

# proSense™ TSD25 Series Temperature Switches

AutomationDirect



## Features

- Compact temperature switch with simple setup using mechanical adjustment dials
- Extremely durable housing with 316 stainless steel wetted parts
- No internal moving parts ensure long-term stability without setpoint drift
- LEDs indicate switching and operating status

- Two normally open or complementary normally open/normally closed PNP DC switching outputs
- Optional plastic protective cover: PSD-CV

## Agency Approvals

- cULus, File number E324411
- CE
- RoHS



ProSense Series Temperature Sensors						
Part Number	Description	Pcs/Pkg	Wt(lb)		Use With	Cable Assemblies
TSD25N-OP-0284-H	Temperature switch, two PNP complementary (1NO/1NC) switching DC outputs adjusted by setting dials. 1/4 inch NPT male port, 4-pin micro M12 DC plug, Set point scale: 3 to 284°F (-16 to 140°C). Probe length: 35 mm [1.38 inches]	1	0.25		PSD-CV	CD12L-0B-020-A0 CD12L-0B-020-C0 CD12M-0B-070-A1 CD12M-0B-070-C1
TSD25N-AP-0284-H	Temperature switch, two PNP (NO) switching DC outputs adjusted separately by setting dials with a fixed 9°F hysteresis. 1/4 inch NPT male port, 4-pin micro M12 DC plug, Set point scale: -4 to 284°F (-20 to 140°C). Probe length: 35 mm [1.38 inches]	1	0.25		PSD-CV	CDP12-0B-010-AA CDP12-0B-030-AA CDP12-0B-010-BB CDP12-0B-030-BB (See page 18-64 for specs)

*Note: Purchase cable separately*

ProSense TSD25 Series Technical Specifications		
	TSD25N-AP-0284-H	TSD25N-OP-0284-H
Operating Voltage	9.6 to 32 VDC	
Process Connection	1/4" MNPT	
Electrical Connection	M12 connector; gold-plated contacts	
Outputs	Two PNP N.O. switching DC outputs	Two complementary PNP (1-N.O./1-N.C.) switching DC outputs
Current Rating	500 mA each output	
Current Consumption	< 30 mA	
Short-Circuit Protection	Yes (non-latching)	
Reverse Polarity Protection	Yes	
Overload Protection	Yes	
Voltage Drop	< 2 VDC	
Pressure Rating	4350 psi (300 bar)	
Set point scale	-4 to 284°F(-20 to 140°C)	3 to 284°F(-16 to 140°C)
Reset point scale	Fixed 5°C below setpoint	-4 to 277°F(-20 to 136°C)
Adjustment of the Switch Point	Setting dials	
Setting Accuracy	± 3°C	
Repeatability	± 0.1% of full range in °C	
Temperature Drift	± 0.1%, of full temperature range/10°C; 32 to 176°F (0 to 80°C).	
Power-on Delay Time	0.5 seconds	
Measuring Element	1 x Pt 1000, to DIN EN 60751, class B	
Dynamic Response (DIN EN 60751)	*to.5 = 1 sec/ to.9 = 3 sec	
Minimum Installation Depth	0.6 in (15 mm)	
Housing Material	PBT (Pocan); PC (Makrolon); FPM (Viton); stainless steel (316S12)	
Materials (wetted parts)	Stainless steel (316S12)	
Display	Switching Status: 2 LEDs: yellow	Power: LED - green - Switching Status: LED - yellow
Ambient Temperature	-13 to 158°F (-25 to 70°C)	
Medium Temperature	-13 to 257°F (-25 to 125°C) continuous, 258 to 293°F (126 to 145°C) 1 hour max	
Storage Temperature	-40 to 212°F (-40 to 100°C)	
Protection	IP 67, Class III	
Insulation Resistance	> 100 MΩ (500 VDC)	
Shock Resistance	50g (DIN / IEC 68-2-27, 11ms)	
Vibration Resistance	20g (DIN / EN 68-2-6, (10 to 2000 Hz)	
<b>EMC</b>		
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 61000-4-6 HF Conducted	10 V	

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

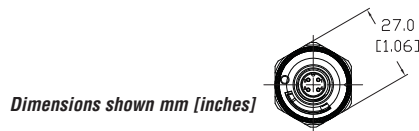
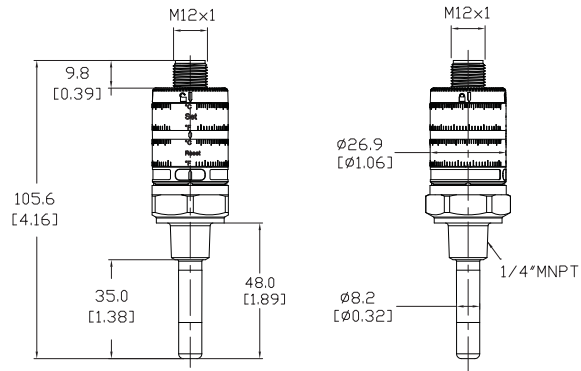


NOTE: CHECK THE CHEMICAL COMPATIBILITY OF THE SENSOR'S WETTED PARTS WITH THE MEDIUM TO BE MEASURED.  
[WWW.AUTOMATIONDIRECT.COM/STATIC/SPECS/PROSENSECHEMRESISTANCE.PDF](http://WWW.AUTOMATIONDIRECT.COM/STATIC/SPECS/PROSENSECHEMRESISTANCE.PDF)

# pr<sup>o</sup>ense™ TSD25 Series Temperature Switches

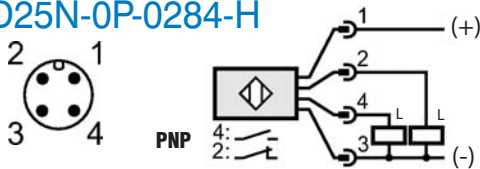
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## TSD25N Series Dimensions



## Wiring

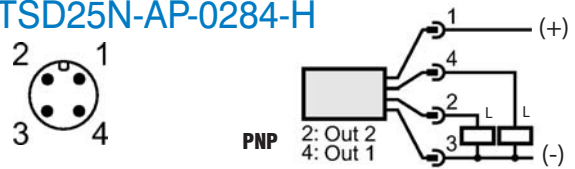
### TSD25N-0P-0284-H



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

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

### TSD25N-AP-0284-H

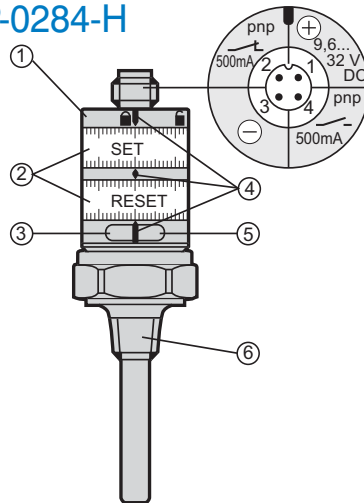


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**Pin 1 - Brown**  
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Note: wiring colors are based on AutomationDirect CD12L and CD12M 4-pole cable assemblies.

## Setting and Operation

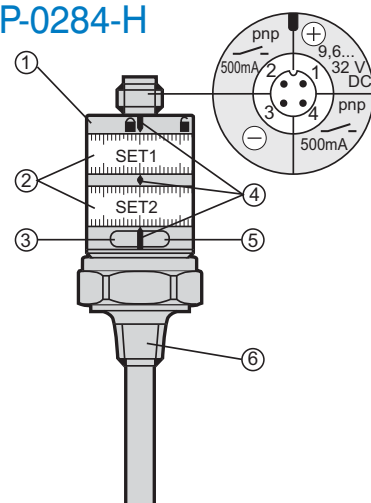
### TSD25N-0P-0284-H



- 1: locking ring
- 2: setting rings (manually adjustable after unlocking)
- 3: LED green: supply voltage O.K.
- 4: setting marks
- 5: LED yellow: value [SET] reached, OUT1 = ON / OUT2 = OFF
- 6: process connection 1/4" NPT
- pin 4 = OUT1 / pin 2 = OUT2

Minimum distance between [SET] and [RESET] = 3°C.  
 To obtain the setting accuracy: Set both rings to the minimum value, then set the requested values.

### TSD25N-AP-0284-H



- 1: locking ring
- 2: setting rings (manually adjustable after unlocking)
- 3: LED yellow: lights if OUT1 = ON, temperature ≥ [SET1]
- 4: setting marks
- 5: LED yellow: lights if OUT2 = ON, temperature ≥ [SET2]
- 6: process connection 1/4" NPT
- Pin 4 = OUT1 / Pin 2 = OUT2

To obtain the setting accuracy: Set both rings to the minimum value, then set the requested values.

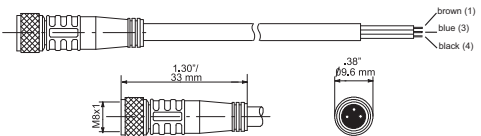
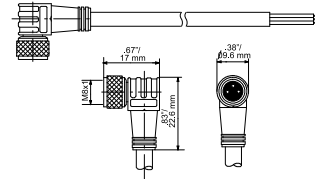
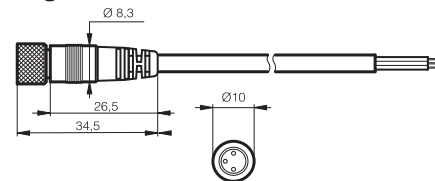
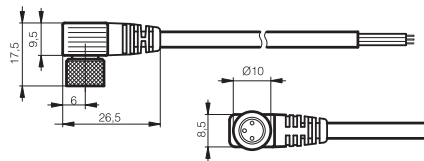
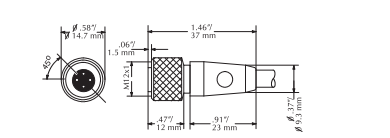
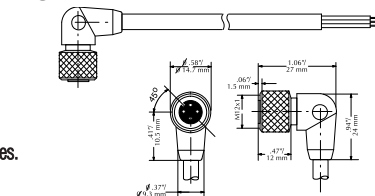
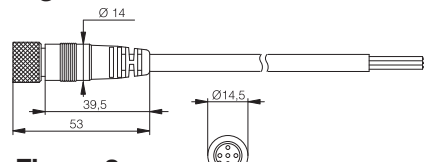
# Photoelectric Sensors Accessories: Cables

## Cables with quick-disconnect plugs



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

## Dimensions

**Figure 1**

**Figure 2**

**Figure 3**

**Figure 4**

**Figure 5**

**Figure 6**

**Figure 7**

**Figure 8**

M8 Quick-Disconnect Cables						
Part Number	Length	Poles	Connector	Jacket	Dimensions	
<b>M8 Quick-Disconnects</b>						
CD08-0A-020-A1	2m (6.5ft.)	3	Axial	PVC	Figure 1	
CD08-0A-020-C1	2m (6.5ft.)	3	Right-angle	PVC	Figure 2	
CD08-0A-050-A1	5m (16.4ft.)	3	Axial	PVC	Figure 3	
CD08-0C-050-A1	5m (16.4ft.)	3	Axial	PUR	Figure 3	
CD08-0A-050-C1	5m (16.4ft.)	3	Right-angle	PVC	Figure 4	
CD08-0C-050-C1	5m (16.4ft.)	3	Right-angle	PUR	Figure 4	
CD08-0A-070-A1	7m (23ft.)	3	Axial	PVC	Figure 1	
CD08-0A-070-C1	7m (23ft.)	3	Right-angle	PVC	Figure 2	

M12 Quick-Disconnect Cables						
Part Number	Length	Poles	Connector	Jacket	Dimensions	
<b>M12 Quick-Disconnects</b>						
CD12L-0B-020-A0	2m (6.5ft.)	4	Axial	PVC	Figure 5	
CD12L-0B-020-C0	2m (6.5ft.)	4	Right-angle	PVC	Figure 6	
CD12M-0B-050-A1*	5m (16.4ft.)	3	Axial	PVC	Figure 7	
CD12M-0D-050-A1*	5m (16.4ft.)	3	Axial	PUR	Figure 7	
CD12M-0B-050-C1*	5m (16.4ft.)	3	Right-angle	PVC	Figure 8	
CD12M-0D-050-C1*	5m (16.4ft.)	3	Right-angle	PUR	Figure 8	
CD12M-0B-070-A1	7m (23ft.)	4	Axial	PVC	Figure 5	
CD12M-0B-070-C1	7m (23ft.)	4	Right-angle	PVC	Figure 6	

\* Note: Do not use with: DM, FA, QX, SS, SSF, MS and MSF series photoelectric sensors. These sensors require 4-pole cables.

Cable Specifications	M8		M12	
Length	2m (6.5ft.)/ 7m (23ft.)	5m (16.4ft.)	2m (6.5ft.)/ 7m (23ft.)	5m (16.4ft.)
Nominal Voltage	50VAC/75VDC	60VAC/75VDC	300VAC	60VAC/75VDC
Nominal Current	4A	1.5A	4A	1.5A
Protection Degree	IEC IP67		IEC IP67	
Contact Body Material	ABS	PUR	ABS	PUR
Housing Material	PUR		PUR	
Contacts Material	CuSn	CuZn	CuSn	CuZn
Conductors Section	0.34mm <sup>2</sup>		0.34mm <sup>2</sup>	
Ø Outer Cable	5mm		5mm	
Temperature Range	-25° to +70°C (-13° to 158°F)		-25° to +70°C (-13° to 158°F)	

# Photoelectric Sensors Accessories: Extension Cables



## Extension cables with quick-disconnect plugs on each end

Available extension cables include:

- Industry standard M8 and M12 screw-lock connectors
- Axial and right-angle connector models
- 1m and 3m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP67 rated

## Dimensions

Figure 1

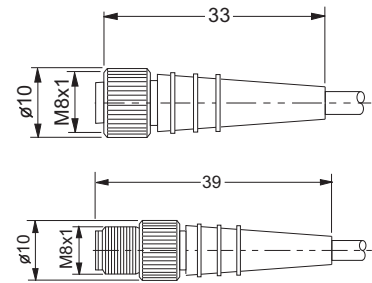


Figure 2

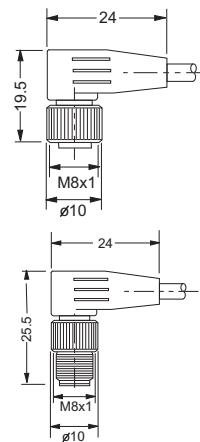


Figure 3

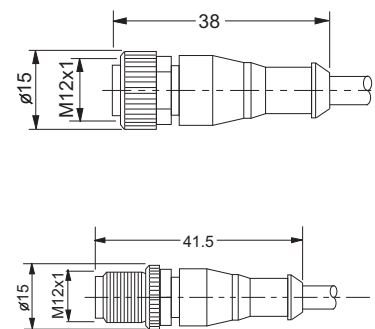
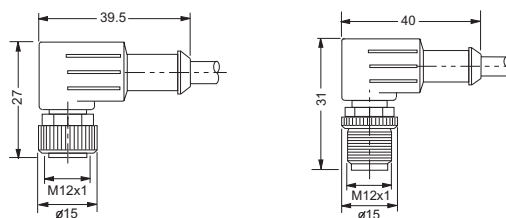


Figure 4



M8 Extension Cables with Quick-Disconnect on each end						
Part Number	Length	Poles	Connectors	Jacket	Dimensions	
<b>M8 Quick-Disconnect Extension Cables</b>						
CDP08-0A-010-AA	1m (3.28ft.)	3	2 Axial	PVC	Figure 1	
CDP08-0A-010-BB	1m (3.28ft.)	3	2 Right-angle	PVC	Figure 2	
CDP08-0A-030-AA	3m (9.84ft.)	3	2 Axial	PVC	Figure 1	
CDP08-0A-030-BB	3m (9.84ft.)	3	2 Right-angle	PVC	Figure 2	

M12 Extension Cables with Quick-Disconnect on each end						
Part Number	Length	Poles	Connectors	Jacket	Dimensions	
<b>M12 Quick-disconnect Extension Cables</b>						
CDP12-0B-010-AA	1m (3.28ft.)	4	2 Axial	PVC	Figure 3	
CDP12-0B-010-BB	1m (3.28ft.)	4	2 Right-angle	PVC	Figure 4	
CDP12-0B-030-AA	3m (9.84ft.)	4	2 Axial	PVC	Figure 3	
CDP12-0B-030-BB	3m (9.84ft.)	4	2 Right-angle	PVC	Figure 4	

Cable Specifications	M8 / M12
Length	1m (3.28ft.)/ 3m (9.84ft.)
Nominal Voltage	50VAC/75VDC
Nominal Current	4A
Protection Degree	IEC IP67
Contact Body Material	ABS
Housing Material	PUR
Contacts Material	CuSn
Conductors Section	0.34mm <sup>2</sup>
Ø Outer Cable	5mm
Temperature Range	-25° to +70°C (-13° to 158°F)

# Photoelectric Sensors Accessories: Cables

## Cables with quick-disconnect plugs for DFT/DFP Models

Do not use extension cables with the cable listed below. The physical pin configurations do not match.

Available cables include:

- Industry standard M8 screw-lock connectors
- Axial and right-angle connector models
- 2m, 5m and 10m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP68 rated



M8 Cables with Quick-Disconnect						
Part Number	Length	Poles	Connectors	Jacket	Dimensions	
<b>M8 Quick-Disconnects</b>						
CD08-0G-020-A1	2m (6.56ft.)	4	Axial	PVC	Figure 1	
CD08-0W-020-C1	2m (6.56ft.)	4	Right-angle	PVC	Figure 2	
CD08-0G-050-A1	5m (16.4ft.)	4	Axial	PVC	Figure 1	
CD08-0W-050-C1	5m (16.4ft.)	4	Right-angle	PVC	Figure 2	
CD08-0G-100-A1	10m (32.8ft.)	4	Axial	PVC	Figure 1	
CD08-0W-100-C1	10m (32.8ft.)	4	Right-angle	PVC	Figure 2	

Cable Specifications	M8
Length	2m (6.56ft.) 5m (16.4ft.) 10m (32.8ft.)
Nominal Voltage	30VAC/30VDC
Nominal Current	4A
Protection Degree	IEC IP67
Contact Body Material	ABS
Housing Material	PUR
Contacts Material	CuSn
Conductors Section	0.25mm <sup>2</sup>
Ø Outer Cable	4.5mm
Temperature Range	-5° to +70°C (23° to 158°F)

### Dimensions (mm)

Figure 1

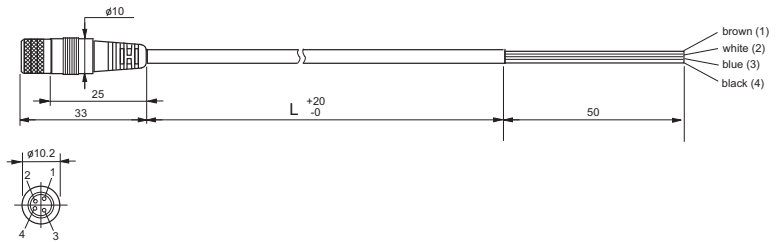
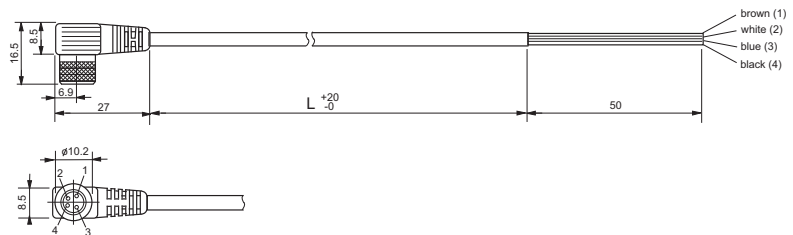


Figure 2



Use these cables if the sensor pin configuration looks like the connector pin-out below.

