



Applications: Hazardous Areas

Where will you find hazardous areas?

Apart from obvious places such as oil refineries and chemical plants, many ordinary industrial and commercial buildings have an area set aside for the storage of flammable substances. Anywhere that has signs like these on the door is a hazardous area

For example, if a container is kept inside or in a confined space, even small quantities of escaping flammable liquid or gas are sufficient, under certain conditions, to form an ignitable mixture. All that is required to cause an explosion is a spark.

To prevent heat or sparks being generated the electrical equipment, including heat & smoke detectors, must be certified for use in hazardous areas.



Defining a hazardous area

A hazardous area is an environment where a mix of air and explosive gases is present or may be present under certain circumstances. Within Europe hazardous areas are classified into 'zones' in accordance with ATEX regulations. A similar approach is followed outside of Europe (except North America) under the IECEx system.

Zone 0 (gases) An area in which an explosive mixture is continuously present or present for long periods.

Zone 1 (gases) An area in which an explosive mixture is likely to occur in normal operation

Zone 2 (gases) An area in which an explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time for example during maintenance.

Intrinsically safe circuits are an acceptable form of protection in all three zone classifications.

For more information please refer to our document *ATEX Explained*.

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SIGNALINE

Signaline-FT IS Circuit Connection Diagram Using the MTL5061 Barrier

To make a Signaline FT cable circuit intrinsically safe (EEx ia), a suitable I S barrier such as the MTL5061 is placed in the circuit as per diagram. The barrier MUST be located in the safe area of the building and will prevent the cable generating heat or causing sparks in fault conditions in the room or area deemed to be a hazardous area.

When used in conjunction with a suitably rated end of line and series resistor, as shown, the circuit will replicate that of a traditional point type heat detector and can be connected to the zone terminals of a conventional fire control panel.



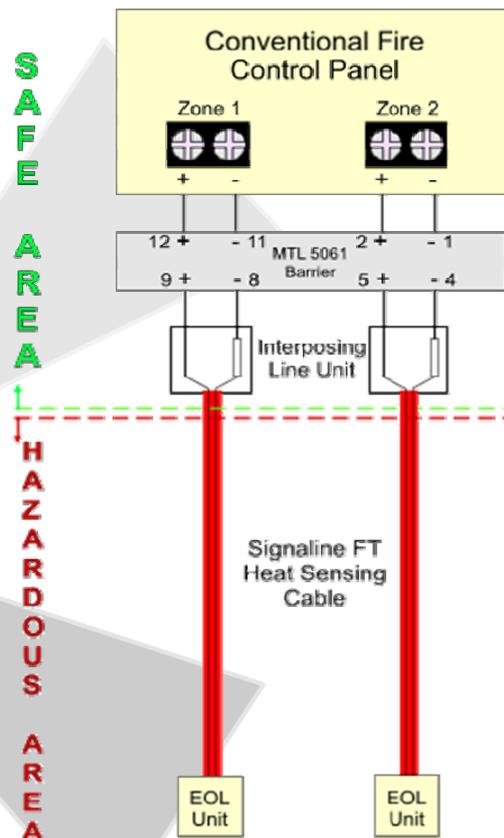
Intrinsically safe barriers

The value of the resistors will be determined by the characteristics of the fire control panel.

IMPORTANT NOTE: This circuit is NOT suitable for use with a fire control panel employing active or capacitive end of line devices, please contact the control panel manufacturer for advice.

Using Signaline in a Hazardous Area

Making Signaline FT heat sensing cable safe for use in hazardous areas is straightforward and simple. Because Signaline FT cable does not store energy the cable is deemed to be simple apparatus under ATEX regulations. Therefore the cable does not need an ATEX certificate. However the circuit must be made intrinsically safe and this is easily achieved by placing a suitable intrinsically safe barrier in the circuit.



Note: This document is for information only and does not form part of any offer or contract. It cannot take into account all the possible circumstances of a particular installation. Responsibility for safety remains with the end user. If there is any doubt at all, seek specific expert advice on the particular problem.

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