

Choosing the Right Intrinsically Safe Barrier

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PRODUCTS

MTL's barrier development programme is directed towards adding value by reducing the physical size of the barrier to make light and easy to handle, simplifying installation, reducing vulnerability to faults, providing a barrier exactly suited to the process systems. The 'key' barrier concept simplifies choosing and stocking the most appropriate barriers. In fire and gas detection systems 2 different type of barrier are frequently used:

Shunt-diode safety barriers : (sometimes known as 'Zenner Barriers') compact and inexpensive, they are a popular choice for protecting circuits in hazardous areas. They are mounted and earthed in one operation within special housings, giving safe installation and the highest reliability. However they are not reusable, once the internal fuse has failed or blown, they must be replaced. When they are used with some types of control panel they can give unwanted 'earth fault' signals as a result of earth loop problems.

MTL7700 Series shunt-diode safety barriers are 1- or 2-channel devices which pass an electrical signal in either direction without shunting it, but limit the transfer of energy to a level that cannot ignite explosive atmospheres. Connected in series with the signal transmission lines on a process plant, they protect hazardous-area wiring and equipment against faults occurring in the safe area, and enable a wide range of measurement and control operations to be carried out simply and inexpensively by intrinsically safe techniques. Conventional wiring and, frequently, standard transducers can be employed in the hazardous area, and can be worked on for maintenance or calibration purposes without further precautions. Safe-area equipment needs no certification and can be modified or extended as required.

Applications include the protection of installations containing 'simple' uncertified devices such as thermocouples, switches, and resistive sensors, or separately certified 'energy storing' or 'voltage producing' apparatus, for example ac sensors, transmitters, and current-to-pneumatic (I/P) converters. All 'simple' devices can be used in areas of continuous hazard: 'energy-storing apparatus' is certified for use in a particular 'zone' or 'division'. MTL7700 Series barriers give protection in all normally occurring explosive atmospheres

Essential features of the MTL7700 Series are the self checking 'as-you-mount-it' earthing via two studs directly to nickel-plated brass or copper busbar. The earth connection is on top of the unit, allowing easy inspection, installation and removal. The shape of the barrier has been designed for easy wiring, while the common (14.5 mm) space requirement of both 1- and 2-channel units simplifies planning or alteration of installations of all sizes. The terminals of the barrier are angled for easy access and accept field wiring directly, making a second set of terminals unnecessary. The busbar is insulated for separate earthing, to eliminate the danger of invasion by fault currents.

Isolating IS interface units : an alternative to barriers, need no high-integrity earth and can provide signal amplification and relay options, while their hazardous and safe area isolation, simplifies installation. Although they are significantly more expensive than shunt diode IS barriers, they can be reused and they avoid earth-loop problems

MTL5000 Series - the latest IS isolator range from MTL - makes system planning and installation as simple as possible. It provides all common functions, so that most installations can be designed easily around MTL5000. They clip quickly onto DIN rail, so it is compatible with the industry-standard mounting system. Wiring is simplified by plug-in safe- and hazardous-area connectors, and a power plug which accepts a power comb; it all leads to quicker insertion, less wiring errors and trouble-free, tidier installations. **The MTL5061 is designed specifically for use with smoke detectors** and the **MTL Barriers 5021, 5022, 5023, 5024 and 5025 are designed for use with alarm sounders.**

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