# SEM-Honeywell/ADEMCO Vista Dual-Path (SEM300) - Installation Guide

925-00002-001 Rev A

Alarm.com Dual-Path System Enhancement Module (SEM) is the most cost-effective and comprehensive solution to migrate compatible Honeywell/ADEMCO VISTA-10P, VISTA-15P, and VISTA-20P panels to Alarm.com's award-winning interactive services. The Dual-Path SEM supports the 4G LTE cellular network and optional Broadband Ethernet. This ensures the longest life cycle with the most secure and reliable service.

Equipment

System Enhancement Module
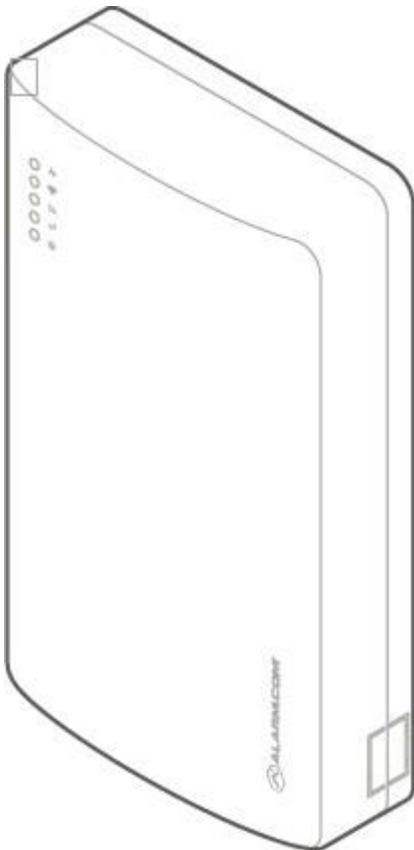
Installation guide

Wire

Wall anchors and screws

Recommended tools and supplies

Note: These are not included.

- Screwdrivers: Small blade and Phillips
- Drill and bits for screws and/or wall anchors
- Ethernet cable
- Alpha keypad (not required)
  - Alarm.com strongly recommends installing an alpha keypad to ensure the failure to communicate (FTC) trouble condition is displayed to the user. See FAQs for more information.
- Four-conductor, 22 AWG or larger stranded wire

  The following table shows the maximum wire length for each gauge.

 | Gauge | Maximum wire length |
  |---|---|
  | 22 gauge | 40 feet (12.2 m) |
  | 18 gauge | 90 feet (27.4 m) |

Prepare the system

Before powering down the system:

Verify panel compatibility

Verify that the panel is compatible by checking the version and year printed on the PROM chip inside the panel enclosure.

The SEM is compatible with Honeywell/ADEMCO Vista-10P, -15P, and -20P panels and the equivalents below, dating back to 2005. The Honeywell/ADEMCO VISTA-21iP is also compatible when the Internal IP/GSM jumper switch is set to the OFF position.
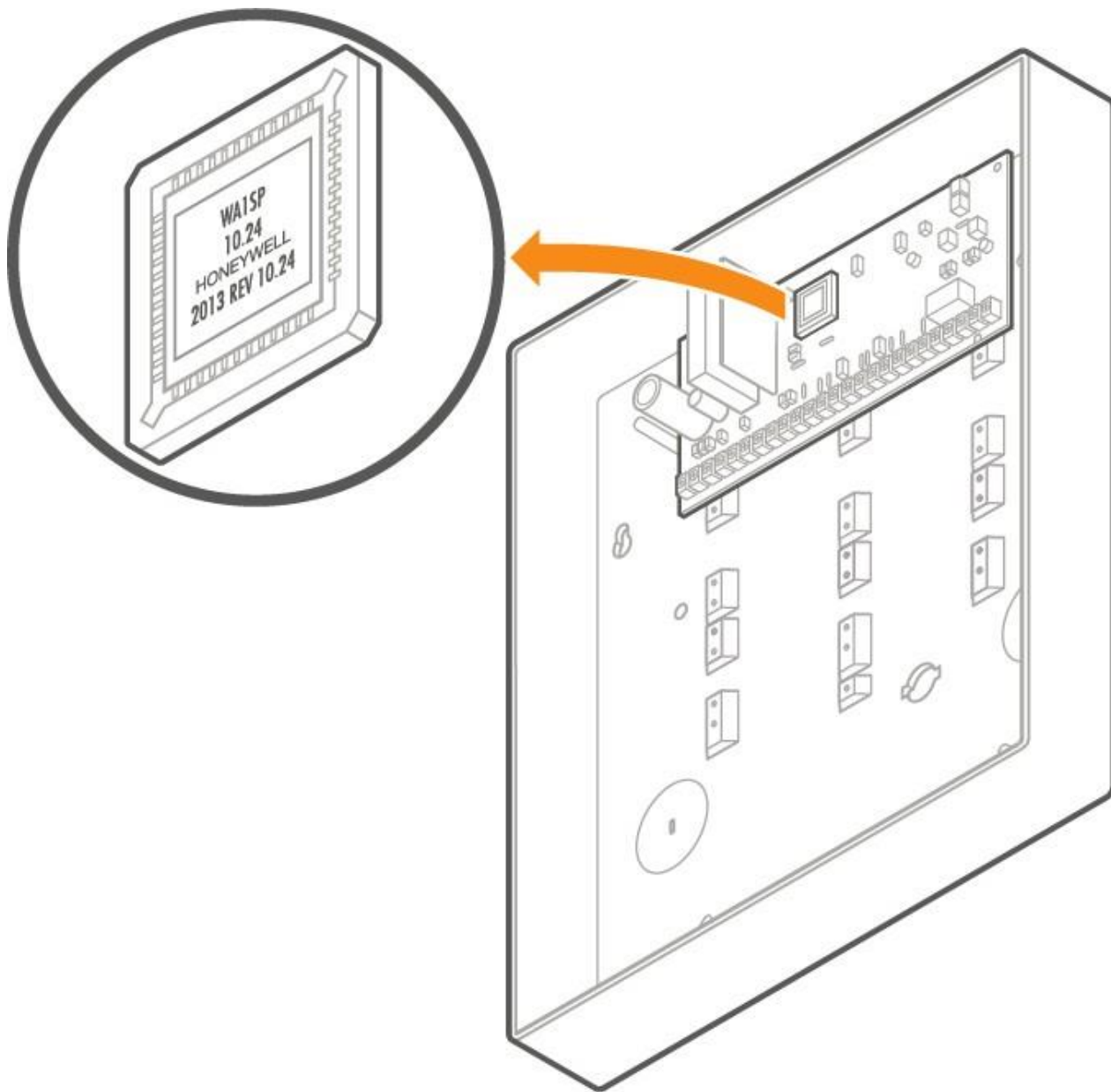
Important: For remote programming to be available, the panel must support the downloader feature. This feature is available on most panels with a minimum revision of v5.2. For the most up-to-date list of compatible panels, see SEM-Honeywell/ADEMCO Vista Dual-Path - Troubleshooting Guide.

Panel	Compatibility
Honeywell/ADEMCO Vista-10P	• Honeywell/ADEMCO Vista-10PSIA • First Alert FA130CP • First Alert FA130CPSIA
Honeywell/ADEMCO Vista-15P	• Honeywell/ADEMCO Vista-15PSIA • First Alert FA148CP • First Alert FA148CPSIA
Honeywell/ADEMCO Vista-20P	• Honeywell/ADEMCO Vista-20PSIA • First Alert FA168CPS • First Alert FA168CPSSIA
Honeywell/ADEMCO Vista-21iP	Compatible when the Internal IP/GSM jumper switch is set to the OFF position.

For more information about panel compatibility, see SEM-Honeywell/ADEMCO Vista - Panel compatibility.

For information about incompatible devices, see Are any devices incompatible with the SEM-Honeywell/ADEMCO Vista?.

Execute *96

To reset the account number and initialize the downloader:

1. Enter the installer code.
2. Press **[800]** to enter programming.
3. Press **[*96]** to reset the account number and initialize the downloader.
4. Press **[*99]** to exit programming.

Enable the keypad address

The default keypad address the SEM uses is Keypad 8 Device Address 23. If this keypad address is disabled, the SEM and panel will not communicate properly. However, at first power-up, the SEM will attempt to enable this address automatically. If unsuccessful, the address must be enabled manually via programming *196.

If another keypad is occupying this address already, a different address must be selected for the SEM. To select a

different keypad address, manually adjust the DIP switches on the SEM to match the desired keypad address listed below. Then, exit programming via *99.

For additional information about enabling the keypad address, see [What keypad address should be used with the SEM-Honeywell/ADEMCO Vista?](#).

| Keypad address	DIP switch setting	VISTA programming command
17	None—all OFF	*190
18	Switch 4 ON, others OFF	*191
19	Switch 3 ON, others OFF	*192
20	Switch 3 and 4 ON, others OFF	*193
21	Switch 2 ON, others OFF	*194
22	Switch 2 and 4 ON, others OFF	*195
23	Switch 2 and 3 ON, others OFF	*196

Disarm and power down the panel

Caution: This is necessary to prevent damaging the panel or module while making wiring connections.

1. Verify the panel is disarmed and clear of any alarms, troubles, or system faults.
2. If you do not know the current installer code, check the installer code at the panel before powering down the panel.
3. Then remove AC power and disconnect the backup battery to completely power down the system.

Create an Alarm.com account

1. Create a new Alarm.com customer account using the Partner Portal or Partner MobileTech app. The IMEI located on the Alarm.com module will be needed to create this account.
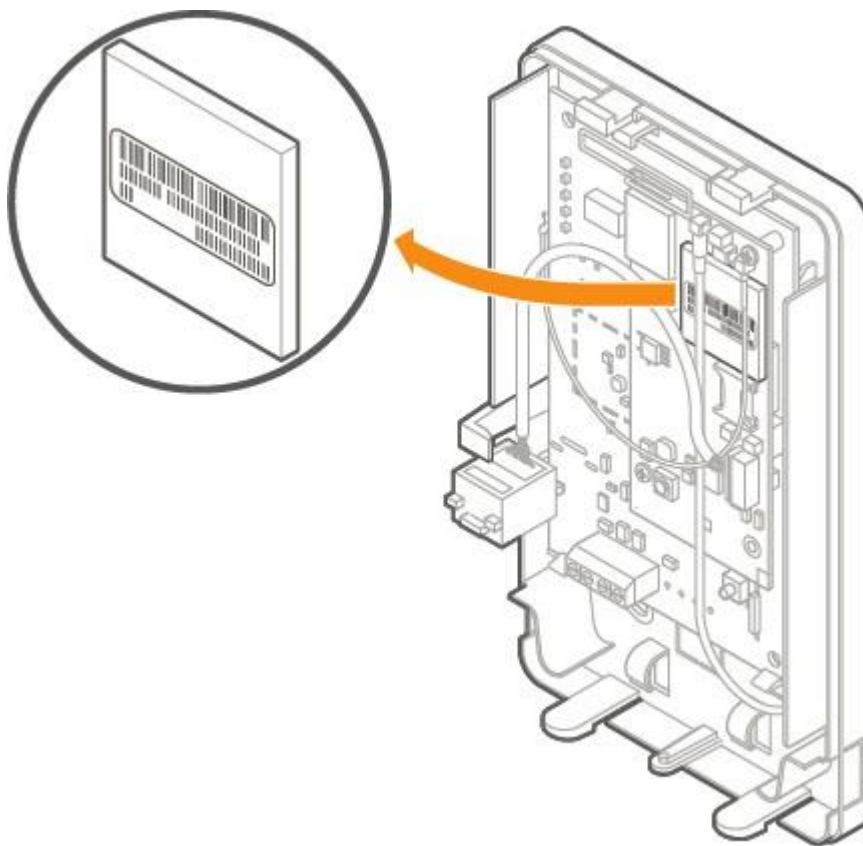
2. During the account creation process, you are prompted to enter the current installer code on the panel. Alarm.com uses this code to access panel programming and read information stored on the panel.

3. At the end of the *Create New Customer* process, you are able to print or email a Welcome Letter for the customer, which includes login information for the Alarm.com Alarm.com customer website.

For more information about creating a customer account, see How to create an Alarm.com customer account.

After powering down the system:

Remove third party communication

If there are any third-party communicators installed or a POTS line connected to the panel, remove them.

The SEM is not compatible with POTS, IP/GSM devices, or other third-party communicators. Therefore, the SEM should be the only communication device installed for alarm signaling to the monitoring station.

Inspect for peripheral devices

1. Take inventory of all peripheral devices (wireless receivers, zone expanders, keypads, power supplies, etc.) wired to the system.
   - The [SEM-Honeywell/ADEMCO Vista - Power Budget Calculator](#) can be used to estimate the current draw of connected devices.
2. Inspect the wiring to verify there are no loose ends or intermittent connections between the device and system. The presence of peripheral device issues can often cause the SEM installation process to take longer than expected.

Connect the SEM

Mounting

Before mounting the SEM to the wall:

1. Evaluate how the wiring cables will be routed from the SEM to the panel.
2. Remove the snap-off plastics. There are two routing options available: the side of the enclosure for side routing or the rear of the enclosure for wall routing.
3. Verify the wiring of the primary antenna, diversity antenna, and ethernet dongle are route correctly.
   Note: The Cat-M variant (indicated by the ME910 Telit radio) only requires the primary antenna.
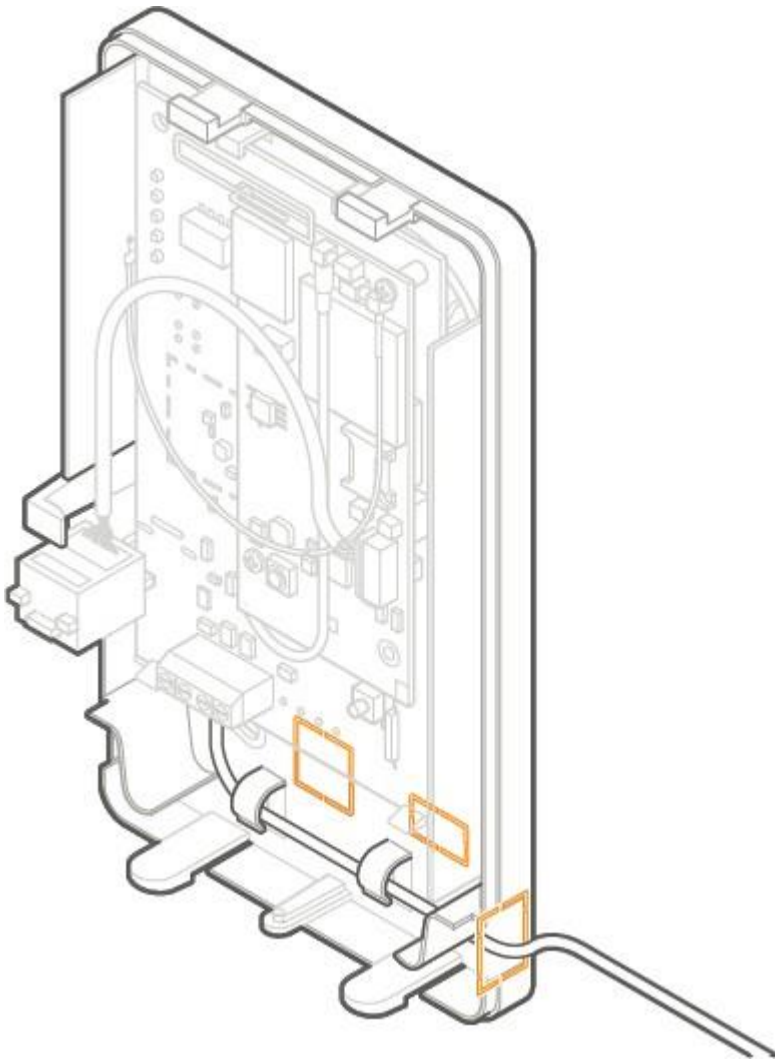
To mount the SEM:

1. Press in on the thumb tabs located at the bottom of the enclosure, then swing up the top half of the enclosure cover to expose the internal components.

2. Place the SEM enclosure back plate against the wall at the desired mounting location and mark the four mounting holes.

3. Using the provided mounting screws and wall anchors (if needed), place the first mounting screw through the top-right enclosure hole. This screw will be used to hang the SEM from the wall while mounting and should not be tightened until the last step.

4. Place the second mounting screw through the bottom-left mounting hole. This screw is used to level the enclosure on the wall and should not be tightened until the last step. A standard leveling device may be used to ensure the unit is level.

5. Place the third mounting screw through the top-left enclosure hole. This screw should be tightened fully against the unit and wall before moving to the next step.

6. Place the final mounting screw through the bottom-right enclosure hole. This screw should be tightened fully against the unit and wall before moving to the next step. Note that this screw is critical for the wall tamper functionality and should not be overlooked.

7. Tighten the first two mounting screws fully to the unit and wall to complete the mounting process.

Mounting hole locations

Step 5

Step 3

Step 4

Step 6
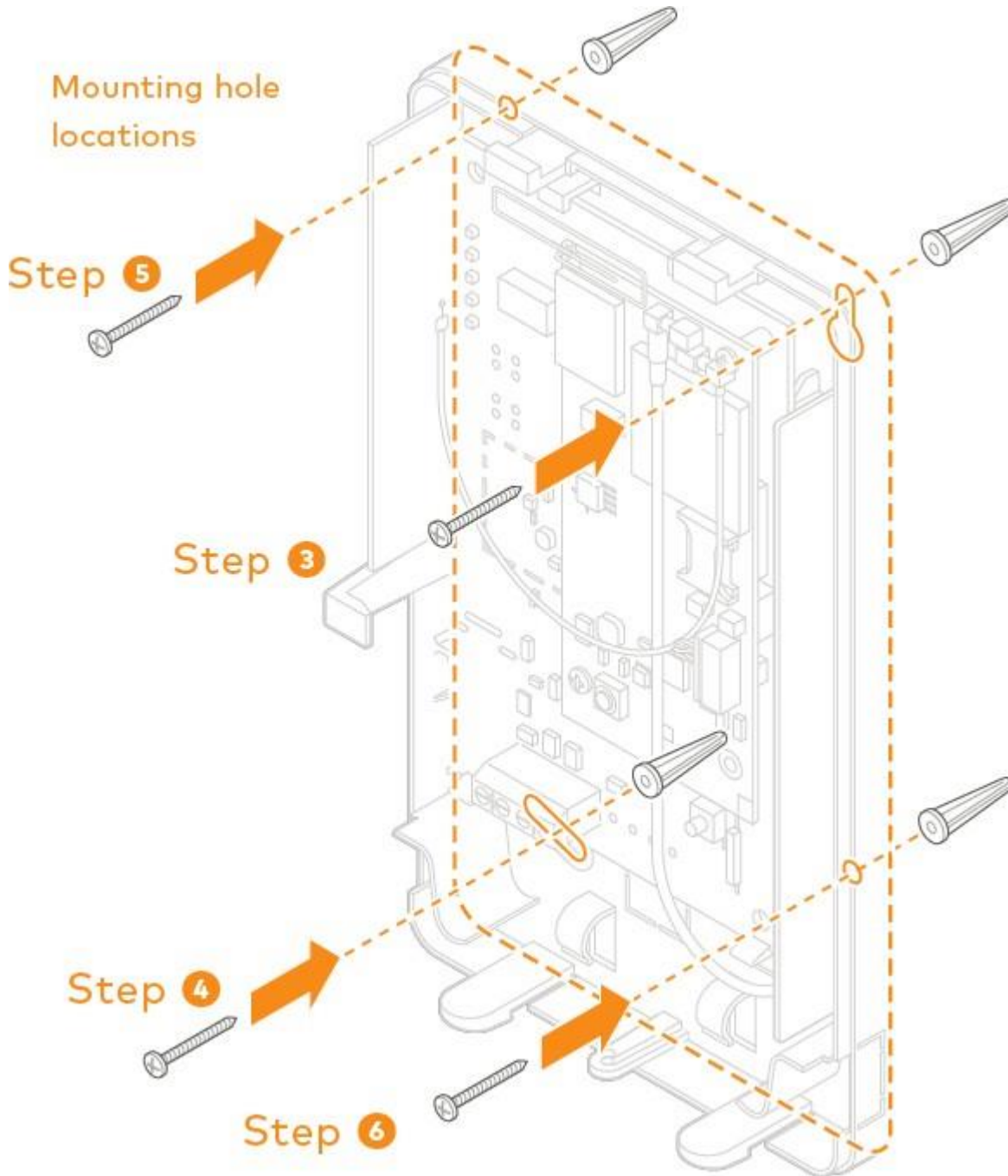
Wiring

Important: Alternate wiring is required when using this device for ETL installations. For more information, see ETL requirements.
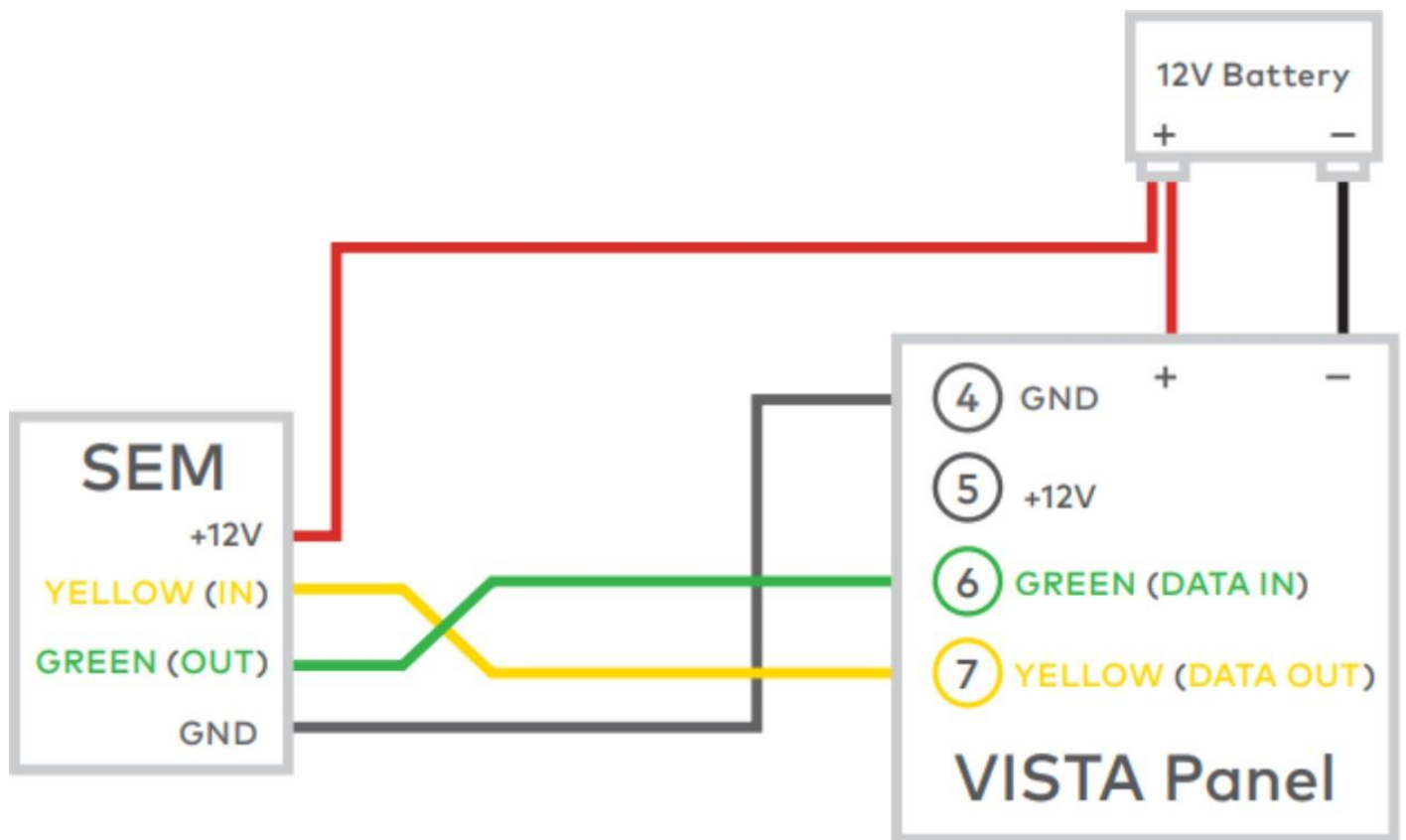
To wire the panel:

1. Connect the yellow/green data cables and red/black power supply cables to the designated locations at the SEM and panel.

2. Connect an Ethernet cable to the pre-installed Ethernet jack to utilize dual-path communication. Local network changes may be required before the broadband path activates. For more information about Dual-Path communication, see Configure Dual-Path communication for a panel remotely.

3. Remove the snap-off plastics from the enclosure side at the desired locations, then route the cables around the internal strain relief walls and out the side of the enclosure.
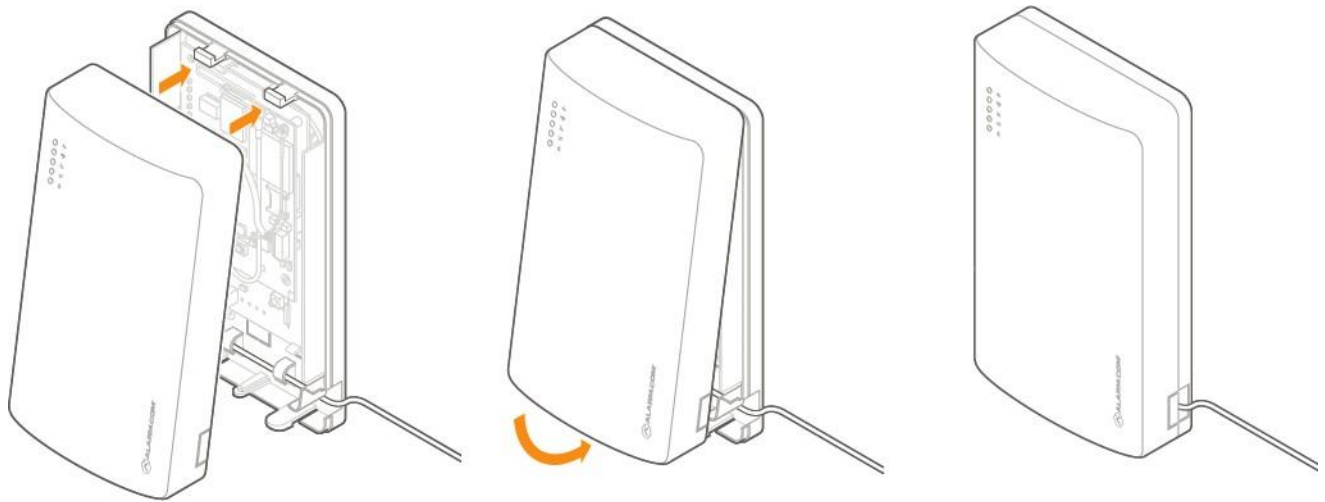
4. Before completing the mounting, verify the wiring connections are secure and all internal components are in their proper location.

5. Then close the enclosure by sliding the cover into the mounting points at the top of the enclosure base and then swinging down the cover to snap the thumb tabs into place.

Zone scan

1. Reconnect the backup battery and restore AC power to the panel. On power-up, the SEM will enter programming to read the current installer code programmed at the panel, then perform a zone scan to read the existing zone information and settings programmed at the panel. During this process, the SEM will also automatically program-specific panel settings needed for the SEM to perform properly. The settings programmed are identified in *Installation settings*.

2. The zone scan will automatically begin after the panel is powered up. On the keypad you will see a series of disarms and programming setting changes before seeing *MODEM COMM* on the screen. If you have a non-alpha keypad, the keypad will show *CC* instead of *MODEM COMM*.

    ◦ Zone scan (~5 minutes):
    Caution: Do not touch the panel or keypad.
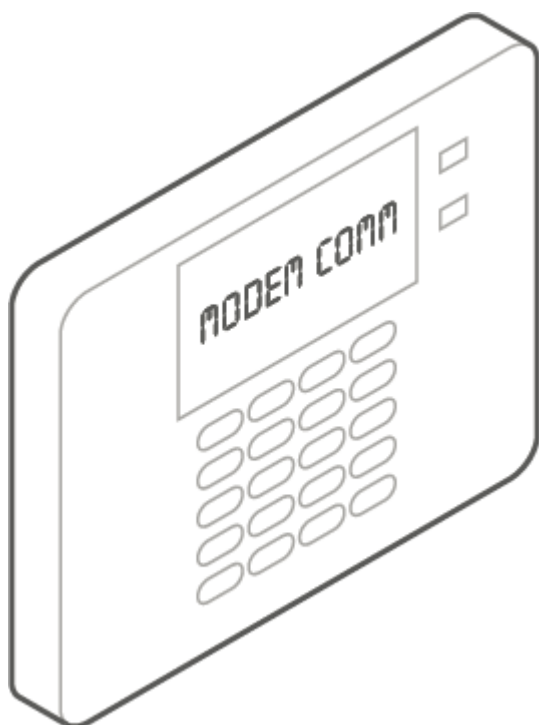
- ◦ If you do not see the MODEM COMM message appear on the keypad during zone scan and instead notice the keypad scrolling through each zone individually, the SEM is using an alternate zone scan method because it is unable to access the downloader. For troubleshooting this behavior, see Uploader /downloader disabled.

3. When the zone scan is complete, the keypad will display the home screen. The equipment list is now available on the Partner Portal equipment page and the Partner MobileTech app Remote Toolkit and all user codes are synced to the Alarm.com customer website.

- ◦ Zone scan complete:

Confirm communication

Before completing the installation, verify that the SEM is fully in sync with the panel and communicating to Alarm.com by verifying:

1. The correct devices are present on the account equipment list in Alarm.com Partner MobileTech app.
2. The customer can view all user codes in the Alarm.com Alarm.com app or Alarm.com customer website, and the correct users are reported when arming or disarming at the panel.
3. All alarms are reported correctly to Alarm.com and the monitoring station.

It is also recommended to execute a System Check in Alarm.com Partner MobileTech app to verify the health of the account and identify any other issues. For more information about performing a System Check, see System Check User Guide.

Additional information

Z-Wave devices

Alarm.com recommends using the Partner MobileTech app or the Partner Portal to complete the installation of any Z-Wave devices. For more information about enrolling Z-Wave devices, see Manage Z-Wave devices on a SEM-Honeywell/ADEMCO Vista.

For more information about Z-Wave communication, Z-Wave signal strength, and additional Z-Wave resources, see General Z-Wave Information.

Touchscreen keypads

The SEM is compatible with AUI devices, including the 6280, Tuxedo Touch, and other touchscreen keypads. Arming, disarming, panics, and alarms initiated on these keypads will be processed by Alarm.com and reported to the monitoring station. However, changes to the installer code via Quick Programming mode and bypassing open sensors will not be processed by Alarm.com unless the keypad is used in Console mode.

Bypass open sensors

To use the bypass open sensors feature through Alarm.com, *23 Quick (Forced) Bypass must be enabled. This setting is not enabled automatically and must be enabled to use this feature on the Alarm.com Alarm.com customer website or Alarm.com app. For more information about enabling bypass features, see Bypass a sensor on a SEM-Honeywell/ADEMCO Vista.

Installation settings

For the SEM to communicate with the panel and report all alarms, certain panel settings must be set at the panel. These settings are automatically changed during installation, so no further action is required by the installer.

Enable IP/GSM

- *29 IP/GSM needs to be set to [1]. This setting ensures the panel is communicating with the SEM using the Long Range Radio (LRR) protocol.

Silent alarms

These settings are required for the SEM to report silent and duress alarms.

- *41 Primary phone # is cleared.
- *42 Secondary phone # is cleared.
- *43 Partition 1 primary account # is set to a four-digit number, 1111.
- *45 Partition 2 primary account # is set to a four-digit number, 4321.
- *48 Report format is set to the primary phone number format set to [77].
- *55 Dynamic signaling priority is set to [1].
- *64 Test report code needs is set to [1,0].
- *92 Phone line monitor enable is set to [0,0].
- The zone 92 reporting code is enabled.

Note: These settings should also be set to avoid a phone line failure from appearing. For more information, see Clear a Phone Line Failure on a SEM-Honeywell/ADEMCO Vista.

Report codes

To successfully report all monitoring station events, the System Status and Restore Report Codes (*59-*68) will automatically be enabled. These settings will always be enabled automatically after a power cycle or if the SEM zone scans again.

Important: All monitoring station forwarding settings should be set up via Alarm.com Monitor Settings.

ETL requirements

This device is certified to be used for fire and burglary monitoring in residential applications only. When using this device with ETL installations, the following requirements apply:

- The system must use a 12V 7AH backup battery.
- The +12V red power cable from the SEM must be wired directly to the +12V AUX terminal at the panel instead of to the backup battery.
- *UL/ETL Settings* must be enabled on the customer account's Monitoring Settings page.
- The account must be configured to send a phone test twice a day.
  - The tests should be set during waking hours.
  - The tests must be at least two hours apart.
  - It is recommended to set the randomize flag to spread out the phone tests over the course of the hour.
  - Programming an auto phone test can be done locally or using the Remote Toolkit.
- The enclosure tamper should be tested once every year by removing the enclosure cover and verifying a tamper event is reported to Alarm.com
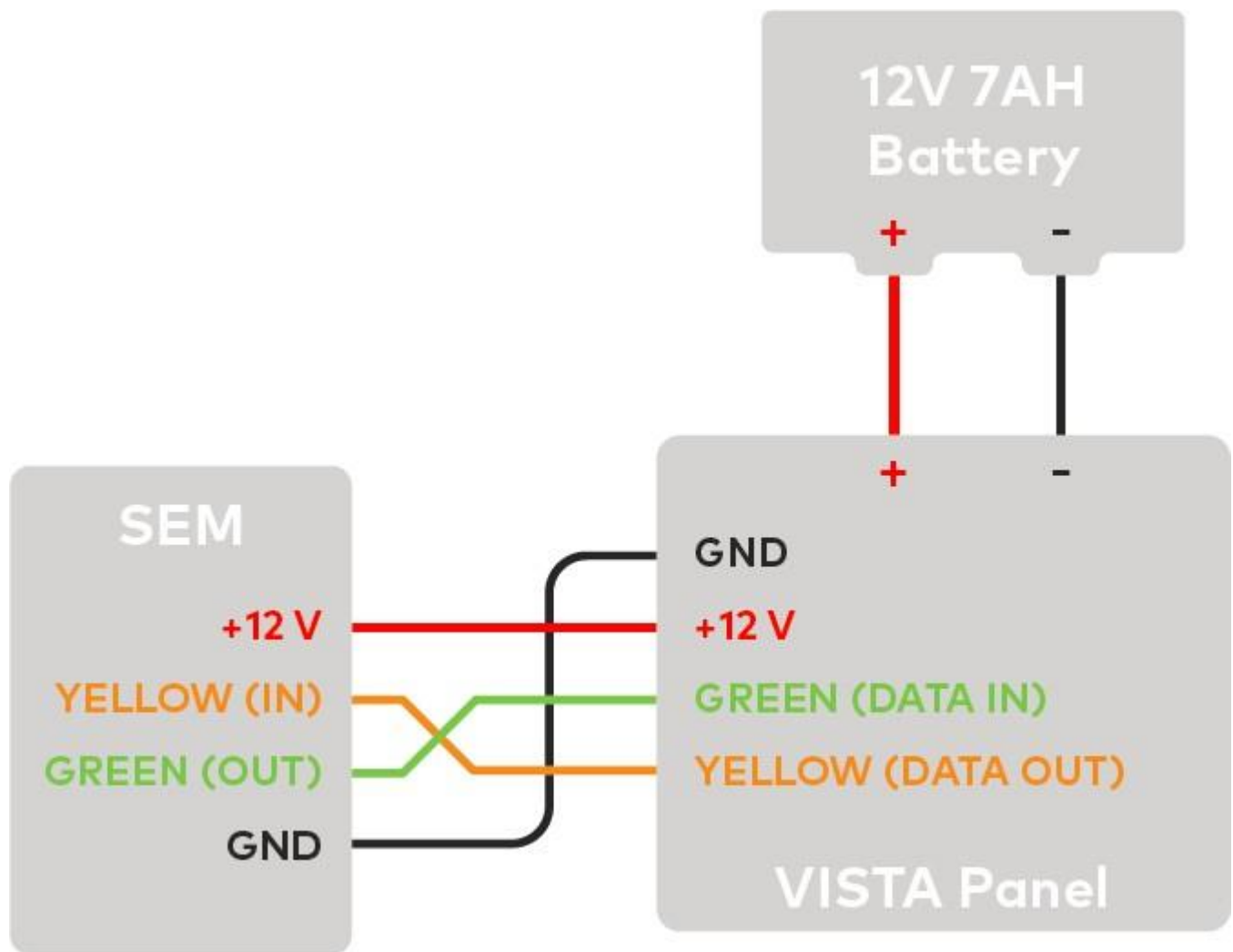
Important:

- This installation must be done in accordance with the National Electrical Code, ANSI/NFPA 70; Chapter 29 of the National Fire Alarm and Signaling Code, ANSI/NFPA 72; the Standard for the Installation of Residential Fire Warning Systems, CAN/ULC-S540; Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, CSA C22.1; Standard for the Installation, Inspection and Testing of Intrusion Alarm Systems, CAN/ULC S302; and Standard for Signal Receiving Centre Intrusion Alarm Systems and Operations, CAN/ULC S301.

- If Ethernet is active, the broadband communication medium used between the protected property and communications service provider shall be for the exclusive use of the protected property and is not to be shared with other communications service provider subscribers.

Gateway LED reference

The enclosure gateway LEDs can be used to indicate communication errors, panel communication, network communication, and signal strength.
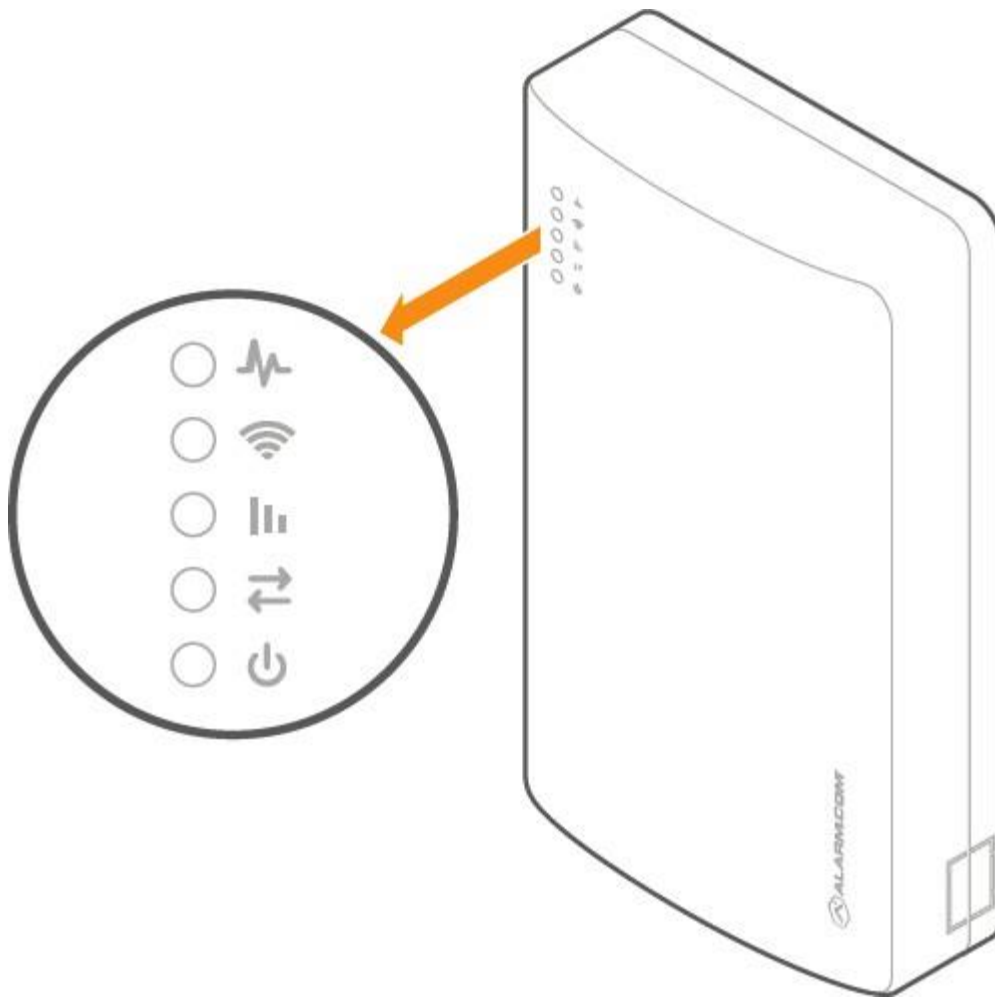
Note: For advanced troubleshooting, open the cover to look at the Alarm.com module LEDs. For more information about the module LEDs, see SEM-Honeywell/ADEMCO Vista - Module LED Troubleshooting.

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Trouble LED

The *Trouble* LED flashes 1 to 8 times in a four-second interval to indicate specific error conditions.

Flash pattern	Description
1	The Alarm.com module cannot communicate with the panel. Perform a power cycle on the panel. If the error persists, contact Alarm.com CORE Technical Support.

Flash pattern	Description
2 then 4	The Alarm.com module provisioning process could not be completed. Power cycle the system. If the error persists, see Alarm.com CORE Technical Support.
2 then 5	The Alarm.com module provisioning process could not be completed because the module is currently roaming off the carrier's primary network.
3	The Alarm.com module is trying to register on the cellular network. If it persists for more than a few minutes, the module is having problems registering. Check L4 for signal level. If signal level is lower than 2 bars, change the panel's location or use a remote antenna option.
4	The Alarm.com module is registered on the cellular network but could not connect with Alarm.com. If the error persists, see Alarm.com CORE Technical Support.
5	The radio on the module is not working correctly. If this persists for more than a few minutes, the module may need to be replaced. This error is extremely rare, so please verify that the module is flashing 5 times.
6	This indicates an error only if it persists for more than a minute. Otherwise, it's an indication that the module is resolving an unusual condition regarding communication with the cellular network.
7	The SEM is unable to access panel programming. Check the panel wiring and installer code.
8	If this error persists, the account may have been set up incorrectly. Check that the serial number being used matches the serial number used to create the account. If the serial numbers are the same, contact Alarm.com CORE Technical Support.

Path LED

The *Path* LED flashes to indicate the active communication path (cellular, broadband, or both) to Alarm.com.

Flash pattern	Description
Steady long flash (~2 sec)	The cellular communication path is active.
Long flash (~2 sec) followed by a short flash (~0.5 sec)	Both cellular and broadband communication paths are active.
Steady short flash (~0.5 sec)	The broadband communication path is active. This should also accompany an error LED flash.
No flash	Both communication paths are not communicating. This should also accompany an error LED flash.

Signal LED

The *Signal* LED flashes to indicate the cellular signal strength (0 to 6 bars).

Panel LED

The *Panel* LED flashes with every communication to the panel.

Power LED

The *Power* LED illuminates solid when power is supplied.

Troubleshooting

Communication to Alarm.com or monitoring station

If there is no activity present in the event history or the account is not signaling to Alarm.com.

1. Initiate a communication test from the SEM by pressing **[#] + [9] + [8] + [7] + [*]** to initialize communication with Alarm.com or verify the module is communicating on the cellular network.
2. For this test to send a signal to the monitoring station, verify *Phone Tests* is selected as an *Event to Forward* in the customer's Monitoring Settings. For more information about updating the Monitoring Settings, see Change the monitoring settings on a customer account.

Customer equipment list

If the device list is empty on the Partner MobileTech app or Partner Portal equipment page, the SEM may be having problems communicating with the panel. To resolve:

1. Verify the correct keypad address is enabled.
2. Verify all wiring is correct and secure.
3. Resync the installer code if a zone scan is not initiating upon power-up.
   a. To resync the installer code, use the keypad to change the installer code to a new, unique code.
   b. After resyncing the installer code, power cycle the panel and verify a zone scan is initiated.
4. Verify the panel is disarmed and then request an updated equipment list using the Partner MobileTech app or the Partner Portal. Verify the firmware version is displaying properly. For more information about requesting an updated equipment list, see Request an updated sensor list and system status.
5. Verify the zone scan has started. If you do not see the *MODEM COMM* message appear on the keypad, the SEM is using the alternate zone scan method. For troubleshooting this behavior, see Uploader /downloader disabled.

Customer user codes

If the panel does not support uploader/downloader, the customer user codes must be manually synced to Alarm.com. If user codes are not visible, The SEM may be having issues scanning the user codes programmed at the panel. To resolve:

1. Verify an equipment list is present on the equipment page. If some equipment is not present, see Customer equipment list.
2. Verify the SEM has access to uploader/downloader. If this feature reports as disabled but the panel supports uploader/downloader, see Uploader /downloader disabled.
   - If the panel does not support uploader/downloader, the customer user codes must be manually synced to Alarm.com. To do this:
     a. Delete all user codes locally or using the Partner Portal or Partner MobileTech app. Select the **Delete All User Codes** option, and then wait about 15 minutes for this process to complete. For more information about this process, see Why do previous Honeywell Vista panel user codes need to be deleted to integrate with the SEM?.
     b. Re-add user codes locally or using the Alarm.com customer website or Alarm.com app. Wait about 5 minutes for this process to complete.
     c. Verify that all user codes are present on the Alarm.com customer website or Alarm.com app.
     d. Arm and disarm with all user codes locally.
     e. Verify that the correct username and slot number are reported to the Alarm.com customer website or Partner Portal.

Uploader/downloader disabled

If panel settings are not visible on Alarm.com, there is a warning stating the uploader/downloader feature is currently disabled, and/or the SEM is not performing as expected, try the following:

1. Verify the Vista panel version meets the minimum revision number required for this feature.

   - Vista-10P rev 2.0+
   - Vista-15P rev 3.1+
   - Vista-20P rev 5.2+
   - Vista-21iP rev 3.1+

2. Resync the installer code if a zone scan is not initiating upon power-up.

   a. To resync the installer code, use the keypad to change the installer code to a new, unique code.

   b. After resyncing the installer code, power cycle the panel and verify a zone scan is initiated.

3. Enter programming and execute *96 to reset the account number and initialize the downloader. Then exit programming via *99, power cycle the system and verify the zone scan is initiated.

4. Verify the programming settings set during initialization are correct.

   - Verify the Sub ID Primary *43 value is a four-digit value with no zeros (1111 or FFFF is recommended). The SEM does not support zero values (e.g., 0000 or 1010) in this section.
   - Verify the Report Format Primary/Secondary *48 value is set to 7,7.

5. Power cycle the system and request the firmware version.

Questions?

If you are experiencing difficulties with your installation, please contact [Alarm.com CORE Technical Support](#) at 866-834-0470 and we'll be happy to assist further.

Specifications

Power requirements	13.6 V nominal, 125 mA nominal (continuous), 230 mA maximum
Cellular network	4G LTE with 3G HSPA, 2G GSM fallback **Note**: Cat-M uses the 4G LTE Cat-M1 network, no fallback
Panel interfaces	Two keypad BUS connections, 12 V power and ground
Alarm.com module indicators	Five LEDs (red, yellow, or green)
SEM circuit board indicators	Five LEDs (red, green, yellow, or blue)
Operating temperature	14 to 131°F (-10 to 55°C)
Storage temperature	-30 to 140°F (-34 to 60°C)

Humidity	90% relative humidity non-condensing
Enclosure dimensions	(L x W x D) 7.66 x 4.35 x 1.65 in. (19.46 x 11.05 x 4.19 cm)
Enclosure color	White
Case material	Fire-retardant PC/ABS, PC

Regulatory information

- Model: ADC-SEM-300, Variant: Paraguay   FCC ID: YL6-143SEM300PY, Contains FCC ID: RI7LE910CXLA

Changes or modifications not expressly approved by Alarm.com can void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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.

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

All cables used for installation should not exceed 30 meters.