

Honeywell

MAXPRO Intrusion Series

Integrated Security Systems

Installation and Setup Guide

800-23044 Rev. A draft_11

August 2020

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Document Conventions

The following typographic conventions are used in this document:

Convention	Description
Bold	Used to denote: emphasis. Used for names of menus, menu options, toolbar buttons...
<i>Italic</i>	Used to denote references to other parts of this document or other documents. Used for the result of an action.

The following icons are used in this document:

Icon	Description
	Note. This icon indicates information of special interest that will help the reader make full use of the product, optimise performance, etc. Failure to read the note will not result in physical harm to the reader, or damage to equipment or data.
	Caution! This icon indicates danger to equipment. The danger can be loss of data, physical damage to the equipment, or permanent corruption of configuration details.
	Warning! This icon indicates danger of physical harm to the reader. Not following instructions may lead to death or permanent injury.
	Warning! This icon indicates danger of electric shock. This may lead to death or permanent injury.
UL	Indicates information for UL compliant installations.

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1 About this Document

1.1 Scope

This document provides full instructions for installing the hardware and for initial programming of a MAXPRO Intrusion Control Panel and its associated peripherals.

You can find the full programming information in the help file within the MAXPRO Cloud configuration tool, and in the *MAXPRO Cloud Configuration Guide* (doc. no. 800-24096).

This Installation and Setup Guide covers the following topics:

- The installation of the MAXPRO Intrusion (MPI) hardware:
 - Cabinet for Control Panel or Remote Power Supply
 - MPI Control Panel
 - MPI peripherals: Keypads, Remote Power Supply, Door Control Module, Relay Module, and Zone Expander.
 - LTE module
 - V-Plex devices.
- Summary information for configuration in MAXPRO Cloud
- Testing and commissioning, hand-over to the customer
- Technical specifications of all MPI hardware
- Agency information.



Caution!

For instructions on maintaining compliance with UL and ULC standards, see *Agency Statements* on page 176.

This Installation and Setup Guide does not cover:

- Full configuration instructions for MAXPRO Cloud. For details, see the *MAXPRO Cloud Configuration Guide* (doc. no. 800-24096).
- Cybersecurity of the MAXPRO Intrusion installation. For details, see the *MAXPRO Intrusion Security Manual* (doc. no. 800-25507).
- The daily usage of the MAXPRO Intrusion system. For details, see the *MAXPRO Intrusion User Guide* (doc. no. 800-23041).

1.2 Audience

This Installation and Setup Guide is primarily intended for installers of the MAXPRO Intrusion systems.

1.3 More Info

You can find the latest versions of this document and any referenced document on the Honeywell support site www.mywebtech.com, or on the MAXPRO Intrusion Support pages. For a list of technical literature, see *Parts List* on page 183.

Need a quick link to information for your device? Scan the QR code on the info card of the device, and it will take you to the appropriate page with Installation Guides and other information:



2 Introduction

2.1 The MAXPRO Intrusion Solution

The MAXPRO® Intrusion (MPI) Series Control Panels provide integrated intrusion and access control functionality for applications ranging from small, standalone sites to large multi-site projects. The system is configured through MAXPRO® Cloud and can be managed by the end customer using the MAXPRO Cloud web and mobile apps, depending on the user's authority level within the control panel.

You need to set up a dealer account within MAXPRO Cloud before installing a MAXPRO Intrusion system. See www.maxprocloud.com for more details.

This document covers the following control panel models:

- MPIP2100U control panels
- MPIP3000U control panels.

2.2 System Features



Note

All references in this manual for number of inputs, outputs, areas, etc., use the MPIP3000U Control Panel features. The table further below lists the differences between the various control panels.

2.2.1 Overview and Panel Model Comparison

The MAXPRO Intrusion Series Control Panels provide the following features:

- Touch screen keypad control with either PIN or card user login
- Selectable zone supervision styles and EOL resistor values
- Access control with integrated operation of false alarm prevention
- Hardwired zone expansion with V-Plex sensors and IB2 bus modules
- Supervision of all bus-connected devices, auxiliary outputs, alarm sounders, and communicators
- Programmable relays and trigger outputs
- Schedule and event based automated operation including auto-arming/disarming
- Flexible Permission Groups for multi-site intrusion and access applications
- Flexible multi-site system management

- Web and mobile applications available
- Integrates with MAXPRO Cloud video devices
- On-board IP for connection to MAXPRO Cloud, central station reporting, and third party integration.
- Optional digital cellular communicator (4G/LTE). Can be used for single or dual path reporting.
- Remote diagnostics for faster trouble resolution.

The table below compares all current MPI Control Panel models.

Table 1: Control Panel Model Comparison

Feature	MPIP2100U	MPIP3000U
Inputs (Zones)		
Max. inputs	150	300
On-board inputs (total) ¹	10	10
On-board inputs suited for 2-wire smoke	2	2
Outputs		
Max. outputs	100	200
On-board trigger outputs	4	4
On-board relay outputs	1	2
Auxiliary power outputs (12 VDC)	1	2
Monitored siren output	1	2
Siren power output (12 VDC)	1	1
Loudspeaker driver for internal siren	No	No
Areas and Doors		
Areas	30	60
Doors	30	60
Users		
Users	2,000	5,000
Permission Groups	50	100
Events Log		
Intrusion	3,000	5,000

¹ The total number of on-board inputs includes the normal inputs and the inputs that are suitable for 2-wire smoke devices. The inputs that are suitable for 2-wire smoke devices can also be used as normal inputs.

Feature	MPIP2100U	MPIP3000U
Access	10,000	10,000
Programming		
Schedules	50	100
Holidays (per year)	40	40
Controller rules	50	100
Bus Network		
On-board IB2 data bus lines	1	2
On-board V-Plex sensor bus lines	1	2
Power Supply		
Max. constant current	3.0 A	3.0 A
Battery charging capacity ¹	36 Ah	36 Ah
Communication Paths		
IP/Ethernet	1 on board	1 on board
Radio communication (4G/LTE)	Optional	Optional
Central Station Signalling Protocols		
Contact ID		
SIA		
AlarmNet via AlarmNet services		

2.2.2 Inputs and Output

- Provides **10 on-board hardwire zones**.
- Supports up to **16 two-wire smoke detectors** on zones 9 and 10 (32 in total).
- Four-wire smoke detector reset through use of on-board relay.
- Low-voltage trigger outputs.
- Outputs can be programmed to activate in response to system events (alarm condition), or at a specific time of day, or manually.
- Provides up to three **emergency keys** on the keypads (configurable per area).
- Battery sensing** hardware that monitors two batteries independently and can sense when either battery voltage is too low. Prevents deep discharge from occurring.

¹With the MPI medium-sized cabinet (MPIBXM35), you can use a battery capacity of up to 18 Ah. If you need more battery capacity, you need to install a second tamper-protected cabinet with the second battery.

- System expansion is available via V-Plex and IB2 bus:
 - Zone expansion is possible via V-Plex sensors or zone expanders connected to the IB2 bus.
 - Output expansion is possible via V-Plex devices or relay modules connected to the IB2 bus.

2.2.3 IB2 Bus for Expansion Modules

The Intellibus 2 (IB2) bus is the main 4-wire communication bus on which keypads, relay modules, zone expanders, and other peripheral devices are connected to the system. IB2 characteristics include:

- Guaranteed performance of up to **46 IB2 bus devices** per bus.
- Provides free wiring topology (chain, star, or spur configuration).
- Does not require end-of-line resistors.
- Unique device IDs embedded within each device for easy enrolling on the system.
- Each IB2 bus device is individually supervised.
- Easy device swapping feature from MAXPRO Cloud.

For an overview of compatible IB2 devices, see *Parts List* on page 183.

2.2.4 V-Plex Bus for Individual I/O

V-Plex is a two-wire addressable multiplex loop that allows V-Plex sensors and various V-Plex zone expanders to be connected and individually supervised by the system. In addition, some V-Plex sensors have the ability to send special signals to the control panel for special conditions, such as masking of the PIR. Characteristics of the V-Plex bus include:

- Provides 128 mA current on each loop.
- Supports a maximum of 120 devices.

For V-Plex smart PIRs, you can enable the Smart Contact function. This allows the PIR to detect a mask condition in the disarmed state.

For an overview of compatible V-Plex devices, see *Parts List* on page 183.

2.2.5 Alarm Notification and Communication to the Alarm Receiving Center

For alarm notification, the MPI control panels provide:

- Connections for sounders. For details, see *Wiring Alarm Sounders* on page 45.

- An Alarm Transmission System (ATS) using the on-board Ethernet connection or the optional digital cellular radio (4G/LTE module). For a list of events that the system can transmit, see *Events* on page 147.

The system can communicate with the alarm receiving center (ARC) via the MAXPRO Receiver software package, via other receivers compatible with Honeywell ISOM protocol, or via the AlarmNet service (North America only).

2.2.6 Configuration

MAXPRO Cloud for system configuration and management. The system is designed to connect automatically to MAXPRO Cloud on start-up. The system requires an internet connection via the Ethernet network or via the 4G/LTE module.

2.2.7 Areas (Partitioning)

- Provides control of up to 60 separate areas independently, each functioning as if it had its own separate control
- Provides a **Common Lobby area**, which can be programmed to arm automatically when the last area is armed, and to disarm when the first area is disarmed.
- You configure each keypad with a home area, but you can configure it to annunciate alarms from neighbouring areas as well.

2.2.8 Access Control

- Supports up to 60¹ doors.
- Supports up to 5,000 access cards.
- Provides up to 100 access/intrusion permission groups.
- Automatic blocking of access if the area behind the door is armed.
- Allows disarm-and-access at the door reader for users with disarming rights.
- Stores access control events in the event log.

2.2.9 Scheduling

- Can automate system functions, such as access control periods, arming, disarming, and activation of outputs (e.g., lights).
- Provides up to 100 schedules.

UL Automatic arming is not allowed in UL installations.

¹ The actual number is also limited by the number of devices that can be connected to the IB2 bus. An installer can choose any mix of devices. The system guarantees performance of up to 46 devices per bus.

2.2.10 Event Log

The event log is available on the keypad and in MAXPRO Cloud. For an overview of the events, see *Events* on page 147.

The system stores the events log in the control panel memory. You cannot delete the events log.

The system copies the required events into separate tables. You can view the content of these tables using the Export Log feature in MAXPRO Cloud. This feature is available from the control panel's **Overview** page:

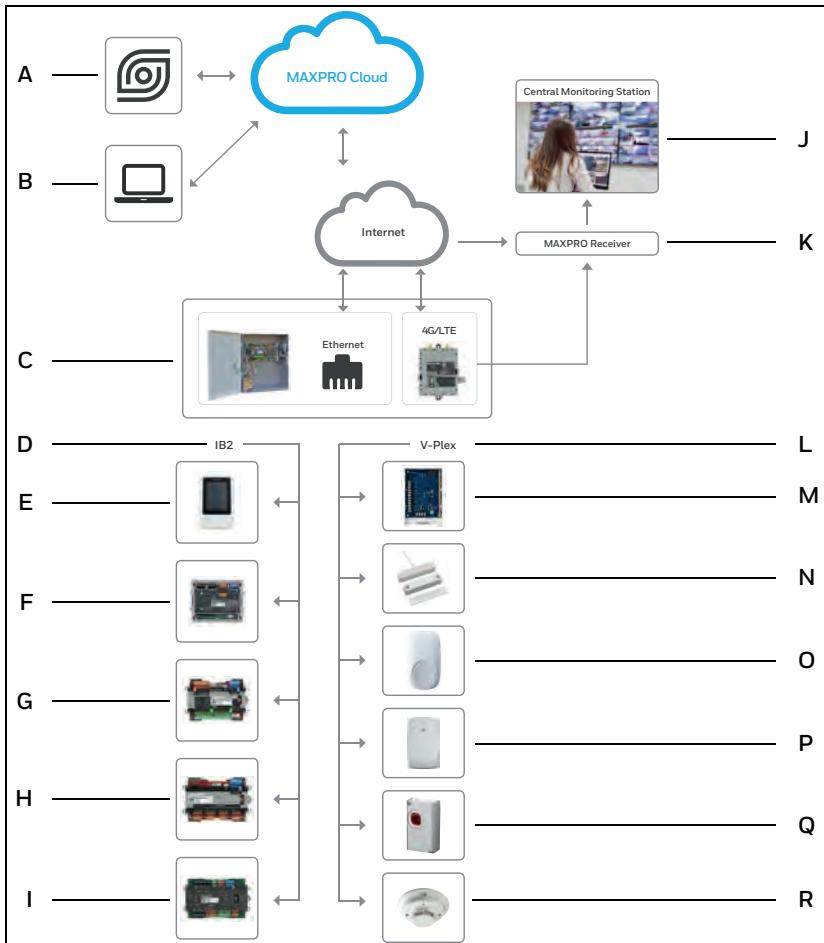
- For mandatory intrusion and hold-up events, export **BURG EVENT LOG**.
- For communication events, export **SPT LOG**.

The system retains a minimum of 1500 events for intrusion and hold-up events, and a minimum of 1000 events for communication events. Due to buffering there will often be more events in the exported file.

2.2.11 Indications

MAXPRO Intrusion provides indications such as messages, beeps and other sounds on the keypad and sounders. The system displays or annunciates the indication as the initiating event occurs.

2.3 General Architecture



A	MAXPRO Cloud mobile app
B	MAXPRO Cloud web app
C	MAXPRO Intrusion Control Panel in cabinet with built-in Ethernet and optional 4G/LTE module. IB2 modules can be stacked in the cabinet for saving space and quick connectivity. For details, see <i>About the Cabinet</i> on page 25.
D	IB2 bus with IB2 devices. The system guarantees performance of up to 46 IB2 devices per IB2 bus. The MPIP3000 series supports two IB2 buses.

E	MAXPRO Intrusion keypad
F	MAXPRO Intrusion Remote Power Supply. The Remote Power Supply needs to be installed in a cabinet.
G	MAXPRO Intrusion Zone Expander
H	MAXPRO Intrusion Relay Module
I	MAXPRO Intrusion Door Control Module
J	Central Monitoring Station
K	MAXPRO Receiver software
L	V-Plex loop with V-Plex devices. Not all V-Plex devices may be available in all regions. Contact your local Honeywell Intrusion Sales Representative for more information. The MPIP3000 series supports two V-Plex loops.
M	V-Plex I/O expansion
N	V-Plex door/window contacts
O	V-Plex motion detection
P	V-Plex glass break detection
Q	V-Plex holdup devices
R	V-Plex fire devices

3 Installation

This chapter describes how to mount and wire the MPI Control Panel.

3.1 Installation and Setup – General Workflows

Installing a brand-new system or changing an existing system requires slightly different steps. Both procedures are explained in the sections below.

3.1.1 Initial Installation and Setup

The recommended workflow for the **initial** installation and setup of an MPI system requires the following steps:

Step	For details, see...
1. Mounting the cabinet that houses the control panel	<i>Mounting the Cabinet</i> on page 29.
2. Installing the control panel in the cabinet.	<i>Installing the Control Panel</i> on page 32.
3. Wiring the control panel: tamper switches, network communication (wired and cellular), inputs (zones) and outputs (triggers), and alarm sounders.	<i>Overview of Control Panel Connectors</i> on page 33 and following, until <i>Wiring Outputs</i> on page 48.
4. Installing an MPI Keypad on the IB2 bus. Each control panel requires at least one keypad.	<i>MPI Keypads MPIKTSMF, MPIKTSPRX</i> on page 59.
5. Wiring additional devices on the IB2 bus and/or the V-Plex loops.	<i>Installing IB2 Bus Devices</i> on page 58. <i>Installing V-Plex Devices</i> on page 101.

Step	For details, see...
6. Providing power to the system: AC power supply and backup batteries. This includes connecting the AC power supply to the cabinet's power adapter, calculating the control panel load and determining the corresponding required backup battery capacity, and installing the batteries.	<p data-bbox="507 148 878 187"><i>Powering the System</i> on page 106.</p> <div data-bbox="507 213 878 350" style="border: 1px solid blue; padding: 10px;"><p data-bbox="529 230 560 270"></p><p data-bbox="592 230 645 254">Note</p><p data-bbox="592 270 845 328">You must install at least 1 battery.</p></div>
7. Registering the control panel in MAXPRO Cloud using the panel's MAC address.	<p data-bbox="507 453 878 523"><i>Connecting to MAXPRO Cloud</i> on page 119.</p>
8. Applying power to the system (switching on the AC power supply).	
9. Configuring the control panel, and registering and configuring other devices in MAXPRO Cloud.	<p data-bbox="507 659 878 729"><i>Configuration in MAXPRO Cloud</i> on page 124.</p>
10. Changing the default user codes for the keypads (Installer and Master PIN code).	<p data-bbox="507 762 782 786"><i>MAXPRO Cloud online help</i></p>
11. Testing and commissioning the system.	<p data-bbox="507 863 824 917"><i>Testing and Commissioning</i> on page 142.</p>

**Caution!**

To get the system up and running, it is recommended to install the control panel in the cabinet, connect all peripherals, and register the panel in MAXPRO Cloud **before** finally powering the system.

**Caution!**

Use cable ties to bundle and fix wiring. The cabinet, the device's individual enclosures, and the PCB holders all have various attachments point for this purpose.

3.1.2 Updating or Expanding an Existing Installation

Adding or replacing modules in an existing installation requires the following steps:

Step	For details, see...
1. The installer logs on to MAXPRO Cloud and switches to Installer Mode. This will prevent trouble events going to the central monitoring station during maintenance work.	<i>MAXPRO Cloud online help</i>
2. The customer grants the installer access to the system.	<i>MAXPRO Intrusion User Guide</i> (doc. no. 800-23041).
3. The installer shuts down the control panel using the SHUTDOWN button. This makes sure that the system can save all necessary data and statuses in the flash memory. It disables the inputs and outputs, but does not remove power (from the AC power supply or the batteries).	<i>Shutting Down the Panel Securely</i> on page 122.
4. The installer adds, removes, or replaces the required modules.	For swapping devices, see <i>Swapping Devices</i> on page 24.
5. The installer restarts the control panel by pressing the SHUTDOWN button.	
6. The installer registers and configures the new peripheral devices in MAXPRO Cloud.	<i>Configuration in MAXPRO Cloud</i> on page 124.
7. The installer tests and commissions the system.	<i>Testing and Commissioning</i> on page 142.

UL When making changes to an existing system, there must be someone **present on site for testing** when powering up the system again or downloading configurations. Never change any configuration settings or upload firmware unless someone is there to test.

3.1.3 Swapping Devices

When swapping devices, the system can remember the settings of the old device and immediately apply them to the new device.



Note

You can only swap **identical devices**. The new device must be on the same data bus as the old one. If not, the system will give a mismatch error when trying to swap the device in MAXPRO Cloud.

To swap a device for an identical one, proceed as follows:

1. Shut down the control panel using the SHUTDOWN button.
2. Swap the device: remove the old hardware and replace it by the new one.



Note

For quick and easy swapping, the coloured terminal blocks on all MPI devices are removable. You can leave the existing wiring in place, and just pull the terminal blocks upwards to detach them from the old device. When the new device is placed, plug the terminal blocks back on the new device.

3. Restart the panel.
4. In MAXPRO Cloud, go to the old device's page and click **Edit**.
5. Click **Replace Device**. For swapping the control panel, click **Replace Controller**.
6. Enter the unique identifier of the new device: the serial number for the device, or the MAC address for the panel.
7. Click **Confirm**.
8. Click **Save and Sync**.
9. Restart the panel.



Note

When swapping a control panel, check with the CMS to make sure that it can identify the new panel and receive its notifications.

3.2 Mounting the Cabinet

3.2.1 About the Cabinet

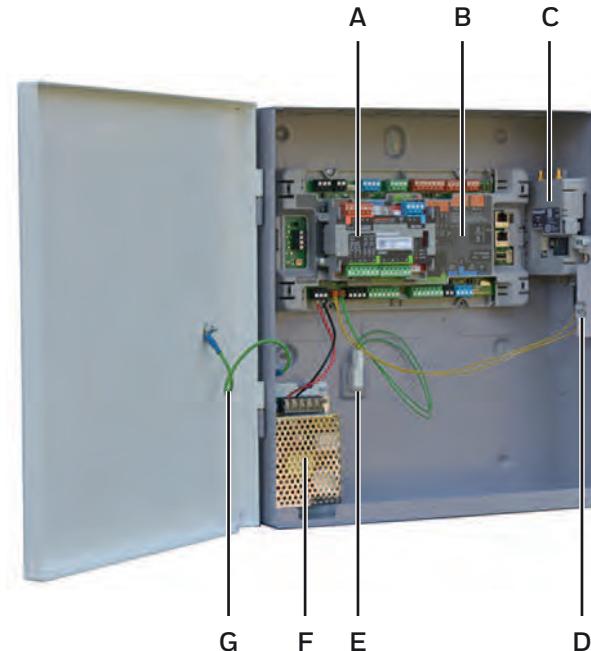
The MPI cabinet is suitable for housing an MPI Control Panel or a Remote Power Supply, and comes with a built-in AC power adapter and a door tamper switch. Furthermore, the cabinet can house up to two backup batteries (18 Ah max. capacity). The cabinet can contain:

- An MPI Control Panel + optionally:
 - one additional device on top of the main board holder: either a Zone Expander or a Relay Module.
 - an LTE module.
- An MPI Remote Power Supply (RPS) + optionally:
 - up to two additional devices; one to the right of the RPS and one on top of the RPS holder.

Suitable devices are: Door Control Modules, Zone Expanders, and Relay Modules.

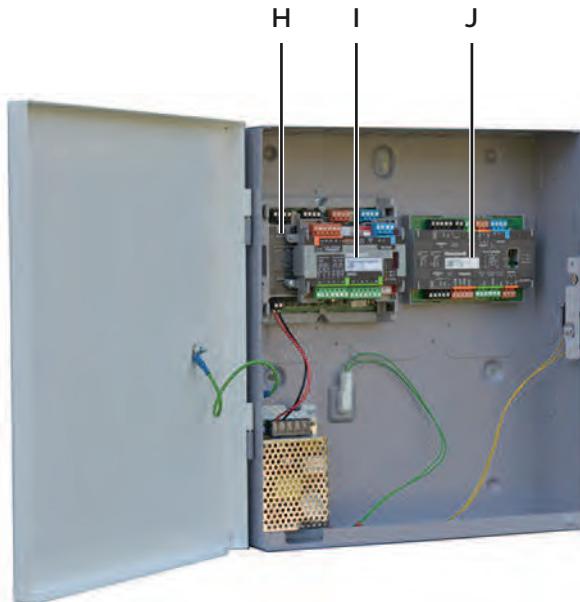
You can find a few example configurations below.

The image below shows a cabinet with a Control Panel (B), a Zone Expander (A) on top, and the 4G/LTE Module (C) on the right-hand side.



A	Zone Expander
B	Control Panel
C	4G/LTE Module
D	Door tamper switch
E	Optional: off-wall tamper switch (not included)
F	AC power adapter
G	Earth lead

The image below shows a cabinet with a Remote Power Supply (**H**), a Zone Expander (**I**) on top, and a Door Control Module (**C**) to the side.

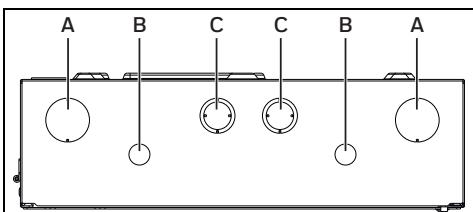


H	Remote Power Supply
I	Zone Expander
J	Door Control Module

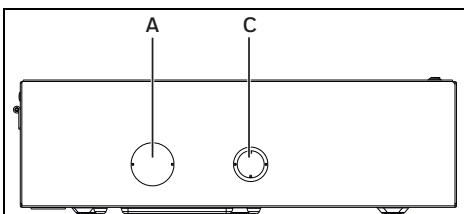
3.2.2 Cabinet Parts

The illustrations below show the parts of the cabinet.

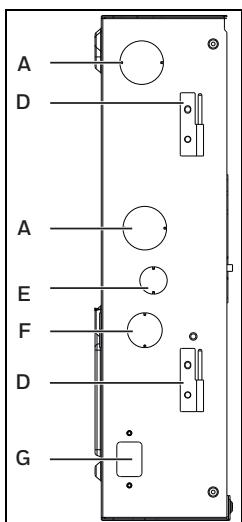
Top:



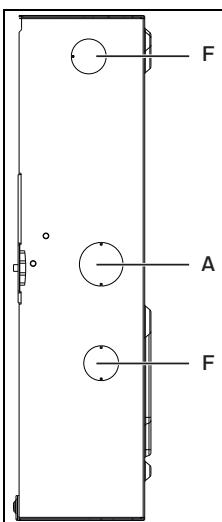
Bottom:

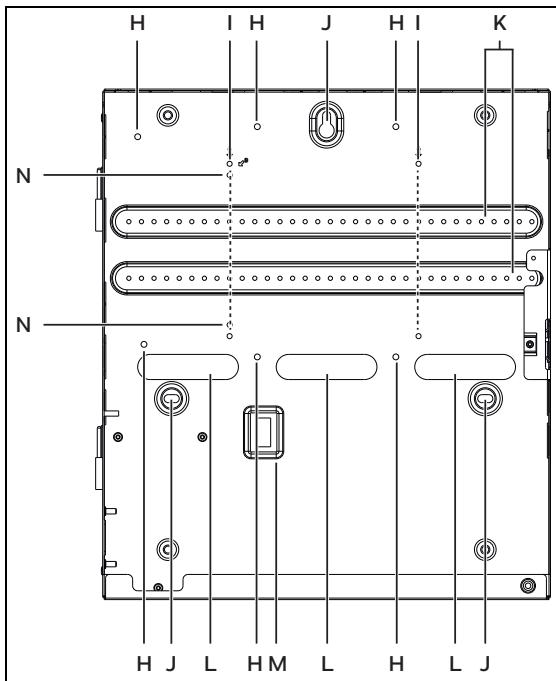


Left



Right



Back:

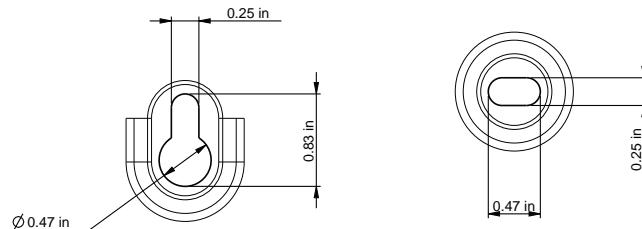
#	Purpose	Dimensions
A	Wiring knockout, extra large (x 6)	Diameter 1 3/8 in
B	Knockout for optional 4G/LTE module's antenna (x 2)	Diameter 11/16 in
C	Knockout with folded edge (x 3)	Diameter 1 1/8 in – 7/8 in
D	Hinge (x 2)	
E	Wiring knockout, small (x 1)	Diameter 7/8 in
F	Wiring knockout, large (x 3)	Diameter 1 1/8 in
G	AC power inlet (x 1)	1 1/16 in x 13/16 in
H	Attachment point for cable tie (x 6)	
I	Screw hole for mounting MPI Control Panel (x 2 above and x 2 below mounting rails)	Diameter 3/16 in
J	Screw hole for mounting cabinet on wall (x 3)	See detail illustration further below.
K	Mounting rails for MPI modules (x 2)	
L	Wiring knockout (x 3)	3 1/8 in x 13/16 in

#	Purpose	Dimensions
M	Knockout for optional off-wall tamper switch (x 1)	7/16 in x 7/8 in
N	Screw hole for mounting MPI Remote Power Supply (x 1 above and x 1 below mounting rails)	Diameter 3/16 in

**Caution!**

If you are using cable glands or blanking plugs, make sure they match the knockout/conduit size to provide accurate (cable) protection. If using non-metal materials, make sure they comply with UL 94 V-0.

Detailed dimensions of the screw holes for cabinet mounting are indicated below:



3.2.3 Mounting the Cabinet

**Warning!**

If mounting the cabinet higher than 2 m above the ground, take the necessary safety precautions to prevent personal injury.

To mount the cabinet, proceed as follows:

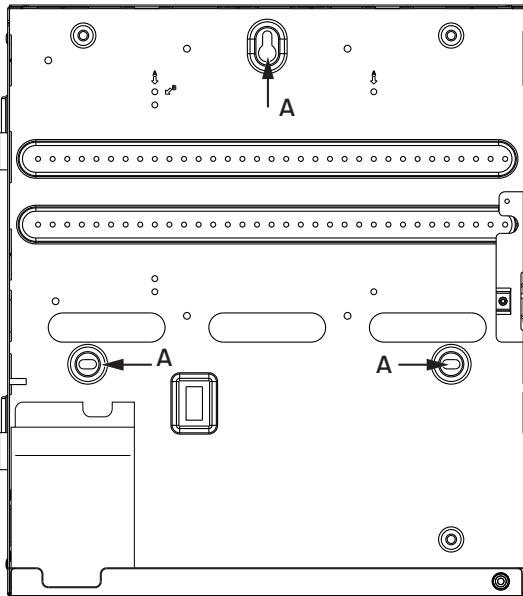
1. Find a place for the cabinet on a sturdy wall in a clean, dry area that is not readily accessible to the general public.
2. Remove the cabinet door by disconnecting the earth lead and sliding the door off its hinges.
3. Remove the metal knockouts for the wiring entries that you will be using. For an overview of the available wiring entries and their sizes, see *Cabinet Parts* on page 27.



Caution!

If you are using cable glands or blanking plugs, make sure they match the knockout/conduit size to provide accurate (cable) protection. If using non-metal materials, make sure they comply with UL 94 V-0.

4. On the wall, mark the positions of the 3 mounting screw holes (A).

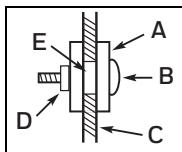


5. Drill holes for the mounting screws of the cabinet
6. Using three screws (not supplied), mount the cabinet to the wall.
7. After completing the installation, slide the cabinet door back on its hinges, and reconnect the earth lead.

3.2.4 Mercantile Premises Listing Guidelines

For compliance with the Mercantile Premises Listing, use the following guidelines:

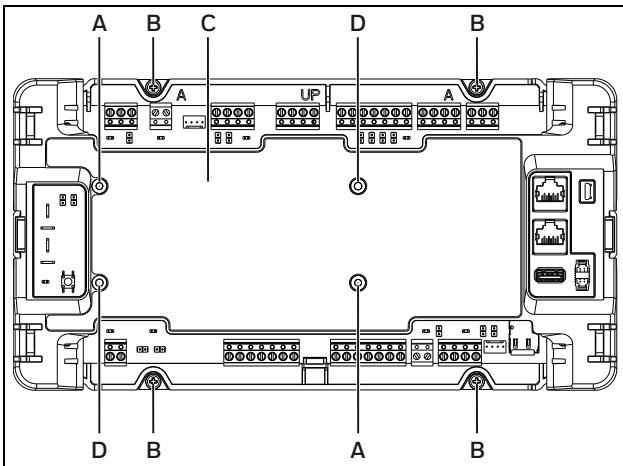
- The panel door must be supervised. Use the supplied door tamper switch and connect it to the T-LID terminal on the control panel.
- Use a bell with a tamper-protected housing such as the AB12M Bell/Box. The bell housing's tamper switch and inner tamper linings must be wired to the hardwire zones on the control panel.
- Assign the tamper's hardwire zone to a burglary area. Program the hardwire zone as Trouble by Day/Alarm by Night if only one burglary area is used. Program it as 24-Hour Audible Burglary if more than one burglary area is used.
- All wiring between the bell and panel must be run in conduit. Remaining wires do not need to be run in conduit.
- All wiring that is not run in conduit must exit from the knockout openings on the bottom or back of the cabinet.
- All unused knockouts must be plugged using disc plugs (washers) and carriage bolts. To plug an unused knockout opening, remove the knockout and install a pair of disc plugs and a carriage bolt as indicated in the diagram below.



A	Disc plugs (dimples in disc plugs must register inside the knockout opening)	D	Hex nut and washer
B	Carriage bolt	E	Knockout opening
C	Cabinet wall (outside)		

3.3 Installing the Control Panel

3.3.1 Panel Parts



A	Positioning pin (x 2) for stacked MPI module (optional).
B	Mounting screw holes (x 4)
C	Info card
D	Positioning pin with screw hole (x 2) for stacked MPI module (optional).

3.3.2 Mounting the Control Panel in the Cabinet



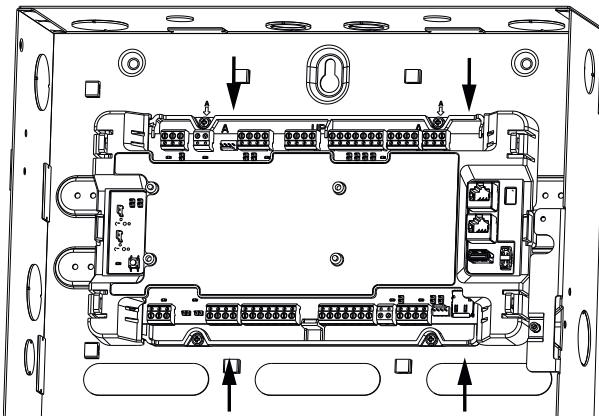
Warning!

High voltage is present in the cabinet's built-in AC power adapter!

To mount the control panel in the cabinet, proceed as follows:

1. Position the control panel over the screw holes in the cabinet (1 on page 28) and click it into position.

2. Secure the control panel to the mounting rails in the cabinet using the 4 screws supplied with the control panel



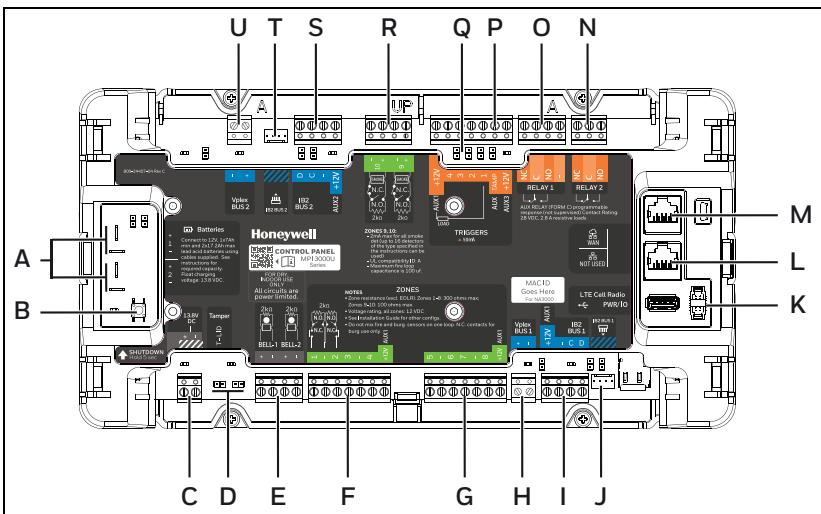
3.3.3 Options

You can mount a Zone Expander or Relay Module on top of the main circuit board holder. For details, see *Cabinet Mounting with Control Panel or Remote Power Supply* on page 96.

3.4 Overview of Control Panel Connectors

Below is a general overview of the connectors and terminals on the control panel. Detailed instructions are in the sections and chapters further below. The image below is for the MPIP3000 series. Not all connectors and terminals may be available on the MPIP2000 series.

UL You must run all cabling to the control panel in conduit.

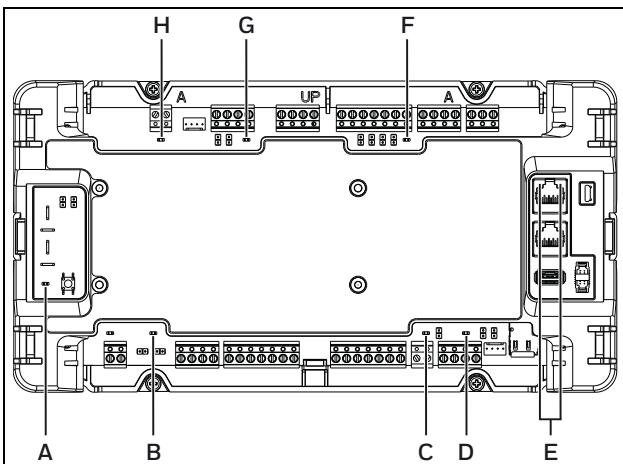


#	Item	Terminal or connector	Connect with
A	Batteries 1/2	+	+ terminal on backup battery 1/2
		-	- terminal on backup battery 1/2
B	SHUTDOWN	(button)	Press the SHUTDOWN button for 5 seconds to shut down the panel. For details, see <i>Shutting Down the Panel Securely</i> on page 122.
C	13.8 VDC	+	Input voltage: V+ terminal on cabinet's built-in AC power adapter
		-	Input voltage: V- terminal on cabinet's built-in AC power adapter
D	Tamper	T-LID	Cable from the cabinet's door tamper switch
E	BELL 1/2	+	+ terminal on supervised bell 1/2
		-	- terminal on supervised bell 1/2
			BELL 2 is only available on the MPIP3000 series.
F	Zones 1-4		For zones 1-4 (sensor contact inputs). For details, see <i>Wiring Inputs (Zones)</i> on page 39.
G	Zones 5-8		For zones 5-8 (sensor contact inputs). For details, see <i>Wiring Inputs (Zones)</i> on page 39.

#	Item	Terminal or connector	Connect with
H	Vplex BUS 1	+	V-Plex bus 1 +
		-	V-Plex bus 1 -
I	IB2 BUS 1	+12V AUX1	12 VDC supply terminal for devices connected to IB2 bus 1.
		-	0 VDC supply terminal for devices connected to IB2 bus 1.
		C	IB2 bus C
		D	IB2 bus D
J	IB2 bus 1	Quick connect plug for IB2 BUS 1 (can be used for module stacked on top of main board; quick connect cable is included).	
K	LTE Cell Radio	USB and PWR/IO	Connectors for the 4G/LTE module
L	For future use.		
M	Ethernet	WAN	Network with internet connection to the cloud.
N	Relay 2	NC	Normal Closed terminal, output relay 2
		C	Common terminal, output relay 2
		NO	Normal Open terminal, output relay 2
		Relay 2 is only available on the MPIP3000 series.	
O	Relay 1	NC	Normal Closed terminal, output relay 1
		C	Common terminal, output relay 1
		NO	Normal Open terminal, output relay 1
		-	Spare 0 VDC connector.
P	Triggers	For outputs. For details, see <i>Wiring Outputs</i> on page 48. Can also be used for a self-activating bell. For details, see <i>Installing a Self-Activating Bell (SAB)</i> on page 47.	
Q	Jumpers for low-voltage triggers. For details, see <i>Wiring Outputs</i> on page 48.		
R	Zones 9, 10	For zones (sensor contact inputs). Can be used for 2-wire smoke sensors or as standard burglary zones. For details, see <i>Wiring Inputs (Zones)</i> on page 39.	

#	Item	Terminal or connector	Connect with
S	IB2 BUS 2	+12V AUX2	12 VDC supply terminal for devices connected to IB2 bus 2
		-	0 VDC supply terminal for devices connected to IB2 bus 2
		C	IB2 bus C
		D	IB2 bus D
IB2 BUS 2 is only available on the MPIP3000 series.			
T	IB2 bus 2	Quick connect plug for IB2 BUS 2 (can be used for module stacked on top of main board; quick connect cable is included).	
Only available on the MPIP3000 series.			
U	Vplex BUS 2	+	V-Plex bus 2 +
		-	V-Plex bus 2 -
Vplex BUS 2 is only available on the MPIP3000 series.			

3.5 Overview of Control Panel LEDs



#	LED Colour	Description
A	Red	Shutdown: on when control panel is active and while shutting down; is off when panel has shut down.

#	LED Colour	Description
B	Green	Power input available on main board.
	Off	No power available on main board.
C	Green	V-Plex 1: loop OK.
	Off	V-Plex 1: loop shorted or data bus not running.
D	Green	AUX1/IB2 bus 1: power on AUX1 is available.
	Off	PTC for AUX1 is resetting, or other trouble on the bus.
E	Amber (left)	Ethernet amber LED (left): network connection is working.
	Green (right)	Ethernet green LED (right): flashes when the system is sending or receiving data over the network.
F	Green	AUX3: power on AUX3 is available.
	Off	PTC for AUX3 is resetting.
G	Green	AUX2/IB2 bus 2: power on AUX2 is available.
	Off	PTC for AUX2 is resetting, or other trouble on the bus.
	This LED is only available on the MPIP3000 series.	
H	Green	V-Plex 2: loop OK.
	Off	V-Plex 2: loop shorted or data bus not running.
	This LED is only available on the MPIP3000 series.	

3.6 Connecting the Cabinet Tamper Switches

The cabinet comes with a tamper switch in the cabinet door to prevent opening of the cabinet door. Use the included cable to connect the tamper switch to the control panel (**D** on page 34).

Optionally, there is a knockout available in the cabinet back that can be used to fit an additional tamper switch to prevent removal of the cabinet from the wall.

From	To Control Panel Terminal
Tamper switch in cabinet door	T-LID
Tamper switch in cabinet back (optional, not included)	T-WALL

The system will report tamper events on Area 1, the system area.

- If Area 1 is disarmed, the system will report the tamper event as a fault condition.
- If Area 1 is armed, the system will report the tamper event as an alarm.

You can bypass the tamper switches by fitting a jumper on the tamper inputs on the control panel.

**Caution!**

Bypassing tamper inputs may invalidate compliance with local regulations.

UL The cabinet wall tamper is optional for UL/ULC installations.

3.7 Network Connection (Ethernet)

3.7.1 Connecting to the Network

The Ethernet connection provides the main connection to internet for alarm signalling to the central monitoring station and communication with MAXPRO Cloud.

Connect the main board (M on page 34) to the network that provides the internet connection using a standard Ethernet cable. Clip both ferrite beads over the cable. Position them as close as possible to the Ethernet connector on the control panel.

- The amber LED is illuminated when the network connection is working.
- The green LED flashes when the system is sending or receiving data over the network.

Upon first start-up, MAXPRO Cloud will automatically try and connect to the control panel. By default, the system uses dynamic IP addressing (DHCP). If connection should fail, you can edit the settings using the keypad and set up the IP network manually. For details, see *Connecting to MAXPRO Cloud* on page 119. You can view the network settings in MAXPRO Cloud.

3.7.2 Securing the Network

Make sure that the routers and firewalls in the network are set up correctly: network address translation (port forwarding), firewall settings, etc. If not, the control panel will not be able to send alarm and other information to MAXPRO Cloud. The table below lists the port numbers and services that are required for communication:

Port No.	Protocol	Function
53	UDP	DNS server

Port No.	Protocol	Function
123	UDP	Used to synchronise time
443	TCP (TLS 1.2)	MAXPRO Cloud communication ISOM

**Caution!**

For a secure network connection, please follow instructions for the network and firewall as described in the *MAXPRO Intrusion Security Manual* (doc. no. 800-25507).

**Note**

Trouble and tampering signalling is disabled while the system is in Installer Mode. If you are on-line with the panel, but in Normal mode, all alarms report immediately. All other reports are delayed until you complete the session.

The keypads remain active when on-line with a control panel, but are inactive during actual uploading or downloading sessions. The keypads will indicate that the system is running in Installer Mode: the text **Installer service mode** appears in the top left corner of the display.

3.8 Wiring Inputs (Zones)

**Note**

This section applies to the zones on the MPI Control Panel and the connected IB2 bus devices. It is not applicable to V-Plex devices. For wiring V-Plex devices, see *Installing V-Plex Devices* on page 101.

3.8.1 Overview

The control panel offers 10 zones (sensor inputs). Zones 9 and 10 can be used for 2-wire smoke detectors.

3.8.2 Zone Wiring Types

Wire the required zones (**F**, **G**, and **R** on page 34) or terminate them using resistors.

**Note**

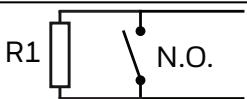
Any unused hardwire zones should always have a 2K resistor wired across the zone terminals to terminate them.

Possible wiring types are:

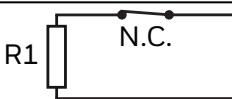
- Supervised EOLR (normal open or normal closed)
- Double balanced
- Triple balanced.

All types are described in detail further below.

3.8.2.1 Supervised EOLR



For a normally open circuit, you wire the sensor (N.O.) in parallel to the EOL resistor R1.



For a normally closed circuit, you wire the sensor (N.C.) in series with the EOL resistor R1.

	Message to the system	
State at input terminals	Standard US Burglary	Standard US Fire
Short circuit	Alarm	Alarm
R1 ohms	Ready	Ready
Open circuit	Alarm	Fire & CO trouble

Acceptable EOL values for R1 are defined in the table below. The electrical bands for each R1 value are indicated below:

Alarm	<	Ready < Alarm / Fire & CO trouble
R1 = 1K	500 Ω	1,500 Ω
R1 = 2K/2K2	1,000 Ω	3,000 Ω
R1 = 3K3	2,000 Ω	4,000 Ω
R1 = 5K6	2,800 Ω	8,400 Ω

For example, for $R1 = 2K$, the system will go in:

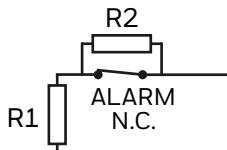
- Alarm state if the resistance falls below 1,000 ohm.
- Ready state if the resistance is between 1,000 and 3,000 ohms.
- Alarm/Fire & CO Trouble state if the resistance is above 3,000 ohms.



Note

- Supervised EOLR with 2K resistor is the default zone supervision configuration.
- Resistor tolerance 1% or better.
- Capable of up to 100 ohms resistance.

3.8.2.2 Double Balanced



State at input terminals	Message to the system
Short circuit	Tamper
$R1$ ohms	Ready
$R1 + R2$ ohms	Alarm
Open circuit	Tamper

Acceptable EOL values for $R1$ and $R2$ are defined in the table below. The electrical bands for each $R1/R2$ value are indicated below:

Ohm						
Tamper	<	Ready	<	Alarm	<	Tamper
$R1 = 1K$ $R2 = 1K$		800Ω		$1,500\Omega$		$12,000\Omega$
$R1 = 2K$ $R2 = 2K$		$1,500\Omega$		$3,000\Omega$		$15,000\Omega$
$R1 = 2K2$ $R2 = 4K7$		$1,500\Omega$		$3,000\Omega$		$15,000\Omega$
$R1 = 4K7$ $R2 = 4K7$		$4,000\Omega$		$6,000\Omega$		$12,000\Omega$

For example, for $R1 = R2 = 1K$, the system will go in:

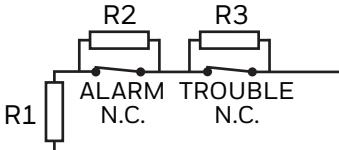
- Tamper state if the resistance falls below 800 ohms.
- Ready state if the resistance is between 800 and 1,500 ohms.
- Alarm state if the resistance is between 1,500 and 12,000 ohms.
- Tamper state if the resistance is above 12,000 ohms.



Note

- Resistor tolerance 1% or better.
- Capable of up to 100 ohms resistance.

3.8.2.3 Triple Balanced

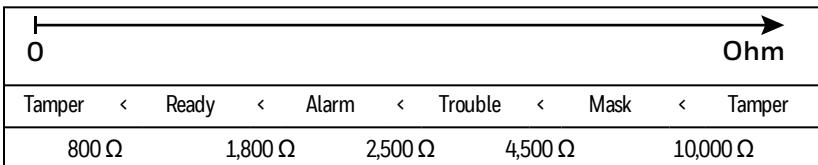


State at input terminals	Message to the system
Short circuit	Tamper
R1 ohms	Ready
R1 + R2 ohms	Alarm
R1 + R3 ohms	Trouble
R1 + R2 + R3 ohms	Mask condition (trouble when system is disarmed; alarm when system is armed)
Open circuit	Tamper

Acceptable values for R1, R2, and R3 are:

- $R1 = 1K$
- $R2 = 1K$
- $R3 = 3K$.

The electrical bands are indicated below:



With $R1 = R2 = 1K$ and $R3 = 3K$, the system will go in:

- Tamper state if the resistance falls below 800 ohms.
- Ready state if the resistance is between 800 and 1,800 ohms.
- Alarm state if the resistance is between 1,800 and 2,500 ohms.
- Trouble state if the resistance is between 2,500 and 4,500 ohms.
- Mask condition if the resistance is between 4,500 and 10,000 ohms.
- Tamper state if the resistance is above 10,000 ohms.



Note

- You cannot use triple balanced with the control panel's zones 9 and 10.
- Resistor tolerance 1% or better.
- Capable of up to 100 ohms resistance.

3.8.3 Using 2-Wire Smoke Detectors on Zone 9 and 10

3.8.3.1 About Zones 9 and 10

By default, zones 9 and 10 are configured as fire zones, using Supervised EOLR with a 2K resistor. You can change the resistor value if needed; the supervision type is fixed to Supervised EOLR.

Zones 9 and 10 can each support up to 16 two-wire smoke detectors if you configure them as fire zones. The zones provide 12 VDC power to the sensors (10–14.5 VDC).

You can also configure zones 9 and 10 with a security function for use with standard sensors. In this case, you can use EOLR or double-balanced supervision.

You cannot use triple-balanced supervision with zones 9 and 10.



Note

The alarm current on zones 9 and 10 supports only one smoke detector in the alarmed state.

Compatible 2-Wire Smoke Detectors

Detector type	Device model no.
Photoelectric smoke detector	System Sensor 2W-B
Photoelectric smoke detector with thermal sensor	System Sensor 2WT-B
Photoelectric smoke detector with thermal sensor and sounder	System Sensor 2WTA-B
Photoelectric smoke detector with thermal sensor and Form C relay	System Sensor 2WTR-B
Photoelectric smoke detector with heat sensor	System Sensor 2151T
Heat detector	System Sensor 5151



Note

Not all listed devices may be available in all regions. Contact your local Honeywell Intrusion Sales Representative for availability in your region.

Wiring Fire Zones

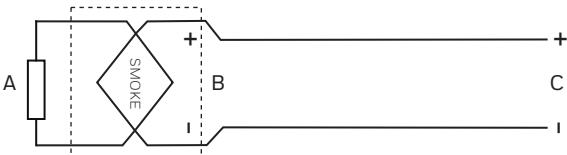


Caution!

You must use EOL resistors on fire zones when configured for use with smoke sensors, and across the loop wires of each zone at the last detector.

Do not use the – (negative) terminals on zones 9 and 10 for anything else than the zone wiring itself. They are not connected to the common ground.

Connect 2-wire smoke detectors across zone 9 or 10 terminals (+ and –) as shown below. Observe proper polarity when connecting the detectors. You must connect the EOL resistor across the loop wires at the last detector.



A = End of line resistor; **B** = 2-wire smoke detector; **C** = terminals of zone 9/10.

State at input terminals	Message to the system
Short circuit	Alarm
X ohms (EOLR value)	Ready
Open circuit	Trouble

3.9 Wiring Alarm Sounders

3.9.1 Overview

The following alarm sounder outputs are available on the control panel:

- Two outputs, BELL 1 and BELL 2, for 2-wire external sirens. For details, see *Installing Supervised External Sirens (2-Wire Sirens BELL1/BELL2)* on page 45.
- An output to a self-activating bell (SAB). For details, see *Installing a Self-Activating Bell (SAB)* on page 47.

3.9.2 Installing Supervised External Sirens (2-Wire Sirens BELL1/BELL2)

3.9.2.1 Features

The control panel provides a bell output, also called alarm output, for operating fire and burglary alarm notification appliances (E on page 34). The output is rated 12 VDC, 1.8 A max. (each).

The output has the following options (MAXPRO Cloud):

- Selectable for supervision.
- Selectable for confirmation of arming ding.
- Selectable for a timeout of 2–30 minutes.

UL Burglary bell circuits must be programmed for a timeout of 16 minutes or longer.

UL This control panel complies with National Fire Protection Association (NFPA) requirements for temporal 3 pulse sounding of fire notification appliances, and for temporal 4 pulse sounding for CO alarm signalling (on keypad only).

3.9.2.2 Alarm Output Supervision

When supervision is enabled, the control panel monitors the bell output wiring for open and short circuit faults while the output is inactive. The system provides a trouble indication when an open occurs; or when a short occurs between the Bell (+) and Bell (-) terminal wiring.

UL If supervising the bell output, only one device can be connected to the alarm output for UL and Fire installations.

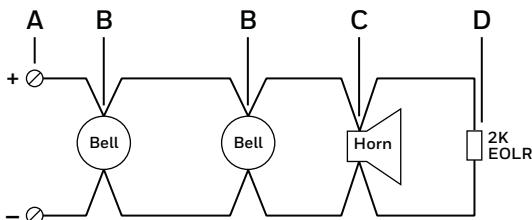
The control panel indicates the trouble condition regardless of whether the system is armed or disarmed. The zone displays on the keypads, reports to the event log, and transmits to the central monitoring station (if programmed) on Area 1. The Contact ID event code is 321, Bell Trouble. The trouble is cleared from the display by entering the user code.

3.9.2.3 Wiring the External Sirens

If you are not fitting a siren, simply connect an EOL resistor across the terminals (2K).

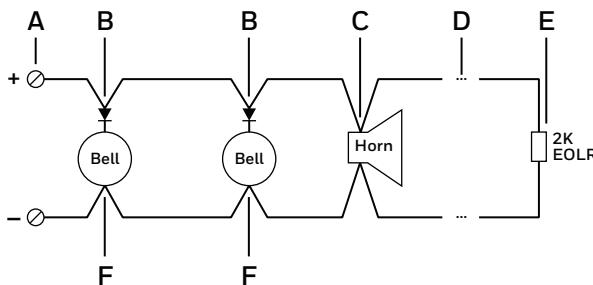
UL Use only UL Listed sounding devices for UL installations.

For polarized devices:



A	BELL terminals on Control Panel	C	Polarized fire indicating device
B	Polarized burglary indicating devices	D	Terminating end-of-line resistor

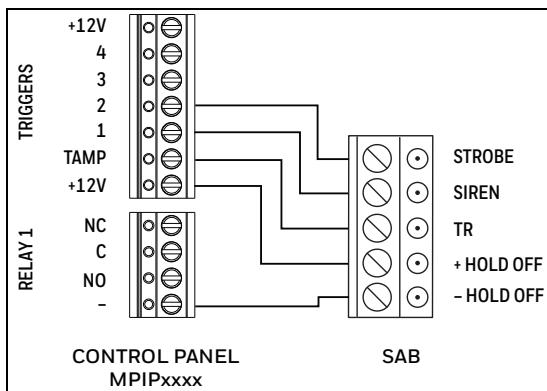
For non-polarized devices:



A	BELL terminals on Control Panel	D	To other devices
B	Polarizing diodes (must mount at indicating device)	E	Terminating end-of-line resistor
C	Polarized fire indicating device (e.g. horn)	F	Non-polarized burglary indicating devices (e.g. bells)

3.9.3 Installing a Self-Activating Bell (SAB)

The Triggers terminals (P on page 34) allow for connecting an external siren with tamper protection. The illustration below shows a typical 5-wire connection.



From control panel terminal	To SAB terminal
Trigger 2	Strobe
Trigger 1	Siren / Bell
TAMP (AUX)	Tamper return / TR
+12V (AUX3)	Hold off + / +Ve
-(on Relay 1 terminal block)	Hold off - / -Ve

The default settings in MAXPRO Cloud are suitable for this SAB configuration: **Trigger Output 1 = Exterior Siren**; and **Trigger Output 2 = Strobe**. If you have wired up the SAB as shown, you do not need to change the settings.

3.10 Wiring Outputs

The control panel offers the following outputs:

- Four programmable low-voltage **trigger outputs** (**P** on page 34): for arming LEDs, smoke detector power reset, etc.
Wire the **AUX1 +12V** to the output device, and then use one of the trigger terminals **1** to **4** to switch to ground. The outputs will switch to ground when activated.
Max. current is 50 mA for each trigger.
For outputs that require a known state (logical 0/1), you can customise the outputs to use a pull-up resistor by fitting jumpers on the outputs.
- Two **relay outputs**, 28 VDC, 2.8 A max., resistive loads (**N/O** on page 34).
Wire the relays between the common **C** terminal and the normal closed **NC** or normal open **NO** terminals.

4 Installing the LTE Module (MPICLTEU, MPICLTEC)

4.1 About the 4G/LTE Module

The MPI 4G/LTE Module is an optional communication module intended for use with the MPI Control Panel. It can provide a full backup path for the Ethernet connection, providing cellular radio communication for delivery of alarms and other messages to the central monitoring station.

The 4G/LTE Module comes with two sets of SMA cable + SMA isolator + SMA antenna to support receive diversity. For details, see *Receive Diversity Antenna System* on page 55.

Communication requires a valid data SIM card (2FF mini-SIM).



Note

For initial configuration of the 4G/LTE module, you need to connect the control panel over Ethernet to MAXPRO Cloud. After configuration, the control panel can communicate to MAXPRO Cloud over Ethernet or via the 4G/LTE module.



Caution!

Shut down the control panel and disconnect power, including the battery or batteries, **before** installing the module. Removing power from the module without properly shutting down the control panel, can result in **permanent damage to the module**. For the correct shutdown procedure, see *Disconnecting/Reconnecting* on page 55.

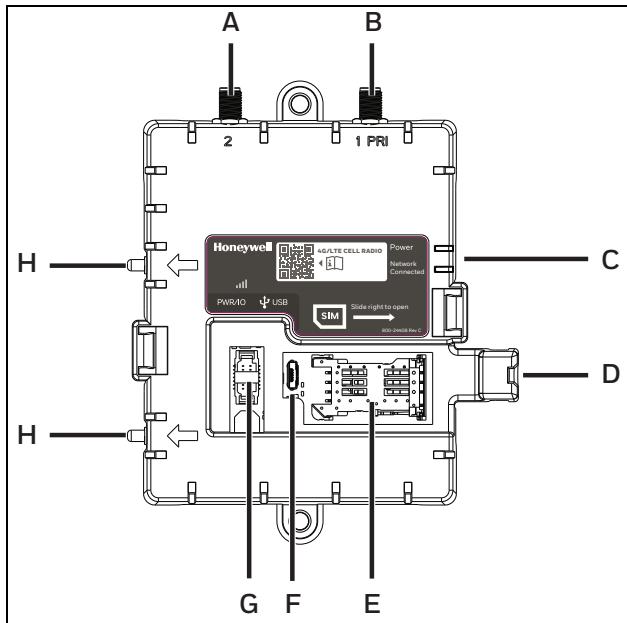


Caution!

ESD SENSITIVE DEVICE. To discharge any static build-up, briefly touch a chassis ground point before installing this module. Avoid performing this operation while standing on carpeted floor.

4.2 Installation

4.2.1 Parts Overview



A	Secondary antenna SMA connector (indicated as 2 on the device)
B	Primary antenna SMA connector (indicated as 1 PRI on the device)
C	Power and network LEDs. For details, see <i>LED Indicators</i> on page 56.
D	Mounting screw hole
E	SIM card holder (for 2FF mini-SIM)
F	Micro USB connector
G	I/O, Power & Ground cable connector
H	Alignment pegs (x 2)

4.2.2 Installing the SIM Card

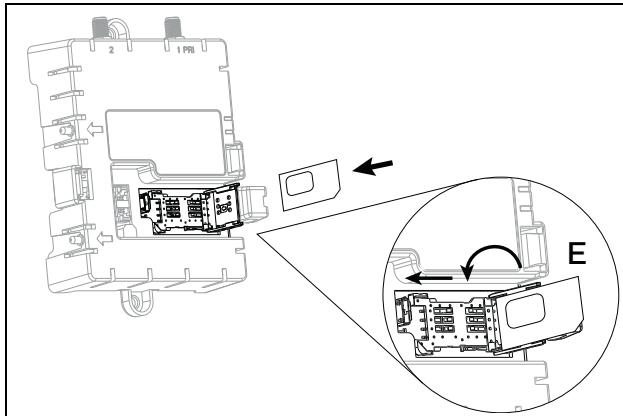


Note

For use with AlarmNet, the MPICLTEU and MPICLTEC models come with a pre-activated SIM card included.

To install the SIM card, proceed as follows:

1. On the LTE module, slide the SIM card holder door (**E**) to the right to unlock, then flip the door open.

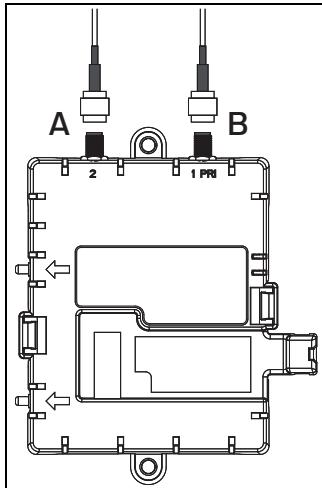


2. Slide the SIM card in the door as shown in the illustration.
3. Close the SIM card holder door and slide it to the left to lock.

4.2.3 Installing the SMA Cables on the 4G/LTE Module

To install the SMA cables on the 4G/LTE module, proceed as follows:

1. Thread the SMA cables onto the primary (**B**) and secondary (**A**) antenna connectors.

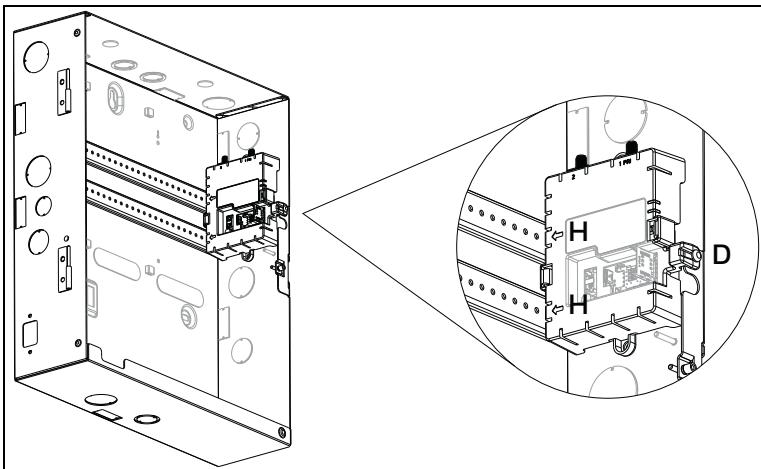


2. Securely tighten the connectors being careful not to overtighten.

4.2.4 Installing the 4G/LTE Module in the Cabinet

To install the 4G/LTE module in the cabinet, proceed as follows:

1. Insert the alignment pegs (**H**) in the cabinet mounting holes (second set from the right). Use the indicator arrows on the module housing as a guide. Note: For clarity, the control panel and the SMA cables in the illustration below have been omitted.



2. Fix the module in place using the screw (**D**).

4.2.5 Connecting to the MPI Control Panel

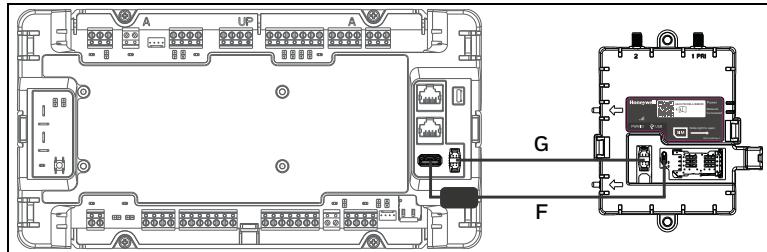
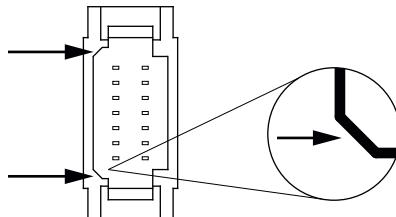
To connect the 4G/LTE module to the control panel, proceed as follows:

1. Connect the module's **PWR/IO** and **USB** connectors (**F** and **G**) to the MPI Control Panel using the included cables.



Caution!

Insert the plugs into the **PWR/IO** connectors very gently; do not apply any pressure if the plugs don't enter immediately. If you do apply pressure, you will bend the pins in the connectors. Make sure to align the chamfered corners of plug and connector correctly.

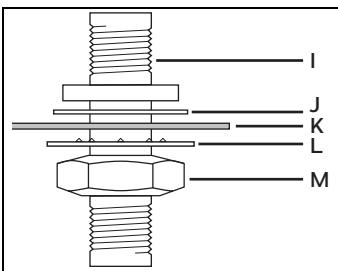


2. Clip the ferrite bead over the USB cable (**F**). Position it as close as possible to the USB port on the control panel.

4.2.6 Installing the SMA Isolators on the MPI Cabinet

To install the SMA isolators, proceed as follows:

1. Remove the antenna knockouts from the top of the MPI cabinet (**B** on page 27).
2. Place the flat washer (**J**) on top of the cabinet knockouts, then insert the SMA isolator (**I**) through the knockouts.



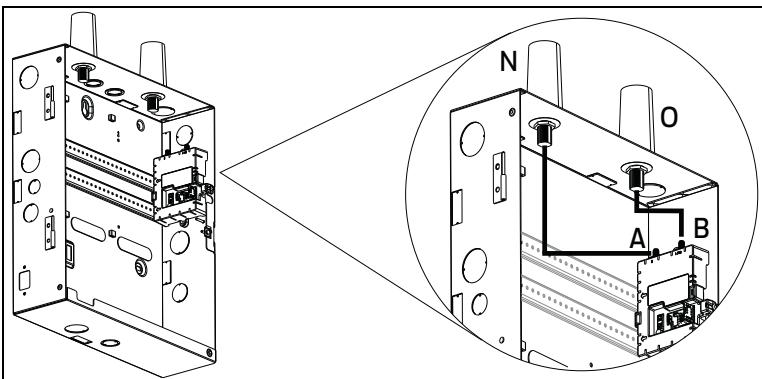
(I: SMA isolator; J: flat washer; K: cabinet wall; L: lock washer; M: nut)

3. On the inside of the cabinet: slide the lock washers (L) over the SMA isolators and fix in position using the nuts (M).

4.2.7 Connecting the Primary and Secondary Antennas

To connect the antennas, proceed as follows:

1. Mount the primary antenna (O) on the SMA isolator on the right-hand side of the MPI cabinet. Use an SMA cable to connect it to the primary connector (B) on the module.
2. Connect the secondary antenna (N) on the SMA isolator on the left-hand side of the MPI cabinet. Use an SMA cable to connect it to the secondary connector (A) on the module.



4.2.8 Configuration in MAXPRO Cloud

Log on to MAXPRO Cloud. Go to the appropriate customer, site, and control panel (= "controller" in MAXPRO Cloud). Click the **Communication Path** tab.

Click the **Edit** button (top right), and then click the **GSM Settings** switch to turn it on. Under **GSM Settings**, fill in the **Access Point Name (APN)** and – if required – the username and password from your provider. Click **Save**.

For more information on communication settings and transmission paths, and setup for usage with AlarmNet, see the *MAXPRO Cloud Configuration Guide* (doc. no. 800-24096).

4.3 Disconnecting/Reconnecting



Caution!

Removing power from the LTE module without properly shutting down the control panel can **result in permanent and irreparable damage** to the module. Always follow the procedure below if you need to disconnect/reconnect the module.

To disconnect the LTE module, proceed as follows:

1. On the control panel, press the SHUTDOWN button for 5 seconds.
2. Wait for the control panel to shut down completely (= the SHUTDOWN LED on the panel is off).
3. You can now disconnect the LTE module and remove any cables.

To reconnect the LTE module, proceed as follows:

1. Reconnect all cables carefully.
2. On the control panel, press the SHUTDOWN button once. The control panel will power up.

4.4 Receive Diversity Antenna System

The primary antenna is used for transmit and receive. The secondary antenna is the diversity antenna (receive only). The radio automatically determines and selects the receive path that provides the best Quality of Service (QoS).

Install the antennas depending on the reception requirements, using any of the options below. Always use both antennas.

- **Standard installation:** Use both the primary and secondary antennas, mounted on top of the MPI cabinet. Install the primary antenna on the right-hand side, and the secondary antenna on the left-hand side.
- **Option 1:** Use both primary and secondary antennas, mounted either remotely or on top of the MPI cabinet in any combination. If mounting remotely, use approved coax cables to connect the antennas to the LTE module. For details on cabling, see *Cable Type Requirements* on page 171.

To the Installer

MPICLTEU (US), MPICLTEC (Canada)

For mobile and fixed operating configurations, the antenna gain, including cable loss, must not exceed 2.15 dBi at 700 MHz/850 MHz/1700 MHz/1900 MHz as defined in 2.1091 for satisfying RF exposure compliance. Under no condition may an antenna gain be used that would exceed the 7W erp Part 22, the erp 3W Part 27, the 2W eirp Part 24 and the 1W eirp Part 27 power limits.

4.5 Swapping the SIM Card

If you need to change the SIM card in the LTE module, you must restart the control panel. If not, the new SIM card will not work.

To swap the SIM card in the LTE module, proceed as follows:

1. Swap the SIM card.
2. Restart the panel using the SHUTDOWN button. For details, see *Shutting Down the Panel Securely* on page 122.
3. Check the LTE module settings in MAXPRO Cloud, and test the communication.



Caution!

If you change the Access Point Name (APN) for the LTE module in MAXPRO Cloud (for example when changing providers), you have to restart the control panel for the changes to take effect.

4.6 LED Indicators

LED	Function
Power (green)	Device is powered.
Network Connected (yellow)	Network connection status: <ul style="list-style-type: none">• Short flash every 4 seconds: idle, normal state.• Short flash every 2 seconds: data transfer in progress.• Fast flash (0.5s on, 0.5s off): no network or connection issue.

4.7 RF Exposure

Warning

The antenna(s) used for this device must be installed to provide a separation distance of at least 7.8 inches (20 cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC and ISED multi-transmitter product procedures.

Exposition aux Fréquences Radio

Mise en garde

La/les antenne(s) utilisée(s) pour cet émetteur doit/doivent être installée(s) à une distance de séparation d'au moins 20 cm (7,8 pouces) de toute personne et ne pas être située(s) ni fonctionner parallèlement à tout autre transmetteur ou antenne, excepté en conformité avec les procédures de produit multi transmetteur FCC et ISED.

5 Installing IB2 Bus Devices

5.1 About IB2 Devices

The system guarantees performance of up to 46 devices per IB2 bus.

Practically, the actual number of devices you can use depends on:

- The control panel model. For details on the capabilities of each control panel model, see *Overview and Panel Model Comparison* on page 13.
- The maximum current you can draw from the auxiliary outputs on the control panel. However, you can expand the capability using MPI Remote Power Supplies. For details on the maximum current draws on the auxiliary outputs, see *Specifications* on page 160.

The system will automatically provide a module number (address) for each device upon registration in MAXPRO Cloud.

For an overview of compatible IB2 devices, see *Parts List* on page 183.

Note

The control panel polls the IB2 bus and will report issues (for example, a missing module) within 10 seconds. The restore event is raised within 5 seconds.

Upon a short-circuit on the IB2 bus power, the system will generate an 'AUX rail' event.

Upon a short on the data bus, the system will generate a 'missing module' event.

5.2 Cable Specifications

Suitable cable types for wiring devices on IB2 buses:

- 4-core alarm cable 22/4 STR CM/CL2; 100 ohms/km max.
- CAT 5E cable: UTP 24 AWG.

Caution!

Use of other types of cables than those listed are at the installer's risk.

Other types of cable than the ones mentioned above, including copper-clad aluminum and screened cable, significantly reduces usable distance and are not recommended.

Configuration and cable runs:

- Free wiring topology, fully loaded bus.
- 3.65 km / 12,000 ft – total volume of cable (total length regardless of topology).



Note

The minimum voltage required at each device is 11.5 VDC (with the control panel running on 13.8 VDC from the AC power adapter). If necessary, you can add MPI Remote Power Supplies to boost the voltage on the IB2 bus. For details, see *MPI Remote Power Supply MPIPSU35* on page 86.

5.3 MPI Keypads MPIKTSMF, MPIKTSRX

5.3.1 About the MPI Keypads

The MAXPRO Intrusion Keypads are designed to provide a simple day-to-day interface with MPI Control Panels. Each keypad connects to the IB2 communication bus. The system keypad enrols during the control panel's initial power up sequence or, if already operational, cycling power to the control panel. The system keypad is the first keypad that you touch after powering up. Each control panel requires at least one keypad.

The MPI keypads combine a touch screen keypad with a card reader into one housing. They are primarily intended for use where you need a PIN or a card to arm/disarm the intruder alarm system. They are not intended for door control, as they do not contain a door strike relay. However, you could programme limited door functions using Controller Rules.

5.3.2 Features

- Two control options: Standard user (pin) code or proximity card reader.
- LCD graphical display and built in sounder (adjustable volume; different sounds for Fire, Burglary, CO alarms, and troubles).
- Multi-area control.
- View current system and zone status based on the keypad's assigned area.
- Global arming and disarming for all areas.
- Connects to the IB2 bus; enrols by sending the serial number and device type information to the control panel.
- Provides a proximity card reader capable of reading up to 40-bit cards (tags) at a distance of 3 cm (1.5 in).

Note: Cards are programmable through MAXPRO Cloud only.

- Mifare (Classic 32-bit and Desfire 56-bit) card type support.
- Lid and off-wall tamper protection.

5.3.3 Operational Commands

- User authorization
- Arm/disarm (set/unset), and reset
- View faults, troubles, and alarms
- Bypass zones
- Emergency buttons (panic, medical, and fire emergency; configurable per area)
- View and operate other areas
- View activity log
- View zone status
- Run zone walk test, siren test.



Note

Besides using the keypad, the customer can arm/disarm the system using the mobile app, via Visual Management in MAXPRO Cloud, or automatically using Schedules in MAXPRO Cloud.

5.3.4 Mounting and Wiring



For CAN/ULC-S304 compliance, install the keypad so that the system status (armed/disarmed, status LED) is not visible from outside the protected premise.



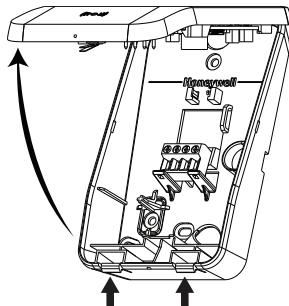
Note

For details on using the optional keypad wall mounting plate, see *Using the Optional Wall Mounting Plate* on page 63.

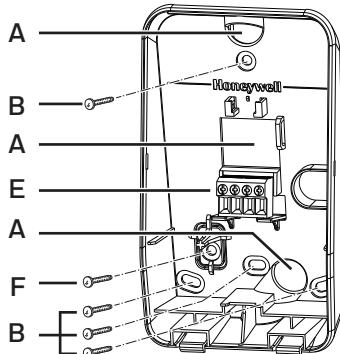
To mount and wire the keypad, proceed as follows:

1. Find a flat, vertical surface in a convenient location.

2. Separate the back plate from the lid: press the two tabs at the bottom of the keypad, and remove the lid.



3. Place the back plate on the wall at the desired location, and mark the position of the mounting holes. There are 4 mounting holes available (B). Use the one at the top, and at the bottom you can use the one in the middle or the two at the edges, depending on your needs.



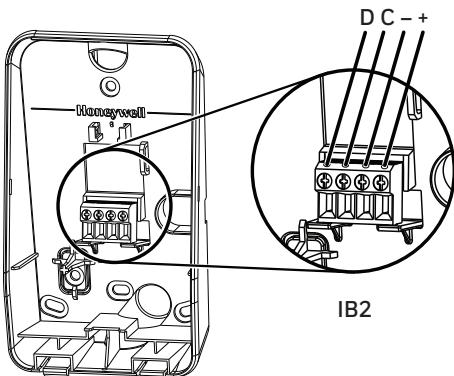
A	Opening for wiring (x 3)	E	IB2 bus connector
B	Mounting screw holes (x 4)	F	Tamper screw (x 1). Required for off-wall tamper protection.

i **Note**

The 2 mounting holes in the middle (top and bottom) correspond with the mounting holes in a standard US wall box.

4. Remove the back plate from the wall, and then drill the holes as required.
5. Screw the back plate to the wall using the large screws, while running the wiring through the available openings.
6. Screw the tamper screw (F) into the wall. This screw provides off-wall tamper protection.

7. Connect the keypad to the desired IB2 bus (I/S on page 34) on the control panel. Wiring from bus to control panel is as follows:



Keypad terminal	To IB2 bus on Control Panel
-	-
+	+12V
C	C
D	D

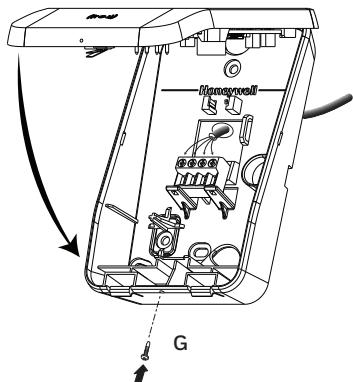


Caution!

If you are using two CAT5E cables for incoming and outgoing wiring through the narrower wiring openings, the cables may get crushed. This may damage the wiring and cause system malfunctions. In this case, strip off the cables' outer covers so that only the cores are entering the enclosure. As an alternative, you can use (thinner) standard alarm cables for wiring.

8. Use cable ties to bundle and fix wiring. The PCB holder has various attachments point for this purpose.

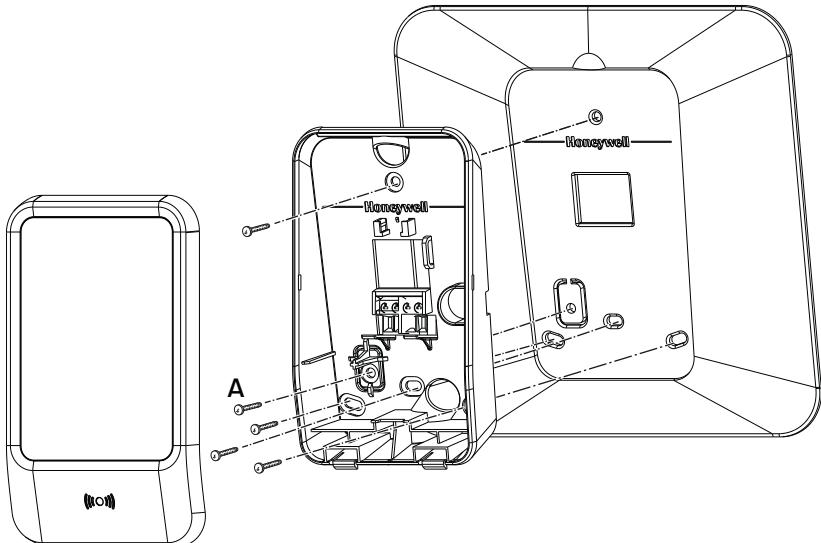
9. Click the lid back in place, and fix it using the small lid screw (G).



5.3.5 Using the Optional Wall Mounting Plate

The MAXPRO Intrusion Keypad Wall Mounting Plate MPIKW1 is an optional plate that you can mount between the keypad and the wall. You can use this plate, for example, to cover any mounting holes from legacy devices when upgrading an existing system.

The illustration below shows how to mount the keypad when using the optional wall plate:



A = tamper screw. Required for off-wall tamper protection.

5.3.6 Programming



Note

The local settings (on the keypad) are limited to LCD brightness and sound level. For details, see the *MAXPRO Intrusion User Guide* (doc. no. 800-23041). All additional keypad settings are configured in MAXPRO Cloud.

5.3.6.1 Module Assignment

MAXPRO Cloud will automatically detect IB2 bus devices in Installer Mode. It registers the device with the unique identifier on the label attached to the device.

To register the device in MAXPRO Cloud, proceed as follows:

1. Log into MAXPRO Cloud. Go to the appropriate customer, site, and control panel (= “controller” in MAXPRO Cloud).
2. Switch **CONTROLLER MODE** to **Installer** to scan for new devices.
3. After scanning, click **VIEW ALL**.
4. In the **New Devices** list, select the desired device. You can recognise the device by its unique identifier (see the label on the device).



5. Specify the basic settings for the device (**Device Name, Areas**), and then click **Register**. The system has automatically filled in the IB2 bus ID and the device's serial number.
6. After registering, fill in the device's **Settings** tab (and other tabs if applicable) to fully configure the device. Settings that apply to all the keypads connected to the control panel, are available in the **Controller** settings page. For a summary of settings, see *Configuration in MAXPRO Cloud* on page 124. For details, see the MAXPRO Cloud online help.

After a successful connection, the screen goes to sleep mode. Touch the LCD display to wake up the keypad and log on with a personal user code or ID card.

5.3.7 LED Indicators

LED Colour	Icon	Function
Green		Area is ready to arm: All zones in the keypad's home area are in their normal state; the area is ready for

LED Colour	Icon	Function
		arming.
Red		Area armed: The keypad's home area is armed.
Green		Power: Power is present.

**Note**

- The keypad will indicate a warning message when the connection to the control panel is lost (“Keypad not connected”).
- Icon indications are not visible if the LED is not lit.
- If an event occurs, the keypad's sleep screen (= screen that displays if no user is logged on) will show the event details (zone and area name). If you want to hide the details, you can program this behaviour using MAXPRO Cloud, for all keypads attached to the control panel. To hide the event details on the sleep screen; go to the control panel's **Settings** screen, and disable the option **Show Alert Details on Arming Station Sleep Screen**. (The option is enabled by default.) If the site has multiple control panels, check the setting for each control panel.

UL

For CAN/ULC-S304 compliance, install the keypad so that the system status (armed/disarmed, status LED) is not visible from outside the protected premise.

5.3.8 Keypad Default Users and Authority Levels

The system is shipped with the following defaults for the user codes:

User	6-digit code	5-digit code	4-digit code
Installer	111222	11122	1112
Master	654321	65432	6543

The default PIN length is 4 digits.

These default codes allow the installer to get the system physically installed and to run initial testing without the need to connect to MAXPRO Cloud.

**Caution!**

For security reasons, change the default codes as soon as possible from MAXPRO Cloud. For instructions, see the *MAXPRO Cloud Configuration Guide* (doc. no. 800-24096).

5.3.9 Using the Keypad

This section describes the actions that **only installers** can perform on the keypad. For the actions that are available to end users (customers), see the *MAXPRO Intrusion User Guide* (doc. no. 800-23041).

5.3.9.1 Installer Access to the Keypad

You, as an installer, cannot log on to the keypad until the customer has granted you access. If you need access to different keypads, the customer has to grant you access on each keypad individually.

**Note**

After restarting the panel, the installer access on the keypad is automatically blocked again.

Logging on to a keypad automatically disarms the keypad's home area. Installers can only disarm areas if they armed the areas themselves. So if the home area of the keypad is armed, then installers can only log on to the keypad if they have armed that area themselves. If someone else has armed the area, then the system will deny installer access to the keypad.

To log on to the keypad:

- Using a **PIN code**:
 1. Tap the screen to wake.
 2. Tap again to display the pinpad.
 3. Type your PIN code.
- Using a **card**: swipe the card along the bottom of the keypad.

If there is no activity on the keypad for 30 seconds, the system will log out the user automatically.

5.3.9.2 Network Settings

If you experience any issues, you can check the network settings using the keypad. Proceed as follows:

- Tap **Menu > Installer tools > Network settings.**
 - If connection is OK, it will show green tick marks with the **Internet connection check** and **MPC registration check** messages.
 - If not, tap **Enter Manual Mode** to enter Manual mode. Tap **Next** to scroll through the screens and view or edit the current network settings.

5.3.9.3 Factory Default

You can use the factory default function on the keypad to delete the control panel configuration and reset all values to the factory settings. This will also delete all keypad users, except the default Installer and Master user.

If you want to remove a control panel from an installation, or decommission it, you must execute this function on the keypad before you delete the control panel from MAXPRO Cloud. For details, see *Decommissioning a Control Panel after Resetting to Defaults* on page 67.

You can also use factory defaulting to try and resolve issues with the control panel, for example if the configuration is corrupted. In this case, you can reset the control panel configuration to default values using the keypad, and then use MAXPRO Cloud to restore the control panel's configuration. For details, see *Restoring the Panel's Configuration after Resetting to Defaults* on page 68.

To reset the control panel to factory defaults, proceed as follows:

1. Tap **Menu > Factory default.**
A warning appears on the keypad screen.
2. Proceed as follows:
 - Tap **Continue** to confirm.
 - Tap **Back** to cancel.

The system resets the control panel's settings and restarts the panel.

5.3.9.4 Decommissioning a Control Panel after Resetting to Defaults

Before decommissioning or uninstalling a control panel, make sure to execute the factory default function on the keypad to clear all data in the control panel before removing it.

**Caution!**

When you delete a control panel, the system also deletes all devices, areas, and zones associated with the control panel. It also disassociates (but does not delete) the Schedules, Permission Groups, and People associated with the control panel.

To further decommission a control panel after resetting to factory defaults, proceed as follows:

1. Shut down the panel using the SHUTDOWN button. For detailed instructions, see *Shutting Down the Panel Securely* on page 122.
2. In MAXPRO Cloud, go to the appropriate customer and site, and then click **Controllers** to see the list of control panels.
3. Select the desired control panel, and then click the Delete button . The system displays a warning screen indicating the implications of deleting the control panel.
4. Select all checkboxes, and then click **CONFIRM**.

**Caution!**

You must **physically destroy** any decommissioned and faulty (unusable or permanently damaged) MPI control panel hardware.

5.3.9.5 Restoring the Panel's Configuration after Resetting to Defaults

If you reset a control panel to the factory defaults via the keypad, MAXPRO Cloud keeps a backup of the configuration in the cloud. If the configuration on the control panel would become corrupt, you can reset the control panel to the factory defaults, and then restore its configuration using MAXPRO Cloud.

To restore the control panel's configuration after resetting to factory defaults, proceed as follows:

1. Log on to MAXPRO Cloud as a user with role Installer, and open the control panel's **Settings** page.
2. Click the Edit button , and then, under **Advanced Settings**, click the **REDOWNLOAD CONFIG** button.
3. Click **Yes** to confirm. The system will switch the panel to Installer mode and restore the configuration to the panel. You can check if restoring is finished on the control panel's **Overview** page: **CONFIGURATION SYNC STATUS** will display **Up to Date**.

5.4 MPI Door Control Module MPIDC1

5.4.1 About the MPI Door Control Module

The MAXPRO Intrusion Door Control Module (DCM) is a single door access control module and connects to an MPI Control Panel. It provides access and egress to the protected premises. Adding more than one DCM increases the number of access points and each communicates with an MPI Control Panel via the IB2 communication bus. The module may be mounted remotely in its own enclosure, or together with an MPI Remote Power Supply in a cabinet.

5.4.2 Features

Access control:

- Compatible with two Wiegand readers
- One programmable 12 VDC relay for door lock
- Selectable entry (access) vs. exit (egress) reader¹
- Outputs to control reader, reader buzzer, and up to three reader LEDs.
- Supports up to the last 500 cards in reduced capability mode.

Burglary:

- Door is usable as entry/exit door as part of the burglary protection, using the door status monitor input. Only one magnetic contact required for access and burglary functionality.

Tamper protection:

- Lid and off-wall tamper protection.
- Bypassable through MAXPRO Cloud.
- Tamper for both readers.

Card formats, Wiegand:

- HID cards: 26, 32, 34, 35, and 48 bit.
- Mifare cards: Classic 32-bit and Desfire 56-bit.
- EM4102 cards 26, 40 bit.

¹ Exit reader will be available soon.

5.4.3 Inputs and Outputs

Inputs:

Input wiring is configurable.

- **Door Status Monitor (DSM):** input for door contact. For access monitoring and burglary alarms. Can be used as an entry/exit zone for burglary protection. In this case:
 - When the area is disarmed, the DSM will work as a standard DSM; for example, causing a door forced alarm if the door is opened illegally.
 - When arming/disarming, the DSM will follow the entry/exit route rules.
- **Request to Exit (RTE):** request to exit button.

Outputs:

- **Door Strike/Lock:** relay dedicated for the door lock. Selectable 12 VDC feed for the relay NC/NO contact using a jumper. In this case, the circuit current is limited to 1.5 A. For details, see *Relay Jumper* on page 74.
- **LED R:** controls the reader red LED (door blocked, e.g. area is armed)
- **LED Y:** controls the reader yellow LED
- **LED G:** controls the reader green LED
- **BUZZ:** controls the reader buzzer.

The buzzer output provides audible notifications for the following events:

- Card presented: Short beep for .1 seconds.
- Valid card (ID) presented: Door unlocked will present one long beep for one second.
- Command rejected (request for access or request to arm): three short beeps.
- Door Forced or Door Held: continuous tone until door is closed or event is cancelled.

5.4.4 Mounting

You can install the Door Control Module against a wall in its own enclosure, or you can install up to two Door Control Modules in a cabinet, next to and/or stacked on top of an MPI Remote Power Supply.

The procedure below is for mounting the device on the wall in its own enclosure. For installing in a cabinet, see *Cabinet Mounting with Control Panel or Remote Power Supply* on page 96.

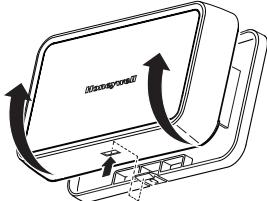
UL Make sure to mount the DCM inside the protected area.

**Note**

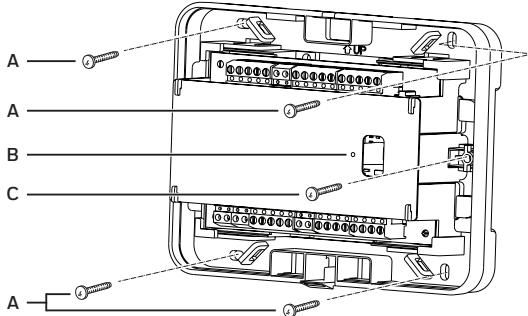
The Door Control Module is only suitable for mounting in a cabinet with an MPI Remote Power Supply, not with an MPI Control Panel.

To mount the device on the wall in its own enclosure, proceed as follows:

1. Press the tab at the bottom of the lid and remove the lid.

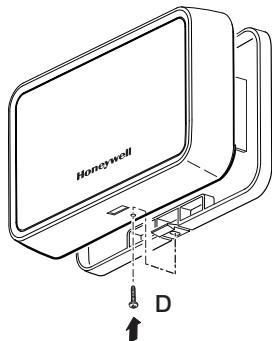


2. Fix the device to the wall using the 4 large screws (A).

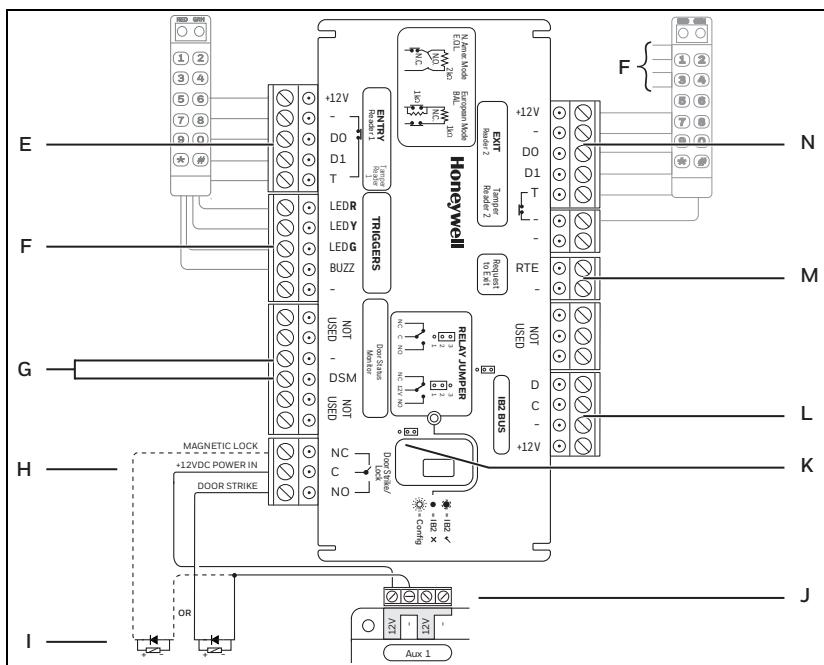


A	Mounting screw (x 4)	C	Tamper screw (x 1). Required for off-wall tamper protection.
B	LED indicator		

3. Screw the tamper screw (C) into the wall. This screw provides off-wall tamper protection.
4. For wiring, see *Summary of Connections* on page 72.
5. Use cable ties to bundle and fix wiring. The PCB holder has various attachments point for this purpose.
6. Click the lid back in place and fix it using the small lid screw (D).



5.4.5 Summary of Connections



#	Item	Terminal or connector	Connect to		
E	ENTRY Reader (Reader 1)	+12V	Entry reader power input [+].		
		-	Entry reader input [-] for power and tamper		
		D0	Entry reader data 0		
		D1	Entry reader data 1		
		T	Entry reader tamper.		
F	Triggers	LED R	Entry reader red LED. If used: exit reader red LED.		
		LED Y	Entry reader yellow LED. If used: exit reader yellow LED.		
		LED G	Entry reader green LED. If used: exit reader green LED.		
		BUZZ	Entry reader buzzer. If used: exit reader buzzer.		
		-	Reader LEDs and buzzer [-] terminal		
G	Door status monitor	-	Door status monitor [-] terminal		
		DSM	Door status monitor.		
		Default supervision: EOLR (2K). For details and more options, see <i>Wiring Inputs (Zones)</i> on page 39. Terminate using resistors if not used.			
		Can be used as an entry/exit zone for burglary protection.			
H	Door Strike/Lock (relay)	NC	Normal Closed terminal		
		C	Common terminal		
		NO	Normal Open terminal		
		For door lock only: magnetic lock OR door strike.			
I	Transient protection for magnetic lock or door strike				
J	Auxiliary power supply for door strike/lock relay.				
K	Jumper	Jumper for door strike/lock relay: 12 VDC feed for the relay NC/NO contact if jumper is positioned over pins 1 and 2. For details, see further below.			

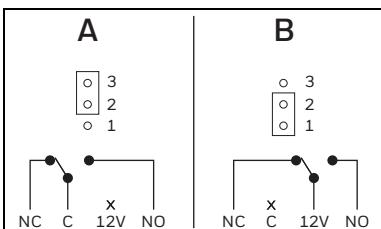
#	Item	Terminal or connector	Connect to
L	IB2 BUS	+12V	12 VDC supply terminal
		-	0 VDC supply terminal
		C	IB2 bus C
		D	IB2 bus D
M	Request to exit (RTE), optional	RTE	To request to exit button
		-	To request to exit button [-] terminal
		Default supervision: EOLR (2K). For details and more options, see <i>Wiring Inputs (Zones)</i> on page 39. Terminate using resistors if not used.	
N	EXIT Reader (Reader 2), optional	+12V	Exit reader power input [+].
		-	Exit reader power input [-]
		DO	Exit reader data 0
		D1	Exit reader data 1
		T	Exit reader tamper.
		-	Exit reader tamper [-]

Minimum Connections

The DCM simply needs wiring to the IB2 data bus, and the following minimum connections:

1. Attach a Wiegand reader to the **ENTRY Reader** terminals.
2. Attach the door lock to the **Door Strike/Lock** terminals.
3. Attach a request to exit button to the **RTE** terminals.
4. Attach a door contact to the **DSM** terminals.
5. Optionally, you can connect the reader buzzer and red LED control lines to the appropriate terminals on the DCM to give extra feedback.

Relay Jumper



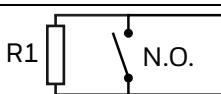
A: jumper in position 2–3 (default). Normal relay operation.

B: jumper in position 1–2. Feeds 12 V to the NC/NO terminals of the relay. Note that the relay's common pin C is open in this case. When using this configuration, the current is limited to 1.5 A.

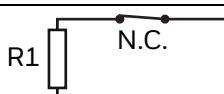
Tip: when using option B, use an MPI Remote Power Supply MIPPSU35 to provide additional current to the module.

5.4.6 Default Zone Configurations

For the Door Status Monitor and the Request to Exit button, supervised EOLR with $R1 = 2K$ is the default zone supervision setting (resistor packs included). For details, see *Supervised EOLR* on page 40.



For a normally open circuit, you wire the sensor (N.O.) in parallel to the EOL resistor R1.



For a normally closed circuit, you wire the sensor (N.C.) in series with the EOL resistor R1.

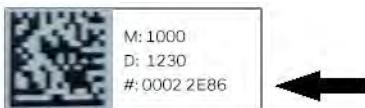
For more information on the zone supervision settings, see *Zone Wiring Types* on page 39.

5.4.7 Programming

MAXPRO Cloud will automatically detect IB2 bus devices in Installer Mode. It registers the device with the unique identifier on the label attached to the device.

To register the device in MAXPRO Cloud, proceed as follows:

1. Log into MAXPRO Cloud. Go to the appropriate customer, site, and control panel (= “controller” in MAXPRO Cloud).
2. Switch **CONTROLLER MODE** to **Installer** to scan for new devices.
3. After scanning, click **VIEW ALL**.
4. In the **New Devices** list, select the desired device. You can recognise the device by its unique identifier (see the label on the device).



5. Specify the basic settings for the device (**Device Name...**), and then click **Register**. The system has automatically filled in the IB2 bus ID and the device's serial number.

6. After registering, fill in the device's **Settings** tab (and other tabs if applicable) to fully configure the device. For a summary of settings, see *Configuration in MAXPRO Cloud* on page 124. For details, see the MAXPRO Cloud online help.

5.4.8 LED Indicators

LED Colour	Indication	Function
Green	Steady blink (0.1s on, 0.9s off)	Power and IB2 communication good
Red	Steady	Powered but not communicating on IB2
–	Off	No power or communication

5.5 MPI Relay Module MPIEOP4

5.5.1 About the MPI Relay Module

The MAXPRO Intrusion (MPI) Relay Module provides four additional programmable, unsupervised relays for use with MPI Control Panels. The module may be mounted remotely in its own enclosure, or together with an MPI Control Panel or MPI Remote Power Supply in a cabinet.

5.5.2 Features

- Provides four non-supervised relays
- Status LEDs
- Lid and off-wall tamper protection, bypassable through MAXPRO Cloud programming.

5.5.3 Mounting

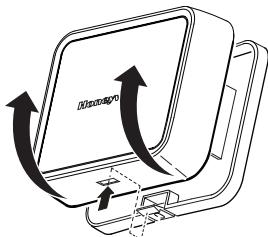
You can install the Relay Module against a wall in its own enclosure, or:

- You can install up to two Relay Modules in a cabinet on top of and/or next to an MPI Remote Power Supply.
- You can install one Relay Module in a cabinet on top of the MPI Control Panel

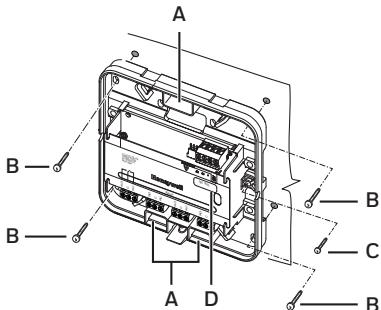
The procedure below is for mounting the device on the wall in its own enclosure. For installing in a cabinet, see *Cabinet Mounting with Control Panel or Remote Power Supply* on page 96.

To mount the device on the wall in its own enclosure, proceed as follows:

1. Press the tab at the bottom of the lid and remove the lid.



2. Fix the device to the wall using the 4 large screws (A).



A	Opening for wiring (x 3)	D	LED indicator
B	Mounting screw (x 4)	E	Lid screw (x 1)
C	Tamper screw (x 1). Required for off-wall tamper protection.		

3. Screw the tamper screw (C) into the wall. This screw provides off-wall tamper protection.
4. For wiring, see *Summary of Connections* on page 78.
5. Use cable ties to bundle and fix wiring. The PCB holder has various attachments point for this purpose.
6. Click the lid back in place and fix it using the small lid screw (E).