prosense® Temperature Transmitters - Head Mounted

XTH

Features - Non-programmable Models

- Sensor Types:
- Models for thermocouple Types J, K, or T
- Select from a variety of pre-configured measuring ranges
- Internal cold junction compensation for thermocouple input models
- Transmitter is powered by 8-35 VDC and is reverse- polarity protected
- Output is linearized 2-wire 4-20mA current loop

- Up scale signal for sensor lead break or short circuit detection (NAMUR NE 43 fault response)
- Mounts in ProSense connection head or any DIN Form B sensor head
- 2 kVAC isolation between input and output

ProSense Head Mounted Temperature Transmitters					
Part Number	**Input Type**	**Fixed Measuring Range**	**Pcs/Pkg**	**Wt(lb)**	**Price**
XTH-0100F-J	Type J thermocouple (to NIST Monograph 175, IEC584)	0 to 100°F (-17.8 to 37.8°C)	1	0.09	$97.00
XTH-0200F-J		0 to 200°F (-17.8 to 93.3°C)	1	0.09	$97.00
XTH-0300F-J		0 to 300°F (-17.8 to 148.9°C)	1	0.09	$97.00
XTH-0500F-J		0 to 500°F (-17.8 to 260°C)	1	0.09	$97.00
XTH-0800F-J		0 to 800°F (-17.8 to 426.7°C)	1	0.09	$97.00
XTH-01000F-J		0 to 1000°F (-17.8 to 537.8°C)	1	0.09	$97.00
XTH-0100F-K	Type K thermocouple (to NIST Monograph 175, IEC584)	0 to 100°F (-17.8 to 37.8°C)	1	0.09	$97.00
XTH-0200F-K		0 to 200°F (-17.8 to 93.3°C)	1	0.09	$97.00
XTH-0300F-K		0 to 300°F (-17.8 to 148.9°C)	1	0.09	$97.00
XTH-0500F-K		0 to 500°F (-17.8 to 260°C)	1	0.09	$97.00
XTH-0800F-K		0 to 800°F (-17.8 to 426.7°C)	1	0.09	$97.00
XTH-01000F-K		0 to 1000°F (-17.8 to 537.8°C)	1	0.09	$97.00
XTH-01500F-K		0 to 1500°F (-17.8 to 815.5°C)	1	0.09	$97.00
XTH-02000F-K		0 to 2000°F (-17.8 to 1093.3°C)	1	0.09	$97.00
XTH-N2000F-T	Type T thermocouple (to NIST Monograph 175, IEC584)	-200 to 0°F (-128.9 to -17.8°C)	1	0.09	$97.00
XTH-N100100F-T		-100 to 100°F (-73.3 to 37.8°C)	1	0.09	$97.00
XTH-0200F-T		0 to 200°F (-17.8 to 93.3°C)	1	0.09	$97.00

Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0002 for a short video on DIN Rail Mounted Temperature Transmitters

Click on the thumbnail or go to https://www.automationdirect.com/VID-TE-0006 for a short video on Remote Temperature Sensing

Scan the QR Code above or click to view the Fixed Range XTH Series product insert.

prosense® Temperature Transmitters - Head Mounted

ProSense Head Mounted Temperature Transmitters General Specifications			XTH (J Series)	XTH (K Series)	XTH (T Series)
Output	*Output Signal*		4-20 mA		
	Signal Transmission		Output linear to temperature		
	Fault Signal		Under ranging / Standard / 3.8 mA Over ranging / Standard / 20.5 mA Sensor break; sensor short circuit down scale / To NAMUR NE 43 / m3.6 mA (only applicable to XTH-0-UNV) Sensor break; sensor short circuit up scale / To NAMUR NE 43 / M21.0 mA		
	Max. Load Impedance		(Vpowersupply- 8V) / 0.025 A e.g. (24v-8V)/0.025A=640 Ω		
	Galvanic Isolation		2 kV AC (input/output)		
	Input Current Requirement		≤ 3.5 mA		
	Current Limit		≤ 25 mA		
	Switch on Delay		4 seconds (during power up output current = 3.8 mA)		
	Response Time		1 second		
	Digital Filter		N/A		
	Power Supply		8 to 35 VDC, polarity protected		
	Allowable Ripple		≤ 5 V with power supply ≥ 13; Max. frequency = 1 kHz		
Accuracy	*Reference Conditions*		Calibration temperature 73.4°F w 9°F (23°C w 5°C)		
	Maximum Measuring Error		0.9°F (0.5°C) or 0.08%		
	Influence of Power Supply		≤ w 0.01%/V deviation from 24 V		
	Load Influence		≤ w 0.02%/100 Ω		
	Long Term Stability		≤ 0.1 K / Year or m 0.05% / Year		
Installation	*Orientation*		No restrictions		
	Location		Connection head according to DIN 43 729 Form B		
Environmental	*Ambient*		-40 to 185°F (-40 to 85°C)		
	Storage		-40 to 212°F (-40 to 100°C)		
	Climate Class		As per IEC 60 654-1, class C		
	Ingress Protection		IP00 / IP66 installed in appropriate housing		
	Shock and Vibration		4g / 2 to 150 Hz as per IEC 60 068-2-6		
	EMC Immunity		See Table 2		
	Moisture Condensation		Allowable		
Construction	*Materials*		Housing: Polycarbonate; Potting: Polyurethane		
	Terminals		Cable up to max. 1.75 mm² (16 AWG), secure screws		
Approvals			CE, UL recognized (UL 3111-1), File # E311366, RoHS		

Table 1 - Maximum Measuring Error XTH-0-UNV

	Type	Measurement Accuracy*
Thermocouple TC	K, J, T, E, L, U N, C, D S, B, R	typ. 0.9°F (0.5°C) or 0.08% typ. 1.8°F (1.0°C) or 0.08% typ. 3.6°F (2.0°C) or 0.08%
	Measurement Range	**Measurement Accuracy***
Resistance Transmitter (Ω)	10 to 400 Ω 10 to 2000 Ω	± 0.1 Ω or 0.08% ± 1.5 Ω or 0.12%
Voltage Transmitters (mV)	-10 to 100 mV	± 20 μV or 0.08%

Table 2 - IEC Immunity

Discharge of Static Electricity	IEC 61000-4-2	6 kV cont., 8 kV air	N/A
Electromagnetic Fields	IEC 61000-4-3	80 to 1000 Hz	10 V/m
Burst (Signal)	IEC 61000-4-4	1 kV; 2 kV (B)**	N/A
Transient Voltage	IEC 61000-4-5	1 kV unsym. / 0.5 kV sym.	N/A
HF Coupling	IEC 61000-4-6	0.15 to 80 MHz	10V

** self recovery

* % is related to the adjusted measurement range. The value to be applied is the greater.

proSense® Temperature Transmitters - Head Mounted

Wiring

XTH J, K & T - Thermocouple Input
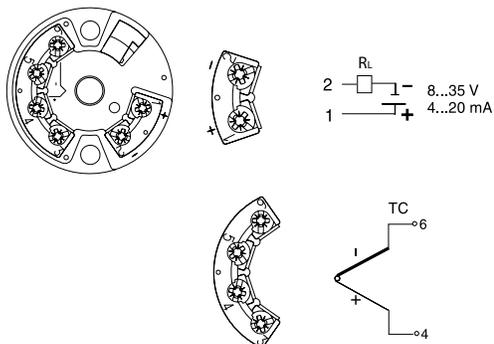
Dimensions

inches [mm]
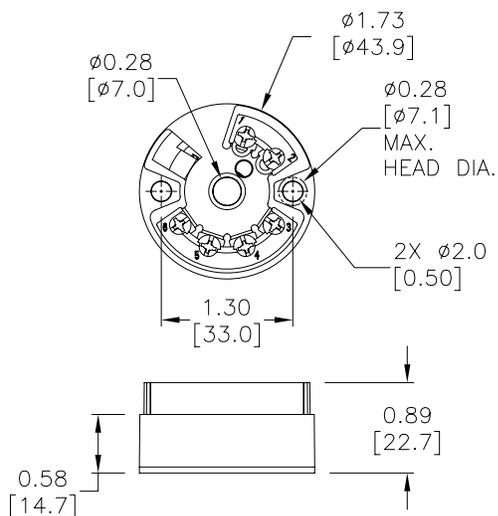
Load Impedance
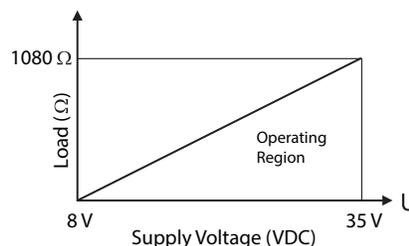
RLmax = (Vpowersupply-8V) / 0.025A (current output)
e.g. (24V - 8V) / 0.025A = 640 Ω

Application

ProSense head mounted transmitters can be easily added in the field to a ProSense connection head probe. Just order a pre-assembled ProSense connection head probe and replace the internal terminal block with an XTH series transmitter and included mounting hardware.

Pre-Assembled ProSense Connection Head Temperature Probe

XTH Series Transmitter
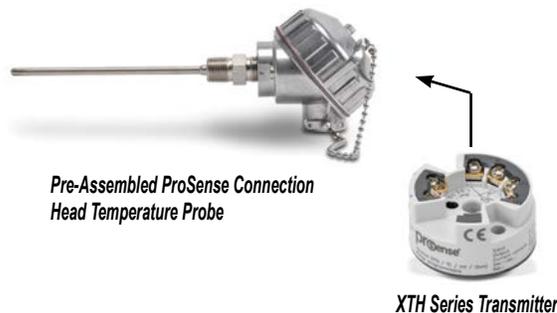
prosense® Temperature Transmitter Configuration Software

Quick and easy configuration with Free XT-SOFT and ProSense Field Device Configurator Software – NO decade box, meters, or signal generators needed!

Overview

XT-SOFT PC software is a utility program that allows users to easily configure ProSense XTD-0-UNV, and XTP series temperature transmitters and ETS series digital temperature sensors.

ProSense Field Device Configurator is a utility program that allows users to easily configure, monitor, and retrieve diagnostic information from the ProSense XTH2 and XTD2 series temperature transmitters.

Download your free copy of XT-SOFT and ProSense Field Device Configurator at www.AutomationDirect.com and connect your transmitter to the PC through an XT-USB configuration cable (purchased separately). An XT-M12 adapter is also required when connecting to an XTP series transmitter.

XT-SOFT System Requirements:

• Windows 10, 11
• 1 USB 2.0 Port
• 128 MB hard disk space

ProSense Field Device Configurator System Requirements:

• Windows 10, 11
• 1 USB 2.0 Port
• 25 MB hard disk space
• Microsoft .Net Framework ≥4.8
• PDF Reader

XTP Series Configuration Parameters (Requires XT-SOFT):

• Measuring unit (°C/°F)
• Measuring range limits -50 to 150°C (-58 to 302°F)
• Fault condition reaction (≤ 3.6 mA or ≥ 21.0 mA)
• Output (4-20 mA or 20-4 mA)
• Filter (0 to 8s)
• Offset (-9.9 to +9.9 K)
• Measurement point identification/TAG
• Output simulation drives output to a fixed value

XTP Series

XTH & XTD Configuration Parameters: (Requires XT-SOFT)

• Sensor Type:
• Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L
• RTD Types Pt100, Pt500, Pt1000, Pt50, Ni100, Ni120, Ni500, Ni1000
• Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms
• Millivolts -10 to 100 mV
• Wiring connection 2, 3, or 4-wire (RTD or Linear Resistance only)
• Measuring range start and end points
• Selectable units of °F or °C
• Choose from internal or external cold junction compensation (TC only)
• Wire resistance compensation (2-wire RTD or Linear Resistance only)
• Output action of 4-20 mA or 20-4 mA
• Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE43 fault response)
• Adjustable digital filter time constant to compensate for undesirable input fluctuations
• Zero point correction offset factor in °F or °C

XTH Series   XTD Series

prosense® Temperature Transmitter Configuration Software

XTH2 & XTD2 Configuration Parameters (Requires Field Device Configurator):

- Sensor Type:
- Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L
- RTD Types Pt100, Pt500, Pt1000, Pt50, Ni100, Ni120, Ni500, Ni1000
- Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms
- Millivolts -20 to 100 mV
- Wiring connection 2, 3, or 4-wire (RTD or Linear Resistance only)
- Measuring range start and end points
- Selectable units of °F, °C, K, Ohm and mV
- Choose from internal or external cold junction compensation (TC only)
- Wire resistance compensation (2-wire RTD or Linear Resistance only)
- Output action of 4-20 mA or 20-4 mA
- Selectable up scale or down scale signal for sensor lead break or short circuit detection (NAMUR NE43 fault response)
- Adjustable digital filter time constant to compensate for undesirable input fluctuations
- Zero point correction offset factor in °F or °C

XTH2 Series   XTD2 Series

ETS Series Configuration Parameters (Requires XT-SOFT):

- Basic Settings:
- Measuring unit (°C/°F/K)
- Offset: Configure zero point: ±18°F (±10°C/K)
- Display - Measured value display
    Measured value display rotated 180° Set switch point display
    Set switch point display rotated 180° Display off
    Display off rotated 180°
- Damping: display value, output signal: 0 (no damping) to 40s (in increments of 1 second)
- DESINA® - PIN assignment of the M12 connector is in accordance with the guidelines of DESINA
- Settings for Switch Output:
- Switching characteristic - Window/NC contact
    Hysteresis/NC contact
    Window/NO contact
    Hysteresis/NO contact
    Analog output (if applicable)
- Switch point value: -57.1 to 302°F (-49.5 to 150°C) in increments of 0.18°F (0.1°C)
- Switch-back point value: -58 to 300°F (-50 to 149°C) in increments of 0.18°F (0.1°C)
- Switch point delay: 0 to 99s in increments of 0.1s
- Switch-back point delay: 0 to 99s in increments of 0.1s
- Settings for Analog Output (if applicable):
- Value for 4mA: -58 to 266°F (-50 to 130°C) Lower range value in increments of 0.18°F (0.1°C)
- Value for 20mA: -22 to 302°F (-30 to 150°C) Upper range value in increments of 0.18°F (0.1°C)
- Error current - Current value in event of error:
    Minimum = ≤ 3.6 mA
    Maximum = ≥ 21.0 mA
    HOLD = last value
- Settings for Service Functions:
- Locking code - Enter the locking code for enabling the device.
- Change locking code - Freely selectable code 1 to 9999. 0 = no locking
- Simulation output 1 or 2 - OFF: No simulation
    OPEN: Switch output open
    CLOSE: Switch output closed
    Simulation values for analog output in mA (3.5 / 4.0 / 8.0 / 12.0 / 16.0 / 20.0 / 21.7)

ETS Series

prosense® Temperature Transmitter Configuration Software

prosense®
XT-SOFT

XT-SOFT   *XT-USB*   *XT-M12*

Part No.	Description	Pcs/Pkg	Wt(lb)	Price
XT-SOFT	ProSense configuration software, free download. For use with ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV.	1	N/A	Free Download
Field Device Configurator	ProSense configuration software, free download. For use with ProSense temperature transmitter series XTH2-0-UNV and XTD2-0-UNV.	1	N/A	Free Download
XT-USB	ProSense configuration cable, USB to keyed 4-pin male, 7.9 ft/2.4 m cable length. For use with XT-SOFT and Field Device Configurator software, ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV, XTH2-0-UNV, and XTD2-0-UNV.	1	0.4	$124.00
XT-M12	ProSense adapter, keyed 4-pin female to 4-pin M12. For use with ProSense temperature transmitter XTP series and XT-USB cable.	1	0.1	$21.00

Connection Examples

XTH2-0-UNV Connection
(Requires Field Device Configurator)
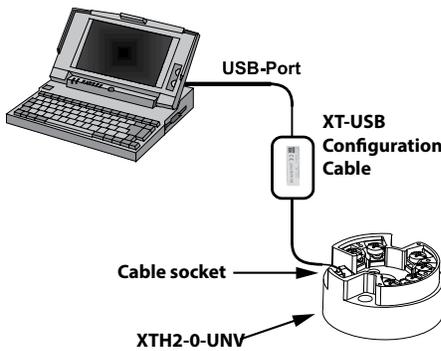
USB-Port

XT-USB Configuration Cable

Cable socket

XTH2-0-UNV

XTD2-0-UNV Connection
(Requires Field Device Configurator)

USB-Port

XT-USB Configuration Cable

Cable socket

XTD2-0-UNV

XTP Series Connection (Requires XT-SOFT)

USB-Port

XT-USB Configuration Cable

XT-M12 Adapter

XTP Series

Powered from USB port
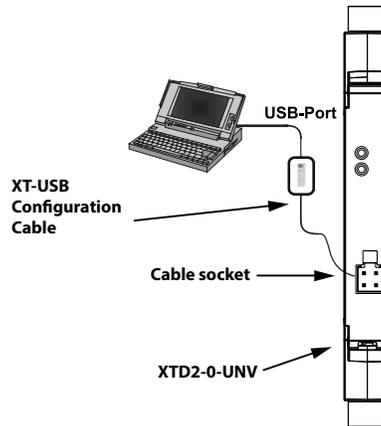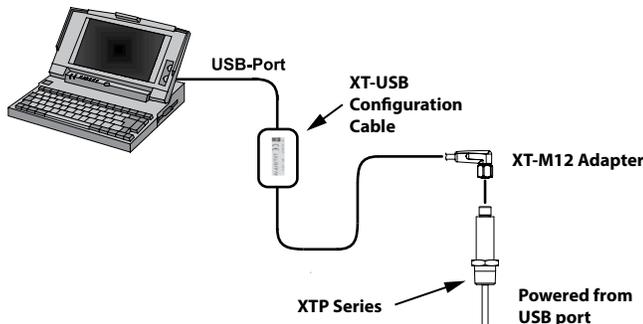
Note: XT-SOFT version 1.27.13.0 or later required for use with the XTP series transmitters

ETS Series Connection (Requires XT-SOFT)

XT-USB Configuration Cable

USB-Port

ETS Series

External power not required for programming via XT-USB & XT-SOFT
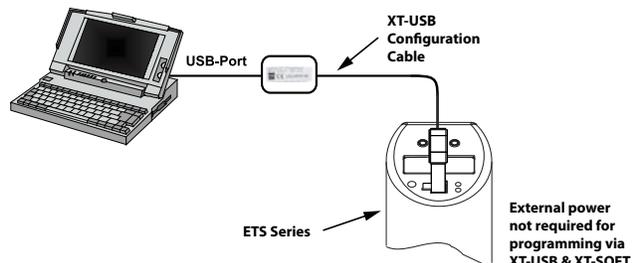
Note: XT-SOFT version 1.27.15.0 or later required for use with the ETS Series.

Scan the QR Code or click to view the help file for the XT-SOFT software.

Scan the QR Code or click to view the help file for the ProSense Field Device Configurator software.