

# pro<sup>sense</sup> Temperature Transmitters - DIN Rail Mounted



**XTD**

## Features - Non-programmable Models

- Sensor Types:**
- Models for thermocouple Types J, K, or T
  - Models for RTD Type Pt100 3-wire
  - Select from a variety of pre-configured measuring ranges
  - Internal cold junction compensation for thermocouple input models
  - Transmitter is powered by 12-35 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 on 35mm DIN rail in a control panel
- 2 kVAC isolation between input and output



ProSense DIN Rail Mounted Temperature Transmitter Series					
Part Number	Input Type	Range	Pcs/Pkg	Wt(lb)	Price
<b>XTD-N40140F-PT1</b>	Pt100 RTD (to IEC 751) ( $\alpha=0.00385$ )	-40 to 140°F (-40 to 60°C)	1	0.2	
<b>XTD-0100F-PT1</b>		0 to 100°F (-17.8 to 37.8°C)	1	0.2	
<b>XTD-0200F-PT1</b>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	
<b>XTD-0300F-PT1</b>		0 to 300°F (-17.8 to 148.9°C)	1	0.2	
<b>XTD-0500F-PT1</b>		0 to 500°F (-17.8 to 260°C)	1	0.2	
<b>XTD-0100F-J</b>	J thermocouple (to NIST Monograph 175, IEC584)	0 to 100°F (-17.8 to 37.8°C)	1	0.2	
<b>XTD-0200F-J</b>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	
<b>XTD-0300F-J</b>		0 to 300°F (-17.8 to 148.9°C)	1	0.2	
<b>XTD-0500F-J</b>		0 to 500°F (-17.8 to 260°C)	1	0.2	
<b>XTD-0800F-J</b>		0 to 800°F (-17.8 to 426.7°C)	1	0.2	
<b>XTD-01000F-J</b>		0 to 1000°F (-17.8 to 537.8°C)	1	0.2	
<b>XTD-0100F-K</b>	K thermocouple (to NIST Monograph 175, IEC584)	0 to 100°F (-17.8 to 37.8°C)	1	0.2	
<b>XTD-0200F-K</b>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	
<b>XTD-0300F-K</b>		0 to 300°F (-17.8 to 148.9°C)	1	0.2	
<b>XTD-0500F-K</b>		0 to 500°F (-17.8 to 260°C)	1	0.2	
<b>XTD-0800F-K</b>		0 to 800°F (-17.8 to 426.7°C)	1	0.2	
<b>XTD-01000F-K</b>		0 to 1000°F (-17.8 to 537.8°C)	1	0.2	
<b>XTD-01500F-K</b>		0 to 1500°F (-17.8 to 815.5°C)	1	0.2	
<b>XTD-02000F-K</b>		0 to 2000°F (-17.8 to 1093.3°C)	1	0.2	
<b>XTD-N2000F-T</b>	T thermocouple (to NIST Monograph 175, IEC584)	-200 to 0°F (-128.9 to -17.8°C)	1	0.2	
<b>XTD-N100100F-T</b>		-100 to 100°F (-73.3 to 37.8°C)	1	0.2	
<b>XTD-0200F-T</b>		0 to 200°F (-17.8 to 93.3°C)	1	0.2	



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 XTD Series product insert.

# proense® Temperature Transmitters - DIN Rail Mounted



**XTD-0-UNV**

## Features - Programmable Models

### Sensor Types:

- Thermocouple Types J, K, T, E, N, R, S, U, B, C, D, L
- RTD Types Pt100, Pt500, Pt1000, Pt50, Ni100, Ni120, Ni500, Ni1000 (2, 3 or 4-wire)
- Linear Resistance 10 to 400 Ohms, 10 to 2000 Ohms (2, 3 or 4-wire)
- Millivolts -10 to 100 mV
- Measuring range configurable within the full range of the sensor type selected
- Selectable units of °F or °C
- Choose from internal or external cold junction compensation for TC inputs
- Wire resistance compensation for 2-wire RTDs
- Transmitter is powered by 12-35 VDC and is reverse-polarity protected

- Output is linearized 2-wire current loop and can be configured for 4-20mA or 20-4mA
- 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
- Mounts on 35mm DIN rail in a control panel
- 2 kVAC isolation between input and output
- Quick and easy configuration with Free XT-SOFT software and XT-USB cable (purchased separately) – NO decade box, meters, or signal generators needed!



ProSense DIN Rail Mounted Temperature Transmitters									
Part No.	Input Type	Programmable Measuring Range limits	Min. Span	Pcs/Pkg	Wt(lb)	Price			
XTD-0-UNV	Pt100 RTD Pt500 RTD Pt1000 RTD (to IEC 751) ( $\alpha=0.00385$ )	-328 to 1562°F (-200 to 850°C) -328 to 482°F (-200 to 250°C) -328 to 482°F (-200 to 250°C)	18°F (10°C) 18°F (10°C) 18°F (10°C)	1	0.2				
	Ni100 RTD Ni120 RTD Ni500 RTD Ni1000 RTD (to DIN 43760) ( $\alpha=0.006180$ )	-76 to 356°F (-60 to 180°C) -94 to 518°F (-70 to 270°C) -76 to 302°F (-60 to 150°C) -76 to 302°F (-60 to 150°C)	18°F (10°C) 18°F (10°C) 18°F (10°C) 18°F (10°C)						
	Pt50 RTD Pt100 RTD (to GOST) ( $\alpha=0.003911$ )	-328 to 2012°F (-200 to 1100°C) -328 to 1562°F (-200 to 850°C)	18°F (10°C) 18°F (10°C)						
	<b>RTDs:</b> <ul style="list-style-type: none"> <li>• Connection type: 2-, 3-, or 4-wire connection</li> <li>• Software compensation of cable resistance possible in the 2 wire system (0-20Ω)</li> <li>• Sensor cable resistance max. 11Ω per cable in the 3 and 4 wire system</li> <li>• Sensor current: <math>\leq 0.6\text{mA}</math></li> </ul>								
	Resistance Ω	10 to 400 Ω 10 to 2000 Ω	10 Ω 100 Ω						
	Thermocouples: Type B Type E Type J Type K Type N Type R Type S Type T (to NIST Monograph 175, IEC 584)	32 to 3308°F (0 to +1820°C) -328 to 1679°F (-200 to +915°C) -328 to 2192°F (-200 to +1200°C) -328 to 2501°F (-200 to +1372°C) -454 to 2372°F (-270 to +1300°C) 32 to 3214°F (0 to +1768°C) 32 to 3214°F (0 to +1768°C) -328 to 752°F (-200 to +400°C)	900°F (500°C) 90°F (50°C) 90°F (50°C) 90°F (50°C) 90°F (50°C) 900°F (500°C) 900°F (500°C) 90°F (50°C)						
	Thermocouples: Type C Type D (to ASTM E988)	32 to 4208°F (0 to +2320°C) 32 to 4523°F (0 to +2495°C)	900°F (500°C) 900°F (500°C)						
	Thermocouples: Type L Type U (to DIN 43710)	-328 to 1652°F (-200 to +900°C) -328 to 1112°F (-200 to +600°C)	90°F (50°C) 90°F (50°C)						
	<b>Thermocouples:</b> <ul style="list-style-type: none"> <li>• Internal cold junction (Pt100) or external programming fixed value, 32 to 176°F (0 to 80°C)</li> <li>• Accuracy of cold junction: <math>\pm 1.8^\circ\text{F}</math> (1°C)</li> <li>• Sensor current: 30nA</li> </ul>								
	Millivolt (mV)	-10 to 100 mV	5 mV						



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-0007> for a short video on using Universal Temperature Transmitters



Scan the QR Code above or click to view the Programmable Range XTD Series product insert.

# pro<sup>sense</sup> Temperature Transmitters - DIN Rail Mounted

ProSense DIN Rail Mounted Temperature Transmitters General Specifications						
		<i>XTD (PT1 Series)</i>	<i>XTD (J Series)</i>	<i>XTD (K Series)</i>	<i>XTD (T Series)</i>	<i>XTD-0-UNV</i>
<b>Output</b>	<b>Output Signal</b>	4-20 mA				4-20 mA, 20-4 mA programmable
	<b>Signal Transmission</b>	Output linear to temperature				
	<b>Fault Signal</b>	Under ranging / Standard / 3.8 mA Over ranging / Standard / 20.5 mA Sensor break; sensor short circuit down scale / To NAMUR NE 43 / ≤3.6 mA (only applicable to XTD-0-UNV) Sensor break; sensor short circuit up scale / To NAMUR NE 43 / ≥21.0 mA				
	<b>Max. Load Impedance</b>	$(V_{\text{powersupply}} - 12 \text{ V}) / 0.022 \text{ A}$ e.g. (24v-12V)/0.023A=521.74Ω				
	<b>Galvanic Isolation</b>	2 kV AC (input/output)				
	<b>Input Current Requirement</b>	≤ 3.5 mA				
	<b>Current Limit</b>	≤ 23 mA				
	<b>Switch on Delay</b>	4 seconds (during power up output current = 3.8 mA)				
	<b>Response Time</b>	1 second				
	<b>Digital Filter</b>	N/A				0 to 8 seconds (programmable)
	<b>Power Supply</b>	12 to 35 VDC, polarity protected				
<b>Allowable Ripple</b>	≤ 3 V with power supply ≥ 15, Max. frequency = 1 kHz					
<b>Accuracy</b>	<b>Reference Conditions</b>	Calibration temperature 73.4°F ± 9°F (23°C ± 5°C)				
	<b>Maximum Measuring Error</b>	0.36°F (0.2°C) or 0.08%	0.8°F (0.5°C) or 0.08%		See Table 1	
	<b>Influence of Power Supply</b>	≤ ± 0.01%/V deviation from 24 V				
	<b>Load Influence</b>	≤ ± 0.02%/100 Ω				
<b>Long Term Stability</b>	≤ 0.1 K / Year or ≤ 0.05% / Year					
<b>Installation</b>	<b>Orientation</b>	No restrictions				
<b>Environmental</b>	<b>Ambient</b>	-40 to 185°F (-40 to 85°C)				
	<b>Storage</b>	-40 to 212°F (-40 to 100°C)				
	<b>Climate Class</b>	As per IEC 60 654-1, class C				
	<b>Ingress Protection</b>	IP20				
	<b>Shock and Vibration</b>	4g / 2 to 150 Hz as per IEC 60 068-2-6				
	<b>EMC Immunity</b>	See Table 2				
<b>Moisture Condensation</b>	Allowable					
<b>Construction</b>	<b>Materials</b>	Housing: Polycarbonate/ABS, UL94V-0				
	<b>Terminals</b>	Pluggable screw terminal, max. 2.5 mm <sup>2</sup> (14 AWG) solid, or strand with wire end sleeve, recommended torque 0.5-0.7Nm (4.5-6.2lb.in)				
<b>Human Interface</b>	<b>Display</b>	Illuminated yellow LED (2 mm, 0.08 in) signals device operation				
<b>Approvals</b>	CE, UL recognized (UL 3111-1), File # E311366, RoHS					

Table 1 - Maximum Measuring Error XTD-0-UNV		
	Type	Measurement Accuracy*
<b>Resistance Thermometer (RTD)</b>	Pt100, Ni100, Ni120	0.36°F (0.2°C) or 0.08%
	Pt500, Ni500	0.9°F (0.5°C) or 0.20%
	Pt1000, Ni1000	0.54°F (0.3°C) or 0.12%
<b>Thermocouple (TC)</b>	K, J, T, E, L, U	typ. 0.9°F (0.5°C) or 0.08%
	N, C, D	typ. 1.8°F (1.0°C) or 0.08%
	S, B, R	typ. 3.6°F (2.0°C) or 0.08%
	Measurement Range	Measurement Accuracy*
<b>Resistance Transmitter (Ω)</b>	10 to 400 Ω	± 0.1 Ω or 0.08%
	10 to 2000 Ω	± 1.5 Ω or 0.12%
<b>Voltage Transmitters (mV)</b>	-10 to 100 mV	± 20 μV or 0.08%

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

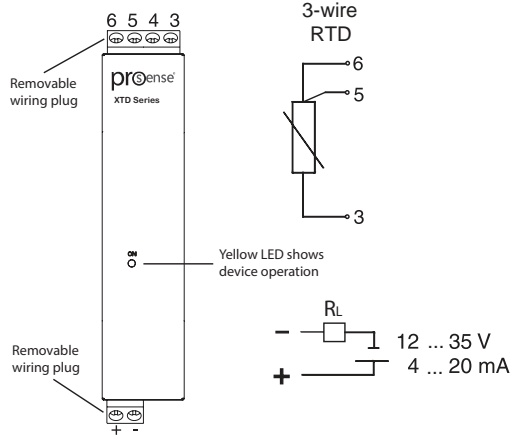
Table 2 - IEC Immunity			
<b>Discharge of Static Electricity</b>	IEC 61000-4-2	6 kV cont., 8 kV air	N/A
<b>Electromagnetic Fields</b>	IEC 61000-4-3	80 to 1000 Hz	10 V/m
<b>Burst (Signal)</b>	IEC 61000-4-4	1 kV; 2 kV (B)**	N/A
<b>Transient Voltage</b>	IEC 61000-4-5	1 kV unsym. / 0.5 kV sym.	N/A
<b>HF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

\*\* self recovery

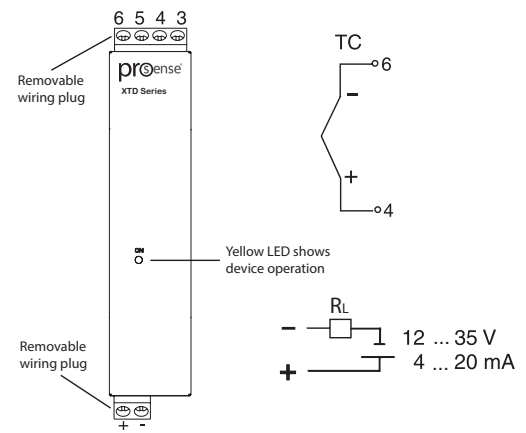
# pro<sup>sense</sup> Temperature Transmitters - DIN Rail Mounted

## Wiring

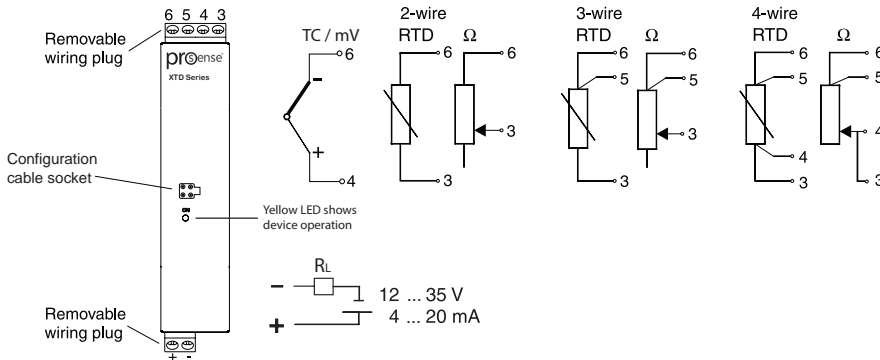
### XTD PT1



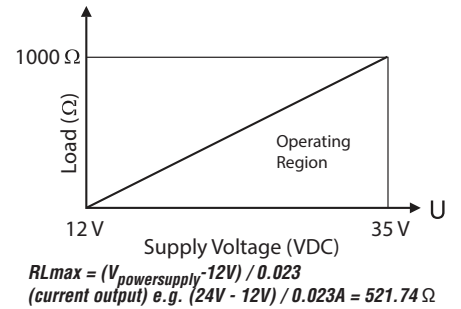
### XTD J, K, & T



### XTD-0-UNV

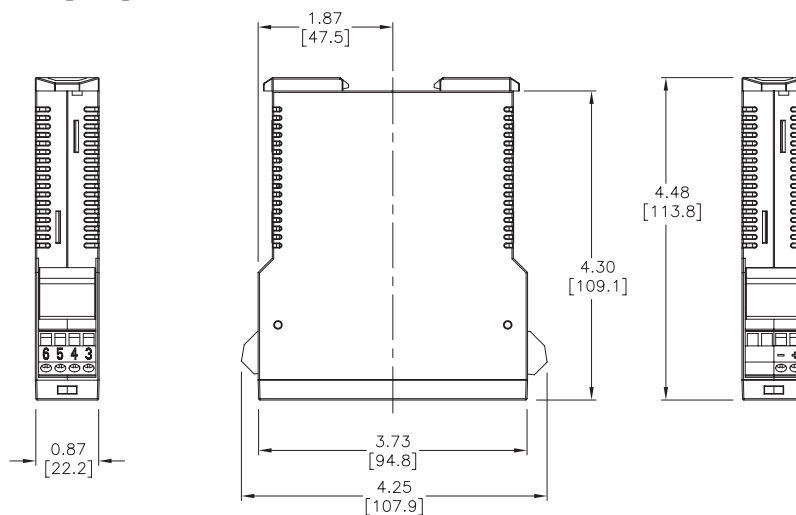


## Load Impedance



## Dimensions

inches [mm]



# pro<sup>sense</sup>® Temperature Transmitter Configuration Software

**Quick and easy configuration with Free XT-SOFT 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 XTH-0-UNV, XTD-0-UNV and XTP series temperature transmitters and ETS series digital temperature sensors. Download your free copy of XT-SOFT at [www.prosense.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.

System Requirements:

- Windows 10
- Windows 7 (32 and 64 bit)
- Windows Vista (64 bit)
- Windows XP
- 1 USB 2.0 Port
- 128 MB hard disk space

## XTP Series Configuration Parameters:

- Measuring unit (°C/°F)
- Measuring range limits -50 to 150°C (-58 to 302°F)
- Fault condition reaction ( $\leq 3.6$  mA or  $\geq 21.0$  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:

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 Line 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**

## ETS Series Configuration Parameters:

Basic Settings:

- Measuring unit (°C/°F/K)
- Offset: Configure zero point:  $\pm 18^\circ\text{F}$  ( $\pm 10^\circ\text{C/K}$ )
- 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



**ETS Series**

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 =  $\leq 3.6$  mA
  - Maximum =  $\geq 21.0$  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)

# pro<sup>sense</sup>® Temperature Transmitter Configuration Software



**XT-SOFT CD**



**XT-USB**



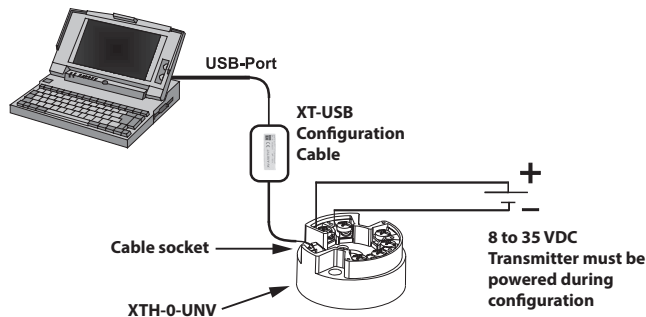
**XT-M12**

Part No.	Description	Pcs/Pkg	Wt(lb)	Price
<b>XT-SOFT</b>	ProSense configuration software, CD or free download. For use with ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV.	1	0.1	
<b>XT-USB</b>	ProSense configuration cable, USB to keyed 4-pin male, 7.9 ft/2.4 m cable length. For use with XT-SOFT configuration software, ProSense temperature transmitter XTP series, digital temperature sensor ETS series and models XTH-0-UNV, XTD-0-UNV.	1	0.4	
<b>XT-M12</b>	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	

## Connection Examples

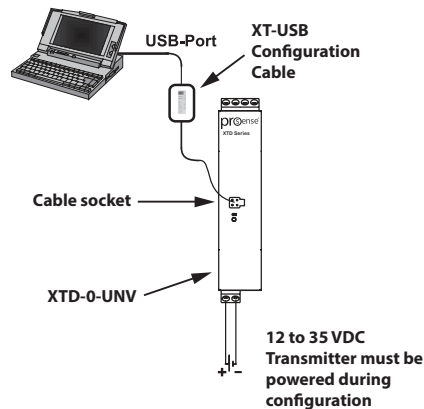
### XTH-0-UNV Connection

XT-SOFT PC configuration software

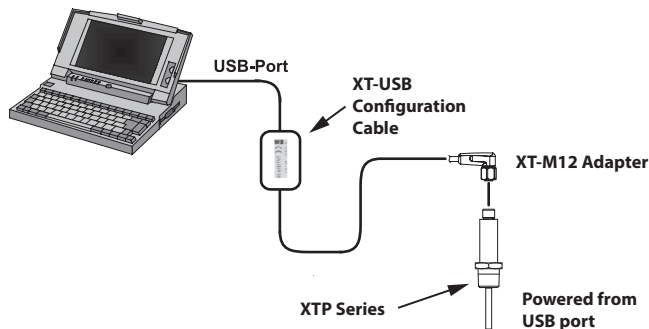


### XTD-0-UNV Connection

XT-SOFT PC configuration software

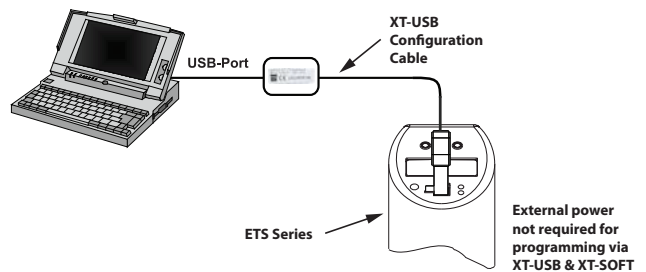


### XTP Series Connection



*Note: XT-SOFT version 1.27.13.0 or later required for use with the XTP series transmitters*

### ETS Series Connection



*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.