Voltage Drop for Intrinsically-Safe Barriers

Explosive Environment Power

Intrinsically-safe (IS) barrier strips have always put tough limits on locating weight indicators within explosive environments. A barrier strip located in a safe area reduces current to an IS level that prevents ignition possibilities in the explosive area. But that safe little IS line also lacks the oomph to go very far into the explosive area. Try to extend it further, and the impedance is too great, and you will often lack the Vmin to power multiple load cells from the indicator.

The solution used in the IQ 700 IS indicator eliminates the barrier strip and the problems it creates. The 115 VAC incoming powerline allows locating the power supply 1000 feet or more into the hazardous area. That robust 115 VAC power is run into the hazardous area in an explosion-proof conduit system, and is reduced to IS levels at a power supply module within the hazardous area near the indicator.

System Wiring Guidelines

The National Electric Code (NEC) pertaining to explosive environments must be followed. Installation of hazardous area equipment must be performed by certified electricians.

Incoming power from the safe area to the IS power supply module must be run in conduit with explosion-proof seals.

The seal-off fittings are needed where the 115 VAC cable enters from the safe area to ensure that the hazardous atmosphere does not travel into the safe area through the conduit installed.

All serial cables from the indicator to printers or other peripherals transmit only IS current, but require a barrier where they pass back into the safe area.

And finally, be aware that only the RLWS power supply module can be used with the IQ 700 IS to maintain the Factory Mutual system approval.

Doc

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