

Analog Addressable Fire Panels

FPA-1000-V2



BOSCH

1 Preparation

**DANGER!**

Fire panels are Life safety devices. Only trained personnel should install and program these panels!

Any panel in a network can control all other panels in the network (e.g. silencing an alarm or resetting the system). Access to panels should be restricted to properly trained personnel.

1.1 Decide on Connection Topology

Determine whether you will use a Class A or Class B topology for the network connections. Network connections can be wired as Class A Style 7 or Class B Style 4 circuits. Class A configuration is recommended because this allows the panels in a network to communicate with each other, ensuring circuit operation in the event of a single break in the wiring.

Additional notes regarding Class A Style 7:

1. No T-taps allowed on Class A Style 7 network wiring.
2. The return side of the loop must be routed separately from the outgoing side of the loop.
3. The return side must not share the same conduit or cable as the outgoing side of the loop.
4. Refer to NFPA 72 for additional requirements of Class A circuits.

1.2 Order Networking Cards

Determine the types and numbers of Networking Cards needed. The type of cards needed to connect a pair of panels depends on the intended interconnection method (Ethernet, fiber optic, or wire). Factors to consider when choosing an interconnection method include:

- whether or not the interconnected panels will be in different buildings. Fiber optic cable is recommended for this application since it is less susceptible to electrical noise and is suitable for longer distances (up to 6560 ft [2000 m]).
 - whether the networked panels will be installed near each other or distributed over a wider area. An Ethernet connection has a maximum length of 328 ft (100 m) whereas a wired connection can be up to 10 times as long (3280 ft [1000 m]). However, in a harsh electrical environment, shielded or twisted-pair wire can be necessary but require a reduced length of wiring (roughly 50%).
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**NOTICE!**

Each panel needs to be individually programmed and then added to a network.

2 Installation

2.1 General Considerations

**CAUTION!**

Electrostatic discharge!

Ground yourself using a wrist strap or take other suitable actions.

The FPA-1000 circuit boards have static-sensitive components that could become damaged.

Run the ground wire to the enclosure before handling these circuit boards. Touch ground before unpacking and handling the circuit boards. This discharges any static electricity in your body. Continue touching the enclosure while installing the circuit boards.

**DANGER!**

Before installing the networking card, remove all AC and battery power from the fire panel.

2.2 Mounting

The main board allows for the installation of one networking card.

1. Position the networking card along the bottom of the mainboard keypad with the connections aligned with the slot.
2. Press down softly until the snap-fit hook locks into place ensuring that the connections seat into the slot properly.

For an illustration, see *Figure 2.1*

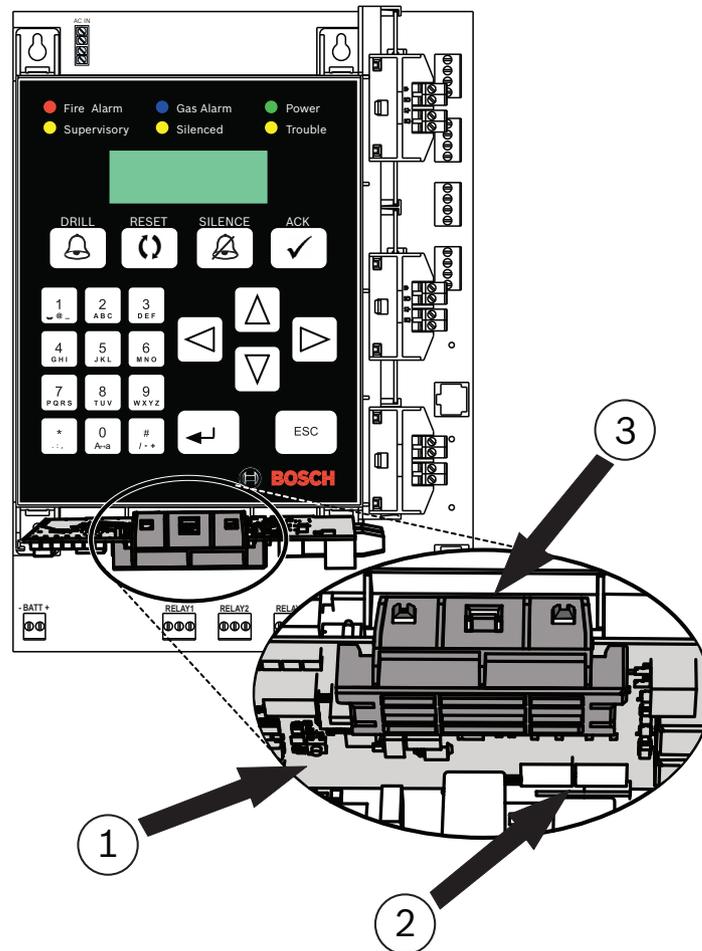


Figure 2.1 Mounting a Networking Card

1	networking card
2	connectors and slot
3	snap-fit hook

3 Connection



NOTICE!

Power-limited and nonpower-limited circuit wiring must enter and exit from the cabinet through different knockouts or conduits. Phone lines are generally considered to be non-power-limited, so the cables for networking cards should not be run through the same knockout as the phone lines.

3.1 Enabling Ground Fault Detection

Each networking card has a specific terminal or terminals that are Ground Fault Detection enabled. As indicated by the checked boxes in the following table, Port 1 on all three networking cards is ground fault enabled; as is Port 3 on the wired card (FPE-1000-NW).

Port	-NE	-NF	-NW
1	<input checked="" type="checkbox"/> Ethernet IN	<input checked="" type="checkbox"/> Ethernet IN	<input checked="" type="checkbox"/> Wired IN
2	<input type="checkbox"/> Ethernet OUT	<input type="checkbox"/> Fiber IN	<input type="checkbox"/> Wired OUT
3	<input type="checkbox"/> Ethernet	<input type="checkbox"/> Fiber OUT	<input checked="" type="checkbox"/> Ethernet IN

Table 3.1 Network Port Identification

For Ground Fault Detection to work properly, one and only one end of a communication connection (cable) joining two networking cards must be Ground Fault Detection enabled. To facilitate this, the wired card (FPE-1000-NW) and the fiber optics card (FPE-1000-NF) each have a jumper located near the back of the Ethernet IN port (Port 1 on the wired card and Port 3 on the fiber optic card). This jumper allows Ground Fault Detection to be disabled for this port. Recommended communication connection practice is to come out of one card and in on the next. In cases where you are switching from a wired or fiber optic card to a different type of card, you must use the Ethernet port which should be OUT not IN which is the default. Move the jumper on this card so that Ground Fault Detection is disabled at this end of the connection (making it an Ethernet OUT). Remove the jumper from both pins and replace it on only one pin so that it does not get misplaced in case Ground Fault Detection needs to be re-enabled later.

3.2 Connecting Networking Card to Networking Card



NOTICE!

Although there is an Ethernet port on the panel's Mainboard, this port is reserved for programming and reporting and should not be used for peer-to-peer communications. Communication connections should be made from one networking card to another.

1. Plug one end of the chosen interconnection cable into an appropriate port on the networking card installed in one of the two panels to be interconnected. Make a note of the port that is used for this connection.
2. Run the connector out of the panel enclosure to the next panel to be connected into the network.
3. Plug the end of the interconnection cable into the correct port on the networking card for this panel. Make a note of the port that is used for this connection.
4. Continue this process from panel to panel until all the panels to be included in the network are connected and all ports used are noted.



NOTICE!

If using a Class A Style 7 network topology, remember to run a connection from the last panel to the first panel, and that the return side of the loop must be routed separately from the outgoing side of the loop.

3.3

Verifying Networking Card Links

Follow the steps below to verify that the network link LEDs are showing proper connections before proceeding to Panel/Network Configuration (for LED identification, see *Figure 3.1fi*

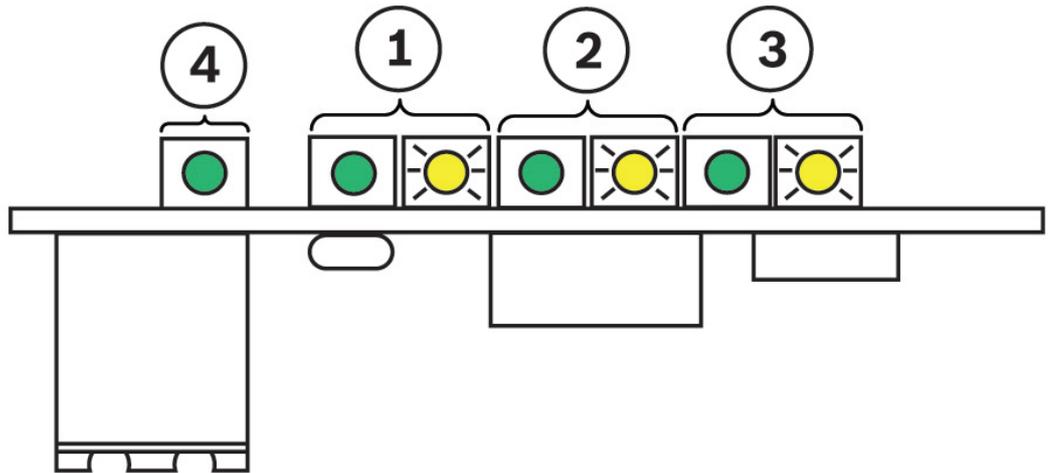


Figure 3.1 Network Status LEDs

1	Port 1 LEDs: left LED (green) = power; right LED (yellow) = data transmission
2	Port 2 LEDs: left LED (green) = power; right LED (yellow) = data transmission
3	Port 3 LEDs: left LED (green) = power; right LED (yellow) = data transmission
4	Power LED (green)

1. The green Power LED for each installed card should be ON if the networking card is properly installed in the panel and the panel has power.
2. For each port into which a connector is installed, the green Power LED should be ON is a proper connection is detected between networking cards.
3. The yellow LED for any of the three ports will flash when that port is communicating.

4 Panel/Network Configuration

The FPA-1000 fire panels provide several programming options:

- program on-site from the front panel keypad
- program on-site through an Ethernet (CAT 5 cable) connection between a laptop computer and the panel using the browser-based configuration tool
- use the off-line configuration tool (provided on CD) to program off-site and then download the program on-site
- program off-site through an internet connection to the panel using the browser-based configuration tool (requires someone on-site to authorize the remote connection).

Each panel needs to be individually programmed and then added to a network. Choose one of the programming tools (either keypad or configuration tool) and follow the steps below for that tool:



NOTICE!

In order for the FPA-1000 panels to communicate throughout the network, each panel in the network needs a unique IP address and Panel ID. Throughout the network, Panel Gateways, Panel Subnet Masks, and Fire Network IDs must be all the same for each panel. When programming each panel it is a good idea to record these designators for future reference.

4.1 Programming Individual Panels



NOTICE!

These procedures assume that the system is being programmed for the first time. If this is not true and the system passcodes have been previously reprogrammed, the default passcodes will no longer open the configuration tool. Use the passcodes programmed for your system.

4.1.1 Keypad programming the individual panels for networking

1. From the panel keypad, press the ENTER [↵] key and navigate to 6-PROGRAMMING (enter the level 3 passcode, default = 3333), 8-NETWORKING, 1-NETWORK CARD and select 1-Installed from the menu.
2. Press 1-YES to indicate the networking card is installed. Press the ESC key twice.
3. Press 2-NETWORK WIRING and select 1-CLASS A or 2-CLASS B. Press the ESC key twice.
4. Press 6-TIMERS AND SYSTEM, 2-SYSTEM and select 5-PANEL IP AND ID from the menu.
5. Press 1-PANEL IP ADDRESS.
6. Input and record a unique IP address for the panel. Press the ENTER key once.
7. Press 2-PANEL GATEWAY.
8. Input and record the same Gateway (default = 192.168.1.1) for each panel to be added to the network. Press the ENTER key once.
9. Press 3-PANEL SUBNET MASK.
10. Input and record the same Subnet Mask (default = 255.255.255.0) for each panel to be added to the network. Press the ENTER key once.
11. Press 4-PANEL ID.
12. Input and record a unique ID from 01 to 64 for the Panel ID. Press the ENTER key once.
13. Press 5-FIRE NETWORK ID.
14. Select and record the same Fire Network ID for each panel to be added to the network (the default, 01, can be used for each panel). Press the ENTER key to save the settings and then press the ESC key four times to return to the Main Menu.
15. Press 6-PROGRAMMING, 8-NETWORKING, 1-NETWORK CARD and select 2-PORT SUPERVISION from the menu.
16. For each port (1, 2, and 3), select 1-YES if there is a connector inserted into that port on that panel or 2-NO if that port is empty.

**NOTICE!**

In operation, a network with a peer-to-peer connector in an unsupervised port will report intermittent "missing panel" troubles. If this occurs, ensure that each port into which a connector is inserted is programmed as supervised.

Any ports not used for panel-to-panel communication must not be supervised as this could cause problems with other communications such as programming or reporting.

17. Press the ESC key five times to escape from keypad programming.
18. Repeat steps 1 through 17 for each panel that will be added to the network.
19. When all of the panels to be included in the network have been individually programmed, add them to the network by following either or .

4.1.2**Browser-based programming the individual panels for networking****NOTICE!**

The browser-based configuration tool allows you to program individual panels through a computer connected to the panel's Ethernet port. Use a crossover cable if the computer is not auto-negotiating capable. Otherwise, use a straight CAT 5 cable or better for this connection.

1. Using an internet browser, navigate to the first panel that will be added to the network using the system default IP address (<http://192.168.1.30/>).
2. Input the default user name (operator) and passcode (0000) and click OK.
3. The Online Start Page will open. Click the LOGIN area in the upper left corner and input the default level 3 passcode (3333) and click OK to enable programming.
4. In the lefthand column, click on Networking.
 - Under Panel Networking Settings next to Networking card installed, click on the box to add a checkmark.
 - Under Panel Networking Settings under Port Supervision, for any networking card ports (1, 2, or 3) that have a connector installed, click on the box by that port to add a checkmark.
 - Under Topology, click the circle next to Class A or Class B.

**NOTICE!**

In operation, a network with a peer-to-peer connector in an unsupervised port will report intermittent "missing panel" troubles. If this occurs, ensure that each port into which a connector is inserted is programmed as supervised.

Any ports not used for panel-to-panel communication must not be supervised as this could cause problems with other communications such as programming or reporting.

5. In the lefthand column click on Site Data.
 - Under Banner, IP and ID, enter and record a unique Panel ID from 1 to 64 for the Panel ID.
 - Next to Panel IP Address, assign a unique panel IP address.
 - Next to Gateway, input and record the same Gateway (default = 192.168.1.1) for each panel to be added to the network.
 - Next to Netmask, input and record the same Subnet Mask (default = 255.255.255.0) for each panel to be added to the network.
 - Next to Fire network ID, enter and record the same Fire Network ID for each panel to be added to the network (the default, 01, can be used for each panel).
6. Repeat steps 1 through 6 on each panel that will be connected to the network.
7. When all of the panels to be included in the network have been individually programmed, add them to the network by following either or .

4.1.3 Off-line programming the individual panels for networking

**NOTICE!**

The off-line configuration tool (supplied on the panel CD) allows you to create programs for individual panels for later uploading to the panel on-site.

1. To access the off-line configuration tool:
 - Put the CD that is delivered with the panel into your computer's CD drive.
 - Create a folder on your computer's home drive to hold the Off-line Tool files.
 - Extract all the files from the Off-line_Tool.zip folder to your computer's home drive.
 - If you are running Internet Explorer 7 as a web browser on your computer, you must configure its security settings by opening the F01U134015-01_FPA-1000-UL_IE7_Security_TSN.pdf file and following the instructions.
 - Double-click the startpage.hta file to open the Start Page.
 - On the Start Page, click Browse. Doubleclick on the FPA-1000Default.xml file to select it, and then click Load Selected to load that file for editing.

**NOTICE!**

If you have already saved new configuration files, you can browse to any of those saved files and open it for editing.

2. In the lefthand column next to Networking, click on Configure.
 - Under Panel Networking Settings next to Networking card installed, click on the box to add a checkmark.
 - Under Panel Networking Settings under Port Supervision, for any networking card ports (1, 2, or 3) that have a connector installed, click on the box by that port to add a checkmark.
 - Under Topology, click the circle next to Class A or Class B.
3. In the lefthand column next to Site Data, click on Configure.
 - Under Banner, IP and ID, enter and record a unique Panel ID from 1 to 64 for the Panel ID.
 - Next to Panel IP Address, assign a unique panel IP address.
 - Next to Gateway, input and record the same Gateway (default = 192.168.1.1) for each panel to be added to the network.
 - Next to Netmask, input and record the same Subnet Mask (default = 255.255.255.0) for each panel to be added to the network.
 - Next to Fire network ID, enter and record the same Fire Network ID for each panel to be added to the network (the default, 01, can be used for each panel).

**NOTICE!**

In operation, a network with a peer-to-peer connector in an unsupervised port will report intermittent "missing panel" troubles. If this occurs, ensure that each port into which a connector is inserted is programmed as supervised.

Any ports not used for panel-to-panel communication must not be supervised as this could cause problems with other communications such as programming or reporting.

4. At the top of the window, click OK to record your changes.
5. In the text box next to Browse, change the filename to whatever you want it to be and click on Save to save the configuration to your home drive.
6. Repeat steps 1 through 5 for each panel that will be connected to the network.

7. When all of the panels to be included in the network have been individually programmed, add them to the network by following .

4.2 Programming the Network

4.2.1 Keypad Network Programming

1. From the panel keypad, press the ENTER [↵] key and navigate to 6-PROGRAMMING (enter the level 3 passcode, default = 3333), 8-NETWORKING, 3-PANEL MANAGEMENT.
2. Select 1-ADD A PANEL.
3. Enter a Panel ID for one of the panels to be networked and press the ENTER key.
4. Repeat step 3 until all of the panels have been added.
5. Press the ESC key five times to escape from keypad programming and return to the Main Menu. The panel will automatically reset and the programmed networking information will automatically be sent network wide.

4.2.2 Browser-based Configuration Tool Network Programming

1. Connect a computer to the panel's Ethernet port.



NOTICE!

Use a crossover cable if the computer is not auto-negotiating capable. Otherwise, use a straight CAT 5 cable or better.

2. Using an internet browser, enter the IP address of one of the panels that will be added to the network ([http://"enter IP address here/"](http://)) to navigate to that panel.
3. Input the default username (operator) and passcode (0000) and click OK.
4. The Online Start Page will open. Click the LOGIN area in the upper left corner and input the default level 3 passcode (3333) and click OK to enable programming.
5. In the lefthand column, click on Networking.
 - Under Panel List, enter the IP address of a panel to be added to the network.
 - Click Add
6. Repeat step 5 for each panel on the network.
7. At the upper left of the window, click on either Logoff or Implement configuration. The display will prompt that changes to the configuration have been made and ask if you want to logoff or implement the changes. Choosing Yes to logoff or implement the changes will save the new configuration and initiate a system reset. During the reset, the new configuration information will be sent to all panels on the network.

4.2.3 Off-line Configuration Tool Network Programming

1. Connect a computer to the panel's Ethernet port.



NOTICE!

Use a crossover cable if the computer is not auto-negotiating capable. Otherwise, use a straight CAT 5 cable or better.

2. Using an internet browser, enter the IP address of one of the panels that will be added to the network ([http://"enter IP address here/"](http://)) to navigate to that panel.
3. Input the default username (operator) and passcode (0000) and click OK.
4. The Online Start Page will open. Click the LOGIN area in the upper left corner and input the default level 3 passcode (3333) and click OK to enable programming.

5. Under Configuration:
 - click the checkbox next to Upload configuration (PC_> FPA-1000).
 - Click Browse, navigate to your computer's home drive, and click on the configuration file that you prepared for the panel to which you are connected.
 - When the path displays in the textbox next to Browse, click Upload.
6. When the display indicates, the upload is completed, disconnect your computer from the panel.
7. Repeat the process for each panel on the network.

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