



# What's New in Process Engineering

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*Inside: Valves & Actuators  
Plus Industrial Safety*



**Innovative two-wire design  
electronic pressure switch**

**UE**

**UNITED ELECTRIC  
CONTROLS**

1/2 NPT (Female)  
PROCESS  
CONNECTION

USER  
KEYPAD

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The ONE Series 2-Wire is an electronic switch that provides a process display, diagnostic information and a switch output, on a single twisted pair of wires, connecting to a discrete digital input channel of a PLC or DCS.

It combines the simple functions of a switch and gauge and the reliability features of a transmitter, at less than half the cost of the transmitter. For alarm and shutdown applications, the ONE Series 2-Wire is an alternative to transmitters or the drop-in upgrade for many mechanical switch applications.

In the past, there were two basic choices for alarm and shutdown applications — an electromechanical switch, or a transmitter. In 1998, United Electric introduced a third choice — the One Series, a family of rugged electronic switches that filled the technology gap between switch and transmitter. It successfully met the process customer's needs for lower costs and improved reliability. With its patented I Am Working (IAW) diagnostics, the ONE Series quickly became the cost-effective answer for many applications that require the combination of a 'local switch' function and 'health' information. However, until now, the need for both device power and switching output meant more than two wires.

The new One Series 2-Wire has changed all that. The ONE Series 2-Wire

obtains its operating power, and also provides on/off switching, using the discrete input of a control system on a single pair of wires. This is what makes the ONE Series 2-Wire truly revolutionary, both as an alternative to transmitters in new applications, and as an upgrade for existing mechanical switches.

The ONE Series 2-Wire is an electronic pressure switch that operates on a single pair of wires, similar to a traditional mechanical switch or a 4-20 mA transmitter. The ONE Series 2-Wire successfully combines the simplicity and low-cost features of a switch with the reliability of a transmitter, at less than half the cost.

### Features of the ONE Series 2-Wire

#### Wire-to-wire field replacement

The Two-Wire's innovative design allows the unit to power and switch itself using the same two wires. The ONE Series 2-Wire is the only electronic pressure instrument on the market today that is a direct 'wire-to-wire' field replacement for many mechanical switch applications.

#### Low power requirements

The unit's power requirements are very low, and allow the ONE Series 2-Wire to scavenge current without the Programmable Logic Control (PLC) knowing it's there. When the switch is closed, the

PLC sees a completed circuit. When open, the PLC sees an open circuit.

#### Intrinsically safe:

The ONE Series 2-Wire's design makes it suitable for intrinsically safe (IS) applications. The ONE Series 2-Wire can be interfaced with a wide variety of both passive and galvanic-isolated IS barriers with low leakage current.

#### Patented I Am Working (IAW)

##### diagnostics:

Just like UE's effective One Series line of switches, the ONE Series 2-Wire is equipped with the IAW diagnostics tool. The ONE Series 2-Wire constantly monitors both hardware and software and tells the operator of its operating status.

Locally, a series of rotating arrows and display messages informs you of the operating status. Remotely, the switch output can be configured to alert the operator.

#### Easy wiring

Plug-in terminal block wiring is effective for either new construction or field replacement.

#### Local indication and programming

Programming for the ONE Series 2-Wire is done locally using just two buttons and display prompts. Simply pushing a button can access the setpoint, deadband and maximum/minimum readings. Alarm status and diagnostics can also be viewed, when applicable. Special key sequencing can assure tamper resistance.

#### Plugged port detection

The plugged port detection feature will monitor the changes in the process variable over time. As long as there is sufficient fluctuation in the process variable the unit will operate normally. If the process variable does not change over the specified time period a plugged port condition will be displayed. The user can program the amount of variation as a percentage of full scale and the window of time to be monitored.

#### Data logging

Minimum and maximum process readings.

#### Latching or automatic reset

The switch output can be field-configured for either automatic reset or latching.

#### NEMA 4X enclosure

The ONE Series 2-Wire has the same rugged enclosure as all other One Series products: epoxy-coated aluminium with a gasketed, Lexan faceplate.

#### Wetted parts

The wetted parts are all stainless for varied media compatibility. ■

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