AVENAR 2000 power plant

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- Modular, expandable compact fire control panel
  Up to 4 loops, providing customized solutions for small to medium sized applications
- High resolution display with vivid colors for indicate alarms and events
- 8" touch panel with fixed and programmable buttons that allow it to be adapted to the situation
- Integrated Ethernet switch for network connections and interfaces to remote services, building management and voice alarm systems
- Adaptable to local requirements and regulations

The fire panel allows mixed operation of addressable analogue and traditional technology. It supports the connection of peripherals in branch or loop topologies. The fire panel identifies and manages addressable analogue fire detectors, call points, signalling devices, inputs and outputs as individual elements. As required in the building structure, peripherals are grouped by software into logical zones.

The modular compact fire panel is supplied in kit form in a housing. Functional modules can be connected to the rail inside the housing. The rail provides power and internal communication to the functional modules.

There is a wide range of functional modules that They provide different connections and functions: ties I will say actionable, conventional zones, entrances and outputs and interfaces to various devices. The fire alarm panel can be equipped with up to 6 functional modules, of which 4 can be addressable analog loop modules.

maximum. This makes the fire panel suitable for small to medium sized applications.

The fire panel is available with two different types of housing:

- Wall mount housing
- Rack mount housing

Slim wall-mount enclosures mount directly to the wall. Rack-mount enclosures require an additional frame between the enclosure and the wall. This frame allows room for cabling, media converters, larger batteries, and more. Special installation kits also allow installation in 19" racks.

The control panel is the central component of the fire control panel. A colour display shows all messages. The touch screen is used to operate the entire system. The user-friendly interface adapts to different situations. This enables correct operation that is clear, simple, focused and intuitive.

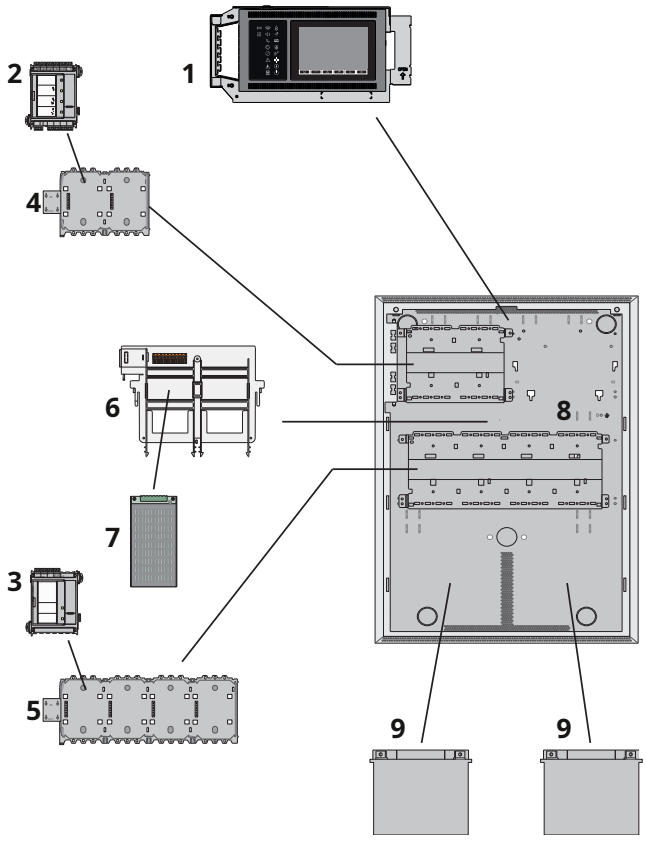
The AVENAR series and FPA-5000 series panels and keypads (MPC-xxxx-B and MPC-xxxx-C) can be combined into a network of control panels using interfaces

Ethernet and CAN bus. The remote keypad is used to operate the control panel or the network of control panels in a decentralised manner.
Integration into large-scale systems is possible via an Ethernet interface to a Bosch Hierarchical Panel (UGM) or a Building Integration System (BIS). Integration with management systems from other manufacturers is possible thanks to the availability of an OPC server and a software development kit.

A data interface enables full monitoring and control of Bosch voice alarm systems, making the fire panel a complete security solution.

The fire panel is configured on a laptop using the FSP-5000-RPS programming software. The programming software allows for more precise adaptation, for example to country-specific requirements and regulations.

System Description



Configuraci example

1 With trolled r of central FPE-2000-PPC, license Premium

2 Module c controller of batteries BCM-0000-B

3 LSN 0300 A LSN Bus Module

4 PRS-0002-C Short center rail

5 PRD 0004 A Long center rail

6 Power supply support

7 Power supply

8 CPH 0006 Central housing for 6 modules

9 Batteries

Functions

AVENAR panel 2000 is a compact and modular fire control panel for small to medium-sized systems. It comes as standard in a housing with control panel controller, power supply, battery controller module and one LSN loop module. Depending on the specific project requirements, the fire control panel can be expanded with a maximum of four LSN 0300 A loop modules, a total of six functional modules. Each loop can contain up to 254 LSN elements.

Alarm indication
All messages are displayed on the screen in bright colors. The messages displayed contain the following information:

- Message type
- Type of trigger element
- Description of the exact location of the triggering element
- Logical zone and sub-address of the activating element

18 LED icons provide continuous information on the operating status of the panel or system. A red LED icon indicates an alarm. A flashing yellow LED icon indicates a fault. A solid yellow LED icon indicates a disabled function. A green LED icon indicates proper operation.

Two status LEDs, one red and one yellow, are programmable. Red shows a self-defined alarm. Yellow shows a self-defined fault or disable.

There are additional ad modules, each of They with 16 red LEDs and 16 yellow LEDs to indicate self- more alarm defined ace, faults or disables.

Works message processing and communication To To do operate the panel, a touch panel is placed 8 in. above the screen as a means of There are 6 entrance. buttons with fixed functions and 3 of function programmable n keys.
Examples Function key assignment:

- Put the central controller in day mode; the central put controller in night mode r detection points or
- Active outputs; deactivate so detection outputs spot
- Adjusts r the standard sensitivity of the sensors; r the adjusts alternative sensitivity of the sensors

Each key a function has a status indicator virtual.
An opera dor with sufficient user rights
You can use the function keys at any time.

Overview of evacuation zones and exits

The operator can obtain an overview of each evacuation zone and each output connected to fire protection equipment at any time. Each zone and output is marked with a programmable text label and a color that clearly indicates its status: green indicates an inactive state, with power available; red shows an activation during a fire alarm condition; and fuchsia indicates an activation without a fire alarm condition. Yellow indicates a fault or disabled state. An operator with sufficient rights can initiate evacuation in selected zones and activate outputs connected to fire protection equipment using the user interface.

Archiving and printing messages

Historical log retains events and alarms internally. The historical log has the capacity to store 10,000 messages. Messages can be displayed on the screen and exported. In addition, a log printer can be connected via a serial interface module to print incoming messages in real time.

Languages

The operator can change the language of the interface. User manual. A printed Quick Start Guide is supplied in each language. The following languages are included: Bulgarian, Croatian, Czech, Danish, Dutch, English, Estonian, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Polish, Portuguese, Romanian, Russian, Serbian, Slovak, Spanish, Swedish and Turkish.

Operator management

The system supports up to 200 registered operators. different. Logging in is allowed with a user ID and an 8-digit PIN code.
There are four different levels of authorisation. Depending on the authorisation level, the operator can perform certain functions, in accordance with EN54-2.

Licenses

The central controller is supplied with a Embedded software license. This software license is deployed during production and cannot be modified, revoked or transferred. The license defines the maximum size of the panel network and the availability of certain features and interfaces.

	AVENAR panel 2000, standard license.	AVENAR panel 2000, Premium license.
Ethernet interface to		
Building Management System (OPC Server, BIS, FSM-5000-FSI)		•
Hierarchical panel UGM-2040		•
Voice alarm system (Smart Safety Link)		•
Supervision and control		
Status Description	•	•
Simultaneous control	•	•
Independent control		•
Modularity (maximum number)		
Functional module slots (maximum number including LSN module slots)	6	6
LSN Modules (maximum number)		
LSN 0300 A modules (1 slot per module)	4	4
LSN 1500 A modules	0	0
Panel redundancy		
Redundant panel controller		
Keyboard as redundant central controller		
Grid		

	AVENAR panel 2000, standard license.	AVENAR panel 2000, Premium license.
Network of power plants	remote keyboards	centrals, remote keyboards, servers
Maximum number of nodes	4 (1 central, 3 keyboards)	32

There are four AVENAR panel 2000 kits available in total:

- FPA-2000-SFM: Standard license. Rack mount enclosure
- FPA-2000-PFM: Premium license. Rack mount enclosure
- FPA-2000-SWM: Standard license. Wall mount enclosure
- FPA-2000-PWM: Premium license. Wall mount housing

CTN	Description	FPA-2000-SFM	FPA-2000-PFM	FPA-2000-SWM	FPA-2000-PWM
FPE-2000-SPC	Panel controller, standard license	1	-	1	-
FPE-2000-PPC	Panel controller, Premium license	-	1	-	1
LSN 0300 A	LSN bus module, 300 mA	1			
BCM-0000-B	Controller module of batteries	1			
PRS-0002-C	Short center rail	1			
PRD 0004 A	Long center rail	1			
UPS 2416 A	Source of feeding universal	1			
FDP 0001 A	Fake cover	3			
CPH 0006 A	Case for 6 modules	1		-	
FBH 0000 A	Mounting frame, big	1		-	
HCP 0006 A	Case for 6 modules	-		1	
FPO-5000-PSB-CH	Power supply support	-		1	

Functional modules

Functional modules are encapsulated units independent. They are placed in a slot on a control panel rail. This means that the power supply and data traffic to the control panel are automatically connected. The control panel identifies the module without any additional settings and operates in the default operating mode (plug and play).

Wiring to external components is done using screw terminals/compact connectors. After replacement, only the connectors need to be re-inserted; no significant amounts of cable need to be re-routed.

Module	Description	Function
ANI 0016 A	Module of LEDs	Indication of system status with 16 red and 16 yellow programmable LEDs
BCM-0000-B	Module controller of batteries	Control of the power supply to the central unit and the battery charge level
CZM 0004 A	Module of area conventional	Connect conventional peripheral devices with four conventional supervised lines
ENO 0000 B	Module of notification external	Connection of fire service equipment according to DIN 14675

Module	Description	Function
FPE-500 0-UGM	Module of interface for UGM	Connection to UGM systems
IOP 0008 A	Module of entrance/ exit	Individual displays or flexible connection of different electrical devices with 8 independent digital inputs and 8 open collector outputs
IOS 0020 A	Module of communication n, 20mA	With S20 and RS232 interfaces
IOS 0232 A	Module of communication n, RS232	Connecting two devices using two independent serial interfaces, e.g. Plena or a printer.
LSN 0300 A	Bus module LSN, 300 mA	Connection of an LSN loop with a maximum of 254 enhanced LSN elements or 127 classic LSN elements, with a maximum line current of 300 mA
NZM 0002 A	Zones module devices notification	Allows two notification appliance circuit lines to be connected conventional supervised
RMH 0002 A	Module of high voltage relays strain	Supervised connection of external elements with feedback, with two switching contact relays suitable for switching the supply voltage
RML 0008 A	Module of low voltage relays strain	For switching low voltage, with eight switching contact relays

Warning

Safety Systems Designer is used to design fire alarm systems that comply with relevant limits (e.g. in terms of cable length and power supply).

Warning

Safety Systems Designer for fire alarm systems allows you to estimate system dimensions, power requirements, and the quantity and prices of elements needed at each stage of the planning process.
The software is intended for designers and engineers who wish to prepare a quote for a fire detection system.

Detection points

Each element or input that can activate a alarm counts as one detection point. According to EN54-2, do not connect more than 512 detection points and alarm buttons to one AVENAR panel 2000.

If there are more than 512 detectors and alarm buttons, distribute the detectors among more AVENAR control panels.
All elements and inputs that do not use the Input type in the message type setting are considered detection points. Therefore, all elements and inputs for which one of the following settings has been programmed as the message type are considered detection points:

- Fire
- Internal fire
- Supervision
- Multi-Criterion
- Smoke
- Breakdown
- Temperature
- Water

Only some of these message types are available for selection based on the element type. Elements and inputs that can trigger an alarm include all manual and automatic detectors, as well as modules and interface modules listed below based on 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 supervised entrance)
RMH 0002 A	Up to 2
ENO 0000 B	Requires a 1 detection point only if an FSE trigger element is connected and programmed using the FSP-5000-RPS programming software
FPP-5000-TI	2

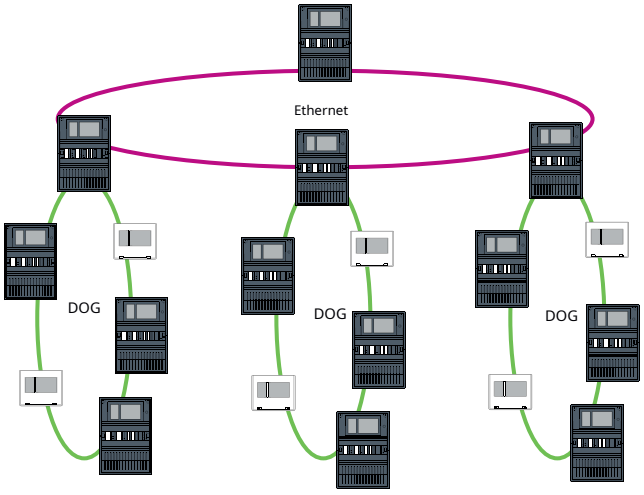
Modules of interface	Detection points
FLM-420/4CON	Up to 2
FLM-420-I8R1	Up to 8
FLM-420-I2	Up to 2
FLM-420-O8I2	Up to 2
FLM-420-O1I1	Up to 1
FLM-420-RHV	Up to 2
FLM-420-RLE-S	Up to 2

Networks

A Premium licensed central controller is can be networked with up to 32 central controllers, remote keypads and OPC servers.
Panels and keyboards display all messages, and you can also form a group of panels and keyboards. Within a group, only messages from that group are displayed.

Different fire alarm network topologies can be used:

- CAN loop
- Ethernet loop
- Dual Ethernet/CAN loop
- CAN loop with Ethernet segments
- Ethernet trunk with subloops (Ethernet/CAN)



Interfaces

Features of the central controller

- 2 CAN modules (CAN1/CAN2) for network operation
- 1 rail connector
- 4 Ethernet modules (1/2/3/4) for network operation, recommended use:
  - 1 and 2 (blue): power plant network
  - 3 (see of): building management system, central of jer architechture, voice alarm system
  - 4 (red o): Remote Services
- 2 entry signal s (IN1/IN2)
- 1 module USB function for FSP-5000-RPS through configuration
- 1 module from memory card

Setup/Installation Notes

- The software of progr FSP-5000-RPS application allows the adaptation on request specific programming cada project and country. The sun ftware sites ion and the documents tion association ada are available s in www.boschsecurity.com for users access with rights. The RPS online help also contains FSP-5000- information on the program and The software ation.

Instructions general of design

- You must have to count on to the standards and guidelines specific of the country in the design.
- It is necessary or obey l the regulations of regional authorities and institution authorities (e.g. the service of firefighters).
- Note that standards and guidelines may require ices that a function can fail for a maximum of as in more than an area.

For example, if there is a failure in the auxiliary power supply, only the fire detectors or manual call points in a zone may fail.

- We recommend using ties whenever possible, as they offer more security than branches.
- Terminating each branch and T-split with RFL modules is essential to configure a complete fire detection system with extended line monitoring (progressive short-circuit and open-circuit monitoring).
- Conventional detectors from the Bosch range of fire products can be connected using one of the following methods:
  - With the conventional CZM 0004 A 4-zone module
    The module provides four primary DC lines (zones).
  - With a GLT FLM-420/4-CON interface module on the LSN bus for two zones.
- Be aware of the system limit for the number of LSN elements.
- C Each element and input that can activate a weapon to the requires a detection point. Inputs are considered sdetection points if programmed accordingly in the and FSP-5000-RPS programming software.
- D According to EN 54-2, no more than 12 detectors 5and their functions may fail, if one fails system component.
- Rack mount housing supports 12V/45Ah batteries.
- Use fuses that comply with the regulations national to protect power lines. Fire detector cable
- recommended o: J-A(ST)Y 2 x 2 x 0.8 mm, red.

Limits system tests for each LSN module

- E It is possible to combine LSN interface modules , dLSN detectors and loop or branch notification in one li appliances.
- In the case of a mixed connection of "classic" LSN and "improved" LSN elements, the maximum number of elements allowed is 127.
- Is possible or sar unshielded cables je.
- Li myths by module LSN 0300:
  - It is possi ble connect up to 12 7 element s LSN Classic or 254 LSN elements improved
  - Current consumption of ha this 300 mA
  - Cable length up to 1 600 m

Environmental conditions

- He assembly and the The operation of the ndio must be cenince tral carried out in a clean and dry space. intupper, in a
- Hu media related VAT allowed: 95% maximum at density 25 °C, without with
- Pa to guarantee for optimal battery life, you should cen tral only knows handle it in a ications with normal temperatures.
- Do not use devices that present n condemn sation.

Positioning

- The operating and display elements are should be placed at eye level.
  The distance between the top edge of the housing and the centre of the central controller screen is about 11 cm. For example, if the required eye level is 164 cm, the installation dimension of the top edge of the housing is 175 cm.
- In the case of rack-mounted housings, a minimum free space of 230 mm is required to the right of the last housing in order to be able to tilt the installed housing (e.g. for its connection, maintenance or repair).
- Sufficient space must be left underneath and next to the control unit for any possible expansion, e.g. for an additional power supply or an expansion housing.

Building management system

- If connected to a building management system (Bosch Building System, BIS) via an Ethernet interface using an OPC server, the following must be taken into account:
  In a multi-building network, it is essential to clarify with the network administrator whether the network is designed for connections between multiple buildings (e.g. without interference due to differences in ground potential).

Technical specifications

General limits of the system

Network OPC centrals/remote keyboards/ servers	Number maximum
Ethernet/CAN (Premium license)	32

LSN elements	Number maximum
Independent power station	1016
By network center	1016
Total network	32512

Detection points	Number maximum
Central according to EN 54	512
Independent central unit, not in compliance with EN 54	4096
Networked central unit, not in compliance with EN 54	2048
Total network	32768

NAC Groups	Number maximum
NAC groups with more than one FNM-420, per loop	6

Voice alarm system	Number maximum
On CAN network, by central (Premium license)	1
On full Ethernet network (Premium license)	1
Triggers (each trigger counts as one group of audible warning devices)	244

System limits per fire panel

By fire station	Number maximum
Games: for example, group cancelled	192
Functional modules	6
Printer	4
Alarm counters (external, internal, test)	3
Entries in the event database	10000
FSP-5000-RPS Configuration Interfaces (USB)	1
Maximum number of outputs (sirens, controls, etc.) activated in parallel due to the same event	508

Configuration limits per fire panel

Configuration limits per fire panel (FSP-5000-RPS)	Number maximum
Timer Channels	20
Time control programs	19
Settings for a specific day	365
Access levels	4
User profiles	200
Adding counters and counters (in total)	60000
Exportable objects including cluster-wide counters (without system-wide predefined counters)	2000
Importable objects including counters (without system predefined counters)	2000
Automatic connections to remote keyboard	3
State-dependent rule blocks (based on the type of activations that are possible)	8
Maximum number of rules in a block	254

Number of functional modules

Number of functional modules	Number maximum
ANI 0016 A	4
BCM-0000-B	5
CZM 0004 A	4

Number of functional modules	Number maximum
ENO 0000 B	4
FPE-5000-UGM	4
IOP 0008 A	4
IOS 0020 A	4
IOS 0232 A	4
LSN 0300 A	4
LSN 1500 A	0
NZM 0002 A	4
RMH 0002 A	4
RML 0008 A	4

Loss of power to plant components

Component	Loss of feeding
ANI 0016 A	0.62W (all LEDs on)
BCM-0000-B	• 0.96 W (controller + green LED on) • 1.44W (per AUX with a load of 1.06 A)
CZM 0004 A	• 1.65 W (for a line with a load of 100 mA) • 3.36 W (for 4 lines with a load of 100 mA each)
ENO 0000 B	• 1.44 W (1 relay activated) • 7.80 W (4 relays activated + key compartment heater active)
FPE-2000-PPC	max 10W
FPE-2000-SPC	max 10W
FPE-5000-UGM	0.17 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 a load of 490 mA) • 2.72 W (ULN)
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 energized)
UPS 2416 A	28.00 W

Electrical specifications

Input voltage range	100 - 240 V AC
Input frequency range	From 50 Hz to 60 Hz
Power supply (EN 62368-1)	PS 3
Power supply (EN 62368-1)	EN 3
24V+/- terminals①,24V+/-②:	
Output voltage (min. - max.)	20.4 - 30 V with battery holder
Output current (min-max) (x 2)	0 - 2.8 A
Power supply (EN 62368-1)	PS 2
Power supply (EN 62368-1)	EN 1

Mechanics

Rating vs. inflammability	UL94-V0
LCD display (pixels)	7" WVGA 800 x 480 color
Operating and display elements	• 6 keys • 18 LED
Case material	Steel sheet, painted
Case color	Slate grey, RAL 7015
Front color	Anthracite, RAL 7016
Battery type for wall mount version[1]	12V 24-27Ah
Battery type for rack mount version[2]	12V 38 - 45Ah

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

Environmental

Safety class according to EN 62368-1	Class 1 Team
Allowable ambient temperature during operation	From -5 °C to 50 °C
Allowed storage temperature	From -20 °C to 60 °C

Relative humidity	Max. 95% non-condensing at 25°C
Protection category	IP 30
Refrigeration	Natural convection*

* Do not block the ventilation holes.

Ordering Information

FPA-2000-PWM Premium Licensed Central Kit, Wall Mount
AVENAR panel 2000 is a compact and modular fire control panel for small to medium-sized systems. It comes as standard in a housing with control panel controller, power supply, battery controller module and one LSN loop module. Depending on the specific project requirements, the fire control panel can be expanded with a maximum of four LSN 0300 A loop modules, a total of six functional modules. Each loop can contain up to 254 LSN elements.

The wall-mount central kit includes a Premium Central Controller license.
Order number**FPA-2000-PWM**

FPA-2000-SFM Standard Licensed Panel Kit, Frame Mount
AVENAR panel 2000 is a compact and modular fire control panel for small to medium-sized systems. It comes as standard in a housing with control panel controller, power supply, battery controller module and one LSN loop module. Depending on the specific project requirements, the fire control panel can be expanded with a maximum of four LSN 0300 A loop modules, a total of six functional modules. Each loop can contain up to 254 LSN elements.

The frame-mount panel kit includes a standard panel controller license.
Order number**FPA-2000-SFM**

FPA-2000-SWM Standard License Panel Kit, Wall Mount

AVENAR panel 2000 is a compact and modular fire control panel for small to medium-sized systems. It comes as standard in a housing with control panel controller, power supply, battery controller module and one LSN loop module. Depending on the specific project requirements, the fire control panel can be expanded with a maximum of four LSN 0300 A loop modules, a total of six functional modules. Each loop can contain up to 254 LSN elements.

The wall-mount panel kit includes a standard panel controller license.
Order number**FPA-2000-SWM**

FPA-2000-PFM Premium Licensed Panel Kit, Frame Mount
AVENAR panel 2000 is a compact and modular fire control panel for small to medium-sized systems. It comes as standard in a housing with control panel controller, power supply, battery controller module and one LSN loop module. Depending on the specific project requirements, the fire control panel can be expanded with a maximum of four LSN 0300 A loop modules, a total of six functional modules. Each loop can contain up to 254 LSN elements.

The frame-mount central kit includes a Premium Central Controller license.
Order number**FPA-2000-PFM**

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