

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 Switches for Functional Safety

Industrial Temperature Sensors



Over 80 Years of Customer-Driven, Reliable Safety Solutions

First WirelessHART Toxic or Combustible Gas Detector

When operators involved in oil & gas production, transportation and storage wanted additional safety coverage without the time, cost, and disruption of adding wired detectors, UE product development used this voice of the customer to develop a simple to install, untethered HART gas detector that increased operator safety within hours of deployment.



First SIL2 Smart Switch with Integrated Transmitter, Safety Relay, Trip Alarm, and Logic Solver



As SIS spread beyond the process plant into field applications, operators lacked infrastructure to support a safety system. Listening to operator requirements, UE was able to design an “all-in-one,” SIL-certified device that not only met the safety requirements, but eliminated the complexity and additional equipment associated with SIS implementation.

Only Loop Powered Electronic Switch with Plugged Port Detection

Two common problems for operators are 1) blocked pressure ports on instruments due to process debris, slurries or media build-up and 2) when block and bleed valves are closed during maintenance. There was a need for a diagnostic that alerted operators to either of these conditions, and eliminated “live-zero” signals, blind process monitoring, and long maintenance cycles. The plugged port detection signal is a trigger to clean out a pressure port or check a valve position, resulting in increased uptime and accurate process and safety monitoring.



Contents

PRODUCTS	DESCRIPTION	PAGE
Gas Detection		
TCD50	Vanguard WirelessHART Gas Detector and Accessories	4
Hazardous Location		
One Series	Field Safety System, Electronic Pressure & Temperature Smart Switches	5
12 Series	Compact, Stainless Steel, Cylindrical Pressure & Temperature Switches	6
117 Series	Hazardous Location Division 2 Pressure & Temperature Switches	6
120 Series	SIL Certified Hazardous Location Mechanical Pressure & Temperature Switches	7
820 Series	Hazardous Location Indicating Temperature Switch	7
Weather-Tight/General Purpose		
100 Series	SIL Certified General Purpose/Weather-Tight Pressure & Temperature Switches	8
400 Series	FM approved Multi-Output Pressure & Temperature Switches	8
OEM Switches		
10 Series	Compact, Customizable Cylindrical Pressure Switches	9
24 Series	Compact Differential Pressure Switches	9
54 Series	Economical Pressure, Vacuum & Temperature Switches	10
55 Series	Temperature Switches & Thermostats	10
Alternative Solutions		
J6 and J21K Series	Weather-Tight Pressure & Differential Pressure Switches	11
J40 Series	Open-Frame/Skeleton Pressure Switches with Metallic Sensor for OEMs	11
800 Series	Temperature Indicating Switches and Monitors	12
Temperature Sensors	Thermocouples, RTDs, Thermistors and Accessories	12
Selection Guide		
	Typical Applications	13
	Quick Selection Guide by Product Series	14
	Certification Guide by Product Series	15

Vanguard WirelessHART Gas Detector - TCD50

Toxic or combustible gas detector for hazardous areas.



WirelessHART

advantages:

- Deploy where power is limited
- 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
- 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



Gateway



Repeater



One Series Field Safety System

SIL 2 Certified electronic vacuum, pressure, differential pressure and temperature smart switch and transmitter



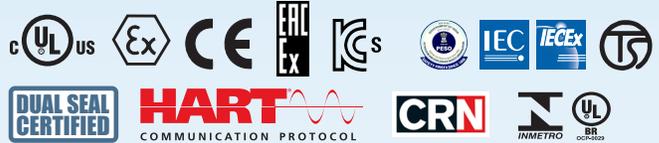
advantages:

- All-in-one field safety system with NAMUR NE 43 4-20 mA output, embedded sensor, logic solver, high-capacity solid-state safety relay, and display reduces complexity
- Simple installation in difficult-to-reach system applications is ideal where there is limited infrastructure
- SIL logic solver functions as trip alarm without additional equipment
- Pressure or temperature safety function
- Certified SIL 2 (SIL 3 with redundancy)



One Series

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



advantages:

- Replace electromechanical switches for cost-effective upgrades using existing wires.
- Self diagnostics enables predictive maintenance strategies
- Display and keypad provide easy, fast and secure field programming of set point and deadband
- NAMUR standard and HART-enabled smart switch and transmitter for process monitoring, alarm, and emergency shutdown
- Provides precise on-off control in Windows Mode configuration

12 Series

Dual seal, 316 stainless steel, vibration-resistant hazardous location pressure, vacuum, 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)

117 Series

Class I, Div. 2, Zone 2 rated pressure, vacuum, differential pressure and temperature electro-mechanical switches.



advantages:

- Hazardous location approvals for Class I, 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)

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

120 Series

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



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)



820 Series

Indicating temperature switch for industrial heating and cooling applications.



advantages:

- Indicating temperature control with remote stainless steel bulb and capillary
- Corrosion-resistant epoxy coated aluminum enclosure with Lexan cover
- 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)



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

FM approved 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

Compact, customizable, cylindrical pressure switch for OEMs.



advantages:

- Variety of options to customize design
- 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
- 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)

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

J6 & J21K Series

Industrial pressure and differential pressure switch with metal bellows sensor.



J6



advantages:

- Reliable, 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)



J21K



J40 Series

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



advantages:

- Compact, open frame (skeleton) design for OEM applications
- Brass or phosphor bronze 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.

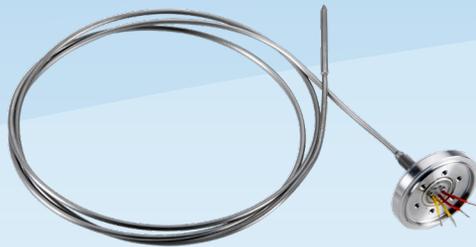


advantages:

- Indicating temperature control with remote stainless steel bulb and capillary
- Corrosion-resistant Lexan enclosure
- Single or dual SPDT switch outputs
- 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
- Transmitter heads with 4-20 mA output



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

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



Quick Selection Guide for UE Products

PRODUCT SERIES	J6	10	12	J21K	24	J40	54	55	100	117	120	400	800	820E/822E	One Series	Vanguard
PAGE	11	9	6	11	9	11	10	10	8	6	7	8	12		5	4
VARIABLE																
Pressure	X	X	X			X	X		X	X	X	X			X	
Vacuum	X		X			X	X		X	X	X	X			X	
Differential Pressure			X	X	X				X	X	X	X			X	
Temperature			X				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	X		
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, IP 66 Rating			X								X		X	X	X	X
Division 2 Zone 2, Hazardous Location, IP 65 Rating			X							X	X		X	X	X	X
OUTPUT																
Single Switch SPDT	X	X		X	X	X	X	X	X		X	X	X	X	SPST	
Dual Switch SPDT							X	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	
4 to 20 mA, HART®															X	
Wireless HART																X
SENSORS																
Welded st/st Diaphragm			X						X	X	X	X			X	
Stainless Steel Bellows	X			X			X		X	X	X	X				
Elastomer Diaphragm		X	X		X		X		X	X	X	X				
Brass/Bronze Bellows	X			X		X	X		X	X	X	X				
Piston	X	X	X				X		X		X	X				
Process Alloy			O						O	O	O					
Local Temperature Mount			X				X		X	X	X	X			X	
Remote Temp. Mount			X				X	X	X	X	X	X	X	X	X	
Toxic																X
Combustible																X
MISCELLANEOUS																
Terminal Block					X					X	X		O	X	X	
Visual Indication*					O			O	O		O	O	X	X	X	X
Dual Seal Certified			X												O	
SIL 2 Certified									O		O				X**	
Battery Operated																X

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

** One Series Field Safety System only

X = Standard

O = Available as option

Certification Guide for UE Products

REGION	CERTS/ APPROVALS	Vanguard	ONE SERIES				J6	10	12	J21K	100	400	117	120	24	J40	54	55	800	820/ 822E
			1XSWLL	1XTXSW	1XTX00	Safety System														
NORTH AMERICA																				
	FM										X									
	cULus		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
							X				X				X	X				
	cETLus	X																		
	CRN		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
EUROPE																				
	ATEX Ex	X	X	X	X	X	X	X	X	X				X						X
	ATEX Ex ia		X				X	X	X	X	X	X	X	X						
	ATEX Ex nA		X	X	X															
	CE DOC EMC		X	X	X	X														
	CE DOC LVD						X	X	X	X	X	X	X	X	X	X	X	X	X	X
	CE DOC PED						X	X	X	X	X	X	X	X	X	X				X
INTERNATIONAL																				
	IECEx	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
RUSSIA																				
	EAC		X	X	X	X	X	X	X	X	X	X	X	X						X
UKRAINE																				
	UkrEx								X				X							X
BRAZIL																				
	INMETRO		X	X	X	X	X	X			X	X	X	X						X
KOREA																				
	KOSHA/KGS/ KTL	X	X	X	X	X		X					X							X
TAIWAN																				
	ITRI		X	X				X					X							
CHINA																				
	CQST												X							X
INDIA																				
	PESO					X			X				X							
SIL																				
	Exida, SIL2 Certified, SIL3 Capable					X					X		X							



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.

United Electric Controls is a privately held corporation headquartered in Watertown, MA, USA, with a rich history of over 80 years in providing protection for plant assets, people, and the environment. Our gas detection, and vacuum, pressure, differential pressure and temperature switches, transmitters, and sensors are specifically designed to meet harsh and hazardous safety, alarm, and emergency shutdown (ESD) applications; and includes certified safety switches per IEC 61508. UE serves the Chemical & Petrochemical, Power, Oil & Gas industries, as well as many challenging OEM applications.

Call us 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 140+ worldwide distributors, for access to technical white papers and helpful videos, and further information about United Electric Controls products.



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