



DURABLE, RELIABLE AND VERSATILE: UNITED ELECTRIC CONTROLS' ONE SERIES ELECTRONIC PRESSURE & TEMPERATURE SWITCHES – THE BEST CHOICE FOR BOTH NEW CONSTRUCTION AND PLANT INSTRUMENTATION UPGRADES.

PRODUCT BENEFITS AT A GLANCE:

- LARGE DIGITAL DISPLAY FOR STATUS & PROCESS INDICATION
- 100% PROGRAMMABLE SET POINT & DEADBAND FOR EASY ADJUSTABILITY
- SOLID-STATE DESIGN FOR HIGH-VIBRATION APPLICATIONS
- LOCAL & REMOTE DIAGNOSTICS REPORTING FOR MAXIMUM RELIABILITY
- EXPLOSION-PROOF, INTRINSICALLY SAFE AND NON-INCENDIVE MODELS AVAILABLE FOR HAZARDOUS LOCATIONS
- MULTIPLE APPROVALS INCLUDING:   

ELECTRONIC PRESSURE & TEMPERATURE SWITCHES



ONE SERIES - B - 07



OVERVIEW

United Electric Controls (UE) is renowned for high-quality workmanship and product design, and the *One Series* carries this nearly 80-year tradition well beyond electromechanical switches. UE's *One Series* line of digital electronic pressure and temperature switches sets new standards for quality, reliability and versatility. Designed to meet the needs of harsh and hazardous applications, the *One Series'* advanced self-diagnostics and digital electronics provide the most reliable switches for a variety of diverse industries.

The *One Series* from UE allows you to choose from explosion-proof, intrinsically safe and non-incendive models that monitor gauge pressure, differential pressure or temperature. With up to two fully adjustable set points and deadbands, available

4-20 mA analog output, and absolutely no moving parts, these versatile instruments can now be used in a wide variety of applications where switches weren't previously considered. Featuring a solid-state design, UE's *One Series* is your best choice for tough applications with high cycle rates, vibration and shock. For plant upgrades, there are a variety of power options ranging from 2-wire discrete and analog loop-powered models to externally powered models that can deliver up to 280 VAC at 10 amperes to the load.

With an integral digital display and 4-20 mA output, the *One Series* from UE can effectively do the job of three – replacing a switch, a gauge and a transmitter. Powerful yet easy to install, the *One Series* from UE features tamper-resistance, intuitive programming, and set-up that is fast and easy.

MAKE THE SMART CHOICE. THE ONE SERIES FROM UE IS:

- A reliable, cost-effective solution for upgrading plant instrumentation.
- Ideal for applications that demand a switch that never needs calibration, has programmable adjustability and 0.1% repeatability.
- Easily integrated into a safety instrumented system (SIS) that requires a smart self-diagnostic switch (FMEDA and SIL verification reports available upon request).

KEY FEATURES THAT SET UE'S ONE SERIES APART:

- Digital process display
- Programmable set point and deadband
- Self-diagnostic solid-state digital electronics
- Plug port detection
- Nuisance trip filtering
- Patented electronic IAW® self-diagnostics
- Min/Max process values memory
- 3-year warranty



2X, 4X and 8X models for Zone 1 and Zone 2 areas



2W, 4W and 8W models for Zone 2 areas.

INNOVATIVE TECHNOLOGY

The *One Series'* patented digital design requires extremely low-power, allowing it to operate from residual current derived from a typical programmable logic controller (PLC) or distributed computer system (DCS) discrete input. A micro-processor provides 0.5% accuracy and 0.1% repeatability while monitoring all switch functions, ensuring reliability. Electronic components are surface

mounted and then encapsulated, providing resistance to weather, shock and vibration. Software algorithms include a full-time watch dog, monitoring all vital system functions. Should a fault be detected, the *One Series* from UE will report on the display and use the discrete and analog signals for remote indication, providing the peace of mind that this switch will work when needed.

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 has recently developed explosion-proof *One Series* models, extending this revolutionary switching technology to Zone 1 (Division 1) areas.

Here are just a few:

- Pumps and compressors – start/stop, optimizing, shutdown, staging
- Lubricating oil monitoring – sump temperature, bearing pressure, predictive maintenance
- Hydraulic oil pressure – high pressure monitoring, emergency shutdown, ram cycling
- Filter monitoring – automatic backwash, clog and change indication, proving flow
- Safety systems – safety integrity levels 1 & 2, alarm and shutdown, local switching, fast response time
- Plant upgrades – power and wastewater plant upgrades, drop-in replacement for mechanical switches



The most popular *One Series* application is for pump control.



The *One Series* and other switches monitoring lube oil on a gear box.



The *One Series* mounted on an isolation ring for monitoring wastewater.

SPECIFICATIONS

Power input/Switch output:

Model	Input Type (Range)	Switch Ratings (SPST)	Temperature Derating	Min. Load Requirement
2W2D00 2X2D00	2-Wire 24 VDC discrete input powered (12-30 VDC) @ 750mA	12-30 VDC @ 40 mA		2.3 mA
2W4D00	2-Wire 48 VDC discrete input powered (30-50 VDC) @ 750mA	30-56 VDC @ 40 mA		2.0 mA
2W3A00 2X3A00	2-Wire 120 V discrete input powered (90-130 VAC/VDC) @ 1 mA	90-130 VAC/VDC @ 0.1 A		3.75 mA
2WLP41 2XLP41	2-Wire 24 VDC analog input loop powered (10-36 VDC) @ 4-20 mA	0-140 VAC/VDC @ 0.6 A	8% per 10°C above 21 °C	0 mA
2WLP43 2XLP43	2-Wire 24 VDC analog input loop powered (10-36 VDC) @ 4-20 mA	0-280 VAC/VDC @ 0.3 A		
4W3A01 4X3A01	4-Wire 120 VAC external power supply (90-130 VDC) @ 15mA	24-280 VAC @ 10 A	1.8 A per 10°C above 38°C	150 mA
8W2D42 8X2D42	8-Wire 24 VDC external power supply (10-30 VDC) @ 30 mA	SW1: 75-250 VAC @ 1.5 A SW2: 75-250 VAC @ 1.5 A	10% per 10°C above 21 °C	50mA
8W2D44 8X2D44	8-wire 24 VDC external power supply (10-30 VDC) @ 30 mA	SW1: 75-250 VAC @ 1.5 A SW2: 0-140 VAC/VDC @ 0.6 A		
8W2D45 8X2D45	8-wire 24 VDC external power supply (10-30 VDC) @ 30 mA	SW1: 0-140 VAC/VDC @ 0.6 A SW2: 0-140 VAC/VDC @ 0.6 A	8% per 10°C above 21 °C	0 mA

Accuracy:

0.5% of full range span, at room temperature

Repeatability:

0.1% of full range span

Ambient operating temperature range:

	Approved Operating Temperature Range			
	cULus		ATEX	
2W2D	-40°F (-40°C)	185°F (85°C)	-40°F (-40°C)	140°F (60°C)
2W4D	NA	NA	NA	NA
2WLP	-40°F (-40°C)	176°F (80°C)	-40°F (-40°C)	140°F (60°C)
2W3A	-40°F (-40°C)	185°F (85°C)	-40°F (-40°C)	140°F (60°C)
4W3A	-40°F (-40°C)	158°F (70°C)	-40°F (-40°C)	140°F (60°C)
8W2D	-40°F (-40°C)	176°F (80°C)	-40°F (-40°C)	140°F (60°C)
2X2D	-40°F (-40°C)	185°F (85°C)	-40°F (-40°C)	185°F (85°C)
2XLP	-40°F (-40°C)	176°F (80°C)	-40°F (-40°C)	176°F (80°C)
2X3A	-40°F (-40°C)	185°F (85°C)	-40°F (-40°C)	185°F (85°C)
4X3A	-40°F (-40°C)	158°F (70°C)	-40°F (-40°C)	158°F (70°C)
8X2D	-40°F (-40°C)	176°F (80°C)	-40°F (-40°C)	176°F (80°C)

Display Operating Temperature Range 10°F (-12°C) 158°F (70°C)

Long-term stability:

±0.25% of range/year maximum

Temperature drift:

0.03% of full scale per °C

Switch response time:

"Change-of-output" response ≤ 60 mS (16.7 Hz) (for detection of full step change and change of output state, delay feature off)

Display response time:

400 mS (2.5 Hz)

Response time filtering (Delay):

Software-configurable 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

Output states:

Field selectable for 2-state or 3-state operation.

For 2-state operation: (Default Setting)

Output will remain in one state (open or close) during normal ("inside threshold") operation; change to the opposite state for "at and outside threshold" conditions.

Note: unit must be configured as normally closed (Open rise, Open fall) to distinguish between a diagnostic or other failure and a process upset.

Output states (cont.):	<p>For 3-state operation: Output will remain in closed state during normal ("inside threshold") operation; change to open state to indicate a fault/failure; and rapidly change between closed and open (pulse) state during "at and outside threshold" conditions. Pulse rates vary by model. Fast and slow rates are selectable. See installation manual for details.</p>																		
Control modes:	Field configurable for change of state above or below set point value. Software configurable for automatic or manual reset																		
Analog output:	4-20 mA output, 700 ohms max. at 24 VDC, Field scalable, 2:1 turn down. Various faults are indicated at 0, 3.5, 22 and 24 MA. See installation manual for details.																		
Electrical characteristics: <i>(2-wire models only)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" rowspan="2">Model</th> <th colspan="2">Switch State (Max.)</th> </tr> <tr> <th>V. Open</th> <th>V. Closed</th> </tr> </thead> <tbody> <tr> <td>2W2D</td> <td>2X2D</td> <td>12-30 VDC @ 750 μA</td> <td>4.7 VDC @ 40 mA</td> </tr> <tr> <td>2W4D</td> <td></td> <td>30-56 VDC @ 1 mA</td> <td>5.0 VDC @ 40 mA</td> </tr> <tr> <td>2W3A</td> <td>2X3A</td> <td>90-130 VAC/VDC @ 1 mA</td> <td>13 VAC/VDC @ 100 mA</td> </tr> </tbody> </table>	Model		Switch State (Max.)		V. Open	V. Closed	2W2D	2X2D	12-30 VDC @ 750 μ A	4.7 VDC @ 40 mA	2W4D		30-56 VDC @ 1 mA	5.0 VDC @ 40 mA	2W3A	2X3A	90-130 VAC/VDC @ 1 mA	13 VAC/VDC @ 100 mA
Model				Switch State (Max.)															
		V. Open	V. Closed																
2W2D	2X2D	12-30 VDC @ 750 μ A	4.7 VDC @ 40 mA																
2W4D		30-56 VDC @ 1 mA	5.0 VDC @ 40 mA																
2W3A	2X3A	90-130 VAC/VDC @ 1 mA	13 VAC/VDC @ 100 mA																
Enclosure:	Type 4X/IP66 certified epoxy-coated aluminum construction																		
Faceplate:	UV-resistant polycarbonate pressure sensitive keypad and display overlay																		
Cover:	Epoxy-coated aluminum with tempered glass insert (explosion-proof models only)																		
Conduit:	1/2" NPT female stainless steel fitting; 3/4" NPT female aluminum casting (explosion-proof models only)																		
Display:	<ul style="list-style-type: none"> • Local 4 digit x 0.5" LCD • I Am Working (IAW[®]) status arrows • Process Variable • Units of measure • Switch status • Latch status • Set point value • Deadband value • Min/Max values • Fault codes 																		
Set point & deadband:	User-configured, 100 % adjustable over entire sensor operating range																		
Memory:	Programming and data protected by non-volatile EEPROM																		
Effective transmission distance	2,000 feet at rated voltage for 2W2D and 2W3A																		
Sensors:	<p>Gauge Pressure – 316 stainless steel, welded diaphragm, 1/2" NPT (female) process connection, micro-machined piezo-resistive strain gauge silicon element, 0.25 ml silicone oil fill. Media temperature: -40 to 257°F (-40 to 125°C)</p> <p>Differential Pressure - 316 stainless steel, welded diaphragms, 1/4" NPT (male) process connections, piezo-resistive strain gauge silicon element, silicone oil fill. Media temperature: -40 to 257°F (-40 to 125°C)</p> <p>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: -300 to 1000°F (-184 to 538°C)</p>																		
EMI/RFI:	Compliance to CE EMC requirements: EN 55011, EN 61326, EN 61000-6-2																		
Emission:	EN 55011 class A; Radiated emissions EN 61000-3-2 Harmonic Current Emissions																		
Immunity:	EN 61000-3-3 Immunity to Voltage Fluctuations and Flicker 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 61000-4-8 Immunity to Power Frequency Magnetic Field EN 61000-4-11 Immunity to Voltage Dips and Interruptions																		
Shock:	Consult factory																		

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HOW TO ORDER

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

Model	Description	Min. Load	Zone			Division	
			0	1	2	1	2
2W2D00	2-wire discrete input powered, 12-30 VDC, 40 mA switch (24 VDC 2-Wire)	2.3 mA	✓	✓	✓	✓	✓
2X2D00				✓	✓	✓	✓
2W4D00	2-wire discrete input powered, 30-56 VDC, 40 mA switch (48 VDC 2-Wire)	2.0 mA	Approvals not available				
2W3A00	2-wire discrete input powered, 90-130 VAC or VDC, 100 mA switch (115 VAC 2-Wire)	3.75 mA			✓		✓
2X3A00				✓	✓	✓	✓
2WLP41	2-wire loop-powered 4-20 mA output, 0-140 VAC/VDC, 0.6 A SSR	0 mA			✓		✓
2XLP41				✓	✓	✓	✓
2WLP43	2-wire loop-powered 4-20 mA output, 0-280 VAC/VDC, 0.3 A SSR	0 mA			✓		✓
2XLP43				✓	✓	✓	✓
4W3A01	External powered by 90-130 VAC, 24-280 VAC, 10 A SSR	150 mA			✓		✓
4X3A01				✓	✓	✓	✓
8W2D42	External powered by 10-30 VCD, SW1 & SW2: 75-250 VAC, 1.5 A SSR, 4-20 mA output	SW1: 50 mA SW2: 50 mA			✓		✓
8X2D42				✓	✓	✓	✓
8W2D44	External powered by 10-30 VCD, SW1: 75-250 VAC, 1.5 A SSR, SW2: 0-140 VAC/VDC, 0.6 A SSR, 4-20 mA output	SW1: 50 mA SW2: 0 mA			✓		✓
8X2D44				✓	✓	✓	✓
8W2D45	External powered by 10-30 VCD, SW1 & SW2: 0-140 VAC/VDC, 0.6 A SSR, 4-20 mA output	SW1: 0 mA SW2: 0 mA			✓		✓
8X2D45				✓	✓	✓	✓
Sensor	Pressure Operating Range¹	Maximum Over Range²	Maximum Working Pressure³				
Gauge pressure, piezo-resistive strain gage, silicone oil fill, 316L stainless wetted materials, 1/2" NPT (female) process connection							
P10	0-5.00 psig/344,7 mbar	10 psig/689 mbar	N/A				
P11	0-15.00 psig/1,0 bar	30 psig/2,1 bar					
P12	0-30.00 psig/2,1 bar	60 psig/4,1 bar					
P13	0-50.0 psig/3,4 bar	100 psig/6,9 bar					
P14	0-100.0 psig/6,9 bar	200 psig/13,8 bar					
P15	0-300.0 psig/20,7 bar	600 psig/41,4 bar					
P16	0-500.0 psig/34,5 bar	1000 psig/68,9 bar					
P17	0-1000 psig/69,0 bar	2000 psig/137,9 bar					
P18	0-3000 psig/206,8 bar	6000 psig/413,7 bar					
P19	0-4500 psig/310,3 bar	9000 psig/620,5 bar					
P20	0-6000 psig/413,7 bar (2X, 4X and 8X models ONLY)	12000 psig/827,4 bar					
Differential pressure, piezo-resistive strain gage, silicone oil fill, 316L stainless wetted materials, 1/4" NPT (male) process connections							
K11	0-50.0 psid/3,4 bar	100 psid/6,9 bar	500 psig/34,5 bar				
K12	0-100.0 psid/6,9 bar	200 psid/13,8 bar	1500 psig/68,9 bar				
K13	0-200.0 psid/13,8 bar	400 psid/27,6 bar	1500 psig/68,9 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.

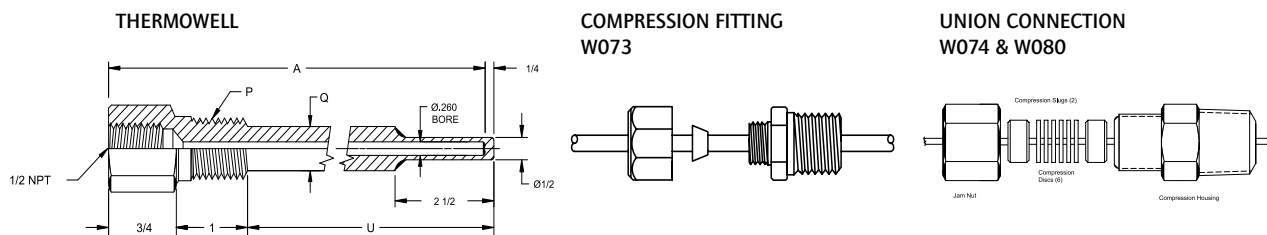
HOW TO ORDER CONT.

Sensor	Temperature Range	Description
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 (Consider option W073) (See page 8 for more information)	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, 6" sheath, 6' fixed-length extension
TRC		Remote mounted, 6" sheath, 1 to 30' in 1' increments variable extension length MUST BE SPECIFIED
TH1	-40 to 1000°F/-40 to 538°C (Consider options W074 and W080)	Remote mounted, 2.5" sheath, 6' MI fixed extension length
THC		Remote mounted, 2.5" sheath, 2W2D, 2X2D, 2W4D, 2WLP, 2XLP, 8W2D & 8X2D models only, 1 to 30' MI extension length MUST BE SPECIFIED. USE OPTION W074 ONLY.
TC1	-300 to 200°F/-184 to 93°C (Consider options W074 and W080)	Remote mounted, 2.5" sheath, 6' MI fixed extension length
TCC		Remote mounted, 2.5" sheath, 2W2D, 2X2D, 2W4D, 2WLP, 2XLP, 8W2D & 8X2D models only, 1 to 30' MI extension length MUST BE SPECIFIED. USE OPTION W074 ONLY.
TTC	-40 to 900°F/-40 to 482°C	Local (stem) spring-loaded mount, NUN connection lengths: 4 – 10" in 1" increments, variable sheath (L) length up to 60", BOTH MUST BE SPECIFIED, available on 2X, 4X and 8X models only. Refer to drawing on page 9. Thermowell required, see page 8.
TU1	-300 to 200°F/-184 to 93°C	User-supplied sensor for explosion-proof models only must be 4-wire RTD, 100 Ω platinum, DIN 0.00385. Choose range expected for the application. See below to order replacement sensors.
TU2	-40 to 450°F/-40 to 232°C	
TU3	-40 to 1000°F/-40 to 538°C	
Thermowells and fittings are shown on page 8. To order spares and replacement sensor assemblies, available only on explosion-proof models , provide the part number from the product nameplate and prefix it with "TA-". Example: TA-8X2D45TH1-M270		

OPTION CODES

- HL1** Hazardous location certificate
- M036** Transformer isolated IS barrier for model 2W2D only (use 62169-29 if ordered separately)
- M201** Factory set parameters (set point, deadband, switch mode **required when ordering**)
- M202** Factory set parameters for 2 switches (use with 8W2D and 8X2D only: **2 of each parameter required**)
- M270** Display units, degrees C for temperature models
- M275** Display units, inches of water column (P10, P11 and K11 sensor ranges only)
- M276** Display units, bar or mbar
- M277** Display units, kPa or MPa
- M278** Display units, kg/cm²
- M403** Flame-proof compliance for Australia per IECEx standards available on 2X, 4X and 8X models only
- M406** Compliance per Russian Gosgortekhnadzor (pending for explosion-proof models, call for availability)
- M419** ATEX approval (2W2D, 2W3A, 2WLP and 8W2D models only. N/A on 4W3A. Standard on explosion-proof models.)
- M444** Paper tag
- M446** Stainless steel tag
- M449** Mounting adapter plate kit 62169-40 (use to match JIC form bolt pattern on 2W, 4W and 8W models only)
- M550** Oxygen cleaning service
- M905** 1/2" NPT female conduit added to right wall of enclosure for 2W2D, 2W3A and 4W3A models only
- M906** 1/2" NPT female conduit moved to bottom wall of enclosure for 2W2D, 2W3A and 4W3A models only, approvals N/A, see option M449, not available with differential pressure (K) sensors
- M907** 1/2" NPT female conduit moved from right to top wall of enclosure for 2WLP and 8W2D models only, approvals N/A, see option M449
- W073** 1/2" NPT male compression fitting for use with all TL and TR sensors, see page 10 for additional information
- W074** 1/2" NPT male union connector for use with all TR, TH and TC sensors for 2W2D, 2X2D, 2W4D, 2WLP, 2XLP, 8W2D and 8X2D models
- W080** 1/2" NPT male union connector for use with TH1 and TC1 sensors for 2W3A, 2X3A, 4W3A and 4X3A models
- W930** 1/2" NPT male to G1/2 male adapter for use with gauge pressure sensors P10-P20
- W932** 1/4" NPT female to G1/2 male adapter for use with differential pressure sensors K11-K13 (2 required)

ACCESSORIES FOR TEMPERATURE SENSORS



THERMOWELLS & FITTINGS FOR ONE SERIES TEMPERATURE SENSORS

Thermowells (316L)					1/2" NPT Compression Fitting W073			Union Connection W074 & W080		
Thermowell	Length (A)				Local Sensor			Remote	Remote	
UE P/N	Inches	P (NPT)	Q	U	L1 (4")	L2 (6")	L3 (10")	R Sensor	R Sensor	H Sensor
1S260 L4-316	4	1/2	5/8	2.5	N/A	1	2	1	N/A	1
1S260 L5.5-316	5.5	1/2	5/8	4	N/A	N/A	2	N/A	N/A	1
1S260 L6-316	6	1/2	5/8	4.5	N/A	N/A	2	N/A	1	1
1S260 L6.5-316	6.5	1/2	5/8	5	N/A	N/A	1	N/A	1	1
1S260 L9-316	9	1/2	5/8	7.5	N/A	N/A	2	N/A	1	1
1S260 L9.5-316	9.5	1/2	5/8	8	N/A	N/A	N/A	N/A	1	1
1S260 L12-316	12	1/2	5/8	10.5	N/A	N/A	N/A	N/A	1	1
1S260 L15-316	15	1/2	5/8	13.5	N/A	N/A	N/A	N/A	1	1
1S260 L18-316	18	1/2	5/8	16.5	N/A	N/A	N/A	N/A	1	1
1S260 L24-316	24	1/2	5/8	22.5	N/A	N/A	N/A	N/A	1	1
2S260 L4-316	4	3/4	3/4	2.5	N/A	1	2	1	N/A	1
2S260 L6-316	6	3/4	3/4	4.5	N/A	N/A	1	N/A	1	1
2S260 L9-316	9	3/4	3/4	7.5	N/A	N/A	2	N/A	1	1
2S260 L12-316	12	3/4	3/4	10.5	N/A	N/A	N/A	N/A	1	1
2S260 L15-316	15	3/4	3/4	13.5	N/A	N/A	N/A	N/A	1	1
2S260 L18-316	18	3/4	3/4	16.5	N/A	N/A	N/A	N/A	1	1
2S260 L24-316	24	3/4	3/4	22.5	N/A	N/A	N/A	N/A	1	1

NOTE: 1 Recommended fitting in order to bottom out the temperature sensor in the thermowell.
 2 Can be used, but temperature sensor will not bottom out in longer thermowells, and the enclosure will need more support in shorter thermowells.
 N/A Will not work with these thermowells.

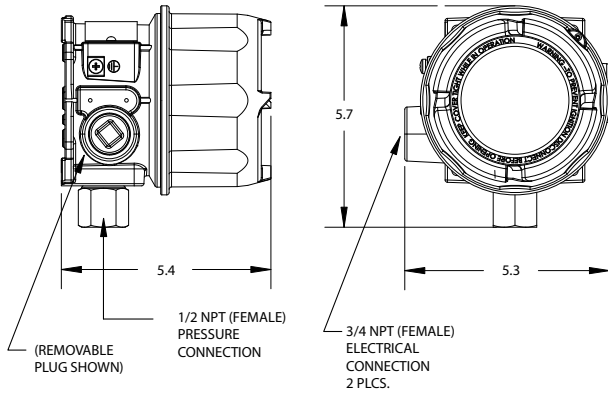
TEMPERATURE SENSOR COMPATIBILITY CHART

Model	TL1-TL3 Local	TR1 & TRC Teflon	TR1 & TRC MI 0.125	TR1 MI 0.188	TH1 & THC MI 0.125	TH1 MI 0.188	TC1 & TCC MI 0.125	TC1 MI 0.188	TTC Thermowell
2W2D	✓	✓			✓		✓		
2W4D	✓	✓			✓		✓		
2WLP	✓	✓			✓		✓		
8W2D	✓	✓			✓		✓		
2W3A	✓	✓				✓		✓	
4W3A	✓	✓				✓		✓	
2X2D	✓		✓		✓		✓		✓
2XLP	✓		✓		✓		✓		✓
8X2D	✓		✓		✓		✓		✓
2X3A	✓			✓		✓		✓	✓
4X3A	✓			✓		✓		✓	✓

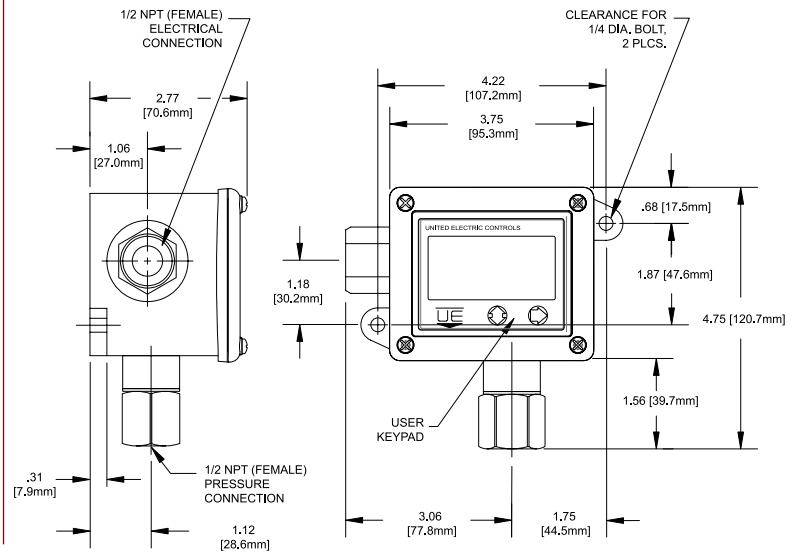
DIMENSIONAL DRAWINGS

ENCLOSURE AND SENSOR DETAILS

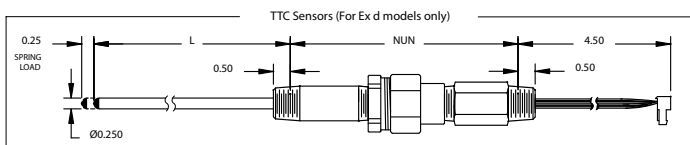
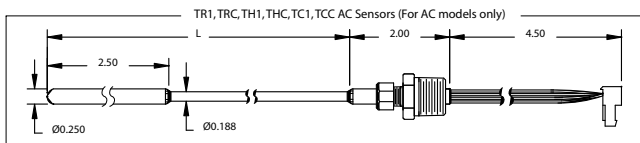
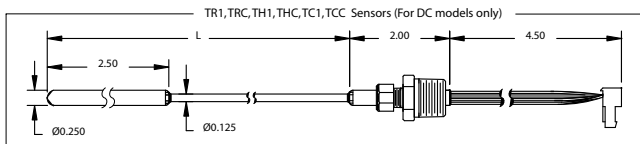
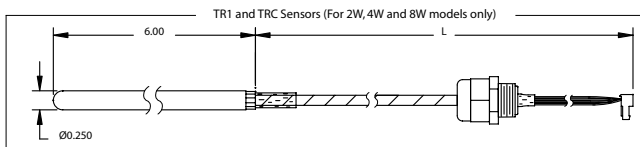
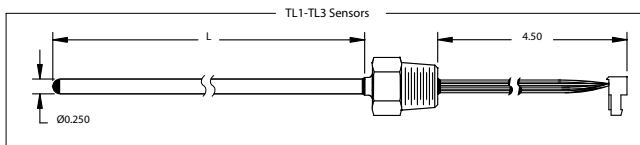
2X, 4X and 8X Models
(Shown with gauge pressure sensor)



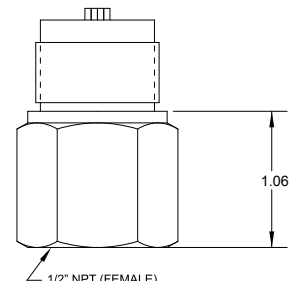
2W, 4W and 8W Models
(Single conduit shown with gauge pressure sensor)



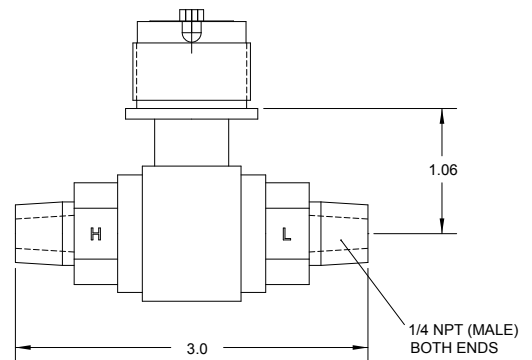
TEMPERATURE SENSORS



GAUGE PRESSURE SENSORS



DIFFERENTIAL PRESSURE SENSORS



APPROVALS & RATINGS

Model	N. America UL Listed, cUL Certified UL50, 508, 913, 1604 & 2279; CSA No. E79-0, E79-11, E79-15, C22.2 No. 14, 157 & 213 File#E226592	Europe (select option M419) (ATEX Directive 94/9/EC) EN 60079-0, 60079-15, 50281-1-1, 50020	Russia (select option M406) Gosgortekhnadzor
2W2D – Intrinsically safe when used with a safety barrier (option M036)	Class I, Div 1, Groups A, B, C & D Class II, Div 1, Groups E, F & G Class III Class I, Zone 0, AEx ia IIC T5 Class I, Zone 0, Ex ia IIC T5 Per UE drawing # A-62174-19	II 1 G EEx ia IIC T5 II 1 D T+90°C, IP66 T _{AMB} = -40°C to +60°C Per UE drawing # A-62174-20 Cert# DEMKO 03 ATEX 0322281X	OExIIICT5 T _{AMB} = -40°C to +85°C Cert# RRS 00-22739
2W2D – Non-incendive	Class I, Div 2 Groups A, B, C & D Class II, Div 2 Groups F & G Class III Class I, Zone 2, AEx nC IIC T5 Class I, Zone 2 Ex nC IIC T5	II 3 G EEx nL IIC T5 II 3 D T+90°C, IP66 T _{AMB} = -40°C to +60°C Cert# DEMKO 03 ATEX 0322281X	ExnLIICT5 T _{AMB} = -40°C to +85°C Cert# RRS 00-22739
2W3A – Non-incendive	Class I, Div 2 Groups A, B, C & D Class II, Div 2 Groups F & G Class III Class I, Zone 2, AEx nC IIC T5 Class I, Zone 2 Ex nC IIC T5	II 3 G Ex nL IIC T5 II 3 D T+90°C, IP66 T _{AMB} = -40°C to +60°C Cert# DEMKO 08 ATEX 0726838X	ExnLIICT5 T _{AMB} = -40°C to +85°C Cert# RRS 00-22739
2W4D	N/A	N/A	N/A
2WLP – Non-incendive	Class I, Div 2 Groups A, B, C & D Class II, Div 2 Groups F & G Class III Class I, Zone 2, AEx nC IIC T4 Class I, Zone 2 Ex nC IIC T4	II 3 G Ex nL IIC T4 II 3 D T+110°C, IP66 T _{AMB} = -40°C to +60°C Cert# DEMKO 08 ATEX 0726838X	ExnLIICT4 T _{AMB} = -40°C to +80°C Cert# RRS 00-22739
4W3A – Non-incendive	Class I, Div 2 Groups A, B, C & D Class II, Div 2 Groups F & G Class III Class I, Zone 2, AEx nC IIC T4 Class I, Zone 2 Ex nC IIC T4	N/A	N/A
8W2D – Non-incendive	Class I, Div 2 Groups A, B, C & D Class II, Div 2 Groups F & G Class III Class I, Zone 2, AEx nC IIC T4 Class I, Zone 2 Ex nC IIC T4	II 3 G EX NL IIC T4 II 3 D T+110°C, IP66 T _{AMB} = -40°C TO +60°C Cert# DEMKO 08 ATEX 0726838X	ExnLIICT4 T _{AMB} = -40°C to +80°C Cert# RRS 00-22739
Model	N. America UL Listed, cUL Certified UL 50E, 1203, 61010-1 File#E226592	Europe (ATEX Directive 94/9/EC) EN 60079-0, 60079-1, 61241-0, 61241-1	Russia (select option M406) Gosgortekhnadzor
2X2D, 2X3A, 2XLP, 4X3A, 8X2D – Explosion-Proof/ Flame-Proof	Class I, Div 1, Groups A, B, C & D Class II, Div 1, Groups E, F & G Class III Class I, Zone 1, AEx nC IIC T5 Class I, Zone 1 Ex nC IIC T5	II 2 G Ex d IIC T5 II 2 D Ex tD A21 IP66 T90°C Cert# DEMKO 09 ATEX 0813748X	N/A*

* Approval Pending
Specifications subject to change without notice.

ADDITIONAL PRODUCTS FROM UE

Spectra 12 Series – Electro-Mechanical Pressure and Temperature Switch

- Dual Seal Approved
- Compact, cylindrical 316 stainless steel enclosure
- Hermetically sealed switch
- Explosion Proof
- Snap-acting belleville spring mechanism to enhance vibration resistance and set point stability
- Pressure ranges 1 to 12,500 psi; DP working pressure ranges 0 to 2500 psid; temperature ranges -130 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
- Internal or external set point adjustment



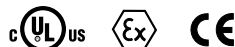
TX200 Series – Pressure Transmitters

- Welded, hermetically sealed, 316 Stainless steel construction
- Ranges 0 to 15 psi up to 0 to 25,000 psi
- Choice of field adjustable or fixed range models
- 4-20 mA or 1-5 VDC output



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 output
- Epoxy-coated weather-tight design houses stainless steel internal construction
- Convenient terminal block wiring



Temperature Sensors

Rugged RTD's 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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