PARADOX ⩗

ZP2M
Dual Input / Output Wireless Bus Expander
Two Garage Door Controller

INSTALLATION MANUAL

FW Version: V1.00.014

Introduction

The ZP2M is an M expansion module with dual zone inputs and dual relay outputs. It can be connected to an M console via the M RS-485 bus (for example, M40), M wireless, or both, for fail-safe operation. It supports wireless communication featuring the latest Gaussian Frequency Shift Keying (GFSK) technology with frequency and encryption hopping.

ZP2M can be used as a universal two-input, two-output expander or as a two-garage door controller with an input verification module. The two inputs are fully functional security zones with EOL options or signaling-only inputs. The two relay outputs can be programmed as Normally Closed (NC) or Normally Open (NO). The ZP2M communicates with the Paradox M systems via an RS-485 bus (for example, M40).

NOTE: *When connected to the M bus and registered with the M console, the ZP2M will also auto-learn as an M wireless device if it is in wireless range. The wireless connection will be used as a fallback channel in case the bus connection is lost. The wireless backup channel will be indicated in BlueEye.*

The module supplies 11 VDC @ 100 mA auxiliary output. 100 mA aux can be supported on the internal battery for up to 2 hours. The auxiliary output requires a minimum load of 15 mA to remain active during backup, ensuring battery efficiency and extending battery life. The zone inputs support configurations of one EOL, two EOL, or no EOL resistors.

NOTE: *For EN compliance, the auxiliary output cannot be used if zones are connected.*

The Paradox logo lights up to indicate the device's status. Outputs can be manually controlled from the ZP2M using buttons (enable/disable from BlueEye), and zone status is indicated with LEDs.

NOTE: *The device is delivered with a battery charge of 10% or less.*

Quick Installation- Experienced Installers

To install ZP2M:
1. Mount the device on the wall
2. Connect 12 VDC/500 mA supply, or connect to M console aux.
   NOTE: *When connected with the M panel bus aux, calculate maximum 200 mA from auxiliary capacity or ZP2M aux out current +50 mA. If you are using an external power source to power the ZP2M and bus connection, do not connect the M panel aux+ terminal together to the + terminal of the other source.*
3. Connect all the required zones and PGM outputs.
4. Connect to M bus (Device will be recognized within 20 sec as new M bus device)
5. Wireless connection: Pair ZP2M with the console Using the BlueEye application:
   - Go to: **Hardware** > Tap **Add Devices** > **Wireless Devices Auto learn**.
     NOTE: *You can instantly pair ZP2M by either pressing momentarily the **Power off** button or opening any zone.*
6. Configure ZP2M (Using the BlueEye application):
   - Go to: **Hardware** > Tap **ZP2M** from the device list > Enter the necessary details > **Save**.
   Built-in status indications of ZP2M:
   Paradox Logo:
   - Red – Not connected to the console; offline.

- White – Connected to the console; online.
- Purple – connected via M BUS
- Green blinking every two seconds – Battery-powered, online with console
- Red blinking every two seconds – Battery-powered, offline, not communicating with the console.
- Red and Green flashing (5x) – Tamper open
- Green flashing (5x) – Tamper closed

Zone LED:
- Green – Zone is open
- Green Flashing – EOL issue
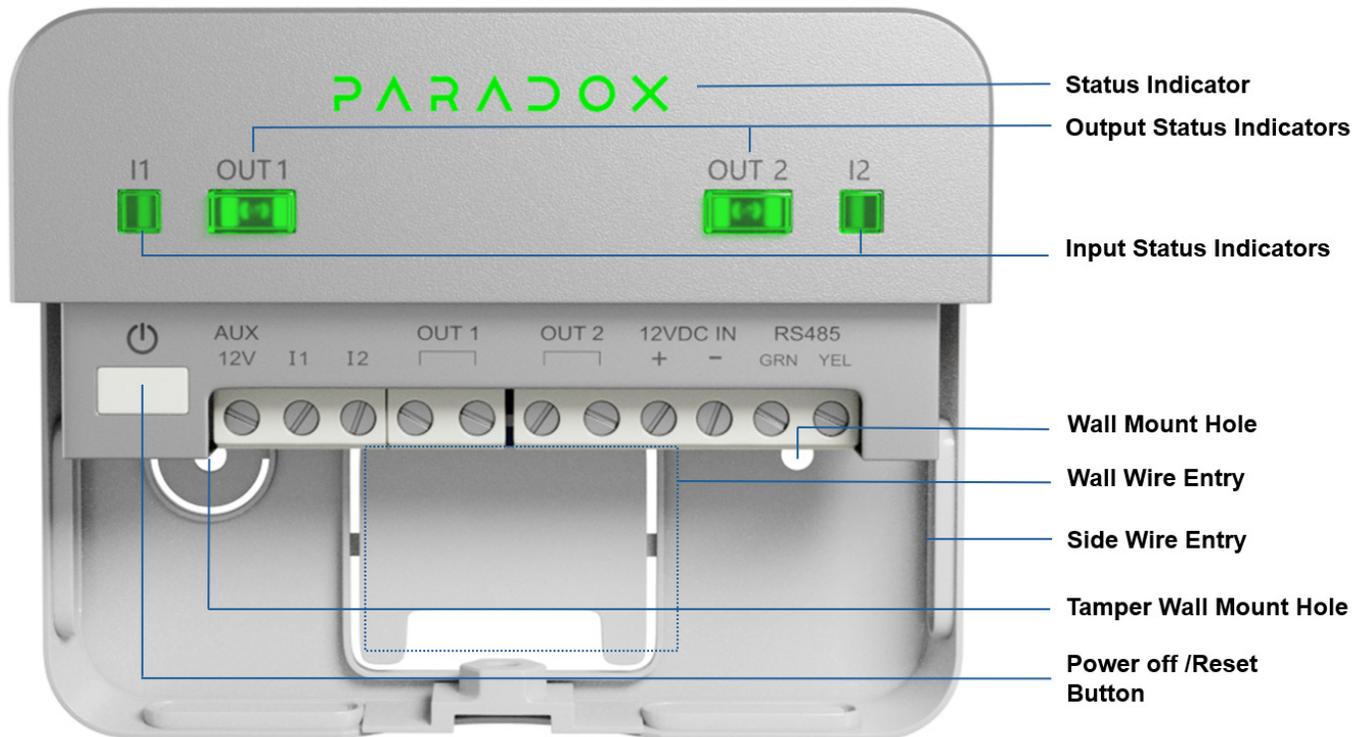- Off – Zone is closed

Output LED:
- Green – Output is activated
- Off – Output is deactivated

NOTE: *The low battery voltage threshold of the ZP2M is 3.4V, and the battery is considered restored at 3.7V (on power-up only).*

Components of ZP2M

The following figure displays the components of ZP2M.
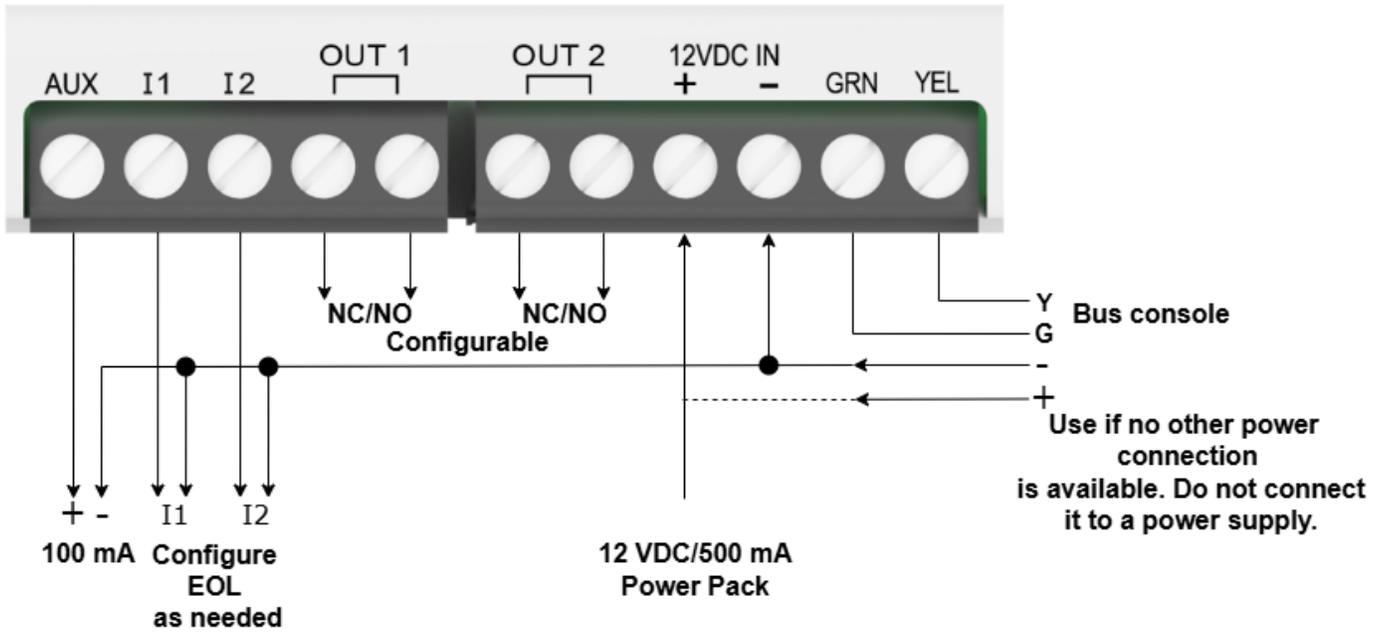

**Fig-1**

Fig 2 - Connection Diagram

Physical Mounting

1. Mounting: Release the screw from the bottom of the ZP2M and remove the front cover.

2. Screw the ZP2M device onto the wall through the mounting holes.
   NOTE: *As per the EN security standards, one screw must be secured in the tamper hole. The use of double-sided tape does not trigger a wall tamper alarm.*
3. Provide a 12 VDC/500 mA input supply to power the ZP2M, either using a power pack or the console's bus connection. Do not connect the + from the bus if you are using another 12 VDC supply. Connect only the Y, G, and common.
4. Connect the zones by routing cables through the wire entry holes of the device with or without EOL. See FIG. 3, EOL connection options.
5. Connect Outputs one and two.
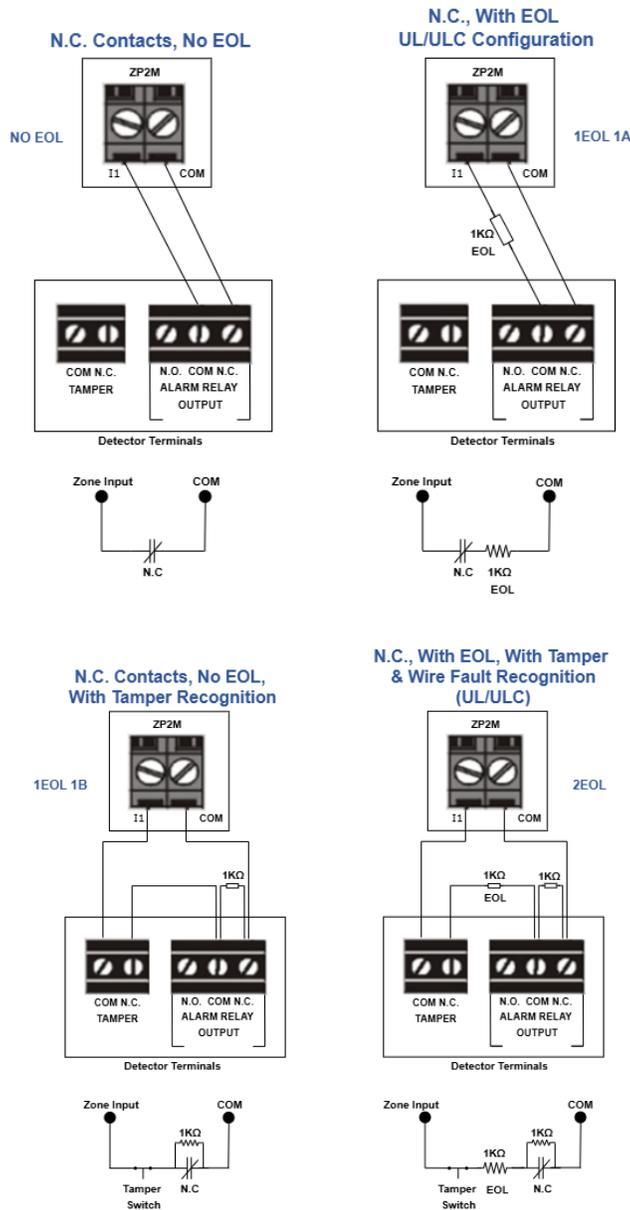
Fig 3 - EOL Connection Options

6. After completing the wire connection, reattach the front cover and tighten the screw at the bottom. Ensure the logo flashes green 5 times to confirm the screw is secured properly and the tamper is closed.

Pairing ZP2M with the Wireless M Console

The pairing and configuration settings of ZP2M are managed through the BlueEye application.

Prerequisites

Ensure that:
1. The ZP2M is within the range of the console.
2. The BlueEye application is installed on your mobile and connected to the site.
3. The M console is powered on (Paradox logo color - white, red, or green).

Pairing ZP2M

To pair the ZP2M with the wireless console by an installer:

1. In BlueEye, when in the **Hardware** tab, tap **Add Devices** > **Wireless Devices Auto learn**. The wireless console searches for new devices and a rotating radar icon is displayed. This may take up to 6 minutes. To pair instantly, press momentarily on the power off button, or open the tamper or any zone. The device pairs with the console and it appears at the top of the device list with a *new* tag and voice announcements.

After pairing, to identify the new device, you can trigger the ZP2M tamper. A **T** symbol appears on the device tab in the BlueEye application.

Configuring Zone and Output

To configure the ZP2M settings:
1. When in the **Hardware** tab, tap the **ZP2M** device.
2. On the page that opens, tap the input you want to configure and enter the necessary details.
3. Tap **Save**.

For details about each parameter displayed on the page, see Table 1.
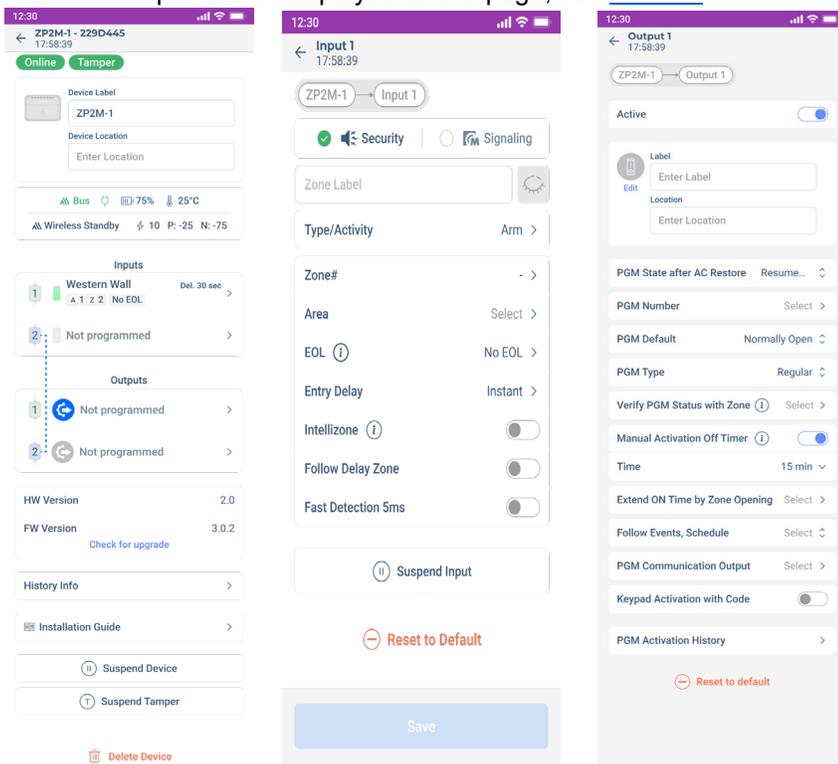
The following table lists the parameters displayed for configuring the ZP2M, along with their descriptions.

Table 1

Zone Parameters (Input)	Description
Zone# and **Area**	Assign a zone and area number.
Type/Activity	Select the type of zone – Instant, Delay, 24 Hours, 24 Water, 24 Fire when the device is active in the Arm, Stay, or Sleep modes. The following are the different zone types: • Arm • Arm/Sleep • Arm/Stay • Arm/Sleep/Stay • 24 hours • 24 fire • 24h fire, 4 wired smoke
EOL (End of Line Resistors)	Configures the wiring supervision for zones. Options: • **No EOL** (Default): No resistors are used for supervision.

	• **1EOL 1A**: Single resistor (1K ohm) for basic supervision. • **1EOL 1B**: Single resistor (1K ohm) for basic supervision. • **2EOL**: Two resistors (2 x 1K ohm) for enhanced supervision and tamper detection.
Entry Delay	Sets the amount of time the system allows after a protected zone is opened while armed, before triggering an alarm. • Instant • 5 sec • 10 sec • 15 sec • 30 sec • 45 sec • 1 minute • 1.5 minute
Intellizone	When the **Intellizone** option is enabled for a device, the system will trigger an alarm under one of the following conditions, within the configured Intellizone Timer window (default: 30 seconds): • **Two separate openings** are detected within the timer period. • A **trigger from an Intellizone**, followed by a **trigger from any other zone** within the timer period. • The **same zone remains open** throughout the timer period. Intellizone is not available for any 24H zones.
Follow Delay Zone	This zone is instant and becomes a delay zone if a delay zone is opened first.
Suspend Input	Disables the monitoring of an input.
Reset to Default	This will reset the device to the factory default settings. **NOTE**: *Only an installer can reset the device.*
About	This tab displays details such as the installation date, production date, last programming date, battery replacements, battery history, and upgrade history.
Delete Device	This option deletes the device from the system completely. After deletion, the system generates a push notification only if the owner registration is complete, not during installation. **NOTE**: *Only an installer can delete the device.*

Parameter (Output)	Description
Label	Enter a label for the device.
PGM State after AC Restore	Select how the PGM behaves after power restoration: • **Resume Last State** • **On** • **Off**
PGM Number	Select the PGM number.
PGM Default	Select the default: • Normally Open • Normally Closed
PGM Type	Define the PGM type: • **Regular** • **Restricted** • **Installer**
Verify PGM Status with Zone	Assigns a zone to verify the status of the PGM.
Manual Activation of Timer	Enables the **Manual Activation of Timer** option for PGM activation.
Time	Sets the duration for PGM activation.
Extend ON Time by Zone Opening	Extends the PGM activation duration when the assigned zone is triggered.
Keypad Activation with Code	Enables PGM activation using a keypad and a code.
Follow Events, Schedule	Defines the PGM activation behavior:

	• **None**: No automatic activation; the PGM operates solely based on manual inputs.
	• **Zone**: Activates the PGM when a specific zone is triggered.
	• **Area Status**: Activates the PGM based on the status of a particular area.
	• **Trouble**: Activates the PGM in response to system trouble conditions.
	• **Schedule**: Activates the PGM according to a predefined schedule.
	• **Module Temperature**: Activates the PGM when the module's temperature reaches a specified threshold.
PGM Communication Output	Specify the notification type, method, and receivers for PGM communication.
PGM Activation History	Displays the history of PGM activations.
Reset to Default	This will reset the device to the factory default settings. **NOTE**: *Only an installer can reset the device.*
About	This tab displays details such as the installation date, production date, last programming date, battery replacements, battery history, and upgrade history.
Suspend Device	Disables monitoring of the device in the system.
Delete Device	This option deletes the device from the system completely. After deletion, the system generates a push notification only if the owner registration is complete, not during installation. **NOTE**: *Only an installer can delete the device.*

LED Indications

After configuring ZP2M, the device displays various LED indications based on specific events.
The following table lists the LED indications and their corresponding event.

Table 2

LED Indication	Event
Paradox Logo	
Red	Not connected to the console, offline
White	Connected to the console via M wireless; online.
Purple	Connected to the console via BUS; Online
Green blinking every two seconds	Battery-powered, online with console
Red blinking every two seconds	Battery-powered, offline, not communicating with the console.
Red and green flashing (5x)	Tamper open
Green flashing (5x)	Tamper closed
Zone LED	
Green	Zone is open
Green Blinking	Zone EOL issue
Off	Zone is closed
Output Status Indicator	
Green	Output is activated
Off	Output is deactivated

Functionalities of Power/Reset Button

The power/reset button on the ZP2M is used to:

- **Power Off** (functions only when battery-powered)**:** Press the power button twice momentarily within 5 seconds to power off the device. To power it back on, provide an input power supply.
- **Reset to Default**: Press and hold the power off button for 8 seconds. The Paradox logo will display amber. Then, press again momentarily within 5 seconds to confirm. This will reset the device to default and allow to auto learn in the new console/repeater**.**

Upgrading Firmware

When the firmware upgrade is in progress, the Paradox logo on the device displays steady blue. To upgrade the firmware:

1. In the **Hardware** tab, tap on the device > **Check for Upgrade**.
2. If an upgrade is available, tap **Upgrade** when prompted.
   The process may take a few minutes. Keep track of the progress in the BlueEye application to ensure that the upgrade is completed successfully. Both the Installers and owners can perform the upgrade.

IMPORTANT: The firmware upgrade can be done only when the system is disarmed.

Signal Strength and Transmit Power Monitoring

The BlueEye application provides insights into each device's received signal strength and transmission power to optimize performance.

To view the RSSI and transmit power range:

1. When in the **Hardware** tab, tap the ⓘ icon next to the **Wireless** tab.
   A pop-up window with the RSSI and transmit power range is displayed.
2. Maximum power transmitted by ZP2M:
   - 868 MHz: +14 dBm
   - 914 MHz: +22 dBm

Tap on any listed device to view signal strength and additional device metrics. The following parameters are displayed for each device:

- **P** - Received signal strength at the panel
- **N** - Received signal strength at the device
- ⚡ - Transmit power of the device.
- 🌡 - Current temperature reading of the device.
- 🔋 - Battery level of the device

A higher P and N value indicates stronger and clearer communication between the console and the device.
- If **P** is low, the console struggles to receive signals from the device.
- If **N** is low, the device struggles to receive signals from the console.

NOTE: *Values below -93 with maximum Tx power are not recommended values, and RPT5M can be used to extend the range.*

Power transmission impacts only **P**:
- When **power transmission** increases, the **P** value at the console generally improves, as a stronger signal is sent.
- If the **P** value is good, the device can reduce its transmission power to save battery life.

IMPORTANT: All nodes adjust their transmission power. The adjustment depends on the surrounding noise level and is updated at intervals set by the supervision timer or during a node status update.

Tamper Protection

The ZP2M is equipped with dual tamper protection (wall and cover). If the system is armed, any tamper activation triggers a system alarm and CMS reporting. The system will need to be disarmed to stop the tamper alarm. When the system is disarmed, a tamper activation generates a report to the CMS, sends a push notification, and displays a tamper trouble alert in the BlueEye application.
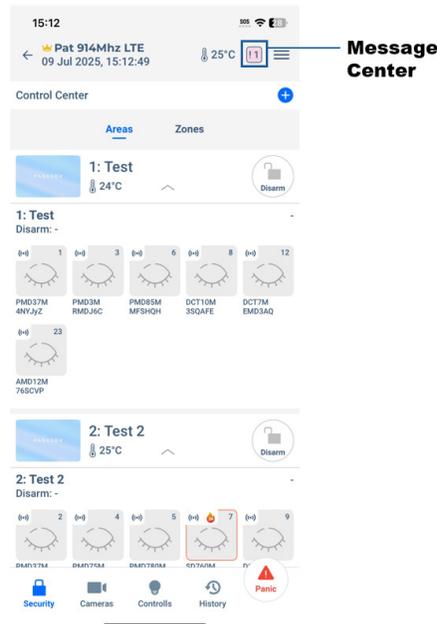
Technical Specifications

The following table lists the technical specifications of ZP2M, along with their descriptions.

NOTE: *The specifications are subject to change without prior notice.*

Specification	Description
Power Input	12 VDC/500 mA Min. (Power Pack or M console aux)
Device Input Current	200 mA Max
Power consumption	2.4 W Max
Bus Connection	M-Bus encrypted RS-485, Up to 1,000ft
Battery	1 x 3.7V Li-ion rechargeable battery, 1000 mAh, 2 hours backup @100 mA (min. 15 mA load required to power Aux).
Aux Output Supply	11 VDC, 100 mA
Wireless Type	GFSK two-way with frequency and encryption hopping
RF Frequency	868 (865.05 - 867.95) MHz or 914 (902.25 - 927.55) MHz It might vary in different countries.
RF Power	868 MHz: +14 dBm radiated; 914 MHz: +22 dBm in permitted countries.
Number of Inputs	Two fully programmable zones or signaling inputs
Input Connection Type	No EOL, 1EOL or Two EOL (1K ohm)
Number of Outputs	Two relay outputs 24V/1A, normally open or close, configurable.
Application Status Indication	Zone open/close, Output open/close, tamper status, power available, battery level, temperature, TX/RX values, wireless or Bus connection
ZP2 Status Indication	Logo: Bus or wireless, online, offline, battery or power operation, upgrade in process, tamper, zone LEDs - open/close, Output Active or not.
Transmission Time	Less than 20 ms
Supervision Time	20 minutes, 10 minutes (Default), and 3 minutes
Installation Environment	Indoor
Humidity	93% maximum (ULC)
Firmware Upgrade	Remotely Via Bus or over the air M wireless
Operating Temperature	-20°C to +50°C (-4°F to 122°F) Battery charging: 0°C to 40°C (32°F to 104°F)
Auto Learn	Yes
Colors	White
Dimensions	8.7W x 6.9H x 3D cm (3.4" W x 2.7" H x 1.2" D)
Weight	0.109 kg
Certifications	CE, EN 50131-3, EN 50131-5-3, FCC 15.247, Security Grade – 2 Wireless, Grade 3 Bus, Environmental Class – II. Certification Body: Applica Test & Certification

FCC Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a

residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

WARNING – RF EXPOSURE COMPLIANCE: This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

FCC ID: KDYZP2M
 IC: 2438A-ZP2M

- This Class B digital apparatus complies with Canadian ICES-003.
- -Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

IC Statements

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

AVERTISSEMENT – CONFORMITÉ AUX NORMES D'EXPOSITION AUX RF: Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

Warranty

For complete warranty information on this product, see the Limited Warranty Statement document, or contact your local Paradox distributor.

Patents

US, Canadian, and international patents may apply. Paradox is a trademark or registered trademark of Paradox Security Systems (Bahamas) Ltd.