

Proximity Sensors

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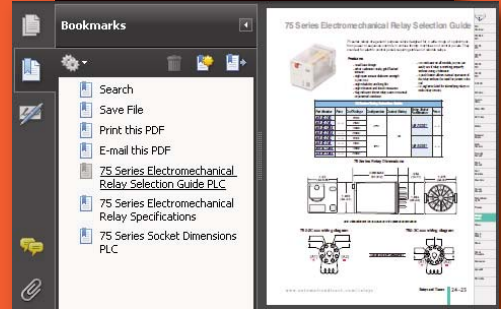


Temperature Sensors

Section 24



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- Click on part #s to link directly to our online store for current pricing, specs, stocking information and more



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



Company Info.
PLCs
Field I/O
Software
C-more & other HMI
AC Drives
AC Motors
Power Transmiss.
Steppers/Servos
Motor Controls
Proximity Sensors
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Limit Switches
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Pressure Sensors
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Pushbuttons/Lights
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Relays/Timers
Comm.
Terminal Blocks & Wiring
Power
Circuit Protection
Enclosures
Tools
Pneumatics
Appendix
Part Index

ProSense Series Temperature Sensors						
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	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)	
EMC		
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	

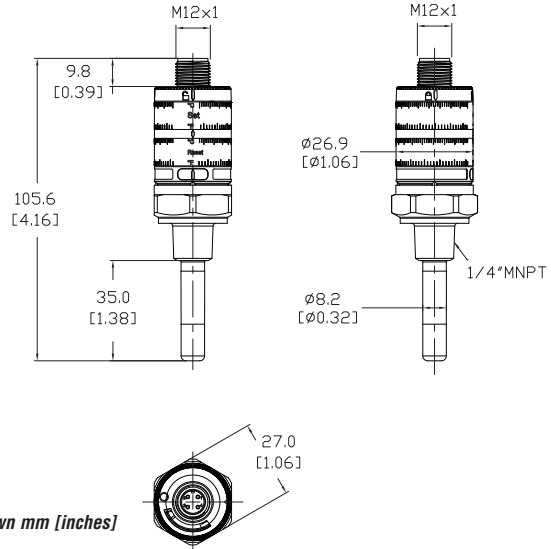
* to.5 = a 50% of full scale change in output when immersed in water at 0.4m/s, to.9 = a 90% FS change.

NOTE: CHECK THE CHEMICAL COMPATIBILITY OF THE SENSOR'S WETTED PARTS WITH THE MEDIUM TO BE MEASURED.
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proSense™ TSD25 Series Temperature Switches

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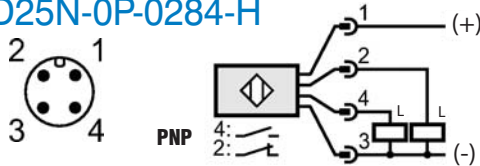
TSD25N Series Dimensions



Dimensions shown mm [inches]

Wiring

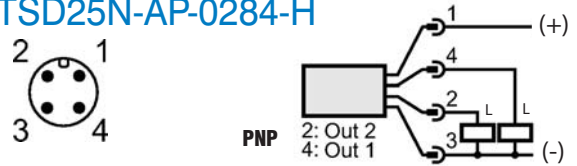
TSD25N-0P-0284-H



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

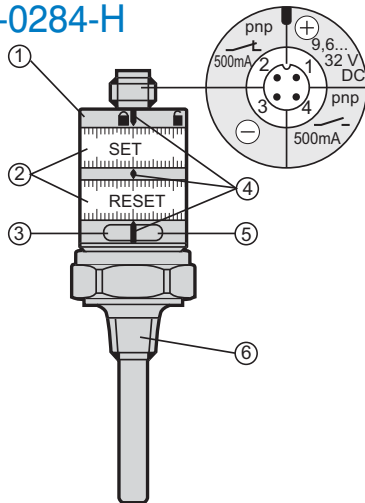


Cable Assembly Wiring Colors:
Pin 1 - Brown
Pin 2 - White
Pin 3 - Blue
Pin 4 - Black

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

Setting and Operation

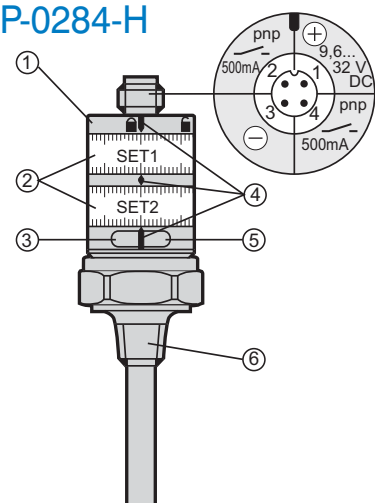
TSD25N-0P-0284-H



- 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.



TTD25N



TTD25C

Features

- High accuracy 2-wire temperature transmitter
- 1000 ohm, Class A platinum RTD sensing element
- 4-20mA analog output signal
- probes made of durable 316 stainless steel
- Temperature ranges of 0-100°C or 0-300°F

Agency Approvals

- cULus File number E 324411
- CE
- RoHS



ProSense Temperature Transmitter Series						
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Use With	Cable Assemblies
TTD25N-20-0100C-H	4-20 mA output, 8.3 mm (0.3") dia. probe, 1/4" NPT male port, 4-pin micro M12 plug. Temperature range: 0 to 100°C.	1	0.30	<--->	N/A	CD12L-0B-020-A0 CD12L-0B-020-C0 CD12M-0B-070-A1 CD12M-0B-070-C1 CDP12-0B-010-AA CDP12-0B-030-AA CDP12-0B-010-BB CDP12-0B-030-BB (order separately - see page 18-64 for specs)
TTD25N-20-0300F-H	4-20 mA output, 8.3 mm (0.3") dia. probe, 1/4" NPT male port, 4-pin micro M12 plug. Temperature range: 0 to 300°F.	1	0.30	<--->	N/A	
TTD25C-20-0100C-H	4-20 mA output, 6 mm (0.24") dia. probe, 4-pin micro M12 plug. Temperature range: 0 to 100°C.	1	0.30	<--->	CF06-25N	
TTD25C-20-0300F-H	4-20 mA output, 6 mm (0.24") dia. probe, 4-pin micro M12 plug. Temperature range: 0 to 300°F.	1	0.32	<--->	CF06-25N	

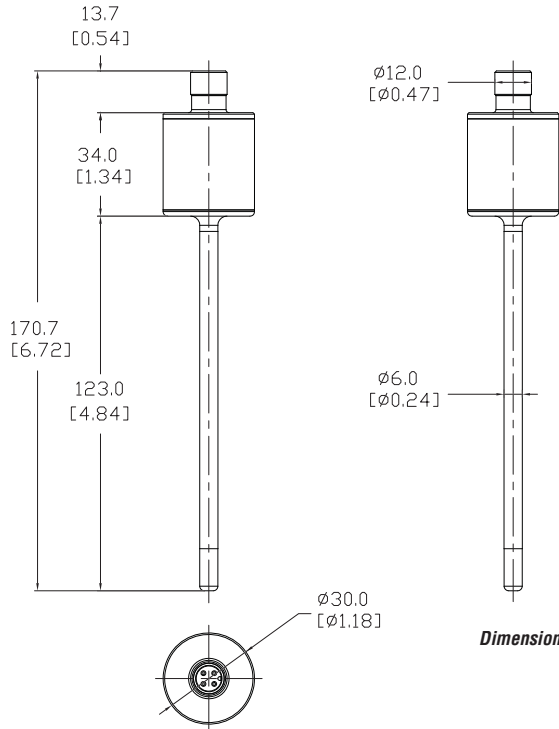
ProSense TTD25 Series Technical Specifications				
	TTD25N-20-0100C-H	TTD25N-20-0300F-H	TTD25C-20-0100C-H	TTD25C-20-0300F-H
Operating Voltage	10 to 30 VDC			
Electrical Connection	M12 connector; gold-plated contacts			
Process connection	1/4" MNPT		Use CF06-25N	
Short-Circuit Protection	Yes (non-latching)			
Overload Protection	Yes			
Reverse Polarity Protection	Yes			
Analog Output	4 to 20 mA (min/max 3.85 to 22 mA)			
Maximum Load	720Ω at 24VDC; Rmax = (Supply voltage - 9.6)*50			
Pressure Rating	4350 psi (300 bar)		725 (50 bar) (This value applies to the sensor only. For installation in adapters, use the adapter data sheet indications)	
Accuracy	± 0.3°C	± 0.4°C	± 0.3°C	± 0.4°C
Resolution	<0.02°C			
Measuring Element	1 x Pt 1000, to DIN EN 60751, class A			
Measuring Range	32 to 212°F (0 to 100°C)	0 to 300°F (-17.8 to 148.9°C)	32 to 212°F (0 to 100°C)	0 to 300°F (-17.8 to 148.9°C)
Dynamic Response (DIN EN 60751)	*to.5 = 1 sec/ to.9 = 3 sec		*to.5 = 1 sec/ to.9 = 3 sec	
Minimum Installation Depth	N/A		0.6 in (15 mm)	
Housing Material	Stainless steel (316S12); stainless steel (304S15); stainless steel (303S22); PA			
Materials (wetted parts)	Stainless steel (316S12)			
Ambient Temperature	-13 to 158°F (-25 to 70°C)			
Storage Temperature	-40 to 212°F (-40 to 100°C)			
Protection	IP 68 / IP 69K, 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)			
EMC				
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			

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

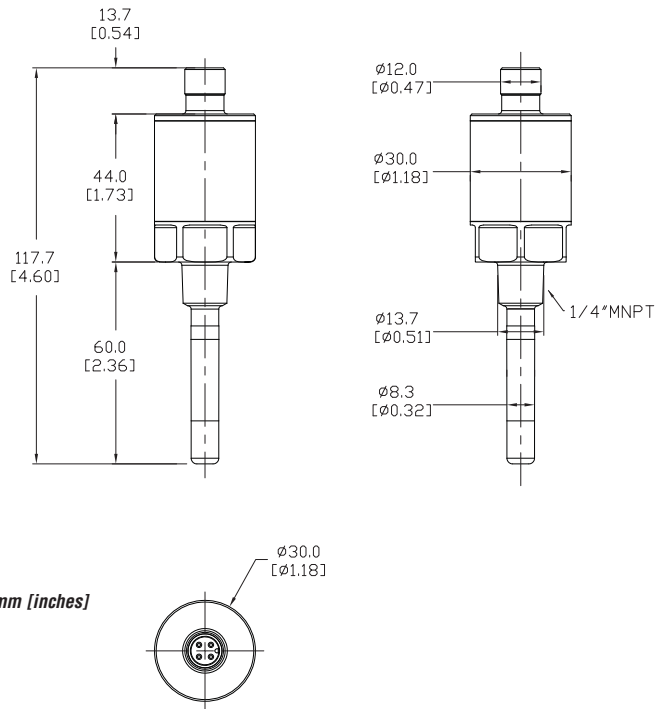


NOTE: CHECK THE CHEMICAL COMPATIBILITY OF THE SENSOR'S WETTED PARTS WITH THE MEDIUM TO BE MEASURED.
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TTD25C Series Dimensions



TTD25N Series Dimensions

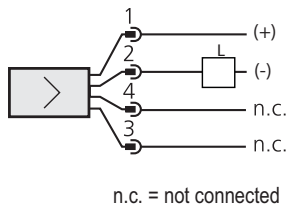
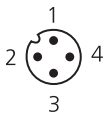


Dimensions shown mm [inches]



NOTE: USE PROSENSE COMPRESSION FITTING CF06-25N TO MOUNT TTD25C SERIES TEMPERATURE TRANSMITTER.

Wiring Diagram



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.

proSense™ RTD Temperature Probes

BY AUTOMATIONDIRECT



Features

- 4-wire, 100 ohm platinum RTD sensing element
- DIN EN 60751, Class A
TCR 0.00385 ohm/ohm/°C
- 10 mm probe diameter made of durable 316 stainless steel
- Measuring temperature range of -40 to 302°F (-40 to 150°C)
- Probe lengths of 160 mm, 260 mm, 360 mm, and 560 mm
- 4-pin M12 plug

Agency Approvals

- cULus, File number E324411
- CE
- RoHS



ProSense RTD Series						
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Use With	Cable Assemblies
RTD0100-10-010-H	RTD, Pt 100, 160 mm (6.3") long, 10 mm (0.39") diameter probe, 4-wire, 4-pin micro M12 plug, -40 to 302°F (-40 to 150°C) range.	1	0.10	<--->	CF10-50N RTD100-10-010-50N	CD12L-0B-020-A0 CD12L-0B-020-C0 CD12M-0B-070-A1 CD12M-0B-070-C1
RTD0100-10-020-H	RTD, Pt 100, 260 mm (10.2") long, 10 mm (0.39") diameter probe, 4-wire, 4-pin micro M12 plug, -40 to 302°F (-40 to 150°C) range.	1	0.15	<--->	CF10-50N RTD100-10-020-50N	CDP12-0B-010-AA CDP12-0B-030-AA CDP12-0B-010-BB CDP12-0B-030-BB (order separately - see page 18-64 for specs)
RTD0100-10-030-H	RTD, Pt 100, 360 mm (14.2") long, 10 mm (0.39") diameter probe, 4-wire, 4-pin micro M12 plug, -40 to 302°F (-40 to 150°C) range.	1	0.33	<--->	CF10-50N RTD100-10-030-50N	
RTD0100-10-050-H	RTD, Pt 100, 560mm (22.0") long, 10 mm (0.39") diameter probe, 4-wire, 4-pin micro M12 plug, -40 to 302°F (-40 to 150°C) range.	1	0.33	<--->	CF10-50N RTD100-10-050-50N	

ProSense RTD Series Technical Specifications				
	RTD0100-10-010-H	RTD0100-10-020-H	RTD0100-10-030-H	RTD0100-10-050-H
Application	Liquids and Gases			
Probe Length	160 [mm]	260 [mm]	360 [mm]	560 [mm]
Accuracy	± (0.15°C + 0.002 x [t])			
Measuring Element	1 x Pt 100, to DIN EN 60751, class A; TCR = 0.00385 Ω/Ω/°C			
Dynamic Response (DIN EN 60751)	*t0.5 = 1 sec/ t0.9 = 3 sec			
Minimum Installation Depth	0.6 in (15 mm)			
Nominal Pressure	2320 psi (160 bar) - Refer to compression mounting fitting maximum pressure rating.			
Ambient Temperature	-13 to 176°F (-25 to 80°C)			
Protection	IP 68 / IP 69K, Class III			
Housing Material	Stainless steel (316S12)			
Materials (wetted parts)	Stainless steel (316S12)			
Measuring Range	-40 to 302°F (-40 to 150°C)			
Connection	M12 connector; gold-plated contacts			

* 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.

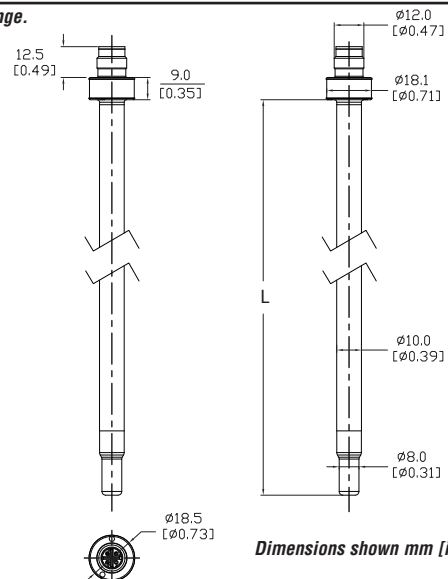
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RTD Dimensions

Part Number	Length L
RTD0100-10 010-H	160mm [6.30]
RTD0100-10 020-H	260 mm [10.2]
RTD0100-10 030-H	360 mm [14.2]
RTD0100-10 050-H	560 mm [22.0]



NOTE: MOUNT RTD'S BY USING PROSENSE RTD W SERIES THERMOWELLS AND / OR CF10-50N COMPRESSION FITTING.



Dimensions shown mm [inches]



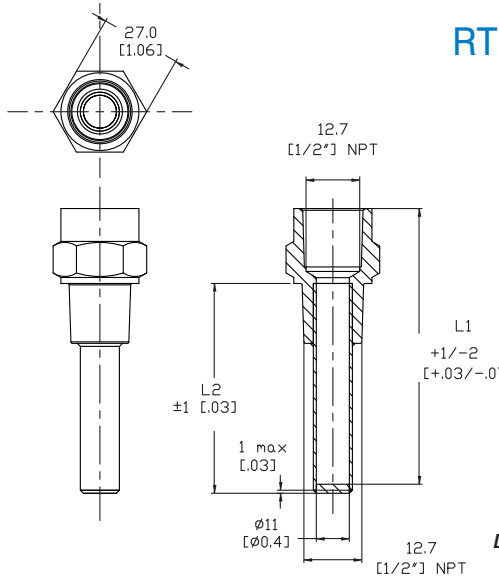
Features

- Thermowells for ProSense 10 mm diameter RTD probes
- All wetted parts are 316 stainless steel
- 600°F (315°C) temperature and 232 psi (16 bar) pressure rating
- CF10-50N fitting required to mount RTD probes in thermowell

ProSense Thermowells for RTDs					
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Use With
RTDTW-10-010-50N	RTD thermowell for 160 mm (6.3") long, 10 mm (0.39") diameter probe, 1/2" NPT male port	1	0.28	<-->	RTD0100-10-010-H CF10-50N
RTDTW-10-020-50N	RTD thermowell for 260 mm (10.2") long, 10 mm (0.39") diameter probe, 1/2" NPT male port	1	0.36	<-->	RTD0100-10-020-H CF10-50N
RTDTW-10-030-50N	RTD thermowell for 360 mm (14.2") long, 10 mm (0.39") diameter probe, 1/2" NPT male port	1	0.42	<-->	RTD0100-10-030-H CF10-50N
RTDTW-10-050-50N	RTD thermowell for 560 mm (22.0") long, 10 mm (0.39") diameter probe, 1/2" NPT male port	1	0.58	<-->	RTD0100-10-050-H CF10-50N



NOTE: CHECK THE CHEMICAL COMPATIBILITY OF THE SENSOR'S WETTED PARTS WITH THE MEDIUM TO BE MEASURED.
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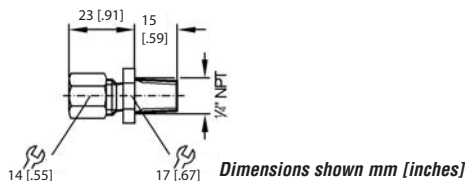
RTDTW Dimensions

Part Number	L 1	L 2
RTDW-10-010-50N	92 mm [3.62]	70 mm [2.75]
RTDW-10-020-50N	192 mm [7.55]	170 mm [6.69]
RTDW-10-030-50N	292 mm [11.48]	270 mm [10.6]
RTDW-10-050-50N	492 mm [19.37]	470 mm [18.47]

Dimensions shown mm [inches]

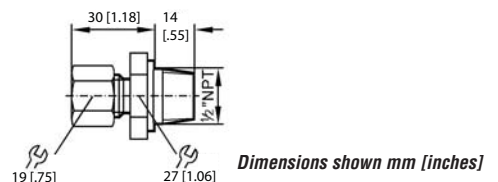
ProSense Compression Fittings for Temperature Probes					
Part Number	Description	Pcs/Pkg	Wt(lb)	Price	Use With
CF06-25N	0.25" NPT stainless steel (320S31) compression fitting for 6 mm diameter temperature probe. Pressure rating 725 psi (50 bar).	1	0.18	<-->	TTD25C-20-0100C-H TTD25C-20-0300F-H
CF10-50N	0.50" NPT stainless steel (320S31) compression fitting for 10 mm diameter temperature probe. Pressure rating 725 psi (50 bar).	1	0.20	<-->	RTD0100-10-010-H RTD0100-10-020-H RTD0100-10-030-H RTD0100-10-050-H

CF06-25N Dimensions



Dimensions shown mm [inches]

CF10-50N Dimensions



Dimensions shown mm [inches]