

Explanation of Approvals for Intrinsic Safety and Explosion-proof

KEY POINTS

- Overview
- Intrinsic Safety Description
- Explosion-proof Description



OVERVIEW

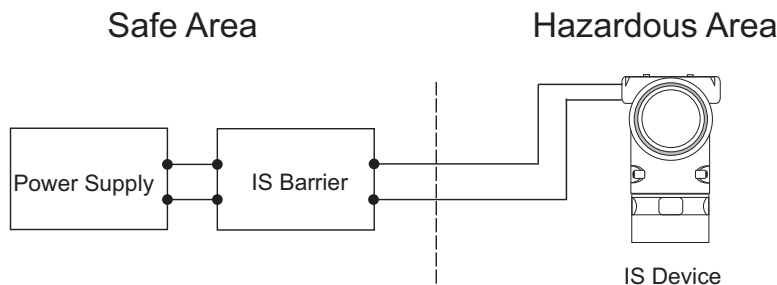
Rosemount battery powered wireless measurement instruments are self-contained intrinsically safe (IS) devices that can easily be deployed into any compatible hazardous area without the expense and complexity commonly associated with wired IS or explosion-proof installations.

The Rosemount line of intrinsically safe wireless transmitters feature IS power modules that allow for extremely low cost installation and maintenance. No IS barrier or special wiring practices are required. Routine maintenance, such as device configuration or power module replacement, can be performed in the hazardous area while the device is powered.

NOTE: Refer to local and national electrical codes for installation and maintenance requirements specific to your installation.

Intrinsic Safety Description

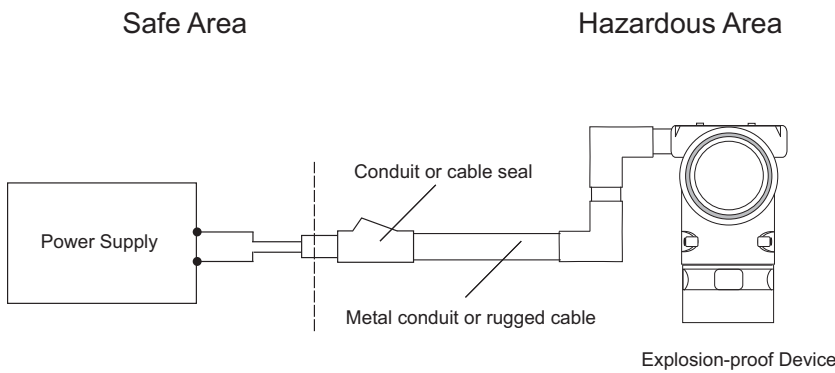
Intrinsic safety is a protection method for electrical equipment used in hazardous locations where the energy allowed into and stored within an area is limited to a level that is incapable of causing ignition. IS equipment is designed and evaluated to ensure that the amount of electrical energy stored within the device is reliably limited to predetermined safe levels. For standard wired systems, an IS barrier must be used to limit the amount of energy entering the hazardous area. The IS barrier must be selected to be compatible with the connected IS equipment both from a safety and functional perspective. Field wiring connected to the hazardous location terminals of the IS barrier must be reliably segregated from non-IS wiring to prevent inadvertent interconnection that may lead to an unsafe condition. Below is a figure depicting a typical IS System.



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Explosion-proof (Flameproof) Description

Some installers dislike the complexity of the design of IS Systems and choose other protection methods such as explosion-proof (flameproof). The explosion-proof protection method relies on equipment and wiring enclosures to prevent an internal ignition from escaping to the surrounding atmosphere. While an explosion-proof system is generally considered somewhat simpler to design, it is generally more expensive to install because of the high cost of running field wiring inside a conduit, which must be sealed between the safe and hazardous areas. Explosion-proof equipment is also more difficult to maintain since either the area must be known to be non-hazardous or the equipment must have the energy drained before covers can be removed. Below is a figure showing a typical explosion-proof/flameproof system.



Rosemount 648 Wireless Temperature Transmitter

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