Bulk cable (4-conductor, 16 AWG)	Order in meters	SWD4-XXXLR4P
	Female straight (to terminate raw cable)	1	SWD4-SF4P-67
	Male straight (to terminate raw cable)	1	SWD4-SM4P-67
	Female right angle (to terminate raw cable)	1	SWD4-SF4P-67R
	Male right angle (to terminate raw cable)	1	SWD4-SM4P-67R

Other Power Cabling Connections

To provide a panel transition for the 24 Vdc power feed to I/O modules with external power connection.

Voltage Style	Number of Pins	Gauge	Length	Mounting Hole Size	Pin Configuration/Wire Colors (Face View Female Shown)	Catalog Number
Panel Transition Adapter						
To easily bring power for externally powered I/O modules through a panel wall.						
	AC/DC	4-pin, 4-wire	16 AWG	3.2 ft (1 m)	1/2-14 in NPT back threads	

Other System Components

	Description	Pkg Qty.	Catalog Number
	Bus Termination Module To terminate the end of an on machine SmartWire-DT round cable network branch	1	SWD4-RC5-10
Connector Caps			
	SWD4-ACAP-10 Active cap—allows for remote monitoring of the health of an unused device connection on a machine mount I/O module over the SmartWire-DT network	1	SWD4-ACAP-10
	SWD4-PCAP-F Passive cap—to provide physical protection and sealing if nothing is connected to the female M12 connector on a machine mount I/O module	1	SWD4-PCAP-F
	SWD4-PCAP-M Passive cap—to provide physical protection and sealing if nothing is connected to the male M12 connector on a machine mount I/O module	1	SWD4-PCAP-M
	SWD4-PCAPP-F Passive cap—to provide physical protection and sealing if nothing is connected to the female-mini (7/8 in) external power connection on a machine mount I/O module	1	SWD4-PCAPP-F
	SWD4-PCAPP-M Passive cap—to provide physical protection and sealing if nothing is connected to the male-mini (7/8 in) external power connection on a machine mount I/O module	1	SWD4-PCAPP-M
Mounting Accessories			
	SWD4-MNT-VER Clip mount—for easy mounting of a machine mount I/O module to any flat or channeled surface, including cylinders and other mounting situations where T-channels are present. Once the bracket is mounted, the I/O Module can be removed and reinstalled without tools	1	SWD4-MNT-VER
	SWD4-MNT-DIN DIN rail mount—for easy mounting of an EU1E_ or EU2E_ machine mount I/O Module to DIN rail	2	SWD4-MNT-DIN
Universal (Placeholder) Module			
	EU1M-SWD-NOP For use to hold a network address location for a node that may be installed at some time in the future	1	EU1M-SWD-NOP

Enclosed (IP67) Pilot Devices



Contents

Description

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Enclosed (IP67) Pilot Devices

Product Description

Many remote pilot devices of various types and from various manufacturers can be connected to a machine's control cabinet using the SmartWire-DT On Machine wiring system. This section describes a series of easy to assemble versions of a range of pilot devices from within Eaton's M22 standard catalog family to make this connection quick and easy. With simple assembly using standard catalog components, enclosed devices can easily be connected to the SmartWire-DT On Machine wiring system at any mounting location on the machine. This approach to remote device wiring can help the OEM eliminate wiring, terminal blocks and PLC input/output modules in the machine control cabinet.

Features

- Simple assembly with catalog components achieves IP67 sealing and offers plug & play connection to the SmartWire-DT network
- Base-mount contact blocks and LED modules allow for simple removal of the enclosure cover without disturbing switch wiring
- Simple connection via standard cable accessories to SmartWire-DT On Machine I/O modules
- Wide variety of enclosures, pushbuttons, selector switches, key switches, pilot lights, and other devices make solving a range of machine applications easy

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273),
in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada
call 1-800-426-9184.

Product Selection

M22 operators and indicating lights including momentary and maintained pushbuttons, pilot lights, hand and key operated selector switches, and palm switches.

Enclosed M22 Pilot Device Examples



Pushbutton	Double Pushbutton	Selector Switch	Key Selector Switch	Palm Switch
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M22-I_



Enclosures

This is a representative subset of Eaton's line of sealed mounting enclosures for M22 devices. Receptacles in the next section require M20 enclosure knockouts, which are present in all M22 enclosures offered by Eaton but are most common in the enclosures listed in this section.

Description	Catalog Number
One-element enclosure	M22-I1
Two-element enclosure	M22-I2
Three-element enclosure	M22-I3
Four-element enclosure	M22-I4
Six-element enclosure	M22-I6

SWD4-PRM5-...



M12 Wiring Receptacles

Panel-mount M12 connector receptacles designed expressly for mounting in M20 enclosure knockouts in sealed M22 mounting enclosures listed in the previous section.

Description	Catalog Number
5-inch wiring leads, M20 front threads	SWD4-PRM5-2-S
1-meter wiring leads, M20 front threads	SWD4-PRM5-1-S

Assembly Instructions


1. Select pushbutton or pilot light operator and required contact blocks/light modules from catalog Volume 7 Tab 1.
2. Select enclosure from above listing.
3. Select receptacle from above listing.
4. Mount receptacle in enclosure knockout.
5. Wire receptacle to contact blocks and/or light modules as follows:
 - a. To wire a pushbutton or other pilot device as an input to the SmartWire-DT system
 - 1) The receptacle brown lead is wired to one side of the switch contact
 - 2) The receptacle black, white or gray Ⓢ lead is wired to the other side of the switch contact
 - b. To wire an indicating light or actuator as an output from the SmartWire-DT system
 - 1) The receptacle blue lead is wired to one side of the actuator or pilot light contact
 - 2) The receptacle black, white, or gray Ⓢ lead is wired to the other side of the actuator or pilot light contact

Note


Ⓢ SmartWire-DT On Machine I/O modules (see **Page V8-T10-32**) are offered in versions with multiple input and output channels per M12 connection point. In the receptacle wiring scheme, one channel is available on the black wire, the second channel is available on the white wire, and a third channel (if available) is carried on the gray wire. If three channels on a single device connector are needed for a 3-element stacklight or 3-element pushbutton station, see EU2E-SWD-4DD-1 in the main T-connector model listing.

Stacklight Mounting Modules—Post Mounting System


Includes Cover, Maximum 3 Modules

Description	Tube Length	Color	Standard Pack	For use with ...	Catalog Number
SLx-PIB/CB-T_  Base with aluminum tube and 3/4 in NPT threaded base Spring-loaded terminals SL7 Series Stacklights	100 mm	Black with Aluminum-color tube	1	SL7-L-...	SL7-CB-T-100
	250 mm			SL7-BL-...	SL7-CB-T-250
	400 mm			SL7-FL-... SL7-AP-...	SL7-CB-T-400
Base with aluminum tube and 3/4 in NPT threaded base Spring-loaded terminals SL4 Series Stacklights	100 mm	Black with Aluminum-color tube	1	SL4-L-...	SL4-PIB-T-100
	250 mm			SL4-BL-...	SL4-PIB-T-250
	400 mm			SL4-FL-... SL4-AP-...	SL4-PIB-T-400

Stacklight Mounting Adapter

Description	Detail	Catalog Number
SL7/4-FW-T  Mounting adapter to allow wiring receptacle to mount to stacklight post mount base	Mounting adapter kit	SL7/4-FW-T

M12 Wiring Receptacles

Description	Detail	Catalog Number
SWD4-PRM5-1-S  For wiring an SL7/SL4 Stacklight with post-mount base	M12 5-pin male receptacle, 1/2 inch NPT back threads, 1-meter leads	SWD4-PRM5-1-S

Assembly Instructions

1. Select Stacklight light modules from catalog Volume 7 Tab 2.
2. Select Stacklight mounting base from above listings.
3. Select receptacle appropriate for chosen Stacklight mounting base from above listing.
If using the Post Mount base, also select a Stacklight Mounting Adapter from that section above.
4. Mount receptacle in Fast Mount base or Post Mount base adapter.
5. Wire receptacle to Stacklight terminals as follows:
 - a. The receptacle blue lead is wired to Terminal #0 on the Stacklight
 - b. The receptacle black, white or gray [Ⓞ] lead is wired to the numbered terminal for the light module in question

Note

[Ⓞ] SmartWire-DT On Machine I/O modules (see **Page V8-T10-32**) are offered in versions with multiple input and output channels per M12 connection point. In the receptacle wiring scheme, one channel is available on the black wire, the second channel is available on the white wire, and a third channel (if available) is carried on the gray wire. If three channels on a single device connector are needed for a 3-element stacklight or 3-element pushbutton station, see EU2E-SWD-4DD-1 in the main T-connector model listing.

Technical Data and Specifications

Machine Mount I/O Modules

Description	Unit	EU1E-SWD-1DX	EU1E-SWD-2DX	EU1E-SWD-2DD	EU1E-SWD-1AX-1	EU1E-SWD-1AX-2	EU1E-SWD-1XA-1
General							
Standards		IEC / EN 61131-2, EN50178, IEC / EN 60529					
Dimensions (W x H x L)—reference only	mm	41 x 20 x 59	41 x 20 x 59	41 x 20 x 59	41 x 20 x 59	41 x 20 x 59	41 x 20 x 59
Weight	g / oz	65 / 2.3	65 / 2.3	65 / 2.3	65 / 2.3	65 / 2.3	65 / 2.3
Form factor		Single-T	Single-T	Single-T	Single-T	Single-T	Single-T
Enclosure material		MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)
Mounting	Qty	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory
Ambient Conditions, Mechanical							
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	IP69K
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7
UL Type		1	1	1	1	1	1
Vibrations							
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3
EMC							
Overvoltage category		II	II	II	II	II	II
Pollution degree		3	3	3	3	3	3
Electrostatic discharge		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Air discharge (level 3)	kV	8	8	8	8	8	8
Contact discharge (level 2)	kV	4	4	4	4	4	4
Electromagnetic fields		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
80–1000 MHz	V/m	10	10	10	10	10	10
1.4–2 G	V/m	3	3	3	3	3	3
2–2.7 G	V/m	1	1	1	1	1	1
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)	EN 55011	Class A	Class A	Class A	Class A	Class A	Class A
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	2	2	2	2	2	2
Signal cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	2	2	2
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	0.5	0.5	0.5	0.5	0.5	0.5
I/O cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Radiated RFI (level 3) (150 kHz – 80 MHz)		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
Supply cables	V	10	10	10	10	10	10
I/O cables	V	10	10	10	10	10	10
SmartWire-DT cables	V	10	10	10	10	10	10
Voltage drops & interrupts	mS	10	10	10	10	10	10
Climatic Environmental Conditions							
Ambient temperature	Degrees C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Storage temperature	Degrees C	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70
Humidity	% RH	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1DX	EU1E-SWD-2DX	EU1E-SWD-2DD	EU1E-SWD-1AX-1	EU1E-SWD-1AX-2	EU1E-SWD-1XA-1
SmartWire-DT Network							
Stations type		SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave
Baud rate setting		Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Maximum	Bit/sec	2 M	2 M	2 M	2 M	2 M	2 M
SW-DT Status LED		Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
SW-DT network input connector		M12-M / 5-pole	M12-M / 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)
SW-DT network output connector		M12-F / 5-pole	M12-F / 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)
24 Vdc Power							
SWD-T bus 24 Vdc							
Rated operational voltage	V/U _e	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%
Residual ripple on the input voltage	%	≤5	≤5	≤5	≤5	≤5	≤5
Reverse Polarity Protection		Yes	Yes	Yes	Yes	Yes	Yes
Rated supply current	mA	55	55	58	46	46	52
Actuator external 24 Vdc							
Rated operational voltage	V/U _e	—	—	—	—	—	—
Reverse polarity protection		—	—	—	—	—	—
Maximum Current (total)	A	—	—	—	—	—	—
Connectors		—	—	—	—	—	—
Power in	Male	—	—	—	—	—	—
Pin 1	Std len	—	—	—	—	—	—
Pin 2	Std len	—	—	—	—	—	—
Pin 3	Std len	—	—	—	—	—	—
Pin 4	Ext len	—	—	—	—	—	—
Power out	Female	—	—	—	—	—	—
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Power indication LED	Power in	—	—	—	—	—	—
Digital Inputs							
Input current	mA	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	—	—	—
Voltage level to (IEC / EN 61131-2)							
Limit value type 1		L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	—	—	—
Input delay		H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	—	—	—
Status display	LED	Yellow	Yellow	Yellow	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1DX	EU1E-SWD-2DX	EU1E-SWD-2DD	EU1E-SWD-1AX-1	EU1E-SWD-1AX-2	EU1E-SWD-1XA-1
Digital Outputs							
Output driver circuit power source	Bus/ext	—	—	Bus	—	—	—
Output current	A	—	—	0.5 at 24 Vdc	—	—	—
Trip current SC	A	—	—	1.2 over 3 ms	—	—	—
Lamp load	W	—	—	≤3	—	—	—
Overload proof (IEC / EN 61131-2)		—	—	Yes w/diag	—	—	—
Switching capacity IEC 60947-5-1		—	—	DC-13	—	—	—
Status display	LED	—	—	Yellow	—	—	—
Total current all outputs	A	—	—	1	—	—	—
Analog							
Parameter setting							
Refresh rate	mS	—	—	—	20, 100, 250, 500	20, 100, 250, 500	—
Averaging (5 msec sample interval)	ON/OFF	—	—	—	ON/OFF	ON/OFF	—
Voltage							
Input voltage	V	—	—	—	0–10 Vdc	—	—
Input impedance	kohm	—	—	—	20	—	—
Output voltage	V	—	—	—	—	—	0–10 Vdc
Maximum output current	mA	—	—	—	—	—	10
Source impedance	kohm	—	—	—	—	—	0.22
Current							
Input current	mA	—	—	—	—	0–20 mA	—
Input impedance	ohms	—	—	—	—	225	—
Output current	mA	—	—	—	—	—	—
Source impedance	ohms	—	—	—	—	—	—
Converter							
Resolution	Bit	—	—	—	12	12	12
Conversion time	ms	—	—	—	20	20	20
Cumulative error	%	—	—	—	±1.0	±1.0	±1.0
Repetition accuracy	%	—	—	—	±0.5	±0.5	±0.5
Encoder							
Frequency response	Hz	—	—	—	—	—	—
Status indication LED							
Count pulse		—	—	—	—	—	—
Encoder status (input byte 0)	Bit	—	—	—	—	—	—
Referencing active status	0	—	—	—	—	—	—
Reference status	1	—	—	—	—	—	—
Reference line state	2	—	—	—	—	—	—
Zero crossing	3	—	—	—	—	—	—
Control settings (output byte 0)	Bit	—	—	—	—	—	—
Count control	0	—	—	—	—	—	—
Reference enable (ActRef)	1	—	—	—	—	—	—
Reference control	2	—	—	—	—	—	—
Asynchronous reset	3	—	—	—	—	—	—
Zero crossing acknowledge	4	—	—	—	—	—	—

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1DX	EU1E-SWD-2DX	EU1E-SWD-2DD	EU1E-SWD-1AX-1	EU1E-SWD-1AX-2	EU1E-SWD-1XA-1
Temperature							
Parameter setting							
Temperature sensor		—	—	—	—	—	—
Averaging		—	—	—	—	—	—
Range		—	—	—	—	—	—
Temperature range							
PT100 (1)	°C	—	—	—	—	—	—
PT1000 (1)	°C	—	—	—	—	—	—
Ni1000 (1)	°C	—	—	—	—	—	—
PT100 (2)	°C	—	—	—	—	—	—
PT1000 (2)	°C	—	—	—	—	—	—
Ni1000 (2)	°C	—	—	—	—	—	—
Converter							
Resolution (converter)	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Display		—	—	—	—	—	—
Resolution (temperature)	°C	—	—	—	—	—	—
I/O Configurations							
24 Vdc bus power to I/O devices	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Galvanic isolation of I/O circuitry	Y/N	No	No	No	No	No	No
Operating power per connection	A	0.3	0.3	0.3	0.3	0.3	0.3
Internally power limited (PTC)	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Overload threshold per connection	A	0.6	0.6	0.6	0.6	0.6	0.6
Overload recovery time	S	0.6	0.6	0.6	0.6	0.6	0.6
Maximum allowed total current	A	1	1	1	1	1	1
I/O types							
Configurable (digital I/O)	I/O point	—	—	2	—	—	—
Digital IN (sinking)	I/O point	1	2	Up to 2	—	—	—
Digital OUT (sourcing)	I/O point	—	—	Up to 2	—	—	—
Analog IN	I/O point	—	—	—	1	1	—
Analog OUT	I/O point	—	—	—	—	—	1
Encoder IN	I/O point	—	—	—	—	—	—
Temperature sensor input	I/O point	—	—	—	—	—	—
I/O connectors, (IEC-61076-2-101)	M12 A Coding	1x M12-F / 5-pole	1x M12-F / 5-pole	1x M12-F / 5-pole	1x M12-F / 5-pole	1x M12-F / 5-pole	1x M12-F / 5-pole
Active circuits loaded in connector	Circuits	3	4	4	4	4	4

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1DX	EU1E-SWD-2DX	EU1E-SWD-2DD	EU1E-SWD-1AX-1	EU1E-SWD-1AX-2	EU1E-SWD-1XA-1
I/O Configurations, continued							
I/O connector pin outs		—	—	—	—	—	—
I/O Connector-1							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		N/C	Input Ch 1	I/O Ch 1	In -	In -	Out -
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Input Ch 0	Input Ch 0	I/O Ch 0	In +	In +	Out +
Pin 5		N/C	N/C	N/C	N/C	N/C	N/C
Pin 6		—	—	—	—	—	—
Pin 7		—	—	—	—	—	—
Pin 8		—	—	—	—	—	—
I/O Connector-2							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-3							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-4							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-5							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-6							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-7							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-8							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1XA-2	EU1E-SWD-1CX	EU2E-SWD-2DX	EU2E-SWD-4DX	EU2E-SWD-4DD	EU2E-SWD-4DD-1
General							
Standards		IEC / EN 61131-2, EN50178, IEC / EN 60529					
Dimensions (W x H x L)—reference only	mm	41 x 20 x 59	41 x 20 x 59	41 x 20 x 71	41 x 20 x 71	41 x 20 x 71	41 x 20 x 71
Weight	g / oz	65 / 2.3	65 / 2.3	85 / 3.0	85 / 3.0	85 / 3.0	85 / 3.0
Form factor		Single-T	Single-T	Dual-T	Dual-T	Dual-T	Dual-T
Enclosure material		MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)	MM 6208 (black)
Mounting	Qty	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory
Ambient Conditions, Mechanical							
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	IP69K
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7
UL Type		1	1	1	1	1	1
Vibrations							
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3
EMC							
Overvoltage category		II	II	II	II	II	II
Pollution degree		3	3	3	3	3	3
Electrostatic discharge		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Air discharge (level 3)	kV	8	8	8	8	8	8
Contact discharge (level 2)	kV	4	4	4	4	4	4
Electromagnetic fields		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
80–1000 MHz	V/m	10	10	10	10	10	10
1.4–2 G	V/m	3	3	3	3	3	3
2–2.7 G	V/m	1	1	1	1	1	1
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)	EN 55011	Class A	Class A	Class A	Class A	Class A	Class A
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	2	2	2	2	2	2
Signal cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	2	1	1	1	1	1
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	0.5	0.5	0.5	0.5	0.5	0.5
I/O cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Radiated RFI (level 3) (150 kHz – 80 MHz)		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
Supply cables	V	10	10	10	10	10	10
I/O cables	V	10	10	10	10	10	10
SmartWire-DT cables	V	10	10	10	10	10	10
Voltage drops & interrupts	mS	10	10	10	10	10	10
Climatic Environmental Conditions							
Ambient temperature	Degrees C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Storage temperature	Degrees C	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70
Humidity	% RH	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1XA-2	EU1E-SWD-1CX	EU2E-SWD-2DX	EU2E-SWD-4DX	EU2E-SWD-4DD	EU2E-SWD-4DD-1
SmartWire-DT Network							
Stations type		SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave
Baud rate setting		Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Maximum	Bit/sec	2 M	2 M	2 M	2 M	2 M	2 M
SW-DT Status LED		Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
SW-DT network input connector		M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)
SW-DT network output connector		M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)
24 Vdc Power							
SWD-T bus 24 Vdc							
Rated operational voltage	V/U _e	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%
Residual ripple on the input voltage	%	≤5	≤5	≤5	≤5	≤5	≤5
Reverse Polarity Protection		Yes	Yes	Yes	Yes	Yes	Yes
Rated supply current	mA	67	57	55	75	2080	2080
Actuator external 24 Vdc							
Rated operational voltage	V/U _e	—	—	—	—	—	—
Reverse polarity protection		—	—	—	—	—	—
Maximum Current (total)	A	—	—	—	—	—	—
Connectors		—	—	—	—	—	—
Power in	Male	—	—	—	—	—	—
Pin 1	Std len	—	—	—	—	—	—
Pin 2	Std len	—	—	—	—	—	—
Pin 3	Std len	—	—	—	—	—	—
Pin 4	Ext len	—	—	—	—	—	—
Power out	Female	—	—	—	—	—	—
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Power indication LED	Power in	—	—	—	—	—	—
Digital Inputs							
Input current	mA	—	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc
Voltage level to (IEC / EN 61131-2)		—	—	—	—	—	—
Limit value type 1		—	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc
Input delay		—	H>L or L>H < 0.01ms	H>L or L>H < 0.2 ms	H>L or L>H < 0.2 ms	H>L or L>H < 0.2 ms	H>L or L>H < 0.2 ms
Status display	LED	—	—	Yellow	Yellow	Yellow	Yellow

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1XA-2	EU1E-SWD-1CX	EU2E-SWD-2DX	EU2E-SWD-4DX	EU2E-SWD-4DD	EU2E-SWD-4DD-1
Digital Outputs							
Output driver circuit power source	Bus/ext	—	—	—	—	Bus	Bus
Output current	A	—	—	—	—	0.5 at 24 Vdc	0.5 at 24 Vdc
Trip current SC	A	—	—	—	—	1.2 over 3 ms	1.2 over 3 ms
Lamp load	W	—	—	—	—	≤3	≤3
Overload proof (IEC / EN 61131-2)		—	—	—	—	Yes w/diag	Yes w/diag
Switching capacity IEC 60947-5-1		—	—	—	—	DC-13	DC-13
Status display	LED	—	—	—	—	Yellow	Yellow
Total current all outputs	A	—	—	—	—	2	1.5
Analog							
Parameter setting							
Refresh rate	mS	—	—	—	—	—	—
Averaging (5 msec sample interval)	ON/OFF	—	—	—	—	—	—
Voltage							
Input voltage	V	—	—	—	—	—	—
Input impedance	kohm	—	—	—	—	—	—
Output voltage	V	—	—	—	—	—	—
Maximum output current	mA	—	—	—	—	—	—
Source impedance	kohm	—	—	—	—	—	—
Current							
Input current	mA	—	—	—	—	—	—
Input impedance	ohms	—	—	—	—	—	—
Output current	mA	0–20 mA	—	—	—	—	—
Source impedance	ohms	100	—	—	—	—	—
Converter							
Resolution	Bit	12	—	—	—	—	—
Conversion time	ms	20	—	—	—	—	—
Cumulative error	%	±1.0	—	—	—	—	—
Repetition accuracy	%	±0.5	—	—	—	—	—
Encoder							
Frequency response	Hz	—	max 15 K	—	—	—	—
Status indication LED							
Count pulse		—	Yellow	—	—	—	—
Encoder status (input byte 0)	Bit	—	—	—	—	—	—
Referencing active status	0	—	1 = Set by ActRef;	—	—	—	—
Reference status	1	—	1 = Referenced	—	—	—	—
Reference line state	2	—	1 = (R=1); 0 = (R=0)	—	—	—	—
Zero crossing	3	—	1 = (Cnt= 0); 0 = (Cnt <>0)	—	—	—	—
Control settings (output byte 0)	Bit	—	—	—	—	—	—
Count control	0	—	1 = Hold; 0 = Count	—	—	—	—
Reference enable (ActRef)	1	—	1 = Enable;	—	—	—	—
Reference control	2	—	1 = Permanent; 0 = Once	—	—	—	—
Asynchronous reset	3	—	1 = Async Reset (Cntr = Ref);	—	—	—	—
Zero crossing acknowledge	4	—	1 = Reset ZCA bit; 0	—	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1XA-2	EU1E-SWD-1CX	EU2E-SWD-2DX	EU2E-SWD-4DX	EU2E-SWD-4DD	EU2E-SWD-4DD-1
Temperature							
Parameter setting							
Temperature sensor		—	—	—	—	—	—
Averaging		—	—	—	—	—	—
Range		—	—	—	—	—	—
Temperature range							
PT100 (1)	°C	—	—	—	—	—	—
PT1000 (1)	°C	—	—	—	—	—	—
Ni1000 (1)	°C	—	—	—	—	—	—
PT100 (2)	°C	—	—	—	—	—	—
PT1000 (2)	°C	—	—	—	—	—	—
Ni1000 (2)	°C	—	—	—	—	—	—
Converter							
Resolution (converter)	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Display		—	—	—	—	—	—
Resolution (temperature)	°C	—	—	—	—	—	—
I/O Configurations							
24 Vdc bus power to I/O devices	Y/N	—	—	—	—	—	—
Galvanic isolation of I/O circuitry	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Operating power per connection	A	No	No	No	No	No	No
Internally power limited (PTC)	Y/N	0.3	0.3	0.3	0.3	0.3	0.3
Overload threshold per connection	A	Yes	Yes	Yes	Yes	Yes	Yes
Overload recovery time	S	0.6	0.6	0.6	0.6	0.6	0.6
Maximum allowed total current	A	1	1	1	2	2	2
I/O types		1	1	2	2	2	2
Configurable (digital I/O)	I/O point	—	—	—	—	—	—
Digital IN (sinking)	I/O point	—	—	—	—	4	4
Digital OUT (sourcing)	I/O point	—	—	2	4	Up to 4	Up to 4
Analog IN	I/O point	—	—	—	—	Up to 4	Up to 4
Analog OUT	I/O point	—	—	—	—	—	—
Encoder IN	I/O point	1	—	—	—	—	—
Temperature sensor input	I/O point	—	3	—	—	—	—
I/O connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
Active circuits loaded in connector	Circuits	1x M12-F / 5-pole	1x M12-F / 5-pole	2x M12-F / 5-pole	2x M12-F / 5-pole	2x M12-F / 5-pole	2x M12-F / 5-pole

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU1E-SWD-1XA-2	EU1E-SWD-1CX	EU2E-SWD-2DX	EU2E-SWD-4DX	EU2E-SWD-4DD	EU2E-SWD-4DD-1
I/O Configurations, continued							
I/O connector pin outs							
I/O Connector-1							
Pin 1	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	Out -	Ch B	N/C	In Ch 1	I/O Ch 1	N/C	N/C
Pin 3	GND	GND	GND	GND	GND	GND	GND
Pin 4	Out +	Ch A	In Ch 0	In Ch 0	I/O Ch 0	I/O Ch 0	I/O Ch 0
Pin 5	N/C	Ch R	N/C	In Ch 3	N/C	N/C	N/C
Pin 6	—	—	—	—	—	—	—
Pin 7	—	—	—	—	—	—	—
Pin 8	—	—	—	—	—	—	—
I/O Connector-2							
Pin 1	—	—	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	—	—	N/C	In Ch 3	I/O Ch 3	I/O Ch 3	I/O Ch 3
Pin 3	—	—	GND	GND	GND	GND	GND
Pin 4	—	—	In Ch 2	In Ch 2	I/O Ch 2	I/O Ch 2	I/O Ch 2
Pin 5	—	—	N/C	In Ch 1	N/C	I/O Ch 1	I/O Ch 1
I/O Connector-3							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—
I/O Connector-4							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—
I/O Connector-5							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—
I/O Connector-6							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—
I/O Connector-7							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—
I/O Connector-8							
Pin 1	—	—	—	—	—	—	—
Pin 2	—	—	—	—	—	—	—
Pin 3	—	—	—	—	—	—	—
Pin 4	—	—	—	—	—	—	—
Pin 5	—	—	—	—	—	—	—

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU2E-SWD-2PT	EU6E-SWD-4DX	EU6E-SWD-4XD-1	EU6E-SWD-4XD-2	EU6E-SWD-2D2D-1	EU6E-SWD-2D2D-2
General							
Standards		IEC / EN 61131-2, EN50178, IEC / EN 60529					
Dimensions (W x H x L)—reference only	mm	41 x 20 x 71	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req
Weight	g / oz	85 / 3.0	234 / 8.3	267 / 9.4	267 / 9.4	267 / 9.4	267 / 9.4
Form factor		Dual-T	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)
Enclosure material		MM 6208 (black)	Polyester	Polyester	Polyester	Polyester	Polyester
Mounting	Qty	2 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory
Ambient Conditions, Mechanical							
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	IP69K
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7
UL Type		1	1	1	1	1	1
Vibrations							
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3
EMC							
Overvoltage category		II	II	II	II	II	II
Pollution degree		3	3	3	3	3	3
Electrostatic discharge		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Air discharge (level 3)	kV	8	8	8	8	8	8
Contact discharge (level 2)	kV	4	4	4	4	4	4
Electromagnetic fields		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
80–1000 MHz	V/m	10	10	10	10	10	10
1.4–2 G	V/m	3	3	3	3	3	3
2–2.7 G	V/m	1	1	1	1	1	1
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)	EN 55011	Class A	Class A	Class A	Class A	Class A	Class A
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	2	2	2	2	2	2
Signal cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	2	1	1	1	1	1
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	0.5	0.5	0.5	0.5	0.5	0.5
I/O cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Radiated RFI (level 3) (150 kHz – 80 MHz)		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
Supply cables	V	10	10	10	10	10	10
I/O cables	V	10	10	10	10	10	10
SmartWire-DT cables	V	10	10	10	10	10	10
Voltage drops & interrupts	mS	10	10	10	10	10	10
Climatic Environmental Conditions							
Ambient temperature	Degrees C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Storage temperature	Degrees C	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70
Humidity	% RH	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted

Machine Mount I/O Modules, continued

Description	Unit	EU2E-SWD-2PT	EU6E-SWD-4DX	EU6E-SWD-4XD-1	EU6E-SWD-4XD-2	EU6E-SWD-2D2D-1	EU6E-SWD-2D2D-2
SmartWire-DT Network							
Stations type		SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave
Baud rate setting		Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Maximum	Bit/sec	2 M	2 M	2 M	2 M	2 M	2 M
SW-DT Status LED		Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
SW-DT network input connector		M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)
SW-DT network output connector		M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)
24 Vdc Power							
SWD-T bus 24 Vdc							
Rated operational voltage	V/U _e	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%
Residual ripple on the input voltage	%	≤5	≤5	≤5	≤5	≤5	≤5
Reverse Polarity Protection		Yes	Yes	Yes	Yes	Yes	Yes
Rated supply current	mA	37	—	—	—	—	—
Actuator external 24 Vdc							
Rated operational voltage	V/U _e	—	—	24 V	24 V	24 V	24 V
Reverse polarity protection		—	—	Yes	Yes	Yes	Yes
Maximum Current (total)	A	—	—	8	8	8	8
Connectors		—	—	7/8 in mini	7/8 in mini	7/8 in mini	7/8 in mini
Power in	Male	—	—	Male, 4-pole	Male, 4-pole	Male, 4-pole	Male, 4-pole
Pin 1	Std len	—	—	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	Std len	—	—	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 3	Std len	—	—	GND	GND	GND	GND
Pin 4	Ext len	—	—	GND	GND	GND	GND
Power out	Female	—	—	Female, 4-pole	Female, 4-pole	Female, 4-pole	Female, 4-pole
Pin 1		—	—	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		—	—	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 3		—	—	GND	GND	GND	GND
Pin 4		—	—	GND	GND	GND	GND
Power indication LED	Power in	—	—	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Digital Inputs							
Input current	mA	—	Nominal 4 at 24 Vdc	—	—	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc
Voltage level to (IEC / EN 61131-2)		—	—	—	—	—	—
Limit value type 1		—	L < 5 Vdc; H > 15 Vdc	—	—	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc
Input delay		—	H>L or L>H < 0.2 ms	—	—	H>L or L>H < 0.2 ms	H>L or L>H < 0.2 ms
Status display	LED	—	Yellow	—	—	Yellow	Yellow

Machine Mount I/O Modules, continued

Description	Unit	EU2E-SWD-2PT	EU6E-SWD-4DX	EU6E-SWD-4XD-1	EU6E-SWD-4XD-2	EU6E-SWD-2D2D-1	EU6E-SWD-2D2D-2
Digital Outputs							
Output driver circuit power source	Bus/ext	—	—	External	External	External	External
Output current	A	—	—	0.5 at 24 Vdc	2 at 24 Vdc	0.5 at 24 Vdc	2 at 24 Vdc
Trip current SC	A	—	—	1.2 over 3 ms	1.2 over 3 ms	1.2 over 3 ms	1.2 over 3 ms
Lamp load	W	—	—	≤3	≤3	≤3	≤3
Overload proof (IEC / EN 61131-2)		—	—	Yes w/diag	Yes w/diag	Yes w/diag	Yes w/diag
Switching capacity IEC 60947-5-1		—	—	DC-13	DC-13	DC-13	DC-13
Status display	LED	—	—	Yellow	Yellow	Yellow	Yellow
Total current all outputs	A	—	—	2	8	1	4
Analog							
Parameter setting							
Refresh rate	mS	—	—	—	—	—	—
Averaging (5 msec sample interval)	ON/OFF	—	—	—	—	—	—
Voltage							
Input voltage	V	—	—	—	—	—	—
Input impedance	kohm	—	—	—	—	—	—
Output voltage	V	—	—	—	—	—	—
Maximum output current	mA	—	—	—	—	—	—
Source impedance	kohm	—	—	—	—	—	—
Current							
Input current	mA	—	—	—	—	—	—
Input impedance	ohms	—	—	—	—	—	—
Output current	mA	—	—	—	—	—	—
Source impedance	ohms	—	—	—	—	—	—
Converter							
Resolution	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Encoder							
Frequency response	Hz	—	—	—	—	—	—
Status indication LED							
Count pulse		—	—	—	—	—	—
Encoder status (input byte 0)	Bit	—	—	—	—	—	—
Referencing active status	0	—	—	—	—	—	—
Reference status	1	—	—	—	—	—	—
Reference line state	2	—	—	—	—	—	—
Zero crossing	3	—	—	—	—	—	—
Control settings (output byte 0)	Bit	—	—	—	—	—	—
Count control	0	—	—	—	—	—	—
Reference enable (ActRef)	1	—	—	—	—	—	—
Reference control	2	—	—	—	—	—	—
Asynchronous reset	3	—	—	—	—	—	—
Zero crossing acknowledge	4	—	—	—	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU2E-SWD-2PT	EU6E-SWD-4DX	EU6E-SWD-4XD-1	EU6E-SWD-4XD-2	EU6E-SWD-2D2D-1	EU6E-SWD-2D2D-2
Temperature							
Parameter setting							
Temperature sensor		PT100, PT1000, Ni1000	—	—	—	—	—
Averaging		Adjustable	—	—	—	—	—
Range		Selectable (1 of 2)	—	—	—	—	—
Temperature range							
PT100 (1)	°C	-50 to +200	—	—	—	—	—
PT1000 (1)	°C	-50 to +200	—	—	—	—	—
Ni1000 (1)	°C	-50 to +200	—	—	—	—	—
PT100 (2)	°C	-100 to +400	—	—	—	—	—
PT1000 (2)	°C	-100 to +400	—	—	—	—	—
Ni1000 (2)	°C	-100 to +400	—	—	—	—	—
Converter							
Resolution (converter)	Bit	12	—	—	—	—	—
Conversion time	ms	250	—	—	—	—	—
Cumulative error	%	±1.0	—	—	—	—	—
Repetition accuracy	%	±0.5	—	—	—	—	—
Display		°C, °F, raw value	—	—	—	—	—
Resolution (temperature)	°C	0.1	—	—	—	—	—
I/O Configurations							
24 Vdc bus power to I/O devices	Y/N	No	Yes	Yes	Yes	Yes	Yes
Galvanic isolation of I/O circuitry	Y/N	No	No	No	No	No	No
Operating power per connection	A	N/A	0.3	0.3	0.3	0.3	0.3
Internally power limited (PTC)	Y/N	No	Yes	Yes	Yes	Yes	Yes
Overload threshold per connection	A	N/A	0.6	0.6	0.6	0.6	0.6
Overload recovery time	S	N/A	0.6	0.6	0.6	0.6	0.6
Maximum allowed total current	A	N/A	4	4	4	4	4
I/O types							
Configurable (digital I/O)	I/O point	—	—	—	—	—	—
Digital IN (sinking)	I/O point	—	4	—	—	2	2
Digital OUT (sourcing)	I/O point	—	—	4	4	2	2
Analog IN	I/O point	—	—	—	—	—	—
Analog OUT	I/O point	—	—	—	—	—	—
Encoder IN	I/O point	—	—	—	—	—	—
Temperature sensor input	I/O point	2x 2 / 3 wire	—	—	—	—	—
I/O connectors, (IEC-61076-2-101)	M12 A Coding	2x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole
Active circuits loaded in connector	Circuits	5	3	3	3	3	3

Machine Mount I/O Modules, continued

Description	Unit	EU2E-SWD-2PT	EU6E-SWD-4DX	EU6E-SWD-4XD-1	EU6E-SWD-4XD-2	EU6E-SWD-2D2D-1	EU6E-SWD-2D2D-2
I/O Configurations, continued							
I/O connector pin outs							
I/O Connector-1							
Pin 1		SWD Active Cap Detect	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		T1b	N/C	N/C	N/C	N/C	N/C
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		T1a	In Ch 0	Out Ch 0	Out Ch 0	Out Ch 0	Out Ch 0
Pin 5		T1	N/C	N/C	N/C	N/C	N/C
Pin 6		—	—	—	—	—	—
Pin 7		—	—	—	—	—	—
Pin 8		—	—	—	—	—	—
I/O Connector-2							
Pin 1		SWD Active Cap Detect	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		T2b	N/C	N/C	N/C	N/C	N/C
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		T2a	In Ch 2	Out Ch 2	Out Ch 2	Out Ch 2	Out Ch 2
Pin 5		T2	N/C	N/C	N/C	N/C	N/C
I/O Connector-3							
Pin 1		—	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		—	N/C	N/C	N/C	N/C	N/C
Pin 3		—	GND	GND	GND	GND	GND
Pin 4		—	In Ch 4	Out Ch 4	Out Ch 4	In Ch 4	In Ch 4
Pin 5		—	N/C	N/C	N/C	N/C	N/C
I/O Connector-4							
Pin 1		—	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		—	N/C	N/C	N/C	N/C	N/C
Pin 3		—	GND	GND	GND	GND	GND
Pin 4		—	In Ch 6	Out Ch 6	Out Ch 6	In Ch 6	In Ch 6
Pin 5		—	N/C	N/C	N/C	N/C	N/C
I/O Connector-5							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-6							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-7							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—
I/O Connector-8							
Pin 1		—	—	—	—	—	—
Pin 2		—	—	—	—	—	—
Pin 3		—	—	—	—	—	—
Pin 4		—	—	—	—	—	—
Pin 5		—	—	—	—	—	—

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Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU6E-SWD-4D4D-1	EU6E-SWD-4D4D-2	EU6E-SWD-8DX	EU6E-SWD-8XD-1	EU6E-SWD-8DD	EU8E-SWD-8XD-1
General							
Standards		IEC / EN 61131-2, EN50178, IEC / EN 60529					
Dimensions (W x H x L)—reference only	mm	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req
Weight	g / oz	267 / 9.4	267 / 9.4	234 / 8.3	267 / 9.4	234 / 8.3	369 / 13.0
Form factor		MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Quad)	MultiBlock (Octal)
Enclosure material		Polyester	Polyester	Polyester	Polyester	Polyester	Polyester
Mounting	Qty	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory
Ambient Conditions, Mechanical							
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	IP69K
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7
UL Type		1	1	1	1	1	1
Vibrations							
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3
EMC							
Overvoltage category		II	II	II	II	II	II
Pollution degree		3	3	3	3	3	3
Electrostatic discharge		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Air discharge (level 3)	kV	8	8	8	8	8	8
Contact discharge (level 2)	kV	4	4	4	4	4	4
Electromagnetic fields		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
80–1000 MHz	V/m	10	10	10	10	10	10
1.4–2 G	V/m	3	3	3	3	3	3
2–2.7 G	V/m	1	1	1	1	1	1
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)	EN 55011	Class A	Class A	Class A	Class A	Class A	Class A
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	2	2	2	2	2	2
Signal cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	0.5	0.5	0.5	0.5	0.5	0.5
I/O cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Radiated RFI (level 3) (150 kHz – 80 MHz)		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
Supply cables	V	10	10	10	10	10	10
I/O cables	V	10	10	10	10	10	10
SmartWire-DT cables	V	10	10	10	10	10	10
Voltage drops & interrupts	mS	10	10	10	10	10	10
Climatic Environmental Conditions							
Ambient temperature	Degrees C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Storage temperature	Degrees C	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70
Humidity	% RH	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted

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SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU6E-SWD-4D4D-1	EU6E-SWD-4D4D-2	EU6E-SWD-8DX	EU6E-SWD-8XD-1	EU6E-SWD-8DD	EU8E-SWD-8XD-1
SmartWire-DT Network							
Stations type		SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave
Baud rate setting		Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Maximum	Bit/sec	2 M	2 M	2 M	2 M	2 M	2 M
SW-DT Status LED		Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
SW-DT network input connector		M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)
SW-DT network output connector		M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)
24 Vdc Power							
SWD-T Bus 24 Vdc							
Rated operational voltage	V/U _e	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%
Residual ripple on the input voltage	%	≤5	≤5	≤5	≤5	≤5	≤5
Reverse Polarity Protection		Yes	Yes	Yes	Yes	Yes	Yes
Rated supply current	mA	—	—	—	—	—	—
Actuator external 24 Vdc							
Rated operational voltage	V/U _e	24 V	24 V	—	24 V	—	24 V
Reverse polarity protection		Yes	Yes	—	Yes	—	Yes
Maximum Current (total)	A	8	8	—	8	—	8
Connectors		7/8 in mini	7/8 in mini	—	7/8 in mini	—	7/8 in mini
Power in	Male	Male, 4-pole	Male, 4-pole	—	Male, 4-pole	—	Male, 4-pole
Pin 1	Std len	24 Vdc	24 Vdc	—	24 Vdc	—	24 Vdc
Pin 2	Std len	24 Vdc	24 Vdc	—	24 Vdc	—	24 Vdc
Pin 3	Std len	GND	GND	—	GND	—	GND
Pin 4	Ext len	GND	GND	—	GND	—	GND
Power out	Female	Female, 4-pole	Female, 4-pole	—	Female, 4-pole	—	Female, 4-pole
Pin 1		24 Vdc	24 Vdc	—	24 Vdc	—	24 Vdc
Pin 2		24 Vdc	24 Vdc	—	24 Vdc	—	24 Vdc
Pin 3		GND	GND	—	GND	—	GND
Pin 4		GND	GND	—	GND	—	GND
Power indication LED	Power in	Green (625 nm)	Green (625 nm)	—	Green (625 nm)	—	Green (625 nm)
Digital Inputs							
Input current	mA	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	—	Nominal 4 at 24 Vdc	—
Voltage level to (IEC / EN 61131-2)							
Limit value type 1		L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	—	L < 5 Vdc; H > 15 Vdc	—
Input delay		H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	—	H->L or L->H < 0.2 ms	—
Status display	LED	Yellow	Yellow	Yellow	—	Yellow	—

Machine Mount I/O Modules, continued

Description	Unit	EU6E-SWD-4D4D-1	EU6E-SWD-4D4D-2	EU6E-SWD-8DX	EU6E-SWD-8XD-1	EU6E-SWD-8DD	EU8E-SWD-8XD-1
Digital Outputs							
Output driver circuit power source	Bus/ext	External	External	—	External	Bus	External
Output current	A	0.5 at 24 Vdc	2 at 24 Vdc	—	0.5 at 24 Vdc	0.5 at 24 Vdc	0.5 at 24 Vdc
Trip current SC	A	1.2 over 3 ms	1.2 over 3 ms	—	1.2 over 3 ms	1.2 over 3 ms	1.2 over 3 ms
Lamp load	W	≤3	≤3	—	≤3	≤3	≤3
Overload proof (IEC / EN 61131-2)		Yes w/diag	Yes w/diag	—	Yes w/diag	Yes w/diag	Yes w/diag
Switching capacity IEC 60947-5-1		DC-13	DC-13	—	DC-13	DC-13	DC-13
Status display	LED	Yellow	Yellow	—	Yellow	Yellow	Yellow
Total current all outputs	A	2	8	—	4	4	4
Analog							
Parameter setting							
Refresh rate	mS	—	—	—	—	—	—
Averaging (5 msec sample interval)	ON/OFF	—	—	—	—	—	—
Voltage							
Input voltage	V	—	—	—	—	—	—
Input impedance	kohm	—	—	—	—	—	—
Output voltage	V	—	—	—	—	—	—
Maximum output current	mA	—	—	—	—	—	—
Source impedance	kohm	—	—	—	—	—	—
Current							
Input current	mA	—	—	—	—	—	—
Input impedance	ohms	—	—	—	—	—	—
Output current	mA	—	—	—	—	—	—
Source impedance	ohms	—	—	—	—	—	—
Converter							
Resolution	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Encoder							
Frequency response	Hz	—	—	—	—	—	—
Status indication LED							
Count pulse		—	—	—	—	—	—
Encoder status (input byte 0)	Bit	—	—	—	—	—	—
Referencing active status	0	—	—	—	—	—	—
Reference status	1	—	—	—	—	—	—
Reference line state	2	—	—	—	—	—	—
Zero crossing	3	—	—	—	—	—	—
Control settings (output byte 0)							
Count control	0	—	—	—	—	—	—
Reference enable (ActRef)	1	—	—	—	—	—	—
Reference control	2	—	—	—	—	—	—
Asynchronous reset	3	—	—	—	—	—	—
Zero crossing acknowledge	4	—	—	—	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU6E-SWD-4D4D-1	EU6E-SWD-4D4D-2	EU6E-SWD-8DX	EU6E-SWD-8XD-1	EU6E-SWD-8DD	EU8E-SWD-8XD-1
Temperature							
Parameter setting							
Temperature sensor		—	—	—	—	—	—
Averaging		—	—	—	—	—	—
Range		—	—	—	—	—	—
Temperature range							
PT100 (1)	°C	—	—	—	—	—	—
PT1000 (1)	°C	—	—	—	—	—	—
Ni1000 (1)	°C	—	—	—	—	—	—
PT100 (2)	°C	—	—	—	—	—	—
PT1000 (2)	°C	—	—	—	—	—	—
Ni1000 (2)	°C	—	—	—	—	—	—
Converter							
Resolution (converter)	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Display		—	—	—	—	—	—
Resolution (temperature)	°C	—	—	—	—	—	—
I/O Configurations							
24 Vdc bus power to I/O devices	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Galvanic isolation of I/O circuitry	Y/N	No	No	No	No	No	No
Operating power per connection	A	0.3	0.3	0.3	0.3	0.3	0.3
Internally power limited (PTC)	Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Overload threshold per connection	A	0.6	0.6	0.6	0.6	0.6	0.6
Overload recovery time	S	0.6	0.6	0.6	0.6	0.6	0.6
Maximum allowed total current	A	4	8	4	4	4	4
I/O types							
Configurable (digital I/O)	I/O point	—	—	—	—	8	—
Digital IN (sinking)	I/O point	4	4	8	—	Up to 8	—
Digital OUT (sourcing)	I/O point	4	4	—	8	Up to 8	8
Analog IN	I/O point	—	—	—	—	—	—
Analog OUT	I/O point	—	—	—	—	—	—
Encoder IN	I/O point	—	—	—	—	—	—
Temperature sensor input	I/O point	—	—	—	—	—	—
I/O connectors, (IEC-61076-2-101)	M12 A Coding	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	4x M12-F / 5-pole	8x M12-F / 5-pole
Active circuits loaded in connector	Circuits	4	4	4	4	4	3

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Machine Mount I/O Modules, continued

Description	Unit	EU6E-SWD-4D4D-1	EU6E-SWD-4D4D-2	EU6E-SWD-8DX	EU6E-SWD-8XD-1	EU6E-SWD-8DD	EU8E-SWD-8XD-1
I/O Configurations, continued							
I/O connector pin outs							
I/O Connector-1							
Pin 1	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	Out Ch 1	Out Ch 1	In Ch 1	Out Ch 1	I/O Ch 1	N/C	
Pin 3	GND	GND	GND	GND	GND	GND	GND
Pin 4	Out Ch 0	Out Ch 0	In Ch 0	Out Ch 0	I/O Ch 0	Out Ch 0	
Pin 5	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Pin 6	—	—	—	—	—	—	—
Pin 7	—	—	—	—	—	—	—
Pin 8	—	—	—	—	—	—	—
I/O Connector-2							
Pin 1	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	Out Ch 3	Out Ch 3	In Ch 3	Out Ch 3	I/O Ch 3	N/C	
Pin 3	GND	GND	GND	GND	GND	GND	GND
Pin 4	Out Ch 2	Out Ch 2	In Ch 2	Out Ch 2	I/O Ch 2	Out Ch 2	
Pin 5	N/C	N/C	N/C	N/C	N/C	N/C	N/C
I/O Connector-3							
Pin 1	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	In Ch 5	In Ch 5	In Ch 5	Out Ch 5	I/O Ch 5	N/C	
Pin 3	GND	GND	GND	GND	GND	GND	GND
Pin 4	In Ch 4	In Ch 4	In Ch 4	Out Ch 4	I/O Ch 4	Out Ch 4	
Pin 5	N/C	N/C	N/C	N/C	N/C	N/C	N/C
I/O Connector-4							
Pin 1	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2	In Ch 7	In Ch 7	In Ch 7	Out Ch 7	I/O Ch 7	N/C	
Pin 3	GND	GND	GND	GND	GND	GND	GND
Pin 4	In Ch 6	In Ch 6	In Ch 6	Out Ch 6	I/O Ch 6	Out Ch 6	
Pin 5	N/C	N/C	N/C	N/C	N/C	N/C	N/C
I/O Connector-5							
Pin 1	—	—	—	—	—	—	24 Vdc
Pin 2	—	—	—	—	—	—	N/C
Pin 3	—	—	—	—	—	—	GND
Pin 4	—	—	—	—	—	—	Out Ch 8
Pin 5	—	—	—	—	—	—	N/C
I/O Connector-6							
Pin 1	—	—	—	—	—	—	24 Vdc
Pin 2	—	—	—	—	—	—	N/C
Pin 3	—	—	—	—	—	—	GND
Pin 4	—	—	—	—	—	—	Out Ch 10
Pin 5	—	—	—	—	—	—	N/C
I/O Connector-7							
Pin 1	—	—	—	—	—	—	24 Vdc
Pin 2	—	—	—	—	—	—	N/C
Pin 3	—	—	—	—	—	—	GND
Pin 4	—	—	—	—	—	—	Out Ch 12
Pin 5	—	—	—	—	—	—	N/C
I/O Connector-8							
Pin 1	—	—	—	—	—	—	24 Vdc
Pin 2	—	—	—	—	—	—	N/C
Pin 3	—	—	—	—	—	—	GND
Pin 4	—	—	—	—	—	—	Out Ch 14
Pin 5	—	—	—	—	—	—	N/C

Machine Mount I/O Modules, continued

Description	Unit	EU8E-SWD-4D4D-1	EU8E-SWD-8D8D-1	EU8E-SWD-16DX	EU8E-SWD-16XD-1	EU8E-SWD-16DD	EU1M-SWD-NOP
General							
Standards		IEC / EN 61131-2, EN50178, IEC / EN 60529					
Dimensions (W x H x L)—reference only	mm	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	60 x 20 x As Req	41 x 20 x 59
Weight	g / oz	369 / 13.0	369 / 13.0	335 / 11.8	369 / 13.0	335 / 11.8	65 / 2.3
Form factor		MultiBlock (Octal)	MultiBlock (Octal)	MultiBlock (Octal)	MultiBlock (Octal)	MultiBlock (Octal)	Single-T
Enclosure material		Polyester	Polyester	Polyester	Polyester	Polyester	MM 6208 (black)
Mounting	Qty	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	5 mounting holes or with bracket accessory	2 mounting holes or with bracket accessory
Ambient Conditions, Mechanical							
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	IP69K
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7
UL Type		1	1	1	1	1	1
Vibrations							
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3
EMC							
Overvoltage category		II	II	II	II	II	II
Pollution degree		3	3	3	3	3	3
Electrostatic discharge		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Air discharge (level 3)	kV	8	8	8	8	8	8
Contact discharge (level 2)	kV	4	4	4	4	4	4
Electromagnetic fields		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
80–1000 MHz	V/m	10	10	10	10	10	10
1.4–2 G	V/m	3	3	3	3	3	3
2–2.7 G	V/m	1	1	1	1	1	1
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)	EN 55011	Class A	Class A	Class A	Class A	Class A	Class A
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	2	2	2	2	2	2
Signal cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B
Supply cables	kV	0.5	0.5	0.5	0.5	0.5	0.5
I/O cables	kV	1	1	1	1	1	1
SmartWire-DT cables	kV	1	1	1	1	1	1
Radiated RFI (level 3) (150 kHz – 80 MHz)		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A
Supply cables	V	10	10	10	10	10	10
I/O cables	V	10	10	10	10	10	10
SmartWire-DT cables	V	10	10	10	10	10	10
Voltage drops & interrupts	mS	10	10	10	10	10	10
Climatic Environmental Conditions							
Ambient temperature	Degrees C	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70	–25 to +70
Storage temperature	Degrees C	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70	–40 to +70
Humidity	% RH	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted	95 at 55 °C / 5–95 condensation permitted

Machine Mount I/O Modules, continued

Description	Unit	EU8E-SWD-4D4D-1	EU8E-SWD-8D8D-1	EU8E-SWD-16DX	EU8E-SWD-16XD-1	EU8E-SWD-16DD	EU1M-SWD-NOP
SmartWire-DT Network							
Stations type		SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave	SmartWire-DT slave
Baud rate setting		Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Maximum	Bit/sec	2 M	2 M	2 M	2 M	2 M	2 M
SW-DT Status LED		Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)	Green (625 nm)
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—
SW-DT network input connector		M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole	M12-M 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)	SEL (IN)
SW-DT network output connector		M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole	M12-F 5-pole
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Pin 2		Data A	Data A	Data A	Data A	Data A	Data A
Pin 3		GND	GND	GND	GND	GND	GND
Pin 4		Data B	Data B	Data B	Data B	Data B	Data B
Pin 5		SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)	SEL (OUT)
24 Vdc Power							
SWD-T Bus 24 Vdc							
Rated operational voltage	V/U _e	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%	24 V –15% +20%
Residual ripple on the input voltage	%	≤5	≤5	≤5	≤5	≤5	≤5
Reverse Polarity Protection		Yes	Yes	Yes	Yes	Yes	Yes
Rated supply current	mA	—	—	—	—	—	55
Actuator external 24 Vdc							
Rated operational voltage	V/U _e	24 V	24 V	—	24 V	—	—
Reverse polarity protection		Yes	Yes	—	Yes	—	—
Maximum Current (total)	A	8	8	—	8	—	—
Connectors		7/8 in mini	7/8 in mini	—	7/8 in mini	—	—
Power in	Male	Male, 4-pole	Male, 4-pole	—	Male, 4-pole	—	—
Pin 1	Std len	24 Vdc	24 Vdc	—	24 Vdc	—	—
Pin 2	Std len	24 Vdc	24 Vdc	—	24 Vdc	—	—
Pin 3	Std len	GND	GND	—	GND	—	—
Pin 4	Ext len	GND	GND	—	GND	—	—
Power out	Female	Female, 4-pole	Female, 4-pole	—	Female, 4-pole	—	—
Pin 1		24 Vdc	24 Vdc	—	24 Vdc	—	—
Pin 2		24 Vdc	24 Vdc	—	24 Vdc	—	—
Pin 3		GND	GND	—	GND	—	—
Pin 4		GND	GND	—	GND	—	—
Power indication LED	Power in	Green (625 nm)	Green (625 nm)	—	Green (625 nm)	—	—
Digital Inputs							
Input current	mA	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	Nominal 4 at 24 Vdc	—	Nominal 4 at 24 Vdc	—
Voltage level to (IEC / EN 61131-2)							
Limit value type 1		L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	L < 5 Vdc; H > 15 Vdc	—	L < 5 Vdc; H > 15 Vdc	—
Input delay		H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	H->L or L->H < 0.2 ms	—	H->L or L->H < 0.2 ms	—
Status display	LED	Yellow	Yellow	Yellow	—	Yellow	—

Machine Mount I/O Modules, continued

Description	Unit	EU8E-SWD-4D4D-1	EU8E-SWD-8D8D-1	EU8E-SWD-16DX	EU8E-SWD-16XD-1	EU8E-SWD-16DD	EU1M-SWD-NOP
Digital Outputs							
Output driver circuit power source	Bus/ext	External	External	—	External	Bus	—
Output current	A	0.5 at 24 Vdc	0.5 at 24 Vdc	—	0.5 at 24 Vdc	0.5 at 24 Vdc	—
Trip current SC	A	1.2 over 3 ms	1.2 over 3 ms	—	1.2 over 3 ms	1.2 over 3 ms	—
Lamp load	W	≤3	≤3	—	≤3	≤3	—
Overload proof (IEC / EN 61131-2)		Yes w/diag	Yes w/diag	—	Yes w/diag	Yes w/diag	—
Switching capacity IEC 60947-5-1		DC-13	DC-13	—	DC-13	DC-13	—
Status display	LED	Yellow	Yellow	—	Yellow	Yellow	—
Total current all outputs	A	2	4	—	8	8	—
Analog							
Parameter setting							
Refresh rate	mS	—	—	—	—	—	—
Averaging (5 msec sample interval)	ON/OFF	—	—	—	—	—	—
Voltage							
Input voltage	V	—	—	—	—	—	—
Input impedance	kohm	—	—	—	—	—	—
Output voltage	V	—	—	—	—	—	—
Maximum output current	mA	—	—	—	—	—	—
Source impedance	kohm	—	—	—	—	—	—
Current							
Input current	mA	—	—	—	—	—	—
Input impedance	ohms	—	—	—	—	—	—
Output current	mA	—	—	—	—	—	—
Source impedance	ohms	—	—	—	—	—	—
Converter							
Resolution	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Encoder							
Frequency response	Hz	—	—	—	—	—	—
Status indication LED							
Count pulse		—	—	—	—	—	—
Encoder status (input byte 0)	Bit	—	—	—	—	—	—
Referencing active status	0	—	—	—	—	—	—
Reference status	1	—	—	—	—	—	—
Reference line state	2	—	—	—	—	—	—
Zero crossing	3	—	—	—	—	—	—
Control settings (output byte 0)	Bit	—	—	—	—	—	—
Count control	0	—	—	—	—	—	—
Reference enable (ActRef)	1	—	—	—	—	—	—
Reference control	2	—	—	—	—	—	—
Asynchronous reset	3	—	—	—	—	—	—
Zero crossing acknowledge	4	—	—	—	—	—	—

Machine Mount I/O Modules, continued

Description	Unit	EU8E-SWD-4D4D-1	EU8E-SWD-8D8D-1	EU8E-SWD-16DX	EU8E-SWD-16XD-1	EU8E-SWD-16DD	EU1M-SWD-NOP
Temperature							
Parameter setting							
Temperature sensor		—	—	—	—	—	—
Averaging		—	—	—	—	—	—
Range		—	—	—	—	—	—
Temperature range							
PT100 (1)	°C	—	—	—	—	—	—
PT1000 (1)	°C	—	—	—	—	—	—
Ni1000 (1)	°C	—	—	—	—	—	—
PT100 (2)	°C	—	—	—	—	—	—
PT1000 (2)	°C	—	—	—	—	—	—
Ni1000 (2)	°C	—	—	—	—	—	—
Converter							
Resolution (converter)	Bit	—	—	—	—	—	—
Conversion time	ms	—	—	—	—	—	—
Cumulative error	%	—	—	—	—	—	—
Repetition accuracy	%	—	—	—	—	—	—
Display		—	—	—	—	—	—
Resolution (temperature)	°C	—	—	—	—	—	—
I/O Configurations							
24 Vdc bus power to I/O devices	Y/N	Yes	Yes	Yes	Yes	Yes	—
Galvanic isolation of I/O circuitry	Y/N	No	No	No	No	No	—
Operating power per connection	A	0.3	0.3	0.3	0.3	0.3	—
Internally power limited (PTC)	Y/N	Yes	Yes	Yes	Yes	Yes	—
Overload threshold per connection	A	0.6	0.6	0.6	0.6	0.6	—
Overload recovery time	S	0.6	0.6	0.6	0.6	0.6	—
Maximum allowed total current	A	4	4	4	8	8	—
I/O types							
Configurable (digital I/O)	I/O point	—	—	—	—	16	—
Digital IN (sinking)	I/O point	4	8	16	—	Up to 16	—
Digital OUT (sourcing)	I/O point	4	8	—	16	Up to 16	—
Analog IN	I/O point	—	—	—	—	—	—
Analog OUT	I/O point	—	—	—	—	—	—
Encoder IN	I/O point	—	—	—	—	—	—
Temperature sensor input	I/O point	—	—	—	—	—	—
I/O connectors, (IEC-61076-2-101)	M12 A Coding	8x M12-F / 5-pole	8x M12-F / 5-pole	8x M12-F / 5-pole	8x M12-F / 5-pole	8x M12-F / 5-pole	—
Active circuits loaded in connector	Circuits	3	4	4	4	4	—

Machine Mount I/O Modules, continued

Description	Unit	EU8E-SWD-4D4D-1	EU8E-SWD-8D8D-1	EU8E-SWD-16DX	EU8E-SWD-16XD-1	EU8E-SWD-16DD	EU1M-SWD-NOP
I/O Configurations, continued							
I/O connector pin outs							
I/O Connector-1							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	Out Ch 1	In Ch 1	Out Ch 1	I/O Ch 1	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		Out Ch 0	Out Ch 0	In Ch 0	Out Ch 0	I/O Ch 0	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
Pin 6		—	—	—	—	—	—
Pin 7		—	—	—	—	—	—
Pin 8		—	—	—	—	—	—
I/O Connector-2							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	Out Ch 3	In Ch 3	Out Ch 3	I/O Ch 3	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		Out Ch 2	Out Ch 2	In Ch 2	Out Ch 2	I/O Ch 2	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-3							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	Out Ch 5	In Ch 5	Out Ch 5	I/O Ch 5	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		Out Ch 4	Out Ch 4	In Ch 4	Out Ch 4	I/O Ch 4	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-4							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	Out Ch 7	In Ch 7	Out Ch 7	I/O Ch 7	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		Out Ch 6	Out Ch 6	In Ch 6	Out Ch 6	I/O Ch 6	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-5							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	In Ch 9	In Ch 9	Out Ch 9	I/O Ch 9	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		In Ch 8	In Ch 8	In Ch 8	Out Ch 8	I/O Ch 8	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-6							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	In Ch 11	In Ch 11	Out Ch 11	I/O Ch 11	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		In Ch 10	In Ch 10	In Ch 10	Out Ch 10	I/O Ch 10	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-7							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	In Ch 13	In Ch 13	Out Ch 13	I/O Ch 13	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		In Ch 12	In Ch 12	In Ch 12	Out Ch 12	I/O Ch 12	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—
I/O Connector-8							
Pin 1		24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc	—
Pin 2		N/C	In Ch 15	In Ch 15	Out Ch 15	I/O Ch 15	—
Pin 3		GND	GND	GND	GND	GND	—
Pin 4		In Ch 14	In Ch 14	In Ch 14	Out Ch 14	I/O Ch 14	—
Pin 5		N/C	N/C	N/C	N/C	N/C	—

SWD Accessories

Specification	Unit	EU1S-SWD-PF1-2	SWD4-RC5-10	SWD4-ACAP-10	SWD4-SML8-12	SWD4-SFL8-12	SWD4-MNT-VER	SWD4-MNT-DIN
General								
Standards		IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529	IEC/EN 61131-2, EN50178, IEC / EN 60529
Dimensions (W x H x L)—reference only	mm	41 x 20 x 59	41 x 20 x 15	13 (dia) x 20 (len)	35 x 83 x 46	35 x 83 x 46	16.1 x 30.7 x 15.5	10.2 x 43 x 19
M12 I/O Connector spacing (L)	mm	—	—	—	—	—	—	—
Weight	g / oz	65 / 2.3	13 / 0.45	15 / 0.525	65/2.3	65/2.3	3.4 / 0.12	6.8 / 0.24
Form factor		Single-T	IP67 bus term	M12-M overload	IP20 enclosure	IP20 enclosure	M20 quick clip	DIN rail clips
Enclosure material	Tee	MM 6208 (black)	MM 6208 (black)	TPV	Thermoplastic	Thermoplastic	Thermoplastic	Thermoplastic
Mounting	Qty	2 mounting holes or with bracket accessory	Integral M12-M	Integral M12-M	Panel mount M12-M	Panel mount M12-F	Single mounting hole	To DIN rail
Ambient Conditions, Mechanical								
Protection type	Type	IP69K	IP69K	IP69K	IP69K	IP69K	—	—
EN/IEC 60529	Type	IP6X / IPX7	IP6X / IPX7	IP6X / IPX7	IP20	IP20	—	—
UL Type		1	1	1	1	1	—	—
Vibrations								
Displacement 3.5 mm	Hz	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4	5–8.4
Acceleration 1 g	Hz	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150	8.4–150
Shock IEC 60068-2-27 1/2 sine 30 g/11 ms	Impacts	9	9	9	9	9	9	9
Drop to	Height, mm	50	50	50	50	50	50	50
Drop freefall	m	0.3	0.3	0.3	0.3	0.3	0.3	0.3
EMC								
Overvoltage category		II	II	II	II	II	—	—
Pollution degree		3	3	3	2	2	—	—
Electrostatic discharge								
Air discharge (level 3)	kV	8	8	8	8	8	—	—
Contact discharge (level 2)	kV	4	4	4	4	4	—	—
Electromagnetic fields								
		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	—	—
80–1000 MHz	V/m	10	10	10	10	10	—	—
1.4–2 G	V/m	3	3	3	3	3	—	—
2–2.7 G	V/m	1	1	1	1	1	—	—
Radio interference suppression (SmartWire-DT) (emission and conducted interface voltage)								
		EN 55011 Class A	Class A	Class A	Class A	Class A	—	—
Burst (level 3)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	—	—
Supply cables	kV	2	2	2	2	2	—	—
Signal cables	kV	1	2	2	1	1	—	—
SmartWire-DT cables	kV	1	2	2	1	1	—	—
Surge (level 1)		Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	Performance Criterion B	—	—
Supply cables	kV	0.5	1	1	0.5	0.5	—	—
I/O cables	kV	1	1	1	1	1	—	—
SmartWire-DT cables	kV	1 kV (not possible according to EN61000-6-2 Table 2)					—	—
Radiated RFI (level 3) (150 kHz – 80 MHz)								
		Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	Performance Criterion A	—	—
Supply cables	V	10	10	10	10	10	—	—
I/O cables	V	10	10	10	10	10	—	—
SmartWire-DT cables	V	10	10	10	10	10	—	—
Voltage drops & interrupts	mS	10	10	10	10	10	—	—

SWD Accessories, continued

Specification	Unit	EU1S-SWD-PF1-2	SWD4-RC5-10	SWD4-ACAP-10	SWD4-SML8-12	SWD4-SFL8-12	SWD4-MNT-VER	SWD4-MNT-DIN
Climatic Environmental Conditions								
Ambient temperature	Degrees C	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70	-25 to +70
Storage temperature	Degrees C	-40 to +70	-40 to +70	-40 to +70	-40 to +70	-40 to +70	-40 to +70	-40 to +70
Humidity	% RH	95 at 55 °C / 5–95% condensation permitted						
SmartWire-DT Network								
Stations type		N/A	N/A	N/A	N/A	N/A	—	—
Baud rate setting		—	—	—	—	—	—	—
Maximum	bit / sec	—	—	—	—	—	—	—
SW-DT Status LED		—	—	—	—	—	—	—
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—	—
SW-DT network input connector		1x M12-M / 5-pole	1x M12-M / 5-pole	1x M12-M / 5-pole	1x M12-M / 5-pole	1x Lumberg (LT-307.597.1)	—	—
Pin 1		N/C	24 Vdc	24 Vdc	24 Vdc	15 V	—	—
Pin 2		Data A	Data A	N/C	Data A	SEL	—	—
Pin 3		GND	GND	GND	GND	GND	—	—
Pin 4		Data B	Data B	N/C	Data B	Data A	—	—
Pin 5		SEL (IN)	SEL (IN)	N/C	SEL (IN)	Data B	—	—
Pin 6		—	—	—	—	GND	—	—
Pin 7		—	—	—	—	0 V	—	—
Pin 8		—	—	—	—	24 Vdc	—	—
SW-DT network output connector		1x M12-F / 5-pole	—	—	1x Lumberg (LT-307.597.1)	1x M12-F / 5-pole	—	—
Pin 1		24 Vdc	—	—	15 V	24 Vdc	—	—
Pin 2		Data A	—	—	SEL	Data A	—	—
Pin 3		GND	—	—	GND	GND	—	—
Pin 4		Data B	—	—	Data A	Data B	—	—
Pin 5		SEL (OUT)	—	—	Data B	SEL (OUT)	—	—
Pin 6		—	—	—	GND	—	—	—
Pin 7		—	—	—	0V	—	—	—
Pin 8		—	—	—	24 Vdc	—	—	—
SW-DT network branch connector		—	—	—	—	—	—	—
Pin 1		—	—	—	—	—	—	—
Pin 2		—	—	—	—	—	—	—
Pin 3		—	—	—	—	—	—	—
Pin 4		—	—	—	—	—	—	—
Pin 5		—	—	—	—	—	—	—
Pin 6		—	—	—	—	—	—	—
Pin 7		—	—	—	—	—	—	—
Pin 8		—	—	—	—	—	—	—
24 Vdc Supply (SWD4-R)								
Rated operational voltage	V/U _e	—	24 V -15% +20%	—	—	—	—	—
Residual ripple on the input voltage	%	—	<5	—	—	—	—	—
Reverse Polarity		—	Yes	—	—	—	—	—
Rated supply current	mA	—	12	—	—	—	—	—
24 Vdc Supply (PF1-2)								
Rated operational voltage	V/U _e	24 V -15% +20%	—	—	—	—	—	—
Residual ripple on the input voltage	%	≤5	—	—	—	—	—	—
Rated supply current	A	4	—	—	—	—	—	—
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—	—

10.3

Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

SWD Accessories, continued

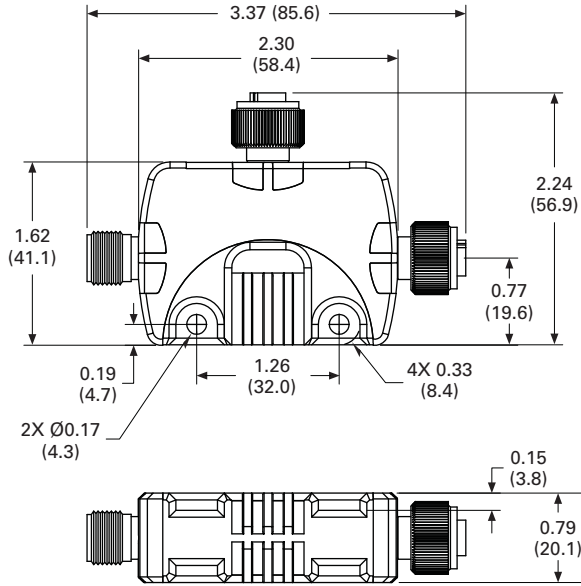
Specification	Unit	EU1S-SWD-PF1-2	SWD4-RC5-10	SWD4-ACAP-10	SWD4-SML8-12	SWD4-SFL8-12	SWD4-MNT-VER	SWD4-MNT-DIN
24 Vdc Supply (PF1-2), continued								
PF1 24 Vdc input connector		1x M12-M / 5-pole	—	—	—	—	—	—
Pin 1		24 Vdc	—	—	—	—	—	—
Pin 2		N/C	—	—	—	—	—	—
Pin 3		GND	—	—	—	—	—	—
Pin 4		N/C	—	—	—	—	—	—
Pin 5		N/C	—	—	—	—	—	—
Power indicator LED		Green (625 nm)	—	—	—	—	—	—
Active Cap (-ACAP-10)								
Rated operational voltage	V/U _e	—	—	24 V -15% +20%	—	—	—	—
Reverse Polarity		—	—	N/A	—	—	—	—
Rated supply current	mA	—	—	≥1 mA	—	—	—	—
Connectors, (IEC-61076-2-101)	M12 A Coding	—	—	—	—	—	—	—
Active Cap M12-M		—	—	1x M12-M / 2 Pole	—	—	—	—
Pin 1		—	—	24 Vdc	—	—	—	—
Pin 2		—	—	N/C	—	—	—	—
Pin 3		—	—	GND	—	—	—	—
Pin 4		—	—	N/C	—	—	—	—
Pin 5		—	—	N/C	—	—	—	—
Parameter		—	—	—	—	—	—	—
Diagnostic per M12 I/O connector		—	—	ON/OFF	—	—	—	—
15 Vdc Supply (to Flat Cable)								
Rated operational voltage	V/U _e	—	—	—	14,5V +/- 3%	—	—	—
Residual ripple on the input voltage	%	—	—	—	≤5	—	—	—
Short Circuit Protection		—	—	—	Yes	—	—	—
Output Power	mA	—	—	—	120	—	—	—
24 Vdc Out (Push In Terminals)								
Rated operational voltage	V/U _e	—	—	—	24 V	24 V	—	—
Short circuit protection		—	—	—	No	No	—	—
Connectors		—	—	—	—	—	—	—
24 V Out 1		—	—	—	LSF-SMT3.5	LSF-SMT3.5	—	—
Pin 1		—	—	—	24 Vdc	24 Vdc	—	—
Pin 2		—	—	—	0 V	0 V	—	—
24 V Out 2		—	—	—	LSF-SMT3.5	—	—	—
Pin 1		—	—	—	24 Vdc	—	—	—
Pin 2		—	—	—	0 V	—	—	—
24 Vdc In (Push In Terminals)								
Rated operational voltage	V/U _e	—	—	—	—	24 Vdc -15%/+20%	—	—
Residual ripple on the input voltage	%	—	—	—	—	≤5	—	—
Reverse polarity protection		—	—	—	—	Yes	—	—
Rated current	A	—	—	—	—	4	—	—
Short Circuit Protection		—	—	—	—	No	—	—
Connectors		—	—	—	—	—	—	—
24 V In 1		—	—	—	—	LSF-SMT3.5	—	—
Pin 1		—	—	—	—	24 Vdc	—	—
Pin 2		—	—	—	—	0 V	—	—

Dimensions

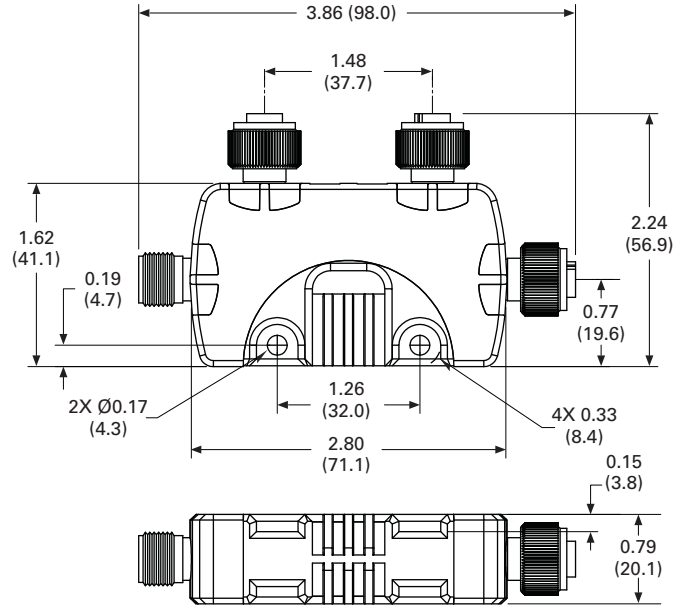
Approximate Dimensions in Inches (mm)

On Machine I/O Modules (T Connectors)

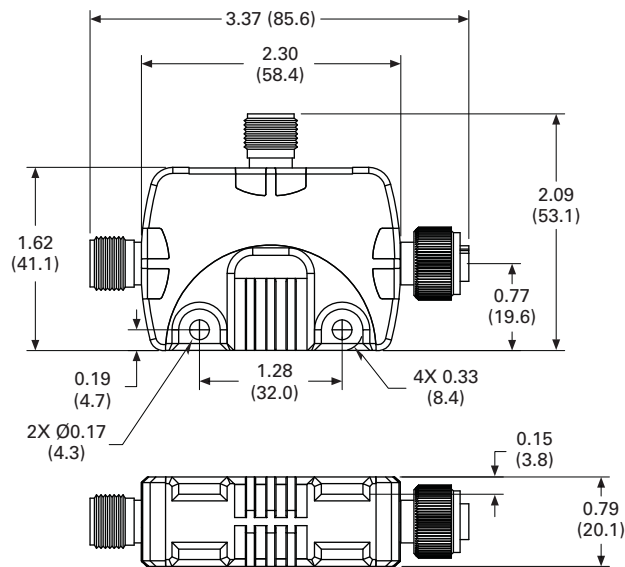
Single T Connector



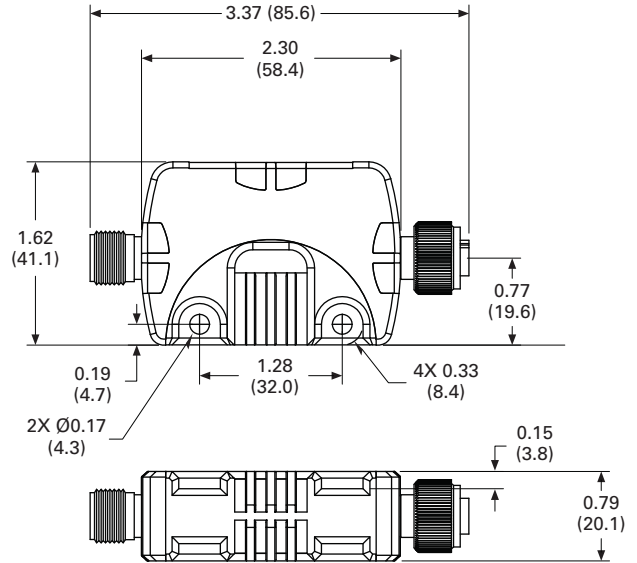
Dual T Connector



Powerfeed T Connector



NOP Module



10.3

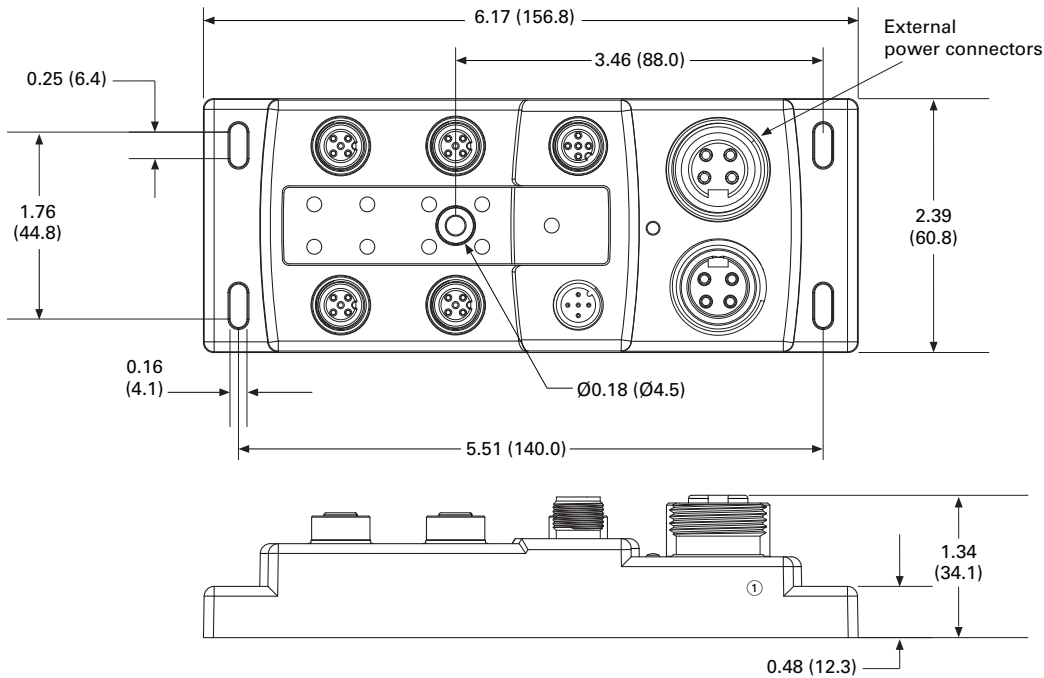
Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

Approximate Dimensions in Inches (mm)

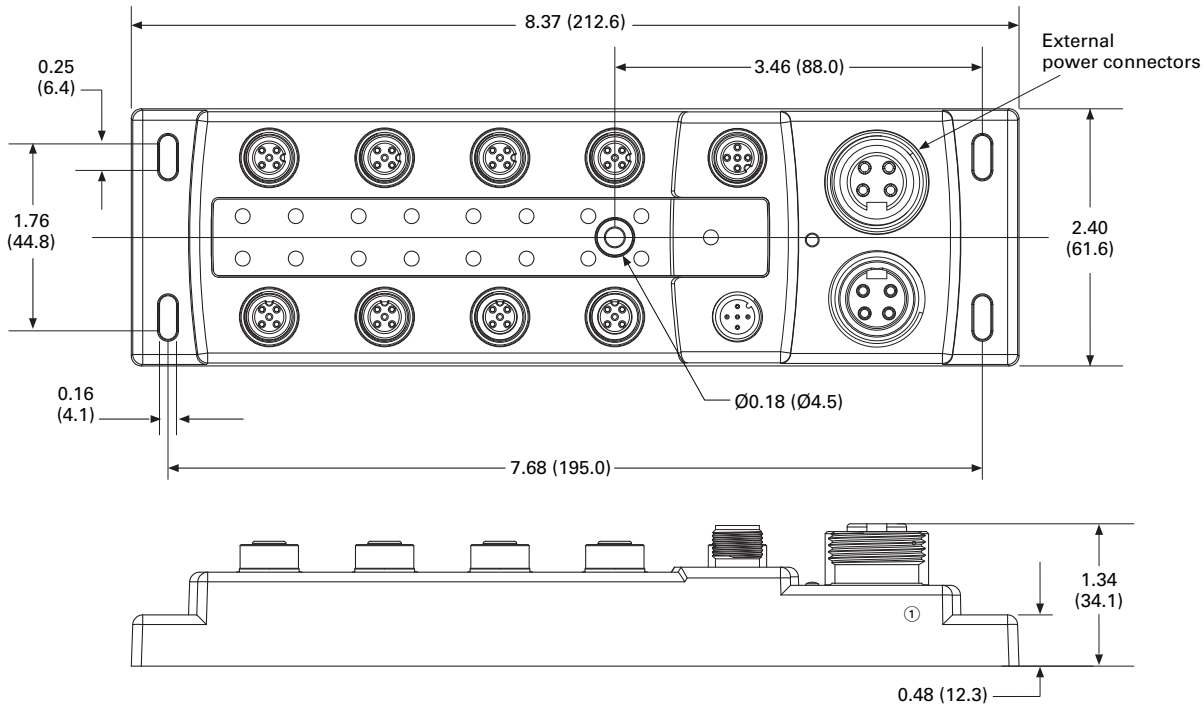
Quad: 4/8-Channel Multiblock Modules

EU6E-SWD-



Octal: 8/16-Channel Multiblock Modules

EU8E-SWD-



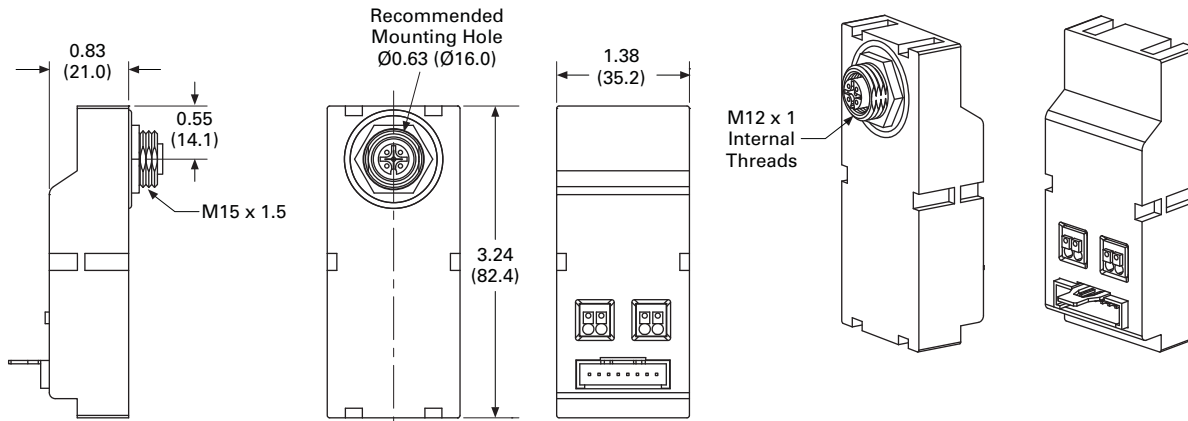
Note

① External power connectors only present in EU6E/EU8E models ending in -1 or -2.

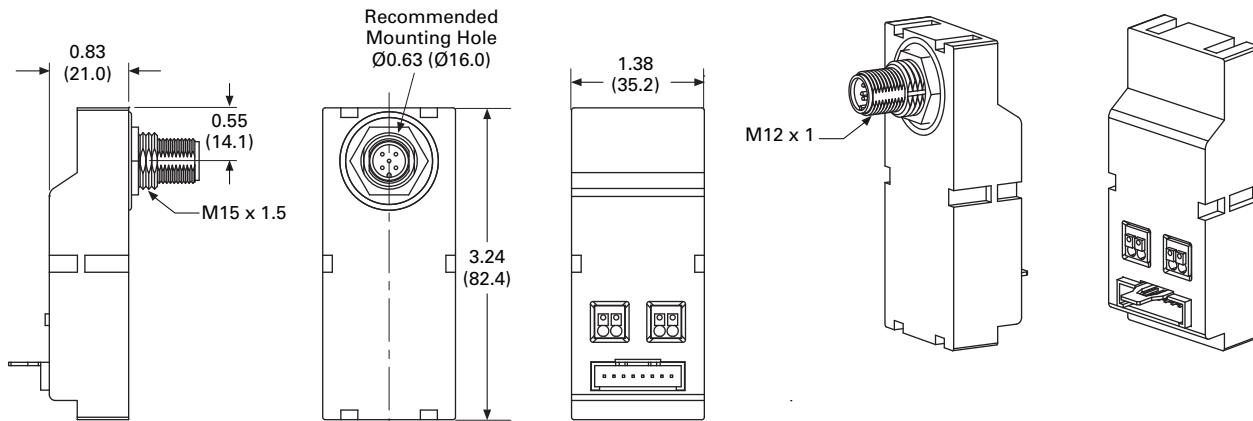
Approximate Dimensions in Inches (mm)

Panel Adapters

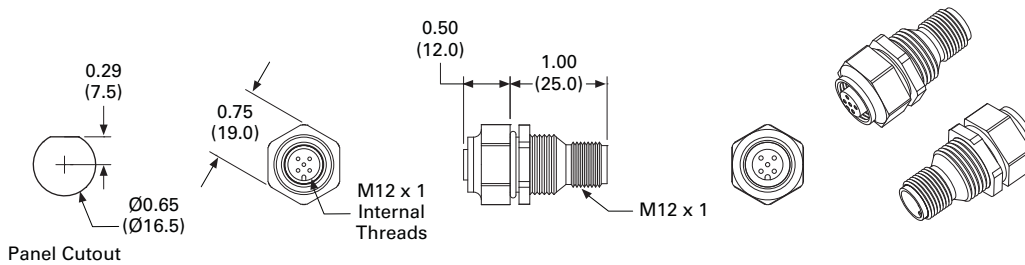
SWD4-SFL8-12



SWD4-SML8-12



SWD4-SML5-12



10.3

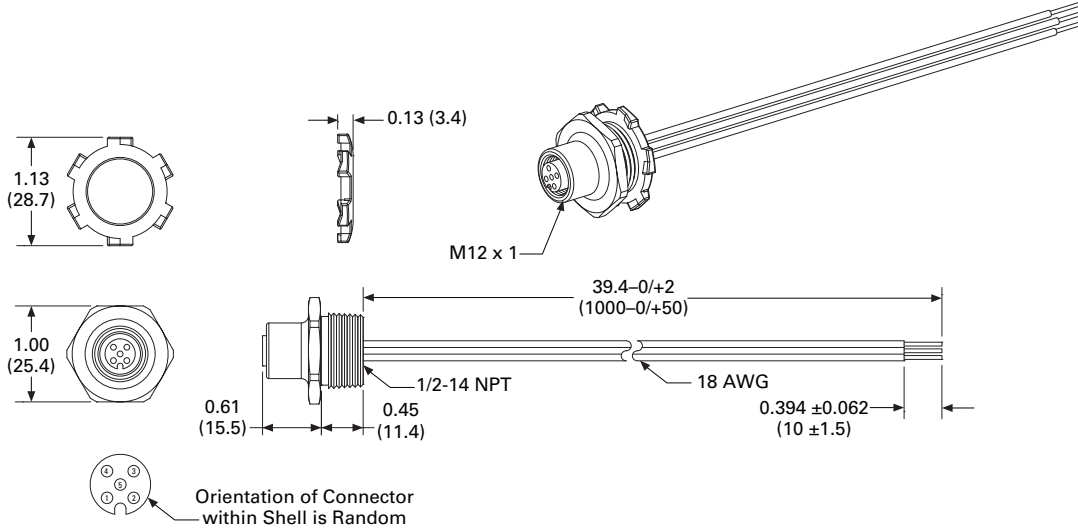
Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

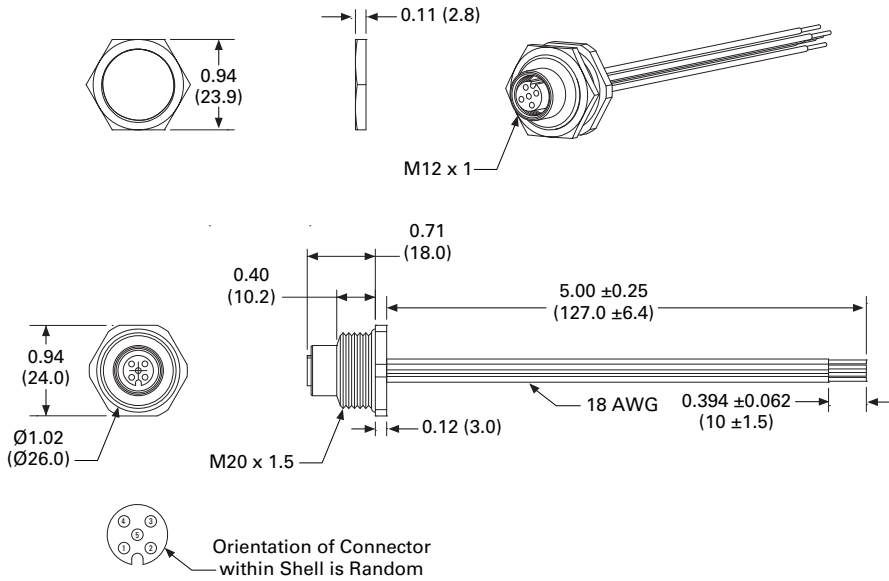
Approximate Dimensions in Inches (mm)

Receptacles

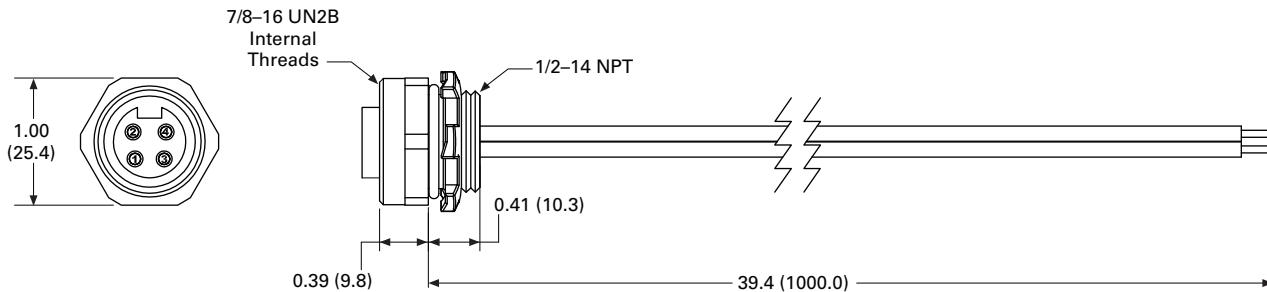
SWD4-PRF5-1-S



SWD4-PRF5-2-S

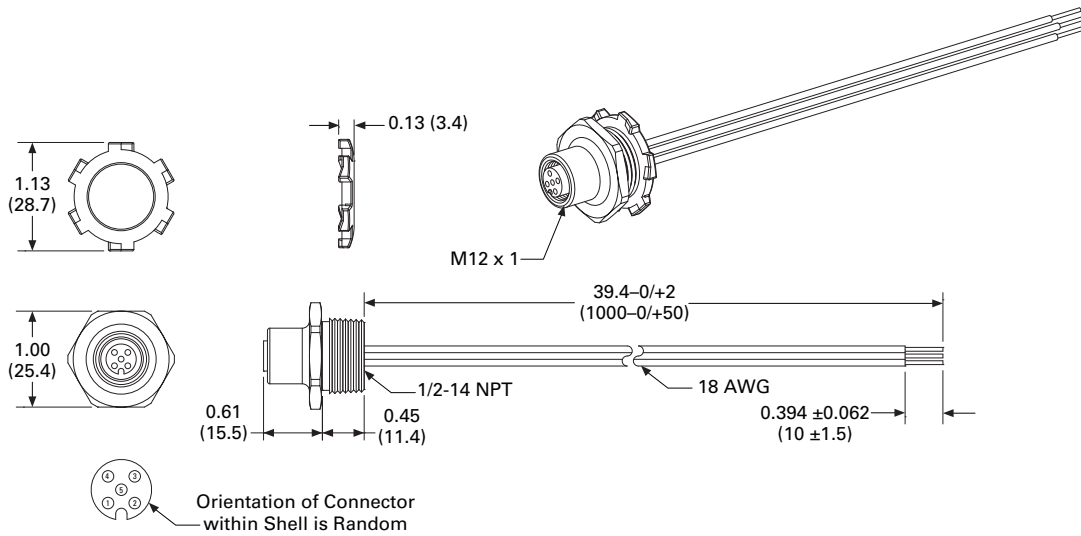


SWD4-PRF4P-1-S

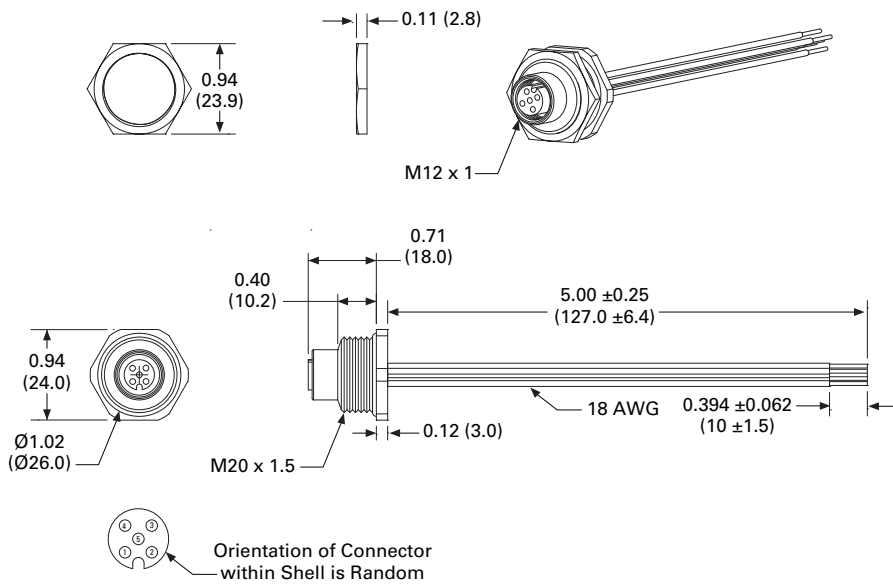


Approximate Dimensions in Inches (mm)

SWD4-PRF5-1-S



SWD4-PRF5-2-S



10.3

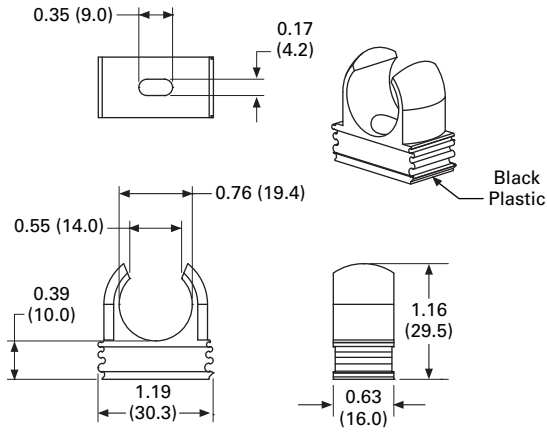
Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

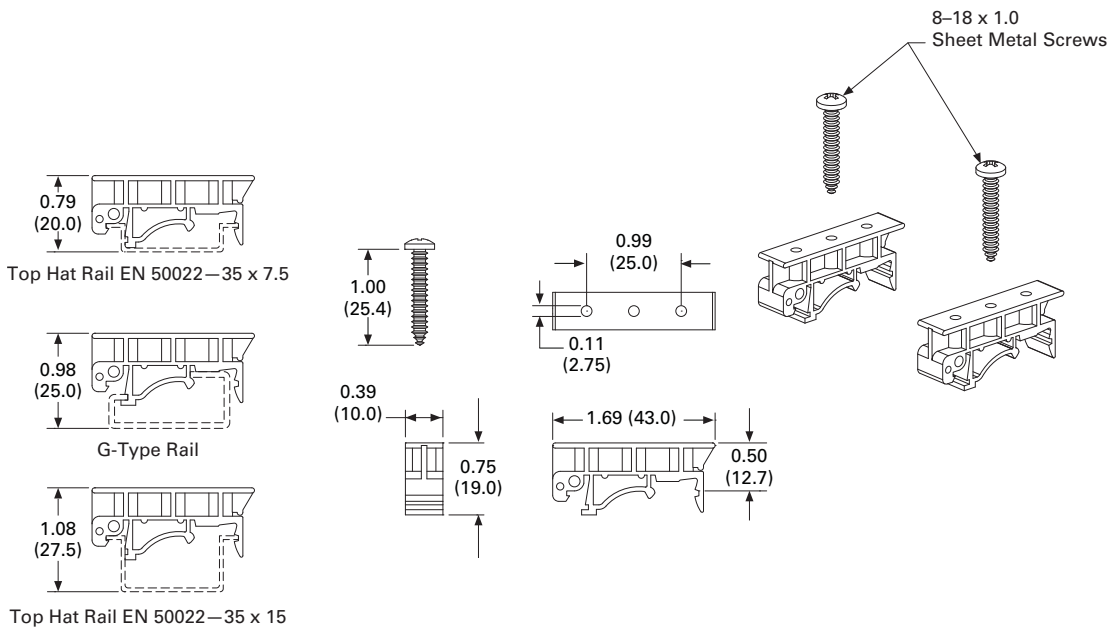
Approximate Dimensions in Inches (mm)

Mounting Brackets

SWD4-MNT-VER



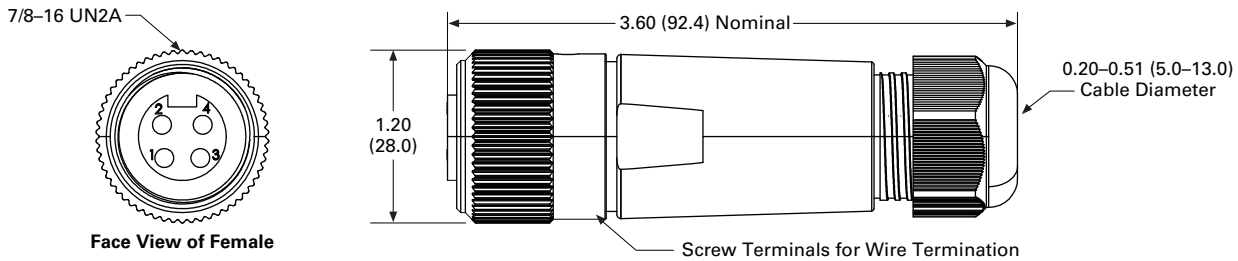
SWD4-MNT-DIN



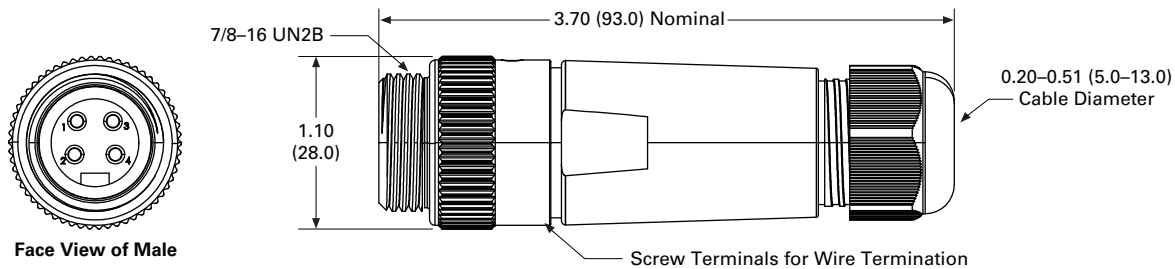
Approximate Dimensions in Inches (mm)

Field Wireable Connectors

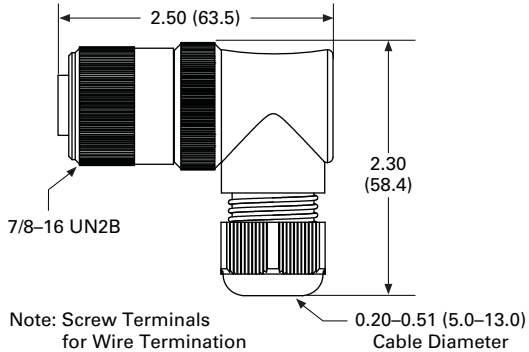
SWD4-SF4P-67



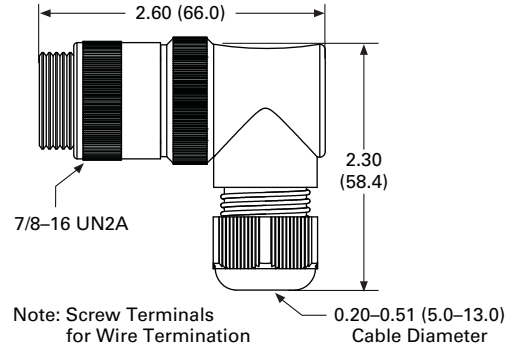
SWD4-SM4P-67



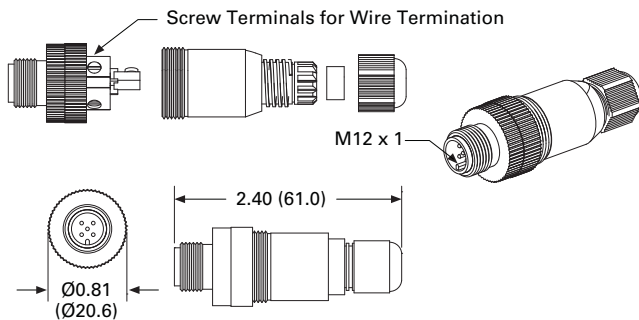
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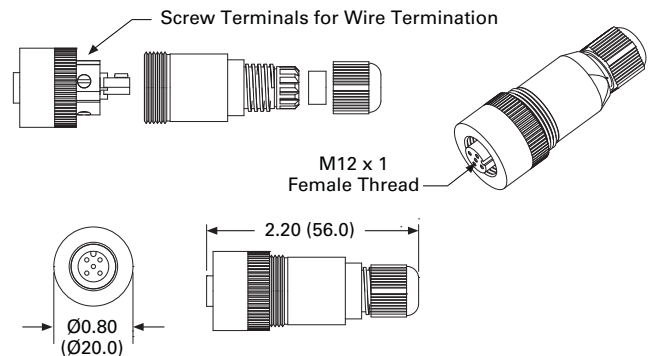
SWD4-SM4P-67R



SWD4-SM5-67



SWD4-SF5-67



10.3

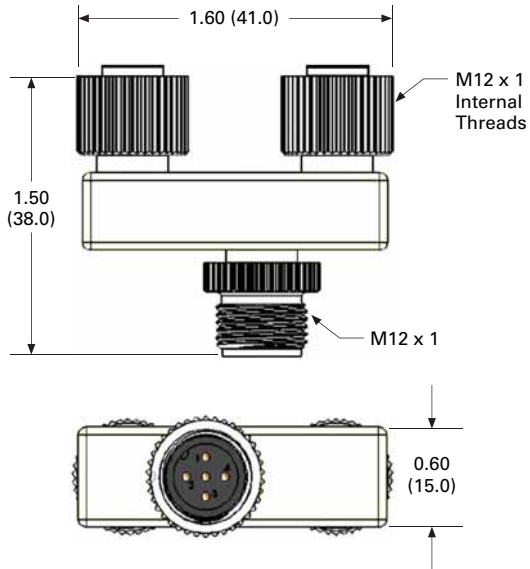
Connectivity Solutions

SmartWire-DT In-Panel and On-Machine Wiring Solution

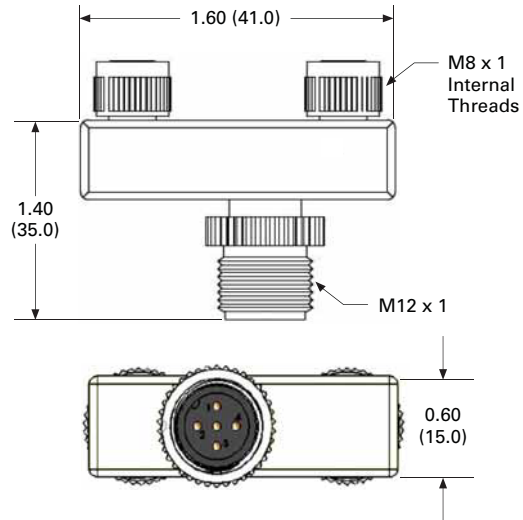
Approximate Dimensions in Inches (mm)

Splitters

SWD4-SP-4122/4124



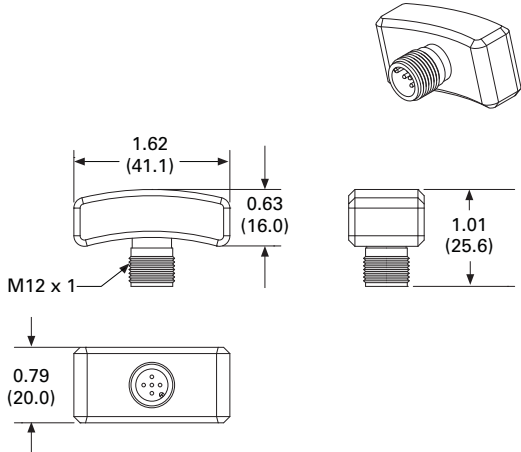
SWD4-SP-3084



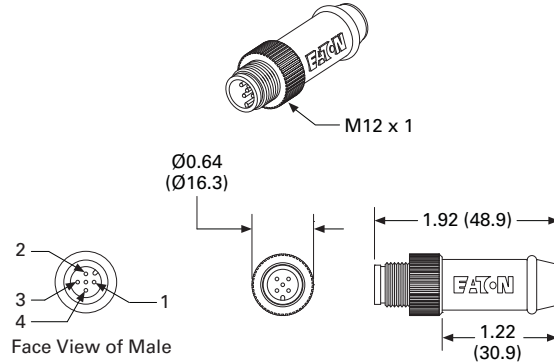
10

Other Wiring Accessories

SWD4-RC5-10



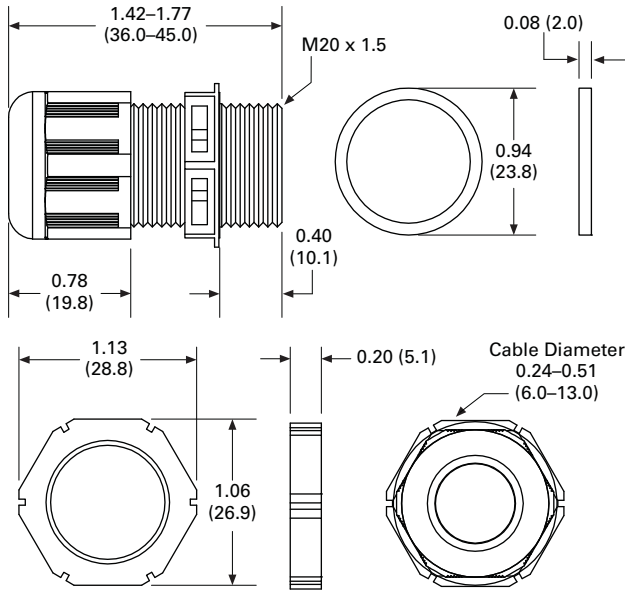
SWD4-ACAP-10



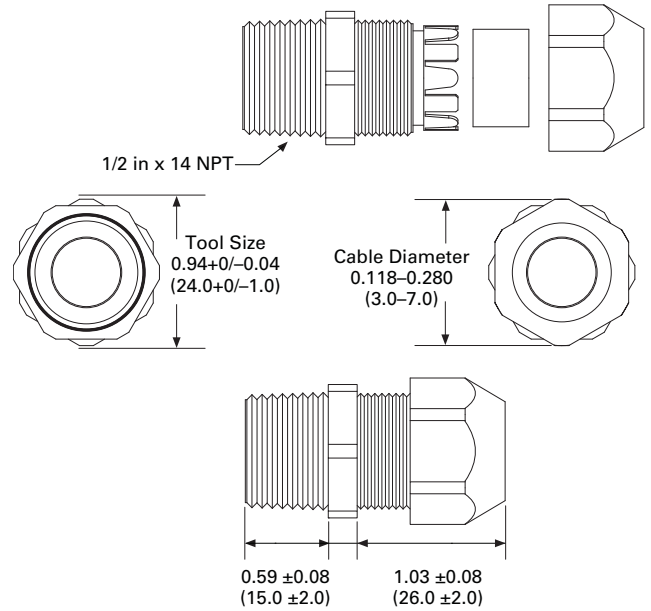
Approximate Dimensions in Inches (mm)

Cord Grips

V-M20

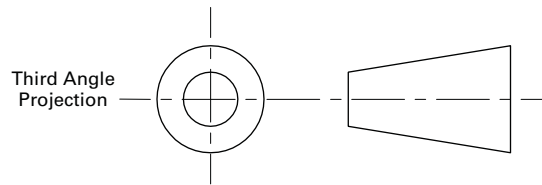
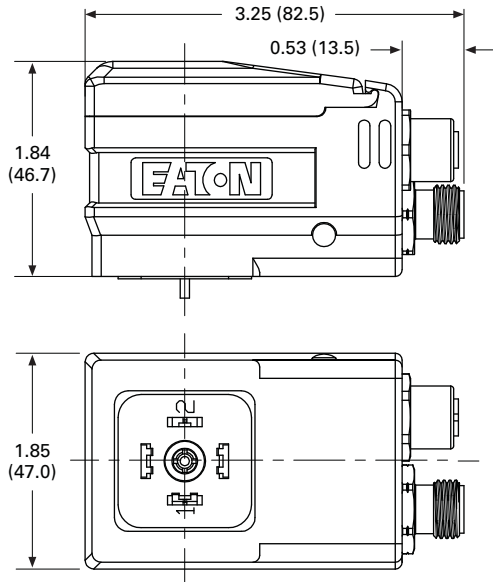


V-12NPT



Hydraulic Valve Connector

EU3E-SWD-X1H-1



Solenoid Connections

