



Hazardous Area Protection

Flame Detectors
Addressable Protection
Conventional Protection
Sounders & Beacons

6.02

Hazardous Area Protection

Hazardous Area Protection

MZX systems include the most extensive range of products which are suitable for and approved for use in all classes of hazardous areas. The range extends from intrinsically safe detectors for use on conventional systems to flameproof and intrinsically safe flame detectors for use in the most demanding environments, both on and off shore. A complete range of barriers, housings, call points, ancillary modules and sounders is provided to enable a complete system to be supplied. Systems 620 conventional and system 800 addressable solutions include detailed design guides ensuring the system designer has all the tools to implement a safe and effective solution. ATEX and IECEx approvals are in most cases for both dust and gas hazards. In addition to individual component approvals both conventional and addressable systems have systems certification.

Flame Detectors

MZX Infra-Red Flame detection offers unrivalled performance where hydrocarbon based fires exist. IR detection is less susceptible to radiation inhibitors than is UV, being able to detect through oil mist, smoke and vapour, all of which can be commonly associated with fires involving fuels. They are also less prone to false alarms from background radiation sources. IR sensors are tuned to a bandwidth typical of the radiation emitted from Carbon Dioxide which is present in hydrocarbon fires. Single channel detectors are set to a fixed frequency and then rely on flame flicker, whereas triple channel detectors can monitor frequencies above and below the fire threshold filtering background radiation from non-fire sources. Array based IR detectors use 256 sensors making them sensitive yet extremely stable. The array can be configured to ignore hot spots such as exhausts, flues and flame stacks. The detector in addition to all other approvals is IEC61508, (SIL2) approved. Some models can also incorporate a CCTV camera within the detector housing, providing real time images of the incident. All of the above detector types are available within the MZX range covering all categories of risks.

Addressable Detection

800 series Addressable detectors are intrinsically safe and use galvanic isolators when connected to the MZX loop. Galvanic isolators do not require a high integrity earth connection as the primary and secondary circuits are not directly interconnected. This offers the installer a much easier and less costly installation and removes the need for regular checking to ensure continuous earth continuity. Available detection technologies are Multisensors, Smoke/Heat detector, Carbon Monoxide/Heat detector, Ionisation detector, Heat detector and the single channel IR, point detector. Each sensor offers flexibility in programming and offers various modes of operation which can be selected to suit the risk. All detectors connect to a common intrinsically safe approved base and have ATEX and IECEx approval for use in both gas and dust atmospheres.

Callpoints

Both indoor and outdoor Call points are available for use in hazardous areas. Alternatively suitable non-addressable devices can be connected to the MZX loop via an addressable interface. Manual call points are themselves simple devices and can be connected via a galvanic isolator, or be constructed so as to be incapable of causing ignition, or be enclosed within a flameproof enclosure. In addition to the type of protection offered the device is also rated for use in a particular (gas group) atmosphere and temperature rated so as never to exceed the ignition temperature of any gas or dust /air mixture present. MZX offers the widest range of call points and interfaces to meet the required standard whilst minimising the amount of equipment to be installed.

Sounders, Beacons and Accessories

Installing sounders and beacons into hazardous areas requires careful consideration and design experience. Whilst electrical safety is still paramount so is the need to create a distinct and audible signal. Within the MZX range there are both sounders and beacons which are either intrinsically safe, when used with an appropriate safety barrier, or flameproof in their construction. Sounders and beacons offer a range of outputs to suit all environments which when connected through the appropriate module/driver will minimise the risk to the designer and ensure a safe and adequate system is provided. A number of I/O units mounted within flameproof enclosures complete this very comprehensive range of hazardous area equipment.

Conventional Detection

System 620 provides a range of conventional detectors very similar to the 800 series addressable. Conventional detection circuits also require a safety barrier, galvanic, (for new systems) or shunt diode (for extending some older systems), in order to meet safety requirements. Conventional detectors can be connected to an appropriate approved control panel or an interface and onto an MZX loop, within an adjacent safe area. Within the product range are Multisensors, Smoke/Heat detector, Carbon Monoxide/Heat detector, Ionisation detector, Heat detector and the single channel IR, point detector. All detectors connect to a common IS labelled base and have ATEX and IECEx approval for use in both gas and dust atmospheres.

6.04

Flame Detectors

FLAMEVision Flame Detectors



The FLAMEVision flame detectors use patented IR array and triple IR solar blind technologies to provide reliable and cost effective fire detection solutions. FLAMEVision can be trusted in high dependency situations where fast acting and accurate flame detection is essential. FLAMEVision detectors offer superior performance in all weather conditions and all lighting situations with the added benefit of fire event location information provided by the IR array.

FLAMEVision can protect all hydrocarbon risks in classified hazardous explosive and non hazardous atmospheres. There is a wide range of system design options available with flexible monitoring and control interfaces and integrated video camera for verification purposes. Installation and maintenance procedures are easy and efficient, minimising the lifetime cost of ownership and reducing the need for complex test equipment and high level operator training.

Features

- Reliability Choice of IR array or enhanced Triple IR solar blind technologies allow users to tailor their systems to provide reliable and fast fire detection.
- Fast Acting FLAMEVision reacts to minimise the effect of fire and improve life safety through detection with less disruption and downtime.
- Accuracy Event location information will pin point fire using the IR array to allow targeted shutdown and suppression.
- Operator verification The optional built-in video camera assists operator verification and ensures optimum actions are taken. Additional benefit of post event analysis and to aid and verify alignment.
- Optimum protection in all weather conditions FLAMEVision maintains sensitivity using the enhanced IR sensors through heavy rain, snow, fog and morning dew.
- Use in Hazardous explosive atmospheres FLAMEVision is approved for protection regardless of area classifications for all applications throughout the facility.
- Reduced spares inventory and simpler maintenance Intrinsically safe, low cost and easy to use test equipment simplifies maintenance and reduces service costs. Universal mechanical mounting and cabling arrangements makes FLAMEVision installation friendly.
- Easy integration FLAMEVision interconnects to site control and safety systems via a range of standard industrial interfaces.
- Dynamic masking FLAMEVision maintains detection coverage even when a flame is part of the process being protected.
- Complete piece of mind FLAMEVision detectors continually monitor all electronics and perform regular optical window tests.

FLAMEVision FV300

FLAMEVision FV300 uses Infra-Red Array based sensing technology to provide the ultimate programmable flame detector. An array of 256 infra-red sensors plus two optical channels view the protected area.

Powerful algorithms running on a Digital Signal Processor (DSP) are tuned to the characteristics of a fire and analyse the signals from these channels to quickly and reliably identify fires. A key advantage of using an array is that the detector can accurately identify the location of the flame within the field of view. The location information is used to overlay a marker on the live video output to highlight the fire location. The user can quickly see the location of one fire or multiple fires and decide on the appropriate action. The location information is also available on the field network interface. User defined areas within the field of view can be masked and un-masked dynamically to improve reliability and maintain maximum coverage at all times.

The FV300 has an optional integral colour video camera which displays a live image of the field of view. This is in addition to the alarm location and status information which is available as standard on the video output.

Features

- Advanced array based detector
- Powerful signal processing on DSP with algorithms to give reliable flame detection
- Detection range: Over 50m for 0.1m² n-heptane pan fire
- Field of view: 90° horizontal, 85° vertical with full range maintained
- High immunity to false alarms
- Solar blind
- Masking of areas in field of view
- Automatic optical path monitoring
- Advanced self test and service features
- Built-in video camera (option): View protected area with alarm location and status overlay
- IEC 61508 Approved (SIL2)

Order Codes

516.300.006	FV311S Inra-red array flame detector
516.300.008	FV311SC Inra-red array flame detector PAL Camera
516.300.007	FV311SC-N Inra-red array flame detector NTSC Camera
516.300.411	FV411f Triple infra-red flame detector
516.300.412	FV412f Triple infra-red flame detector PAL camera
516.300.413	FV413f Triple infra-red flame detector NTSC camera

FLAMEVision FV400

FLAMEVision FV400 uses Triple IR Solar Blind technology for flame detection. This provides a reliable and cost effective solution in standard flame detection applications especially where there is a single hazard in the field of view. The FV400 FLAMEVision detectors use Triple IR Solar Blind sensing technology and flame detection algorithms to provide high performance sensing capabilities for hydrocarbon fires. This includes the ability to reliably sense flames through high densities of solvent vapours and black smoke, increasing the probability of early detection with consistent high sensitivity to flame throughout the whole field of view. They also ensure consistent detection of many different types of hydrocarbon fuels from alcohol to aviation fuel. Multiple interfaces are provided with the option of an integral CCTV camera to provide a visual means of operator verification.

Features

- Triple IR solar blind sensing technology
- Multiple Field Interfaces
- Detection range: Up to 65m for 0.1m² n-heptane pan fire
- Automatic optical path monitoring,
- Integral flame simulation and remote walk test help reduce the on going life time cost of the flame detecti installation
- Video verification via the integrated optional flameproof camera

EX II 2 GD

FV411F:

EX d IIC T4 Gb Ta -40°C to +80°C

EX d IIC T5 Gb Ta -40°C to +75°C

EX td IIIC T135°C Db Ta -40°C to +80°C

EX td IIIC T100°C Db Ta -40°C to +75°C

FV412F and FV413F:

EX d IIC T4 Gb Ta -40°C to +80°C

EX d IIC T5 Gb Ta -40°C to +70°C

EX td IIIC T135°C Db Ta -40°C to +80°C

EX td IIIC T100°C Db Ta -40°C to +70°C

Ancillary Equipment

517.300.001	MB300 FLAMEVision Mounting Bracket
517.300.002	WH300 FLAMEVision Weather Hood
517.300.021	WT300 FLAMEVision Walk Test Tool
517.300.022	CTI300 FLAMEVision Off-line Configuration Tool
517.300.024	CTI400 FLAMEVision Off-line Configuration Tool
517.300.006	MK300 FLAMEVision Field Spares Kit

6.06

Flame Detectors

Technical Information

Mechanical - Detector

Dimensions:	155.5H x 153W x 92D mm
Weight:	4kg
Gland entry:	2 x M20
Material:	Stainless steel 316L, ANC4BFCLC to BS3146: Part 2
Guard/label plate:	Stainless steel 316S16 to BS1449: Part 2
Screws external:	Stainless steel 316 A4
Detection window:	Sapphire
Camera window:	Toughened glass

Mechanical - Bracket

Dimensions:	181H x 125W x 95 mm
Weight:	1.54kg
Material:	Stainless steel 316S16 to BS1449: Part 2

Environmental

Operating temp:	-40°C to +80°C
Storage temp:	-40°C to + 80°C
Operating temp (camera):	-10°C to +50°C
Storage temp with camera:	-20°C to + 70°C (operating temperature is reduced for T5 risks)
Relative humidity:	99% (non condensing)
Enclosure IP Rating:	IP66

Flameproof Certification

FV300
Ex II 2GD EX d II C Ext D A21 IP66/67 T4 T135°C
(T amp = -40°C to 80°C) or T5, T100 (T amp = -40°C
to +70°C)

EN54 Approval

CPD EN54-10:2002 + A1:2005
FV400 is classified as Class 1 on the Extended and
Normal range settings.
FV400 is certified as Class 3 on the Half range setting.
FV300 is classified as Class 1

Camera Specification

Composite video:	(1V p-p) into 75 Ohm via twisted pair balun
Horizontal resolution:	Standard 450 TVL
Light sensitivity:	0.3 Lux (-30 IRE)

Detector performance

Range:	FV400 65m, FV300 5 m (0.1m ² n heptane)
Field of view:	90° horizontal, 85° vertical

Interfaces

FV300

Modbus
4-20 mA Sink or source
Fire & fault relay contacts NO or NC
Composite video o/p

FV400

Modbus
4-20mA Sink or source
Conventional detector I/F
Tyco MZX Digital
Fire & fault relay contacts NO or NC
Composite Video o/p (Camera option only)
Hart interface (Implemented in future software update)

Electrical

FV300

Supply voltage:	20 to 30Vdc
Current consumption :	196mA Quiescent 205 mA Alarm (24Vdc)
Heater:	245mA @ 24Vdc
Connections:	2.5mm ² (14AWG) Terminals

FV300

Supply voltage:	15 to 30Vdc
Current consumption:	12mA Quiescent 22mA Alarm (24Vdc - interface dependent)
Camera:	185mA @ 24Vdc
Heater:	245mA @ 24Vdc
External supply required only for camera, heater or MODBUS options	
Connections:	2.5mm ² (14AWG) Terminals

Order Codes

516.300.006	FV311S Infrared array flame detector
516.300.008	FV311SC Infrared array flame detector - PAL camera
516.300.411	FV411f Triple infrared flame detector
516.300.412	FV412f Triple infrared flame detector with PAL camera

Ancillary Equipment

517.300.001	MB300 FLAMEVision mounting bracket
517.300.002	WH300 FLAMEVision weather hood
517.300.021	WT300 FLAMEVision walk test tool
517.300.022	CTI300 FLAMEVision offline configuration tool
517.300.024	CTI400 FLAMEVision offline configuration tool
517.300.006	MK300 FLAMEVision field spares kit

S200 Plus Triple IR Solar Blind Flame Detector-IEC 61580 Approved (SIL2)



As part of an intrinsically safe circuit, the S200 Plus is suitable for zones 0,1 and 2 where group IIC gases or lesser hazards can be continuously present in explosive concentrations.

Technical Information

Detector Material:	Stainless Steel 316L/316
Dimensions:	167H x 167W x 89D mm
Weight:	4.5Kg
Gland Entry:	2 x 20mm
Range:	0.1m ² petrol at 50m 0.4m ² petrol at 60m
Operating Temp (I.S.):	-40°C to +80°C (IECEX & ATEX)
Response Time:	Field Selectable 3, 6 and 12s
Sensitivity:	3 range settings
Relative Humidity:	95% (100% intermittent)
Enclosure:	IP66 and IP67

Types S231i+, S241i+ and S271i+

IECEX BAS 05.0051
Ex ia IIC T5 (-20°C < Ta < +40°C)
or T4(-40°C < Ta < +80°C)

Features

- Triple waveband infrared solar blind flame detection for optimum false alarm immunity
- Unrivalled black body rejection over a wide range of source temperatures
- Range adjustable to 50 metres for a 0.1m² petrol pan fire
- Discrimination of optical faults (dirty windows) from other faults by the built-in self test feature
- Housing designed for easy installation of cabling
- Addressable, relay or 4-20mA models available
- Patented dual filter for complete solar blindness
- 100° field of view
- ATEX and IECEX approved

Additional Intrinsically Safe S200 Plus Features

- Flexible mounting and angular adjustment
- 2 x 20 mm field cable entries
- IP66/67 housing designed for external use
- Rugged 316 stainless steel housing and mounting bracket
- Variable response times and sensitivity settings
- Remote self test and range setting
- True window test in detection area (i.e. not in the edge of the window)
- Terminals provided for Remote LED connection where relevant
- BASEEFA (CENELEC) certified
- Approved to EN54 Pt 10
- IEC 61508 Approved (SIL2)
- DNV and LRS certified
- Very low power consumption (0.35mA)
- Models available with Conventional or Analogue Addressable interface (requires 2 core cable only)

Order Codes

516.037.004	S231i+ Conventional interface triple IR I.S. Flame Detector
516.038.004	S241i+ 4-20MA interface triple IR I.S. Flame Detector
516.041.004	S271i+ MX interface triple IR I.S. Flame Detector
517.001.266	S200+ Spares Kit & Sealant
517.001.263	S200+ Weather Protection Assembly
517.001.184	S200+ Detector Mounting Bracket

6.08

System 800 Addressable Fire Detection

System 800 Fire Detection for Hazardous Areas



Features

- Addressable I.S. MZX Technology
- Compatible with S271i+ flame detector
- Compatible I.S. callpoint.
- ATEX certified intrinsically safe Ex II 1 GD System
- Suitable for use in Zone 0, 1, 2, 20, 21 & 22

A complete range of ATEX and ITEX certified detectors suitable for use in Zone 0, 1, 2, 20, 21 & 22 Areas. MZX digital addressable for use on MZX Fire Controllers.

There is a risk of fire or explosion in all areas containing flammable substances in the form of liquids, gasses, dust or materials. Where these combustible materials are mixed with air in sufficient concentration they form a flammable atmosphere and the areas containing them are designated Hazardous Areas. When a source of ignition, such as a spark, is applied in a hazardous area, an explosion could take place. Electrical equipment supplied for use in Hazardous Areas must comply with requirements to ensure that its introduction into the area does not increase the existing risk. System 800 is an MX Technology Intrinsically Safe (I.S) system for use in Hazardous Areas which can be connected to the MX Fire Detection Systems installed in the Safe Areas.

The System designer must be familiar with ATEX certification and have successfully completed an appropriate recognised course in Intrinsic Safety. Design of the system requires that the designer has all the information concerning the installation correctly documented. The nature of the hazard must be defined by the customer and a survey carried out to determine the proximity of the safe area to establish cable runs.

The probability of a flammable mixture being present is defined by a zone number. Flammable gasses are classified in Groups and their minimum spontaneous ignition temperature is categorised by Class. Tyco Fire Protection Products supplied equipment marked EEx ia IIC T5 would be suitable for use in worst case conditions. E.G. Zone 0 (ia), Hydrogen (IIC), T5 (100 deg C). The Fire Alarm Equipment and Safety Barriers should be placed as near as possible to the containment wall of the Hazardous Area. This minimises the cable lengths between the barrier and the Hazardous Area and thus the capacity to store energy.

In order that an Installation will comply with the ATEX certification designated for each system, it is essential that the certified devices are connected with cables of the specified limits. These limits have been certified for specific classifications of hazard in order that energy storage is limited.

The number of devices connected to the barrier and located in the Hazardous Area must always be limited to not more than the listed maximum.

The use of the MX designer Software tool will ensure correct loop loading and it's use is essential to the design process.

System 800 is for use in MX Technology Addressable Fire detection circuits.

801PHEx Smoke and Heat Detector



The 801PHEx Optical Smoke & Heat Detectors form part of the 800Ex Series of MZX Addressable Fire Detectors. The detector plugs into the 5BEX base.

The mode of detector can be:

- Optical smoke only detector (sensitivity - High, Normal or Low)
- HPO smoke detector (sensitivity - High, Normal or Low)
- Heat only rate-of-rise (A1R) detector (no sensitivity selection)
- Heat fixed temperature 60°C (A2S no sensitivity selection)
- Optical (sensitivity - High, Normal or Low) combined with heat fixed temperature 60°C (A2S)
- HPO (sensitivity - High, Normal or Low) combined with heat fixed temperature 60°C (A2S)

Technical Information

Weight:	0.2 Kg detector and base (approx)
Operating Temp:	-25°C to +70°C
Storage Temp:	-40°C to +70°C
Relative Humidity:	95% non- condensing
ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX la IICT5 EX laD 20T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0

Order Codes

516.800.530	801PHEx Optical Smoke + Heat Detector
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801CHEx CO & Heat Detector



The 801CHEx Carbon Monoxide plus Heat Detector form part of the 800Ex Series of MZX Addressable Fire Detectors. The detector plugs into the 5BEX base.

The mode of detector can be:

- Heat only detector (A1R or A2S) (sensitivity: - High, Normal or Low)
- Compensated Carbon Monoxide detector (sensitivity: - High, Normal or Low)
- Compensated Carbon Monoxide detector (sensitivity: - High or Normal) combined with heat (A1R)

Technical Information

Weight:	0.2 Kg detector and base (approx)
Operating Temp:	0°C to +55°C/ 20°C to +40°C
Storage Temp:	-20°C to +55°C
Relative Humidity:	95% non- condensing
ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX la IICT5 EX laD 20T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0

Order Code

516.800.531	801CHEx Carbon Monoxide + Heat Detector
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6.10

System 800 Addressable Fire Detection

801HEx Heat Detector



The 801HEx Heat Detectors form part of the 800Ex Series of MZX Addressable Fire Detectors. The detector plugs into the 5BEX base.

The mode of detector can be:

- EN54-5 A1R, rate-of-rise normal ambient
- EN54-5 A2S, fixed 60°C
- EN54-5 CR, rate-of-rise high ambient

Technical Information

Weight:	0.2Kg detector and base (approx)
Operating Temp:	-25°C to +70°C
Storage Temp:	-40°C to +70°C -40°C to +80°C
Relative Humidity:	95% non- condensing
ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX Ia IIC T5 EX IaD 20 T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0

Order Code

516.800.532 801HEx Heat Detector

801FEx Flame Detector



The 801FEx point type flame detector forms part of the MZX Technology range of digital addressable fire detectors. The detector plugs into the 5BEX base.

The 801FEx is a full featured solar blind flame detector and can detect a 0.1m² fire at a range of 20 m.

The mode of detector can be:

Technical Information

Weight:	0.2 Kg detector and base (approx)
Operating Temp:	-20°C to +70°C
Storage Temp:	-40°C to +80°C
Relative Humidity:	95% non- condensing
ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX Ia IIC T5 EX IaD 20 T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0

Order Codes

516.800.066 801FEx I.R. Flame Detector
516.800.067 811FEx Marine I.R. Flame Detector

CP840Ex Break Glass Callpoint



The CP840Ex Weatherproof Break Glass Callpoint is designed to monitor and signal the condition of a switch contact associated with the break glass.

Technical Information

Operating Temp:	-25°C to +70°C
Storage Temp:	-30°C to +70°C
Relative Humidity:	95% non- condensing
ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX Ia IIC T5 EX IaD 20T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0

Order Code

514.800.513	CP840Ex MZX Digital Addressable Break Glass Callpoint
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IF800Ex Interface Module



The Intrinsically Safe IF800EX Interface Module is designed to monitor fire contacts such as sprinkler flow switches. The IF800Ex is contained within a grey compression moulded glass filled polyester box with 2 x 20mm cable gland holes.

The electronic components are mounted on a double sided printed circuit board built into a potted module formed from a plastic moulding. Connectivity is via two terminal blocks fitted to the PCB.

Technical Information

ATEX Code:	BASA01ATEX1394X II 1GD CE 1180 EX Ia IIC T5 EX IaD 20T100OC IECEX BAS 07.00-63X UI=28V II=93mA PI=0.65W CI=0= LI=0
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Order Code

514.001.062	IF800Ex MZX Digital Addressable Interface Module Assembly
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6.12

System 800 Addressable Fire Detection

EXI800 Interface Module & Galvanic Isolators



The EXI800 Interface Module when used with a galvanic isolator, provides a path for an MZX panel to transparently communicate to slave devices (800Ex Detectors, IF800Ex Interface Module or CP840Ex Addressable Break Glass Call Point) connected to the Intrinsically Safe Loop. The EXI800 interface reduces the standard MZX loop supply voltage and signalling currents to levels that are acceptable for hazardous areas. The EXI800 can detect a short circuit on the left-loop, the right-loop, or the IS spur and will isolate the offending circuit from the other loop connections.

The IS loop output of the EXI800 interfaces with the Pepperl & Fuchs KFDO-CS-Ex1.54 Galvanic Isolator supplying loop voltage and signalling currents to the Intrinsically Safe Loop. Both single channel and dual channel Galvanic Isolators are available.

Order Codes

- 514.001.063 EXI800 Interface Module
- 517.001.306 Single channel KFDO-CS-EX1.54 Galvanic Isolator
- 517.001.305 Two channel KFDO-CS-EX2.54 Galvanic Isolator
- 517.001.304 MTL5525 I.S. Sounder Driver

The EXI800 is supplied complete with a service tool EX dongle that is required to activate the address programming when using the standard MZX service tool. The MTL5525 Isolating Sounder Driver enables an intrinsically safe sounder located in the hazardous area, to be controlled from the safe area. The MTL5525 has one channel and is suitable for connecting certified loads in Zone 0, IIC, T4-T6 hazardous areas.

IS Barrier Enclosure



The MTL 'DX' Series enclosures will house the EXI800 (20 mm pitch), Pepperl & Fuchs KFDO-CS-Ex1.54 Galvanic Isolator (20 mm pitch) and the MTL5525 I.S. Sounder Driver (16.2 mm pitch). The units are DIN rail mounted with 70 mm of rail supplied with the DX070 and 170 mm of rail with the DX170. The enclosures are usually selected on the number of units they will accommodate. The following table shows the capacity of each of the enclosure types.

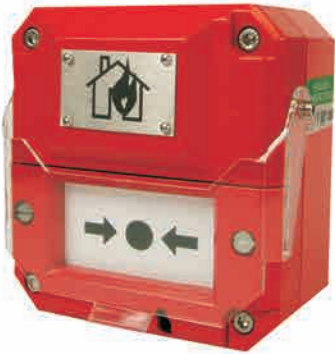
Order Codes

- 517.001.248 DX070 Enclosure
- 517.001.247 DX170 Enclosure

Enclosure	MTL5500 isolators 16.2mm Pitch	MTL7700 barriers 7.5mm Pitch
DX070	4 (2*)	9 (5*)
DX170	10 (8*)	22 (18*)

* Use these figures when two IMB57 mounting brackets for tagging/earth rail accessories are included.

BG MIM800 Callpoint EX II 2 GD



An Ex II 2 GD Dust Approved & Increased Safety (EExemd) Resettable Manual Alarm Call Point for use with the EExd Flameproof MIM800 input module in EExd housing on an Addressable Detection & Releasing System in gas and dust explosive risks.

Please note that the above part is only compatible with Consys Version 17.0 and above when used with 577.800.067.

Features

- Glass Reinforced Polyester Enclosure – light, strong and not subject to corrosion
- Resettable Element
- Explosion protected EExe (ATEX Approved)
- In line and end of line resistors
- Red Epoxy Finish
- 7 x terminals
- Lift flap for extra protection against inadvertent operation
- 1 x changeover switch
- Captive cover screws
- Key operated test facility – simple but secure
- 1 x M20 bottom cable entry

Order Code

514.001.107 EX II 2 GD Dust Approved & Increased Safety (EExemd) Resettable Manual Alarm Callpoint

Technical Information

Protection:	Explosion Protected EExed (Increased Safety)
Voltage:	Up to 250 V
Certified Temperature:	-20°C to +50°C
Ingress Protection:	IP66 & IP67
Terminals:	7 x 2.5 mm ²
Switch Ratings (1 x Changeover):	DC 0-30 V 5 A (Resistive) or 3 A (Inductive) DC 30-50 V 1 A Resistive or Inductive AC 0-254 V 5 A Resistive or Inductive
Cable Entries:	1 x M20 Bottom
Weight:	1.2 Kg
Material:	Anti Static U.V. Resistant Glass Reinforced Polyester
Finish:	Red Epoxy Paint
Resistors:	Alarm: 100 Ohm EOL: 250 Ohm
Labelling:	Burning House Symbol
Dimensions:	126H x 120W x 75D mm
Certification:	ATEX approved Ex II 2 GD BAS02ATEX2105X EExemdIICT4 CENELEC EN50014 EN50019 EN50018 EN50028 Suitable for use in Zones 1 & 2

6.14

System 800 Addressable Fire Detection

BG MIM800 Callpoint EX II 2 GD



An EExd Flameproof MIM800 Addressable Module for extending the monitoring of Call Points and other Alarm Inputs on an MZX, ZX and MZX Addressable System in gas and dust explosive risks.

Please note that the above part is only compatible with Consys Version 17.0 and above when used with 514.001.107.

Features

- Copper Free Metal Alloy Aluminium Housing
- Explosion Protected to EExd (ATEX Approved)
- 9 x Terminals
- 3 x M20 Cable Entries
- Fast Interrupt Mode for Call Points

Technical Information

Protection:	Explosion Protected EExd (Flameproof)
Voltage:	40Vdc
Certified Temperature:	-20°C to +55°C
Ingress Protection:	IP67
Terminals:	9 x 2.5 mm ²
Cable Entries:	3 x M20 (No Blanking Plugs)
Weight:	0.8 Kg
Material:	Metal Alloy Aluminium - Copper
Dimensions:	Free
Certification:	98H x 108W x 90D mm Ex II 2 GD LOM02ATEX2037 EExdIICT6 CENELEC EN50014 EN50018 EN50019 EN50281-1-1 EN60439-1 Suitable for use in Zones 1 and 2 to IEC 60079-10 Suitable for use in Zones 21 and 22 to EN50281-3

Order Code

577.800.067 MIM800 Input Module in EExd Housing

System 620 Fire Detection for Hazardous Areas



Features

- Conventional I.S. system
- Suitable for worst case (EEx ia IIC T5)
- High Performance Optical (HPO) smoke detector
- Compatible with S231i+ flame detector
- Compatible I.S. callpoint
- Suitable for use in Zone 0,1,2,20,21 & 22

A complete range of ATEX and ITEX certified detectors suitable for use in Zones 0,1,2,20,21 & 22 areas for use on conventional panels. There is a risk of fire or explosion in all areas containing flammable substances in the form of liquids, gasses, dust or materials. Where these combustible materials are mixed with air in sufficient concentration they form a flammable atmosphere and the areas containing them are designated Hazardous Areas. When a source of ignition, such as a spark, is applied in a hazardous area, an explosion could take place. Electrical equipment supplied for use in Hazardous Areas must comply with requirements to ensure that its introduction into the area does not increase the existing risk. System 620 is an Intrinsically Safe (I.S.) system for use in Hazardous Areas which can be connected to a conventional fire Alarm Controller installed in the Safe Area.

The System Designer must be familiar with ATEX certification and have successfully completed an appropriate recognised course in Intrinsic Safety. Design of the system requires that the designer has all the information concerning the installation correctly documented. The nature of the hazard must be defined by the customer and a survey carried out to determine the proximity of the safe area to establish cable runs.

The probability of a flammable mixture being present is defined by a Zone Number. Flammable gases are classified in Groups and their minimum spontaneous ignition temperature is categorised by Class. ZETTLER products supplied equipment marked EEx ia IIC T5 would be suitable for use in worst case conditions. Eg. Zone 0 (ia), Hydrogen (IIC), T5 (100 deg C). The Fire Alarm Equipment and Safety Barriers should be placed as near as possible to the containment wall of the Hazardous Area. This minimises the cable lengths between the barrier and the Hazardous Area and thus the capacity to store energy.

In order that an Installation will comply with the ATEX certification designated for each system it is essential that the certified devices are connected with cables of the specified limits. These limits have been certified for specific classifications of hazard in order that energy storage is limited.

The number of devices connected to the barrier and located in the Hazardous Area must always be limited to not more than the listed maximum.

When a mixture of devices is connected to any one zone the numbers must be reduced in proportion to the ratio of the load presented to the barrier. When a System includes the use of an S231i+, it must be remembered that the load it presents to the circuit is twice that of a detector. A mixture of large and small load devices connected to a zone will require a calculation for the number of allowed detectors.

System 620

System 620 is for use in conventional fire detection circuits. Two Sounder Systems, (one earthed and one isolated), are available and either can be used with System 620.

6.16

System 620 Conventional Fire Detection

MR601TEx High Performance Optical Smoke



The MR601TEX has been developed to overcome the slower response of the optical detectors to hot burning fires, by increasing the sensitivity of the optical detector when it is associated with a rapid change in temperature. In this way it is intended to become a detector which can cover some of the risks currently covered by ion chamber detectors. Smoke detectors will not detect burning alcohol or other clean burning liquids which do not generate smoke particles.

Technical Information

Operating Temp:	-20°C to +70°C
Storage Temp:	-25°C to +80°C
Relative Humidity:	95% non-condensing
ATEX Code:	Ex II 1GD
Cenelec Code:	Ex ia IIC T5/ Ex iaD 20T100°C

Order Code

516.054.011.Y	MR601TEX Conventional High Performance Optical Smoke Detector
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MD601Ex & MD611Ex Heat Detectors



If environmental conditions rule out the use of smoke detectors, then a heat detector of the type MD601Ex/MD611Ex may provide an acceptable, though less sensitive, alternative. For general use, and particularly where the ambient temperature may be low, a 'Rate-of-Rise' heat sensor is to be preferred. This type of sensor reacts to abnormally high rates of change of temperature and provides the fastest response over a wide range of ambient temperatures. A fixed temperature limit is also incorporated in these detectors. In many environments, e.g. kitchens and boiler rooms, sudden, large changes in temperature are considered 'normal'. Rate-of-rise detectors are generally not suitable in these cases and fixed temperature [static] types should be used.

Technical Information

Operating Temp:	-20°C to +70°C
Storage Temp:	-25°C to +80°C
Relative Humidity:	95% non-condensing
ATEX Code:	Ex II 1GD
Cenelec Code:	Ex ia IIC T5/ Ex iaD 20T100°C

Order Codes

516.052.051.Y	MD601EX Conventional Rate of Rise Heat Detector
516.052.041.Y	MD611EX Conventional Fixed Temperature Heat Detector

MDU601Ex Enhanced Carbon Monoxide Fire & Heat Detector



The MDU601EX detector is a combined CO and Rate of Rise Heat Detector where the sensitivity of the CO detector is enhanced in response to a fast rate of change of temperature.

Technical Information

Operating Temp:	-10°C to +55°C
Storage Temp:	-20°C to +55°C
Relative Humidity:	90% non-condensing
ATEX Code:	Ex II 1GD
Cenelec Code:	Ex ia IIC T5/ Ex iaD 20 T100°C

Order Code

516.061.001.Y MDU601EX Enhanced Carbon Monoxide Fire & Heat Detector

601FEx & 601FEx-M Ex Flame Detectors



Flame detectors, unlike smoke and heat detectors, do not rely on convection to transport the fire products to the detector nor do they rely on a ceiling to trap the products. They can therefore be used to protect large open areas without sacrificing speed of response to flaming fires. In order to ensure full coverage however, flame detectors do require direct line of sight to all parts of the protected area.

Infra-red flame detectors such as the 601FEx are designed to respond rapidly to fires which involve clean-burning fuels such as alcohol or methane, i.e. fires which would not be detected by smoke detectors.

Technical Information

Operating Temp:	-20°C to +70°C
Storage Temp:	-40°C to +80°C
Relative Humidity:	90% non-condensing
ATEX Code:	Ex II 1GD
Cenelec Code:	Ex ia IIC T4/ Ex iaD 20 T135°C

Order Codes

516.600.066 601FEx Infra-Red Flame Detector
516.600.067 601FEx-M Infra-Red Flame Detector (Marine)

The 601FEx Flame Sensor, by virtue of its operating wavelength and flicker discrimination is insensitive to normal environmental influences. For outdoor use a solar-blind detector [e.g. the S200 Plus] should be used. The 601FEx Flame detector should, normally, only be used inside buildings to supplement heat and smoke detectors.

6.18

System 620 Conventional Fire Detection

5BEX Detector Base and Ancillaries



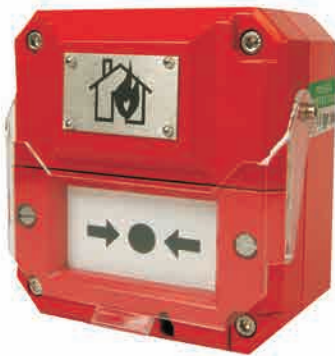
Technical Information

Operating Temp:	-25°C to +70°C
Storage Temp:	-40°C to +80°C
Relative Humidity:	95% non-condensing
ATEX Code:	Ex II 1GD
Cenelec Code:	Ex ia IIC T5/ Ex iaD 20 T100°C

Order Codes

517.050.023	5BEX 5" Universal Ex Base
517.050.603	DHM-5B deckhead mounting
517.001.120	System 601 EOL Unit (Pk 10)

BG Conventional Callpoint EX II 2 GD



This EX II 2 GD Dust Approved & Increased Safety (EExemd) Conventional Break Glass Manual Alarm Call Point is fitted with a 470 ohm Alarm Level Resistor and a 4K7 ohm EOL Resistor for use with Tyco Conventional Detection Circuits including the DIM800 and DDM800 MZX Modules.

The unit's housing is made of polyester, therefore making it light, strong and not subject to corrosion.

No hammer is required to operate this callpoint. The glass is covered by a membrane, thus protecting the operator from glass fragments.

It is also fitted with a removable link which allows it to be connected on its own or with other Conventional Devices to a Tyco Conventional Detection Circuit.

Order Code

514.001.108	EX II 2 GD Dust Approved & Increased Safety (EExemd) Conventional Break Glass Manual Alarm Callpoint
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Features

- Polyester Enclosure
- Explosion protected EExe (ATEX Approved)
- In line and end of line resistors
- 9 x terminals
- Lift flap for protection against inadvertent operation
- 1 x changeover switch
- Captive cover screws
- No hammer required
- Key operated test facility – simple but secure
- 2 x M20 bottom cable entries

Technical Information

Protection:	Explosion Protected EExed (Increased Safety)
Voltage:	Up to 250 V
Certified Temp:	-20°C to +50°C
Ingress Protection:	IP66 & IP67
Terminals:	9 x 2.5 mm – up to 60 V
Switch Ratings (1 x Changeover):	DC 0-30 V 5 A (Resistive) or 3 A (Inductive) 30-50 1 A Resistive or Inductive AC 0-254 V 5 A Resistive or Inductive
Cable Entries:	2 x M20 Bottom
Weight:	1.2 Kg
Material:	Anti Static U.V. Resistant Glass Reinforced Polyester
Finish:	Red Epoxy Paint
Resistors:	Alarm: 470 Ohm EOL: 4K7 Ohm
Labelling:	Burning House Symbol
Certification:	ATEX approved Ex II 2 GD BAS02ATEX2105X EExedmIICT4 CENELEC EN50014 EN50019 / EN50018 / EN50028 Suitable for use in Zones 1 & 2

BG3 I.S. Conventional Callpoint - Atex Approved



This manual fire alarm call point is designed in accordance with the latest European Callpoint Standard (EN54-11).

Weatherproof to IP66/IP67 and available certified intrinsically safe, simple apparatus manufactured from glass reinforced polyester (GRP) which provides a robust, corrosion free construction and ensures effective and reliable operation in harsh industrial and offshore environments.

Units are supplied in self coloured GRP with a 'Burning House' duty label as standard.

Features

- Intrinsically safe
- Weatherproof to IP66/IP67
- Robust GRP Housing

Technical Information

Model:	BG3I
Protection:	Explosion Protected EExia (Intrinsically Safe)
Voltage:	Up to 28 V (IS)
Certified Temp:	-55°C to +55°C
Ingress Protection:	IP66 & IP67
European Standard for Callpoints:	EN54-11
Terminals:	6 X 4.0 mm ²
Cable Entries:	2 X M20 Bottom
Weight:	0.5 Kg
Material:	UV resistant glass reinforced polyester
Finish:	Natural Red GRP
Certification:	CENELEC EN50014, 020 BASEEFA EExia IIC T4 Cert No. BAS00ATEX1067X Suitable for use in Zones 0,1 & 2

Order Code

514.001.059 Intrinsically Safe Callpoint (BG3I4NBN)

MCP220Ex I.S. Callpoint - ATEX Approved



The MCP220Ex is an intrinsically safe conventional callpoint for use on the ATEX Certified System.

Features

- Intrinsically Safe
- Weatherproof to IP67
- Compatible with System 620

Technical Information

Dimensions:	93H x 98W x 66D mm
Weight:	270 g
Material:	PC/ABS
Colour:	Red
IP Rating:	IP67
ATEX Code:	Ex II 1GD
Cenelec Code:	EX ia IIC T4 Ga /EX iaDT135°C Da
ATEX Cert:	SIRA 06ATEX2131X

Order Code

514.001.109 MCP220Ex Red Callpoint intrinsically safe for use with ATEX certified conventional system 620.

6.20

Intrinsically Safe Sounders

DB3B Flameproof Horn Sounder



This lightweight all GRP flameproof sounder is intended for use in potentially explosive gas and dust atmospheres and has been designed with high ingress protection to cope with the harsh environmental conditions found offshore and onshore in the oil, gas and petrochemical industries.

The flamepaths, flare and body, are manufactured completely from a UV stable glass reinforced polyester. Stainless steel screws and sinter are incorporated thus ensuring a corrosion free product. A tapered flamepath is used to overcome the problems of assembly of parallel spigot flamepaths.

Features

- For use in hazardous areas
- Robust GRP construction
- Powerful Output, up to 122dBA

Technical Information

Voltage:	12 VDC to 48 VDC
Certified Temp:	-55°C to +70°C
Weight:	6.0kg approx
Terminals:	6 x 2.5mm ²
Mounting:	Stainless steel bracket with ratchet facility
Cable Entries:	2 x 20 mm EExd.
Tone Selection:	27 user selectable tones.
Material:	Body & horn in anti-static, UV stable, glass reinforced polyester. Swivel bracket & captive cover screws in stainless steel.
Ingress Protection:	IP66 & IP67/NEMA 4X & 6
Certification:	ATEX Ex d Gas & Dust Cert. no. Baseefa13ATEX0231X. Certified to: EN60079-0,1,31Ex II 2GD, Ex d IIC T4/T5/T6 Gb, Ex tb IIIC T135°C/T100°C/T85°C Db, IP66

Order Code

DB3BDGD048N2BNR DB3B Flameproof Horn Sounder

XB8 Intrinsically Safe Beacon



This ruggedised, intrinsically safe and weatherproof beacon is intended for use in potentially explosive atmospheres, and has been designed with high ingress protection to cope with the harsh environmental conditions found offshore and onshore in the oil, gas and petrochemical industries.

Please refer to MEDC for guidance on cable capacitance and barriers.

Please Note:

This beacon should be used for supplementary indication purposes only. In this case the device is not required to be used as a Visual Alarm Device (VAD) and EN54-23 is not relevant to its classification.

Features

- Copper Free Metal Alloy Aluminium Housing
- Explosion Protected to EExd (ATEX Approved)
- 9 x Terminals
- 3 x M20 Cable Entries
- Fast Interrupt Mode for Call Points

Technical Information

Flash Rate:	1 flash per second
Certified Temp:	-55°C to + 60°C
Weight:	1.4 kg
Voltage:	24 V via suitable barrier
Current Consumption:	71 mA max nominal
Terminals:	8 x 2.5 mm ²
Tube Type:	Xenon discharge
Tube Energy:	0.5 Joules
Tube Life:	>1 x 106 Flashes
Lens Colour:	Clear
Material:	UV stable glass reinforced polyester body. Clear polycarbonate cover/lens. Retained stainless steel cover screws.
Finish:	Painted Red
Ingress Protection:	IP66 & IP67
Cable Entries:	Up to 3 x M20 via knockouts
Certification:	CENELEC EN50014, 20 & 39 BAS02ATEX1258X EExia IIB T4 Zones 0,1 & 2

Order Code

540.001.038 Intrinsically Safe Xenon Beacon
(XB8BB024CNR)

6.22

Intrinsically Safe Beacons

XB11 Flameproof Xenon Beacon



These certified beacons have been designed for use in potentially explosive gas and dust atmospheres and harsh environmental conditions. The glass reinforced polyester enclosures are suitable for use offshore or onshore, where light weight combined with corrosion resistance is required.

The beacon housing is manufactured completely from a U.V. stable, glass reinforced polyester. Stainless steel screws and mounting bracket are incorporated ensuring a totally corrosion free product.

Please Note:

This beacon should be used for supplementary indication purposes only. In this case the device is not required to be used as a Visual Alarm Device (VAD) and EN54-23 is not relevant to its classification.

Features

- Robust Corrosion Resistant GRP body
- High Power (5 Joule)
- Certificated Flameproof

Technical Information

Voltage:	24 Vdc
Peak Current	
Consumption:	320 mA
Power Consumption:	8W
Tube Energy:	5 Joules
Effective Intensity:	29 Cd
Peak Intensity:	22213 Cd
Note:	The Cd figures are for a clear lens @ 1Hz flash rate. For red lens multiple by 0.15.
Certified Temp:	EExd -55°C to +70°C (T4) -55°C to + 55°C (T5) -55°C to + 40°C (T6)
Weight:	2.5Kg
Body Material:	Glass reinforced polyester
Lens Material:	Glass
Cover Screws & Backstrap:	Stainless steel 316
Finish:	Red
Ingress Protection:	IP66 & IP67
Terminals:	6 x 2.5 mm ²
Entries:	2 x 20 mm ISO EExd.
Certification:	BASEEFA EExd IIB 135°C (-55 to AMB +70°C)T4 100°C (-55 to AMB + 55°C)T5 85°C (-55 to AMB + 40°C)T6 Cert. No. 99 ATEX 2195X CENELEC EN50014 and EN50018

Order Code

540.001.039

Flameproof Xenon Beacon
(XB11B02406RNBNNNR)

Intrinsically Safe Barriers - Atex Approved

The following section relates to a range of intrinsically safe barrier and isolator equipment for use with ZETTLER fire detection systems. It essentially encompasses the relevant MTL5500 and MTL7700 series barriers plus the associated housing options as an alternative to existing MTL700 series equipment.

On all issues of intrinsically safe system design, please refer to Manual 26A for guidance.

Galvanic Isolators - MTL5500



The MTL5561 is a two channel interface for use with conventional detectors located in hazardous areas. This galvanic isolator is CE marked, and replaces the MTL3043 barrier option. It is suitable for connecting loads in Zone 0, IIC, T4-T6 hazardous areas if suitably certified.

The MTL5525 Isolating Sounder Driver enables an intrinsically safe sounder located in the hazardous area, to be controlled from the safe area.

Order Codes

517.001.302	MTL5561 2 Channel Galvanic Isolator
517.001.304	MTL5525 I.S. Sounder Driver

The MTL5525 barrier is designed as a CE marked replacement for the existing MTL3021 barrier. It has one channel and is suitable for connecting loads in Zone 0, IIC, T4-T6 hazardous areas if suitably certified.

When designing new systems or upgrading existing MTL3000 series systems to MTL5500 series, please use the appropriate MTL "DX" series enclosure equipment (16.2mm pitch).

Zener Barriers - MTL7700



The MTL7700 Series intrinsically safe shunt-diode safety barriers are innovative devices designed to provide exceptionally high packing densities, straightforward installation and simplified connection, commissioning and maintenance facilities. The MTL7700 Series include secondary replaceable fuses. These are useful where there is the possibility of faults occurring during commissioning, which would otherwise blow the barriers' internal safety fuses.

One secondary replaceable fuse for each barrier channel is provided and is lower in value than the safety related fuse. Fuses are packaged in small mouldings which can be latched in a disconnect position to break the safe and hazardous areas during commissioning, maintenance and fault finding, thus avoiding the need for additional disconnect terminals.

Order Codes

517.001.301	MTL7728 + Zener Safety Barrier for conventional detection circuits designed in accordance with System 601
546.004.005	Intrinsically safe sounder circuit interface module

Please note: This barrier is a direct alternative for the MTL728+ barrier.

6.24

Safety Enclosures

UC Series Enclosures



The UC series of enclosures provides a simple but effective means of mounting and protecting the MTL3000 series units, in safe areas. A standard lightweight enclosure with transparent lid, which can accommodate 4 units. The polycarbonate enclosure is impact resistant, flame retardant and dustproof to IP65.

Order Code

517.001.196 UC2 4 Way Barrier Housing

MT Series Enclosures

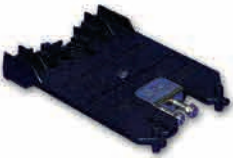


The MT series of enclosures provides a simple, effective means of mounting and protecting MTL700 Series barriers in safe areas or low-risk hazardous areas. Three lightweight polycarbonate enclosures with see through lids accommodate up to 2, 5 and 12 barriers in the safe area. All the enclosures are supplied ready fitted with a nickel plated brass busbar mount, so barriers can be installed and wired up immediately without special tools.

Order Codes

517.001.198 MT2 2 Way Zener Barrier Housing
517.001.199 MT5 5 Way Zener Barrier Housing
517.001.200 MT12 12 Way Zener Barrier Housing

Ancillaries



The ERL7 earth rail is a nickel plated 3 x 10mm rail (1 metre long), suitable for a do-it-yourself mounting arrangement. It will accommodate up to 2.5 ETM7 earth terminals per barrier location for terminating earth returns and cable screens from the hazardous area.

The IMB7 mounts on a flat surface or top hat rail (35mm) or G-profile rail and acts as a convenient method for mounting the earth busbar.

Order Codes

517.001.205 ERL7 Earth rail for I.S. systems
517.001.206 ETM7 Earth termination connection system
517.001.207 IMB7 Insulating mounting block