AVIGILON™ ALTA

Access Control System

Installation Guide

Some hardware may show the Openpath logo.

Avigilon Corporation
avigilon.com

20240306-en

Revisions

Guide	Description
Rev 2.10	Pro Series Readers (Video Intercom Reader Pro, Video Reader Pro) updates: UL 294 on page 73, Electrical specifications on page 78
Rev 2.9	Core Series Smart Hub (SYS-4ENT-DVE1, SYS-ELEV-SVE1, SYS-8ENT-DVE2, SYS-8ENT-DVE4, SYS-16ENT-DVE6) and Access Control Core (OP-CR-ACC) updates: For more information on page 9, Mounting options on page 12, Install the Core Series boards in E1 enclosure on page 15, Install the Core Series boards in E2 enclosure on page 18, Install the Core Series boards in E4 enclosure on page 20, Install the Core Series boards in E6 enclosure on page 22 Wiring the 12/24V 4-Door Smart Hub on page 44, Wiring the 24V Elevator Smart Hub on page 45, Wiring the 12/24V 8-Door Smart Hub on page 46, Wiring the 12/24 8-Door Large Smart Hub on page 47, Wiring the 12/24 16-Door Large Smart Hub on page 49, Power, Relay, Status, and Board ID LEDs on page 57 Appendix: Best practices - Wiring a REX to your Avigilon Alta access control system on page 70, FCC on page 73, IC RSS-102 on page 76, Electrical specifications on page 78
Rev. 2.8	Reader updates: Install the Smart Reader v2 on page 26, Install the Smart Keypad Reader on page 28, Install the Embedded USB Smart Reader on page 30, Regulatory on page 73
Rev. 2.7	Enable Static Cloud IP field: Add one ACU on page 62, Disable the Static Cloud IP connection on page 63

Contents

Before you start

This installation guide explains how to install and configure Avigilon Smart Hubs (ACUs), Smart Readers (Smart Reader v2, Smart Keypad Reader, and Embedded USB Smart Reader), and Avigilon Pro series readers (Video Reader Pro and Video Intercom Reader Pro), as part of the Avigilon Alta access control system. This guide also includes information about Core Series Smart Hubs.

Conducting site surveys

Before installing Avigilon hardware, conduct a customer site survey to determine the following:

- The number of entries that need to be configured (for example, doors, gates, and elevator floors)
- Whether you're using legacy wiring or new wiring
- The electronic entry mechanisms, Request to Exit (REX) mechanisms, and door contact sensors that will be used and their power requirements.

  If your locking hardware requires 24V, either use a Smart Hub with a 24V power supply or use a separate 24V supply.
- Whether you're providing backup batteries for a Smart Hub. See Selecting a backup battery on page 11.
- Whether you're supporting a legacy access control panel for mobile gateway. See Wiring to legacy panels and mobile gateway on page 51.

For more information

For hardware specifications, see the following datasheets.

Avigilon controllers, boards, and Smart Hubs	Avigilon Access Control Core Datasheet (OP-CR-ACC) Openpath 4-Port Board Datasheet (OP-EX-4E) Openpath 8-Port Board Datasheet (OP-EX-8E) Openpath 16 I/O Elevator Board Datasheet (OP-16EM) Avigilon 12/24V 4-Door Smart Hub Datasheet (SYS-4ENT-DVE1) Avigilon 24V Elevator Smart Hub Datasheet (SYS-ELEV-SVE1) Avigilon 12/24V 8-Door Smart Hub Datasheet (SYS-8ENT-DVE2) Avigilon 12/24V Large 8-Door Smart Hub Datasheet (SYS-8ENT-DVE4) Avigilon 12/24V Large 16-Door Smart Hub Datasheet (SYS-16ENT-DVE6)
Avigilon Smart Readers and Pro Series Readers	Openpath Standard Smart Reader v2 Datasheet (OP-R2X-STND) Openpath Mullion Smart Reader v2 Datasheet (OP-R2X-MULL) Openpath Mullion and Standard Keypad Readers (OP-RKP-MULL, OP-RKP-STND) Openpath Embedded USB Smart Reader Datasheet (OP-R2X-EMBD) Openpath Video Intercom Reader Pro Datasheet (OP-VID-PRO-INT) Openpath Video Reader Pro Datasheet (OP-VID-PRO-RDR)

For additional product and support documentation, see:

- help.openpath.com
- Avigilon Alta Control Center Administrator Guide
- Avigilon Single Door Controller Installation Guide

For additional power supply documentation, see vendor documentation.

- LifeSafety Power® FlexPower Vantage Standard Power System Installation Manual for FPV4 and FPV6 power supplies
- LifeSafety Power FlexPower Generation 2 DC Power System Installation Manual for FP0150 and FP0250 power supplies
- LifeSafety Power FlexPower® B100 Installation Manual

- LifeSafety Power FlexPower C4/C8 Installation Manual
- LifeSafety Power FlexPower D8/DP8 Installation Manual

Installation

Network requirements

An Ethernet connection with DHCP must be used to connect the ACU to the Local Area Network (LAN). You may also need to configure firewall settings to communicate with the Avigilon Alta access control system, which uses the following outbound ports:

- TCP port 443
- UDP port 123

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

To support Wi-Fi unlocking from the Openpath Mobile Access app, the inbound TCP port 443 of the ACU must be available from within the LAN. Inbound port forwarding on the router, firewall, or NAT device is not required.

The ACU also supports Wi-Fi connections. Refer to Configure network settings using Open Admin app on page 66.

Selecting a backup battery

While not required, a backup battery is recommended in case of power outages. 12V supplies require one 12V backup battery. 24V supplies require two 12V batteries in series. The size of battery depends on your setup and how long you want to power the system.

Table 1 Example power requirements for Core Series Smart Hubs (24V)

Access Control Core	0.4A
4-Port Board	0.3A
Standard Smart Reader Mullion Smart Reader Embedded USB Smart Reader	0.14A
Locking hardware (while engaged)	0.12A – 0.25A

Assuming a 24V power supply, a Core Series Smart Hub configured with four Avigilon readers and locking hardware uses about 2 Amps. To keep the system running for 3 hours with all entries engaged, you need 2A x 3 hours = 6AH, so two 12V 6AH sealed lead acid (SLA) or gel cell batteries wired in series.

Mounting options

Avigilon Smart Hubs use LifeSafety Power E1, E2, E3, E4, and E6 enclosures. Core Series Smart Hubs are shipped with power supplies pre-installed, but Avigilon boards must be installed separately.

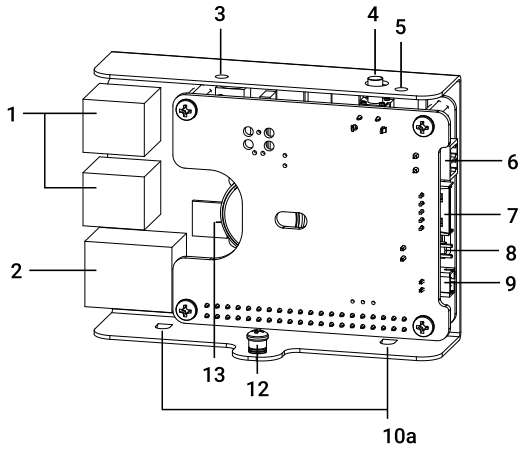
Mount the enclosure to the wall

1. (Optional) Remove the enclosure cover.
2. Locate the top keyhole mounting holes in the back of the enclosure.
3. Mark and pre-drill the locations for the keyholes in the mounting surface.
4. Partially install two fasteners appropriate for the surface on which the enclosure is being installed. Leave the heads of the fasteners approximately ¼" out from the surface. Minimum fastener size should be #10 or larger.
5. Hang the enclosure on the two fasteners and mark the locations of the remaining mounting holes.
6. Remove the enclosure and pre-drill the locations for the remaining mounting holes.
7. Re-hang the enclosure on the top mounting fasteners, install the remaining fasteners, and tighten all fasteners.
8. Reinstall the enclosure's cover, if removed in step 1.

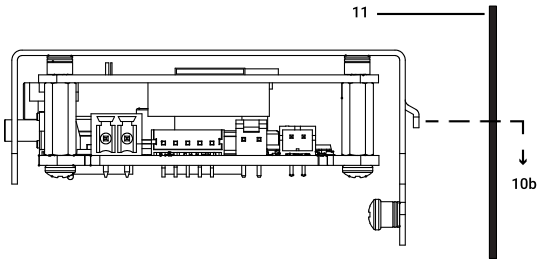
Install Access Control Core without mounting bracket

The mounting bracket is optional when installing the Access Control Core in the E1 enclosure of the 12/24V 4-Door Smart Hub or 24V Elevator Smart Hub, or the E2 enclosure of the 12/24V 8-Door Smart Hub.

Front view



Side view with enclosure



1	USB ports	**8**	Tamper input
2	Ethernet connector	**9**	LED out
3	Status LED	**10a**	Core board hooks
4	ADMIN button	**10b**	Core board installed facing down, up, left, or right, depending on the enclosure model
5	Power LED	**11**	Back of enclosure
6	Power input	**12**	Mounting screw
7	SPI Bus Link connector	**13**	Backup battery, CR2032

Mounting

1. Mount the Access Control Core perpendicular to the back of the enclosure, by hooking tabs into the holes in the back of the enclosure.
2. Slide the Access Control Core into the enclosure (see 10a, 10b, 11). Then gently tighten the mounting screw (12). Do not overtighten.

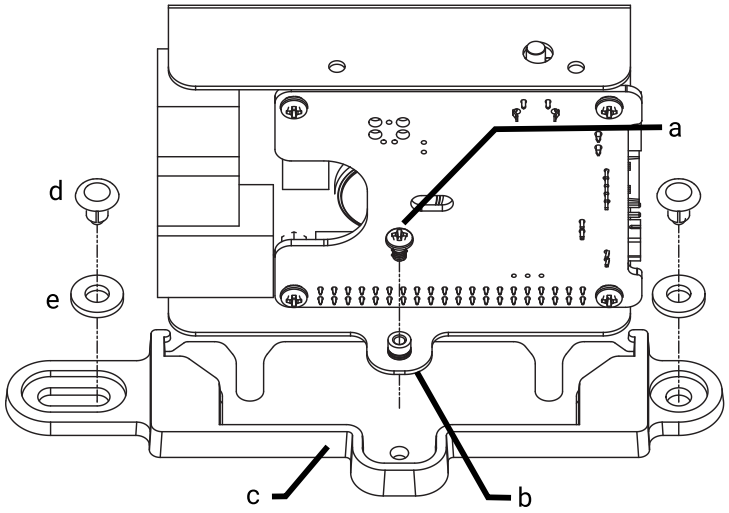
Wiring

1. Attach power connector (12/24VDC; see 6) to the input.
2. Connect the Ethernet cable (Internet connection required; see 2) prior to provisioning.

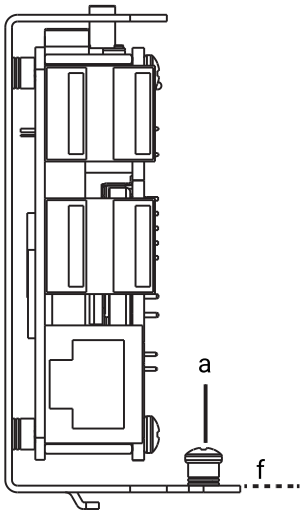
Install Access Control Core with mounting bracket

The Access Control Core must be installed with the mounting bracket in the E4 enclosure of the 12/24 8-Door Large Smart Hub or in the E6 enclosure of the 12/24 16-Door Large Smart Hub. The mounting bracket is optional in the E1 and E2 enclosures.The Access Control Core (OP-CR-ACC) must be installed with the mounting bracket in the E4 enclosure of the 12/24 8-Door Large Smart Hub or in the E6 enclosure of the 12/24 16-Door Large Smart Hub. The mounting bracket is optional in the E1 and E2 enclosures.

View with mounting bracket



Side view



To assemble the Access Control Core and mounting plate:

1. Loosen the screw (a) and ensure it is not protruding past the bottom (f).
2. Slide the Access Control Core (b) into the mounting plate (c) and secure the screw.
3. Mount the assembly into the holes of the backplate with the provided push-in rivets (d).
4. Only use washers (e) in the E1 and E2 enclosures. Washers are not needed for the backplate in the E4 and E6 enclosures.

Install the Core Series boards in E1 enclosure

The E1 board placement includes the 24V FPV4 supply, B100 secondary supply, C4 Relay Based Lock Control Module, 4-Port Board, and Access Control Core with or without the mounting bracket.

Front view

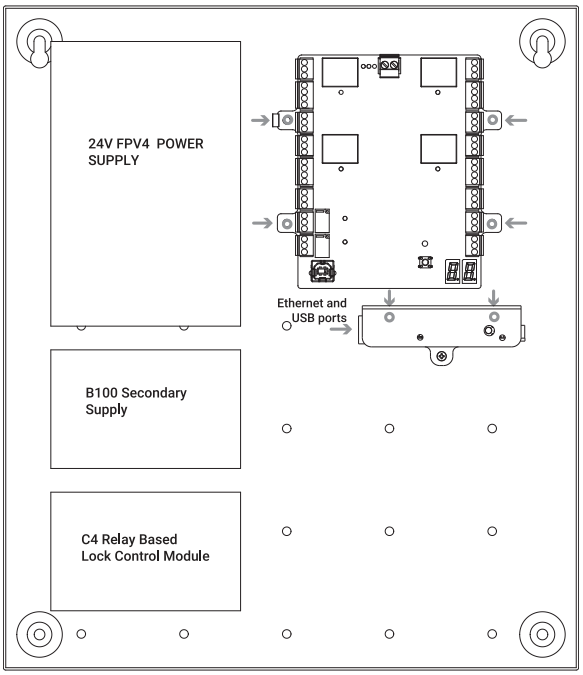


Figure 1 Access Control Core mounted without bracket (Ethernet and USB ports facing left) below 4-Port Board

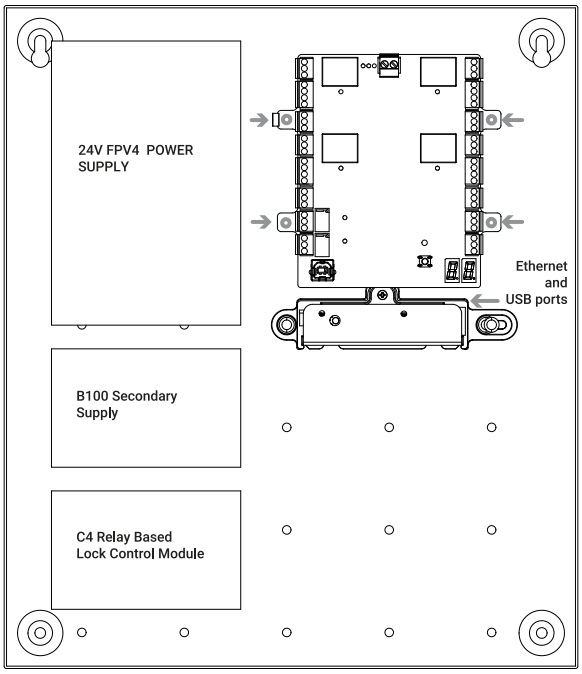


Figure 2 Access Control Core mounted with bracket (Ethernet and USB ports facing right) below 4-Port Board

Mounting

1. Mount the 4-Port Board to the right of the LifeSafety Power supply modules by snapping the board standoffs into the enclosure (see arrows).
2. If mounting the Access Control Core without the bracket, see Install Access Control Core without mounting bracket on page 13. Ensure the Ethernet and USB ports face left.

   If mounting the Access Control Core with the bracket, see Install Access Control Core with mounting bracket on the previous page. Ensure the Ethernet and USB ports face right.
3. Connect the Access Control Core to the 4-Port Board with the included USB cable.

> **Note:** The maximum recommended USB cable length is 6 feet (2 meters) or 10 feet (3 meters) if high quality, shielded cable.

Install the Elevator Core Series boards in E1 enclosure

The E1 board placement includes the 24V FPV4 supply, 16 I/O Elevator Board, and Access Control Core with or without the mounting bracket.

Front view

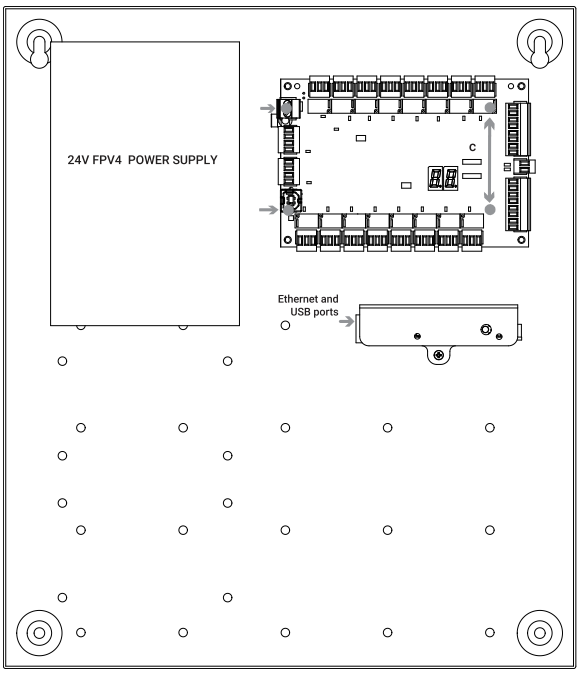


Figure 3 Access Control Core mounted without bracket (Ethernet and USB ports facing left) below 16 I/O Elevator Board

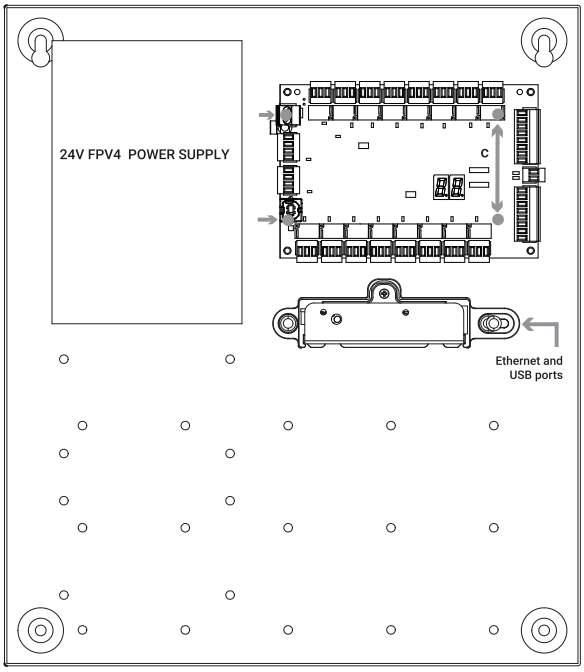
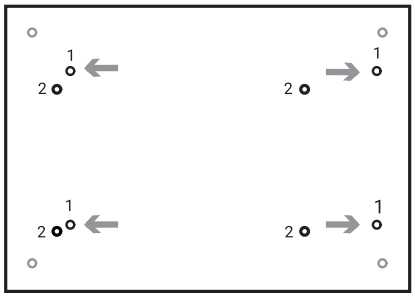


Figure 4 Access Control Core mounted with bracket (Ethernet and USB ports facing right) below 16 I/O Elevator Board

Mounting

1. Screw the four included metal standoffs into the appropriate set of holes labeled '1' on the back of the 16 I/O Elevator Board mounting plate (see below).



2. Insert the included 6-32 x 3/8" screws from the back of the enclosure, and screw into the standoffs (see arrows) to secure the 16 I/O Elevator Board assembly in place with the USB connector facing left.
3. If mounting the Access Control Core without the bracket, see Install Access Control Core without mounting bracket on page 13. Ensure the Ethernet and USB ports face left.

   If mounting the Access Control Core with the bracket, see Install Access Control Core with mounting bracket on page 14. Ensure the Ethernet and USB ports face right.
4. Connect the Access Control Core to the 16 I/O Elevator Board with the included USB cable.

> **Note:** The maximum recommended USB cable length is 6 feet (2 meters) or 10 feet (3 meters) if high quality, shielded cable.

Install the Core Series boards in E2 enclosure

The E2 board placement includes the 24V FPV6 power supply, B100 secondary supply, C8 Relay Based Lock Control Module, 8-Port Board, and Access Control Core with or without the mounting bracket.

Front view

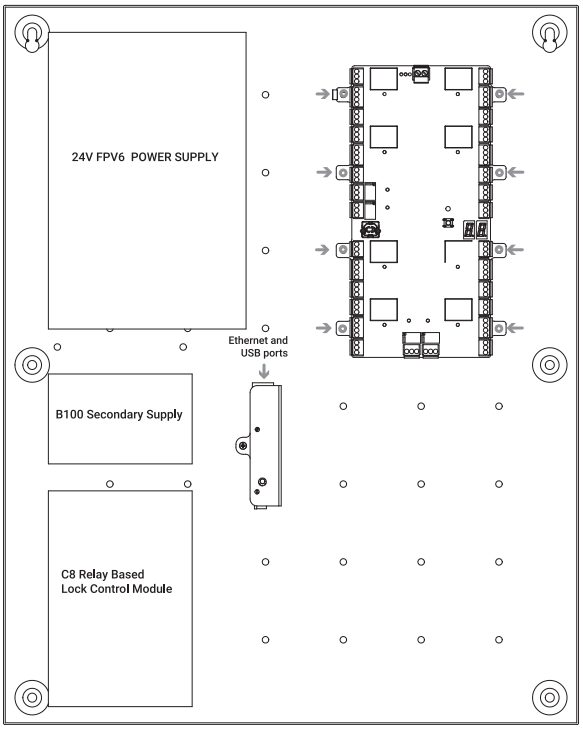


Figure 5 Access Control Core mounted without bracket (Ethernet and USB ports facing up) below 8-Port Board

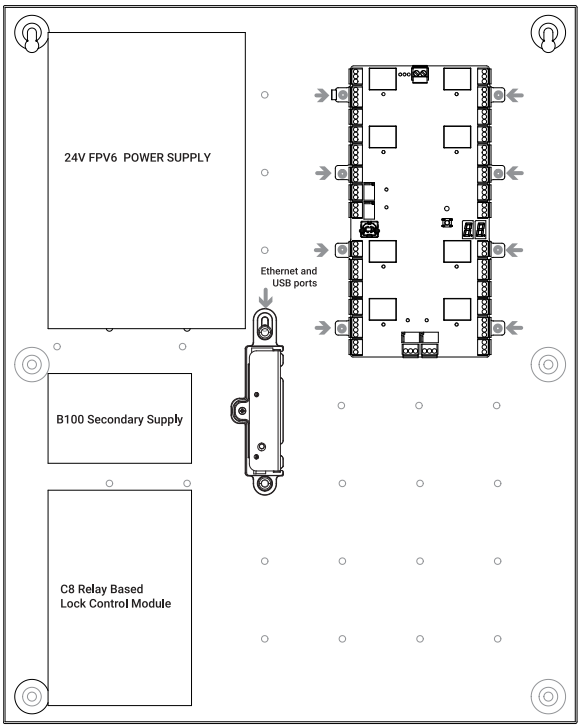


Figure 6 Access Control Core mounted with bracket (Ethernet and USB ports facing up) below 8-Port Board

Mounting

1. Mount the 8-Port Board in the upper-right corner of the enclosure by snapping the board standoffs into the holes in the backplate (see arrows).
2. If mounting the Access Control Core without the bracket, see Install Access Control Core without mounting bracket on page 13. Ensure the Ethernet and USB ports face up.

   If mounting the Access Control Core with the bracket, see Install Access Control Core with mounting bracket on page 14. Ensure the Ethernet and USB ports face up.

3. Connect the Access Control Core to the 8-Port Board with the included USB cable.

> **Note:** The maximum recommended USB cable length is 6 feet (2 meters) or 10 feet (3 meters) if high quality, shielded cable.

Install the Core Series boards in E4 enclosure

The E4 board placement includes the 24V FP0150 power supply, B100 secondary supply, D8P Power Distribution Module, C8 Relay Based Lock Control Module, 8-Port Board, and Access Control Core with the mounting bracket.

Front view

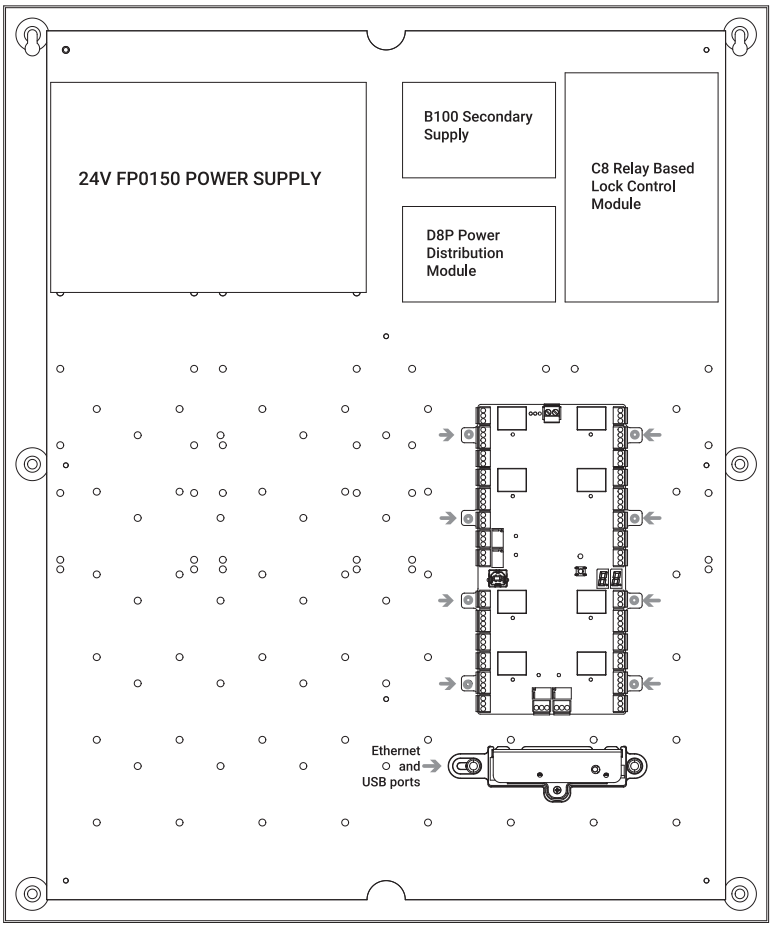


Figure 7 Access Control Core mounted with bracket (Ethernet and USB ports facing left) below the 8-Port Board

Mounting

1. Mount the 8-Port Board below the power supply modules by snapping the board standoffs into the holes in the backplate (see arrows).
2. Mount the Access Control Core with the bracket. Ensure the Ethernet and USB ports face left. For more information, see Install Access Control Core with mounting bracket on page 14.

3. Connect the Access Control Core to the 8-Port Board with the included USB cable.

> **Note:** The maximum recommended USB cable length is 6 feet (2 meters) or 10 feet (3 meters) if high quality, shielded cable.

Install the Core Series boards in E6 enclosure

The E6 board placement includes the 24V FP0150 and FP250 power supplies, D8P Power Distribution Modules, C8 Relay Based Lock Control Modules, 8-Port Boards, and Access Control Core with the mounting bracket.

Front view

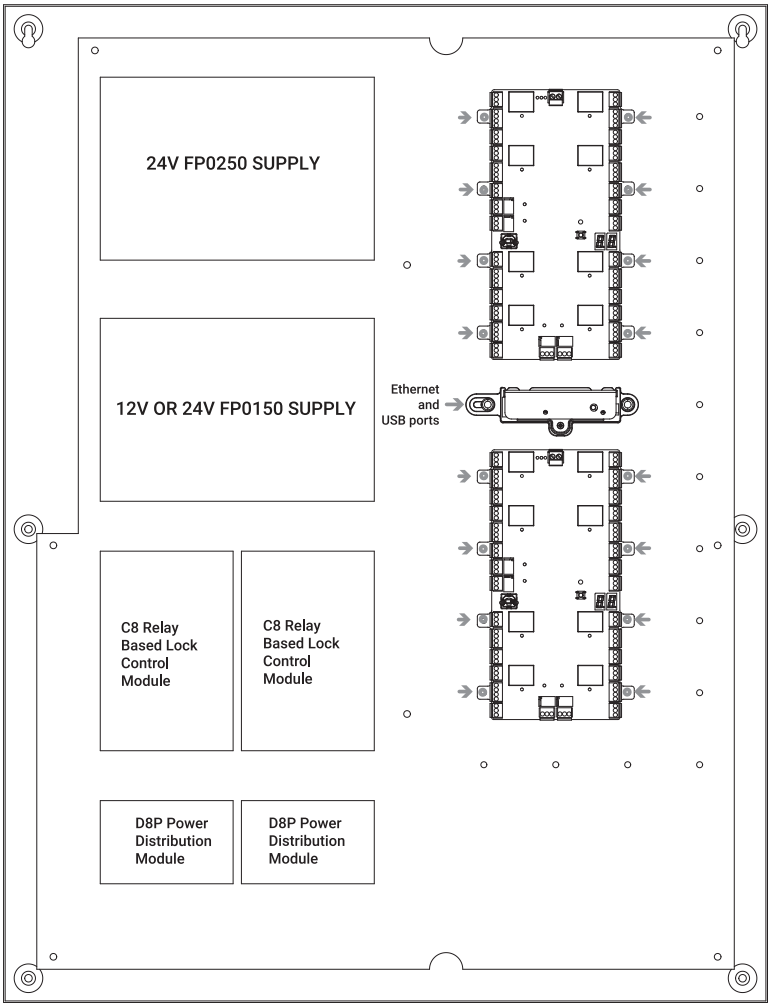


Figure 8 Access Control Core mounted with bracket between the 8-Port Boards (Ethernet and USB ports facing left)

Mounting

1. Mount the 8-Port Boards to the right of the power supply modules by snapping the board standoffs into the holes in the backplate (see arrows).
2. Mount the Access Control Core with the bracket. Ensure the Ethernet and USB ports face left. For more information, see Install Access Control Core with mounting bracket on page 14.

3. Connect the Access Control Core to the 8-Port Boards with the included USB cables.

> **Note:** The maximum recommended USB cable length is 6 feet (2 meters) or 10 feet (3 meters) if high quality, shielded cable.

Wiring Avigilon readers

Avigilon readers and ACUs communicate via RS-485. The compatible wire types are listed in order of preference which impacts distance.

- Shielded CAT6A (recommended; additional two pairs can be used for sensors)
- Shielded Cat 6
- Shielded RS-485 with 18-24 AWG (lower gauge, thicker wire is better)
- Shielded Cat 5
- Unshielded Cat 6
- Unshielded Cat 5
- Shielded 22/6
- Unshielded 22/6

Note: Use one twisted pair for GND and VIN (power) and one twisted pair for +B and -A (data).

ACU and Wiegand reader wiring

Table 2 Connections from Avigilon ACU to Avigilon reader

Pigtail color	Short name	Full name
Gray	GND	Ground (RTN)
Blue	+B	RS485-B
Violet	-A	RS485-A
Orange	VIN	+12V IN

Table 3 Connections to third-party Wiegand reader (optional)

Pigtail color	Short name	Full name
Red	VO	Wiegand Voltage
Black	GND	Wiegand RTN
Green	WD0	Wiegand Data 0
White	WD1	Wiegand Data 1
Brown	LED	Wiegand LED
Yellow	BUZZER	Wiegand Buzzer

Temperature must not exceed -22°F to 140°F (-30°C to 60°C).

Recommended maximum cable length: 300 ft (91 m) with CAT6 or 500 ft (152 m) if two wire pairs are used for GND and VIN (power).

For shielded wiring: Connect one side of the drain wire (the shield around the wires) to the GND terminal on the ACU. 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 standard 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 must be connected to the same ACU. If you need more than four access controlled floors or readers, add the 16 I/O Elevator Board.

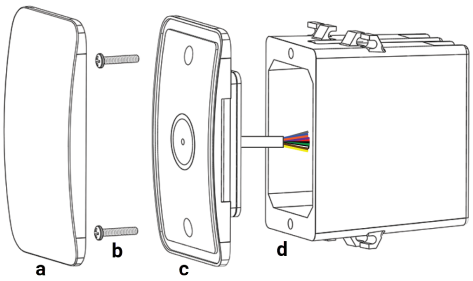
Warning: Always remove power from the ACU and locking hardware when wiring Avigilon readers and other devices. Failure to do so can damage the ACU.

Install the Smart Reader v2

Standard Reader

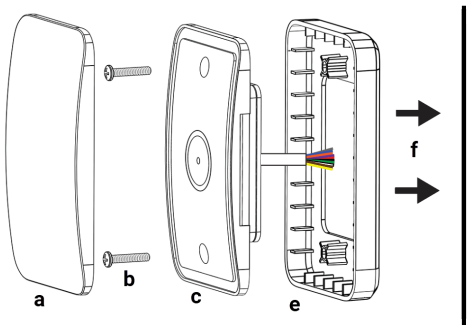
The Smart Reader v2 (OP-R2X-STND) can be flush mounted in a single gang box or surface mounted using the provided bracket.

Flush mount (recommended)



1. Install a recessed single gang box (d) into the wall.
2. Strip and connect the wires.
3. Use the provided screws (b) to attach the reader (c) to the gang box. Do not use the provided surface mount bracket for flush mount installations.
4. Snap on the front cover (a).

Surface mount



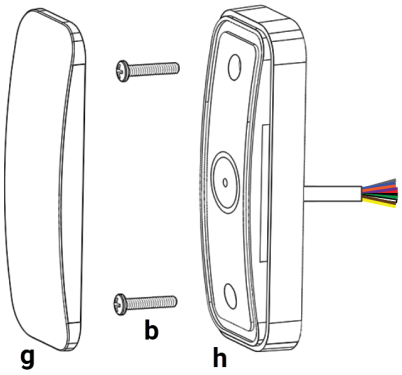
Note: The flat side of the surface mount bracket must face the wall. No adhesives are necessary.

1. Place the reader (c) inside the surface mount bracket (e).
2. Strip and connect the wires.
3. Use wall anchors and the appropriate screws (not included) to attach the reader (c and e) to the wall.
4. Snap on the front cover (a).

Note: Do not use adhesive.

Mullion Reader

The Mullion Smart Reader (OP-R2X-MULL) can be surface mounted where space is limited.



Surface mount

1. Strip and connect the wires.
2. If installing on a metal surface, drill and tap to use the provided #6-32 screws (b). Or, use self-tapping screws (not included). Attach the reader (g) to the wall (f).
3. Snap on the front cover (g).

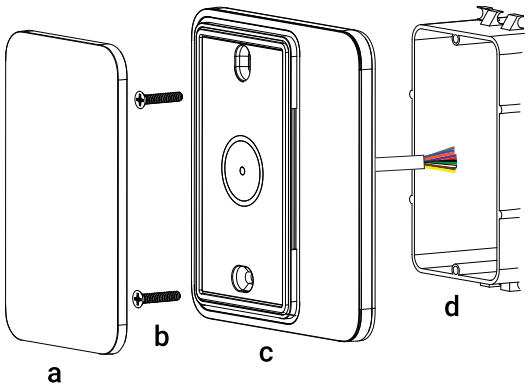
Note: Do not use adhesive.

Install the Smart Keypad Reader

Standard Keypad Reader

The Smart Keypad Reader (OP-RKP-STND) can be flush mounted in a single gang box or surface mounted using the provided surface mount bracket.

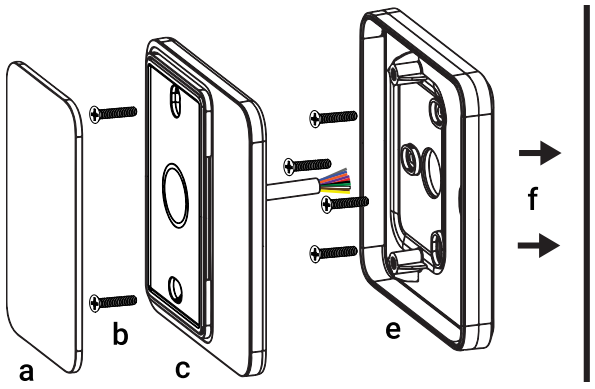
Flush mount



1. Install a recessed single gang box (d) into the wall.
2. Strip and connect the wires.
3. Use the provided screws (b) to attach the reader (c) to the wall. Do not use the provided surface mount bracket for flush mount installations.
4. Snap on the front cover (a).

Note: Do not use adhesive.

Surface mount



1. Attach the surface mount bracket (e) to the wall (f) using one of these options:

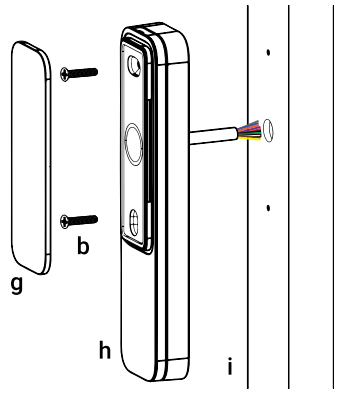
   Drywall: Use wall anchors and suitable screws. **UK single gang box**: Use four machine screws (not incl). **EU single gang box**: Use two machine screws (not included) in the top and bottom holes.

2. Strip and connect the wires.
3. Use the provided #8-32 screws (b) to attach the reader (c) to the surface mount bracket (e).
4. Snap on the front cover (a).

Note: Do not use adhesive.

Mullion Keypad Reader

The Mullion Smart Reader (OP-RKP-MULL) can be surface mounted where space is limited.

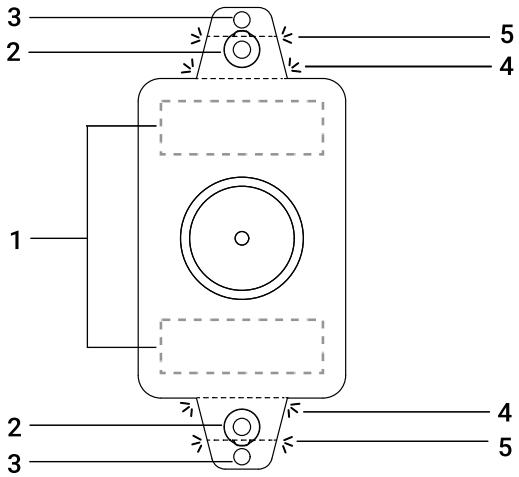


1. Strip and connect the wires.
2. If installing on a metal surface, drill and tap to use the provided #6-32 screws (b). Or, use self-tapping screws. Attach the reader (h) to the wall (i).
3. Snap on the front cover (g).

Note: Do not use adhesive.

Install the Embedded USB Smart Reader

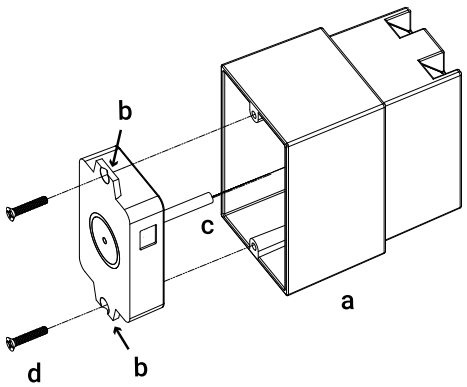
The Embedded Reader (OP-R2X-EMBD) can be flush mounted in a US gang box; installed within kiosks, turnstiles, parking systems, or other enclosures using the mounting holes; or mounted behind panels using adhesive.



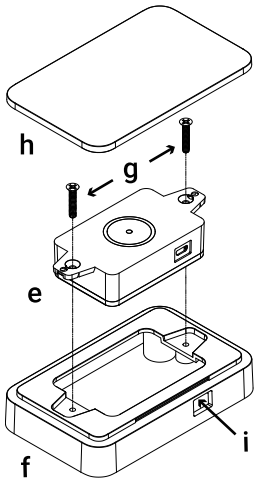
1	Recommended mounting strip location
2	Mounting holes for single gang box
3	Outer mounting holes
4	Inner breakaway tabs for mounting using adhesive
5	Outer breakaway tabs for US gang box installation

Note: Remove tabs carefully using pliers.

Flush mount



Desktop mount for use as an enrollment reader



1. Install the reader (e) within the desktop mount bracket (f) (sold separately) with the provided screws (g).
2. Snap on the front cover (h).
3. Connect the reader to the host using the USB cable (i) provided with the desktop mount bracket.

   Connector type: USB 2.0 Micro B

Wiring

Avigilon readers and ACUs communicate via RS-485. The compatible wire types are listed in order of preference which impacts distance.

- Shielded CAT6A (recommended; additional two pairs can be used for sensors)
- Shielded Cat 6
- Shielded RS-485 with 18-24 AWG (lower gauge, thicker wire is better)
- Shielded Cat 5
- Unshielded Cat 6
- Unshielded Cat 5
- Shielded 22/6
- Unshielded 22/6

Note: Use one twisted pair for GND and VIN (power) and one twisted pair for +B and -A (data).

Connector type	Description
USB 2.0 Micro B	Connect to host over USB for keyboard emulation

Table 4 Connections from Avigilon ACU to Avigilon Embedded reader

Short name	Full name
GND	Ground (RTN)
+B	RS485-B
-A	RS485-A
VIN	+12V IN

Table 5 Connections to third-party Wiegand reader (optional)

Short name	Full name
VO	Wiegand Voltage
GND	Wiegand RTN
WD0	Wiegand Data 0
WD1	Wiegand Data 1
LED	Wiegand LED
BUZZER	Wiegand Buzzer

Temperature must not exceed -22°F to 140°F (-30°C to 60°C).

Install the Video Reader Pro

The Video Reader Pro combines a built-in high-resolution camera with the form factor of a mullion door reader. The video readers are powered using PoE and do not need to be wired back to an Avigilon ACU. However, you must use an ACU or third-party panel to support locking hardware.

Specifications

For the Video Reader Pro specifications and dimensions, see the OP-VID-PRO-RDR datasheet.

Prerequisites

Create the video reader in the Alta Control Center prior to installing and provisioning. For more information, see the Avigilon Alta Control Center Administrator Guide. See also Network security best practices on page 37.

To install the Mobile Gateway option, see the Installation article.

Installation

You can install the Video Reader Pro on a narrow surface using the mullion mount or on a single gang box using the standard mount.

Install the Video Reader Pro on the mullion mount

1. Use the provided machine screws (a) in threaded holes, or the wall mount screws and anchors (not shown) for drywall, to attach the mullion mounting plate (b) to the wall.
2. Place the cradle bracket (c) on the mounting plate, angled as desired, and secure with the provided screws (d).
3. Wire and provision the device. See the provisioning reader topic on the next pages.
4. Snap in the reader (e), and secure with the security set screw (f).

> **Note:** Do not use adhesive.

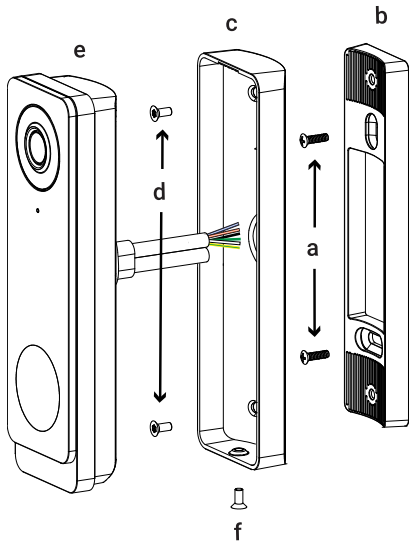


Figure 9 Installing the Video Reader Pro on the mullion mount

Install the Video Reader Pro on the standard mount

1. Install a recessed single gang box into the wall.
2. Use the provided machine screws (a) to attach the standard mounting plate (b) to the wall.
3. Place the cradle bracket (c) on the mounting plate, angle as desired, and secure with the provided screws (d).
4. Strip and connect the wires, and provision the device.
5. Snap in the reader (e) and secure with the security set screw.

> **Note:** Do not use adhesive.

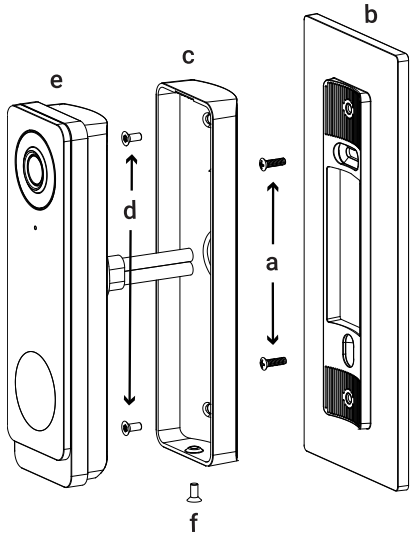


Figure 10 Installing the Video Reader Pro on the standard mount

Video Reader Pro wiring

Table 6 Connection to Avigilon cloud

Connector type	Description
Ethernet	RJ-45 connector

Table 7 Connections to third-party controller (optional)

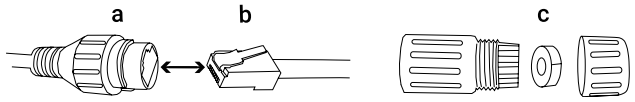
Pigtail color	Short name	Full name
Black	GND	Wiegand RTN
Green	WD0	Wiegand Data 0
White	WD1	Wiegand Data 1

Table 8 Connections to third-party device (optional)

Pigtail color	Short name	Full name
Blue and white stripe	NO	Relay Normally Open*
Orange and white stripe	COM	Relay Common*
Green and yellow stripe	GND	Ground (RTN)*

*Relay is not rated for locking hardware. To power locking hardware, use an Avigilon Smart Hub or third-party access control panel.

1. Use the provided waterproof coupling (c) to connect the RJ-45 jack (a) to an Ethernet cable (Cat 5e, 26 AWG or better), which is connected to a networked Power over Ethernet (PoE) source (b).



2. Optional. Use the NO and COM stripe wires to connect to a third-party device. Use the WD0 and WD1 wires to connect to an input on the panel of a legacy access control system.

Power up the Video Reader Pro

1. Connect the Video Reader Pro to a PoE injector or PoE-powered switch.
2. Power on the Video Reader Pro.

Provision the Video Reader Pro

Note: You must first create a Video Reader Pro in the Alta Control Center before provisioning.

Use the Open Admin app

1. Open the Open Admin app.
2. Search for org name.
3. Press Admin button (see figure on the next pages) on the back of reader.

   Note: Remove the back cradle to expose the Admin button.

4. Tap the serial number of the reader in the Open Admin app.
5. Tap **Provision Device** in the Open Admin app and follow in-app instructions.

Use the Alta Control Center

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Devices** > **Video readers**.
3. Press Admin button (see figure below) on back of Video Reader Pro.
4. In the Alta Control Center, click the Register button.

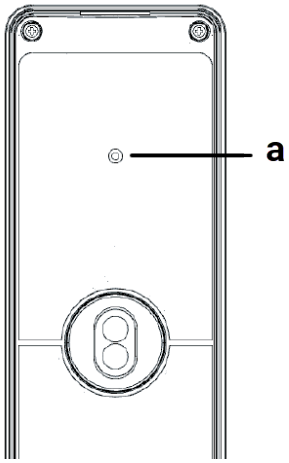


Figure 11 Admin button (a) on the back of Video Reader Pro

For next steps, return to the Alta Control Center to view the activated device.

Network security best practices

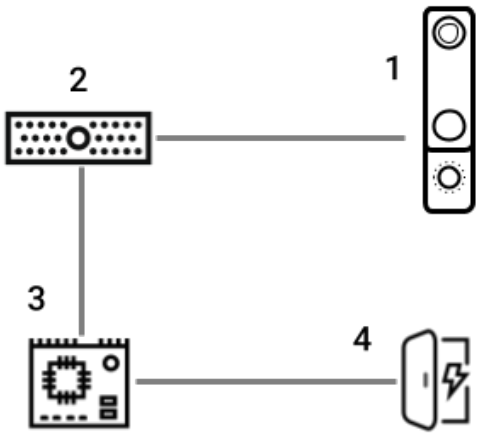
PoE access control readers, such as the Video Reader Pro and Video Intercom Reader Pro, require a wired network connection installed on the unsecured side of a door.

Important: To remove the risk of an attacker gaining access to the local network via the network connection, assuming they can remove the reader from the wall, Avigilon Alta recommends that your IT team place the exposed Ethernet port on a demilitarized zone (DMZ) or perimeter network.

Install the Video Intercom Reader Pro

The Video Intercom Reader Pro combines a built-in high-resolution camera, intercom with intelligent voice interface, and multi-technology reader into a sleek form factor.

System overview



No.	Description
1	Video Intercom Reader Pro is powered using PoE and does not need to be wired to an Avigilon ACU. However, you must use an ACU or third-party panel to support locking hardware. The device must be connected to the same local network as the ACU, control panel, or door controller that controls it.
2	PoE-powered network switch or Avigilon PoE injector
3	Avigilon ACU, legacy panel, or door controller that unlocks the door
4	Door strike

For the Gateway Mode wiring setup (not shown in the diagram), see Appendix A: Configuring Avigilon Alta Control Center with Legacy Systems in the Avigilon Alta Control Center Administrator Guide.

Specifications

For the Video Intercom Reader Pro specifications and dimensions, see the OP-VID-PRO-INT datasheet.

Note: Higher network bandwidth is recommended for the best performance in video and audio streaming.

Prerequisites

Create the Video Intercom Reader Pro in the Alta Control Center before installing and provisioning. For more information, see the Avigilon Alta Control Center Administrator Guide. See also Network security best practices on page 37. To install the Mobile Gateway option, see the Installation article.

Note: You get 5 free Video Intercom Reader Pro user licenses per organization.

Installation

You can install the Video Intercom Reader Pro on a narrow surface using the mullion mount or on a single gang box using the standard mount.

Install the Video Intercom Reader Pro on the mullion mount

1. Use the provided machine screws (a) in threaded holes, or the wall mount screws and anchors (not shown) for drywall, to attach the mullion mounting plate (b) to the wall.
2. Place the cradle bracket (c) on the mounting plate, angled as desired, and secure with the provided screws (d).
3. Wire and provision the device. See the provisioning reader topic on the next pages.
4. Snap in the reader (e), and secure with the security set screw (f).

   Note: Do not use adhesive.

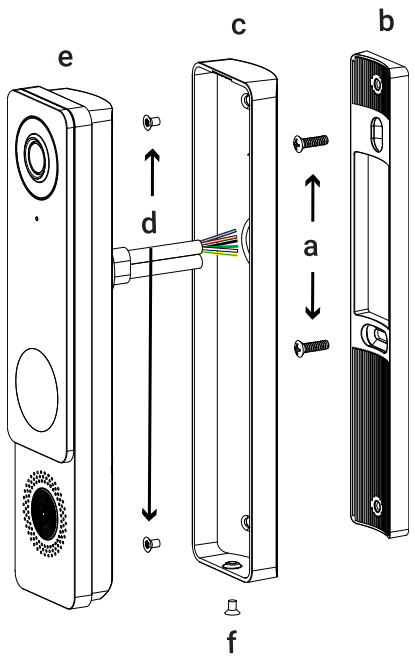


Figure 12 Installing the Video Intercom Reader Pro on the mullion mount

Install the Video Intercom Reader Pro on the standard mount

1. Install a recessed single gang box into the wall.
2. Use the provided machine screws (a) to attach the standard mounting plate (b) to the wall.
3. Place the cradle bracket (c) on the mounting plate, angle as desired, and secure with the provided screws (d).
4. Strip and connect the wires, and provision the device.
5. Snap in the reader (e) and secure with the security set screw.

> **Note:** Do not use adhesive.

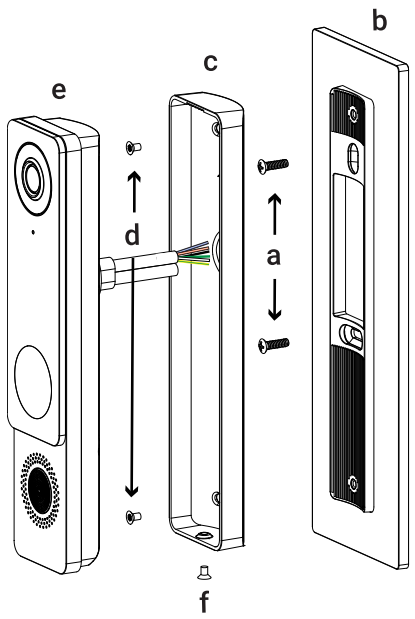


Figure 13 Installing the Video Intercom Reader Pro on the standard mount

Wiring the Video Intercom Reader Pro

Table 9 Connection to Avigilon cloud

Connector type	Description
Ethernet	RJ-45 connector

Table 10 Connections to third-party controller (optional)

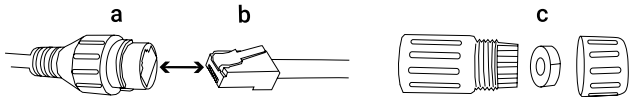
Pigtail color	Short name	Full name
Black	GND	Wiegand RTN
Green	WD0	Wiegand Data 0
White	WD1	Wiegand Data 1

Table 11 Connections to third-party device (optional)

Pigtail color	Short name	Full name
Blue and white stripe	NO	Relay Normally Open*
Orange and white stripe	COM	Relay Common*
Green and yellow stripe	GND	Ground (RTN)*

*Relay is not rated for locking hardware. To power locking hardware, use an Avigilon Smart Hub or third-party access control panel.

1. Use the provided waterproof coupling (c) to connect the RJ-45 jack (a) to an Ethernet cable (Cat 5e, 26 AWG or better), which is connected to a networked Power over Ethernet (PoE) source (b).



2. Optional. Use the NO and COM stripe wires to connect to a third-party device. Use the WD0 and WD1 wires to connect to an input on the panel of a legacy access control system.

Power the Video Intercom Reader Pro

1. Connect the Video Intercom Reader Pro to a PoE injector or PoE-powered switch.
2. Power on the Video Intercom Reader Pro.

Provision the Video Intercom Reader Pro

> **Note:** You must first create a Video Intercom Reader Pro in the Alta Control Center.

For more information, see *Add a Video Intercom Reader Pro* in the Avigilon Alta Control Center Administrator Guide.

Use the Open Admin app

1. Open the Open Admin app.
2. Search for org name.
3. Press Admin button (see figure on the next pages) on the back of reader.

   > **Note:** Remove the back cradle to expose the Admin button.

4. Tap the serial number of the reader in the Open Admin app.
5. Tap **Provision Device** in the Open Admin app and follow in-app instructions.

Use the Alta Control Center

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Devices** > **Video intercom readers**.

3. Press Admin button (see figure below) on back of Video Reader Pro.
4. In the Alta Control Center, click the Register button.

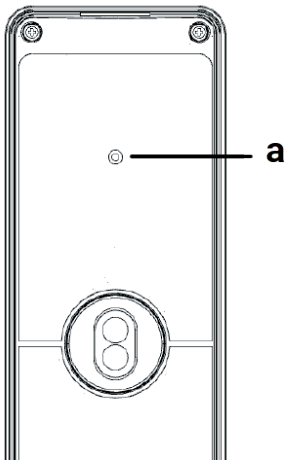


Figure 14 Admin button (a) on the back of Video Reader Pro

For next steps, return to the Alta Control Center to view the activated device.

Standard wiring configurations

Wiring the 12/24V 4-Door Smart Hub

The 12/24V 4-Door Smart Hub (SYS-4ENT-DVE1) uses the LifeSafety Power FPV4 to power the Access Control Core and 4-Port Board; a LifeSafety Power B100 secondary power supply; and the LifeSafety Power C4 Relay Based Lock Control Module to power 12-24V locking hardware.

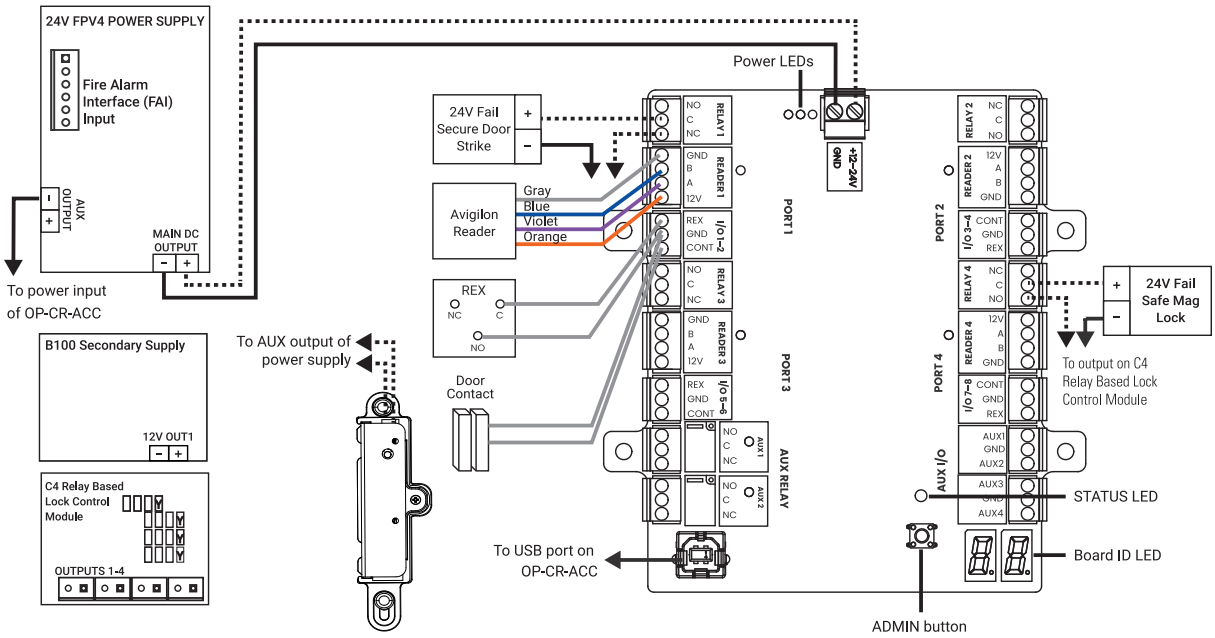


Figure 15 SYS-4ENT-DVE1 wiring diagram

24V FPV4 Power Supply	The main output can be switched by the Fire Alarm Interface (FAI). Fail safe and fail secure are ways of configuring lock hardware: • Fail-safe hardware *unlocks* when power is interrupted or lost. • Fail-secure hardware *locks* when power is interrupted or lost. For information about wiring third-party lock hardware, refer to vendor documentation. **Note:** Ensure that locking hardware is connected to the required voltage by setting the jumpers on the C4 Power Control Module.
***OUTPUTS 1–4**	The voltage of each C4 output can be selected individually as 12V or 24V using the yellow jumper ▯ corresponding to the output: position 1 on the jumper pins is 24V (this is the default setting) and position 2 is 12V.

Wiring the 24V Elevator Smart Hub

The 24V Elevator Smart Hub (SYS-ELEV-SVE1) uses the LifeSafety Power FPV4 to power the Access Control Core, and 16 I/O Elevator Board.

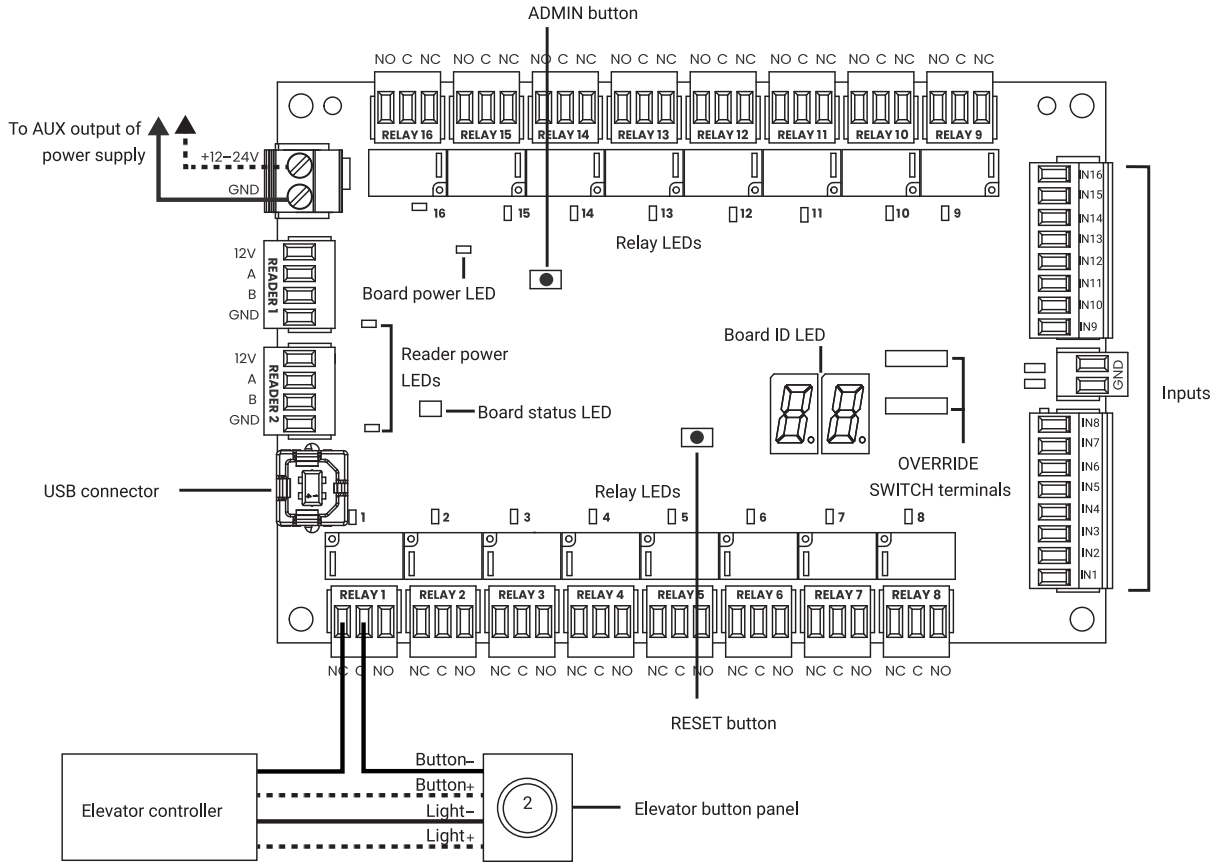


Figure 16 SYS-ELEV-SVE1 wiring diagram

USB connector	Connects to the Access Control Core board.
Relays 1–16	Output ratings: 16 relays, 60VDC maximum; 1A @ 24VDC (resistive); 0.5A @ 125VAC (resistive). The pin order is the same on both sides of the board, left to right (for example, NC, C, NO), which allows connectors to be moved without rewiring.
Inputs 1–16	General-purpose inputs require a voltage between 3V and 24V.

1. For 12V or 24V systems, connect the 16 I/O Elevator Board to an unswitched output from the main power supply (AUX output on the FPV4).
2. Use the provided USB cable to connect the 16 I/O Elevator Board to the USB connector on the Access Control Core board.

3. For elevator button wiring, interrupt one of the signal wires from each elevator floor button. Run through the C and NC contacts for the corresponding relay on the board.
4. For general-purpose input wiring, general-purpose inputs respond to voltages between 3V and 24V. The inputs will not respond directly to a switch or relay connection to ground. To use these inputs with a switch or relay, connect one side of the switch to the input and the other side of the switch to a supply voltage between 3V and 24V. Optional: Add a 1kΩ ohm resistor in series with the switch.

Wiring the 12/24V 8-Door Smart Hub

The 12/24V 8-Door Smart Hub (SYS-8ENT-DVE2) uses the LifeSafety Power FPV6 to power the Access Control Core and 8-Port Board; a LifeSafety Power B100 secondary power supply; and the LifeSafety Power C8 Relay Based Lock Control Module to power 12V and 24V locking hardware.

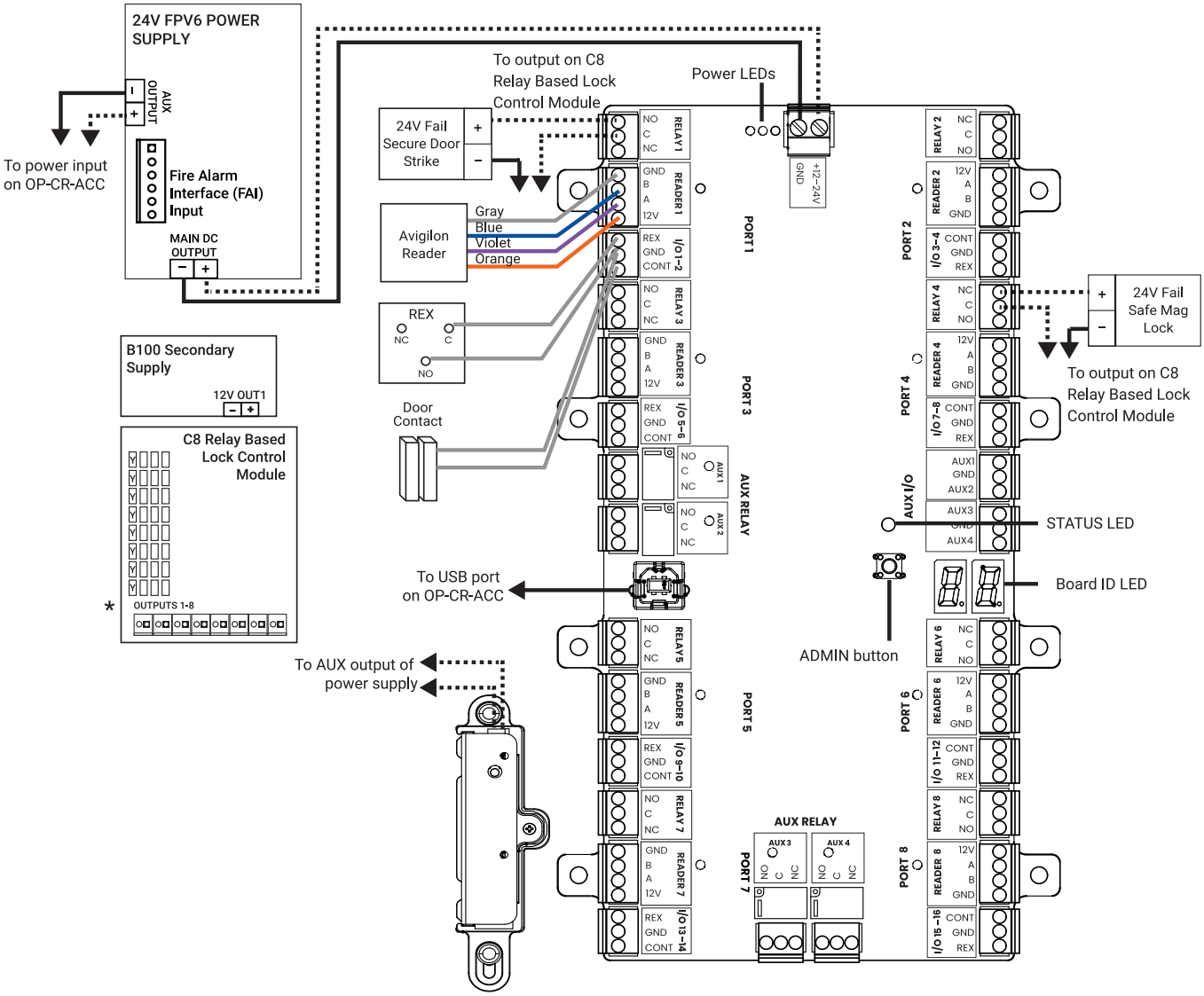


Figure 17 SYS-8ENT-DVE2 wiring diagram

24V FPV6 Power Supply	The main output can be switched by the Fire Alarm Interface (FAI). Fail safe and fail secure are ways of configuring lock hardware: • Fail-safe hardware *unlocks* when power is interrupted or lost. • Fail-secure hardware *locks* when power is interrupted or lost. For information about wiring third-party lock hardware, refer to vendor documentation. **Note:** If locking hardware uses 12V, use the C8 Relay Based Lock Control Module. Ensure that appropriate jumpers are set to 12V.
***OUTPUTS 1–8**	The voltage of each C8 output can be selected individually as 12V or 24V using the yellow jumper corresponding to the output: position 1 on the jumper pins is 24V (this is the default setting) and position 2 is 12V.

Wiring the 12/24 8-Door Large Smart Hub

The 12/24 8-Door Large Smart Hub (SYS-8ENT-DVE4) uses the LifeSafety Power FP0150 to power the Access Control Core and 8-Port Board; a LifeSafety Power B100 secondary power supply; the LifeSafety Power C8 Relay Based Lock Control Module to power 12-24V locking hardware; and the LifeSafety Power D8P Power Distribution Module to power 12V and 24V locking hardware and accessories.

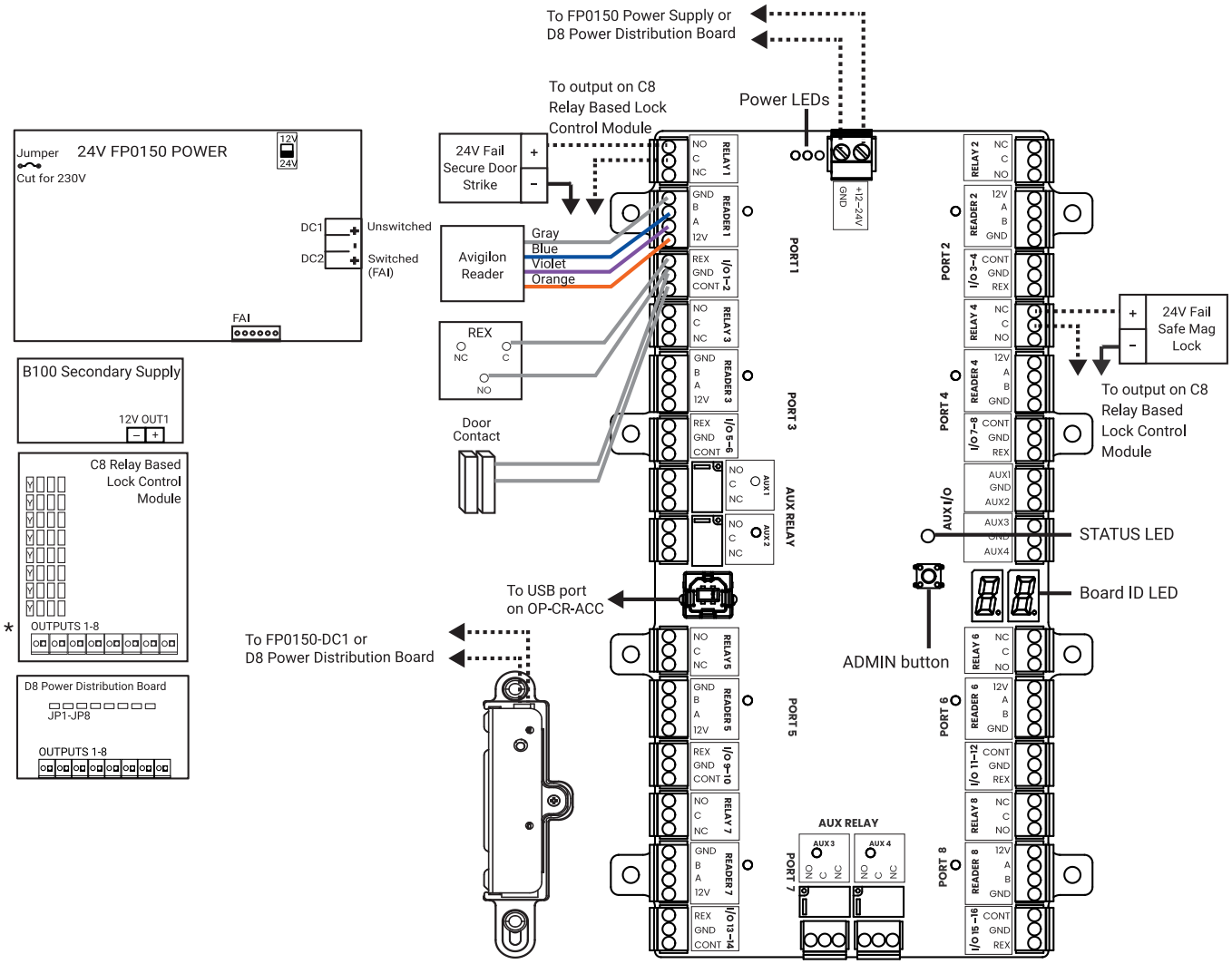


Figure 18 SYS-8ENT-DVE4 wiring diagram

24V FP0150 Power Supply	The main output can be switched by the Fire Alarm Interface (FAI). Fail safe and fail secure are ways of configuring lock hardware: • Fail-safe hardware *unlocks* when power is interrupted or lost. • Fail-secure hardware *locks* when power is interrupted or lost. For information about wiring third-party lock hardware, refer to vendor documentation.
***OUTPUTS 1–8**	The voltage of each C8 or D8 output can be selected individually as 12V or 24V using the yellow jumper ▯ corresponding to the output: position 1 on the jumper pins is 24V (this is the default setting) and position 2 is 12V.

Wiring the 12/24 16-Door Large Smart Hub

The 12/24 16-Door Large Smart Hub (SYS-16ENT-DVE6) uses the LifeSafety Power FP0150 and FP250 to power the Access Control Core and 8-Port Boards; LifeSafety Power B100 secondary power supplies; LifeSafety Power C8 Relay Based Lock Control Modules to power 12-24V locking hardware; and the LifeSafety Power D8P Power Distribution Module to power 12V and 24V locking hardware and accessories.

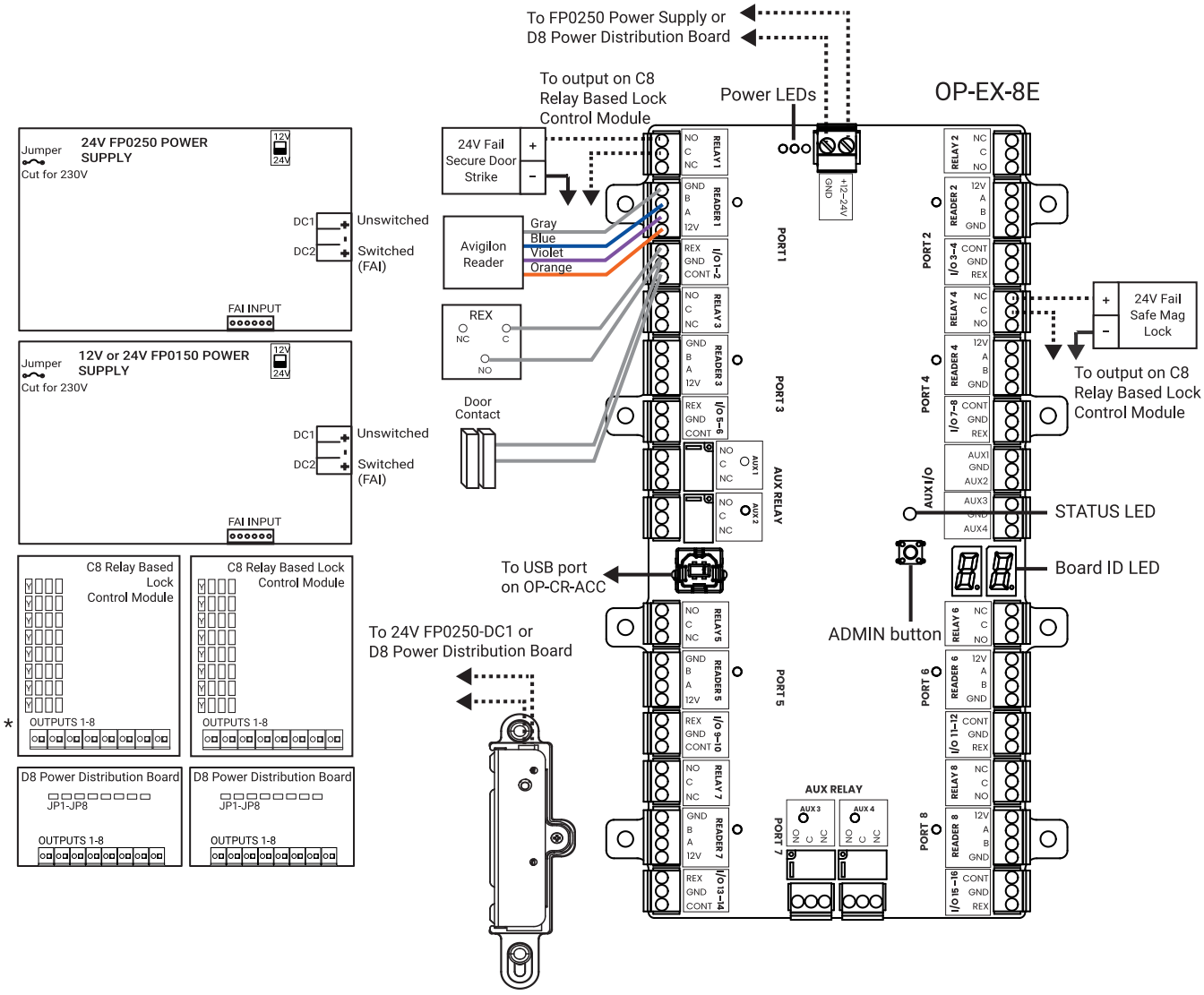


Figure 19 SYS-16ENT-DVE6 wiring diagram

FP0150 and FP0250 Power Supplies	The main output can be switched by the Fire Alarm Interface (FAI). Fail safe and fail secure are ways of configuring lock hardware: • Fail-safe hardware *unlocks* when power is interrupted or lost. • Fail-secure hardware *locks* when power is interrupted or lost.

	For information about wiring third-party lock hardware, refer to vendor documentation.
***OUTPUTS 1–8**	If FPO150 is set to 12V, each C8 or D8 output can be selected individually as 12V or 24V using the yellow jumper corresponding to the output: position 1 on the jumper pins is 24V (this is the default setting) and position 2 is 12V.

Wiring fail-safe and fail-secure lock hardware

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

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

For information about wiring third-party lock hardware, refer to vendor documentation.

Advanced wiring configurations

Wiring Wiegand readers to Avigilon readers

To support additional card credentials and biometric scanners, you can wire third-party Wiegand devices to the ACU by using the Smart Reader pigtail. Simply connect the power (red), ground (black), WD0 (green), and WD1 (white) from the Smart Reader pigtail to the Wiegand device.

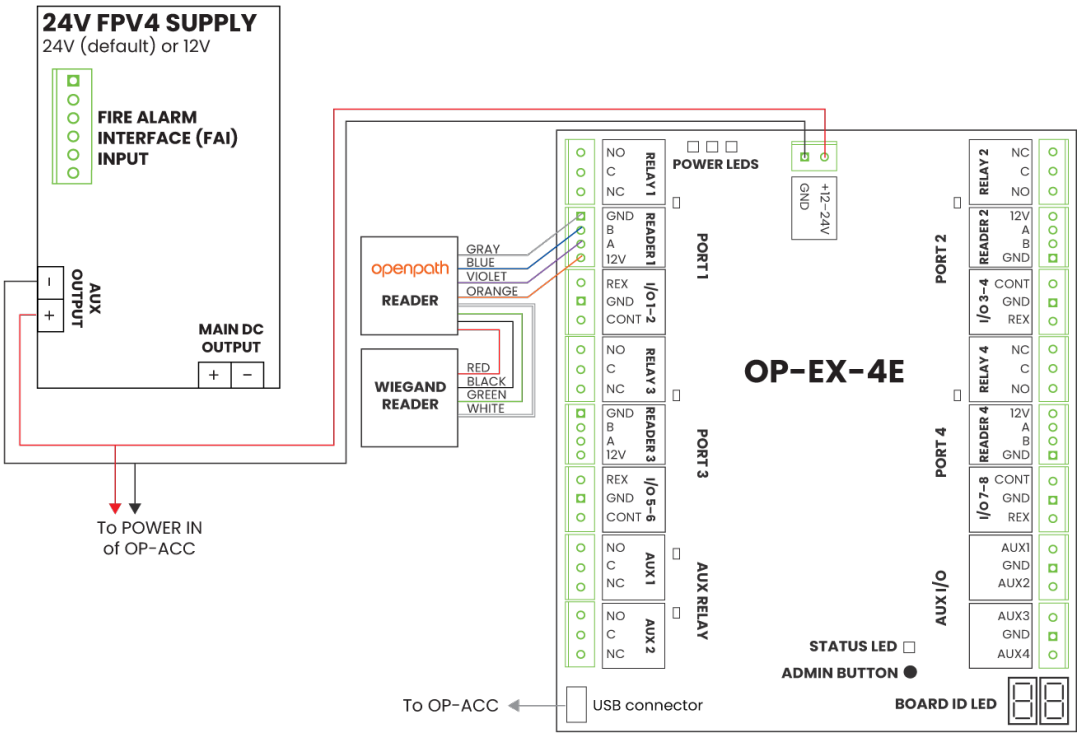


Figure 1 Wiring Wiegand readers to Avigilon readers

Wiring to legacy panels and mobile gateway

> **Note:** The Avigilon Pro series readers (Video Reader Pro and Video Intercom Reader Pro) do not require the Avigilon Access Control Unit (ACU).

To add mobile credential features (see 6 below) to a legacy access control system:

1. Install the Avigilon ACU (see 4) between the Avigilon Smart Readers (see 5) and the legacy panel (see 2) connected to legacy software (see 1). See Change I/O types on page 53 to configure the ACU as output to the legacy panel and Configure Wiegand devices in the Alta Control Center on page 54.

2. If existing Wiegand readers use a proprietary card format, they can be wired to new Avigilon Smart Readers. Otherwise, replace existing readers with Avigilon Smart Readers.

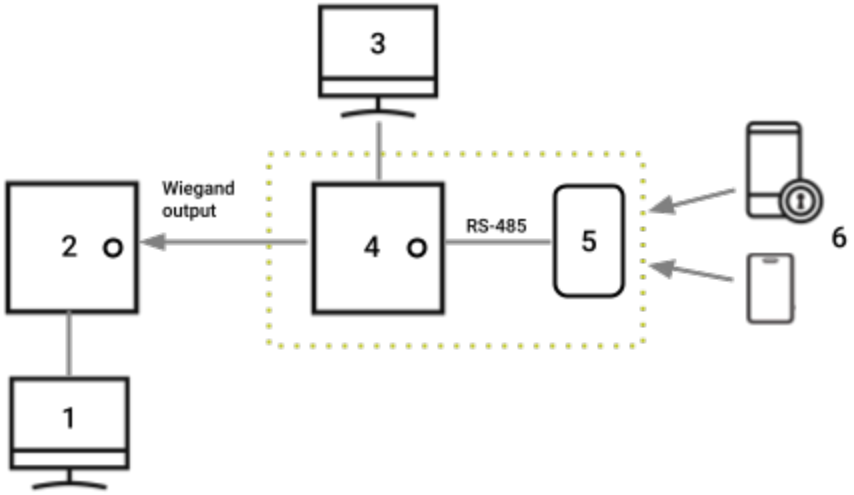


Figure 2 Wiring ACUs to legacy panels and legacy software

1	Legacy access control system software
2	Legacy access control system panel
3	Avigilon Alta Control Center
4a	Avigilon Smart Hub ACU installed between the Smart Reader and the legacy panel **Note:** The Avigilon Pro series readers (Video Reader Pro and Video Intercom Reader Pro) do not require the Avigilon Access Control Unit (ACU).
4b	Wiegand port configured as output to the legacy panel For more information, see advanced wiring in the Avigilon Alta Access Control System Installation Guide (link).
5	Avigilon Smart Readers If existing Wiegand readers use a proprietary card format, they can be wired to new Avigilon Smart Readers. Otherwise, replace existing readers with Avigilon Smart Readers.
6	Openpath Mobile Access app, Cloud Key credentials and Wave to unlock functionality Avigilon credential with default gateway number or Wiegand ID

In this configuration, the legacy panel controls all locking hardware and entry mechanisms while the Avigilon system lets you use the Openpath Mobile Access app, Smart Reader, and Wave to Unlock functionality. Refer to the Avigilon Alta Control Center Administrator Guide for more information on configuring Mobile Gateway settings.

Change I/O types

While I/Os on the 4-Port Board and 8-Port Board are labeled REX and CONTACT by default, you can use these I/Os interchangeably or as generic inputs, by modifying their type in the Alta Control Center. You can also change them to Wiegand inputs, which requires a few extra steps. For more information, see the Avigilon Alta Control Center Administrator Guide.

Change input types in the Alta Control Center

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Devices** > **ACUs** and click the ACU to edit it.
3. Click on the **Ports** tab.
4. Click **Port** next to the input to be re-purposed.
5. Select a different type from the **Input type** dropdown, and click **Save**.

Wire to Wiegand devices on Core Series Smart Hubs

You can wire third-party Wiegand readers and panels to the ACU to support integrations or Mobile Gateway mode. The extra Auxiliary I/Os on the 4-Port Board and 8-Port Board can be used for wiring Wiegand devices, however, any I/O pair may be used including Contact and REX inputs.

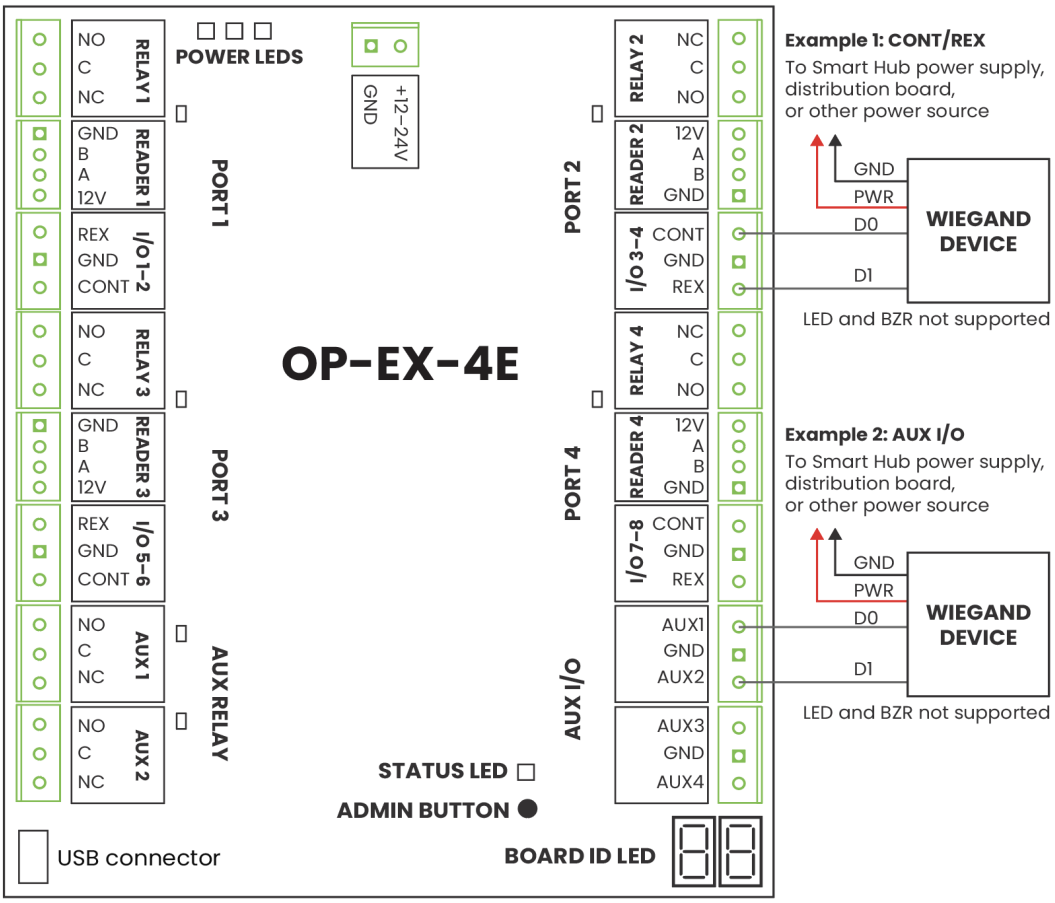
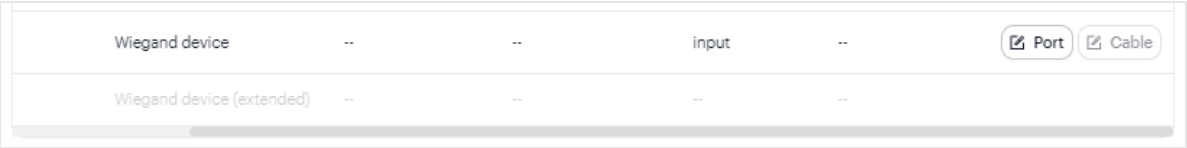


Figure 3 Wiring a Wiegand device to a Core Series Smart Hub

Configure Wiegand devices in the Alta Control Center

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Devices** > **ACUs** and click the ACU to edit it.
   a. Click the **Ports** tab.
   b. Click **Port** next to the first input of the I/O pair with a Wiegand device configured (in example 1, Contact2; in example 2, AUX1).
   c. Select from **Input type**, and click **Save**.

      This will label the subsequent input as **Wiegand device (extended)** and disable it from editing. Inputs cannot be changed if they are already assigned to an entry.



Once the Wiegand device is configured on the ACU, it can be assigned to an entry.

3. Go to **Sites** > **Entries**, and create or edit an existing entry. In the Wiegand device settings, configure the following:
   - **Port** — The port for the Wiegand device to which this entry is wired.
   - **Mode** — The direction the card credential data is sent.
     - **Input** — Receives data from the Wiegand reader.
     - **Output (gateway)** — Sends credential data to a third-party control panel.

       Enable **Gateway credential pass-through** if you do not want the Avigilon Alta system to authenticate credentials, but rather send all data to the legacy panel for authentication.

       Enter a **Default gateway card number** so that all credentials (including mobile credentials) are sent to the legacy panel as a Wiegand ID.

For more information on creating entries, refer to the Avigilon Alta Control Center Administrator Guide.

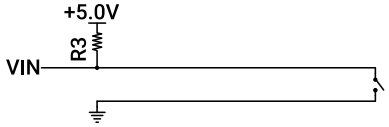
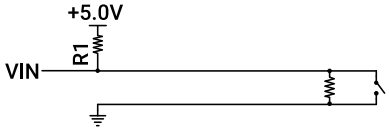
End-of-line supervision

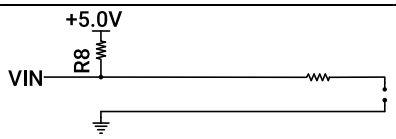
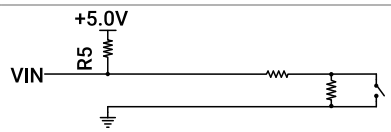
The 4-Port Board and 8-Port Board inputs have support for user-installed single or double 1k ohm termination.

This lets you monitor cut or shorted lines, and create alerts and rules in the Alta Control Center.

Configure EOL in the Alta Control Center

The input settings in the Alta Control Center must match the physical wiring configurations.

Type	Cable ➔	End of line supervision setting
Smart Hub No EOL		**None**
Smart Hub Single EOL		**Cut Line Detect**

Type	Cable ➔	End of line supervision setting
Smart Hub Single EOL		**Line Shorted Detect**
Smart Hub Double EOL		**Both**

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Devices** > **ACUs**.
3. Select the ACU to edit it.
4. Click the **Ports** tab. Click **Cable** next to the port with the EOL configured.
5. Select the appropriate **End of line supervision** setting — **None**, **Cut Line Detect**, **Line Shorted Detect**, or **Both**.
6. Click **Save**.

Provisioning ACUs

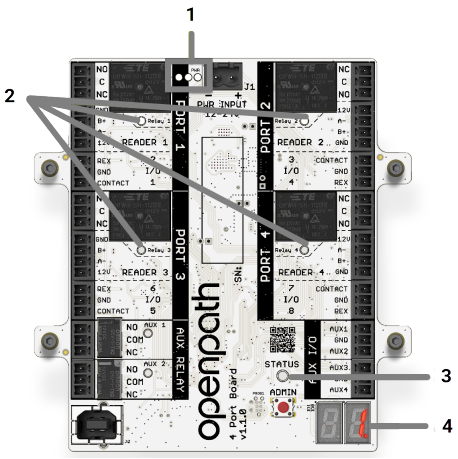
Provisioning the ACU means registering it in the Avigilon Alta Control Center and getting it up and running with the latest firmware. You will need to re-provision in the case of a hard reset, see Resetting ACUs on page 68.

> **Note:** If you're provisioning ACUs for a customer account, the customer org needs to be created first.

Prerequisites

- Meet all Network requirements on page 11.
- Connect the ACU to the internet via Ethernet.
- Install the Open Admin app.
  - iOS App Store
  - Google Play™ Store
- If using a laptop instead of the app, the laptop must be on the same network as the ACU. If you have a VLAN, make sure the laptop is on the same VLAN as the ACU.
- If using a laptop running Microsoft™ Windows or Linux®, you must download the iTunes app. The provisioning process uses Bonjour software that comes with iTunes. Optionally, you can download iTunes and use an archive utility to extract and install only the Bonjour MSI.

Power, Relay, Status, and Board ID LEDs



Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Figure 4 Expansion board LEDs — 4-Port Board example

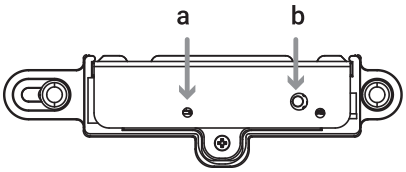
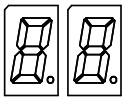


Figure 5 STATUS LED (a) and ADMIN button (b) on Access Control Core

Avigilon ACUs (Access Control Core and Expansion Boards) have several LEDs that indicate the following.

No.	Label	Description
1	PWR	Power LEDs indicate when the board is connected to power.
2	Relay 1 Relay 2 Relay 3 Relay 4	Relay LEDs indicate when the relays are activated.
3	STATUS	Status LED indicates when the ACU has been configured with firmware. See Expansion board Status LEDs below.
4		Board ID LED matches the EXPANSION BOARD NUMBER in the Alta Control Center.

Expansion board Status LEDs

The Status LED on the 4-Port Board or 8-Port Board board indicates the following.

Port LED		Description
●	Solid green	The expansion board is connected and communicating with the Access Control Core.
●	Solid red	The connection to the Access Control Core is in an error state. To resolve the issue: a. Power cycle the 4-Port Board or 8-Port Board. b. Unplug and replug the USB cable. c. Restart the device in the Alta Control Center. Go to **Dashboards** > **Device** dashboard, and choose **Restart device communicator** from the REMOTE DIAGNOSTICS column.

Port LED	Description
	The Status LED on the Access Control Core has several states, see Access Control Core Status LEDs below.

Access Control Core Status LEDs

The Status LED on the Access Control Core controller board indicates the following.

Port LED		Description
	Solid green	The Access Control Core is provisioned and functioning normally.
	Solid cyan	The Access Control Core is booting.
	Solid yellow	The Access Control Core is restoring software. Appears when you power on the Access Control Core for the first time or perform a hard reset.
	Blinking yellow	The Access Control Core is updating software. Indicates when the Access Control Core has been online for less than 24 hours.
	Solid blue	Unprovisioned state. Indicates the Access Control Core has finished booting and is ready for provisioning.
	Solid purple	The Access Control Core is connected to the Open Admin app.
	Blinking purple	The Access Control Core is ready to connect to the Open Admin app.
	Blinking red	No internet. Indicates a problem with the Internet connection.
	Solid red	The Access Control Core is in an error state. Go to the Devices dashboard in the Avigilon Alta Control Center for more information.

Smart Reader LEDs

The Avigilon Smart Reader LEDs indicate the following:

Status LED		Description
	Center dot is solid white.	Entry or door is locked.
	Outer ring is solid white.	Entry or door is unlocked.
	Center dot flashes multiple colors. Outer ring quickly spins once.	Reader has just received power.
	All lights are offs.	Reader is not connected to power. Check if power wires are swapped.
	Center dot is flashing red.	Reader is connected to power, but cannot communicate with the ACU. Check if the +B (blue) and -A (violet) lines are swapped.
	Center dot is solid blue.	Reader is connected to power and can communicate with the ACU. Reader is not configured as an entry in the Alta Control Center.
	Center dot is solid green. Outer ring is solid.	Reader is identified by the Alta Control Center.
	Center dot is solid purple. Outer ring is solid white.	Reader might not be receiving enough voltage or current, potentially due to a break in wiring. Try connecting the reader directly to the ACU, bypassing any wire runs.
	Center dot is solid pink. Outer ring is solid white.	Check that +12V IN (orange) is not swapped with +B (blue) or -A (violet).

Avigilon Pro Series Reader LEDs

The Video Reader Pro and Video Intercom Reader Pro status LEDs indicate the following:

Status LED		Description
	Center dot is solid white.	Entry is locked.
	Outer ring is solid white	Entry is unlocked.

Status LED		Description
	All lights are off.	Reader is not connected to power. Check to see if power wires are swapped.
	Center dot is flashing blue.	Device is booting.
	Center dot is solid yellow.	Device is restoring software to factory default.
	Center dot is solid blue.	Reader is ready to be provisioned or has not been configured as an entry in the Alta Control Center.
	Center dot is solid purple.	Reader is ready to connect to Open Admin app.
	Center dot is solid green and the outer ring is solid white.	Reader has been identified via the Alta Control Center.
	Center dot is flashing red.	Internal error.

Add ACUs using Alta Control Center

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

Add multiple ACUs using Quick start option

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.
2. Go to **Administration** > **Quick start**.
3. Enter a **Site name** and any other relevant site information.
    a. In **Site language**, select the preferred language for the site-wide emails sent by the system.
    b. Click **Next**.
4. Enter the number of controllers located at your site and:

a. Enter names for the controllers.

b. In **Controller type**, select the type used:

- **First generation - Red Board (OP-AS-01)** — For first generation Smart Hubs.
- **Single Door Controller (SDC)**
- **Core series ACU** — For Core Series Smart Hubs.

c. If your ACU also connects to an expansion board, add the appropriate types in EXPANSION BOARDS:

- **Openpath 16-Port Elevator**
- **Openpath 4-Port Expansion**
- **Openpath 8-Port Expansion**

> **Tip:** This configuration is most common with the Core Series Smart Hub.

5. Enter the number of readers connected to the controllers. Enter their names and click **Next**.
6. Review your site details and click **Confirm & submit**. It may take a few minutes for setup to complete.

Add one ACU

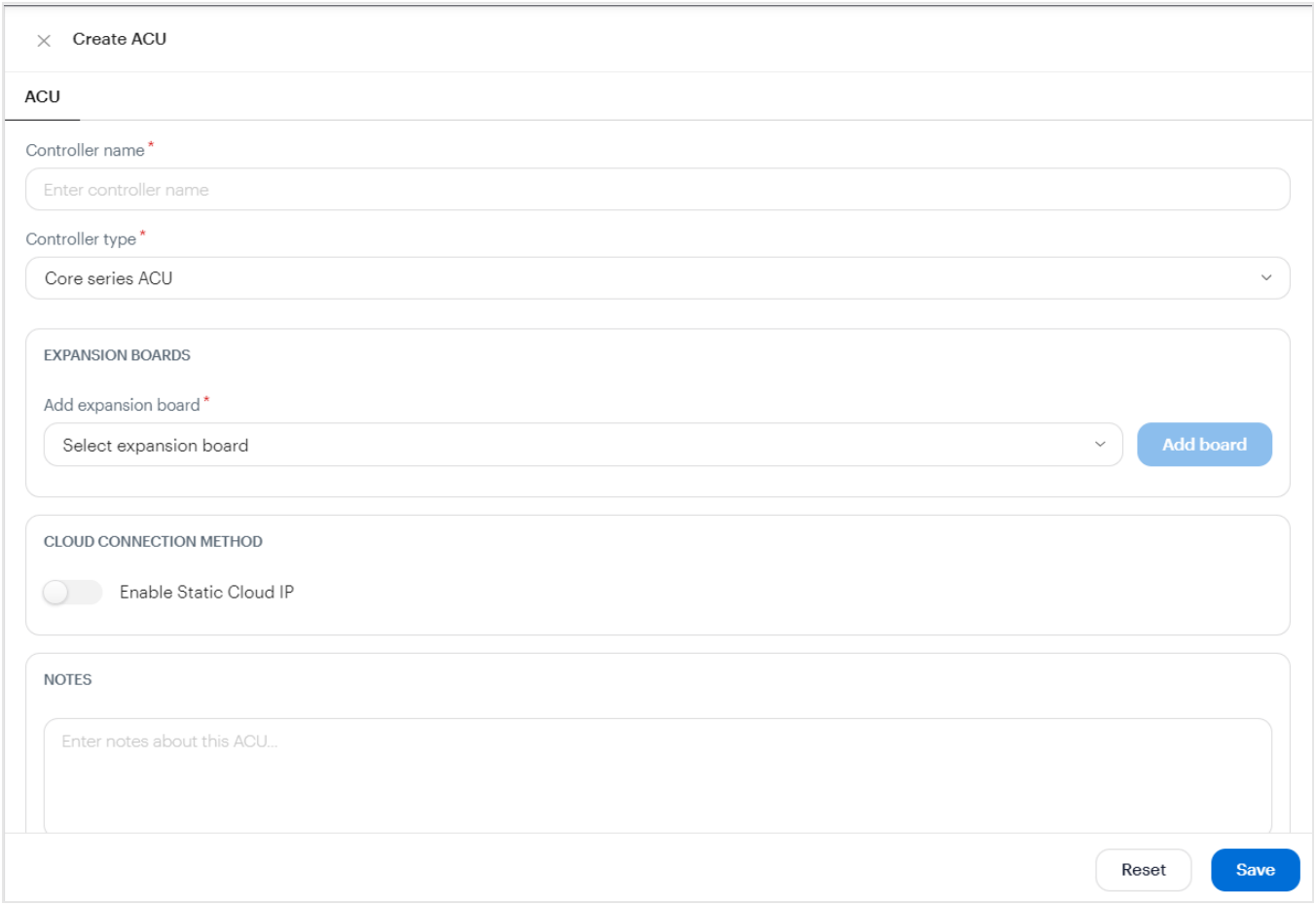
1. Go to **Devices** > **ACUs**.
2. To add a new ACU, click the + button in the upper-right corner.
3. Enter a unique name for the ACU.
4. In **Controller type**, select the type used:
   - **First generation - Red Board (OP-AS-01)** — For first generation Smart Hubs.
   - **Single Door Controller (SDC)**
   - **Core series ACU** — For Core Series Smart Hubs.
5. If your ACU also connects to an expansion board, add the appropriate types in EXPANSION BOARDS:
   - **Openpath 16-Port Elevator**
   - **Openpath 4-Port Expansion**
   - **Openpath 8-Port Expansion**

> **Tip:** This configuration is most common with the Core Series Smart Hub.

6. Optional. To connect your network to the Cloud using a static IP address and port on an allowlist, select the **Enable Static Cloud IP** toggle. Default port is 443.

   > **Note:** An Enterprise plan is required to use Static Cloud IP. In addition, go to **App marketplace** and ensure the **Static Cloud IP** app is installed. After the toggle is enabled in the Alta Control Center, open the Open Admin app and select **Provision with Static Cloud IP** to provision the devices.

7. Click **Save**.



Disable the Static Cloud IP connection

If it is necessary to disable the Static Cloud IP connection:

- Go to the Edit ACU page, and deselect the **Enable Static Cloud IP** toggle.

  Normal cloud operation resumes after the Static Cloud IP connection is disabled.

Provisioning options

Provision the ACU using Open Admin app (recommended)

1. Log in to the Open Admin app with your Alta Control Center credentials.
2. Locate the organization to which you're provisioning hardware, either on the list or using search, and then tap on the organization name.
3. Press the Admin button on the controller board or Access Control Core.
4. In the Open Admin app, tap on the last four digits of the serial number for the ACU.
5. Tap **Test Internet Connection** and wait for a green YES to appear before proceeding with the next step.

   > **Note:** This checks if the ACU/SDC can ping https://api.openpath.com/health.

6. Tap **Provision Device**.
7. Tap on the ACU Name that you want to provision to (this is the name of the ACU you created in the Alta Control Center), and then tap **Yes** to proceed.
8. The app will send notifications when ACU provision state changes from **Unprovisioned** to **Provisioning in progress** to **Provisioning complete**.

   > **Note:** ACU will disconnect from the Open Admin app app 5 minutes after first pressing the Admin button.

Provision the ACU using Alta Control Center on a laptop

1. Go to control.openpath.com/login and sign in. To access the European Alta Control Center, go to control.eu.openpath.com/login.

   > **Note:** The laptop must be connected to the same network as the ACU.

2. Go to **Devices** > **ACUs**.
   a. Locate your ACU on the list.
   b. If you don't see your ACU listed, create a new one:
      i. Click the + button in the upper-right corner.
      i. In **Controller type**, select the type used:

- **First generation - Red Board (OP-AS-01)** — For first generation Smart Hubs.
- **Single Door Controller (SDC)**
- **Core series ACU** — For Core Series Smart Hubs.

ii. If your ACU also connects to an expansion board, add the appropriate types in EXPANSION BOARDS:

- **Openpath 16-Port Elevator**
- **Openpath 4-Port Expansion**
- **Openpath 8-Port Expansion**

> **Tip:** This configuration is most common with the Core Series Smart Hub.

ii. Click **Save**.

3. On the ACU, press the ADMIN button.
4. In the Alta Control Center, click the Register button next to the name of your ACU.
   a. Click **Yes** to proceed. A new window will open.
   b. Click **Provision**.
   c. If you see a "This Site Cannot be Reached" error, you need to ping the ACU using the command line:
      i. Open a command prompt and run:
         - On Windows: `ping oppi.local`
         - On Mac or Linux: `ping -c4 oppi.local`
            - If nothing returns, check your network requirements. See Network requirements on page 11.

      ii. You should see the ACU's IP address, either in IPv4 or IPv6 format. Copy the address and return to the error page.

      iii. In the URL, delete everything before `:8080`.
         - If using an IPv4 address, paste before `:8080`. For example: `192.0.2.0:8080`

- If using an IPv6 address, delete the last two digits and the percentage sign, put square brackets outside the address, and paste before `:8080`.
  - **Correct:** `a123::b456:5a18:eb8f:7fd6:8080`
  - **Incorrect:** `a123::b456:5a18:eb8f:7fd6%29:8080`
- Press **Enter** and then click the **Provision** button.
- If the Provision button still doesn't appear, contact Avigilon Alta Support at (844) 673-6728 Ext 2 or support@openpath.com.

Test internet connection using Open Admin app

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

Configure network settings using Open Admin app

In the Open Admin app, you can configure network settings for the ACU. While wired internet connections are preferred, you can configure the Access Control Core to use Wi-Fi instead. The default interface for the Access Control Core is Ethernet/wired connection. Ethernet and Wi-Fi connections can be DHCP (default) or can have a static IP address.

The Access Control Core supports 2.4 GHz and 5 GHz Wi-Fi connections.

Change network settings

1. Connect to the Access Control Core 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. Set a static IP address or set a preferred DNS server.
5. Tap **Save** in the top-right corner.

Set up Wi-Fi on the Access Control Core

1. Connect to the Access Control Core 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 and then tap **Connect**.

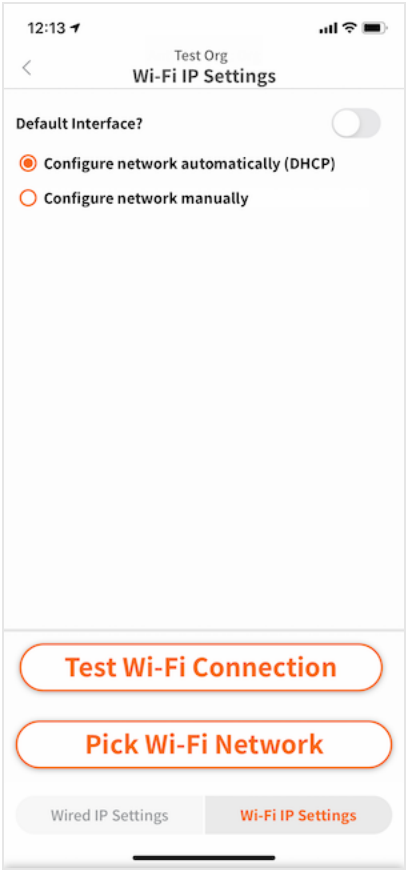


Figure 6 Admin App Wi-Fi Settings

Troubleshooting

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 Avigilon reader and ACU. To remedy this, you can switch GND and VIN with +B and -A connections on the ACU and readers to ensure the data pair (+B and -A) are using the alternate pair of legacy wires.

Resetting ACUs

Soft reset

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

Hard reset

Warning: Only hard reset the ACU if absolutely necessary and if instructed by Avigilon Alta Support. This will clear all of the data off of the ACU and will require reprovisioning.

1. Disconnect power from the ACU.
2. Press the ADMIN button (see b).

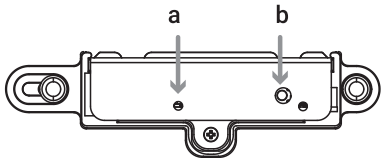


Figure 1 STATUS LED (a) and ADMIN button (b) on Access Control Core

3. While still pressing the ADMIN button, reconnect the power, and continue to hold the button for another 15 seconds until the status LED (see a) turns yellow, and then release.
4. Wait 15 minutes or until the status LED turns blue before provisioning. See Provisioning ACUs on page 57.

Reset video readers and video intercom readers

Warning: A hard reset will erase all data on the device. Only reset if instructed by Avigilon Alta Support.

1. Disconnect power from the device.
2. Press and hold the Admin button.
3. Reconnect power to the device.
4. Continue pressing the Admin button until the LED turns solid yellow (about 10 seconds), and then release.

Appendix: Best practices - Wiring a REX to your Avigilon Alta access control system

For fire and safety reasons, and in accordance with building code in many jurisdictions, a Request to Exit (REX) device is used to ensure free egress.

Important: Always defer to the Authority Having Jurisdiction (AHJ) for all building code requirements, including code requirements for REX devices and how they should connect to an access control system, such as Avigilon Alta.

Wiring REX in series with mag lock or other fail-safe hardware

Although you can wire a REX directly to the Avigilon Alta (formerly Openpath) access control unit (ACU) like other access control systems, the best practice would be to wire the REX device in series with electromagnetic (mag lock) or other fail-safe hardware. This prevents any points of failure in the egress path. If the REX device is wired directly to the REX input on an ACU, then the Avigilon Alta access control system can simply shunt forced-open alarms only, or shunt forced-open alarms and trigger the relay to unlock. In the event of complete power loss, the lock hardware specified by the AHJ would be fail-safe or fail-secure.

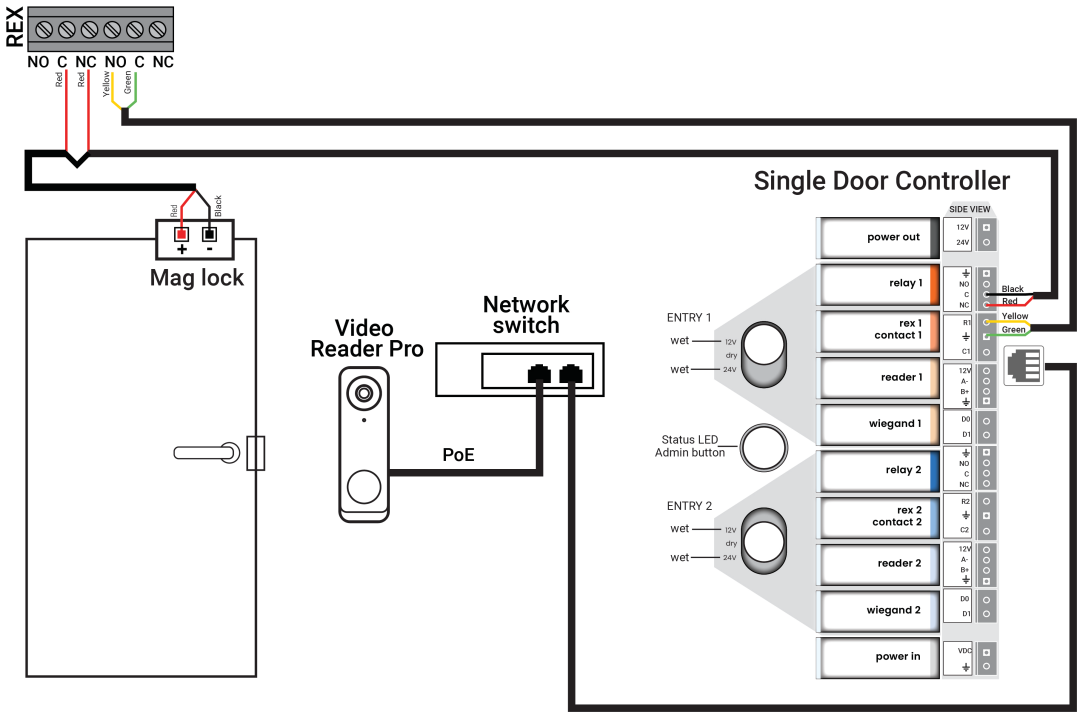
- Fail-safe hardware *unlocks* when power is interrupted or lost.
- Fail-secure hardware *locks* when power is interrupted or lost.

Wiring REX with Video Reader Pro and Video Intercom Reader Pro

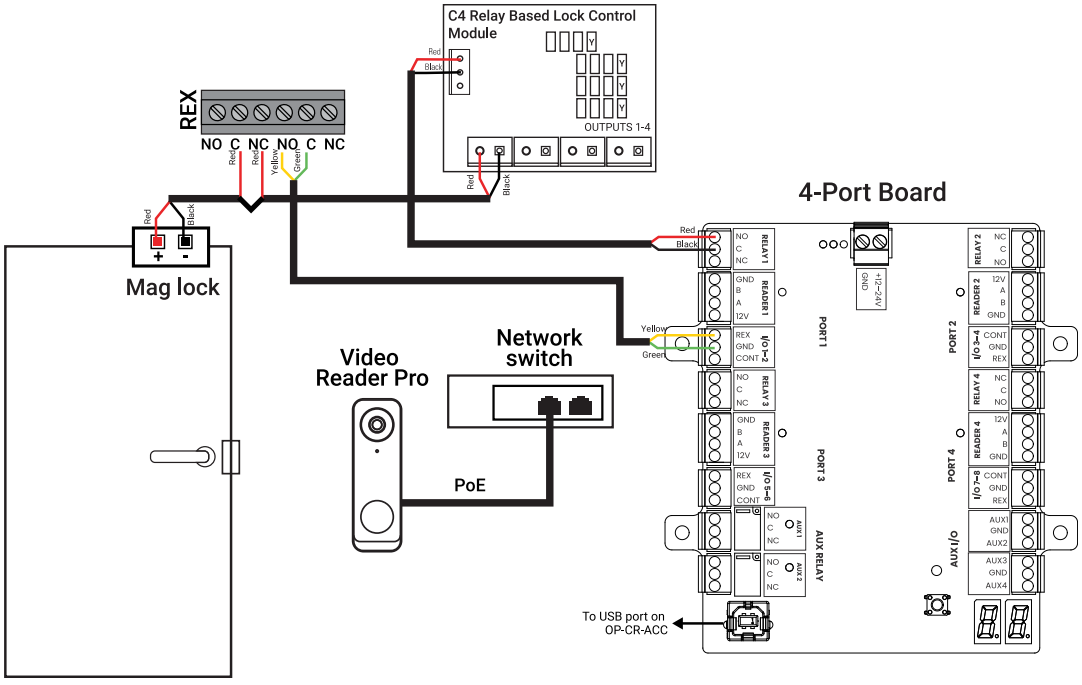
Because these devices do not include a REX input or door relay, you must use a remote ACU to manage door peripherals, such as a door lock relay, door contact, and a REX device. A LAN connection to the remote ACU is required to control all door peripherals that are assigned to the Video Reader Pro or Video Intercom Reader Pro entry. If the Video Reader Pro and the Video Intercom Reader Pro go offline, and if the REX is not wired in a series with the lock hardware, the REX on the entry does not engage the remote relay. It is important to follow the best practices outlined here and the diagrams below to ensure a reliable experience when the Video Reader Pro or Video Intercom Reader Pro is inaccessible due to a network interruption, maintenance, or firmware update.

Note: The following wiring diagrams are examples. Make sure you follow the installation instructions of third-party hardware for cable type, power requirements, and manufacturer-specific configurations (for example, DIP switch configuration).

Example: Remote REX on Single Door Controller with Video Reader Pro or Video Intercom Reader Pro



Example: Remote REX on 4-Port Board with Video Reader Pro or Video Intercom Reader Pro



To further improve reliability, Avigilon Alta will be implementing changes that will engage the remote relay for the entry when the REX is triggered even if the associated video device is unavailable. The controller for this relay should have a battery backup or be wired in a fail-safe configuration for maximum reliability.

Note: In Alta Control Center reporting, a REX event on Video Reader Pro and Video Intercom Reader Pro entries will appear twice due to these changes. This duplicate can be safely ignored.

Regulatory

All national and local electrical codes apply.

UL 294

The following performance levels are defined for the Core Series Smart Hub and Access Control Core, as per UL 294:

Attack:	Level I
Endurance:	Level I
Line Security:	Level I
Standby:	Level I

The following performance levels are defined for the Video Intercom Reader Pro and Video Reader Pro, as per UL 294:

Attack:	Level I
Endurance:	Level IV
Line Security:	Level I
Standby:	Level I

CAN/ULC 60839-11-1-16 GRADE 1

For C-UL Listed applications, the unit shall be installed in accordance with Part 1 of the Canadian Electrical Code.

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.

OP-ACC: Contains FCC ID:2ABCB-RPI3B

OP-CR-ACC:Contains FCC ID:2ABCB-RPI4B

OP-R2X-EMBD: FCC ID:2APJVOPR2LHF

OP-R2X-MULL: FCC ID:2APJVOPR2LHF

OP-R2X-STND: FCC ID:2APJVOPR2LHF

OP-RKP-MULL: FCC ID:2APJVOPRKPM

OP-RKP-STND: FCC ID:2APJVOPRKP

OP-VID-PRO-INT: FCC ID:2APJVOPVNRC

OP-VID-PRO-RDR: FCC ID:2APJVOPVRC

OP-2ESH-POE: FCC ID:2APJV2ESH

OP-4ESH-24V; FCC ID:2ABCB-RPI3B

SYS-4ENT-DVE1: FCC ID:2ABCB-RPI4B

SYS-8ENT-DVE2: FCC ID:2ABCB-RPI4B

SYS-8ENT-DVE4: FCC ID:2ABCB-RPI4B

SYS-16ENT-DVE6: FCC ID:2ABCB-RPI4B

SYS-ELEV-SVE1: FCC ID:2ABCB-RPI4B

4ENT-SYS-1224V: Contains FCC ID:2ABCB-RPI3B

4ENT-SYS-24V: Contains FCC ID:2ABCB-RPI3B

8ENT-SYS-1224V: Contains FCC ID:2ABCB-RPI3B

20ENT-SYS-24V: Contains FCC ID:2ABCB-RPI3B

IEC 62368-1

- This equipment is intended only for use in a restricted access area.
- Securely fasten the equipment according to LifeSafety Power mounting instructions. See FlexPower Vantage Standard Power System - Installation Manual[1].
- PROTECTIVE EARTHING: For safety, the Smart Hub must only be plugged into a grounded 3-prong outlet, wired with a minimum of 16 gauge wire to ground.

RF RADIATION HAZARD WARNING

To ensure compliance with FCC and Industry Canada RF exposure requirements, Smart Hubs 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 at 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.

[1]See https://lifesafetypower.com/docs/im_fpv-standard.pdf.

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.

IC Company Number: 25142

OP-4ESH-24V; IC ID: 25142-OP2ESH

OP-CR-ACC: Contains IC ID: 20953-RPI4B

OP-R2X-EMBD: IC ID: 25142-OPR2LHF

OP-R2X-MULL: IC ID: 25142-OPR2LHF

OP-R2X-STND: IC ID: 25142-OPR2LHF

OP-RKP-MULL: IC ID: 25142-OPRKPM

OP-RKP-STND: IC ID: 25142-OPRKP

SYS-4ENT-DVE1: Contains IC ID: 20953-RPI4B

SYS-8ENT-DVE2: Contains IC ID: 20953-RPI4B

SYS-8ENT-DVE4: Contains IC ID: 20953-RPI4B

SYS-16ENT-DVE6: Contains IC ID: 20953-RPI4B

SYS-ELEV-SVE1: Contains IC ID: 20953-RPI4B

4ENT-SYS-1224V: Contains IC: 20953-RPI3B

4ENT-SYS-24V: Contains IC: 20953-RPI3B

8ENT-SYS-1224V: Contains IC: 20953-RPI3B

20ENT-SYS-24V: Contains IC: 20953-RPI3B

IC RSS-102

This equipment complies with the IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 5mm between the radiator and the body.

OP-RKP-STND

OP-RKP-MULL

Warnings

- Disconnect power before servicing.
- Do not plug into an outlet controlled by an on/off switch.
- Powering the power supply with 230V requires jumper modification. See the power supply datasheet for more information.

Electrical specifications

For the hardware specifications, see the datasheets on page 9.

16 I/O Elevator Board (OP-16EM)	12-24VDC, 0.35A @ 12V, 0.2A @ 24V
4-Port Board (OP-EX-4E)	12-24VDC, 0.5A @ 12V, 0.3A @ 24V
8-Port Board (OP-EX-8E)	12-24VDC, 0.6A @ 12V, 0.3A @ 24V
Smart Reader v2 (OP-R2X-STND, OP-R2X-MULL)	12-24VDC, 0.25A @ 12V, 0.12A @ 24V
Embedded USB Smart Reader (OP-R2X-EMBD)	12-24VDC, 0.25A @ 12V, 0.12A @ 24V, 5V USB
Smart Keypad Reader (OP-RKP-STND, OP-RKP-MULL)	12-24VDC, 0.25A @ 12V, 0.12A @ 24V
Access Control Core (OP-ACC)	Operating Voltage: 12-24VDC Operating Current: 0.7A @ 12VDC, 0.4A @ 24VDC
Access Control Core (OP-CR-ACC)	Operating Voltage: 12-24VDC Operating Current: 0.7A @ 12VDC, 0.4A @ 24VDC
Video Intercom Reader Pro (OP-VID-PRO-INT)	Input Voltage: 802.3af PoE (48VDC, 0.27A) Power Consumption: 10.8W
Video Reader Pro (OP-VID-PRO-RDR)	Input Voltage: 802.3af PoE (48VDC, 0.27A) Power Consumption: 7.8W
12/24V 4-Door Smart Hub (SYS-4ENT-DVE1)	Input Voltage: 120VAC, 208/230VAC with cuttable jumper Input Current: 1.8Amp max. Operating Voltage: 12VDC and 24VDC Operating Current: 1.2A @ 24V with 4 Smart Readers, 0.7A @ 24V with no Smart Readers
12/24V 8-Door Smart Hub (SYS-8ENT-DVE2)	Input Voltage: 120VAC, 208/230VAC with cuttable jumper Input Current: 3.7Amp max. Operating Voltage: 12VDC and 24VDC Operating Current: 1.8A @ 24V with 8 Smart Readers,

	0.7A @ 24V with no Smart Readers
12/24 8-Door Large Smart Hub (SYS-8ENT-DVE4)	Input Voltage: 120VAC, 208/230VAC with cuttable jumper Input Current: 2.5Amp max. Operating Voltage: 12VDC and 24VDC Operating Current: 1.8A @ 24VDC with 8 Smart Readers; 0.7 @ 24VDC with no Smart Readers
12/24 16-Door Large Smart Hub (SYS-16ENT-DVE6)	Input Voltage: 120VAC, 208/230VAC with cuttable jumper Input Current: 2.5Amp/3.2A max. (two supplies) Operating Voltage: 12VDC and 24VDC Operating Current: 3.2A @ 24VDC with 16 Smart Readers; 1A @ 24VDC with no Smart Readers
24V Elevator Smart Hub (SYS-ELEV-SVE1)	Input Voltage: 120VAC, 208/230VAC with cuttable jumper Input Current: 1.8Amp max. Operating Voltage: 12VDC and 24VDC Operating Current: 1.1A @ 12VDC, 1.6A with 2 Smart Readers; 0.6A @ 24VDC, 0.9A with 2 Smart Readers
Smart Hub with 12/24V Supply (OP-4ESH-24V)	120V, 0.7A or 230V, 0.3A, 50/60 Hz