

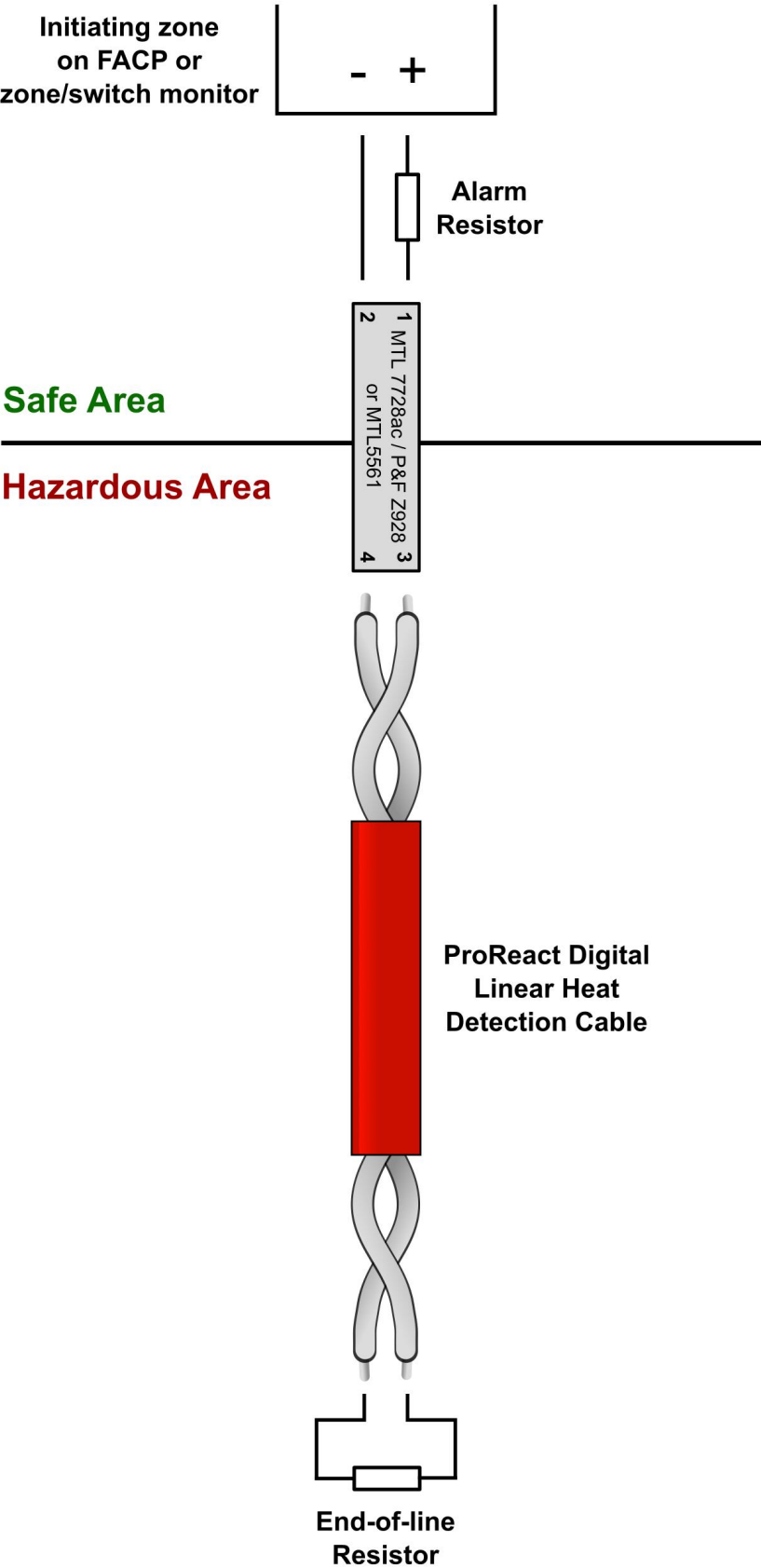
ProReact Digital Fixed Temperature Linear Heat Detection Cable

Hazardous Area Installation Instructions

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Figure 1. Typical Installation Wiring Diagram



Installation Instructions

Digital Fixed Temperature Linear Heat Detection cable may be installed in hazardous areas using intrinsically safe barriers. The monitor module or conventional fire alarm control panel should be installed in the safe area and the intrinsically safe (I.S.) barriers separate the safe area and the hazardous area as shown in figure 1.

Digital Fixed Temperature Linear Heat Detection cable is declared as a "simple product" in accordance with the definitions of BS EN 60079-11:2012 and BS EN 60079-14:2014 since the cable does not have its own ignition source and have "well-defined electrical parameters...which [are] compatible with the intrinsic safety of the circuit in which [they are] used". This is also in accordance with the ATEX Directive 2014/34/EU as discussed in the ATEX 2014/34/EU Guidelines 4th ed. (Please note, check with the manufacturer of the fire alarm control panel for confirmation that the end-of-line device can be declared as a simple product or requires further hazardous area protection).

The correct intrinsically safe barriers must be chosen to meet the requirements detailed in the approval certificates for the specific barrier. This includes, but is not limited to, the Gas Group, Zones and Load Parameters. For the Digital Fixed Temperature Linear Heat Detection cable the important cable parameters are shown in Table 1.

The system can be installed in a manner similar to that shown in figure 1. Please note interposing (otherwise known as leader cable or non-sensing cable) may be used between the intrinsically safe barriers and start of the sensor cable, however, the inductance, capacitance and L/R ratio must be calculated as it may affect the maximum permissible zone length according to table 3.

Table 1. Digital Fixed Temperate LHD Cable Parameters

Digital Fixed Temperature LHD Sensor Cable				
Rating	Capacitance	Inductance	L/R ratio	Loop Resistance
68°C (155°F)	<120pF/m	<1.60µH/m	<17.7µH/Ω	~181Ω/km
78°C (172°F)	<95pF/m	<1.68µH/m	<18.7µH/Ω	~180Ω/km
88°C (190°F)	<85pF/m	<1.72µH/m	<19.3µH/Ω	~179Ω/km
105°C (221°F)	<73pF/m	<1.65µH/m	<18.2µH/Ω	~182Ω/km
185°C (365°F)	<90pF/m	<1.62µH/m	<17.9µH/Ω	~182Ω/km
220°C (428°F)	<85pF/m	<2.00µH/m	<22.0µH/Ω	~180Ω/km

Table 2. I.S. Barrier Maximum Permissible Parameters

MTL7728ac / P&F Z 928

Combined Channels	Group IIC	Group IIB	Group IIA
Capacitance	0.083µF / 0.083µF	0.65µF	2.15µF
Inductance	4.2mH / 3.05mH	12.6mH	33.6mH
L/R ratio	54µH/Ω / 56µH/Ω	218µH/Ω	435µH/Ω

(MTL according to Certificate No. BAS01ATEX7217 Issue 8)

MTL5561

Combined Channels	Group IIC	Group IIB	Group IIA
Capacitance	0.083µF	0.65µF	2.15µF
Inductance	4.2mH	12.6mH	33.6mH
L/R ratio	56µH/Ω	210µH/Ω	444µH/Ω

(MTL according to Certificate No. Baseefa09ATEX0027 Issued 23 March 2009)

Table 3. Maximum Permissible Zone Lengths

In the case of Gas Group IIC applications, the limiting factor on zone lengths is due to the capacitance of the Digital Fixed Temperature LHD Cable. In the case of Gas Group IIB and IIA applications, the limiting factor on zone lengths is the recommended maximum allowed sensor cable per monitor module or conventional zone.

Gas Group	IIC	IIB	IIA
68°C (155°F)	691m	3000m	3000m
78°C (172°F)	873m	3000m	3000m
88°C (190°F)	976m	3000m	3000m
105°C (221°F)	1136m	3000m	3000m
185°C (365°F)	922m	3000m	3000m
220°C (428°F)	976m	3000m	3000m