Trusted above all.

Fire Detection Systems
Control Panels and Modules

Product Catalogue

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FMZ 5000 base unit

FMZ 5000 – A fire alarm panel range for all safety concepts

Each FMZ 5000 model is a highly modern unit combining fire alarm and extinguishing control in a fully modular design with freely programmable controls to suit virtually any project requirement.

Planning, operation and service made easy

The same hardware modules are used for both fire detection systems and extinguishing systems, in three different base unit layouts for wall-mounted installation or in 19" free-standing cabinets. The MxSysCon configuration program with full graphical user interface is used to adapt those hardware modules to the specific project, in the office or on site any time right up to the moment of startup.

Optimal value for money – you only buy what you currently need

Changes in building use, in fire alarm controls or to your fire protection system can be implemented easily in the FMZ 5000 by replacing / adding / removing plug-in modules and adapting the configuration. Rewiring within the fire alarm panel is not required.

State of the art technology

- All modern functions of today's fire alarm and extinguishing control panels are combined in a single device:

- Clear display of alarms and other signals and easy operation in every situation with the large graphical display screen and user menu interface.
- Loop technology for detection / control / monitoring with all modern features and any number of branches - including explosion hazard areas.
- Operation of detectors for rough industrial environments in a wide range of operating voltages for all fire characteristics (such as heat - smoke - flame - CO fire gas etc.), also directly connected without couplers on the Loop.
- Up to 32 fire alarm and display/operating panels can be redundantly loop networked.
- Communication with building management systems or other control stations via open interfaces or field bus protocols.
- The freely programmable user interface meets all requirements for the display of messages and the controls to be executed in any logical and time combination.
- Redundant layout for fire detection and control of multi-zone extinguishing systems of any type.
- Easy adaptation to changing conditions of use and tasks through plug-in modules and graphical configuration.

A fire alarm panel system for universal application, with two VdS device approvals

G204124 fire alarm panel in accordance with EN54-2 A1 : 2006, EN54-4 A2 : 2006; 0786-CPD-20843

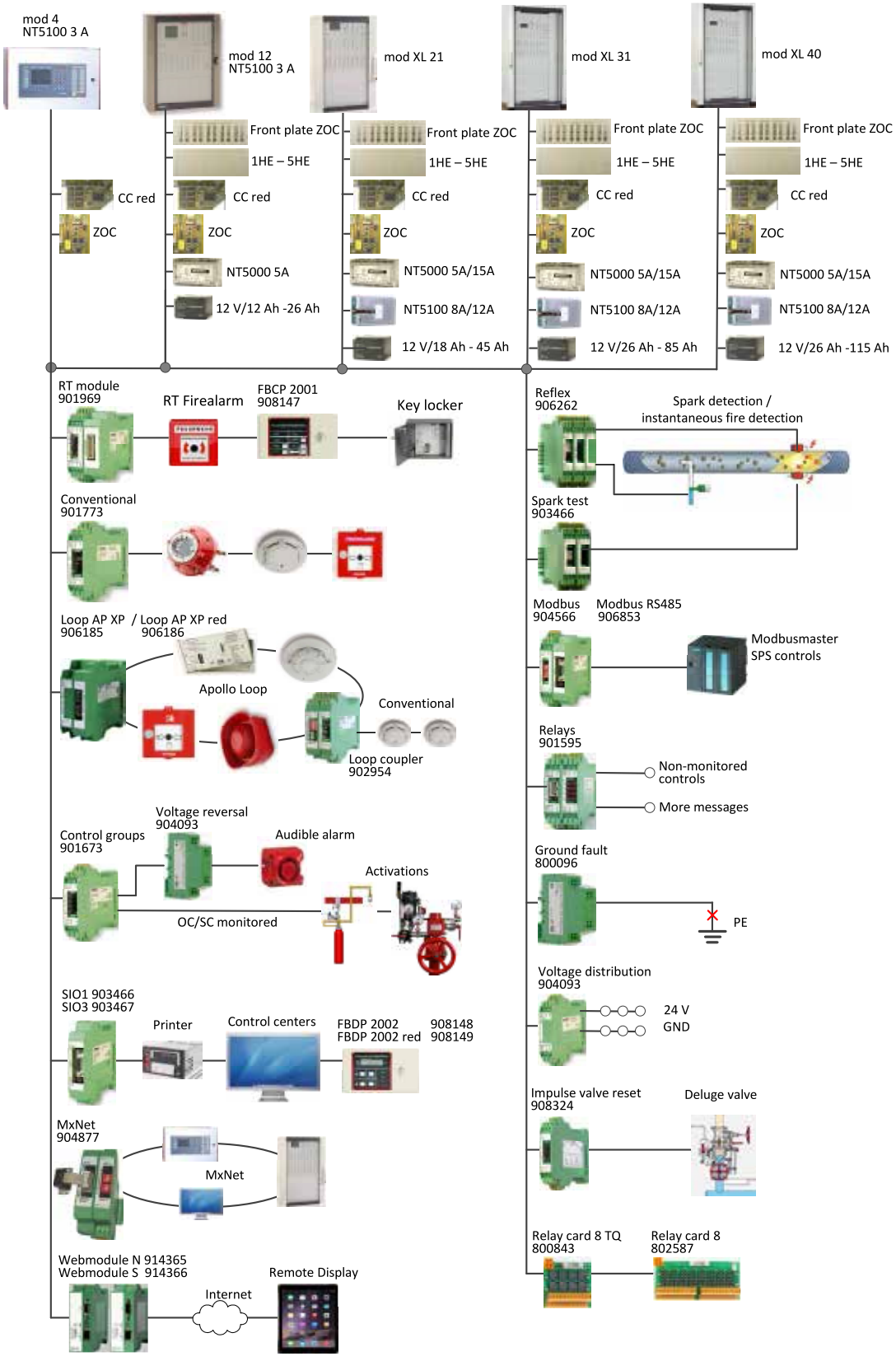
G205019 Electrical control device for multi-zone gas extinguishing systems in accordance with EN 12094-1 :2003; 0786 - CPD - 20222 as well as activation and control of water extinguishing systems

- International approvals like FM, CCC, RU for all main markets.

Fire alarm and extinguishing control panels

FMZ 5000 base unit

Additional and alternative components of the FMZ 5000



Fire detection and suppression control panels

FMZ 5000

Fire alarm panel FMZ 5000 mod 4 NT5100 3A

Part no.: 908551

Smallest base unit in the modular fire alarm panel range FMZ 5000. The wall enclosure is also suitable for flush-mounted wall installation or for desk mounting. For connecting analogue addressable detectors and conventional detectors in standard or industrial design. Activation of remote transmission units for fire and fault signals, data transfer to management systems and control stations with open interfaces. Signal indication through large LC display and LEDs, menu-guided operation using configurable function keys.

Application

For use for sole fire detection control or combined fire detection and extinguishing control in small-scale projects. Also for controlling multi-zone extinguishing systems through redundant hardware.

Technical specifications

Mains voltage	115 V / 230 V AC ±15%
Mains frequency	50 Hz - 60 Hz
Operating voltage	nom. 24 V DC min. 21 V DC max. 27.2 - 29 V DC
Power supply unit	24 V DC / 1,5 or 3 A
Quiescent current	approx. 120 mA DC
Battery	2 x 12 V / 12 Ah internal
External control voltage	min. 21 V DC max. 27.2 - 29 V DC
Ambient temperature	-5°C to +40°C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
Enclosure	Sheet steel 4U
Dimensions	475 x 340 x 200 mm (WxHxD) 18.7 x 13.4 x 7.9 inch (WxHxD) Length of mounting rail 1 x 213 mm (8.4 inch) usable mounting rail length for function modules 1 x 160 mm (6.3 inch)
IP rating (EN 60529)	IP 54
Color	RAL 7035
Weight	approx. 15 kg (33.1 lbs) without modules
Mounting	Wall-mounted installation

Product features

- Free selection of functional modules to be used for all project tasks
- Can also be expanded for control of multi-zone extinguishing systems with redundant hardware
- Up to 4 detector loops with 126 detectors each, 16 conventional detector lines for 32 detectors of any design each
- Up to 16 control groups and 32 relays
- 14 collective signal LEDs, some in two colours, 16 LED pairs, red/yellow, for individual signal indications
- Large LC display, fully graphical with menu-guided operation
- Can be loop networked up to 32 units in total
- The enclosure has space for emergency power batteries up to 12 Ah
- All settings are carried out via a fully graphical interface on a PC with the MxSysCon configuration program

Included in delivery

Fire alarm panel with front display, operating plate, central card and power supply unit. Wired ready for the insertion of any modules. No additional wiring in the fire alarm panel required. Operating instructions, installation manual, drilling template.

Not included in delivery

Modules, zone operating panel cards, batteries, report printer, installation material

Note

Order batteries separately.
Alternative batteries must be selected according to the table at the end of the chapter.

Approvals / marking

(depending on power supply unit)

VdS G 204124
G 205019

CE 0786-CPD-20843
0786-CPD-20222

FM APPROVED

Fire detection and suppression control panels

FMZ 5000

Fire alarm panel FMZ 5000 mod 12 LSZ AP

Part no.: 910890

Medium-size base unit of the fire alarm panel range FMZ 5000. 19“ wall enclosure with front door in stainless steel colored frame. Equipped and ready for fire detection, monitoring and control for one single-zone extinguishing system in a maximum of 256 devices in analogue addressable technology and a maximum of 256 devices in conventional technology. Signal indication through large LC display and LEDs, menu-guided operation using function keys.

Application

For use as extinguishing control panel in single-zone extinguishing systems with optional extension possibilities.

Technical specifications

Mains voltage	115 V / 230 V AC -15%, +10%
Mains frequency	50 Hz - 60 Hz
Operating voltage	21 V - 29 V DC
Power supply unit	24 V DC / 5 A
Quiescent current	approx. 330 mA DC
Battery	2 x 12 V / 26 Ah internal,
External control voltage	21 V - 29 V DC
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
Enclosure	Sheet steel 12U
Dimensions	600 x 604 x 225 mm (WxHxD) 23.6 x 23.8 x 89 inch (WxHxD) Length of mounting rail 3 x 325 mm (12.8 inch)
IP rating (EN 60529)	IP 54
Specification according to	EN 54-2 A1:2006 EN 54-4 A2:2006 EN 12094-1:2003
Color	RAL 7035
Weight	approx. 51 kg (112.4 lbs)
Mounting	Wall-mounted installation

Product features

- Expansion of the fire alarm panel is designed for controlling of one single-zone extinguishing system
- 2 detector loops, 8 conventional detector lines, 4 control groups, 8 relays with 1 potential-free changeover contact each
- Collective signal LED and 16 individual LED pairs, red/yellow, for status indications
- Large LC display, full graphical with menu-guided operation
- Emergency power batteries 26 Ah
- The fire alarm panel is preconfigured and just needs individual settings

Included in delivery

Fire alarm panel with front display and operating plate,
1 Central card
1 Power supply unit 5 A
1 Loop module
2 Conventional detector module
1 Control group module
1 Relay module
1 Power distribution module
1 Zone operating panel card
2 26 Ah batteries

Wired ready for operation and preconfigured.
Operating instructions, terminal assignment, operator‘s log, installation manual, drilling stencil.

Approvals / marking

VdS G 204124
G 205019

CE 0786-CPD-20843
0786-CPD-20222

FM APPROVED

Fire alarm and extinguishing control panels

FMZ 5000 base unit

Fire alarm panel FMZ 5000 mod XL 21U

Part no.: 905454

Base unit from the fire alarm panel range **FMZ 5000** as 19” version in a wall enclosure with a height of 21U. For connecting analogue addressable detectors and conventional detectors in standard or industrial design. Activation of remote transmission units for fire and fault signals, data transfer to management systems and control stations with open interfaces.
Signal indication through large LC display and LEDs, menu-guided operation using function keys.

Application

For use for sole fire detection control or combined fire detection and extinguishing control in medium scale projects. Also control of multi-zone extinguishing systems through redundant hardware.

Technical specifications

Mains voltage	115 V / 230 V AC -15%, +10%
Mains frequency	50 Hz - 60 Hz
Operating voltage	21 V - 29 V DC
Power supply unit	see table 1 - 20
Quiescent current	approx. 120 mA DC
Battery	see table 1 - 20
External control voltage	21 V - 29 V DC
Ambient temperature	-5°C to +40°C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
Enclosure	Sheet steel 21U
Dimensions	600 x 1012 x 373 mm (WxHxD) 23.6 x 39.8 x 14.7 inch (WxHxD) Length of mounting rail 4 x 325 mm (12.8 inch) usable mounting rail length for function modules 2 x 270 mm (10.6 inch), 1 x 170 mm (6.7 inch)
IP rating (EN 60529)	IP 55
Specification according to	EN 54-2 A1:2006 EN 54-4 A2:2006 EN 12094-1:2003
Colour	RAL 7035
Weight	approx. 70 kg (154.3 lbs) without modules
Mounting	Wall-mounted installation

Product features

- Free selection of functional modules to be used for all project tasks
- Can also be expanded for controlling multi-zone extinguishing systems with redundant modules
- Up to 28 detector loops with 126 detectors each, up to 176 conventional detector lines for 32 detectors of any design each
- Up to 176 control groups and 176 relays
- 14 collective signal LEDs, some in two colours, max. 272 LED pairs, red/yellow, for signal indications
- Large LC display, full graphical with menu-guided operation
- Can be loop networked up to 32 units
- All settings are defined via a fully graphical interface on a PC with the MxSysCon configuration program.

Included in delivery

Fire alarm panel in 21U wall enclosure fitted with front display and operating plate, central card.
Wired ready for the insertion of any modules.
No additional wiring within the fire alarm panel required for expansion.
Operating instructions, operator’s log, mounting manual.

Not included in delivery

Cable set FMZ 5000 mod XL module 905113
Modules, zone operating panel card, power supply unit, front plate BBF, dummy plates, batteries, report printer, installation material

Note

Control panel without power supply unit.
The power supply unit and the batteries must be selected according to the table at the end of the chapter.

Approvals / marking

VdS G 204124
VdS G 205019
CE 0786-CPD-20843
CE 0786-CPD-20222
FM APPROVED

Approval holder: Minimax GmbH & Co. KG

Fire alarm and extinguishing control panels

FMZ 5000 base unit

Fire alarm panel FMZ 5000 mod XL 31U

Part no.: 905481

Base unit of the fire alarm panel range **FMZ 5000** as 19" version in a free-standing enclosure with a height of 31U with variable depth, width and base dimensions.
For connecting analogue addressable detectors and conventional detectors in standard or industrial design.
Activation of remote transmission units for fire and fault signals, data transfer to management systems and control stations with open interfaces.
Signal indication through large LC display and LEDs, menu-guided operation using function keys.

Application

For use for sole fire detection control or combined fire detection and extinguishing control in projects up to very large size. Also control of multi-zone extinguishing systems through redundant hardware.

Technical specifications

Mains voltage	115 V / 230 V AC -15%, +10%
Mains frequency	50 Hz - 60 Hz
Operating voltage	21 V - 29 V DC
Power supply unit	see table 1- 20
Quiescent current	approx. 120 mA DC
Battery	see table 1- 20
External control voltage	21 V - 29 V DC
Ambient temperature	-5°C to +40°C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
Enclosure	Sheet steel 31U
Dimensions	800 x 1600 x 600 mm (WxHxD) (31.5 x 63 x 23.6 inch) (WxHxD) (H without base) Length of mounting rail 5 x 475 mm (18.7 inch) usable mounting rail length for function modules 3 x 425 mm (16.7 inch), 1 x 325 mm (12.8 inch)
IP rating (EN 60529)	IP 53 with separate cable gland IP 55
Specification according to	EN 54-2 A1:2006 EN 54-4 A2:2006 EN 12094-1:2003
Colour	RAL 7035
Weight	approx. 160 kg (352.7 lbs) without modules
Mounting	Stand-alone cabinet

Product features

- Free selection of functional modules to be used for all project tasks
- Can also be expanded for controlling multi-zone extinguishing systems with redundant modules
- Up to 28 detector loops with 126 detectors each, up to 256 conventional detector lines for 32 detectors of any design each
- Up to 256 control groups and 512 relays
- 14 collective signal LEDs, some in two colours, max. 432 LED pairs, red/yellow, for signal indications
- Large LC display, full graphical with menu-guided operation
- Can be loop networked with up to 32 units
- All settings are defined via a fully graphical interface on a PC with the MxSysCon configuration program

Included in delivery

Fire alarm panel in free-standing enclosure fitted with front display and operating plate, central card.
Wired ready for the insertion of any modules.
No additional wiring within the fire alarm panel required for expansion.
Operating instructions, operator's log, mounting manual.

Not included in delivery

Cable gland 800 mm IP rating IP 55	908504
Cable set FMZ 5000 mod XL module	905113

Modules, zone operating panels, front panel BBF, dummy plates, power supply unit, batteries, report printer, installation material.

Note

Control panel without power supply unit.
The power supply unit and the batteries must be selected according to the table at the end of the chapter.

Approvals / marking

VdS G 204124
VdS G 205019
CE 0786-CPD-20843
CE 0786-CPD-20222
FM APPROVED

Approval holder: Minimax GmbH & Co. KG

Fire alarm and extinguishing control panels

FMZ 5000 base unit

Fire alarm panel FMZ 5000 mod XL 40U

Part no.: 905041

Base unit from the fire alarm panel range **FMZ 5000** as 19” version in a free-standing cabinet with a height of 40U with variable depth, width and base dimensions and various design variants.
For connecting analogue addressable detectors and conventional detectors in standard or industrial design.
Activation of remote transmission units for fire and fault signals, data transfer to management systems and control stations with open interfaces.
Signal indication through large LC display and LEDs, menu-guided operation using function keys.

Application

For use for sole fire detection control or combined fire detection and extinguishing control in projects up to very large size. Also control of multi-zone extinguishing systems through redundant hardware.

Technical specifications

Mains voltage	115 V / 230 V AC -15%, +10%
Mains frequency	50 Hz - 60 Hz
Operating voltage	21 V - 29 V DC
Power supply unit	see table 1 - 20
Quiescent current	approx. 120 mA DC
Battery	see table 1 - 20
External control voltage	21 V - 29 V DC
Ambient temperature	-5°C to +40°C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
Enclosure	Sheet steel 40U
Dimensions	800 x 2000 x 600 mm (WxHxD) (31.5 x 78.7 x 23.6 inch) (WxHxD) (H without base) Length of mounting rail 7 x 475 mm (18.7 inch) usable mounting rail length for function modules 5 x 425 mm (16.7 inch), 1 x 325 mm (12.8 inch)
IP rating (EN 60529)	IP 53 with separate cable gland IP 55
Specification according to	EN 54-2 A1:2006 EN 54-4 A2:2006 EN 12094-1:2003
Colour	RAL 7035
Weight	approx. 190 kg (418.9) without modules
Mounting	Stand-alone cabinet

Product features

- Free selection of functional modules to be used for all project tasks
- Can also be expanded for controlling multi-zone extinguishing systems with redundant modules
- Up to 28 detector loops with 126 detectors each, up to 256 conventional detector lines for 32 detectors of any design each
- Up to 256 control groups and 256 relays
- 14 collective signal LEDs, some in two colours, max. 432 LED pairs, red/yellow, for signal indications
- Large LC display, full graphical with menu-guided operation
- Can be loop networked with up to 32 units
- All settings are defined via a full graphical interface on a PC with the MxSysCon configuration program

Included in delivery

Fire alarm panel in free-standing enclosure fitted with front display and operating plate, control card.
Wired ready for insertion of any modules.
No additional wiring within the fire alarm panel required for expansion.
Operating instructions, operator’s log, mounting manual.

Not included in delivery

Cable gland 800 mm IP rating IP 55	908504
Cable set FMZ 5000 mod XL module	905113

Modules, zone operating panels, dummy front plates, power supply unit, batteries, report printer, installation material

Note

Control panel without power supply unit.
The power supply unit and the batteries must be selected according to the table at the end of the chapter.

Approvals / marking

VdS G 204124
VdS G 205019
CE 0786-CPD-20843
CE 0786-CPD-20222
FM APPROVED

Approval holder: Minimax GmbH & Co. KG

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 Loop AP XP module

Part no.: 906185

Functional module for use in all design variants of the fire alarm system **FMZ 5000.** Includes 2 detector loops for connection of up to 126 devices each. Instead of a loop, 2 branches can be connected to the module.
Any number of T branches can be connected to each loop. The loop devices can be fire detectors, input/output modules, control modules for sounders and loop couplers for the operation of conventional detectors in the loop.
For use in potentially explosive atmospheres, IS-detectors can be connected to the loop via protocol interface and safety barriers.

Product features

- For the interface connection of analogue addressable detectors and modules with Loop AP protocol
- The high loop current enables the operation of multiple modules, sounders, flash lights and detectors in a single loop
- All settings of the module, the detectors and the detector zones are configured using the MxSysCon configuration program
- No further adjustment is required

Application

For fire detection with detectors using loop technology. System monitoring by connecting switches to addressable input modules. Control of fire protection devices via dry contacts or monitored via output modules.
Interface connection of monitored zone horns via a sounder module. For the operation of conventional detectors in the loop, these are connected to a loop coupler.
The module is inserted into the panel with separate powersupply by power distribution module. The power supply and system communication are connected via plug-in connections on the module enclosure.
Up to 14 modules can be used in one fire alarm panel.

Technical specifications

Operating voltage (module)	18 V - 30 V DC
Quiescent current (module-bus)	max. 52 mA DC
Supply current	max. 1.440 mA DC
Loop current	max. 400 mA DC
Loop voltage	27 V DC
Number of loops	2
Number of detectors per loop	126
Max. terminal cross-section	2.5 mm^2 (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	220 g (0.5 lbs)
Dimensions	35 x 99 x 114.5 mm (WxHxD) 1.4 x 3.9 x 4.5 inch (WxHxD)
Total cable length	max. 2000 m (6562 ft) per loop

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

4 Socket terminal strips FKCT 2.5/3-ST	901564
Power distribution module	904093

Application in potentially explosive atmospheres

Only the following barriers are permitted:

Safety barriere IS addressable 24 V	901324
Loop AP protocol interface	901322

Note

If the loops of one loop module are used for fire detection or controlling several extinguishing zones, the loop module AP XP redundant, Part no. 906186 must be used.

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 conventional detector module

Part no.: 901773

Functional module for use in all design variants of the fire alarm system **FMZ 5000.** Includes 4 quiescent current monitored detector lines for the connection of conventional detectors in accordance with the applicable national regulations. A detector event is reported via a current increase. Each line has 4 adjustable thresholds: quiescent current, wire breakage, short circuit, event.
The voltage of each line can be adjusted separately in the range of 9 V to 20 V.
All conventional detectors in the Minimax detector range can be used with this operating voltage range, as well as devices from other manufactures.

Product features

- Large range of detector types available for in virtue of the wide adjustment range of the line voltages and current thresholds
- All detectors can be operated with two-detector dependency and all zones with two-zone dependency
- All settings are carried out with the MxSysCon configuration program
- No further adjustment is required

Application

For connection of any type of conventional detectors or manual call points in standard or industrial design.
System monitoring takes place by connecting appropriate monitoring switches with dry contacts.
The module is inserted into the panel without additional wiring. The power supply and system communication are connected via plug-in connections on the module enclosure.
Up to 64 modules can be used in one fire alarm panel.

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	2 mA - 50 mA DC
Line voltage	9 V - 20 V DC
Alarm current	5 mA - 80 mA DC
Terminating resistor	1.8 kΩ
Number of detector groups	4, quiescent current controlled
Number of detectors per line	32 pieces (VdS)
Max. terminal cross-section	2.5 mm^2 (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	120 g (0.26 lbs)
Dimensions	17.5 x 99 x 114.5 mm (WxHxD) 0.7 x 3.9 x 4.5 inch (WxHxD)

Included in delivery

Module completely assembled and ready for installation in the panel

Not included in delivery

4 Socket terminal strips FKCT 2.5/3-ST	901564

Note

Each module may be operated only with Minimax detectors or with detector of other manufactures. Manual call points and monitoringcontests can be freely mixed with all other detector types.

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 control group module

Part no.: 901673

Functional module for use in all design variants of the fire alarm system **FMZ 5000.**
Includes 4 control lines for the monitoring and control of fire protection devices. The line to the devices is monitored for wire breakage and short circuits.
The connected fire protection devices are also monitored to verify that they are present and in proper condition.

Product features

- Control groups can be time-controlled with delays, pulse controlled or continuously controlled
- All settings are carried out with the MxSysCon configuration program.
- No furher adjustment work is required

Technical specifications

Operating voltage	21 V - 29 V DC
Quiescent current	25 mA DC
Number of control groups	4, quiescent current monitored
External control groups	21 V - 29 V DC
Output current	1 A, continuous load
Control	Time-controlled, continuous, pulse, inverted
Max. terminal cross-section	2.5 mm^2 (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	100 g (0.2 lbs)
Dimensions	17.5 x 99 x 114.5 mm (WxHxD) 0.7 x 3.9 x 4.5 inch (WxHxD)

Application

For monitoring and control of e.g. valves, solenoids or horns in extinguishing systems or other fire protection devices.
The module is inserted into the panel with separate powersupply by power distribution module. The power supply and system communication are connected via plug-in connections on the module enclosure.
Up to 64 modules can be used in one fire alarm panel.

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

4 Socket terminal strips FKCT 2.5/3-ST	901564

Spare parts

Fuse 2 A / 125 V	784352

Note

If the module is used to sounders or extinguishing devices in multi-zone extinguishing systems, a separate control group module must be used for each extinguishing zone.

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 8 relay module

Part no.: 901595

Functional module for use in all design variants of the fire alarm system **FMZ 5000.**
The module has 8 relays, each with a dry contact.
An activated relay is indicated by a red status LED.
A separate relay card with up to 8 additional relays can be connected via a plug connector strip. Control happens via open collector outputs parallel to the relays in the module. This allows relays with higher switching voltages or currents to be used.

Product features

- Relays are time-controlled with delays, pulse control or continuous control
- All settings are carried out with the MxSysCon configuration program
- No further adjustment work is required

Application

For the dry-contact control of e.g. fire protection devices, graphic annunciators, ventilation system shutdown or for general signal transfer.
The module is inserted into the panel without additional wiring. The power supply and system communication are connected via plug-in connections on the module enclosure.
Up to 64 modules can be used in one fire alarm panel.

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	10 mA DC
Current per relay	10 mA DC
Number of relays	8 TQ
Contacts per relay	1 changeover, dry
Contact load	1 A / 30 V DC, 0.5 A / 125 V AC
Max. switching capacity	30 W / 62.5 VA
Control	Time-controlled, continuous, pulse, inverted
Max. terminal cross-section	2.5 mm² (AWG 13)
Ambient temperature	-5°C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	170 g (0.4 lbs)
Dimensions	35 x 99 x 114.5 mm (WxHxD) 1.4 x 3.9 x 4.5 inch (WxHxD)

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

8 socket terminal strips FKCT 2.5/3-ST	901564
Relay card 8 TQ	800843
Relay card 8	802587

Note

The contacts of the relays in the module are not suitable for the switching of 230/110 V AC mains voltage

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 MxNet module

Part no.: 904877

Functional module for use in all design variants of the fire alarm systems **FMZ 5000, as well as mimic panels and operating panels.**
Allows devices to be connected in a line-redundant loop network. Communication with the connected devices takes place via a serial interface in RS-232 standard.
All data lines are continuously monitored. In the event of line faults in the network, line redundancy means that the functions of the devices are not affected.
The module is supplied with power by the networked device.

Product features

- Communication to the networked devices uses the MX2 protocol in all versions
- Up to 32 devices can be networked in a ring
- No adjustment work is required

Application

The module enables a device to communicate with other devices in a loop network. The signals from the devices can be displayed at several central control points. Likewise, commands to the devices are possible from different points in the network and from outside the network (control stations).
Each network participant a module required.

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	58 mA DC
Outputs	COM1 RS-232 SUB-D socket Path 1 RS-485 modular terminal Path 2 RS-485 modular terminal
Max. terminal cross-section	2.5 mm² (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	200 g (0.4 lbs)
Dimensions	35 x 99 x 114.5 mm (WxHxD) 1.4 x 3.9 x 4.5 inch (WxHxD)

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Note

All parameters can be set using jumpers.
Module is preconfigured by jumpers.
Alternatively the module and the network can be configured centrally using the configuration program “MxNet.exe”.
Use of the module in a FMZ 5000 fired detection control panel requires additionally a

module SIO1	903466
or	
module SIO3	903467

The module must be placed directly to the right of the SIO module. Activation is done via the R-232 interface by means of a ribbon cable.

Approvals / marking

See panels

Fire detection and suppression control panels

Modules/cards

WEBmodule N cpl.

Part no.: 914365

Functional module for use in mod 12 and mod XL variants of the FMZ 5000 fire detection series.
The module is intended for the communication with a fire alarm panel via the TCP/IP protocol.
It contains an interface according to the RS-232 standard for communication with the control panel over module SIO1 (part no. 903466) or SIO3 (part no. 903467) via the Mx2 protocol. The connection of the IP network occurs via patch panel to the Ethernet interface with a RJ-45 female connector.

Product features

- Remote polling messages and statuses of fire detection control panels
- Display of the messages and statuses in a web browser
- Messages can be stored to a remote FTP server
- For better evaluation, messages can be repeatedly filtered
- Option of time synchronization by NTP Timeserver

Application

The messages transmitted per Web browser by a fire alarm panel to a PC can be displayed and stored via WEBmodule from any location.
Time synchronization procedures between fire alarm panel and WEBmodule are possible.
These remote diagnostics optimal scheduling of service interventions and increased availability of the fire detection system.

Technical specifications

Operating voltage	19 V - 28 V DC
Quiescent current	80 mA at 24 V DC
Rated current	115 mA at 24 V DC
Data interfaces	1 RS-232 1 Ethernet
Storage temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Ambient temperature	-0 °C to +65 °C (+32 °F to +149 °F)
Relative humidity (IEC 721-3-3)	max. 90 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 mm DIN 46277, top hat profile
Weight	162 g (0.35 lbs)
Dimensions	52 x 99 x 114 mm (WxLxH) 2.1 x 3.9 x 4.5 inch (WxLxH)

Included in delivery

Module ready for installation into the control panel.

SIO-Adapter FMZ WEBmodule (Connection SIO-Module WEBmodule)	909409
Patch panel	914347
Cable patch cable CAT6 1.0 m (39 inch)	914349

Note

Use a CAT5 or higher category cable for field network connection on the patch panel.
In order to preserve electromagnetic compatibility the direct interconnection between WEBmodule and field network installations is not permitted.
Only use the equipment supplied (patch cable, patch panel) to connect the WEBmodule to the field network installation.
Max. cable length for the RS-232 interface 10 m (390 in).
Any unauthorized access to the control panel has to be prevented by suitable IT protection measures to be taken by the customer.

FMZ 5000 WEBmodule S cpl.

Part no.: 914366

The version WEBmodule S can send switching commands to the connected control panel (deactivates and activates detectors and groups, revision mode, user reset).

Otherwise like part no.: 914365

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 Modbus module

Part no.: 904566

Functional module for use in all design variants of the fire alarm system **FMZ 5000.**
The module includes an serial interface RS422 standard for communication using the Modbus protocol. It supports the Modbus RTU format. The Modbus module is always the Modbus slave and must be queried by a Modbus master. Each slave can be assigned an address in the range of 1-99.

Product features

- All parameters for the transmission of data to a Modbus master are configurable
- Communication to the Modbus master can be point to point
- All settings are carried out with the MxSysCon configuration program
- No adjustment work is required

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	58 mA DC
Outputs	COM1 RS-232 SUB-D socket COM2 RS-422 opto-isolated modular terminal
Max. terminal cross-section	2.5 mm² (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	200 g (0.4 lbs)
Dimensions	45 x 99 x 114.5 mm (WxHxD) 1.8 x 3.9 x 4.5 inch (WxHxD)

Application

For the transmission of signals and system states from the FMZ 5000 fire alarm panel to a control station (Modbus master) via the Modbus RTU protocol.
Operations such as isolations or resets are also possible from the control station to the panel.
Using separate converter modules connected in series, the transmission can also be carried out using other field bus protocols (e.g. Profibus via adapter).
A maximum of 2 Modbus modules can be used in one fire alarm panel.

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

4 Socket terminal strips FKCT 2.5/4-ST 901565

Note

The use of the Modbus module is always subject to greatly differing, project-specific requirements. Therefore the required range of functions and all conditions must be defined at an early stage with all project participants and the parties responsible for the modbus master.
If your project requires an RS-458 interface, use the Modbus RS-458 (906853) module. The RS-232 interface is not suitable for Modbus communication

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 SIO1 module

Part no.: 903466

Functional module for use in all design variants of the fire alarm system **FMZ 5000.**
Includes a serial communication channel in RS-232 standard. Preferred for data transmission to an WEBmodule, a MxNet module or a report printer. The module status is indicated by 3 LEDs.

Product features

- An RS-232-standard serial interface is connected to an SUB-D socket
- Baud rates adjustable from 300 to 115.200 baud.
- All settings of the module, the application and the communication parameters are carried out with the MxSysCon configuration program.

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	42 mA DC
Outputs	COM1 RS-232 SUB-D socket
Max. terminal cross-section	2.5 mm² (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	100 g (0.2 lbs)
Dimensions	22.5 x 99 x 114.5 mm (WxHxD) 0.9 x 3.9 x 4.5 inch (WxHxD)

Application

For serial data transmission in RS-232 standard.
When using the Minimax data protocol MX2, all signals from the fire alarm panel can be sent to control stations or visualisation programs and commands can be received from them. Up to 3 modules can be used in one fire alarm panel.

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

SUB-D plug, 9-pin

Note

The interface is not opto-isolated.
If devices outside the fire alarm panel system are connected, these must be opto-isolated using a separate converter.

Approvals / marking

See panels

Fire alarm and extinguishing control panels

FMZ 5000 modules/cards

FMZ 5000 SIO3 module

Part no.: 903467

Functional module for use in all design variants of the fire alarm system **FMZ 5000.**
Includes a serial communication channel in RS-232 standard plus two serial communication channels in RS-422 / 485 standard. One RS-422 / 485 channel is opto-isolated for interface connection with devices with an external power supply.
The module status is indicated by 9 LEDs.

Product features

- The RS-232 serial interface is connected to a 9-pin SUB-D socket
- The RS-422 / 485 serial interfaces (one opto-isolated) are connected to series terminal
- Baud rates are adjustable from 300 to 115.200
- All settings of the module, the communication parameters and the application are carried out with the MxSysCon configuration program

Technical specifications

Operating voltage	19 V - 29 V DC
Quiescent current	58 mA DC
Outputs	COM1 RS-232 SUB-D socket COM2 RS-422 / RS-485 opto-isolated series terminal COM3 RS-422 / RS-485 series terminal
Max. terminal cross-section	2.5 mm^2 (AWG 13)
Ambient temperature	-5 °C to +40 °C (+23 °F to +104 °F)
Relative humidity (IEC 721-3-3)	max. 95 % no condensation
IP rating (EN 60529)	IP 20
Enclosure	Polyamide PA6.6, green
Installation position	vertical
Mounting	Mounting rail 35 DIN 46277, top hat profile
Weight	190 g (0.4 lbs)
Dimensions	45 x 99 x 114.5 mm (WxHxD) 1.8 x 3.9 x 4.5 inch (WxHxD)

Application

For serial data transmission in RS-232, RS-422 or RS-485 standard.
When using the Minimax data protocol MX2, all signals from the fire alarm panel can be sent to control stations or visualisation programs and commands can received from them. Devices with their own power supply can be connected directly to the opto-isolated communication channel.
Up to 2 modules or a total of 6 data channels can be used in one fire alarm panel.

Included in delivery

Module completely assembled and ready for installation in the fire alarm panel

Not included in delivery

SUB-D plug, 9-pin
4 Socket terminal strips FKCT 2.5/4-ST 901565

Note

Slide switches are used to switch over from RS-422 to RS-485 and to activate the bus terminating resistor.
Only use opto-isolated interfaces for data transmission to external devices or arrange for separate opto-isolation.
The RS-485 interface cannot be used for data transfer with MX 2 protocol.

Approvals / marking

See panels

Fire detection and suppression control panels

Small control panels

Fire alarm panel SOLID CFS Clean Fire Suppression Configuration 1

Application

Use as fire detection and extinguishing control panel in special extinguishing systems.

Technical specifications

Mains voltage	115 V / 230 V AC -10% +15%
Mains frequency	50 Hz - 60 Hz
Operating voltage	19.6 V - 28.7 V DC
Power supply unit	19.6 V - 28.7 V DC / 3 A
Quiescent current	80 mA DC
Battery capacity	2 x 12 V / 2.2 Ah internal
Nominal output voltage	24 V DC
Output current max.	2.4 A
External control voltage	19.6 V - 28.7 V DC
Collective relays	1 extinguishing system delay, 1 fire, 1 operation,1 extinguishing
Contact load	1 x 1 A / 30 V DC 3 x 2 A / 230 V AC
Max. switching capacity	1 x 30 VA / 3 x 460 VA
Ambient temperature	-5 °C to +55 °C (+23 °F to 131 °F)
Storage temperature	-20 ° C to +65 °C (-4 °F to +149 °F)
Relative humidity (IEC 721-3-3)	max. 90 % no condensation
Dimensions	340 x 300 x 140 mm (WxHxD) 13.4 x 11.8 x 5.5 inch (WxHxD)
Enclosure	Polycarbonate
IP rating (EN 60529)	IP 66
Colour	RAL 7035
Weight	approx. 4.2 kg (9.3 lbs) without batteries
Mounting	Wall-mounted installation

Part no.: 929022

Small control panel of the SOLID control panel family in a wall housing. For operation of heat detectors, smoke detectors and multisensor detectors in standard design by different manufacturers and for monitored triggering of alarm devices, valves and release devices. Explicit LED notification and group specific control units allow a quick and intuitive operation of the panel.

Product features

- Two detector groups for fire detection through dual group dependency
- One detector group for triggering the extinguishing system manually
- One control input for monitoring mechanical blocking of the extinguishing system
- One control input for delay button
- One control input for supervision devices
- One control unit for audible notification devices
- One control unit für optical notification devices
- One control unit for valve control
- One relay 24 V DC for signal transmission (delay extinguishing system/pre-alarm)
- Three relays 230 V AC for signal transmission (fire, operating state state, triggering of extinguishing system)
- One internal contact group for actuation of an input module IUX 760 M-I for condition transmission (fire, fault) via Loop to a superordinated control panel
- Collective and individual LEDs, partly red/yellow

Included in delivery

Control panel with display and operating front panel, mainboard with power supply, conventional groups, control inputs, control groups and relay groups. Wired ready for operation. Operating manual and configuration instructions in German and English, log book, mounting material.

Spare key	911745

Not included in delivery

Input module IUX 760 M-I	908531
Batteries 2 x 12 V DC 2.1 Ah	927121
Batteries 2 x 12 V DC 2.2 Ah	236023

Approvals / Marking

CE FM APPROVED EN54-2, EN54-4, EN12094-1

1725-CPR-E0009

Aspirating smoke detection system

AMX4004, basic devices

AMX4004

Part no.: 909244

The aspirating smoke detector AMX4004 is an active smoke detection system that can be individually tuned to the application area with up to three different detector heads. Up to 12 suction holes with a 100 m (328 ft) pipe system are possible thanks to the powerful fan.

Product features

- Up to three combined sensors can be used for different application areas (scattered light smoke sensor, ionisation smoke sensor, carbon monoxide gas sensor)
- High aspiration capacity
- Scattered light smoke sensors for different sensitivity ranges, with pollution compensation for use in critical environments
- Ionisation smoke sensor for detecting very small and dark smoke particles
- Carbon monoxide gas sensor for earliest fire detection (40 ppm CO)
- Integrated LC display for indicating status information
- Configurable without accessories (menu-controlled)

Technical specifications

Operating voltage	18 V - 30 V DC
Rated voltage	24 V DC
Measuring principle	dependent on detector heads
Max. current consumption	Detector approx. 400 mA
Max. contact load	60 V DC, 1 A
IP rating	IP 54
Ambient temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Sampling pipe	25 mm (0.98 inch)
Sampling pipe length	max. overall length 100 m (328 ft) max. 50 m (164 ft) as single strand
Relative humidity	max. 95 %, at 35 °C (+95 °F), no condensation
Enclosure material	Die cast aluminium
Cable gland	4 x M16, clamping range 5-9 mm (0.19 - 0.35 inch)
Weight without detector head	3.4 kg (7.5 lbs)
Dimensions without cable gland	280 x 170 x 90 mm (WxHxD) 11.02 x 6.7 x 3.5 inch (WxHxD)

Application

Aspirating smoke detector for the detection of smoke particles and/or fire gases in aspirated air samples.
The system actively draws air samples from the monitored area via a pipe system.

Typical application areas are:
- Equipment monitoring: computer rooms, warehouses, high rack storage areas, hollow floors.
- cultural assets protection, transformer stations, etc.

Included in delivery

1 Aspirating smoke detector AMX4004	909244

Not included in delivery

Detector heads:	
Optical smoke detector OMX1002C 1HU, 2.73 % / m (0.83 % / ft)	906323
Optical smoke detector OMX1002C HS 1HU, 0.34 % / m (0.10 % / ft)	906324
Optical smoke detector OMX1002C VHS 1HU, 0.11 % / m (0.04 % / ft)	910389
Ionisation smoke detector IMX1002E 1HU, y=0.8	909491
Carbon monoxide gas detector GMX1002CO 1HU, 40 ppm	909492

Note

The AMX4004 uses three conventional lines for three alarms as well as one fault line for connection to the fire alarm panel FMZ 5000. In addition floating contacts for three alarms as well as fault are available.

Approvals / marking

VdS G 212001 CE 0786-CPD-21095 GL

Approval holder: Minimax GmbH & Co. KG

Aspirating smoke detectors
HELIOS AMX5000

AMX5004 C

Part no.: 923277

The HELIOS AMX5004 C aspirating smoke detector is a highly sensitive active smoke detection system of the latest generation. In addition to monitoring advance signals and contamination, it also provides the option of the user-specific adjustment of the sensitivity. The powerful fan enables up to 12 sampling holes with 75 m (246 ft) pipe system per smoke sensor. The HELIOS AMX5004 C is even able to detect the smallest smoldering fires and can be used practically everywhere.

Product features

- Airflow monitoring
- Adjustable sensitivity of 0.006 - 10 % / m (0.0018 - 3.049 % / ft)
- Highly sensitive smoke sensors with contamination compensation for use in critical environments
- Full integration into fire alarm system FMZ 5000

Application

Aspirating smoke detector for the detection of smoke particles in aspirated air samples. The system actively takes air samplings in from the monitored area via a pipe system.

Typical applications:
- Equipment monitoring: IT systems, electrical distributors, switch cabinets, etc.
- Room monitoring: IT rooms, clean rooms, warehouses, hollow floors, protection of cultural assets, transformer stations, etc.

Technical specifications

Operating voltage	14 - 30 V DC
Rated voltage	24 V DC
Alarm sensitivity	0.02 % / m - 10 % / m (0.006 % / ft - 3.049 % / ft)
Pre-Alarm signals 1,2,3	4 (3 pre signals fix adjusted) 30 / 50 / 70 %
Max. current consumption	75 mA
Number of relays	2 (1 alarm, 1 fault)
Max. contact load	50 V DC, 1 A (UL 30 V DC)
IP rating	IP 54
Ambient temperature	-10 °C to +55 °C (VdS) (14 °F to +131 °F) (VdS) -10 °C to +40 °C (UL) (14 ° F to 104 °F) (UL)
Intake pressure	> 30 Pa
Suction noise at fan level 1	< 25 dB (A)
Number of installation spaces for add-on modules	1 Relay interface module HELIOS AMX5004C
Sampling pipe	Plug-in system 25 mm (0.98 inch)
Relative humidity	max. 95 % no condensation
Enclosure material	ABS-Blend, UL 94-V0
Specification according to	UL 268, EN 54-20
Weight	1950 g (4.3 lbs)
Dimensions	195 x 290 x 140 mm (WxHxD) 7.7 x 11.4 x 5.5 inch (WxHxD)

Included in delivery

1 Aspirating smoke detector AMX5004 C with smoke sensor OMX5020S

Not included in delivery

Memory card SD HELIOS AMX5004 C	925156
Relay-interface module KMX5006RK	924106

Spare parts

Smoke sensor OMX5020S	924107
Air flow sensor AFS 32	925155

Note

The HELIOS AMX5004 C can be connected to a higher-level fire detection panel via potential-free changeover contacts. The HELIOS AMX5004 C can be integrated into the FMZ 5000 fire detection system with LoopAP via modules. Indication and operation are thus possible at the panel.

Approvals / marking

VdS G 217082

Fire brigade and system accessories

Graphic panel

LMT-4 LED graphic panel

Part no.: 910169

LED graphic panel in an aluminium housing with hinged grid plate and transparent front window for a user-defined layout that can be replaced at any time, e.g.. diagram, plot etc. The panel allows the placement of LEDs that light up the inserted plan at desired points, plus sensor buttons which trigger switch functions at any place in the plan by tapping through the front plate as on a touch panel.

Technical specifications

Output voltage	24 V DC
Housing material	Aluminium
Protection class	IP 54
Weight	1850 g (4.1 lbs)
Dimensions	359 x 272 x 46 mm (WxHxD) 14.13 x 10.7 x 1.8 inch (WxHxD)

Product features

- For DIN A4 insert with lock
- extensive accessories and various interfaces and connection- and distribution boards with parallel or serial signal inputs

Included in delivery

1 LMT-4 LED graphic panel without attachment material

Not included in delivery

Red LED diodes for LMT panel	910172
Green LED diodes for LMT panel	910173
Yellow LED diodes for LMT panel	910174
8 LED adapter card for LMT panel	910175
Capacitive butten for LMT panel	910176
LED distribution board VK-16	910177

LMT-3 LED graphic panel

Part no.: 910171

LED graphic panel in an aluminium housing with hinged grid plate and transparent front window for a user-defined layout in between that can be replaced at any time, e.g. diagram, plot etc. The panel allows the placement of LEDs that light up the inserted plan at desired points, plus sensor buttons which trigger switch functions at any place in the plan by tapping through the front plate as on a touch panel.

Technical specifications

Output voltage	24 V DC
Housing material	Aluminium
Protection class	IP 54
Weight	3050 g (6.7 lbs)
Dimensions	482 x 359 x 46 mm (WxHxD) 19 x 14.1 x 1.8 inch (WxHxD)

Product features

- For DIN A3 insert with lock
- Extensive accessories and various interfaces and connection- and distribution boards with parallel or serial signal inputs

Included in delivery

1 LMT-3 LED graphic panel without attachment material

Not included in delivery

Red LED diodes for LMT panel	910172
Green LED diodes for LMT panel	910173
Yellow LED diodes for LMT panel	910174
8 LED adapter card for LMT panel	910175
Capacitive butten for LMT panel	910176
LED distribution board VK-16	910177

Inveron - Hazard Management System

- Support of Minimax fire alarm and extinguishing control panels FMZ 4100 and FMZ 5000
- Interfaces to a variety of control panels
- Expandable up to 15 subsystems
- Connection of additional signals via SPS-Controller
- Automatic generation and printing of fire brigade route guides
- Forwarding messages via text message and/or e-mail
- AutoCAD® - interface for simple project planning
- Compatible with BMA CAD
- Extensive archive storage
- Schedule and calendar
- Clear instructions in case of action for operating personnel
- Individual user authorizations and logins
- Support of many different languages

Inveron - Hazard Management System

Inveron offers a high degree of clarity by bringing together all messages and events automatically in a user-friendly interface with clear graphics. The current status of control points can be displayed graphically, textually or as an animation. This applies both to messages for above and below threshold values, which are displayed in real time.

The system provides the operator with comprehensive continuous information such as reports on maintenance work and helps with on-screen messages. Action procedures can be stored and will be dependable guide to the necessary actions.

The Inveron Hazard Management System includes software and hardware components. A personal computer and/or server and monitor are required and, if needed, cameras and PLC I/O controllers.

Inveron can be used in all areas of industry and is individually adapted to relevant requirements and special hazards.

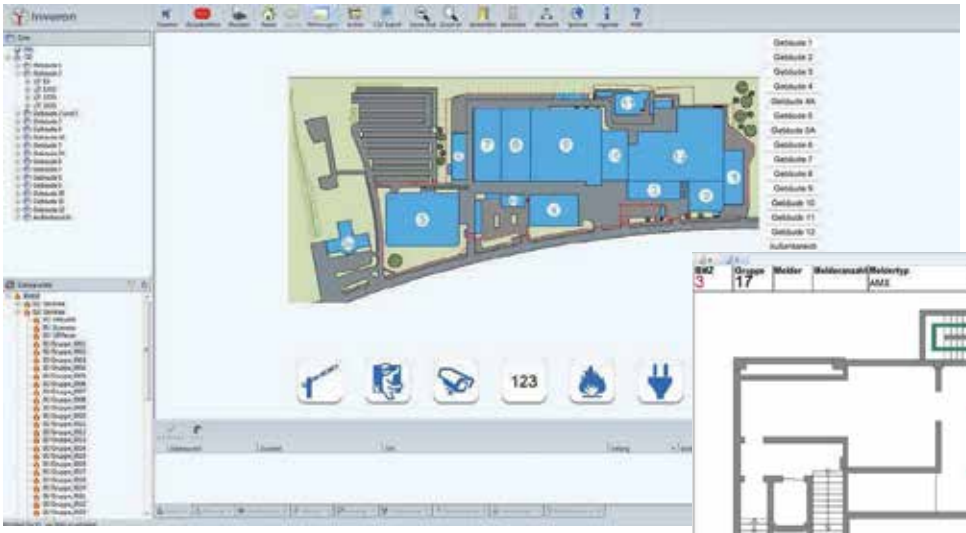
Licenses	Subsystems max.	Data points max.	interfaces max.
Express	1	3.000	3
Basic	5	5.000	5
Professional	15	25.000	15

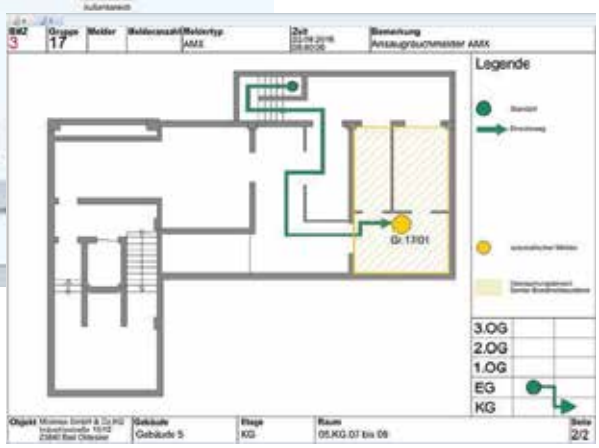
Included in delivery

Customized soft- and hardware according to individual requirements. Inveron can only be purchased including this service.

Contact

Service Center Automation
scada@minimax.de





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Trusted above all.