

# ONE SERIES SAFETY TRANSMITTER PRESSURE AND TEMPERATURE TRANSMITTER-SWITCH



- **Improve Availability** with reduced nuisance trips
- **Improve Uptime** with safety diagnostics
- **Improve Safety** with SRO to ensure safety function
- **Lower Inventory** a transmitter, switch and gauge in one
- **Simplify Complex Safety Systems** with SFF = 98.8%
- **Reduce Migration Costs** with backward and forward compatibility



## OVERVIEW

The One Series Safety Transmitter is a transmitter-switch for monitoring pressure or temperature and meets the requirements of SIL 2 for random integrity at HFT = 0, SIL 3 for random integrity at HFT = 1 and SIL 3 for systematic capability. The One Series Safety Transmitter incorporates UE's patented IAW self diagnostics, redundant and diverse signal processing and software algorithms to detect abnormalities in the process and internal faults. The design is based on a powerful microprocessor that provides an extremely fast response time for emergency shutdown situations.

Some applications require a local switch that is capable of initiating an emergency shutdown at the point of measure. This avoids any time lag that may occur by sending a signal to a safety PLC and having the PLC initiate the shutdown. This practice can take several (precious) milliseconds. Unique to UE One Series transmitters, the One Series Safety Transmitter can provide the shutdown directly in less than 100 milliseconds, ideal for positive displacement pump applications (for example). This high-capacity safety relay output (SRO) with programmable set point and deadband, handles high voltages and current to actuate a control valve or shut down a compressor directly and rapidly, something a transmitter alone cannot do.

UE is aware that not all Safety Instrumented System (SIS) applications require an emergency shutdown when abnormal conditions are detected. For this reason, the One Series Safety Transmitter provides additional logic outputs for use in voting logic schemes that may be used to report warnings prior to a shutdown. This feature provides the SIS design engineers with the ability to balance the need to provide a safe working environment with the need to keep the process running - but only if conditions permit it.

The combination of features like no moving parts and IAW (I Am Working) self-diagnostics provide a highly reliable, accurate and repeatable monitor for detecting pressure and temperature process variables and making intelligent switch decisions based on retained settings and the process conditions. The IAW feature provides a solution to the "blind device" issue common with mechanical apparatus. The health status of the One Series Safety Transmitter is communicated via the display, 4-20 mA analog signal and IAW status outputs. If a fault is detected, the 4-20 mA signal will output  $\leq 3.6$  mA, compliant to the NAMUR NE 43 standard. Simultaneously, the IAW status signal will change state. By monitoring both signals, redundant methods of fault detection are provided, independent of the process variable.

The One Series Safety Transmitter provides an explosion-proof type 4X/IP66, weather-tight enclosure suitable for harsh environments and hazardous (Class I, Division 1, Zone 1) locations and allowing the One Series Safety Transmitter to be mounted outside. Repeatability of 0.1% of maximum range rivals transmitters that cost much more than the One Series Safety Transmitter. Combined, these features provide an extremely accurate Safety Relay Output (SRO) set point that will not drift over time.

Model 2SLP is loop-powered and operates in a transmitter loop attached to an analog PLC or DCS input and provides a field-scalable 4-20 mA signal over a 2-wire connection. Model 2SLP contains an auxiliary solid-state relay switch rated for 12 - 250 VAC at 5 amperes.

The set point and deadband (hysteresis) of the Safety Relay Output is fully programmable over the entire range of the sensor. Reaction time for the One Series Safety Transmitter to a process change is less than 100 milliseconds - switch outputs only with delay set to "OFF".

## FEATURES

- Digital process display
- Programmable set point and deadband
- Self-diagnostic solid-state digital electronics
- Plug port detection
- Adjustable nuisance trip dampening
- Configurable IAW® self-diagnostics
- Min/Max process values memory
- 3-year warranty
- Provide a SFF = 98.8

**PROCESS DISPLAY MODULE**

The One Series Safety Transmitter process display module features a large, easy-to-read back-lit LCD display, showing the process variable and the health status of the instrument. (See Display Features for a complete description.) Set point, deadband and minimum/maximum process values can be easily accessed from the front of the unit after the locking cover is removed. Programming and interrogating the One Series Safety Transmitter is done through two buttons on the faceplate, providing easy setup and an added level of security from hackers and tampering. No remote hand-held programming device is required.

**HIGH-POWER SAFETY RELAY OUTPUT**

The One Series Safety Transmitter model 2SLP incorporates a Safety Relay Output (SRO) to provide a high-capacity switch rating of 240 VAC at up to 5 amperes. The SRO may be used to provide an emergency shutdown signal locally, at the point of measure, to external equipment such as a motor control center (MCC) or electrically actuated valve positioner. The state of the SRO (open or closed) may be monitored with a logic solver using the SRO Status output.





## APPLICATION VERSATILITY

For alarm and shutdown switching applications, there is no better choice than the *One Series* family of electronic switches from United Electric Controls. Measuring gauge pressure, differential pressure or temperature, the extremely rugged and reliable *One Series* takes all of the guess-work out of monitoring process variables to prevent injury, loss and downtime. With its large digital display, fully-adjustable deadband, and 100% solid-state design, the *One Series* is the obvious choice for plant upgrades and new construction projects. A built-in microprocessor includes digital repeatability and intelligent self-diagnostics, offering plant operators an extremely reliable and smart protection device.

Proven in use in literally thousands of diverse applications, UE's explosion-proof *One Series* models extend this revolutionary switching technology to Zone 1 (Division 1) areas.

Here are just a few applications:

- Safety systems – meets the requirements of SIL 2 for random integrity at HFT = 0, SIL 3 for random integrity at HFT = 1 and SIL 3 for systematic capability.
- FMEDA report available upon request
- Pumps and compressors – start/stop, emergency shutdown
- Lubricating oil monitoring – sump temperature, bearing pressure, predictive maintenance
- Hydraulic oil pressure – high pressure monitoring, emergency shutdown, low pressure alarm
- Filter monitoring – change indication, proving flow
- Plant upgrades – power and wastewater plant upgrades, drop-in replacement for mechanical switches

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**SPECIFICATIONS**

**Power input/  
Switch output:**

| Model  | Input Type (Range)                                            | Max Switch Ratings (SPST) |
|--------|---------------------------------------------------------------|---------------------------|
| 2SLP47 | 2-Wire 24 VDC analog input loop powered (20-40 VDC) @ 4-20 mA | 12-250 VAC @ 5.0 A        |

**Accuracy:** 0.5% of full range span, at room temperature

**Repeatability:** 0.1% of full range span

**Ambient operating temperature range:**

|      | Approved Ambient Operating Temperature Range |              |                            |              |
|------|----------------------------------------------|--------------|----------------------------|--------------|
|      | cULus (Division System)                      |              | cULus & ATEX (Zone System) |              |
| 2SLP | -40°F (-40°C)                                | 158°F (70°C) | -40°F (-40°C)              | 158°F (70°C) |

**Display operating temperature range:** 10°F (-12°C) 158°F (70°C)



### SPECIFICATIONS (CONTINUED)

- Long-term stability:** ±0.25% of range/year maximum
- Temperature drift:** 0.03% of full scale per °C (0.06% for the K10 range)  
Compensated temperature range for P10, K10 range is -20°C to 50°C
- Switch response time:** "Change-of-output" response ≤ 100 mS (for detection of full step change and change of output state, delay feature off)
- Display response time:** 400 mS (2.5 Hz)
- Transient filtering:** Programmable time constants between 250 mS and 2 seconds in 2X increments
- Diagnostics (IAW®):** Open or shorted sensor; plugged port; power supply out of range; over and under-range conditions; microprocessor faults/failure; keypad short; switch fault

**Control modes:** Field-configuration for SRO switch action with programmable manual reset

| Mode      | Action                | Fault |
|-----------|-----------------------|-------|
| Open Rise | Open on rising media  | Open  |
| Open Fall | Open on falling media | Open  |
| Window    | Open outside window   | Open  |

**Analog output:** Compliant to NAMUR NE 43 4-20 mA output, 360 ohms max. at 24 VDC, Field scalable, 2:1 turn down. Various faults are indicated at ≤3.6 mA. See installation manual for details.

**Safety Relay Output Set point & deadband:** User-configured, 100% adjustable over entire sensor operating range, deadband of 0 is undefined

**Status Outputs:**  
**SRO Status** - 30 VDC @ 20 mA Maximum  
**IAW Output** - 30 VDC @ 20 mA Maximum

**Enclosure:** Type 4X/IP66 certified polyester painted aluminum alloy 360

**Faceplate:** UV-resistant pressure sensitive keypad and display overlay

**Cover:** Polyester painted aluminum with tempered glass insert

**Conduit:** 3/4" NPT female aluminum casting

**SPECIFICATIONS (CONTINUED)**

- Display:** Backlit
- Local 4 digit x 0.5" LCD
  - IAW® (I Am Working) status
  - Process variable
  - Units of measure
  - Switch status
  - Latch status
  - Set point value
  - Deadband value
  - Min/Max values
  - Fault codes
- Memory:** Programming and data protected by non-volatile EEPROM
- Sensors:**
- Gauge Pressure** – 316L stainless steel, welded diaphragm, 1/2" NPT (female) process connection, micro-machined piezo-resistive strain gauge silicon element, 0.25 ml silicone oil fill.  
Maximum media temperature: -40 to 257°F (-40 to 125°C)
- Differential Pressure** - 316L stainless steel, welded diaphragms, 1/4" NPT (male) process connections, piezo-resistive strain gauge silicon element, silicone oil fill.  
Maximum media temperature: -40 to 257°F (-40 to 125°C)
- Temperature** – 316 stainless steel 0.25" OD sheath containing a 100 ohm 4-wire platinum RTD element available with epoxy fill (local low temp) or powder fill (remote high temp).  
Media temperature limits:  
-328 to 1000°F, intermittent to 1100°F (-200 to 538°C, int. to 593°C) for TH and TT ranges  
-40 to 500°F (-40 to 260°C) for TR and TL ranges
- Vacuum:** All pressure sensors withstand deep vacuum with no calibration effects. Two compound vacuum ranges are available-P06 and P08 (see page 8).
- EMI/RFI:** Compliance to CE EMC requirements: EN 61000-6-2, EN 61000-6-4
- Emission:** EN 61000-6-4 Class A
- Immunity:**
- EN 61000-4-2 Immunity to Electrostatic Discharge
  - EN 61000-4-3 Immunity to Continuous Radiated Disturbances
  - EN 61000-4-4 Immunity to Electrical Fast Transients
  - EN 61000-4-5 Immunity to Surges
  - EN 61000-4-6 Immunity to Continuous Conducted Disturbances
  - EN 61000-4-11 Immunity to Voltage Dips and Interruptions
- Weight:** 4.5 - 6.0 lbs (2.0 - 2.7 kg)
- Shock:** per MIL-STD-810G method 516.6 – when device is subjected to 15 g (10 mSec) and 40 g (6 mSec); 3 drops/axis  
Effects: less than +/- 0.40% of range
- Vibration:** per IEC 61298-3 (field and pipeline applications with high vibration level, 10-1000 Hz range, 0.014" displacement peak amplitude, 5 g acceleration amplitude)  
Effects: less than +/- 0.40% of range

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## HOW TO ORDER

Build a part number by selecting the model, sensor and options from the tables below.

| Model  | Description                                                                                                                                                                 | Zone |   |   | Division |   |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|---|----------|---|
|        |                                                                                                                                                                             | 0    | 1 | 2 | 1        | 2 |
| 2SLP47 | 2-wire loop-powered or 24V external powered, 4-20 mA output, programmable solid-state relay rated @ 250 VAC, 5 amperes, 2 status switch outputs rated at 30 VDC, 20 mA max. |      | ✓ | ✓ | ✓        | ✓ |

Example: 2SLP47 P15-M041

| Sensor                                                                                                                                                     | Pressure Operating Range <sup>1</sup> + display resolution |           |            |           |                          | Maximum Over Range <sup>2</sup> |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------|------------|-----------|--------------------------|---------------------------------|-----------|
| Gauge pressure, piezo-resistive strain gage, silicone oil fill, 316L stainless wetted materials, 1/2" NPT (female) process connection, displayed as shown. |                                                            |           |            |           |                          |                                 |           |
| P06                                                                                                                                                        | -14.7 to 30 psig                                           | 831.1" wc | 2068 mbar  | 206.8 KPa | 2.109 kg/cm <sup>2</sup> | 60 psig                         | 4137 mbar |
| P08                                                                                                                                                        | -14.7 to 100 psig                                          | 2770" wc  | 6895 mbar  | 689.5 KPa | 7.031 kg/cm <sup>2</sup> | 200 psig                        | 13,8 bar  |
| P10                                                                                                                                                        | 0-5.00 psig                                                | 138.5 "wc | 344,7 mbar | 34.47 KPa | 0.352 kg/cm <sup>2</sup> | 10 psig                         | 690 mbar  |
| P11                                                                                                                                                        | 0-15.00 psig                                               | 415.5 "wc | 1034 mbar  | 103.4 KPa | 1.055 kg/cm <sup>2</sup> | 30 psig                         | 2068 mbar |
| P12                                                                                                                                                        | 0-30.00 psig                                               | 831.1 "wc | 2068 mbar  | 206.8 KPa | 2.109 kg/cm <sup>2</sup> | 60 psig                         | 4137 mbar |
| P13                                                                                                                                                        | 0-50.00 psig                                               | 1385 "wc  | 3447 mbar  | 344.7 KPa | 3.516 kg/cm <sup>2</sup> | 100 psig                        | 6895 mbar |
| P14                                                                                                                                                        | 0-100.0 psig                                               | 2770 "wc  | 6895 mbar  | 689.5 KPa | 7.031 kg/cm <sup>2</sup> | 200 psig                        | 13,8 bar  |
| P15                                                                                                                                                        | 0-300.0 psig                                               | NA        | 20,68 bar  | 2068 KPa  | 21.09 kg/cm <sup>2</sup> | 600 psig                        | 41,4 bar  |
| P16                                                                                                                                                        | 0-500.0 psig                                               | NA        | 34,47 bar  | 3447 KPa  | 35.16 kg/cm <sup>2</sup> | 1000 psig                       | 68,9 bar  |
| P17                                                                                                                                                        | 0-1000 psig                                                | NA        | 68,95 bar  | 6895 KPa  | 70.31 kg/cm <sup>2</sup> | 2000 psig                       | 137,9 bar |
| P18                                                                                                                                                        | 0-3000 psig                                                | NA        | 206,8 bar  | 20.68 MPa | 210.9 kg/cm <sup>2</sup> | 6000 psig                       | 413,7 bar |
| P19                                                                                                                                                        | 0-4500 psig                                                | NA        | 310,3 bar  | 31.03 MPa | 316.4 kg/cm <sup>2</sup> | 9000 psig                       | 620,5 bar |
| P20                                                                                                                                                        | 0-6000 psig                                                | NA        | 413,7 bar  | 41.37 MPa | 421.9 kg/cm <sup>2</sup> | 12000 psig                      | 827,4 bar |



## HOW TO ORDER CONT.

| Sensor                                                                                                                                                           | Pressure Operating Range <sup>1</sup> + display resolution |           |            |           |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------|------------|-----------|--------------------------|
| Differential pressure, piezo-resistive strain gage, silicone oil fill, 316L stainless wetted materials, 1/4" NPT (male) process connections, displayed as shown. |                                                            |           |            |           |                          |
| K10                                                                                                                                                              | 0-5.000 psid                                               | 138.5 "wc | 344,7 mbar | 34.47 KPa | 0.352 kg/cm <sup>2</sup> |
| K11                                                                                                                                                              | 0-50.00 psid                                               | 1385 "wc  | 3447 mbar  | 344.7 KPa | 3.516 kg/cm <sup>2</sup> |
| K12                                                                                                                                                              | 0-100.0 psid                                               | 2770 "wc  | 6895 mbar  | 689.5 KPa | 7.031 kg/cm <sup>2</sup> |
| K13                                                                                                                                                              | 0-200.0 psid                                               | NA        | 13,79 bar  | 1379 KPa  | 14.10 kg/cm <sup>2</sup> |

| Sensor | Maximum Over Range <sup>2</sup> |           | Maximum Working Pressure <sup>3</sup> |           |
|--------|---------------------------------|-----------|---------------------------------------|-----------|
| K10    | 10 psid                         | 690 mbar  | 50 psig                               | 3447 mbar |
| K11    | 100 psid                        | 6895 mbar | 500 psig                              | 34,47 bar |
| K12    | 200 psid                        | 13,8 bar  | 1500 psig                             | 103,4 bar |
| K13    | 400 psid                        | 27,6 bar  | 1500 psig                             | 103,4 bar |

1 - The pressure range that the sensor will perform within specified tolerances.

2 - The maximum pressure that can be applied without affecting sensor performance.

3 - The maximum pressure that can be applied to both ports simultaneously without affecting sensor performance. Pressure on the "H" sensor port must be ≥ pressure on the "L" sensor port.

| Sensor                                                                                                          | Temperature Range                                           | Description (see page 13 for sensor drawings)                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature – 4-wire RTD, 100 Ω platinum, DIN 0.00385, 0.25" OD sensor sheath, 316 stainless steel construction |                                                             |                                                                                                                                                                                                                   |
| TL1                                                                                                             | -40 to 450°F/-40 to 232°C<br>(See page 11 fitting options)  | Local (stem) mounted rigid to enclosure, 4" sheath length                                                                                                                                                         |
| TL2                                                                                                             |                                                             | Local (stem) mounted rigid to enclosure, 6" sheath length                                                                                                                                                         |
| TL3                                                                                                             |                                                             | Local (stem) mounted rigid to enclosure, 10" sheath length                                                                                                                                                        |
| TR1                                                                                                             |                                                             | Remote mounted, 2.5" sheath, 6' MI fixed extension length                                                                                                                                                         |
| TRC                                                                                                             |                                                             | Remote mounted, 2.5" sheath, 1' to 30' MI extension length MUST BE SPECIFIED. USE OPTION W074 ONLY.                                                                                                               |
| TH1                                                                                                             | -40 to 1000°F/-40 to 538°C<br>(See page 11 fitting options) | Remote mounted, 2.5" sheath, 6' MI fixed extension length                                                                                                                                                         |
| THC                                                                                                             |                                                             | Remote mounted, 2.5" sheath, 1' to 30' MI extension length MUST BE SPECIFIED. USE OPTION W074 ONLY.                                                                                                               |
| TC1                                                                                                             | -300 to 200°F/-184 to 93°C<br>(See page 11 fitting options) | Remote mounted, 2.5" sheath, 6' MI fixed extension length                                                                                                                                                         |
| TCC                                                                                                             |                                                             | Remote mounted, 2.5" sheath, 1' to 30' MI extension length MUST BE SPECIFIED. USE OPTION W074 ONLY.                                                                                                               |
| TTC                                                                                                             | -40 to 900°F/-40 to 482°C<br>(Example: TTC-NUN6-L 10.5)     | Local (stem) spring-loaded mount, NUN connection lengths: 4" – 10" in 1" increments, variable sheath (L) length up to 60", BOTH MUST BE SPECIFIED. Refer to drawing on page 13. Thermowell required, see page 11. |
| Thermowells and fittings are shown on page 11.                                                                  |                                                             |                                                                                                                                                                                                                   |



### OPTION CODES

**M041** Dual Seal - Provides secondary process seal for all pressure models

**M201** Factory programmed set point, deadband and switch mode

**(For Open on Rise or Open on Fall modes, all 3 settings are required at time of ordering - see example below)**

| Set Point <sup>1</sup> | Deadband <sup>1</sup> | Switch Mode  |
|------------------------|-----------------------|--------------|
| 40.00                  | 25.00                 | Open on rise |

**(For window mode all 4 settings are required at time of ordering - see example below)**

| Set Point High <sup>1</sup> | Deadband High <sup>1</sup> | Set Point Low <sup>1</sup> | Deadband Low <sup>1</sup> |
|-----------------------------|----------------------------|----------------------------|---------------------------|
| 60.00                       | 12.00                      | 18.00                      | 10.00                     |

**M270** Display units, degrees C for temperature models

**M275** Display units, inches of water column

**M276** Display units, bar or mbar

**M277** Display units, kPa or MPa

**M278** Display units, kg/cm<sup>2</sup>

**M444** Paper tag

**M446** Stainless steel tag

**M449** Mounting bracket for pipe or wall. Use part number 6361-704 if ordered separately. See page 12 for additional information.

**M550** Oxygen cleaning service

**W073** 1/2" NPT male compression fitting for use with all TL and TR sensors, see page 8 for additional information

**W074** 1/2" NPT male union connector for use with all TR, TH and TC sensors

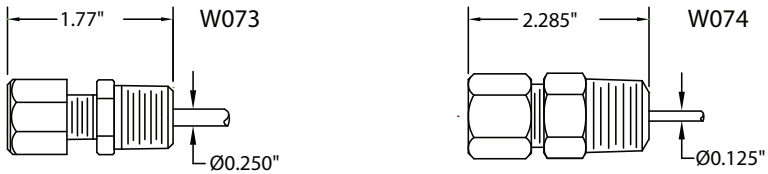
**W081** Thermowell adapter - Adapts 3/8" Thermowell to 1/4" sensor sheath

**W930** 1/2" NPT male to G1/2 male adapter for use with gauge pressure sensors P06-P20. Use part number 6361-762 if ordered separately.

**W932** 1/4" NPT female to G1/2 male adapter for use with differential pressure sensors K10-K13. Use part number 6361-763 if ordered separately (2 required)

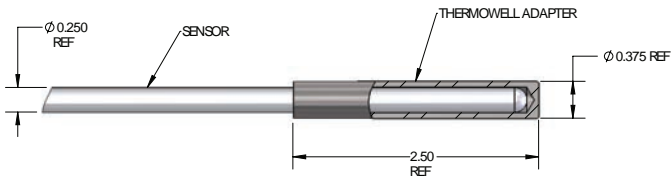
<sup>1</sup>**Note: Four digits must be entered for each set point and deadband. Please refer to the display resolution chart on pages 8 & 9 for the correct number of decimal places allowed for the sensor range and units of measure selected.**

**TEMPERATURE SENSORS AND FITTINGS COMPATIBILITY CHART**

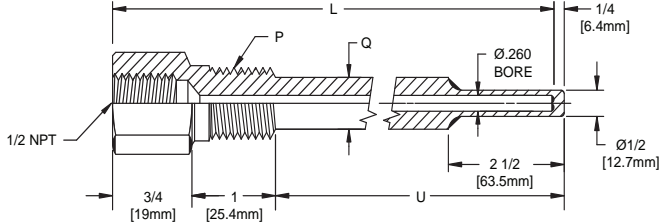


| Model (Table 1) | W073<br>1/2" NPT compression fitting with ferrule to fit 0.25" sensor sheath | W074<br>1/2" NPT union connection to fit 0.125" sensor extension cable |
|-----------------|------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 2SLP            | TLx                                                                          | TRx, THx, TCx                                                          |

**Thermowell Adapter Option W081**



**Thermowell**



**Fittings for Thermowells (Table 2)**

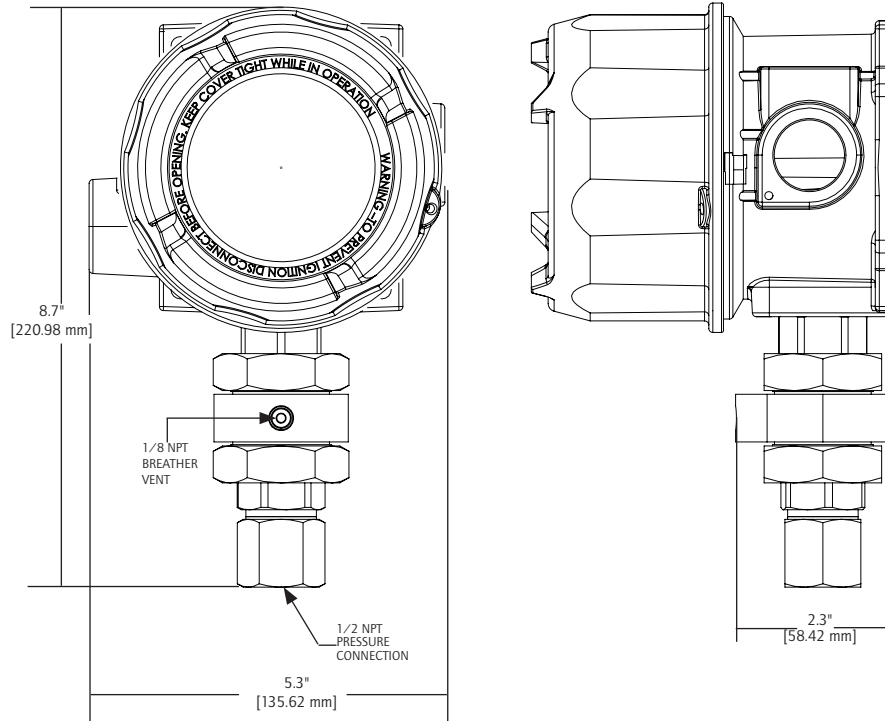
| Thermowell<br>UE Part # | Length (L)<br>Inches | P (NPT) | Q   | U    | Local Temperature Sensors w/<br>0.25" Sensor Sheath <sup>1</sup> |          |           | Remote<br>Temperature<br>Sensors w/<br>0.125" Diameter<br>MI Cable <sup>1</sup> |
|-------------------------|----------------------|---------|-----|------|------------------------------------------------------------------|----------|-----------|---------------------------------------------------------------------------------|
|                         |                      |         |     |      | TL1 (4")                                                         | TL2 (6") | TL3 (10") | TR, TH & TC                                                                     |
| 1S260 L4-316            | 4                    | 1/2     | 5/8 | 2.5  | NA                                                               | W073     | W073      | W074                                                                            |
| 1S260 L4.5-316          | 4.5                  | 1/2     | 5/8 | 3    | NA                                                               | W073     | W073      | W074                                                                            |
| 1S260 L5.5-316          | 5.5                  | 1/2     | 5/8 | 4    | NA                                                               | NA       | W073      | W074                                                                            |
| 1S260 L6-316            | 6                    | 1/2     | 5/8 | 4.5  | NA                                                               | NA       | W073      | W074                                                                            |
| 1S260 L6.5-316          | 6.5                  | 1/2     | 5/8 | 5    | NA                                                               | NA       | W073      | W074                                                                            |
| 1S260 L9-316            | 9                    | 1/2     | 5/8 | 7.5  | NA                                                               | NA       | NA        | W074                                                                            |
| 1S260 L9.5-316          | 9.5                  | 1/2     | 5/8 | 8    | NA                                                               | NA       | NA        | W074                                                                            |
| 1S260 L12-316           | 12                   | 1/2     | 5/8 | 10.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 1S260 L15-316           | 15                   | 1/2     | 5/8 | 13.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 1S260 L18-316           | 18                   | 1/2     | 5/8 | 16.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 1S260 L24-316           | 24                   | 1/2     | 5/8 | 22.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 2S260 L4-316            | 4                    | 3/4     | 3/4 | 2.5  | NA                                                               | W073     | W073      | W074                                                                            |
| 2S260 L6-316            | 6                    | 3/4     | 3/4 | 4.5  | NA                                                               | NA       | W073      | W074                                                                            |
| 2S260 L9-316            | 9                    | 3/4     | 3/4 | 7.5  | NA                                                               | NA       | NA        | W074                                                                            |
| 2S260 L12-316           | 12                   | 3/4     | 3/4 | 10.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 2S260 L15-316           | 15                   | 3/4     | 3/4 | 13.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 2S260 L18-316           | 18                   | 3/4     | 3/4 | 16.5 | NA                                                               | NA       | NA        | W074                                                                            |
| 2S260 L24-316           | 24                   | 3/4     | 3/4 | 22.5 | NA                                                               | NA       | NA        | W074                                                                            |

Note: Reference (Table 1) to determine sensor sheath diameter or the diameter of the MI cable by model

## DIMENSIONAL DRAWINGS

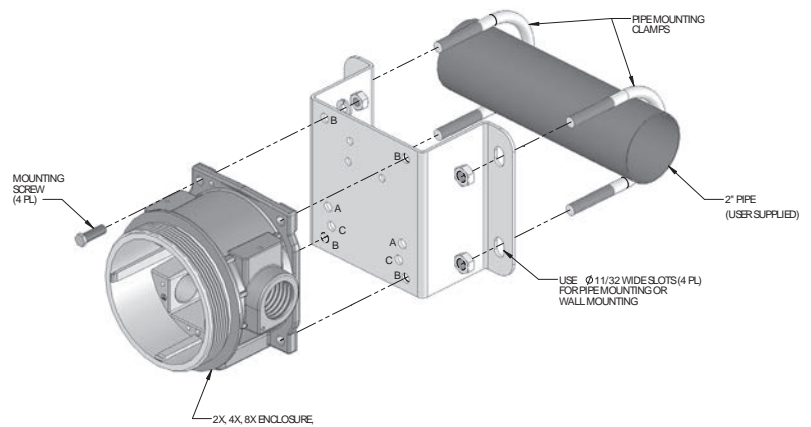
### ENCLOSURE AND SENSOR DETAILS

Shown with gauge pressure sensor and Dual Seal option M041



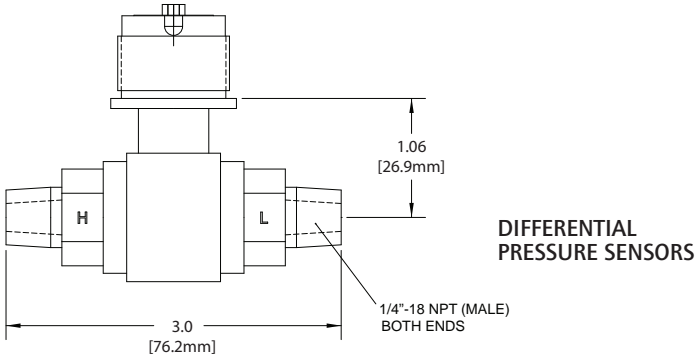
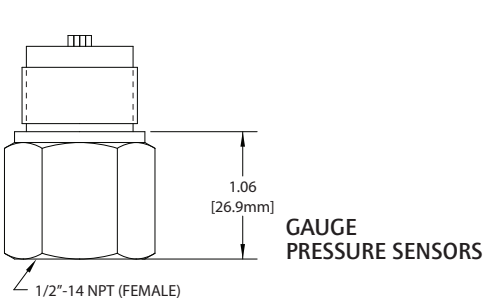
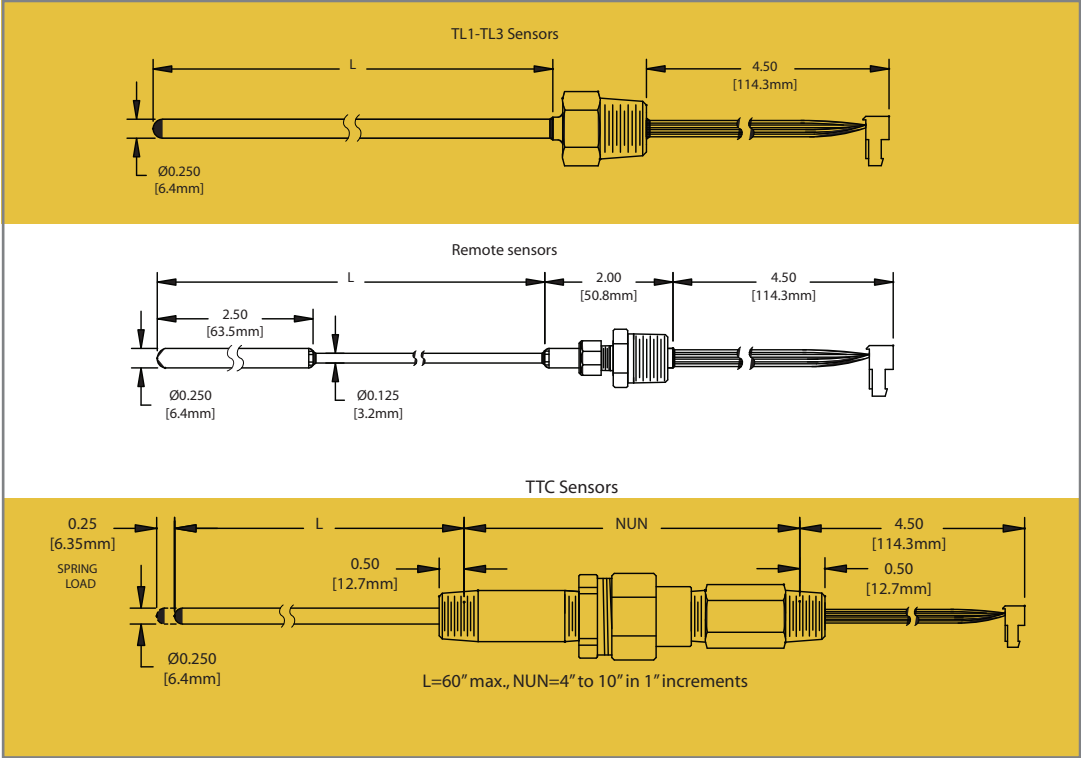
#### Wall or Pipe Mounting Bracket Option M449 or part #6361-704

WARNING: The One Series unit must be secured to a wall or pipe. Do not use the sensor to support the instrument. Contact UE Technical Support at 617-923-6977 or email at techsupport@ueonline.com.



**DIMENSIONAL DRAWINGS (CONTINUED)**

**TEMPERATURE SENSORS**





## APPROVALS & RATINGS

| Model                           | <b>N. America</b><br>UL File# E226592<br>UL Listed, cUL Certified<br>UL 50, 50E, 1203, 60079-0, 60079-1, 61010-1<br>CSA C22.2 No. 25, 30, 60079-0, 60079-1, 61010-1 | <b>Europe</b><br>European Union Directive 94/9/EC (ATEX)<br>EN 60079-0, EN 60079-1, EN 60079-31             | <b>International</b><br>IECEx Scheme<br>IEC 60079-0, IEC 60079-1, IEC 60079-31   |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 25LP Explosion proof/Flameproof | Class I, Groups A, B, C and D; Class II, Groups E, F, G;<br>Class III<br>Class I, Zone 1, AEx d IIC T3/T5**<br>Class I, Zone 1, Ex d IIC                            | Certificate# DEMKO 09 ATEX 0813748X Rev. 1<br>II 2 G Ex d IIC T3/T5**<br>II 2 D Ex tb IIC T+90°C Db<br>IP66 | Certificate# IECEx UL 08.0017<br>Ex d IIC T3/T5**<br>Ex tb IIC T+90°C Db<br>IP66 |

\*\*T3 for pressure sensor ranges P10-P16 only. T5 for all other models.  
 Specifications subject to change without notice.

## ADDITIONAL PRODUCTS FROM UE

### 12 Series – Electro-Mechanical Pressure and Temperature Switch

- Dual seal compliant to ANSI/ISA 12.27.01
- Compact, cylindrical 316 stainless steel enclosure
- Hermetically-sealed SPDT or DPDT switch output
- Explosion-proof
- Snap-acting belleville spring mechanism to enhance vibration resistance and set point stability
- Pressure ranges to 12,500 psi; DP working pressure ranges to 2500 psid; temperature ranges to 650°F



### 120 Series – Electro-Mechanical Pressure and Temperature Switch

- Explosion-proof line of pressure, differential pressure, and temperature models with wide selection of ranges, sensors and pressure connections
- UL, cUL, ATEX certified for hazardous locations
- Single or dual switch outputs
- Welded stainless steel diaphragm pressure sensor
- Internal or external set point adjustment



### TX200 Series HART® & ASIC Pressure Transmitter

- Smart TX200H offers HART 7 communication and 4-20 mA output
- TX200H 10:1 range turndown helps reduce inventory
- ASIC based TX200 offers 4-20 mA output or 1-5 VDC or 0-10 VDC output
- Rugged 316 stainless steel construction, welded and hermetically sealed
- Wide variety of process connections available for pressure ranges from 0 to 15 psi Up to 0 to 25,000 psi



### 117 Series – Electro-Mechanical Pressure and Temperature Switch

- Single switch for corrosive and hazardous division 2 locations
- Compact pressure, differential pressure and temperature models
- Hermetically-sealed SPDT and DPDT switch output
- Epoxy-coated, weather-tight design houses stainless steel internal construction
- Convenient terminal block wiring



### Temperature Sensors

Rugged RTDs and thermocouples for process and energy applications, available with Nema 4X and explosion-proof heads to match heat-trace, turbine, combustion, and stack-emission applications



## RECOMMENDED PRACTICES AND WARNINGS

United Electric Controls Company recommends careful consideration of the following factors when specifying and installing UE pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and maximum temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to maximum pressure or temperature is acceptable on a limited basis (e.g., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum pressure or temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- The adjustable range must be selected so that incorrect, inadvertent or malicious setting at any range point cannot result in an unsafe system condition.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. When applicable, orient unit so that moisture does not enter the enclosure via the electrical connection. When appropriate, this entry point should be sealed to prevent moisture entry.
- Unit must not be altered or modified after shipment. Consult UE if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point or faulty display. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Overload on a switch can cause damage, even on the first cycle. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temp. exceeding published limits.

## LIMITED WARRANTY

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (Ex-works, Factory, Watertown, Massachusetts. INCOTERMS); provided, however, that this warranty applies only to equipment found to be so defective within a period of 36 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives. EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

## LIMITATION OF SELLER'S LIABILITY

SELLER'S LIABILITY TO BUYER FOR ANY LOSS OR CLAIM, INCLUDING LIABILITY INCURRED IN CONNECTION WITH (I) BREACH OF ANY WARRANTY WHATSOEVER, EXPRESSED OR IMPLIED, (II) A BREACH OF CONTRACT, (III) A NEGLIGENT ACT OR ACTS (OR NEGLIGENT FAILURE TO ACT) COMMITTED BY SELLER, OR (IV) AN ACT FOR WHICH STRICT LIABILITY WILL BE INPUTTED TO SELLER, IS LIMITED TO THE "LIMITED WARRANTY" OF REPAIR AND/OR REPLACEMENT AS SO STATED IN OUR WARRANTY OF PRODUCT. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OF A LIKE GENERAL NATURE, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS OR PRODUCTION, OR LOSS OR EXPENSES OF ANY NATURE INCURRED BY THE BUYER OR ANY THIRD PARTY.

*UE specifications subject to change without notice.*

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