

proSense® TTD Series Temperature Transmitters

Overview



- Converts ProSense RTD0100 Series RTD temperature probe output to 4-20mA signal
- High accuracy 2-wire or 3-wire 4-20mA temperature transmitter
- M12 Quick-disconnect for fast mounting
- 3 Available temperature ranges
- 3-year warranty
- LED indication of loop current



Note: Above photo shows assembled unit with TTD Transmitter and RTD0100 Probe

ProSense Temperature Transmitter TTD Series					
Part Number	Description	Pcs/Pkg	Wt (lb)	Price	Cable Assemblies*
TTD-20-N40160F-H	Temperature transmitter, 4-20mA output, over temperature range of -40°F to 160°F (-40°C to 71.1°C)	1	0.25	<--->	CD12L-0B-020-A0 CD12L-0B-020-C0
TTD-20-N40300F-H	Temperature transmitter, 4-20mA output, over temperature range of -40°F to 300°F (-40°C to 148.8°C)	1	0.25	<--->	CD12M-0B-070-A1 CD12M-0B-070-C1
TTD-20-30300F-H	Temperature transmitter, 4-20mA output, over temperature range of 30°F to 300°F (-1.1°C to 148.8°C)	1	0.25	<--->	CDP12-0B-010-AA CDP12-0B-030-AA CDP12-0B-010-BB CDP12-0B-030-BB

* Order separately - See proximity sensor section for cable specs.

ProSense TTD Series Technical Specifications			
	TTD-20-N40160F-H	TTD-20-N40300F-H	TTD-20-30300F-H
Operating Voltage	20 to 32 VDC		
Electrical Connection	M12 connector; gold-plated contacts (torque 5 to 13 in/lbs)		
Short-Circuit Protection	Yes (non-latching)		
Overload Protection	Yes		
Reverse Polarity Protection	Yes		
Analog Output	4 to 20 mA (min/max 3.85 to 22 mA)		
Maximum Load	Rmax: 300 Ω		
Accuracy	± 0.3°C + (± 0.1 % span)		
Resolution	± 0.3°C + (± 0.1 % span)		
Measuring - Display [ms] / Cycle [ms]	100		
Scaled Range	-40°F to 160°F (-40°C to 71.1°C)	-40°F to 300°F (-40°C to 148.8°C)	30°F to 300°F (-1.1°C to 148.8°C)
Dynamic Response (DIN EN 60751)	*t0.5 + 1 sec. / t0.9 = 3 sec.		
Housing Material	Polyamide PACM 12 (TROGAMID); PED; sealing:FPM (Viton); nut: stainless steel 316L / 1.4404; connector: TPU (urethane)		
Ambient Temperature	-13°F to 158°F (-25°C to 70°C)		
Storage Temperature	-40°F to 185°F (-40°C to 85°C)		
Protection	IP 67		
Insulation Resistance	> 100MΩ / 500 VDC		
Shock Resistance	50g (DIN / IEC 68-2-27, 11ms)		
Vibration Resistance	20g (DIN / EN 68-2-6, (10 to 2000 Hz)		
EMC	EN 61326		
EN 61000-4-2 ESD	4 kV CD / 8 kV AD		
EN 61000-4-3 HF Radiated	10 V/m		
EN 61000-4-4 Burst	2 kV		
EN 61000-4-5 Surge	1 kV		
EN 61000-4-6 HF Conducted	10 V		
Power-On Delay Time	1 sec.		
Agency Approvals	UL 508 listed, File # E324411, CE, RoHS		



Company Information

Systems Overview

Programmable Controllers

Field I/O

Software

C-more & other HMI

Drives

Soft Starters

Motors & Gearbox

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temperature Sensors

Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

Terminal Blocks & Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

Safety

Appendix

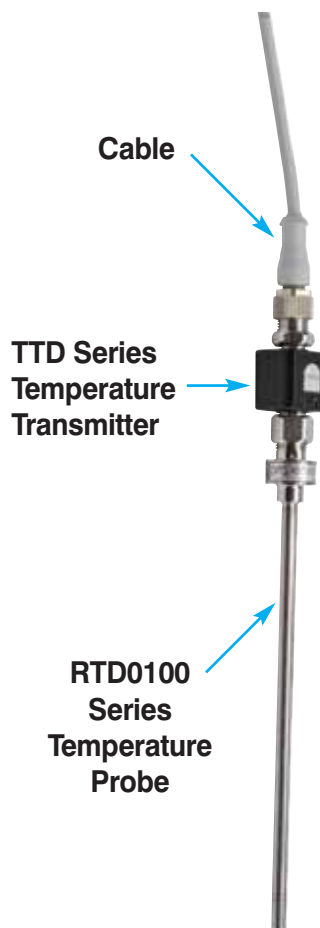
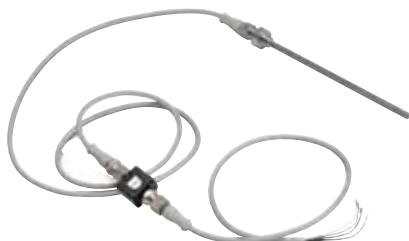
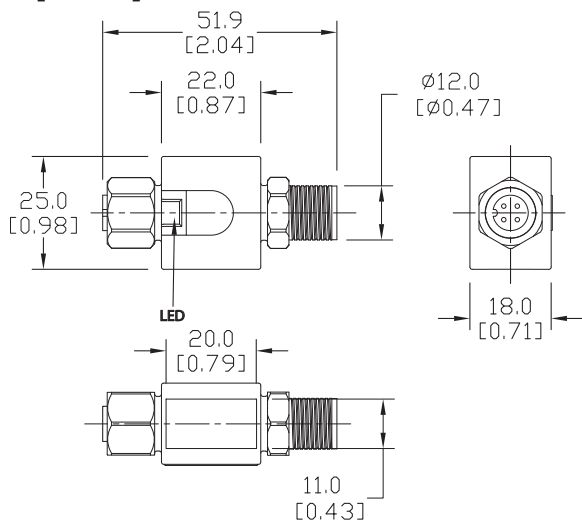
Product Index

Part # Index

pro^{sense}® TTD Series Temperature Transmitter

Dimensions

mm [inches]



Note: The TTD transmitter can be located remotely from the RTD0100 probe by using an additional patch cable.

Wiring

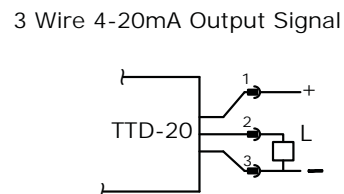
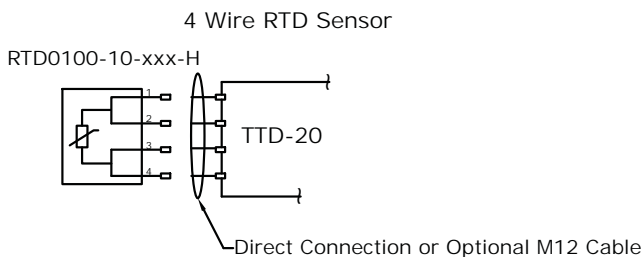
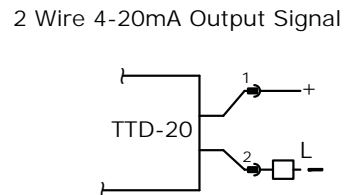
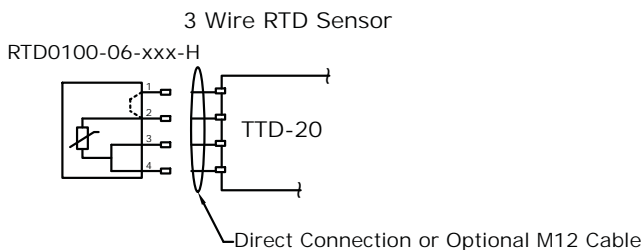
INPUT SENSOR CONNECTION

OUTPUT SIGNAL CONNECTION

Cable Assembly Wiring Colors:

- Pin 1 - Brown
- Pin 2 - White
- Pin 3 - Blue
- Pin 4 - Black

Note: Wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.



pro^{sense}® RTD Probes with M12 Cable Connector



Overview

- All temperature sensors are pre-built stock items
- 100 ohm platinum RTD element
- Class A accuracy
- 316 stainless steel sheath to protect from harsh sensing applications
- 6 mm (0.24") diameter 3-wire or 10 mm (0.4") diameter 4-wire probes
- Probe lengths of 160 mm, 260 mm, 360 mm, and 560 mm
- 4-pin M12 cable connector plug for simplified wiring
- 3-year warranty



RTD Probes With M12 Cable Connector									
Part Number	Pcs/Pkg	Wt(lb)	Price	Type	Diameter	Length	Temperature Sensing Range	Mounting Fitting	Thermowell
RTD0100-06-010-H	1	0.10	<--->	PT 100, 3-wire	0.24 inch (6 mm)	6.3 inch (160 mm)	-40 to 302°F (-40 to 150°C) Wiring connection limited to -13 to 176°F (-25 to 80°C)	CF06-25N	RTDTW-06-010-50N CF06-25N
RTD0100-06-020-H	1	0.20	<--->	PT 100 3-wire	0.24 inch (6 mm)	10.2 inch (260 mm)		CF06-25N	RTDTW-06-020-50N CF06-25N
RTD0100-06-030-H	1	0.30	<--->	PT 100 3-wire	0.24 inch (6 mm)	14.2 inch (360 mm)		CF06-25N	RTDTW-06-030-50N CF06-25N
RTD0100-10-010-H	1	0.10	<--->	PT 100 4-wire	10 mm (0.4 inch)	160 mm (6.3 inch)		CF10-50N	RTDTW-10-010-50N CF10-50N
RTD0100-10-020-H	1	0.15	<--->	PT 100 4-wire	10 mm (0.4 inch)	260 mm (10.2 inch)		CF10-50N	RTDTW-10-020-50N CF10-50N
RTD0100-10-030-H	1	0.22	<--->	PT 100 4-wire	10 mm (0.4 inch)	360 mm (14.2 inch)		CF10-50N	RTDTW-10-030-50N CF10-50N
RTD0100-10-050-H	1	0.33	<--->	PT 100 4-wire	10 mm (0.4 inch)	560 mm (22.0 inch)		CF10-50N	RTDTW-10-050-50N CF10-50N

RTD Probes With M12 Cable Connector Technical Specifications	
Sensing Element	Single 100 ohm platinum (Pt100), TCR = 0.00385 Ω/Ω/° C
Initial Accuracy	DIN EN 60751, Class A, ± (0.15 + 0.002 t)°C
Probe	6 mm (0.24") or 10 mm (0.4"), 316 stainless steel sheath with single RTD element, 316 stainless steel wiring connection
Minimum Installation Depth	0.6" (15 mm)
Response Time	*t0.5 = 1 sec/ t0.9 = 3 sec (DIN EN 60751)
Wiring	M12 connector; gold-plated contacts, IP 68 / IP 69K, Class III

* t0.5 = a 50% of full scale change in output when immersed in water at 0.4m/s, t0.9 = a 90% FS change.

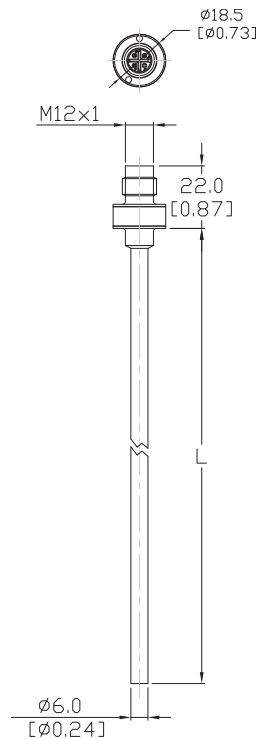


NOTE: CHECK THE CHEMICAL COMPATIBILITY OF THE SENSOR'S WETTED PARTS WITH THE MEDIUM TO BE MEASURED.
www.automationdirect.com/static/specs/prosensechemresistance.pdf

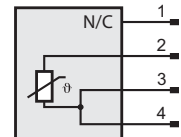
pro^{ense}® RTD Probes with M12 Cable Connector

RTD Dimensions/Wiring

RTD0100-06 Series



Wiring Information



Cable Assembly Wiring Colors:
Pin 1 - Brown
Pin 2 - White
Pin 3 - Blue
Pin 4 - Black

Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

Part Number	Length	L
RTD0100-06-010-H	160 mm	[6.3]
RTD0100-06-020-H	260 mm	[10.2]
RTD0100-06-030-H	360 mm	[14.2]

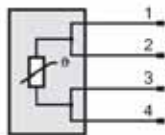
Dimensions shown mm [inches]



NOTE: MOUNT 0.24 (6 MM) INCH DIAMETER RTDs BY USING PROSENSE RTDTW SERIES THERMOWELLS AND / OR CF06-25N COMPRESSION FITTING.

RTD0100-10 Series

Wiring Information

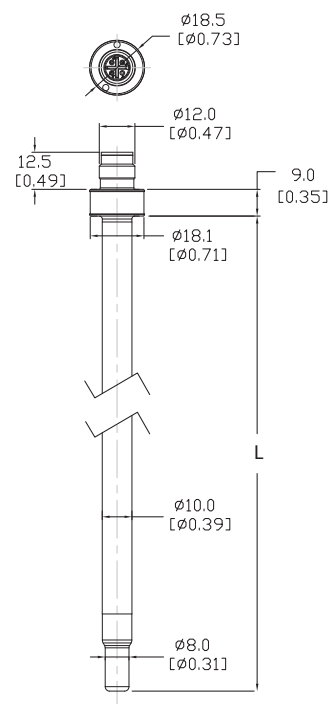


Cable Assembly Wiring Colors:
Pin 1 - Brown
Pin 2 - White
Pin 3 - Blue
Pin 4 - Black

Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

Part Number	Length	L
RTD0100-10-010-H	160 mm	[6.3]
RTD0100-10-020-H	260 mm	[10.2]
RTD0100-10-030-H	360 mm	[14.2]
RTD0100-10-050-H	560 mm	[22.0]

Dimensions shown mm [inches]



NOTE: MOUNT 10MM DIAMETER RTDs BY USING PROSENSE RTDTW SERIES THERMOWELLS AND / OR CF10-50N COMPRESSION FITTING.

Sensor Cables and Connectors

Cables with quick-disconnect plugs

- Industry standard axial and right-angle M8/M12 screw-lock connectors with open leads. The cables listed can be used with patch cables
- 2m, 5m, 7m and 10m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 rated



CD12M-0B-050-C1 and -A1 shown

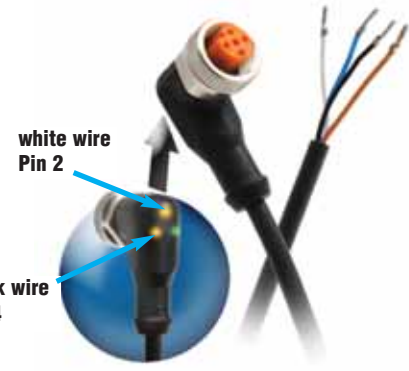
M8 Quick-Disconnect Cables (Pico, Nano)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M8 Quick-Disconnects							
CD08-0A-020-A1	<--->	2m (6.5ft.)	3	Axial	No	PVC	Figure 1
CD08-0A-020-C1	<--->	2m (6.5ft.)	3	Right-angle	No	PVC	Figure 2
CD08-0A-050-A1	<--->	5m (16.4ft.)	3	Axial	No	PVC	Figure 4
CD08-0C-050-A1	<--->	5m (16.4ft.)	3	Axial	No	PUR	Figure 3
CD08-0A-050-C1	<--->	5m (16.4ft.)	3	Right-angle	No	PVC	Figure 5
CD08-0C-050-C1	<--->	5m (16.4ft.)	3	Right-angle	No	PUR	Figure 5
CD08-0A-070-A1	<--->	7m (23ft.)	3	Axial	No	PVC	Figure 1
CD08-0A-070-C1	<--->	7m (23ft.)	3	Right-angle	No	PVC	Figure 2

M12 Quick-Disconnect Cables (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M12 Quick-Disconnects							
CD12L-0B-020-A0	<--->	2m (6.5ft)	4	Axial	No	PVC	Figure 6
CD12L-0B-020-C0	<--->	2m (6.5ft)	4	Right-angle	No	PVC	Figure 7
CD12M-0B-050-A1*	<--->	5m (16.4ft)	3	Axial	No	PVC	Figure 8
CD12M-0D-050-A1*	<--->	5m (16.4ft)	3	Axial	No	PUR	Figure 9
CD12M-0B-050-C1*	<--->	5m (16.4ft)	3	Right-angle	No	PVC	Figure 10
CD12M-0D-050-C1*	<--->	5m (16.4ft)	3	Right-angle	No	PUR	Figure 11
CD12M-0B-070-A1	<--->	7m (23ft)	4	Axial	No	PVC	Figure 6
CD12M-0B-070-C1	<--->	7m (23ft)	4	Right-angle	No	PVC	Figure 7

* Note: Do not use with sensors that require 4-pole cables.

Cables with LED and quick-disconnect plugs

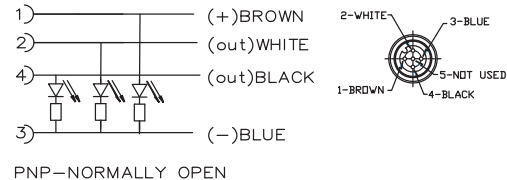
- Industry standard M12 right angle female plug with open leads
- These cables can be used with patch cables
- 2m, 5m and 10m cable lengths
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 /IP68 / IP69K, II rated
- LED indication for 10 -36 VDC PNP sensors only



M12 Quick-Disconnect Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connector	LED	Jacket	Dimensions
M12 Quick-Disconnects							
EVC178*	<--->	2m (6.5ft)	4	Right-angle	Yes	PUR	Figure 12
EVC179*	<--->	5m (16.4ft)	4	Right-angle	Yes	PUR	Figure 12
EVC180*	<--->	10m (32.8ft)	4	Right-angle	Yes	PUR	Figure 12

*Note: LED for 10 to 36 VDC PNP only.
 Do not use with NPN or analog output devices.
 Do not use when white wire (Pin 2) is used for selection of a sensor function.
 Do not use when emitter has check function.

LED Models' Wiring



Sensor Cables and Connectors

Cable Specifications					
Specification	M8		M12		M12 with LED
Length	2m (6.5ft) / 7m (23ft)	5m (16.4ft)	2m (6.5ft) / 7m (23ft)	5m (16.4ft)	2m (6.5 ft) / 5m (16.4ft) / 10m (32.8ft)
Nominal Voltage	50VAC/75VDC	60VAC/DC	300VAC	250VAC/DC	10 to 36VDC
Max Current	4A		4A		4A
LED Current Loading	N/A	N/A	N/A	N/A	10V input Brown wire LED: 1.7mA White and/or Black LED: 0.9mA 36V input Brown wire LED: 7.3mA White and/or Black LED: 4.7mA
Protection Degree	IP67	IP65 / IP68 / IP69K	IP67	PVC: IP68 PUR: IP68 / IP69K	IP67 / IP68 / IP69K
Material Nut	brass; nickel plated		brass; nickel plated		brass; nickel plated
Jacket Material	PolyVinyl Chloride, (PVC)	PVC:CD08-0A-xxx. PUR:CD08-0C-xxx	PVC	PVC:CD12M-0B-xxx. PUR:CD12M-0D-xxx	PolyURethane (PUR)
Housing Material	Polyurethane (PUR)		Polyurethane (PUR)		Polyurethane (PUR)
Contacts Material	Copper-Tin Alloy (CuSn) -gold plated		Copper-Tin Alloy (CuSn) -gold plated		Gold plated brass
Tightening Torque	0.5 Nm	≤ 0.4 Nm	0.5 Nm	≤ 0.4 Nm	0.6 to 1.5 Nm
Conductors Cross Section (AWG)	0.25mm ² (24 AWG)	0.25mm ² (24 AWG)	0.25mm ² (24 AWG)	0.34mm ² (22 AWG)	4 x 0.34mm ² (4 x 22 AWG)
Ø Outer Cable	5mm	PVC: 4 mm PUR: 4 mm	5mm	PVC: 4.2 mm PUR: 4.3 mm	5mm
Temperature Range	-25° to +80°C (-13° to 176°F)	-25° to 90°C (-13° to 194°F)	-25° to +80°C (-13° to 176°F)	PVC: -30° to 70°C (-22° to 158°F) PUR: -50° to 90°C (-58° to 194°F)	-25° to +90°C (-13° to 194°F)
Environmental	N/A	Halogen free, Silicone free	N/A	Halogen free, Silicone free	Halogen free, Silicone free
Function Display Power LED	N/A	N/A	N/A	N/A	Green
Switching Status LED	N/A	N/A	N/A	N/A	2 x Yellow
Drag Chain (Roller Cable Tray) Suitability	Bending Radius	min. 10 x cable diameter			
	Bending Cycles	N/A	N/A	N/A	>5 million
	Travel Speed	N/A	N/A	N/A	Max. 3.3 m/s for a horizontal travel length of 5 meters and max. acceleration of 5 m/s ²
	Torsional Strain	N/A	N/A	N/A	±180°/m
Agency Approvals	RoHS				UL File E191684, RoHS

UL Reference	
Part Number	Mini-Series Female Cord Connectors Series M12, UL Catalog Number
EVC178	ADOAH043MSS0002H04
EVC179	ADOAH043MSS0005H04
EVC180	ADOAH043MSS0010H04
<i>Note: Shown in UL file under Mini-series Female Cord Connectors using catalog number</i>	

Dimensions

mm [inches]

Figure 1

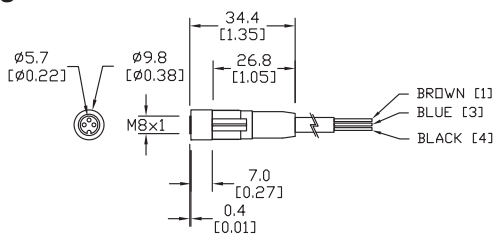
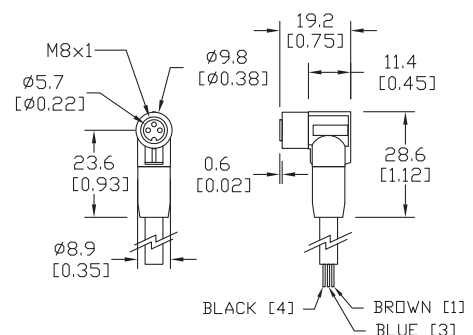


Figure 2



Sensor Cables and Connectors



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Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

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Power

Circuit Protection

Enclosures

Tools

Pneumatics

Safety

Appendix

Product Index

Part # Index

Dimensions

mm [inches]

Figure 3

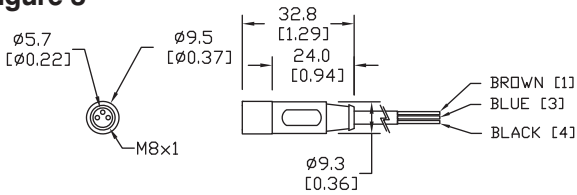


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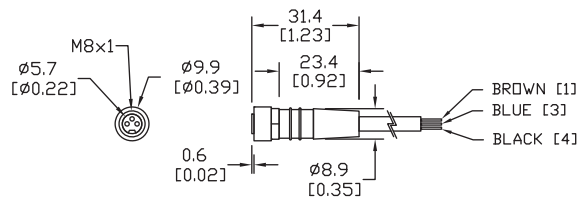


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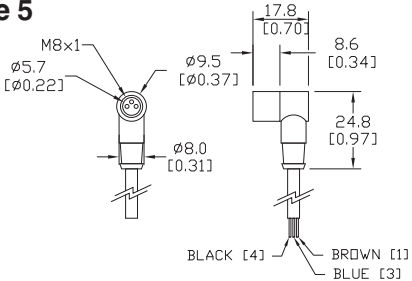


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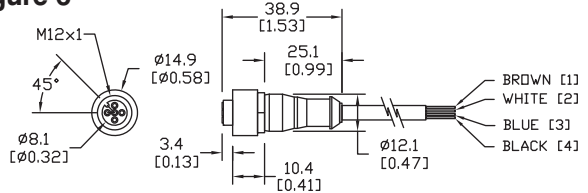


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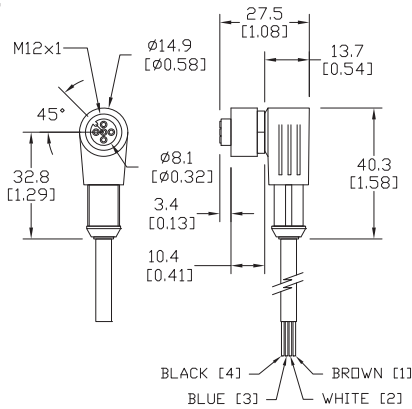


Figure 8

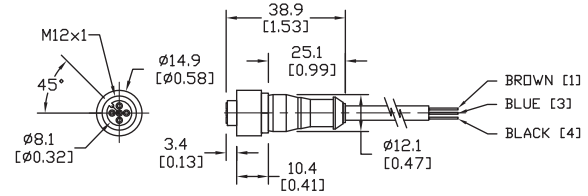


Figure 10

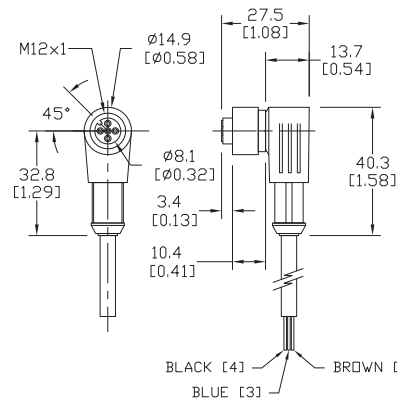


Figure 9

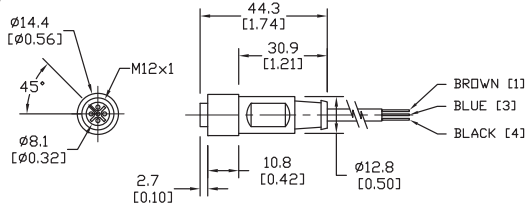


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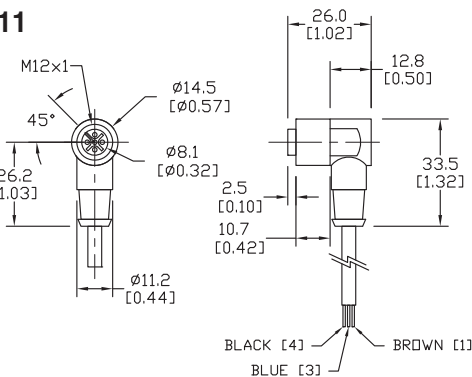
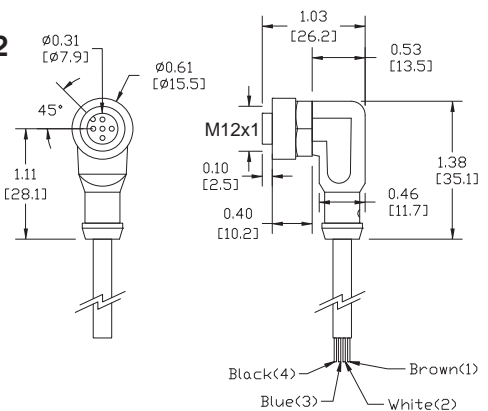


Figure 12



Sensor Cables and Connectors

Patch cables with quick-disconnect plugs on each end

Available patch cables include:

- Industry standard M8 and M12 screw-lock connectors
- One male and one female connector

- Axial and right-angle connector models
- 1m and 3m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP67 rated



M8 Patch Cables with Quick-Disconnect on Each End (Pico, Nano)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M8 Quick-Disconnect Patch Cables						
CDP08-0A-010-AA	<--->	1m (3.28ft)	3	2 Axial. One male and one female connector	PVC	Figure 1
CDP08-0A-010-BB	<--->	1m (3.28ft)	3	2 Right-angle. One male and one female connector	PVC	Figure 3
CDP08-0A-030-AA	<--->	3m (9.84ft)	3	2 Axial. One male and one female connector	PVC	Figure 2
CDP08-0A-030-BB	<--->	3m (9.84ft)	3	2 Right-angle. One male and one female connector	PVC	Figure 3

M12 Patch Cables with Quick-Disconnect on Each End (Euro, Micro DC-Single Key)						
Part Number	Price	Length	Poles	Connectors	Jacket	Dimensions
M12 Quick-disconnect Patch Cables						
CDP12-0B-010-AA	<--->	1m (3.28ft.)	4	2 Axial. One male and one female connector	PVC	Figure 4
CDP12-0B-010-BB	<--->	1m (3.28ft.)	4	2 Right-angle. One male and one female connector	PVC	Figure 5
CDP12-0B-030-AA	<--->	3m (9.84ft.)	4	2 Axial. One male and one female connector	PVC	Figure 4
CDP12-0B-030-BB	<--->	3m (9.84ft.)	4	2 Right-angle. One male and one female connector	PVC	Figure 5

Patch Cables with LED

Available patch cables with LED include:

- Right-angle M12 female plug with LED indication on one end and axial male plug on the other end
- 0.3m, 0.6m, 1m, 2m, 5m, and 10m cable lengths

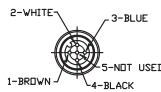
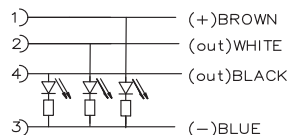
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 /IP68 / IP69K, II rated
- LED indication for 10 -36 VDC PNP sensors only



white wire
Pin 2

black wire
Pin 4

LED Models' Wiring



PNP-NORMALLY OPEN

M12 Patch Cables with LED Indicator (Euro, Micro DC-Single Key)							
Part Number	Price	Length	Poles	Connectors	LED	Jacket	Dimensions
M12 Patch Cables							
EVC322*	<--->	0.3m (0.98ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC323*	<--->	0.6m (1.97ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC324*	<--->	1m (3.28ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC325*	<--->	2m (6.5ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC326*	<--->	5m (16.4ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6
EVC327*	<--->	10m (32.8ft)	4	Right-angle female, axial male	Yes	PUR	Figure 6

*Note: LED for 10 to 36 VDC PNP only.
Do not use with NPN or analog output devices.
Do not use when white wire (Pin 2) is used for selection of a sensor function.
Do not use when emitter has check function.

Sensor Cables and Connectors



- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- C-more & other HMI
- Drives
- Soft Starters
- Motors & Gearbox
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- Terminal Blocks & Wiring
- Power
- Circuit Protection
- Enclosures
- Tools
- Pneumatics
- Safety
- Appendix
- Product Index
- Part # Index

Cable Specifications				
Specification	M8	M12	M12 with LED	
Length	1m (3.28ft.) / 3m (9.84ft.)		0.3m (0.98ft) / 0.6m (1.97ft) / 1m (3.28ft) 2m (6.5ft) / 5m (16.4ft) / 10m (32.8ft)	
Nominal Voltage	60 VAC/DC	250 VAC/DC	10 to 36VDC	
Max Current	4A		4A	
LED Current Consumption	N/A		10V input Brown wire LED: 1.7mA White and/or Black LED: 0.9mA 36V input Brown wire LED: 7.3mA White and/or Black LED: 4.7mA	
Protection Degree	IEC IP67		IEC IP67/IP68/IP69K	
Material Nut	Brass: nickel plated		Brass: nickel plated	
Jacket Material	PolyVinyl Chlorided (PVC)		PolyURethane (PUR)	
Housing Material	PolyURethane (PUR)		Connector: Orange PUR, Socket: Black PUR	
Contacts Material	Copper-tin(CuSn)=Brass		Brass; gold plated	
Conductors Cross Section (AWG)	0.34mm ²		0.34mm ² (22 AWG)	
Tightening Torque	0.5 Nm		Plug: 0.6 to 1.5 Nm (take into account the maximum value of the counterpart) Socket: 0.6 to 1.5 Nm	
Ø Outer Cable	5mm		5mm	
Temperature Range	-25° to +70°C (-13° to 158°F)		-25° to +90°C (-13° to 194°F)	
Function Display LED	N/A		Green	
Switching Status LED	N/A		2 x Yellow	
Drag Chain (Roller Cable Tray) Suitability	Bending Radius	min. 10 x cable diameter		
	Bending Cycles	>5 million		
	Travel Speed	N/A	Max. 3.3 m/s for a horizontal travel length of 5 m and max. acceleration of 5 m/s ²	
	Torsional Strain	N/A	±180°/m	
Agency Approvals	RoHS		UL File E191684, RoHS	

UL Reference	
Part Number	Cable Assemblies Series M12, UL Catalog Number
EVC322	VDOAH043MSS00.3H04STGH040MSS
EVC323	VDOAH043MSS00.6H04STGH040MSS
EVC324	VDOAH043MSS0001H04STGH040MSS
EVC325	VDOAH043MSS0002H04STGH040MSS
EVC326	VDOAH043MSS0005H04STGH040MSS
EVC327	VDOAH043MSS0010H04STGH040MSS
Note: Shown in UL file under Cable Assemblies using catalog number	

Sensor Cables and Connectors

Dimensions mm [inches]

Figure 1

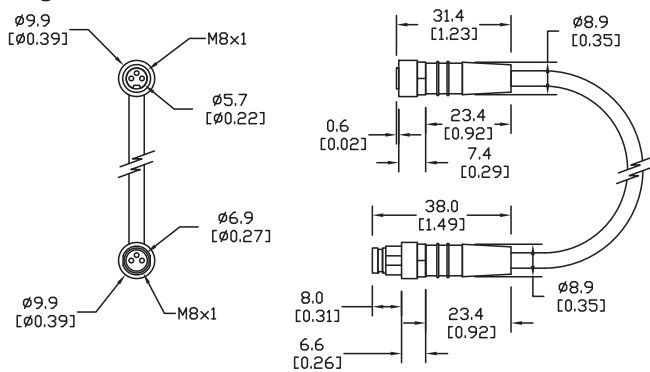


Figure 2

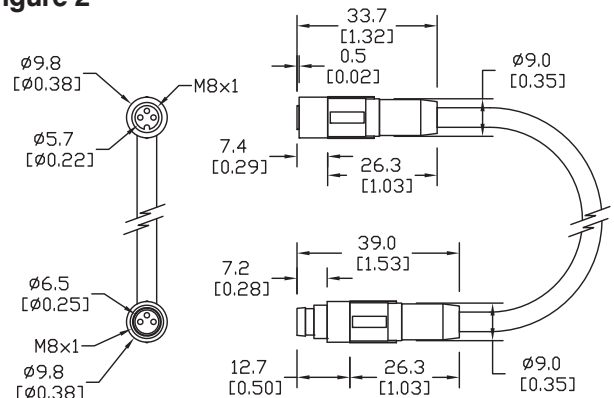


Figure 3

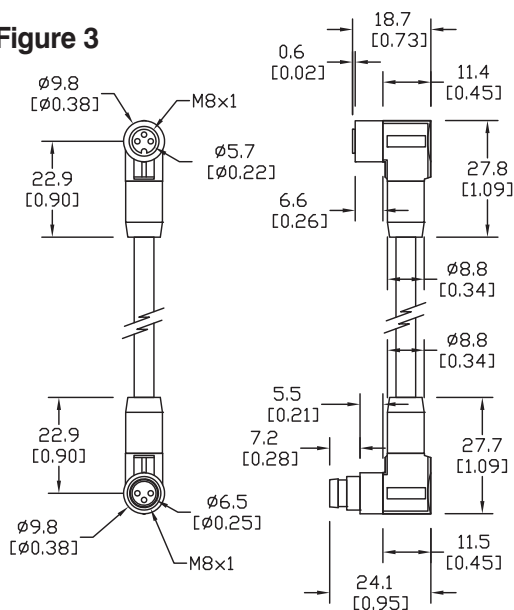


Figure 4

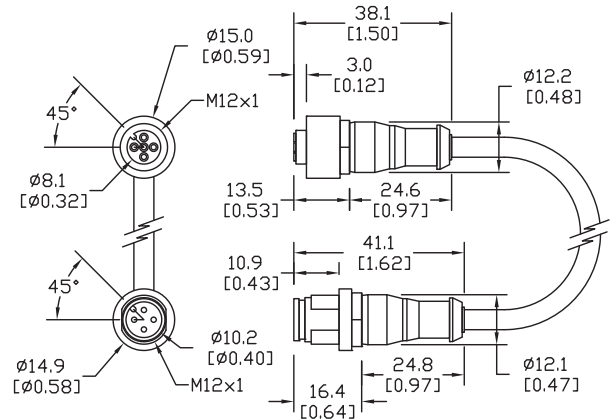


Figure 5

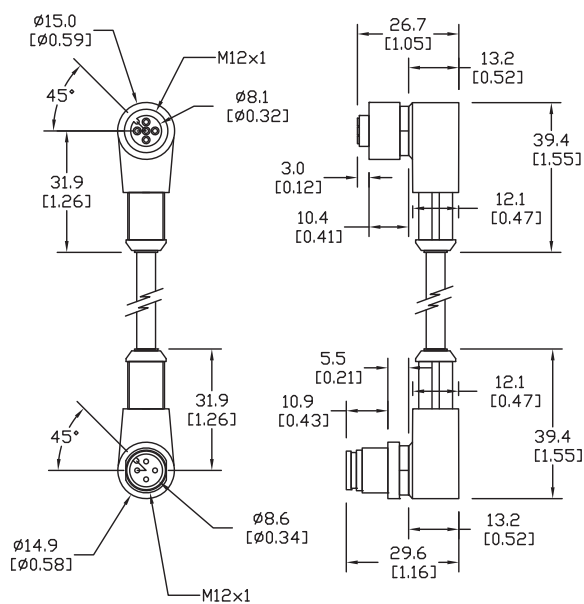


Figure 6

