

# Connection Systems

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Overview

The Allen-Bradley Guardmaster® Safety Connection Systems are complete wiring solutions dedicated to machine safety. These quick disconnect-based systems consist of safety wired T-Ports and distribution boxes as well as patchcords and shorting plugs. Specifically intended for use with dry-contact safety switches, Safety Connection Systems provide flexible and reliable connections between safety interlock switches, E-stops, cable pull switches and safety relays. And while this system is ideal for use with these components, it is not suitable for use with light curtains, safety mats or pressure sensitive safety edges.

Allen-Bradley Guardmaster Safety Connection Systems are designed to:

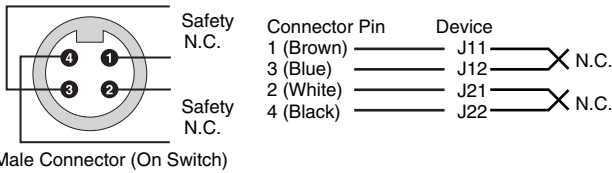
- Reduce installation cost
- Ease system expansion
- Simplify troubleshooting
- Promote system modularity
- Provide for Safety PLC input expansion
- Support systems up to Category 3 (per EN954-1)

Safety Connection Systems layouts are available with or without enunciation capabilities, allowing the user the option of direct feedback for the status of individual switches in the system. Enunciation systems utilize an auxiliary contact as input to tower lights, audible alarms, PLC input cards, etc.

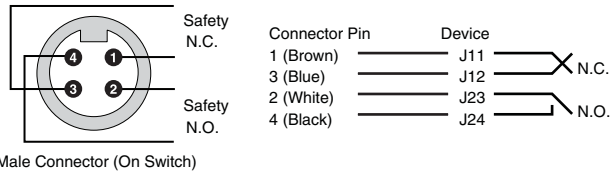
Systems without Enunciation

As illustrated in the example layout below, wiring systems for applications not requiring enunciation use a combination of patchcords, shorting plugs, safety wired distribution boxes and T-ports for series wiring of safety circuits. Distribution boxes for such an application are dual channel models with 2 N.C. or 1 N.C. + 1 N.O. contact configurations. See the wiring diagrams below for connector pin assignments.

Dual Channel 2 N.C.



Dual Channel 1 N.C./1 N.O.

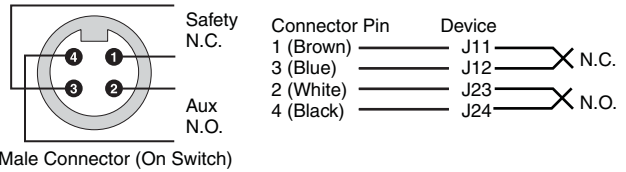


**Note:** Shorting plugs must be used on all unused ports for the system to operate.

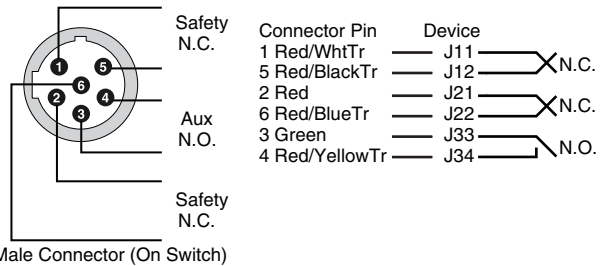
Systems with Enunciation

As shown below, system layouts with enunciation require patchcords, shorting plugs and distribution boxes, which allow for series wiring of the safety circuits while providing a separate circuit for enunciation. Distribution boxes are offered for these applications in two contact configurations: dual channel with 2 N.C. or single channel with 1 N.C. Each type also provides a N.O. auxiliary contact that is interfaced with the enunciation device to provide visual or audible alarm indication. In addition, LEDs on the distribution boxes assist in the troubleshooting of this system. See the wiring diagrams below for the associated connector pin configurations.

Single Channel 1 N.C./1 N.O.



Dual Channel 2 N.C./1 N.O.



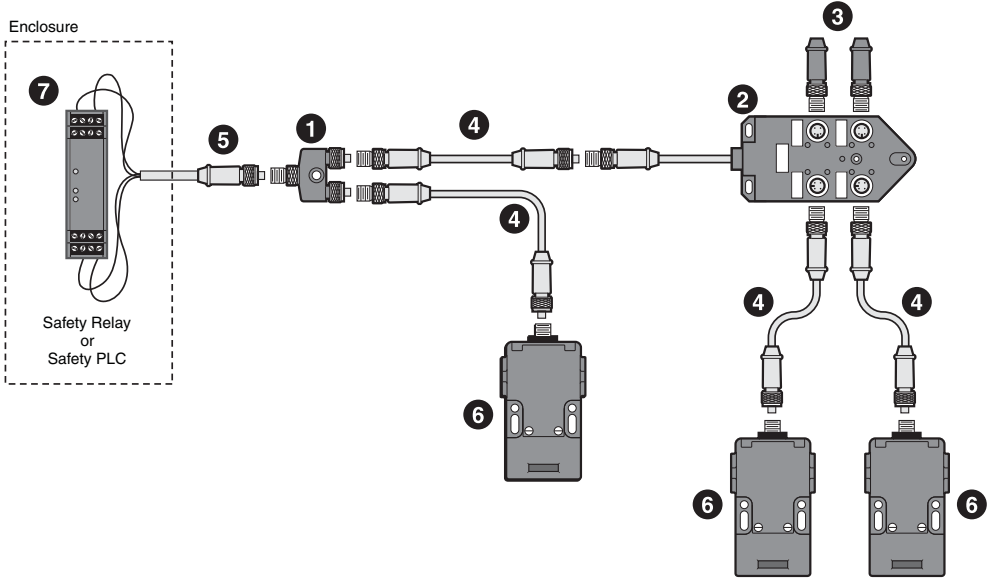
**Note:** Shorting plugs must be used on all unused ports for the system to operate.

Installation Considerations

Some important notes regarding Safety Connection Systems:

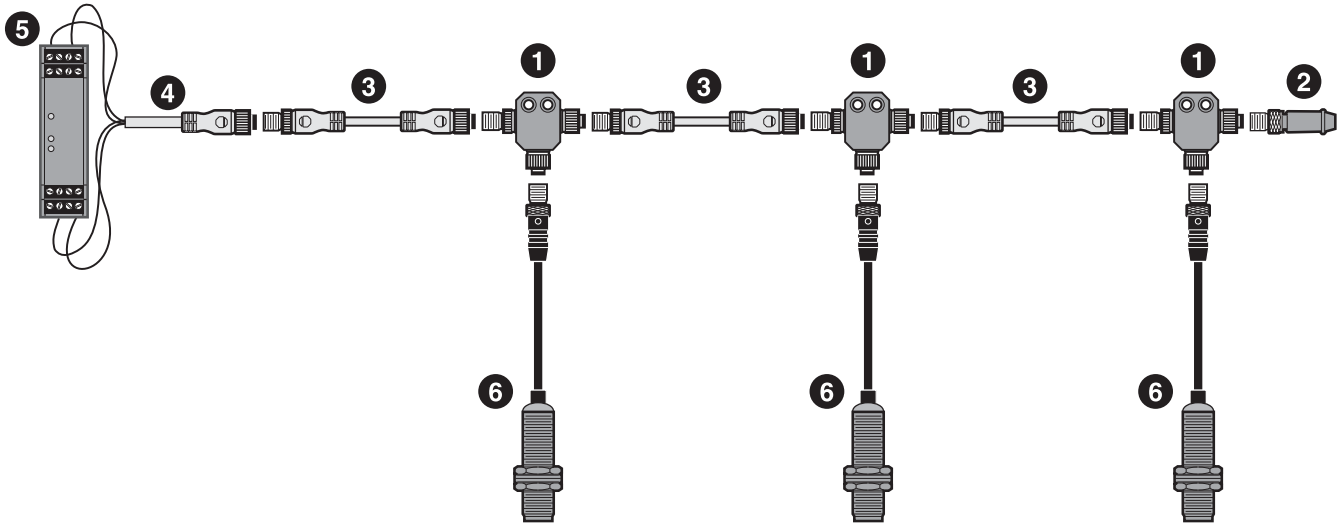
- To help ensure that only authorized personnel can access the connections, safety distribution boxes should be mounted in the 'guarded' area as defined in the risk assessment for the application.
- The safety connection system is designed to simplify the installation of safety devices—it does **not** control the safety circuit.
- Since the safety circuits are wired in series, shorting plugs must be installed in all unused distribution box ports in order for the system to operate.

**Example Layout without Enunciation**



- |  |                                |                                   |
|--|--------------------------------|-----------------------------------|
| 1. Safety-Wired Splitter/T-Port..... 7-6   | 4. Device Patchcord ..... 7-12 | 6. Safety Switch with QD..... 3-1 |
| 2. Safety-Wired Distribution Box ..... 7-7 | 5. Device Cordset ..... 7-12   | 7. Safety Relay..... 5-2          |
| 3. Shorting Plug..... 7-11                 |                                |                                   |

SensaGuard Units Wired in Series without Enunciation

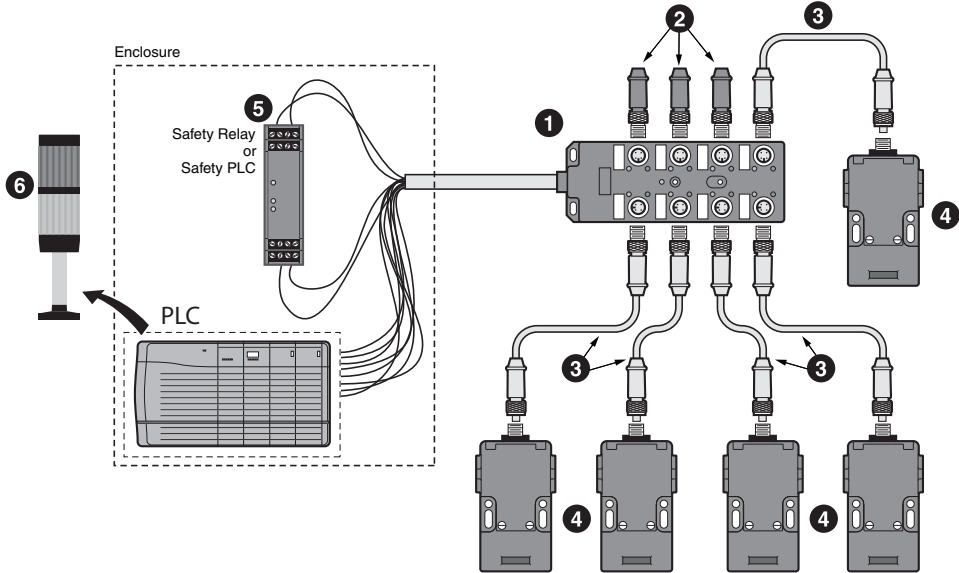


- 1. Safety-Wired Splitter/T-Port..... 7-6
- 2. Shorting Plug ..... 7-11

- 3. Device Patchcord ..... 7-12
- 4. Device Cordset ..... 7-12

- 5. Safety Relay ..... 5-2
- 6. SensaGuard with QD..... 3-56

Example Layout with Enunciation



7-Overview

- |   |                                   |   |
|---|-----------------------------------|---|
| 1. Safety-Wired Distribution Box .... 7-7 | 4. Safety Switch with QD..... 3-1 | 6. Tower Light ..... See <i>Industrial Controls</i> catalog |
| 2. Shorting Plug ..... 7-11               | 5. Safety Relay ..... 5-2         |   |
| 3. Device Patchcord ..... 7-12            |                                   |   |

Connection Systems  
**Safety Wired T-Port, DC Micro Style**  
 Dual Channel, No Enunciation

7-Safety Wired  
 Systems



**Specifications**

Connector Shell Material	Epoxy coated zinc
Contact Material	Brass, gold over nickel plating
O-Ring Material	Fluorelastomer
Enclosure Type Rating	IP67, NEMA 6P
Operating Temperature [C (F)]	-20...105° (-13...221°)

**Features**

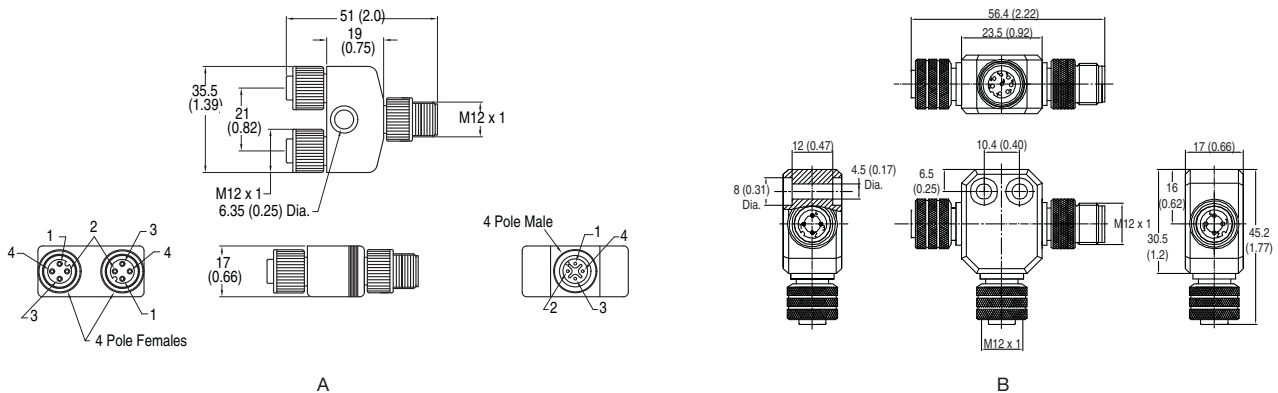
- T-port/splitter designed for use with dual-channel safety devices with 4-pin DC micro connector
- PUR body offers good oil and chemical resistance
- Ratcheting coupling nut for vibration resistance
- For use in Category 2 or 3 systems per EN 954-1
- SensaGuard units may be wired in series maintaining a Cat. 4/SIL 3 rating

**Product Selection**

Face View of Female (2)	Rating	Face View of Male (1)	Configuration	Wiring	Dimensions	Housing Material	Connector Insert Material	Cat. No.
	10...30V DC 3 A		2 N.C.		A	Red PUR	PUR	898D-43LY-D4
			1 N.O. & 1 N.C.		A	Red PUR	PUR	898D-43KY-D4
			For use with SensaGuard switches only		B	Black PVC	Polyamide	898D-438Y-D8

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



# Connection Systems

## Safety Wired Distribution Box, DC Micro Style

### Dual-Channel N.C., No Enunciation

7-Safety Wired Systems



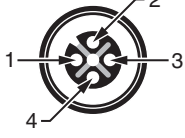

#### Specifications

Housing Material	Red PBT
Connector Insert Material	PBT
Connector Shell Material	Nickel-plated brass
Contact Material	Gold-plated palladium/nickel
Cable O.D.	9.8 mm (0.39 in.)
Cable Type	Oil-resistant yellow PVC jacket, 22 AWG conductors
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...105° (-13...221°)

#### Features

- Prewired for dual-channel N.C. safety
- 4 or 8 safety wired 4-pin DC micro connectors
- 4-pin male DC micro pigtail main connection
- For use in category 2 or 3 systems per EN 954-1

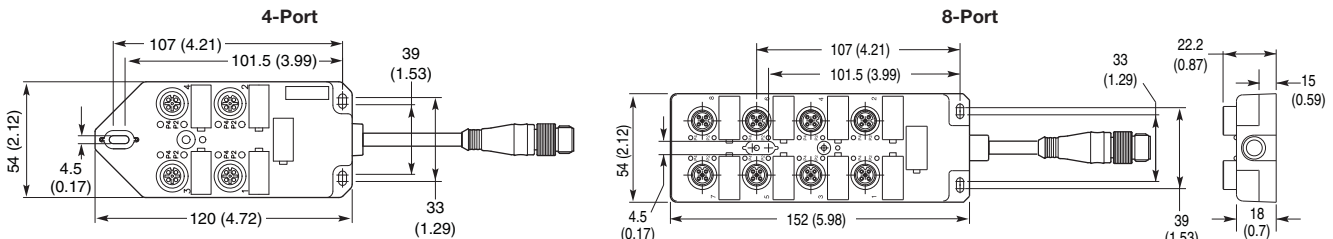
#### Product Selection

Face View of Female	No. of Ports	Illuminated	Rating	Face View of Male (1)	Cable Length	Cat. No.
	4	No LED	10...30V DC		0.2 m (8 in.)	898D-44LT-DM4
	8					898D-48LT-DM4
Shorting plug for unused ports						898D-41LU-DM
Patchcord, straight to straight DC Micro						889D-F4ACDM-*

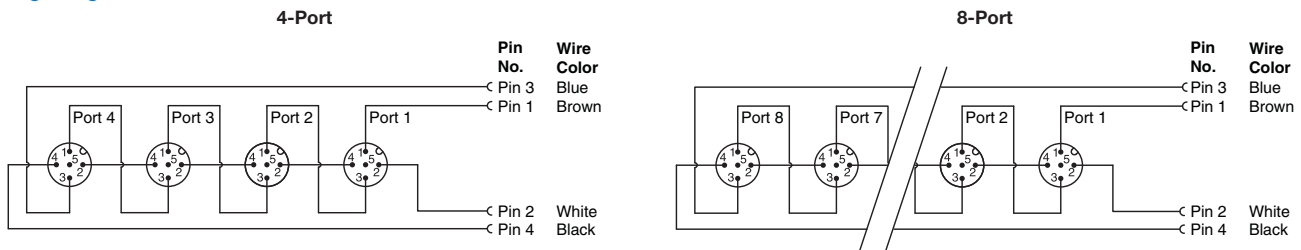
\* Length in meters (1, 2, 3, 5, 10 standard).

#### Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



#### Wiring Diagrams



# Connection Systems

## Safety Wired Distribution Box, DC Micro Style

### Dual-Channel N.C./N.O., No Enunciation



### Specifications

Housing Material	Red PBT
Connector Insert Material	PBT
Connector Shell Material	Nickel-plated brass
Contact Material	Gold-plated palladium/nickel
Cable O.D.	9.8 mm (0.39 in.)
Cable Type	Oil-resistant yellow PVC jacket, 22 AWG conductors
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...105° (-13...221°)

### Features

- Prewired for dual-channel (one N.O./one N.C.) safety
- 4 or 8 safety wired 4-pin DC micro connectors
- 4-pin male DC micro pigtail main connection
- For use in category 2 or 3 systems per EN 954-1

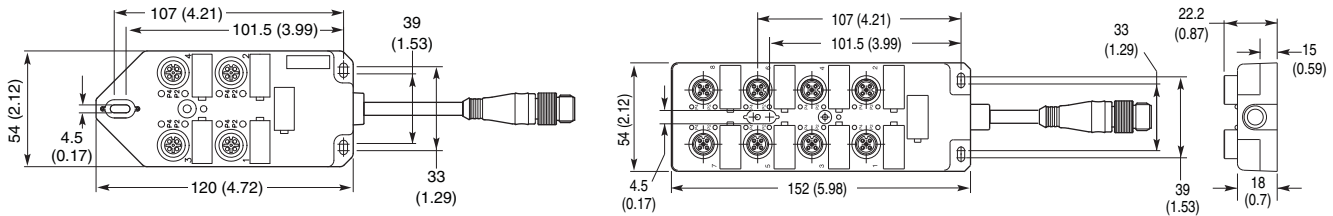
### Product Selection

Face View of Female	No. of Ports	Illuminated	Rating	Face View of Male (1)	Cable Length	Cat. No.
	4	No LED	10...30V DC		0.2 m (8 in.)	898D-44KT-DM4
	8					898D-48KT-DM4
Shorting plug for unused ports						898D-41KU-DM
Patchcord, straight to straight DC Micro						889D-F4ACDM-*

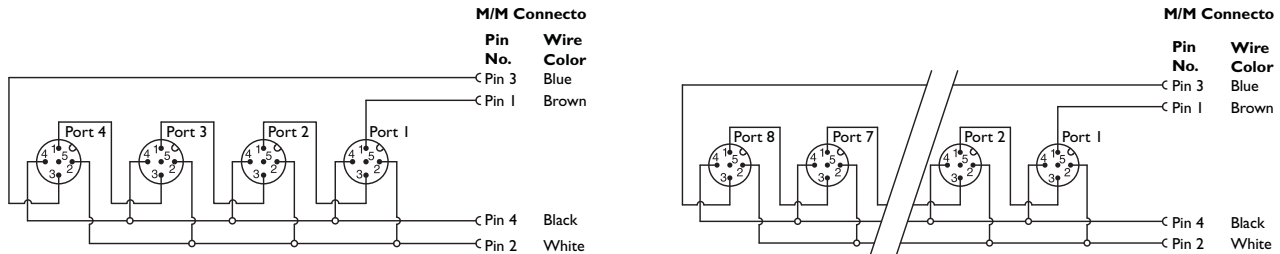
\* Length in meters (1, 2, 3, 5, 10 standard).

### Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



### Wiring Diagrams





# Connection Systems

## Safety Wired Distribution Box, DC Micro Style

### Single-Channel N.C. plus Individual N.O. Enunciation



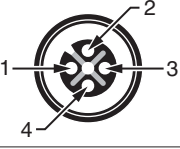
#### Specifications

Housing Material	Red PBT
Connector Insert Material	PBT
Connector Shell Material	Nickel-plated brass
Contact Material	Gold-plated palladium/nickel
Cable O.D.	9.8 mm (0.39 in.)
Cable Type	Oil-resistant yellow PVC jacket, (12) 18 AWG conductors
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...105° (-13...221°)

#### Features

- Prewired for single-channel (N.C.) safety with enunciation
- 8 safety wired 4-pin DC micro connectors
- Individual enunciation output for each port
- For use in category 2 or 3 systems per EN 954-1

#### Product Selection

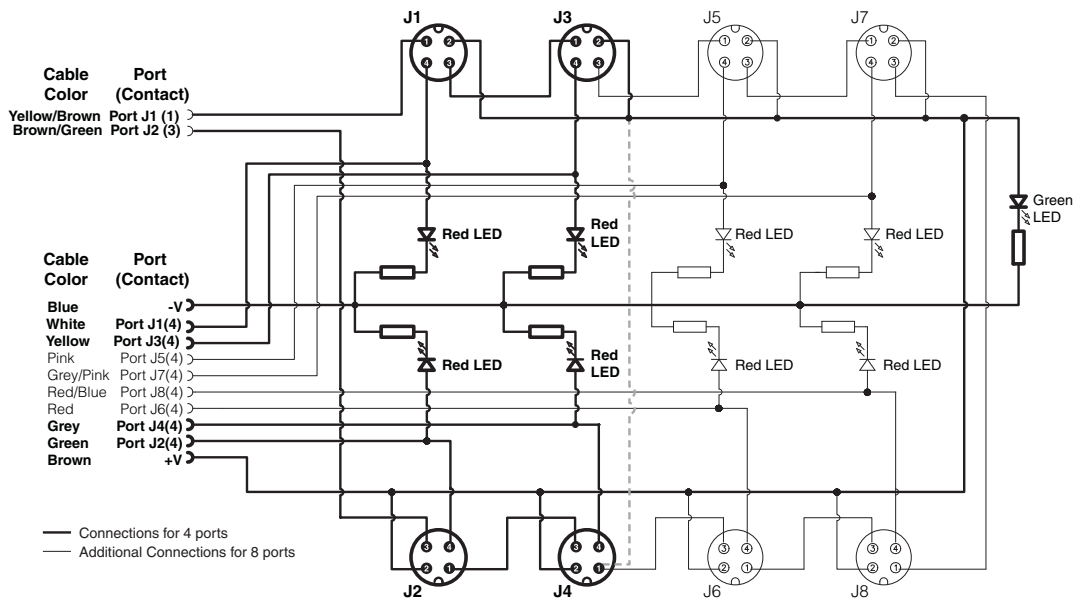
Face View of Female	No. of Ports	Illuminated	Rating	Face View of Male (1)	Cable Length	Cat. No.
	4	LEDs	10...30V DC	Cable	5 m (16.4 ft)	898D-P44JT-A5
	8				10 m (32.8 ft)	898D-P44JT-A10
Shorting plug for unused ports					5 m (16.4 ft)	898D-P48JT-A5
Patchcord, straight to straight DC Micro					10 m (32.8 ft)	898D-P48JT-A10
Shorting plug for unused ports						898D-41KU-DM
Patchcord, straight to straight DC Micro						889D-F4ACDM-*

\* Length in meters (1, 2, 3, 5, 10 standard).

#### Approximate Dimensions

See 8-port dimensions on page 7-7.

#### Wiring Diagrams



# Connection Systems

## Safety Wired Distribution Box, AC Micro Style

### 8-Port, Dual-Channel (2 N.C.) plus Individual N.O. Enunciation



#### Specifications

Housing Material	Red PBT
Connector Insert Material	PBT
Connector Shell Material	Nickle-plated brass
Contact Material	Gold-plated palladium/nickel
Cable O.D.	9.8 mm (0.39 in.) OD
Cable Type	Oil-resistant yellow PVC jacket, (6) 19 AWG conductors and (8) 22 AWG conductors
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...105° (-13...221°)

#### Features

- Prewired for dual-channel N.C. safety plus individual N.O. enunciation
- Eight 6-pin AC micro connectors
- 14-conductor main cable
- Individual enunciation output for each port
- For use in category 2 or 3 systems per EN 954-1

#### Product Selection



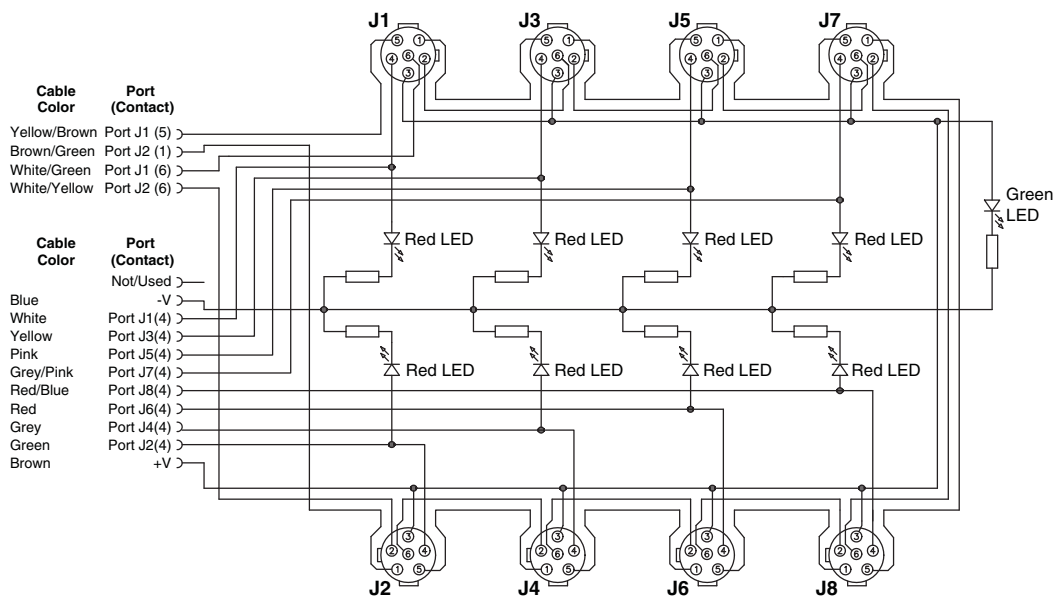
Face View of Female	No. of Ports	Illuminated	Rating	Face View of Male (1)	Cable Length	Cat. No.
	8	LEDs	10...30V DC	Cable	5 m (16.4 ft)	898R-P68MT-A5
					10 m (32.8 ft)	898R-P68MT-A10
Shorting plug for unused ports						898R-61MU-RM
Patchcord, straight to straight DC Micro						889R-F6ECRM-*

\* Length in meters (1, 2, 3, 5, 10 standard).

#### Approximate Dimensions

See 8-port dimensions on page 7-7.

#### Wiring Diagrams





**Specifications**

Connector Insert Material	PUR
Connector Shell Material	RED PVC
Contact Material	Brass, gold over nickel plating
O-Ring Material	Fluorelastomer
Enclosure Type Rating	IP67, NEMA 6P
Operating Temperature [C (F)]	-20...105° (-13...221°)

**Features**

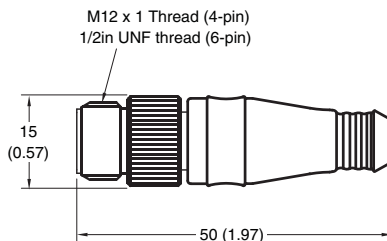
- Shorting plug designed for use with safety-wired distribution boxes
- PVC body offers good oil and chemical resistance
- Ratcheting coupling nut on 4-pin models for vibration resistance

**Product Selection**

Face View of Male	Rating	Configuration	Wiring	Coupling Nut Material	Cat. No.
	10...30V DC 4 A	2 N.C.		Epoxy-coated zinc	898D-41LU-DM
		1 N.O. & 1 N.C.		Epoxy-coated zinc	898D-41KU-DM
		2 N.C. & 1 N.O.		Nickel-plated brass	898R-61MU-RM
		For use with SensaGuard compatible T-Ports only		Nickel-plated brass	898D-418U-DM

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



# Cordsets & Patchcords, DC Micro Style

18 and 22 AWG, Yellow, Black, or Blue PVC

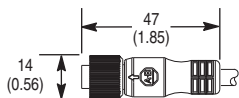


### Features

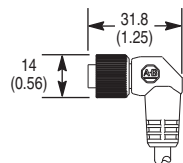
- Ratcheting coupling nut
- Subtle black or highly visible yellow PVC jacket offers good oil and chemical resistance
- Blue jacket models for intrinsically safe applications

### Approximate Dimensions

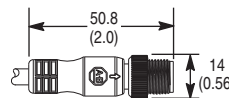
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



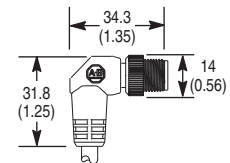
**Straight Female**



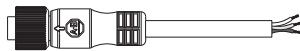
**Right Angle Female**



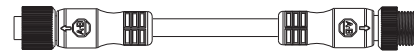
**Straight Male**



**Right Angle Male**



Example of Cordset

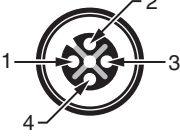



Example of Patchcord

### Specifications

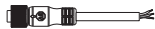
Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Epoxy-coated zinc
Connector Shell Material	Molded oil resistant PVC or PUR
Contact Material	Gold over nickel-plated brass
Cable Type	Oil resistant yellow PVC jacket, 20 AWG stranded copper, 300V, UL Recognized and CSA Certified
Home Run Connection	10 x diameter
Cable Diameter	4/c = 5 mm (0.21 in.); 5/c = 6.5 mm (0.25 in.)
<b>Electrical</b>	
Cable Rating	LED models: UL AWM style 2661 VW-1 105C 300V, CSA AWM A/B I/II 80C 300V FT1, UV oil and water resistant
Assembly Rating	250V, 4 A
<b>Environmental</b>	
Enclosure Type Rating	IP67 and IP69K, NEMA 6P
Operating Temperature [C (F)]	-20...+105° (-4...+221°)

**Pinout and Color Code**

Color Code	Face View Pinout			
	4-Pin		5-Pin	
				
A	1 Brown 2 White 3 Blue	4 Black 5 NA	1 Brown 2 White 3 Blue	4 Black 5 Grey

**Product Selection**

**Cordsets**



Pin Count	Color Code	Jacket Color	Wire Size	Cat. No.			
				Straight Female	Right Angle Female	Straight Male	Right Angle Male
4-Pin	A	Yellow	22 AWG	889D-F4AC-2*	889D-R4AC-2*	889D-M4AC-2*	889D-E4AC-2*
		Yellow	18 AWG	889D-F4AE-2*	889D-R4AE-2*	889D-M4AE-2*	889D-E4AE-2*
		Black	22 AWG	889D-F4BC-2*	889D-R4BC-2*	889D-M4BC-2*	889D-E4BC-2*
		Blue		889D-F4LC-2*	889D-R4LC-2*	889D-M4LC-2*	889D-E4LC-2*
5-Pin		Yellow	22 AWG	889D-F5AC-2*	<b>889D-R5AC-2*</b>	889D-M5AC-2*	889D-E5AC-2*
		Black		889D-F5BC-2*	889D-R5BC-2*	889D-M5BC-2*	889D-E5BC-2*

**Patchcords**



Pin Count	Color Code	Jacket Color	Wire Size	Cat. No.			
				Straight Female Straight Male	Straight Female Right Angle Male	Right Angle Female Straight Male	Right Angle Female Right Angle Male
4-Pin	A	Yellow	22 AWG	889D-F4ACDM-2*	889D-F4ACDE-2*	889D-R4ACDM-2*	889D-R4ACDE-2*
		Yellow	18 AWG	889D-F4AEDM-2*	889D-F4AEDE-2*	889D-R4AEDM-2*	889D-R4AEDE-2*
		Black	22 AWG	889D-F4BCDM-2*	889D-F4BCDE-2*	889D-R4BCDM-2*	889D-R4BCDE-2*
		Blue	22 AWG	889D-F4LCDM-2*	889D-F4LCDE-2*	889D-R4LCDM-2*	889D-R4LCDE-2*
5-Pin		Yellow	22 AWG	889D-F5ACDM-2*	889D-F5ACDE-2*	889D-R5ACDM-2*	889D-R5ACDE-2*
		Yellow	22 AWG	889D-F5BCDM-2*	889D-F5BCDE-2*	889D-R5BCDM-2*	889D-R5BCDE-2*

\* Replace 2 (2 m) with 5 (5 m) or 10 (10 m) for standard cable lengths.

\* Replace 2 (2 m) with 0M3 (1 ft), 1 (1 m), 5 (5 m) or 10 (10 m) for standard lengths.

**Note:** Stainless steel connectors may be ordered by adding an "S" to the cat. no. (e.g. 889DS-F4AC-\*).

# Cordsets & Patchcords, DC Micro Style

18 and 22 AWG, PUR, TPE, or TPR



### Features

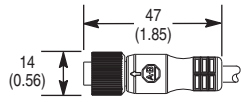
- PUR jacket provides good oil and chemical resistance
- TPE jacket material for good oil, chemical, and weld slag resistance
- 8-pin/7-wire configuration for Sipa safety switches and other applications
- Ratcheting coupling nuts for vibration resistance

### Specifications

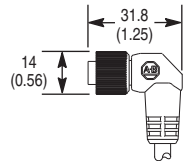
Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Epoxy-coated zinc
Connector Shell Material	Molded oil-resistant PVC or PUR
Contact Material	Gold over nickel-plated brass
Cable Type	Oil-resistant PVC jacket, 18 & 22 AWG or 24 AWG conductors, 300V; UL Recognized and CSA Certified
Cable Diameter	4/c (PUR); 5 mm (0.21 in.); 4/c (18 AWG TPE); 7 mm (0.28 in.); 5/c 6.5 mm (0.25 in.); 7/c 7.4 mm (0.29 in.); 8/c 7.4 mm (0.29 in.)
<b>Electrical</b>	
Cable Rating	UL AWM style 2661 VW-1 105C 300V, CSA AWM A/B I/II 80C 300V FT1, UV oil and water resistant
Assembly Rating	250V, 4 A
<b>Environmental</b>	
Enclosure Type Rating	IP67, NEMA 6P, 1200 psi (8270 kPa) washdown
Operating Temperature [C (F)]	PUR: -20...+80° (-4...+176°); TPE: -20...+105° (-4...+221°); TPR: -25...+125° (-13...+256°)

### Approximate Dimensions

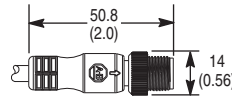
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



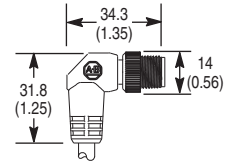
**Straight Female**



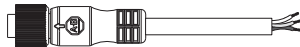
**Right Angle Female**



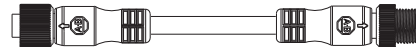
**Straight Male**



**Right Angle Male**



Example of Cordset



Example of Patchcord

Pinout and Color Code

Color Code	Face View Pinout			
	4-Pin	5-Pin	8-Pin	
A	1 Brown 2 White 3 Blue 4 Black 5 NA	1 Brown 2 White 3 Blue 4 Black 5 Grey	1 Red 2 Blue 3 Green 4 Yellow	5 Black 6 White 7 N.C. 8 Grey
B	—	—	1 White 2 Brown 3 Green 4 Yellow	5 Grey 6 Pink 7 Blue 8 Red

Product Selection

Cordsets

Pin Count	Cable Type	Wire Size	Assembly Rating	Color Code	Cat. No.			
					Straight Female	Right Angle Female	Straight Male	Right Angle Male
4-Pin	TPE	18 AWG	18 AWG, 250V, 4 A	A	889D-F4HJ-2*	889D-R4HJ-2*	889D-M4HJ-2*	889D-E4HJ-2*
		22 AWG		A	889D-F4HL-2*	889D-R4HL-2*	889D-M4HL-2*	889D-E4HL-2*
5-Pin	PUR	22 AWG	22 AWG, 250V, 4 A	A	889D-F4UC-2*	889D-R4UC-2*	889D-M4UC-2*	889D-E4UC-2*
8-Pin	TPR	24 AWG	30V AC/36V DC 1.5 A	A	889D-F8AC-2*	—	—	—
	PUR			B	889D-F8AB-2*	889D-R8AB-2*	889D-M8AB-2*	—

Patchcords

Pin Count	Cable Type	Wire Size	Assembly Rating	Cat. No.			
				Straight Female Straight Male	Straight Female Right Angle Male	Right Angle Female Straight Male	Right Angle Female Right Angle Male
4-Pin	PUR	22 AWG	22 AWG, 250V, 4 A	889D-F4UCDM-2*	889D-F4UCDE-2*	889D-R4UCDM-2*	889D-R4UCDE-2*
5-Pin		22 AWG	22 AWG, 250V, 4 A	889D-F5UCDM-2*	889D-F5UCDE-2*	889D-R5UCDM-2*	889D-R5UCDE-2*
8-Pin		24 AWG	30V AC/36V DC 1.5 A	889D-F8ABDM-2*	—	—	—

\* Replace 2 (2 m) with 5 (5 m) or 10 (10 m) for standard cable lengths.

\* Replace 2 (2 m) with 0M3 (1 ft), 1 (1 m), 5 (5 m) or 10 (10 m) for standard lengths.

**Note:** Stainless steel connectors may be ordered by adding an "S" to the cat. no. (e.g. 889DS-F4UCDM-\*).

# Cordsets & Patchcords, AC Micro Style

22 AWG, PVC



## Features

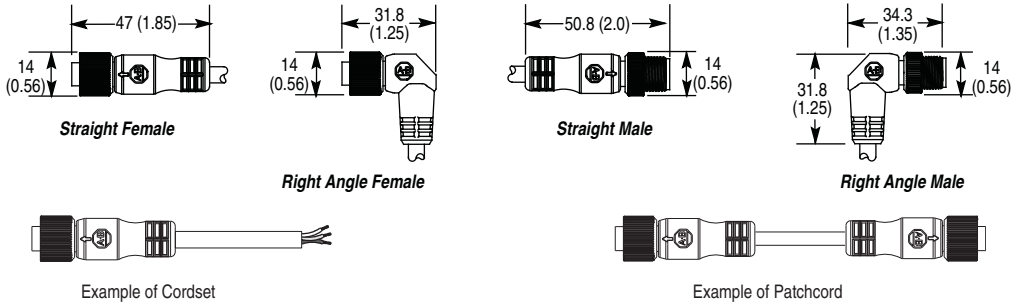
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Heavy-duty re-inforcing braiding can be used as a grounded shield to reduce noise
- Ratcheting coupling nut for vibration resistance

## Specifications

Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Epoxy-coated zinc
Connector Material	Molded oil-resistant polyurethane
Contact Material	Gold over nickel-plated brass
Cable Type	Oil-resistant yellow PVC jacket, 22 AWG conductors, 300V, UL Recognized and CSA Certified
Home Run Connection	10x diameter
Cable Diameter	6/c (22 AWG) = 6.7 (0.26)
Braiding	Tinned copper braid
Cable Rating	UL AWM style 2661 VW-1 105C 300V, CSA AWM A/B I/II 80C 300V FT1, UV oil and water resistant
Assembly Rating	Braided 22 AWG, 250V, 4 A
<b>Environmental</b>	
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...+105° (-4...+221°)

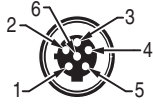
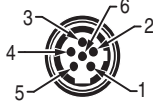
## Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.





**Pinout and Color Code**

Color Code	Face View Pinout	
	6-Pin	
		
A	1 Red/White Tr. 2 Red 3 Green	4 Red/Yellow Tr. 5 Red/Black Tr. 6 Red/Blue Tr.

**Product Selection**

**Cordsets**



Pin Count	Wire Size	Assembly Rating	Color Code	Cat. No.			
				Straight Female	Right Angle Female	Straight Male	Right Angle Male
6-Pin	Braided 22 AWG	Braided 22 AWG, 250V, 4 A	A	889R-F6ECA-2*	889R-R6ECA-2*	889R-M6ECA-2*	889R-E6ECA-2*

**Patchcords**



Pin Count	Wire Size	Assembly Rating	Color Code	Cat. No.			
				Straight Female to Straight Male	Straight Female to Right Angle Male	Right Angle Female to Straight Male	Right Angle Female to Right Angle Male
6-Pin	Braided 22 AWG	Braided 22 AWG, 250V, 4 A	A	889R-F6ECRM-2*	889R-F6ECRE-2*	889R-R6ECRM-2*	889R-R6ECRE-2*

\* Replace 2 (2 m) with 5 (5 m) or 10 (10 m) for standard cable lengths.

\* Replace 2 (2 m) with 0M3 (1 ft), 1 (1 m), 5 (5 m) or 10 (10 m) for standard lengths.

Connection Systems  
**Cordsets & Patchcords, Mini Style**  
 18 AWG, PVC



**Features**

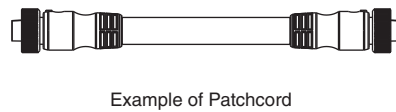
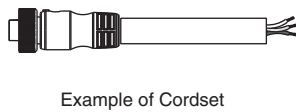
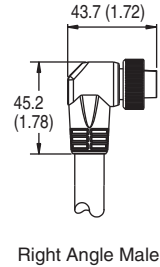
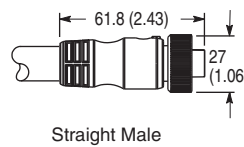
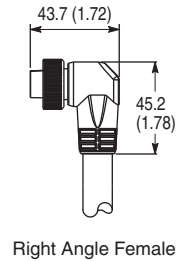
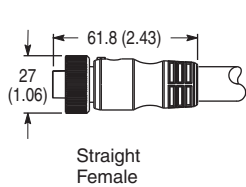
- General purpose 18 AWG cable
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- 2-, 3-, 4-, 5-, and 6-pin configurations
- Ratcheting coupling nut for vibration resistance

**Specifications**





Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Epoxy-coated zinc
Connector Material	Molded oil-resistant PVC
Contact Material	Gold over nickel-plated brass
Cable Type	Oil-resistant yellow PVC jacket, 18 AWG stranded copper, 300V; UL Recognized and CSA Certified
Home Run Connection	10x diameter
Cable Diameter	4/c = 7 mm (0.27 in.) 5/c = 8 mm (0.31 in.)
<b>Electrical</b>	
Cable Rating	UL AWM style 2661 VW-1 105C 300V, CSA AWM A/B I/II 80C 300V FT1, UV oil and water resistant
Assembly Rating	4-pin = 300V, 7 A 5-pin = 300V, 5.6 A
<b>Environmental</b>	
Enclosure Type Rating	NEMA 4, 6P, 12, 13; IP67 and IP69K; 1200 psi washdown
Operating Temperature [C (F)]	-20...105° (-4...221°)

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Pinout and Color Code**

Color Code	Face View Pinout			
	4-Pin		5-Pin	
				
C (IEC)	1 Black 2 Blue	3 Brown 4 White	1 Black 2 Blue 3 Grey	4 Brown 5 White

**Product Selection**

**Cordsets** 

Pin Count	Assembly Rating	Color Code	Cat. No.			
			Straight Female	Right Angle Female	Straight Male	Right Angle Male
4-Pin	300V, 7 A	C	889N-F4AE-6F*	889N-R4AE-6F*	889N-U4AE-6F*	889N-V4AE-6F*
5-Pin	300V, 5.6 A		889N-F5AE-6F*	889N-R5AE-6F*	889D-M5UC-2‡	889N-V5AE-6F*

**Patchcords** 

Pin Count	Assembly Rating	Cat. No.			
		Straight Female Straight Male	Straight Female Right Angle Male	Right Angle Female Straight Male	Right Angle Female Right Angle Male
4-Pin	300V, 7 A	889N-F4AENU-6F*	889N-F4AENV-6F*	889N-R4AENU-6F*	889N-R4AENV-6F*
5-Pin	300V, 5.6 A	889N-F5AENU-6F*	889N-F5AENV-6F*	889N-R5AENU-6F*	889N-R5AENV-6F*

- \* Replace 6 (6 ft) with 12 (12 ft), or 20 (20 ft) for standard cable lengths.
- ‡ Replace 2 (2 m) with 5 (5 m) or 10 (10 m) for standard cable lengths.
- \* Replace 6 (6 ft) with 3 (3 ft), 12 (12 ft), or 20 (20 ft) for standard cable lengths.

**Note:** Stainless steel connectors may be ordered by adding an "S" to the cat. no. (e.g. 889NS-F3AEC-\*F).

# Cordsets and Patchcords, Mini-Plus Style

18 AWG



### Features

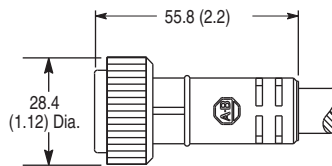
- Highly visible yellow PVC jacket offers good oil and chemical resistance

### Specifications

Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Epoxy-coated zinc, 18 AWG
Connector Material	Molded oil-resistant PVC
Contact Material	Gold over nickel-plated brass
Cable Type	Oil-resistant yellow PVC jacket, 18 AWG stranded copper, 300V; UL Recognized and CSA Certified, STOOW
Cable Diameter	7/c = 14 mm (0.55 in.) 8/c = 15 mm (0.59 in.)
<b>Electrical</b>	
Cable Rating	18 AWG: UL AWM style 2517 or 2661 105C 300V, CSA AWM A/B I/II 105C 300V FT1
Assembly Rating	(5) 18 AWG/(2) 20 AWG, 300V, 3 A
<b>Environmental</b>	
Enclosure Type Rating	NEMA 4, 6P, 12, 13; IP67; 1200 psi washdown
Operating Temperature [C (F)]	-40...+105° (-40...+221°)

### Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.







Straight Female



Example of Cordset

**Pinout and Color Code**

	Face View Pinout			
	7-Pin		8-Pin	
	Color Code	 	 	
B	1 Black 2 White 3 Blue 4 Brown	5 Grey* 6 Yellow* 7 Green	1 Red 2 White 3 Blue 4 Brown	5 Grey 6 Yellow 7 Green 8 Pink

\* 20 AWG conductors

**Product Selection**

**Cordsets** 

Pin Count	Wire Size	Assembly Rating	Color Code	Cat. No.
				Straight Female
7-Pin	(5) 18 AWG (2) 20 AWG	(5) 18 AWG/(2) 20 AWG, 300V, 3 A	B	889N-F7AG-2*
8-Pin	18 AWG			889N-F8AE-2*

\* Replace 2 (2 m) with 5 (5 m), 10 (10 m), 20 (20 m), or 30 (30 m) for standard cable lengths.

Connection Systems  
**Cordsets & Patchcords, M23 Style**  
 18 or 18/22 AWG, Yellow PVC

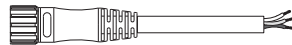
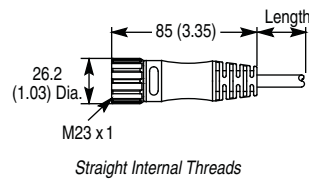


**Features**

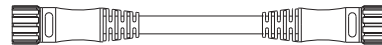
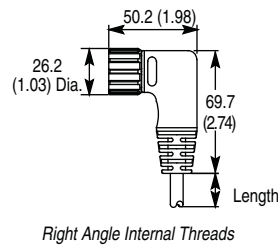
- 12-pin configuration for SafeShield light curtains and other applications
- Highly visible yellow PVC jacket offers good oil and chemical resistance

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Example of Cordset

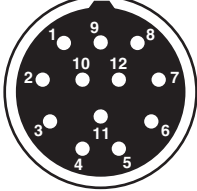
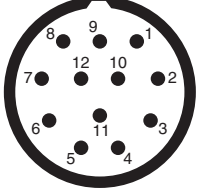


Example of Patchcord


**Specifications**

Certifications	UL Recognized and CSA Certified
<b>Mechanical</b>	
Coupling Nut Material	Nickel-plated brass
Connector Material	Molded oil-resistant PUR
Contact Material	Gold over nickel-plated brass
Cable Type	Oil-resistant yellow PVC jacket, 18 AWG conductors, 60V, UL Recognized and CSA Certified
Home Run Connection	10x diameter
Cable Diameter	10 mm (0.41 in.)
<b>Electrical</b>	
Cable Rating	300V
Assembly Rating	9- & 12-pin: 300V, 4 A; 11-pin: 63V, 6 A; 19-pin: 63V, 12 A
<b>Environmental</b>	
Enclosure Type Rating	IP67, NEMA 6P, 1200 psi (8270 kPa) washdown
Operating Temperature [C (F)]	-20...+80° (-4...+176°)

Pinout and Color Code

Color Code	Face View Pinout		
	9-, 11-, or 12-Pin		
			
A	1 Brown 2 NA 3 Blue 4 White	5 NA 6 Green 7 Yellow 8 Grey	9 Pink 10 Red 11 NA 12 Green/Yellow
B	1 Brown 2 Blue 3 Grey 4 Pink	5 Red 6 Yellow 7 White 8 Red/Blue	9 Black 10 Violet 11 Grey/Pink 12 Green

Product Selection

Cordsets 

No. of Pins	Color Code	Jacket Color	Wire Size	Cat. No.	
				Straight Female	Right Angle Female
9-Pin	A	Yellow	18 AWG	889M-FX9AE-2*	889M-RX9AE-2*
12-Pin	B	Yellow	18 AWG	889M-F12AH-2*	889M-R12AH-2*

Patchcords 

Pin Count	Jacket Color	Wire Size	Cat. No.
			Straight Female Straight Male
12-Pin	Yellow	18 AWG	889M-F12AHMU-2*

\* Replace 2 (2 m) with 5 (5 m) or 10 (10 m) for standard cable lengths.  
 \* Replace 2 (2 m) with 0M3 (1 ft), 0M6 (0.6 m), 1 (1 m), or 3 (3 m) for standard cable lengths.

Connection Systems  
**Field Attachables, DC Micro Style**  
 Screw Terminal Connector



**Features**

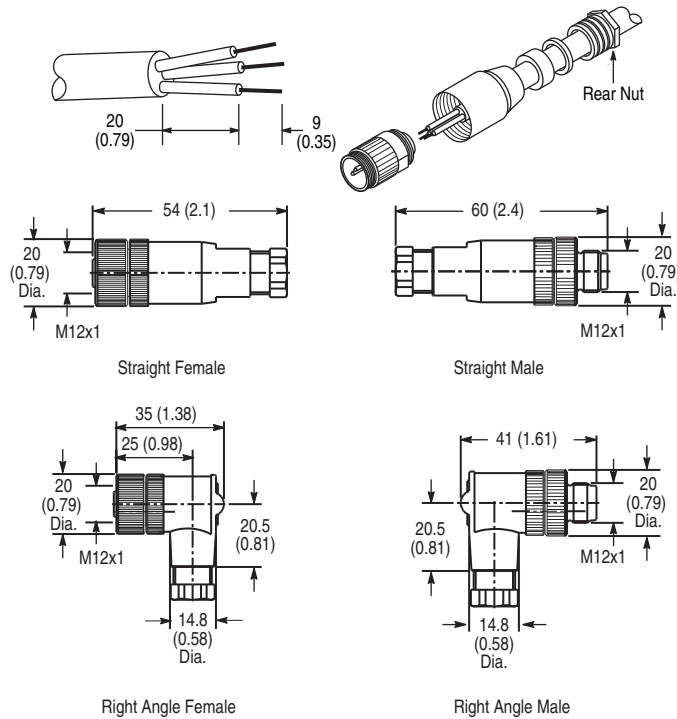
- Field installable
- 4- or 5-pin DC micro style
- Single cable or dual cable models
- Screw terminals provide simple and secure installation
- Allows easy modification of existing cable installations
- Embedded thermistor models designed for use with ArmorPoint thermocoupling input modules provide cold junction compensation capability

**Specifications**

Mechanical	
Coupling Nut Material	Nickel-plated brass
Connector Shell Material	PBT, except embedded thermistor models: Nylon
Contact Material	Gold plated palladium nickel
Wire Rating	18 AWG (0.75 mm <sup>2</sup> )
Electrical	
Assembly Rating	4- or 5-pin: 250V, 4 A; 8-pin: 60V, 2 A
Environmental	
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-40...88° (-40...185°)

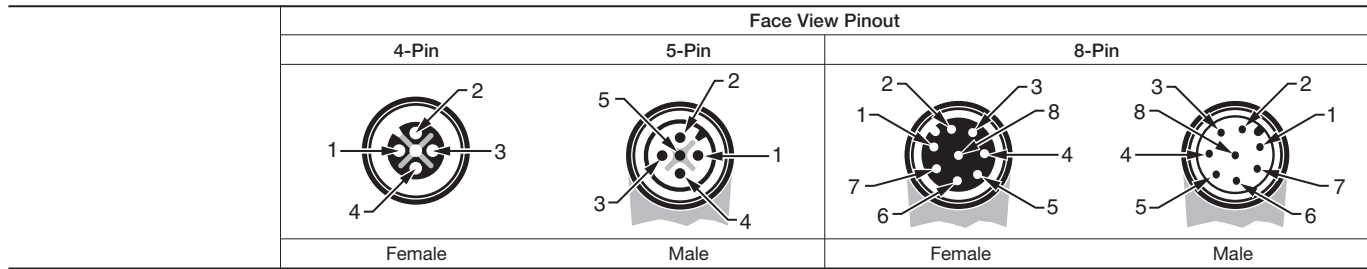
**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.





Pinout and Color Code



Product Selection

Single-Cable Model Terminal Chambers

Pin Count	Cable Diameter [mm (in.)]	Assembly Rating	Thread Size	Cat. No.			
				Straight Female	Right Angle Female	Straight Male	Right Angle Male
4-Pin	4.0...6.0 (0.16...0.24)	250V, 4 A	PG 7	871A-TS4-D	<b>871A-TR4-D</b>	871A-TS4-DM	<b>871A-TR4-DM</b>
	6.0...8.0 (0.24...0.32)		PG 9	871A-TS4-D1	871A-TR4-D1	871A-TS4-DM1	871A-TR4-DM1
5-Pin	4.0...6.0 (0.16...0.24)		PG 7	871A-TS5-D	871A-TR5-D	871A-TS5-DM	871A-TR5-DM
	—		PG 9	871A-TS5-D1	871A-TR5-D1	871A-TS5-DM1	871A-TR5-DM1
8-Pin	6.0...8.0 (0.24...0.32)	60V, 2 A	PG 9	871A-TS8-D1	—	871A-TS8-DM1	—

Dual-Cable Model Terminal Chambers

Pin Count	Cable Diameter [mm (in.)]	Assembly Rating	Thread Size	Cat. No.	
				Straight Male	Right Angle Male
4-Pin	Two cables 2.1...3.0 (0.08...0.12) or 3.5...5.2 (0.14...0.21)	250V, 4 A	PG 9	<b>871A-VS4-DM</b>	871A-VR4-DM
5-Pin				871A-VS5-DM	871A-VR5-DM

**Note:** Stainless steel coupling nuts are available, add an "S" to the cat. no. (e.g. 871AS-TS4-DM).

Connection Systems  
**Field Attachables, DC Micro Style**  
 Insulation Displacement Connector



**Features**

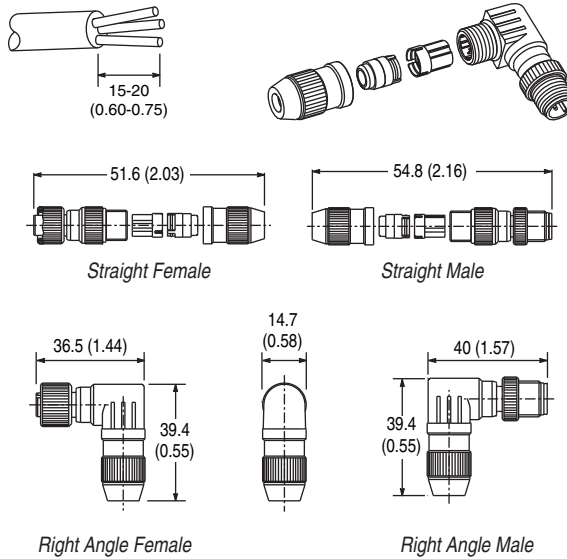
- Field installable with no hand tools required
- 4-pin DC micro style
- Straight or right angle, male or female
- Allows easy modification of existing cable installations
- Insulation displacement technology for secure and reliable installation

**Specifications**

Coupling Nut Material	Zinc die-cast
Connector Shell Material	Zinc die-cast or polyamide
Connector Material	Hytrel
Contact Material	Gold-plated palladium nickel
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-25...85° (-13...185°)
Installation Temperature [C (F)]	-5...50° (23...185°)
IDC Installations	10 max.
Cable Diameter [mm (in.)]	4.0...5.1 (0.16...0.20)
Wire Size	1.2...1.6 (0.047...0.063) 26...22 AWG

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Product Selection**

Connector Style	Cable Diameter [mm (in.)]	Wire Rating	Face View		Cat. No.	
			Female	Male	Female	Male
Straight Male	4.0...5.1 (0.16...0.20)	32V, 4 A			889D-F4DC-H	889D-M4DC-H
Right Angle Male					889D-R4DC-H	889D-E4DC-H



**Specifications**

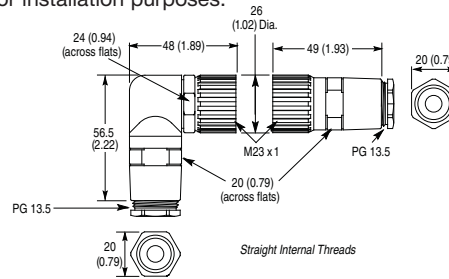
Coupling Nut Material	Nickel-plated brass
Connector Shell Material	Nickel-plated brass
Contact Material	Gold-plated palladium/nickel
Wire Rating	18 AWG (1.0 mm <sup>2</sup> ), max.
Enclosure Type Rating	IP65
Operating Temperature [C (F)]	-20...+105° (-4...221°)

**Features**

- Straight or right angle, male or female
- 12-pin M23 style for standard connectivity
- Allows modification of existing cable installations and field creation of special cable lengths
- Solder connector for secure and reliable installation

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Product Selection**

Connector Style	Cable Diameter [mm (in.)]	Wire Rating	Face View		Cat. No.	
			Female	Male	Female	Male
Straight Male	10...14 (0.39...0.55)	60V 4 A			889M-F12AH-T	889M-M12AH-T
Right Angle Male					889M-R12AH-T	889M-E12AH-T

Connection Systems  
**Receptacles, DC Micro Male**  
 4-Pin, 5-Pin or 8-Pin and AC Micro Male, 6-Pin



**Specifications**

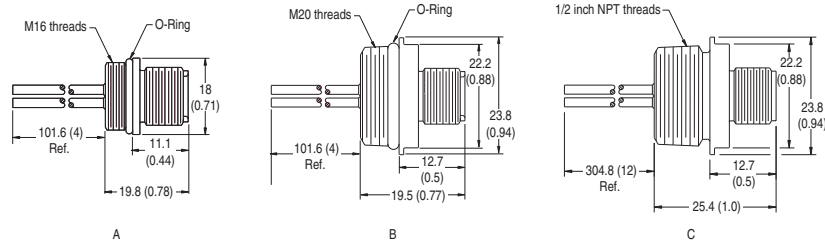
Connector Shell Material	Nickel-plated brass
Connector Insert Material	Nylon
Contact Type	Machined brass with gold over nickel plating
Wire Insulation	Oil resistant PVC, 22 AWG stranded copper, 300V
Operating Temperature [C (F)]	-20...+105° (-4...+221°)

**Features**

- Male bulkhead receptacles
- 4-, 5- or 8-pin DC micro configuration
- M16, M20 or 1/2 inch-14 NPT mounting threads

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Product Selection**

Face View of Male	Wire Color	Wire Rating	Length [m (ft)]	Panel Mount Thread Size	Drawing	Cat. No.
	1 Brown 2 White 3 Blue 4 Black	22 AWG 300V 3 A	0.1 (0.3)	M16 x 1	A	888D-M4AC9-4N
			0.3 (1)	M20 x 1.5	B	888D-M4AC8-4N
			0.1 (0.3)	1/2 inch-14 NPT	C	888D-M4AC1-0M3
			0.3 (1)	1/2 inch-14 NPT	C	888D-M5AC1-0M3
	1 Red/White Tr 2 Red 3 Green 4 Red/Yellow Tr 5 Red/Black Tr 6 Red/Blue Tr	22 AWG 300V 3 A	0.1 (0.3)	M16 x 1	A	888R-M6AC9-4N
			0.3 (1)	M20 x 1.5	B	888R-M6AC8-4N
			0.3 (1)	1/2 inch-14 NPT	C	888R-M6AC1-0M3
	1 White 2 Brown 3 Green 4 Yellow 5 Grey 6 Pink 7 Blue 8 Red	24 AWG 36V DC/30V AC 1.5 A	0.1 (0.3)	M16 x 1	A	888D-M8AC9-4N
				M20 x 1.5	B	888D-M8AC8-4N

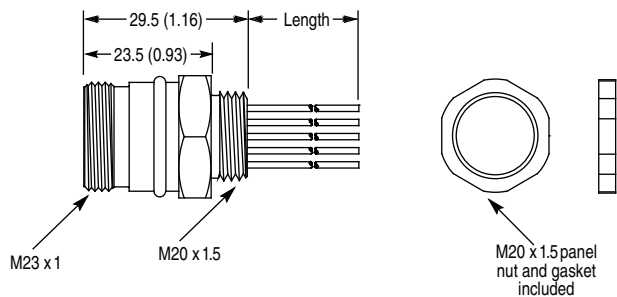


**Features**

- 18 AWG conductors for ease of wiring
- 12-pin configuration provides standard connectivity
- M20 x 1.5 threads for convenient mounting to safety switches
- Mounting nut and rubber sealing washer included

**Approximate Dimensions**

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



**Specifications**

Connector Shell Material	Nickel-plated brass
Connector Insert Material	Nylon
Contact Material	Machined brass with gold over nickel plating
Wire Size	Oil resistant PVC, 18 AWG stranded copper, 300V
Certifications	Cable: UL Recognized and CSA Certified
Enclosure Type Rating	IP67, NEMA 6P, 1200 psi (8270 kPa) washdown
Operating Temperature [C (F)]	-20...+105° (-4...+221°)

**Product Selection**



Face View of Male	Cable			Panel Mount Thread Size	Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]		
	1 Brown 2 Blue 3 Grey 4 Pink 5 Red 6 Yellow 7 White 8 Red/Blue 9 Black 10 Violet 11 Grey/Pink 12 Green	18 AWG 60V 4 A	0.15 (0.5)	M20 x 1.5	888M-M12AE-0F5
	1 Brown 2 NA 3 Blue 4 White 5 NA 6 Green 7 Yellow 8 Grey 9 Pink 10 Red 11 NA 12 Green/Yellow				888M-M12X9AE-0F5

