

OPENPATH  
SINGLE DOOR CONTROLLER  
INSTALLATION GUIDE  
V1.1

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# Openpath Single Door Controller Installation Guide

## GETTING STARTED

This Installation Guide explains how to install and configure the Openpath Single Door Controller (SDC) as part of an Openpath Access Control system.

## ADDITIONAL RESOURCES

- [Smart Reader Data Sheet](#)
- [Openpath Admin App Guide](#)
- [Openpath User Guide](#)
- [Openpath Installation Guide](#)

## PRIOR TO INSTALLATION

Prior to installing Openpath hardware, perform a customer site survey to determine the following:

- How many entries need to be configured (e.g. doors, gates, and/or elevator floors)
- Whether you're using legacy wiring or new wiring
- What kind of electronic entry mechanisms, Request to Exit (REX) mechanisms, and door contact sensors will be used and their power requirements.
- Whether you're providing an external supply with backup batteries for the SDC. See [SELECTING A BACKUP BATTERY](#).
- Whether you're supporting a legacy access control panel.

## Installation

### NETWORK REQUIREMENTS

An Ethernet or Wi-Fi connection or a static IP address must be used to connect the SDC to the Local Area Network (LAN). You also need to configure firewall settings to communicate with the Openpath system. Openpath uses the following outbound ports:

- TCP port 443
- TCP port 80
- UDP port 123

**Note:** If using an external DNS server, outbound UDP port 53 must also be open.

To support Wi-Fi unlocking from the mobile app, the SDC's inbound TCP port 443 must be available from within the LAN. Inbound port forwarding on the router, firewall, or NAT device is not required.

## POWER REQUIREMENTS

The Openpath SDC can be powered with PoE, PoE+, or an external 12–24V supply. Use an external power supply for backup or if PoE is not available—24V required if locking hardware requires 24V.

**Operating Voltage:** 12–24VDC

**Input Rating:** 12V @ 2A (min) or 24V @ 1A (min)

**Output Ratings:**

- Power Out connector can supply up to 100mA @ 12V or 50mA @ 24V
- 2 reader ports, max power output: 250mA @ 12V each
- 2 relays, max power output:
  - PoE: Max 3W combined output (e.g. 250mA @ 12V or 125mA @ 24V)
  - PoE+: Max 9W combined output (e.g. 750mA @ 12V or 375mA @ 24V)

## SELECTING A BACKUP BATTERY

While not required, Openpath recommends having a backup battery on the external supply or PoE injector in case of power outages. The size of battery depends on your setup and how long you want to power the system.

**Table 1:** Power requirements (24V)

SDC	.3A
Smart Reader (2)	0.25A
Locking hardware (while engaged)	0.25A–0.5A

Assuming an external 24V power supply, an SDC configured with two Openpath Readers and locking hardware uses about 1.1 Amps. To keep the system running for 3 hours with all entries engaged, you need 1.1A x 3 hours = 3.3 AH, so two 12V 4AH sealed lead acid (SLA) or gel cell batteries in series.

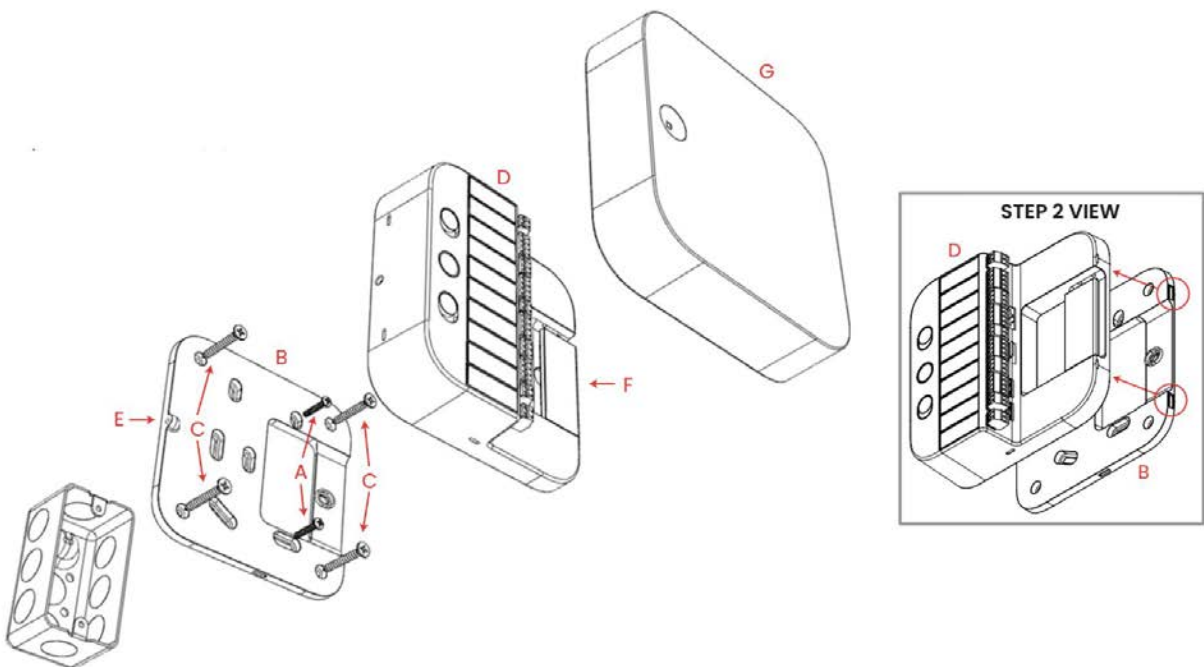
## MOUNTING INSTRUCTIONS

The SDC can be mounted a few different ways: on a single or double gang box or on drywall.

### To install on a standard US 1-gang box:

1. Use two 6-32 screws (A) to attach backplate (B) to gang box  
**Recommended:** Use the provided drywall screws (C) and anchors (not shown) on drywall for added stability
2. Snap on main housing (D) to backplate (B)
  - a. On the right side of the main housing (D), ensure that the two edge clips fit into their respective notches on the backplate (B)
  - b. Press firmly on the main housing (D) to snap into place
3. Partially unscrew pre-installed M4 set screw (E) to secure main housing (D) to backplate (B)
4. Use the cable slot (F) to hold cables while wiring; see [STANDARD WIRING CONFIGURATION](#)
5. Snap on front cover (G)

**Note:** For a double gang box, follow the directions above, using additional 6-32 screws.



**Figure 1:** Mounting SDC to wall

**To install on drywall:**

1. Use the provided drywall screws (C) and anchors (not shown) to attach backplate (B) to wall
2. Snap on main housing (D) to backplate (B)
  - a. On the right side of the main housing (D), ensure that the two edge clips fit into their respective notches on the backplate (B)
  - b. Press firmly on the main housing (D) to snap into place
3. Partially unscrew pre-installed M4 set screw (E) to secure main housing (D) to backplate (B)
4. Use the cable slot (F) to hold cables while wiring; see [STANDARD WIRING CONFIGURATION](#)
5. Snap on front cover (G)

**RECOMMENDED CONFIGURATION**

Openpath Readers and Access Control Units (ACUs)/SDCs communicate via RS-485. The following wire types are compatible, listed in the order of preference which impacts distance.

- Shielded CAT6A (recommended, additional two pairs can be used for sensors)
- Shielded CAT6
- Shielded RS485 w/22-24AWG (lower gauge, thicker wire is better)
- Shielded CAT5
- Unshielded CAT6
- Unshielded CAT5
- Shielded 22/6
- Unshielded 22/6

Ideally, use one twisted pair for GND and VIN (power) and one twisted pair for +B and -A (data).

For shielded wiring, connect one side of the drain wire (the shield around the wires) to the GND terminal on the SDC. Both the shield and the GND wire can share the same GND terminal. Do not connect the other side of the shield to anything.

For Openpath Standard Smart Reader installation, we recommend that you install a 1-Gang 20 CU box in order to flush-mount the reader. Alternatively, the reader may also be surface mounted with the included back plate.

**Note:** For elevators, all relays and readers are must be connected to the same SDC. If you need more than two access controlled floors or readers, add the Openpath Elevator Expansion Module.

**WARNING:** Always remove power from the SDC and locking hardware before wiring readers and other devices. Failure to do so can damage the SDC.

STANDARD WIRING CONFIGURATION

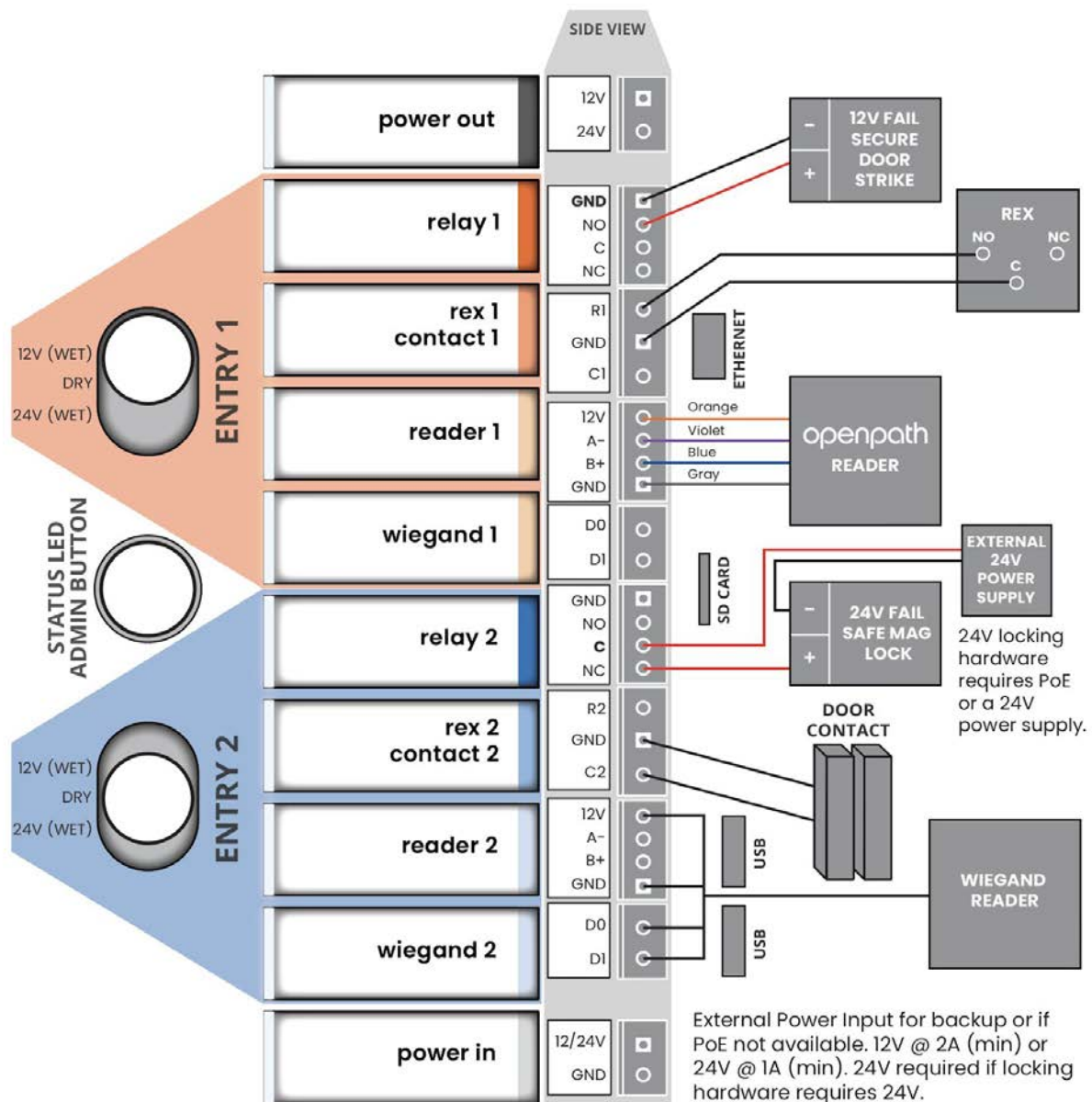


Figure 2: Example SDC wiring

## WIRING FAIL SAFE AND FAIL SECURE LOCKING HARDWARE

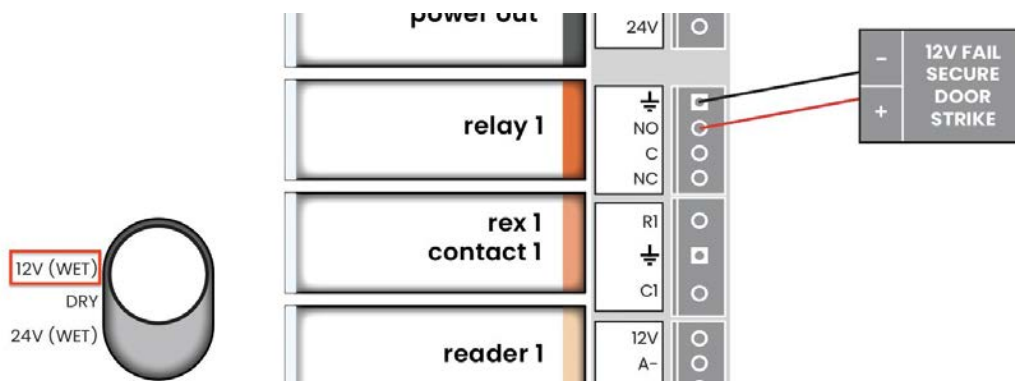
Fail safe and fail secure are ways of configuring locking hardware:

- **Fail safe** hardware **unlocks** when power is interrupted
- **Fail secure** hardware **locks** when power is interrupted

## VOLTAGE SWITCHES

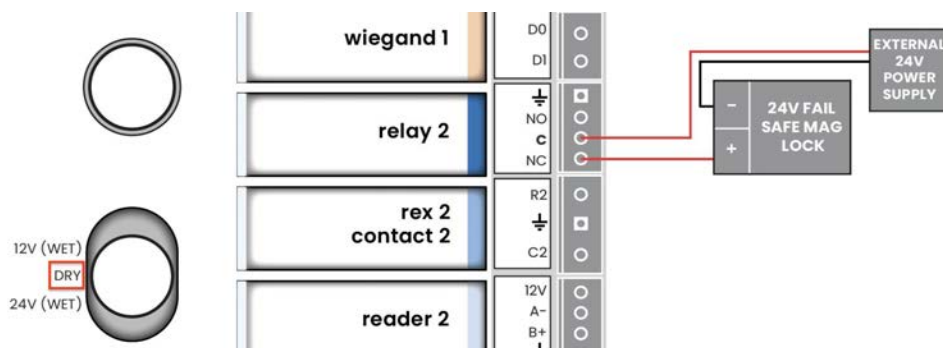
**WARNING:** Remove DC Input Power and PoE before changing the voltage of the relays.

To power locking hardware without an external supply (Wet Relay), select 12V or 24V, and connect locking hardware to NO and GND (for fail secure locks) or NC and GND (for fail safe locks).



**Figure 3:** Wet Relay example

To use external power, select DRY and use NO or NC and C, and wire to external supply.



**Figure 4:** Dry Relay example



## PROVISIONING THE SDC

Provisioning the SDC means registering it in the Control Center and getting it up and running with the latest firmware. You can provision the SDC using the Open Admin app for first time setup and in the case of [RESETTING THE SDC](#).

**Note:** If you're provisioning SDCs for a customer account, the customer org will need to be created by Openpath first.

### REQUIREMENTS

- Meet all [NETWORK REQUIREMENTS](#)
- Connect the SDC to the Internet via Ethernet or via Wi-Fi
- Install the Open Admin app
  - [iOS App Store](#)
  - [Google Play Store](#)

### CREATE SDC IN CONTROL CENTER

Before you can provision an ACU using the Open Admin app, you must first create an ACU in the Control Center.

#### To add one SDC manually:

1. Go to <https://control.openpath.com/login> and log in
2. Go to Hardware > ACU Management
3. To add a new SDC, click the blue **Create ACU** button on the top right corner
4. Enter a name for the SDC. Names are usually relevant to the location where the SDC is installed.
5. From the Controller Type dropdown, select **Openpath Single Door Controller (SDC)**
6. If your SDC also connects to an expansion board, then from the **Add Expansion Board** dropdown, select and add the appropriate type(s):
  - a. **Openpath 4-Port Expansion**
  - b. **Openpath 8-Port Expansion**
  - c. **Openpath 16-Port Elevator**
7. A description of the SDC will appear in green. Click **Save**.
8. At this point, you can create Readers, Entries, and Zones prior to provisioning

#### To add multiple SDCs with Quick Start:

1. Go to <https://control.openpath.com/login> and log in
2. Go to Administration > Quick Start

3. Enter a Site Name, click **Next**
4. Enter how many SDCs are located at your Site:
  - a. Enter names for the SDCs
  - b. From the Controller Type dropdowns, select **Single Door Controller (SDC)**
  - c. Enter the number of expansion boards connected to the SDCs, then select the types used:
    - i. **Openpath 4-Port Expansion**
    - ii. **Openpath 8-Port Expansion**
    - iii. **Openpath 16-Port Elevator**
  - d. Click **Next**
5. Enter how many Readers are connected to the SDCs and enter names. Click **Next**.
6. Review your Site Details, then click **Confirm & Submit**. It may take a few minutes for setup to complete.

## PROVISIONING STEPS

### To provision the SDC using the Open Admin app:

1. Locate the org to which you're provisioning hardware, either on the list or using search, then tap on the org name
2. Wait until the Status LED is solid blue, then press the Admin button (Figure 3) on the SDC (the Status LED will change to blinking purple)
3. In the Open Admin app, tap on the last four digits of the serial number for the SDC (the Status LED will change to solid purple)
4. Tap **Provision Device**
5. Tap on the ACU Name that you want to provision to (this is the name of the SDC you created in the Control Center), then tap **Yes** to proceed (the Status LED will change to blinking yellow)
6. The app will send notifications when the SDC provision state changes from Unprovisioned to Provisioning in progress and Provisioning in progress to Provisioning complete
7. When setup is complete, the Status LED will change to solid white
  - a. **Note:** SDC will disconnect from the Open Admin app after 5 minutes of inactivity; press the Admin button to reset the timer



**Figure 5:** ADMIN button

### TEST INTERNET CONNECTION

In the Open Admin app, you can tap **Test Internet Connection** to check if the SDC can ping <https://api.openpath.com/health>

### NETWORK SETTINGS

In the Open Admin app, you can configure network settings for the SDC. The default interface for the SDC is Ethernet/wired connection. You can change this by going to Network Settings > Wi-Fi IP Settings and enabling **Default Interface**, then tap **Save**. Ethernet and Wi-Fi connections can be DHCP (default) or can have a static IP address.

### To change network settings:

1. Connect to the SDC by pressing the Admin button again if needed
2. Tap on **Network Settings**
3. Select **Configure network manually**
4. Configure the network settings as needed

5. Tap **Save** on the top right of the screen

### To set up Wi-Fi on the SDC using the Admin App:

1. Connect to the SDC by pressing the Admin button again if needed
2. Tap on **Network Settings**
3. Tap on **Wi-Fi IP Settings**
4. Enable **Default Interface**
5. Tap on **Pick Wi-Fi Network**
6. Choose your network and enter your password then tap **Connect**

### COUNTRY SETTINGS

The country code on the SDC is automatically set up during initial connection and provisioning based on information from the installer's Open Admin app. This setting cannot be changed by the installer. If you need to change the country code, please contact Openpath support.

## Troubleshooting

### [LEGACY WIRING](#)

### [SDC LEDS](#)

### [RESETTING THE SDC](#)

## LEGACY WIRING

Sometimes legacy wiring (unshielded and straight through, rather than shielded twisted pair, often 22-6) results in slower connections and dropped packets between the Openpath Reader and SDC. To remedy this, you can switch GND and VIN with +B and -A connections on the SDC and readers to ensure the data pair (+B and -A) are using the alternate pair of legacy wires.

## SDC LEDS

The Openpath SDC's Status LED indicates the following:

- **Solid White** indicates the SDC is provisioned and functioning normally
- **Blinking Red** indicates there is a problem with the Internet connection
- **Solid Cyan** appears when the SDC is booting
- **Solid Yellow** indicates that the SDC is restoring software; appears when you turn on the SDC for the first time

- **Blinking Yellow** indicates that the SDC is updating software; appears when the SDC has been online for less than 24 hours
- **Solid Blue** indicates that the SDC has finished booting and is ready for provisioning
- **Solid Purple** indicates that the SDC is connected to the Open Admin app
- **Blinking Purple** indicates the SDC is ready to connect to the Open Admin app
- **Solid Red** indicates the SDC is in an error state—go to the Hardware Dashboard in the Control Center for more information

STATUS LED	○ <b>Solid White</b>	Normal operation
	◐ <b>Blinking Red</b>	No Internet
	● <b>Solid Cyan</b>	Booting
	● <b>Solid Yellow</b>	Restoring software
	◐ <b>Blinking Yellow</b>	Updating software
	● <b>Solid Blue</b>	Unprovisioned state
	● <b>Solid Purple</b>	Connected to app
	◐ <b>Blinking Purple</b>	Ready to connect to app
	● <b>Solid Red</b>	Error, see Control Center

**Figure 6:** SDC Status LED

The Openpath SDC has eight Port LEDs and two power LEDs. The Port LEDs indicate the following:

- Openpath Readers or Wiegand Readers
  - **Solid:** Normal operation
  - **Blinking:** Error state
- Sensors (including REX and Contact Sensors)
  - **Solid:** Active
  - **Blinking:** EOL shorted or cut
- Locking hardware (relays)
  - **Solid:** Relay is energized
  - **Blinking:** Fault detection

PORT LEDS	OP Readers	<b>Solid</b>	Normal operation
		<b>Blinking</b>	Error state
	Sensors	<b>Solid</b>	Active
		<b>Blinking</b>	EOL shorted or cut
	Locks	<b>Solid</b>	Relay is energized
		<b>Blinking</b>	Fault detection

**Figure 7:** SDC Port LEDs

## RESETTING THE SDC

### SOFT RESET

To soft reset the SDC, disconnect power and Ethernet from the SDC, wait 10 seconds, then reconnect the power.

### HARD RESET

**WARNING:** Only hard reset the SDC if absolutely necessary and if instructed by Openpath. This will clear all of the data off of the SDC and will require reprovisioning.

#### To hard reset the SDC:

1. Disconnect power and Ethernet from the SDC
2. Hold down the ADMIN BUTTON for 15 seconds
3. While still holding down the **ADMIN** button, reconnect the power, and continue to hold the button for another 15 seconds. You should see the Status LED turn yellow.
4. Wait until the Status LED turns blue (refer to [SDC LEDS](#)) before [PROVISIONING THE SDC](#)

# Regulatory

All national and local electrical codes apply.

## FCC

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. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm should be maintained between the antenna of Openpath Smart Reader(s) and persons during operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## RF Radiation Hazard Warning

To ensure compliance with FCC and Industry Canada RF exposure requirements, this device must be installed in a location where the antennas of the device will have a minimum distance of at least 20 cm from all persons. Using higher gain antennas and types of antennas not certified for use with this product is not allowed. The device shall not be co-located with another transmitter.

Installez l'appareil en veillant à conserver une distance d'au moins 20 cm entre les éléments rayonnants et les personnes. Cet avertissement de sécurité est conforme aux limites d'exposition définies par la norme CNR-102 relative aux fréquences radio.

## Industry Canada Notice and Marking

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna

type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## Warnings

- Disconnect power before servicing
- Do not plug into an outlet controlled by an on/off switch

## Technical Specifications

**Table 2:** Technical specifications of Openpath hardware

Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MULB, OP-RHF-MULB)	12VDC, 0.25A OP-RLF-STD/MULB: FCC ID: 2APJVOPRLF OP-RHF-STD/MULB: FCC ID: 2APJVOPRHF
Elevator Board (OP-16EM)	12-24VDC, 0.35A @ 24V
Single Door Controller (OP-2ESH-POE)	12-24VDC, 0.3A @ 24V
Openpath 4-Port Board (OP-4EX4)	12-24VDC, 0.4A @ 24V
Openpath 8-Port Board (OP-8EX8)	12-24VDC, 0.6A @ 24V