AVENAR panel 8000



- Completely modular fire panel, expandable up to 32 loops, provides customized solutions for medium to large size applications
- High resolution display with bright colors to indicate alarms and events
- 8" touch pad with fixed and programmable buttons, thus adaptable to the situation
- Integrated Ethernet switch for networking and interfaces to remote services, building management and voice alarm systems
- Adaptable to local requirements and regulations

The fire panel allows mixed operation of analog addressable and conventional technology. It supports connecting periphery in either stub or loop topologies. Analog addressable fire detectors, manual call points, signaling devices, inputs and outputs are identified and managed by the fire panel as single elements. As required by the building structure the peripherals are grouped software wise in logical zones.
The completely modular designed fire panel uses functional modules that are clicked in a slot on a rail. The rail provides power and internal communication to the functional modules. A wide range of functional modules are available providing: addressable loops, conventional zones, inputs and outputs, and interfaces to various devices. The fire alarm panel can be equipped with 46 functional modules, of which a maximum of 32 can be analog addressable loop modules. This results in a tailor-made fire panel suitable for medium to large size applications.
Two different types of housings are available to assemble the fire panel:

- Wall mount housing
- Frame mount housing

The slim wall mount housings are for mounting directly to the wall. Frame mount housings require an additional frame between the housing and the wall. The frame lets space for e.g. cabling, media converters, and larger batteries. Special installation kits also allow installation in 19" racks. Both housing types can be extended with up-to four housings to increase the number slots for the functional modules.
The panel controller is the central component of the fire panel. A color display shows all messages. The touch screen is for operation of the entire system. The user-friendly interface adapts to various situations. This causes correct operation that is simple and clear as well as targeted and intuitive.
Panels and keypads of the AVENAR series and of the FPA-5000 series (MPC-xxxx-B and MPC-xxxx-C) can be combined in one panel network using the Ethernet and the CAN bus interfaces. The remote keypad is for decentralized operation of the panel or of the panel network.
Integration into large-scale systems can be done by an Ethernet interface to the Bosch Hierarchy panel (UGM) or to Building Integration System (BIS). Integration into third party management systems is possible with the availability of OPC server and Software Development Kit.
A data interface enables monitoring and full control of Bosch voice alarm systems. This makes the fire panel a complete safety solution.
The fire panel is configured on a laptop using the FSP-5000-RPS programming software. The programming software enables further adaptation, e.g. to country-specific requirements and regulations.

System overview

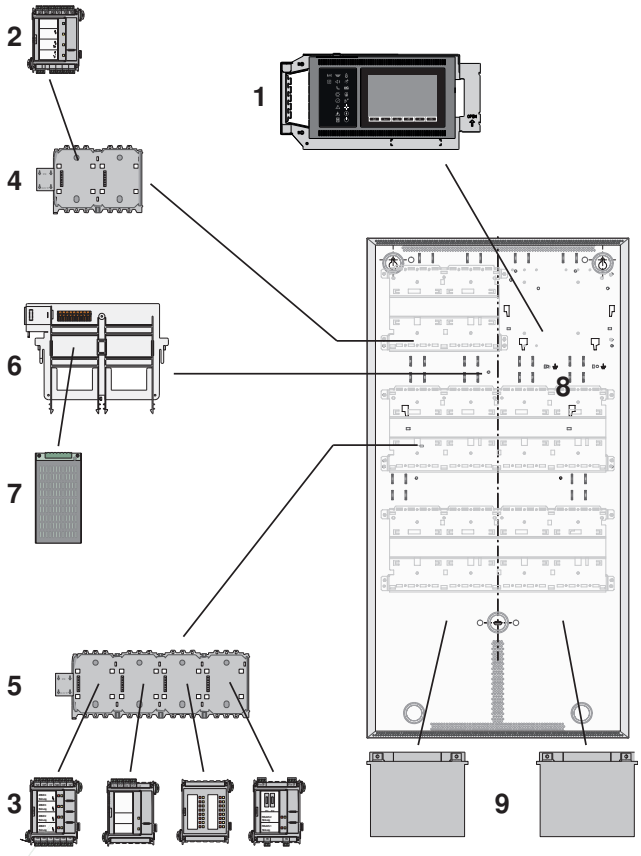


Fig. 1: Example configuration

1 Panel controller	2 BCM-0000-B Battery Controller Module
3 Functional modules	4 PRS-0002-C Panel Rail Short
5 PRD 0004 A Panel Rail Long	6 Power supply bracket
7 Power supply unit	8 HBC 0010 A Panel Housing for 10 modules
9 Batteries	

Functions

AVENAR panel 8000 is a completely modular fire panel for medium to large size systems. All panel components are separately available to provide compete flexibility and tailor made solutions for complex applications. Safety Systems Designer supports the planning of the fire panel. The software provides information about the size and number of housings, the modules, interfaces various systems and the energy balance calculation.
Depending on specific requirements, the planning involves choosing from the following options:

1. **Housing**
   - Frame mounting: slim design
   - Wall mounting: additional space for cabling, media converters and larger batteries
   - Optional 19" rack mounting kits
2. **Panel controller**
   - Standard license: EN54 compliant fire detection
   - Premium license: EN54 compliant fire detection, various Ethernet interfaces and comfort features
   - Panel redundancy: with additional panel controller or with keypad
1. **Functional modules**
   - Analogue addressable loops: standard or high performance
   - Conventional detection zones
   - Conventional notification zones
   - In- and output interfaces
   - Serial communication interfaces
   - LED annunciators
2. **Power supply**
   - Battery capacity
   - Battery autonomy: up-to 72 hours standby and additional 30 minutes alarm condition

Alarm indication
All messages are shown on the display with a bright color. The displayed messages contain the following information:
- Message type
- Type of the triggering element
- Description of the exact location of the triggering element
- Logical zone and sub-address of the triggering element

18 Icon LEDs give continuous information about the operating status of the panel or the system. A red icon LED shows an alarm. A blinking yellow icon LED shows a fault. A steady yellow icon LED shows a disabled function. A green icon LED shows proper operation.
Two status LEDs, one red and one yellow, are programmable. The red one shows a self-defined alarm. The yellow one shows a self-defined fault or deactivation.
Additional annunciator modules, each with 16 red and 16 yellow LEDs are available to indicate a larger number of self-defined alarms, faults or deactivations.

Operation and processing of messages
For operating the panel, an 8 inch touch pad as input medium is put upon the display. There are 6 buttons with fixed functionality as well as 3 programmable function keys.
Examples for the assignment of the function keys:
- Set the panel controller to day mode, set the panel controller to night mode
- Enable detection points or outputs, disable detection points or outputs

- Set standard sensor sensitivity, set alternative sensor sensitivity

Each function key has a virtual status indicator.
At any time, an operator with sufficient user rights can control the function keys.

Overview of evacuation zones and outputs
At any time, the operator can get a clear overview of each evacuation zone and of each output connected to the fire protection equipment. Each zone and each output is marked with a programmable text label and a clearly distinctive color reflecting the state: Green shows idle state, power is available. Red shows an activation during fire alarm condition, and fuchsia an activation without a fire alarm condition. Yellow shows a fault or disabled state. An operator with sufficient user rights is able to start the evacuation in selected zones and activate outputs connected to the fire protection equipment through the user interface.

Saving and printing messages
The history log keeps incoming alarms and events internally. The history log has a capacity to store 10000 messages. The messages can be shown on the display, and you can export the messages. Additionally, you can connect a log printer via a serial interface module for real-time printing incoming messages.

Languages
The operator can change the language of the user interface. A printed quick user guide for each language is supplied with the package. Following languages are included: English, German, Bulgarian, Croatian, Czech, Danish, Dutch, Estonian, French, Greek, Hungarian, Italian, Latvian, Lithuanian, Polish, Portuguese, Romanian, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish and Turkish.

Licenses
The panel controller is delivered with a hard coded software license. This software license is implemented during production and cannot be modified, revoked or transported. The license defines the maximum panel network size and availability of certain features and interfaces.

	Standard license FPE-8000-SPC	Premium license FPE-8000-PPC
Ethernet interface to		
Building management system (OPC server, BIS, FSM-5000-FSI)		•
UGM-2040 Hierarchy panel		•
Voice alarm system (Smart Safety Link)		•
Monitoring and control		
Status overview	•	•
Simultaneous control	•	•
Individual control		•
Modularity (maximum number)		
Slots for functional modules (max number including slots for LSN modules)	46	46
LSN modules (max number)		
LSN 0300 A modules (1 slot per module)	32	32
LSN 1500 A modules (2 slots per module)	11	11
Panel redundancy		
Redundant panel controller	•	•
Keypad as redundant panel controller	•	•
Network		
Panel network	panels, remote keypads	panels, remote keypads, servers
Max. number of nodes	32	32

Functional modules

Functional modules are independent encapsulated units. They are placed into a slot of a panel rail. The power supply and the data traffic with the panel are therefore provided automatically. The module is identified by the panel with no further settings and operates in the default operating mode (plug and play).
Wiring to external components is performed using compact connector/screw terminals. After a replacement, only the connectors need to be reinserted, there is no need for extensive rewiring.

Module	Description	Function
ANI 0016 A	Annunciator module	Indicating system statuses, with 16 red and 16 yellow freely programmable LEDs
BCM-0000-B	Battery controller module	Controlling the power supply to the panel and the battery charge level
CZM 0004 A	Conventional zone module	Connecting conventional peripheral devices using four monitored conventional lines
ENO 0000 B	External notification module	Connecting fire service equipment complying with DIN 14675
FPE-5000-UGM	Module interface to UGM	Connection to UGM systems
IOP 0008 A	Input-output module	Individual displays or flexible connection of various electrical devices, with 8 independent digital inputs and 8 open collector outputs
IOS 0020 A	Communication module, 20mA	With S20 and RS232 interfaces

Module	Description	Function
IOS 0232 A	Communication module, RS232	Connection of two devices using two independent serial interfaces, e.g. Plena or a printer.
LSN 0300 A	LSN bus module 300mA	Connection of an LSN loop with up to 254 LSN improved elements or 127 LSN classic elements at a maximum line current of 300 mA
LSN 1500 A	LSN bus module 1500mA	Connection of an LSN loop with up to 254 LSN improved elements at a maximum line current of 1500 mA or 127 LSN classic elements at a maximum line current of 300 mA
NZM 0002 A	Notification appliance zone module	Allows connection of two conventional, monitored notification appliance circuit lines
RMH 0002 A	Relay module high-voltage	Monitored connection of external elements with feedback, with two changeover contact relays suitable for switching mains voltage
RML 0008 A	Relay module low-voltage	For low voltage switching, with eight changeover contact relays

Notice

Safety Systems Designer can be used to plan fire alarm systems that conform to the relevant limits (e.g. in terms of cable length and power supply).

Notice

Safety Systems Designer for fire alarm systems enables the system dimensions, the energy requirements and the quantity and prices of the elements required to be estimated at each different phase in the planning process.The software is designed for planners and engineering offices that want to produce a quotation for a fire alarm system.

Detection points
Each element or input that can trigger an alarm counts as an detection point. One stand-alone panel manages up to 4096 detection points. A panel operated in a network is limited to 2048 points.
All elements and inputs that do not use the Input type in the Message type setting are regarded as detection points. Therefore, all elements and inputs for which one of the following settings is programmed as the Message type are regarded as detection points:

- Fire
- Internal fire
- Supervisory
- Multi-criterion
- Smoke
- Fault
- Heat
- Water

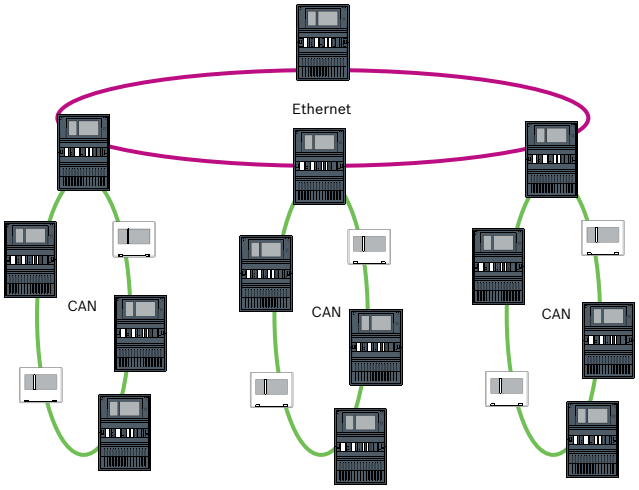
Only some of these message types are available for selection depending on the element type. The elements and inputs that can trigger an alarm include all manual and automatic detectors, as well as the modules and interface modules listed below on the basis of the available inputs.

Modules	Detection Points
CZM 0004 A	Up to 4 (1 detection point per zone)
IOP 0008 A	Up to 8 (1 detection point per monitored input)
RMH 0002 A	Up to 2
ENO 0000 B	requires 1 detection point only if a FSE release element is connected and programmed using the FSP-5000-RPS programming software
FPP-5000-TI	2

Interface Modules	Detection Points
FLM-420/4CON	Up to 2
FLM-420-I8R1	Up to 8
FLM-420-I2	Up to 2
FLM-420-O8I2	Up to 2
FLM-420-O1I1	Up to 1
FLM-420-RHV	Up to 2
FLM-420-RLE-S	Up to 2

Networking
Up to 32 panel controllers, remote keypads and OPC servers can be combined to form a network.
Panels and keypads display all messages, or you can form a group of panels and keypads. Within one group, only messages of this group are displayed.
A variety of fire alarm network topologies are possible:

- CAN loop
- Ethernet loop
- Ethernet/CAN double loop
- CAN loop with Ethernet segments
- Ethernet backbone with sub-loops (Ethernet/CAN)



Interfaces

The panel controller features

- 2 CAN interfaces (CAN1/CAN2) for networking
- 1 Rail connector
- 4 Ethernet interfaces (1 / 2 / 3 / 4) for networking, prescribed usage:
  - 1 and 2 (blue): Panel network
  - 3 (green): Building management system, hierarchy panel, voice alarm system
  - 4 (red): Remote Services
- 2 signal inputs (IN1/IN2)
- 1 USB function interface for configuration via FSP-5000-RPS
- 1 Memory card interface

Certifications and approvals

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21699 AVENAR panel 8000
Germany	VdS-S	S221001 VdS-Brandmeldesystem-S221001-AVENAR-2021-02-26
Europe	CE	AVENAR panel 8000 | AVENAR keypad 8000

Installation/configuration notes

- The FSP-5000-RPS programming software enables adaption to project- and country-specific requirements. The programming software and the associated documentation can be found at www.boschsecurity.com for those with access rights. Information about the programming software is also included in FSP-5000-RPS online help.

General planning instructions

- Country-specific standards and guidelines must be considered during planning.
- The regulations issued by regional authorities and institutions (e.g. fire service) must be adhered to.
- Please note that standards and guidelines may require that a maximum of one function in more than one zone may fail.

  For example, if the auxiliary power fails, only the fire detectors and/or manual call points of one zone may fail.
- We recommend the use of loops wherever possible, as they offer far greater security than stub lines.
- Terminating each stub and each T-tap with EOL modules is essential to set up a complete fire alarm system with extended line monitoring (creeping short circuit and creeping open monitoring).
- Conventional detectors of the Bosch portfolio for fire products can be connected using one of the following methods:
  - Using the CZM 0004 A 4 Zone Conventional Module

    The module provides four DC primary lines (zones).
  - Using an FLM-420/4-CON GLT interface module on the LSN bus for two zones
- Consider the system limit for the number of LSN elements.
- Each element and input which is able to set off an alarm requires a detection point. Inputs are considered as detection points if they are programmed accordingly using the FSP-5000-RPS Programming Software.
- In accordance with EN 54-2, no more than 512 detectors and their functions may fail if a system component fails.
- 12 V/45 Ah batteries can only be used with the frame installation housings.
- Use fuses complying with national regulations to protect the power lines.
- Recommended fire detector cable: J-Y(St)Y 2 x 2 x 0,8 mm, red.

System limits for each LSN module

- It is possible to combine LSN interface modules, LSN detectors and notification appliances on one loop or stub line.
- For a mixed connection of LSN classic elements and LSN improved elements, a maximum of 127 elements are permitted.
- The use of unshielded cables is possible.
- Limits per LSN 0300 module:
  - Up to 127 LSN classic elements or 254 LSN improved elements can be connected
  - Current consumption of up to 300 mA
  - Cable length of up to 1600 m
- Limits per LSN 1500 module:
  - Up to 127 LSN classic elements or 254 LSN improved elements can be connected
  - Up to 1500 mA current consumption if LSN improved elements are connected

– Up to 300 mA current consumption if LSN classic elements are connected
– Cable length of up to 3000 m

Environmental Conditions

- Assembly and operation of the fire panel must be carried out in a clean and dry indoor location.
- Permissible relative humidity: max. 95 % at 25°C, non-condensing
- To ensure optimum battery service life, the panel should only be operated at sites with normal room temperatures.
- Do not operate devices showing condensation.

Positioning

- Operating and display elements should be positioned at eye level.

  The distance between the upper edge of the housing and the center of the panel controller display is around 11 cm. For example, if the eye level required is 164 cm, the housing upper edge installation dimension is 175 cm.
- For frame installation housings, a clearance of at least 230 mm is required to the right of the last housing to swivel out the installed housing (e.g. for connection, maintenance or service).
- Sufficient space should be left below and next to the panel for any possible extensions, e.g. for an additional power supply or an extension housing.

Building Management System

- If connected to a building management system (Bosch Building Integration System BIS) via an Ethernet interface using an OPC server, the following must be noted:

  In a multi-building network, it is essential to clarify with the network administrator whether the network is designed for multi-building connections (e.g. no interference due to differences in grounding potential).

Technical specifications

General system limits

Panels/remote keypads/OPC servers in the network	Max. number
Ethernet / CAN	32

LSN elements	Max. number
Stand-alone panel	4096
Per network panel	2048
Total network	32768

Detection points	Max. number
Panel, without panel redundancy	512
Stand-alone panel, with panel redundancy	4096
Networked panel, with panel redundancy	2048
Total network	32768

NAC groups	Max. number
NAC groups with more than one FNM-420, per loop	6

Voice alarm system	Max. number
In CAN network, per panel (premium license)	1
In total Ethernet network (premium license)	1
Triggers (each trigger counts as one sounder group)	244

System limits per fire panel

Per fire panel	Max. number
Sets, e.g. bypass group These sets include sets which are automatically created for each LSN bus.	192
Functional modules (with panel redundancy)	42
Functional modules	46
Printer	4
Alarm counters (external, internal, testing)	3
Entries in the event database	10000
FSP-5000-RPS configuration interfaces (USB)	1
Maximum number of outputs (sounders, controls, etc.) activated in parallel due to the same event	508

Configuration limits per fire panel

Configuration limits per fire panel (FSP-5000-RPS)	Max. number
Timer channels	20
Time control programs	19
Configuration for a Specific Day	365
Permission levels	4
User profiles	200

Configuration limits per fire panel (FSP-5000-RPS)	Max. number
Sum counters and counters (in total)	60000
Exportable objects including counters in the entire panel cluster (without pre-defined system counters)	2000
Importable objects including counters (without pre-defined system counters)	2000
Automatic connections to remote keypad	3
Blocks of State-Dependent Rules (depending on what kind of activations are possible)	8
Maximum number of rules within a block	254

Number of functional modules

Number of functional modules	Max. number
ANI 0016 A	32
BCM-0000-B	8
CZM 0004 A	32
ENO 0000 B	8
FPE-5000-UGM	4
IOP 0008 A	32
IOS 0020 A	4
IOS 0232 A	4
LSN 0300 A	32
LSN 1500 A	11
NZM 0002 A	8
RMH 0002 A	32
RML 0008 A	32

Power loss of panel components

Component	Power loss
ANI 0016 A	0.62 W (all LEDs lit)
BCM-0000-B	• 0.96 W (controller + green LED lit) • 1.44 W (per AUX with 1.06 A load)
CZM 0004 A	• 1.65 W (for a line with 100 mA load) • 3.36 W (for 4 lines with 100 mA load each)
ENO 0000 B	• 1.44 W (1 relay activated) • 7.80 W (4 relays activated + key deposit heating active)
FPE-5000-UGM	0.17 W
FPE-8000-FMR	max. 12 W
FPE-8000-PPC	max. 10 W
FPE-8000-SPC	max. 10 W
IOP 0008 A	0.24 W
IOS 0020 A	0.36 W
IOS 0232 A	0.36 W
LSN 0300 A	• 1.50 W (AUX with 490 mA load) • 2.72 W (LSN)
NZM 0002 A	0.96 W
PRD 0004 A	0.07 W
PRS-0002-C	0.07 W
RMH 0002 A	1.16 W
RML 0008 A	1.04 W (all relays activated)
UPS 2416 A	28.00 W

Electrical

Input voltage range	100 - 240 V AC
Input frequency range	50 Hz to 60 Hz
Power source (EN 62368-1)	PS 3
Electrical source (EN 62368-1)	ES 3
Terminals 24 V+/- ①, 24 V+/- ②:	
Output voltage (min-max)	20.4 - 30 V battery-buffered
Output current (min-max) (x 2)	0 - 2.8 A
Power source (EN 62368-1)	PS 2
Electrical source (EN 62368-1)	ES 1

Mechanical

Flammability rating	UL94-V0

LCD display (pixels)	7" color WVGA 800 x 480
Operating and display elements	• 6 keys • 18 LEDs
Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015
Front color	Anthracite, RAL 7016
Battery type for wall-mount version [1]	12V 24-27Ah
Battery type for frame-mount version [2]	12V 38-45Ah

[1] Order info: IPS-BAT12V-27AH, F.01U.579.781; [2] Order info: IPS-BAT12V-45AH, F.01U.579.782

Environmental

Safety class according to EN 62368-1	Class 1 equipment
Permissible ambient temperature during operation	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Relative humidity	Max. 95% non-condensing @25 °C
Protection category	IP 30
Cooling	Natural convection*

*Do not obstruct the vent holes.

Ordering information

Accessories

ANI 0016 A Annunciator module
displays the status of 16 individually programmable detection points
Order number **ANI 0016 A | 4.998.137.262**

BCM-0000-B Battery controller module
monitors the power supply of the fire panel and the charging of the batteries
Order number **BCM-0000-B | F.01U.081.384**

CZM 0004 A Conventional zone module
for connecting conventional peripherals; provides four monitored conventional lines
Order number **CZM 0004 A | 4.998.137.270**

ENO 0000 B External notification module
for connecting fire service equipment in compliance with DIN 14675
Order number **ENO 0000 B | F.01U.063.204**

FPE-5000-UGM Module interface to UGM
for connecting the fire panels FPA-5000 and FPA-1200 to superordinate systems (UGM 2020, FAT 2002/RE, FSM-2000)
Order number **FPE-5000-UGM | F.01U.028.289**

IOP 0008 A Input-output module
for individual displays or flexible connection of various electrical devices, providing eight independent digital inputs and eight open collector outputs
Order number **IOP 0008 A | 4.998.137.269**

IOS 0020 A Communication module, 20mA
provides one interface of each S20 and RS232
Order number **IOS 0020 A | 4.998.137.266**

IOS 0232 A Communication module, RS232
for connecting two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces
Order number **IOS 0232 A | 4.998.137.267**

LSN 0300 A LSN bus module, 300mA
for connecting an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA
Order number **LSN 0300 A | 4.998.137.277**

LSN 1500 A LSN bus module, 1500mA
for connecting an LSN loop with up to 254 LSN improved elements with a maximum line current of 1500 mA, or with up to 127 classic LSN elements, with a maximum line current of 300 mA
Order number **LSN 1500 A | 4.998.137.278**

NZM 0002 A Notification appliance zone module
for connecting 2 separate notification appliance zone lines, provides 2 monitored primary lines
Order number **NZM 0002 A | 4.998.137.275**

RMH 0002 A Relay module high-voltage
provides 2 change-over contact relays (type C) for high voltage, for monitored connection of external elements with feedback
Order number **RMH 0002 A | 4.998.137.274**

RML 0008 A Relay module low-voltage
provides 8 change-over contact relays (type C) for low voltage
Order number **RML 0008 A | 4.998.137.265**

FPE-8000-SPC Panel controller, standard license
central component of AVENAR panel 8000, which is delivered with standard license defining network size, as well as fire detection features according the standards. The entire system is operated via a touchscreen, all messages are shown on the color display. The user-friendly user interface adapts to various requirements.
Order number **FPE-8000-SPC | F.01U.327.090**

FPE-8000-PPC Panel controller, premium license
central component of AVENAR panel 8000, which is delivered with premium license. In addition to network capability and network size, as well as fire detection features according the standards, the premium license provides interfaces for OPC, FSM-5000-FSI, UGM-2040, Smart Safety Link. Individual control of evacuation zones and fire controls is provided. The entire system is operated via a touchscreen, all messages are shown on the color display. The user-friendly user interface adapts to various requirements.
Order number **FPE-8000-PPC | F.01U.352.441**

Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
emea.securitysystems@bosch.com
emea.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany
www.boschsecurity.com

North America:
Bosch Security Systems, LLC
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.us

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

© Bosch Security Systems 2021