

Intrinsic Safety Barrier

Safety Barrier Instruction Sheet



WARNING: The installer of an intrinsically safe system must reference the requirements of the “authority having jurisdiction” at the installation site. For more information, See “Installing Intrinsically Safe Systems” on page 2.

Fuse Assembly Replacement

All intrinsic safety barriers are equipped with standard replaceable 160 mA fuses. They are located on the top face of the barrier for easy access. With a small instrument screwdriver, pry off the protective cover where indicated and remove the assembly. this may be done even while the circuit is energized. To install the replacement assembly, snap it back into place.

Wiring Instructions

All intrinsic safety barriers have six terminals. Terminals (3) and (4) are the intrinsically safe connections. Devices in the hazardous location are connected to these terminals. Terminals (1) and (2) are the non-intrinsically safe connections for devices within the non-hazardous location. The maximum source voltage applied to these terminals under a fault condition must not exceed 250 V RMS.

Along with the four terminals mentioned above, two additional screw terminals are provided, one on each side of the barrier. They are directly attached to the barrier mounting/grounding system and can be used to establish a redundant ground system or for terminating shields. On single channel barriers they are also internally connected to terminals (2) and (4). Since a common housing is shared between single, dual and application dedicated barriers, refer to the schematic printed on the side of each barrier to determine the designation of the floating and grounded terminals.

Special attention must be given to the grounding system. Without a proper earth ground system, intrinsic safety barriers will not provide voltage protection. they must therefore be grounded to a designated grounding electrode that references the original power source and instrumentation within the non-hazardous location. The ground conductor shall be no smaller than a #12 AWG size wire and the ground path resistance from the farthest barrier to this ground point shall not exceed 1 ohm.

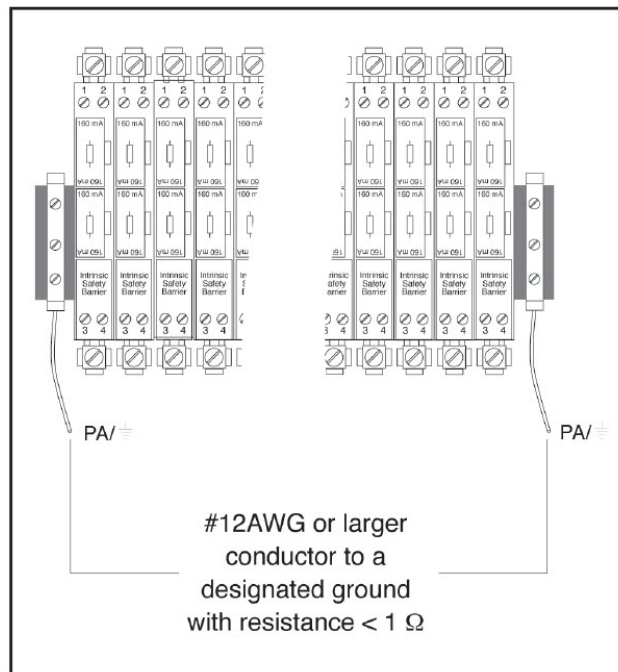


Figure 1. Typical Grounding Arrangement for Intrinsic Safety Barriers

Installing Intrinsically Safe Systems

In the United States, reference should be made to Article 504 of the National Electrical Code, the ISA RP 12.6 and the manufacturer's certification drawing. Where possible, associated apparatus should be mounted and grounded in a safe area as near to the hazardous area as possible. This minimizes the length of intrinsically safe conductors within the non-hazardous location, thereby lessening the possibility of inadvertent connection of non-intrinsically safe energy to the protected circuit. The manufacturer recommends that associated apparatus be mounted and installed within dust-free and moisture-free enclosures. While this requirement is not part of any referenced standard, it should be remembered that dust and moisture are conductive and can lessen the required distance ($\geq 2"$ or 50 mm) between intrinsically safe and non-intrinsically safe conductors. In addition, the panel layout of these enclosures should be constructed so that the separation of intrinsically safe and non-intrinsically safe conductors is maximized.



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