

UE SHORT FORM CATALOG

LEADERS IN SAFETY, ALARM & EMERGENCY SHUTDOWN

WirelessHART Gas Detector for Toxic & Combustible Gases

Electronic and Electromechanical Switches for Vacuum,
Pressure, Differential Pressure, and Temperature

Specialty Transmitters for Functional Safety, Process
Monitoring and Control

Industrial Temperature Sensors





is a privately held corporation headquartered in Watertown, Massachusetts, USA. We are an international manufacturer of durable and reliable pressure and temperature transmitters, switches, gas detectors and sensors. Focused on providing protection to equipment, processes and personnel in a variety of industrial applications, our products range from simple controls to highly specialized custom designs. Our products perform alarm and emergency shutdown (ESD) functions for our customers, while others provide critical sensor inputs into control and safety systems. Our reputation for dependable, reliable products since 1931 is a result of innovative design, superior manufacturing techniques, and a corporate focus on uncompromising quality. UE was among the first companies awarded the Shingo prize for excellence in manufacturing, and remains committed to continuous process improvements and the principles of Lean Manufacturing.

INNOVATIVE DESIGN

- 1st WirelessHART Gas Detector
- 1st 2-Wire, Self-Powered Electronic Switch
- 1st HART Switch

RAPID DELIVERY

- Lean manufacturing for maximum productivity
- Operational excellence (OpX) reduces waste
- One-piece-flow for optimum manufacturing efficiency

UNCOMPROMISING QUALITY

- ISO 9001:2015 certified
- Customer-first approach through service, delivery and value
- US manufacturing

ENVIRONMENTAL STEWARDSHIP

- Energy management
- Recycling
- Non-toxic manufacturing

GLOBAL PRESENCE

- Worldwide factory support
- More than 150 distributors
- Third-party approvals and international certifications

THREE MANUFACTURING DIVISIONS

- United Electric Controls
- Applied Sensor Technologies
- Precision Sensors



While United Electric Controls works towards full RoHS compliance with all of our products, most equipment and applications that include UE products are in RoHS exempt Category 9. If you are planning to install UE products in equipment that needs to comply, please contact us immediately so we may assist in your compliance goals.

MADE
IN THE
USA



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Vanguard WirelessHART Gas Detector - TCD50

Toxic or combustible gas detector for hazardous areas.



WirelessHART



ADVANTAGES:

- Eliminates “blind spots” in your wired system
- Improves safety in difficult-to-reach areas
- Reduces installed cost by >50%
- Installs in <1 hour
- Simplifies project engineering
- Interoperable with existing HART systems
- 5-year battery life - field replaceable



Vanguard Accessories - WirelessHART Gateway and Repeater



ADVANTAGES:

- Gateway can accept up to 250 WirelessHART devices
- Gateway interfaces with DCS or asset management system
- Repeater is battery operated and retransmits the WirelessHART signal to extend the wireless mesh network



Visit UE's Product Selector: www.ueonline.com



One Series Safety System

SIL 2 Certified vacuum, pressure, differential pressure and temperature transmitter-safety relay-logic solver.



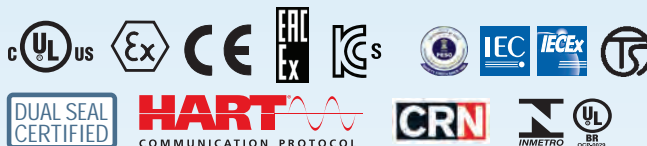
ADVANTAGES:

- All-in-one field safety system with embedded sensor, logic solver, relay, and display
- SIL logic solver functions as trip alarm without additional equipment
- Simple installation in difficult-to-reach applications
- Pressure or temperature safety function
- Available with 4-20 mA proportional output typically connected to BPCS
- Certified SIL 2 (SIL 3 with redundancy)
- 100% configurable deadband



One Series

Explosion-proof electronic vacuum, pressure, differential pressure, and temperature hybrid transmitter-switch.



ADVANTAGES:

- Solves vibration problems with traditional electromechanical switches
- 100% configurable deadband
- Available with discrete switch and HART enabled analog output
- Controller can function as a trip alarm - reducing system complexity
- Provides on-off control Windows Mode configuration
- Superior control of rotating machinery
- 0.1% repeatability with temperature compensation



12 Series

Dual seal, 316 stainless steel, vibration-resistant hazardous location pressure, differential pressure and temperature electromechanical switch.



ADVANTAGES:

- Dual seal compliant to ANSI 12.27.01 standards and NEC 501.17
- Corrosion-resistant 316 stainless steel construction
- Snap-acting Belleville spring for vibration resistance and set point stability
- Convenient field setting and adjustment
- Hermetically sealed SPDT or DPDT switches
- Ranges to 12,500 psi (860 bar), 150 psid (10 bar d), 650°F (340°C)

TX200 Series

Explosion-proof, hermetically sealed, 316 stainless steel HART® 7 registered or analog (ASIC) pressure transmitter.



ADVANTAGES:

- HART® 7 communication protocol output with enhanced DD's
- Analog (ASIC) 4-20 mA output
- 5:1 Analog (ASIC) or 10:1 (HART®) pressure range turndown provides multiple ranges while reducing inventory
- Rugged, compact design for control panel or direct process mounting
- Proprietary temperature compensation limits thermal effects on sensor output
- Unique one-piece sensor design for high pressure and hydrogen applications
- Compatible with SCADA and wireless systems
- Ranges to 25,000 psi (1724 bar)



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120 Series

Rugged explosion-proof pressure, vacuum, differential pressure and temperature electromechanical switch with worldwide agency certifications.



SIL2
CERTIFIED

ADVANTAGES:

- Provides primary or secondary (diverse, redundant technology for safety) alarm and emergency shutdown functions
- Single SPDT or DPDT or dual SPDT outputs
- Choice of internal or external adjustment
- Wide selection of sensor materials and ranges
- Wide adjustable deadband models
- Easy to wire via dual electrical conduit openings and terminal block
- Heat tracing models
- Ranges to 6000 psi (410 bar), 500 psid (35 bar d), 650°F (340°C)



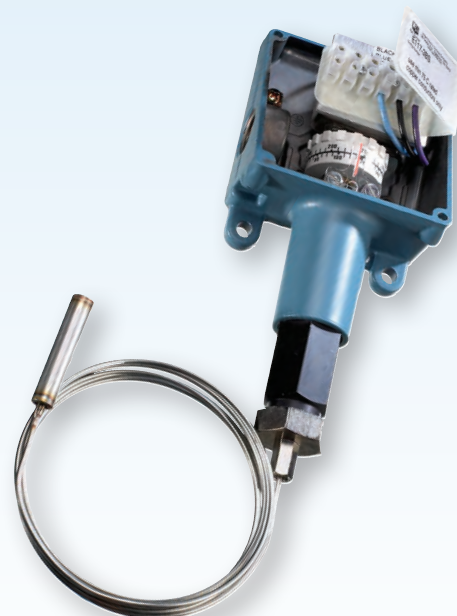
117 Series

Compact pressure, vacuum, differential pressure and temperature electromechanical switch for Div. 2, Zone 2 areas.



ADVANTAGES:

- Hazardous location approvals for Class 1, Div. 2, Zone 2
- Hermetically-sealed snap switch, SPDT or DPDT outputs
- Welded stainless steel diaphragm or bellows sensors
- Epoxy-coated type 4X enclosure with captive cover screws
- Terminal block wiring
- Ranges to 3500 psi (240 bar), 500 psid (35 bar d), 640°F (335°C)



100 Series

Single switch, weather-tight, pressure, vacuum, differential pressure, and temperature electromechanical switch.

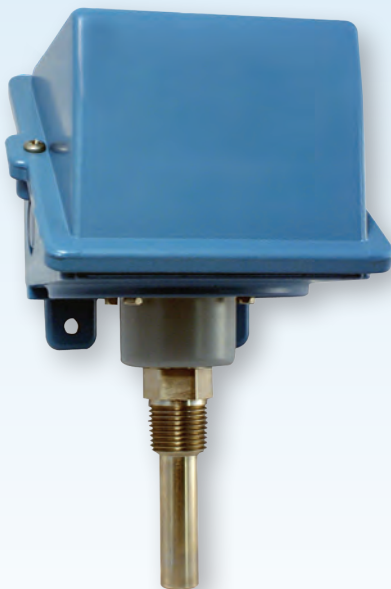


ADVANTAGES:

- Single switch (SPDT or DPDT) output
- Wide variety of pressure sensors for media compatibility
- Epoxy-coated enclosure, designed to meet enclosure type 4X requirements
- Pump switch models with wide adjustable deadband
- Tamper-resistant set point "lock"
- Optional intrinsic safety compliance per ATEX & EAC standards
- Heat tracing models
- Ranges to 5,000 psi (345 bar), 500 psid (35 bar d), 650°F (340°C)

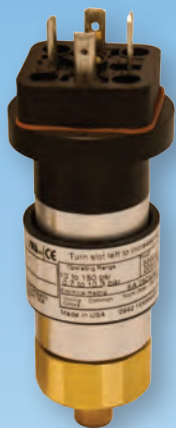
400 Series

Multi-switch, weather-tight pressure, vacuum, differential pressure, and temperature electromechanical switch.



ADVANTAGES:

- One, two or three switch outputs may be separated up to 100% of range
- Epoxy-coated enclosure, designed to meet enclosure type 4X requirements
- Choice of reference dial or multi-turn hex screw for set point adjustment
- Wide selection of ranges including low pressure models with narrow deadbands
- Optional intrinsic safety compliance per ATEX & EAC standards
- Ranges to 6,000 psi (410 bar), 200 psid (10 bar d), 650°F (340°C)



10 Series

Cost-effective, compact, cylindrical pressure switch for OEMs.



ADVANTAGES:

- 1-1/4" diameter and height as small as 3"
- Most models designed to meet enclosure type 4 requirements
- Factory set or field adjustable with tamper-resistant cover
- Choice of 7 electrical terminations
- Variety of options to customize design
- Ranges to 7,500 psi (515 bar)
- Proof pressures up to 12,000 psi (825 bar)



24 Series

Compact, economical differential pressure switch for OEMs.



ADVANTAGES:

- Compact, lightweight corrosion-resistant polyester enclosure
- Designed to meet enclosure type 4 requirements
- Terminal block wiring
- Available with brass or polysulfone (FDA approved) pressure connections
- OEM capabilities include external adjustment knob with or without reference scale
- Ranges to 45 psid (3 bar d)



54 Series

Economical pressure, vacuum and temperature switch for OEMs.

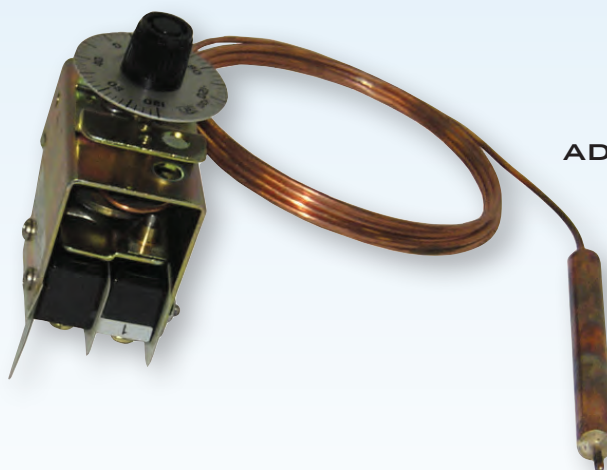


ADVANTAGES:

- Multiple models and options provide OEM design versatility
- Reference scale or multiple-turn hex adjustment versions
- NEMA 1 Lexan enclosure or open frame (skeleton) design
- Choice of single or dual SPDT switch outputs
- Ranges to 6000 psi (410 bar), 650°F (340°C)

55 Series

Rugged temperature switch with external dial.



ADVANTAGES:

- May be panel or surface mounted with remote measurement for critical temperature alarm, emergency shutdown and control functions.
- Enclosed or open-frame construction
- Single or dual SPDT switch outputs
- Dual switch output versions can be separated up to 100% of range
- Designed to meet enclosure type 4X requirements
- Heat tracing models
- Ranges to 650°F (340°C)

J6 & J21K Series

Industrial pressure and differential pressure switch with sealed metal bellows sensor.



J6



J21K

ADVANTAGES:

- Reliable, sealed and isolated metal bellows sensors
- Welded 316 stainless steel models
- Epoxy-coated enclosure, meeting enclosure 4X requirements
- Single switch (SPDT) output
- J6 (straight pressure) ranges to 6000 psi (410 bar)
- J21K (differential pressure) ranges to 90 psid (6 bar d)



J40 Series

Skeleton (open frame) pressure switch with metal bellows sensor for OEMs.



ADVANTAGES:

- Compact, open frame (skeleton) design for OEM applications
- Brass and phosphor bronze sealed metal bellows sensors
- Easy external adjustment
- Single switch (SPDT) output
- Optional adjustable deadband switch
- Ranges to 300 psi (20 bar)



800 Series

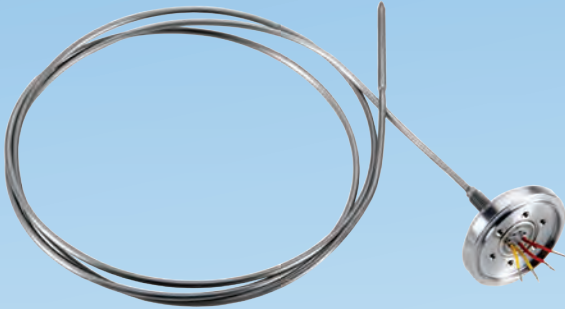
Indicating temperature switch for industrial heating and cooling applications.



ADVANTAGES:

- Indicating temperature control with remote stainless steel bulb and capillary
- Corrosion-resistant Lexan enclosure
- Single or dual SPDT switch outputs
- Division 1, explosion-proof models for hazardous locations
- Set point repeatability and indication accuracy $\pm 1\%$
- Ranges to 650°F (340°C)

Thermocouples, RTD's, and Thermistors for Process & OEM markets



ADVANTAGES:

- Standard and made-to-order temperature sensors
- Maximum reliability and long-life thermocouples with a variety of protection tubes
- Heat tracing RTD's with replaceable RTD elements to minimize downtime
- NEMA 4 or explosion-proof heads

The Sensor Box™

Emergency kit with a modular system of sensors, hardware and tools



ADVANTAGES:

- Build your own sensor assemblies on-site, within minutes
- Customized to fit your application needs
- Reduce downtime in emergencies
- Eliminate expediting fees
- Lower, more flexible inventory

SELECTION GUIDE

| PRODUCT SERIES | J6 | 10 | 12 | J21K | 24 | J40 | 54 | 55 | 100 | 117 | 120 | 400 | TX200 | 800 | One Series | Vanguard |
|---------------------------------------|----|----|----|------|----|-----|----|----|-----|-----|-----|-----|-------|-----|------------|----------|
| PAGE | 11 | 9 | 6 | 11 | 9 | 11 | 10 | 10 | 8 | 7 | 7 | 8 | 6 | 12 | 5 | 4 |
| VARIABLE | | | | | | | | | | | | | | | | |
| Pressure | X | X | X | | X | X | X | | X | X | X | X | X | | X | |
| Vacuum | X | | X | | X | X | X | | X | X | X | X | C | | X | |
| Differential Pressure | | | X | X | X | | | | X | X | X | X | | | X | |
| Temperature | | | X | | | | X | X | X | X | X | X | | X | X | |
| Gas | | | | | | | | | | | | | | | | X |
| ENCLOSURE | | | | | | | | | | | | | | | | |
| Open frame | | | | | | X | X | X | | | | | | | | |
| Enclosure Type 1 Gen. Purpose | | X | | X | X | | X | | | | | | | X | | |
| Enclosure Type 4 Watertight | | X | | | O | | | | | | | | | O | | |
| Enclosure Type 4X Watertight | X | | X | O | | | | X | X | X | X | X | X | | X | X |
| Zone 0, Intrinsically Safe | O | O | O | O | | | | | O | O | O | O | | | X | |
| Division 1 Zone 1, Hazardous Location | | | X | | | | | | | | X | | X | X | X | X |
| Division 2 Zone 2, Hazardous Location | | | X | | | | | | | X | X | | X | X | X | |
| OUTPUT | | | | | | | | | | | | | | | | |
| Single Switch SPDT | X | X | | X | X | X | X | X | X | | X | X | | X | SPST | |
| Dual Switch SPDT | | | | | | | X | X | | | X | X | | X | (2) SPST | |
| Triple Switch SPDT | | | | | | | | | | | | X | | | | |
| DPDT | | | | | | | | | O | | O | O | | | | |
| Dual Switch DPDT | | | | | | | | | | | | O | | | | |
| Adjustable Deadband | O | | | O | | O | O | | O | | O | O | | | X | |
| Hermetically-Sealed Switch SPDT | | | X | | | | | | | X | O | | | | | |
| Hermetically-Sealed Switch DPDT | | | X | | | | | | | O | O | | | | | |
| 4 to 20 mA | | | | | | | | | | | | | X | | X | |
| 4 to 20 mA, HART® | | | | | | | | | | | | | X | | X | |
| Wireless HART | | | | | | | | | | | | | | | | X |
| SENSORS | | | | | | | | | | | | | | | | |
| Welded st/st Diaphragm | | | X | | | | | | X | X | X | X | X | | X | |
| Stainless Steel Bellows | X | | | X | | | | | X | X | X | X | | | | |
| Elastomer Diaphragm | | X | X | | X | | X | | X | X | X | X | | | | |
| Brass/Bronze Bellows | X | | | X | | X | C | | X | X | X | X | | | | |
| Piston | X | X | X | | | | X | | X | | X | X | | | | |
| Process Alloy | | | O | | | | | | O | O | O | | C | | | |
| Local Temperature Mount | | | X | | | | X | | X | X | X | X | | | X | |
| Remote Temp. Mount | | | X | | | | X | X | X | X | X | X | | X | X | |
| Toxic | | | | | | | | | | | | | | | | X |
| Combustible | | | | | | | | | | | | | | | | X |
| MISCELLANEOUS | | | | | | | | | | | | | | | | |
| Terminal Block | | | | | X | | | | | X | X | | | O | X | |
| Visual Indication* | | | | | O | | | O | O | | O | O | | X | X | X |
| Dual Seal Certified | | | X | | | | | | | | | | | | O | |
| SIL 2 Certified | | | | | | | | | | | | | | | X** | |
| Battery Operated | | | | | | | | | | | | | | | | X |

* Visual indication may be through a pilot light option or display of process pressure or temperature readings.

Selecting Temperature Sensors see pages 12 and 13 - Applied Sensor Technologies

** One Series Safety Transmitter only

X = Standard

C = Capability, consult factory

O = Available as option

UE Products have been used with the following applications and equipment

Wellhead monitoring
Gas flow monitoring
CO2 injection skids
Leak detection
Hydraulic monitoring
BOP accumulators
Seal pots
Fence line monitoring
Isolation rings
Tubing and casing
Rupture disk monitoring

Instrument panels
Fire suppression systems
Chemical feed pumps
Separator system control
Line heater control
Tank level
Purge cabinets
Digesters
Engine stop/start
Effluent monitoring
Lube oil monitoring

Heat tracing
Stack emissions
Pump protection
Manifold monitoring
Pipeline integrity
Sterilizers
Bag house monitoring
Safety systems
Boiler tube monitoring
Bearing temperature monitoring
Oven temperature control



United Electric Controls has a rich history of over 80 years in providing protection for plant assets, people and the environment. Our gas detection, and pressure and temperature instrumentation is designed specifically to meet the rigors of harsh and hazardous alarm and emergency shutdown applications, and includes certified safety transmitters per IEC 61508. UE serves the Chemical & Petrochemical, Power, Water & Wastewater and Oil & Gas industries, as well as many other challenging OEM applications.

Call at +1 617-926-1000 to speak to one of our knowledgeable representatives who can help answer many of your application questions. Please visit www.ueonline.com to use our product selector, find one of our 150 worldwide distributors, and for further information about United Electric Controls and its products.

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