Schneider Inverter

Hybrid Inverter, 7.7 kW

HY8K1NA1

Installation and Operation Guide

https://www.se.com/

Schneider Electric

Legal Information

Contact Information

For country-specific details, please contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at: https://www.se.com/

Information About Your System

As soon as you open your product, inspect the contents and record the following information and be sure to keep your proof of purchase. If any damage is found, contact customer support.

Serial Number	_____	Purchased From	_____
Product Number	_____	Purchase Date	_____

Model Name:	[[[Undefined variable CIB.Model Number 1]]]
Product Part Number:	[[[Undefined variable CIB.Part Number 1]]]
Model Name:	[[[Undefined variable CIB.Model Number 2]]]
Product Part Number:	[[[Undefined variable CIB.Part Number 2]]]

Document Number: TME12664D **Date:** July 2025

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Validity Note

This document is valid only for the Schneider Inverter (HY8K1NA1).

If this manual is in any language other than English, although steps have been taken to maintain the accuracy of the translation, the accuracy cannot be guaranteed. Approved content is contained with the English language version which is posted at https://www.se.com/.

The characteristics of the products described in this document are intended to match the characteristics that are available on https://www.se.com/. As a part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on https://www.se.com/, consider https://www.se.com/ to contain the latest information.

Audience

This manual is intended for use by qualified personnel installing a system involving a Schneider.

The qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment.
- Applying all applicable installation codes.
- Analyzing and reducing the hazards involved in performing electrical work.
- Selecting and using Personal Protective Equipment (PPE).

This manual does not contain information regarding servicing or de-energization for servicing.

Purpose

This manual provides safety guidelines and procedures for installing and operating the Schneider Inverter Kit.

Abbreviations and Acronyms

AC	Alternating Current, see also Vac
AFCI	Arc Fault Circuit Interrupter
AFD	Arc Fault Detection
AP	Access Point
CAN	Controller Area Network
DC	Direct Current, see also Vdc
FCC	Federal Communications Commission
GFCI	Ground Fault Circuit Interrupter
GFPS	Ground Fault Protection System
GND	Ground
Cellular	Global System for Mobile
IP	Internet Protocol OR Ingress Protection
LAN	Local Area Network
LED	Light Emitting Diode
LFP	Lithium Iron Phosphate
LOTO	Lock-Out and Tag-Out
MID	Microgrid Interconnect Device
MPPT	Maximum Power Point Tracking
NA	North America (or American)

PCS	Power Control System
PE	Protective Earth (ground)
PoE	Power over Ethernet
PPC	Power Plant Controller
PPE	Personal Protective Equipment
PV	Photovoltaic
PVRSE	PV Rapid Shutdown Equipment
RCMU	Residual Current Monitoring Unit
RSD	PV Rapid Shutdown
RSS	Radio Standards Specification
RTPC	Real Time Power Control
SoC	State of Charge
SSID	Service Set Identifier (a wireless network name)
VDC	Volts Direct Current
W	Watt

Related Documents

- *Schneider Inverter Installation Guide (TME12664)*
- *Schneider Boost Installation and Operation Guide (TME12665)*
- *Schneider Home System Planning and Wiring Guide (TME13782)*
- *Pulse Backup Controller: Installation and Operation Guide (TME13781)*

Related Information

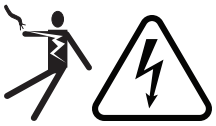
For more information about the Inverter and compatible equipment, go to:
https://www.se.com/us/en/product-range/234852991

or https://www.se.com/us/en/ > **Products** > **Solar & Energy Storage** > **Solar Off-Grid and Back-up**

Safety Information

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Stored energy hazard and discharge time

Hot surface

Protective Earth (grounding) conductor terminal

Refer to the Installation or Operation instructions

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved. For more information, see "Audience" on page 3.

Product Safety Information

READ AND SAVE THESE INSTRUCTIONS - DO NOT DISCARD

Before installing or operating the Inverter (HY8K1NA1), read all instructions and cautionary markings on the unit, and in this document, and in the *Schneider Inverter Installation Guide (TME12664)*.

IMPORTANT: See your warranty for instructions on obtaining service.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND ARC FLASH

- This equipment and its accessories must be installed, uninstalled and serviced by qualified electrical personnel only.
- Use appropriate personal protective equipment (PPE) and follow safe electrical work practices according to NFPA 70E or CSA Z462.
- Equipment energized from multiple sources including PV, Batteries, and AC. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait five minutes for circuits to discharge.
- When the photovoltaic array is exposed to light, it supplies a DC voltage to the inverter.
- To turn the battery(ies) OFF: On all batteries, press the power button for six seconds, and turn the disconnect switch to the **OFF** position.
- Verify de-energization with a voltage sensing device, rated 600 V or higher.
- Never energize the system or turn the Inverter disconnect switch to the ON position doors or covers removed.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- The PV conductors of this photovoltaic system are ungrounded and may be energized.
- Disconnect the PV panels prior to connecting or disconnecting PV terminals.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

Thoroughly inspect the Inverter prior to energizing. Verify that no tools or materials have inadvertently been left inside the Inverter, and that all covers and doors are properly closed and secured.

Failure to follow these instructions will result in death or serious injury.

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

For systems equipped with Rapid Shutdown (RSD):

- A Rapid Shutdown Switch (E-Stop) is required (for systems with or without batteries), in order to provide emergency shutdown functionality.
- Do not use an AC Disconnect in place of a Rapid Shutdown Switch, as it will not initiate rapid shutdown on any Schneider Inverter system, with or without a battery. For details, see the *Schneider Home System Planning and Wiring Guide (TME13782)*.
- All installations must meet the requirements of the National Electrical Code (NEC), ANSI/NFPA 70 Section 690.12.
- This Photovoltaic Rapid Shutdown System (PVRSS) incorporates one or more pieces of equipment that exercise the rapid shutdown control of PV system conductors required by section 690.12 of the NEC (NFPA 70). Other equipment installed in or on this PV system may adversely affect the operation of this PVRSS. It is the responsibility of the installer to ensure that the completed PV system meets the applicable Rapid Shutdown functional requirements. This equipment must be installed according to the manufacturer's installation instructions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK AND FIRE

- Before powering on equipment, verify that all wiring is in good condition and that wire is not undersized. Do not operate the Inverter with damaged or substandard wiring.
- Do not operate the Inverter if it has been damaged in any way.
- Do not disassemble the Inverter except where noted for connecting wiring and cabling.
- Use only the accessories that are recommended by the manufacturer.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- All cable entry points must be sealed to meet and maintain the requirements for 3R enclosure standards.
- After connecting wires, ensure that the wiring door is closed and locked, and that the door gasket is properly seated.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

HAZARD OF ELECTRIC SHOCK AND FIRE

- Verify that only one neutral-to-ground bond exists in the system.
- Always connect a neutral cable to the AC neutral terminal in the inverter. This applies to all installations, including Solar-only.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

HAZARD DUE TO UNINTENDED USE

- The cellular modem and accessories must be installed, uninstalled, and serviced by qualified electrical personnel only.
- Do not begin installation until the inverter is fully de-energized. See the *Schneider Inverter Installation Guide (TME12664)* for instructions.
- Do not operate the cell modem in areas where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In these areas, the cell modem must be turned off. The cell modem can transmit signals that could interfere with this equipment.
- Only install the cellular modem and accessories following the instructions in this manualthe [[[Undefined variable General.Related Documents]]].
- Do not change or modify the cell modem or accessories.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

UNGROUNDED EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult national and local codes for specific grounding and bonding requirements.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

HEAVY EQUIPMENT

- The Inverter weighs approximately 102 lb (46.4 kg). A minimum of two people must be present to lift the inverter. To prevent personal injury, always use proper lifting techniques during installation, and follow local work safety rules.
- Do not lift the inverter using the heatsink cover.
- For structural and seismic stability, the Inverter must be mounted onto a vertical supporting surface strong enough to support the Inverter and all other equipment that is installed on the same surface.
- Use mounting hardware that is appropriate for the mounting surface and weight of the Inverter.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Follow the cybersecurity best practices in the *Schneider Inverter Installation Guide (TME12664)*this document (Cybersecurity Guidelines on page 30) to help prevent unauthorized access to the system software.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

RISK OF PERSONAL INJURY OR EQUIPMENT DAMAGE

- Do not install the Inverter in a location where the inverter will operate outside of the specified operating temperature range of -40°F to 140°F (-40°C to 60°C).
- Do not install the Inverter near heat sources such as steam exhausts from boilers and dryers, or engine compartments. It is recommended to mount the inverter in a location that is protected from direct sunlight.
- Avoid installing the Inverter in a dusty environment which can lead to reduced heatsink performance.
- Always install the Inverter in a location that minimizes the risk of water damage. Do not install the inverter in a location that is prone to flooding, or near water sprinklers or high pressure water jets.
- Do not expose this unit to excessive shock or vibration.

Failure to follow these instructions can result in injury or equipment damage.

Note: When installed as a part of an Energy Storage System (ESS) with the Schneider Boost, the installation must meet the applicable UL9540 requirements for residential, wall mount and indoor installations, as defined in the *Schneider Boost Installation and Operation Guide (TME12665)*.

⚠ CAUTION

RISK OF PERSONAL INJURY OR EQUIPMENT DAMAGE

- Do not use the cellular modem with a damaged antenna. If a damaged antenna comes into contact with the skin, a burn may result. Replace a damaged antenna immediately.
- Use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the terminal and may contravene local RF emission regulations or void the warranty.

Failure to follow these instructions can result in injury or equipment damage.

⚠ CAUTION

EQUIPMENT DAMAGE OR PERSONAL INJURY

- Verify that the lift handle threads are not crossed during installation.
- Verify that the lift handles are screwed in all the way and tightened so that they will not turn or come loose during use.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

- The connected PV array must be ungrounded.
- All installations must comply with national and local codes. Consult national and local codes for specific grounding and bonding requirements.

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

Verify cable polarity at both the battery and the inverter. Positive (+) must be connected to positive (+). Negative (–) must be connected to negative (–).

Failure to follow these instructions can result in equipment damage.

NOTICE

RISK OF EQUIPMENT DAMAGE

- A maximum of three Schneider Boost batteries can be installed per Inverter. See the *Schneider Boost Installation and Operation Guide (TME12665)* for details.
- Use only the Schneider Boost battery with the Schneider Inverter. Other batteries are not compatible.

Failure to follow these instructions can result in equipment damage.

NOTICE

EQUIPMENT DAMAGE

- Do not connect any cables to the inverter Sync ports.
- Do not mix cable types and ports. Connect only CAN cables to CAN ports, and Ethernet cables to Ethernet ports, following the instructions in the *Schneider Inverter Installation Guide (TME12664)*this guide.

Failure to follow these instructions can result in equipment damage.

NOTICE
EQUIPMENT DAMAGE Only install one inverter on the backup load side of each Pulse Backup Controller. **Failure to follow these instructions can result in equipment damage.**

NOTICE
DOOR GASKET DAMAGE Ensure that the door gaskets are not damaged during installation. **Failure to follow these instructions can result in equipment damage.**

Limitations on Use

⚠ WARNING
HAZARD DUE TO UNINTENDED USE The Inverter and its accessories are not intended for use in connection with life support systems or other medical equipment or devices. The Inverter can only be used in grid-interconnected, off grid, and integrated PV systems. It is not suitable for any other application areas. **Failure to follow these instructions can result in death, serious injury, or equipment damage**.

Explosive Gas Precautions

⚠ WARNING

IGNITION AND FIRE HAZARD

This equipment is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any confined space containing lead acid batteries, or flammable chemicals such as, natural gas (NG), liquid petroleum gas (LPG) or gasoline (Benzine/Petrol).

- Do not install in a confined space with machinery powered by flammable chemicals, or storage tanks, fittings, or other connections between components of fuel or flammable chemical systems.
- Do not install the inverter on a flammable surface. If local codes permit installation on a wood surface, ensure that the wood is flame retardant.
- Do not install the inverter near readily flammable materials such as cloth, paper, straw, or plastic sheeting. Keep flammable materials a minimum distance of 600 cm (24 in.) from the top surface and 30 cm (12 in.) from either side surface and the front of the Inverter.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Maintenance

The Inverter does not require scheduled maintenance. However, the heatsink must be clear of dust and debris.

The surface of the Inverter can be cleaned by using a lint-free soft cloth.

NOTICE

RISK OF EQUIPMENT DAMAGE

- Use only a soft cloth dampened with water and mild soap to clean the inverter.
- Do not use solvents or chemicals that are corrosive or flammable.

Failure to follow these instructions can result in equipment damage.

Contents

Figures

Tables

1 Introduction

What's in This Chapter?

Overview

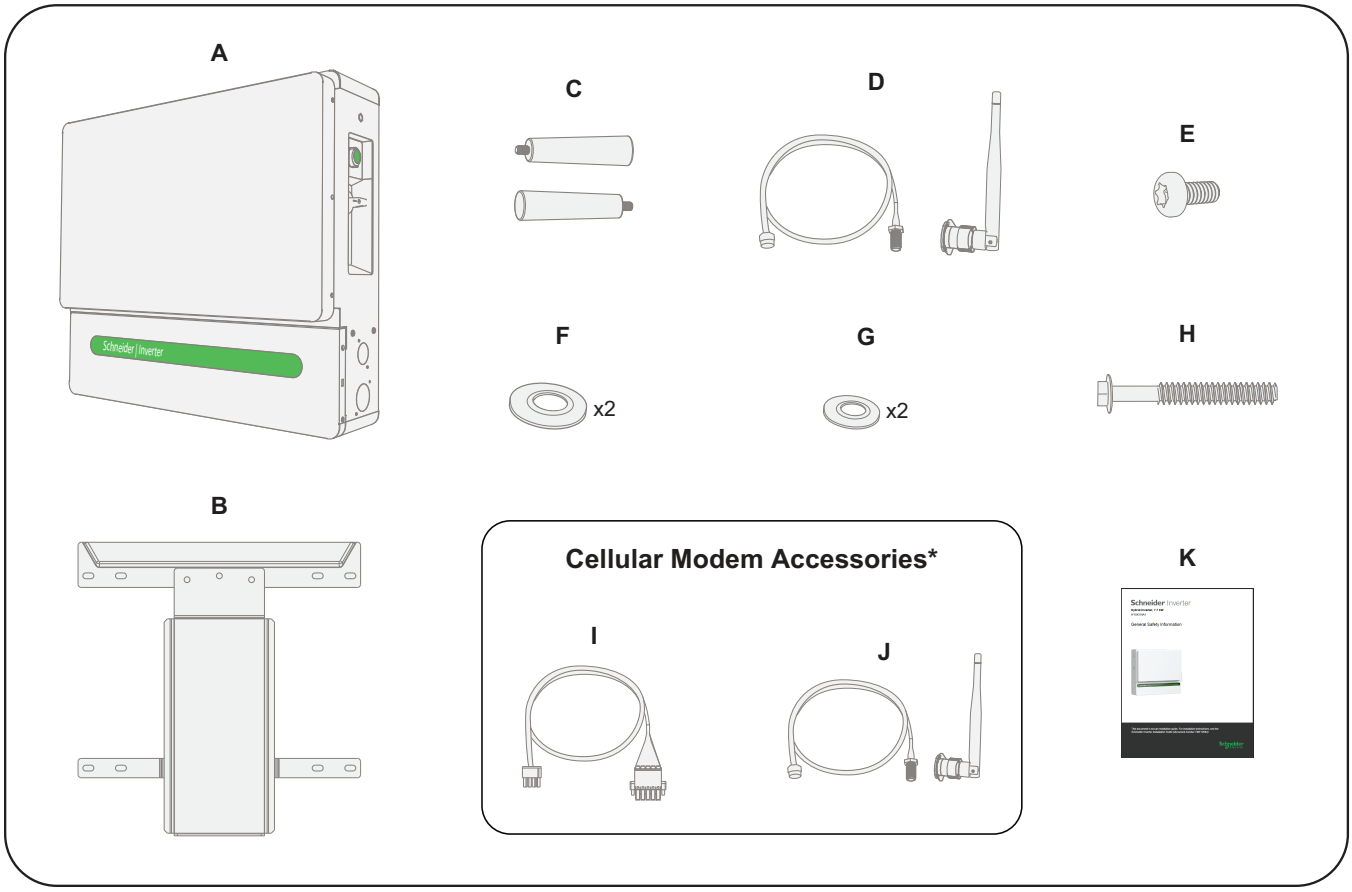
The Schneider Inverter (**HY8K1NA1**) is a sine-wave inverter/charger that can be used as a part of the Schneider Home energy system for residential and commercial battery-based off-grid, grid backup, and grid interactive applications. It is a self-contained DC to AC inverter and battery charger, with 4 internal MPPTs. It is compatible with the Schneider Boost, and AC or DC coupled solar applications. The Inverter can be monitored using Schneider Home and the Schneider Electric Installer Portal.

System Planning

For information about system configurations, see *Schneider Home System Planning and Wiring Guide (TME13782)*.

What's in the Box

IMPORTANT: Inspect the package for damage. If damage is found, contact Schneider Electric customer service.

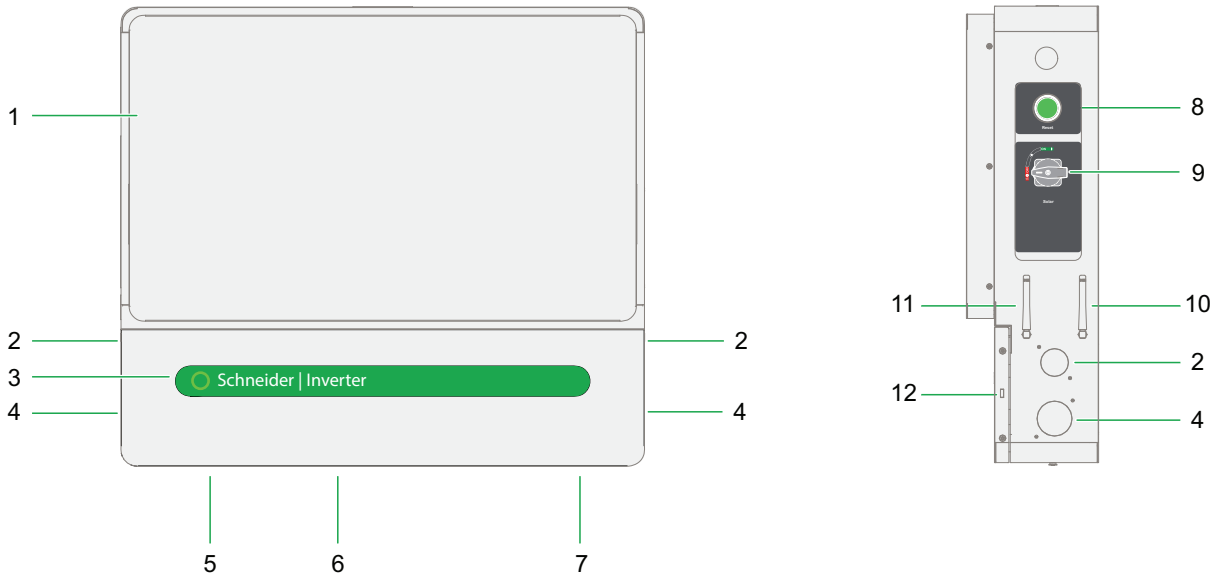


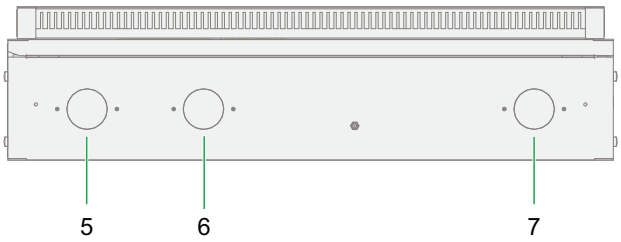
A	Inverter (HY8K1NA1) (1)	**G**	Reducing washers, 3/4 to 1/2 in (2)
B	Wall mounting bracket (1)	**H**	Lag bolts, 5/16 × 3 in (5)
C	Lift handles (2)	**I**	Cellular modem power cable (1)*
D	Wi-Fi antenna and cable (1)	**J**	Cellular antenna and cable (1)*
E	Pan head Torx T25 screw, #10-24 (1)	**K**	Safety Information (1)
F	Reducing washers, 1 to 3/4 in (2)		

* Cellular modem planned for future release.

Physical Features

Figure 1 Physical features





bottom view

1	Heatsink cover	7	Hole for 1 ¼ in. conduit (Battery)
2	Hole for 1 in. conduit	8	Reset button*
3	Inverter status LED* (see LED States on page 92)	9	Solar disconnect switch*
4	Hole for 1 ¼ in. conduit	10	Wi-Fi antenna**
5	Hole for 1 ¼ in. conduit (option for Comms or AC when no battery is installed below)	11	Cellular antenna (future accessory)**
6	Hole for 1 ¼ in. conduit (option for Comms or AC when no battery is installed below)	12	Wiring door and latch

*For more information, see Solar Disconnect on page 84.

**The Cellular and Wi-Fi antennas can be installed on either the left or right side of the inverter.

NOTE: The left and right-side conduits are the same. Use the ones that are most appropriate for your installation, based on the location of other equipment in the system. For more information about system components and cable routing, see *Schneider Home System Planning and Wiring Guide (TME13782)*.

Required System Components

The following system components may be required by local or national codes.

Rapid Shutdown (RSD) Switch

A Rapid Shutdown (RSD) Initiator Switch is required for systems equipped with Rapid Shutdown, with or without the Boost battery. For system configuration and wiring information, see Verifying Rapid Shutdown Operation on page 78 and the *Schneider Home System Planning and Wiring Guide (TME13782)*.

Schneider Energy Monitor

For grid-tied solar and battery systems with no Backup Controller, a Schneider Energy Monitor is required. For more information, see the *Schneider Energy Monitor Installation Guide (TME39049)* and the *Schneider Home System Planning and Wiring Guide (TME13782)*.

Optional Accessories

The following optional accessories are available for the Inverter. For an up-to-date list, call an authorized dealer or visit https://www.se.com/us/en/product-range/234852991.

- **Schneider Boost**
- **Pulse Backup Controller**
- **Schneider Pulse Load Center (with and without Backup Controller) or Schneider Pulse CSED (with and without Backup Controller)**

Communication Requirements

The Schneider Inverter and Schneider Energy Monitor (if installed) require an internet connection for monitoring and to complete the system configuration and control in the Schneider Home app. Ethernet (preferred) or Wi-Fi are supported.

Ethernet

The Schneider Inverter and Schneider Energy Monitor (if installed) each require their own Ethernet connection to the home's router. For more information, see "Installing an Ethernet Cable" on page 73.

Wi-Fi

- Always use the 2.4 GHz channel (when available)
- Wi-Fi signal strength will depend on many factors, such as home construction, distance from the Wi-Fi router, and obstructions. It is recommended to plan for Wi-Fi Extenders or Powerline Ethernet adapters in the event that they are needed.

For more information, see "Installing the Wi-Fi Antenna and Cable" on page 71

Account Registration and Certification

Schneider account registration and certification are required before installing the Schneider Inverter or the Schneider Boost.

1. Go to mySchneider.
2. Select **Create your account** and use your work e-mail to register.
3. Enter your company name and select **Search**, and then verify that the name and address are correct. If your company is not registered with Schneider, select **Register your company** at the bottom of the page and then enter your company name and address.
4. For Business Type, select **Solar Installer**.
5. On your mySchneider homepage, go to **Programs** > **Schneider Home Installer** > **Requirements**. If the information provided during registration was complete, your status will be set to **Certification in Progress**. If you are missing information, contact your Company Administrator.
6. Expand **Certification in Progress** and select **Get Certified** to begin training.
7. Once you successfully complete the Schneider Home Certification training and your enrollment has been processed, your status will be updated to **Certified**. You can now commission the Schneider Home energy management system using the eSetup app.

Required Installer App and Web Portal

eSetup™

IMPORTANT: If you have not completed the **Schneider Home Installer Certification**, complete the free online course by following the steps in Account Registration and Certification on page 28. You will need to complete the training in order to access commissioning features in eSetup.

eSetup is a mobile app that allows qualified installers to monitor and configure the Inverter for first-time setup and commissioning. For details, see Commissioning on page 75.

For more information or to download **eSetup™** click below or go to:

https://www.se.com/ww/en/work/solutions/software/applications/esetup-for-electricians.jsp

Schneider Electric Installer Portal

During and after commissioning, qualified personnel can use the web-based Installer Portal to monitor the Inverter.

Note: You will need a **mySchneider** account in order to log in to Installer Portal.

Home Owner App

Schneider Home

Schneider Homeis a mobile app that provides an overall view of system performance for residential power monitoring systems. It allows home owners to monitor connected devices.

Cybersecurity Guidelines

This section includes information on how to help secure your system.

⚠ WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Follow the cybersecurity best practices in the *Schneider Inverter Installation Guide (TME12664)*this document (Cybersecurity Guidelines on page 30) to help prevent unauthorized access to the system software.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

To find out about the latest cybersecurity news, sign up for security notifications, or to report a vulnerability, visit the Schneider Electric Cybersecurity Support Portal.

Recommended Actions

Note: The list of recommended actions below is not a complete list of possible cybersecurity measures. It is meant to be a starting point to improve the security of your system.

Passwords

- Passwords should include upper case, lower case, number, and special characters
- The password must have 8 characters minimum
- The password should not be easily found in the dictionary and a phrase is preferred.
- Passwords should be changed frequently, at least once a year
- A default password must be changed immediately when first received and after a factory reset
- Never reuse passwords
- Never share passwords with unauthorized personnel

Network

- Schneider Electric devices should only be used in your personal home network
- Schneider Electric devices should not have a publicly accessible IP address
- Do NOT use port forwarding to access a Schneider Electric device from the public internet
- Schneider Electric devices should be on their own network segment. If your router supports a guest network or VLAN, it is preferable to locate the devices there
- Use the strongest Wi-Fi encryption available
- Use HTTPs in local network

Physical Site Security

To help prevent physical attacks:

- Install the system on private property, away from public passageways.
- Properly reinstall and close all covers.
- Route all cables through conduits.

Decommissioning

Before a device is permanently removed from your network, perform a full factory reset to erase all data

2 Pre-Installation Planning

What's in This Chapter?

Pre-Installation

Before installing the Inverter, read all instructions and cautionary markings in this Manual Type Short. For supported system configurations, see the *Schneider Home System Planning and Wiring Guide (TME13782)*.

Note: Obtain all necessary permits prior to starting the installation. Installations must meet all local codes and standards. Installation of this equipment should only be performed by qualified personnel.

Planning the Installation

- Read this entire chapter before beginning the installation. It is important to plan the installation from beginning to end.
- Download eSetup and verify your account. See Required Installer App and Web Portal on page 28.
- Verify you that you can successfully log in to the Installer Portal. See Required Installer App and Web Portal on page 28.
- Assemble all tools and materials needed for the installation.

Required Tools and Materials

The following materials and tools are not supplied but are required for installation.

Required for LOTO

- Appropriate PPE (e.g. safety glasses, gloves, protective footwear, etc.)
- Lock-out/Tag-out (LOTO) kit
- Calibrated professional digital multimeter (600V, Cat III or higher)

Required Tools

- Stud finder
- Bubble/spirit level
- Power drill and/or impact driver
- Drill bit: 3/16 × 3 in.
- Impact socket: 1/2 in.
- Impact Socket: 5/16 in.
- Torque screwdriver (20 in-lb to 50 in-lb capable)
- Screwdriver or bit: Phillips #2
- Screwdriver or bit: Torx T15
- Screwdriver or Bit: Torx T20
- Insulated slotted (flat-head) screwdriver: 3/16 in.

- Wire stripper for #18 - #6 AWG stranded wire
- Right-angle socket wrench
- Digital Multimeter (600V, Cat III or higher)

Required Cables

Note: See Cable Specifications on page 36.

- AC power cables (600 V, 8-4 AWG)
- Ground cable (600 V, 10 AWG)
- PV power cables (600 V, 12-6 AWG)
- Cat5E cables (600 V) with RJ45 connectors
- Cable conduits and fittings per NEC requirements

Required for Mounting to Concrete or Brick

- 5/16 x 2.5 in. concrete anchors (4)
- 5/16 x 1 in. steel fender washers (4)
- Appropriate drill bit and impact socket

Cable Specifications

Table 1 Cable specifications and routing

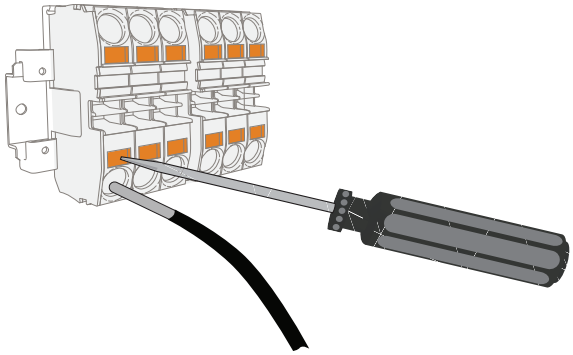
Cable name	Cable size	Connector	Rating	Strip length	Conduit size	Torque
AC cables	8-4 AWG	N/A	600 V Copper (Cu) wire, rated for 194°F (90°C)	5/8 in15 mm	1 or 1¼ in.	N/A
PV cables	12-6 AWG	N/A	600 V	5/8 in15 mm	1 or 1¼ in.	N/A
Battery power cables	8 AWG	N/A	600 V	5/8 in15 mm	1¼ in.	N/A
BMS cables	CAT5e	RJ45	600 V	N/A	1¼ in.	N/A
Ground cables	10 AWG	M4 ring terminalN/A	600 V	5/8 in15 mm	1¼ in.	35 in-lb (4.0 Nm)
Aux relay	18 AWG	N/A	600 V	3/8 in10 mm	1 or 1¼ in.	N/A
RSD cables	18 AWG	N/A	600 V	3/8 in10 mm	1 or 1¼ in.	N/A
Ethernet cables	CAT5e	RJ45	600 V	N/A	1 or 1¼ in.	N/A
Backup Controller cables	CAT5e	RJ45	600 V	N/A	1 or 1¼ in.	N/A

Using Push-in Terminals

The AC, Battery, and PV terminal blocks in the Inverter have push-in terminals. To install these wires, use a flat screwdriver with insulated handle to push the terminal block latch open, and then insert the wire until it reaches the back of the terminal. Perform a push-pull test on all wires to confirm that they are not loose.

Note: To help improve contact, ferrules are not recommended.

Figure 2 Push-in terminals



Battery Requirements

Use only the Schneider Boost (BAT10K1) with the Inverter (HY8K1NA1) (see Required System Components on page 27). For information about battery installation and wiring, see the *Schneider Boost Installation and Operation Guide (TME12665)*.

Conduit Hole Selection

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK AND FIRE

- Ensure that all conduit openings are sealed.
- Do not drill, cut, or punch holes into the Inverter. Use only the conduit holes provided for conduit entry.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

- See Physical Features on page 26 for the available conduit entry holes.
- Remove the applicable plugs from the Inverter chassis and then insert appropriately-sized conduit fittings into each conduit hole.

Choosing a Location

The Inverter is rated for outdoor use (NEMA Type 4X enclosure/Type 3R wiring compartment). Locate any electronic equipment susceptible to radio frequency and electromagnetic interference as far away from the inverter as possible.

⚠ WARNING

IGNITION AND FIRE HAZARD

This equipment is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any confined space containing lead acid batteries, or flammable chemicals such as, natural gas (NG), liquid petroleum gas (LPG) or gasoline (Benzine/Petrol).

- Do not install in a confined space with machinery powered by flammable chemicals, or storage tanks, fittings, or other connections between components of fuel or flammable chemical systems.
- Do not install the inverter on a flammable surface. If local codes permit installation on a wood surface, ensure that the wood is flame retardant.
- Do not install the inverter near readily flammable materials such as cloth, paper, straw, or plastic sheeting. Keep flammable materials a minimum distance of 600 cm (24 in.) from the top surface and 30 cm (12 in.) from either side surface and the front of the Inverter.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

RISK OF PERSONAL INJURY OR EQUIPMENT DAMAGE

- Do not install the Inverter in a location where the inverter will operate outside of the specified operating temperature range of -40°F to 140°F (-40°C to 60°C).
- Do not install the Inverter near heat sources such as steam exhausts from boilers and dryers, or engine compartments. It is recommended to mount the inverter in a location that is protected from direct sunlight.
- Avoid installing the Inverter in a dusty environment which can lead to reduced heatsink performance.
- Always install the Inverter in a location that minimizes the risk of water damage. Do not install the inverter in a location that is prone to flooding, or near water sprinklers or high pressure water jets.
- Do not expose this unit to excessive shock or vibration.

Failure to follow these instructions can result in injury or equipment damage.

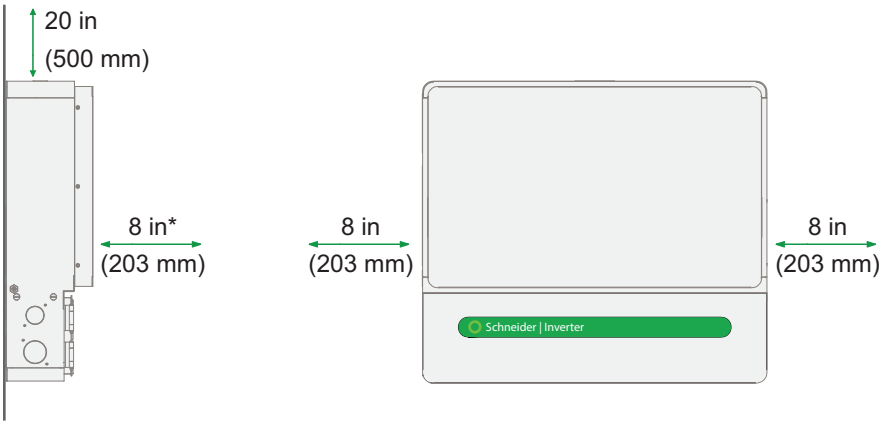
Note: When installed as a part of an Energy Storage System (ESS) with the Schneider Boost, the installation must meet the applicable UL9540 requirements for residential, wall mount and indoor installations, as defined in the *Schneider Boost Installation and Operation Guide (TME12665)*.

Clearance Requirements

Provide at least 8 in. (203 mm) of clearance to the sides and in front of the inverter and 20 in. (508 mm) above. Other clearances will depend on the type of conduit used and the placement of other components in the system. See the *Schneider Home System Planning and Wiring Guide (TME13782)* for more information.

The inverter must be installed with enough clearance so that the disconnect switch is easily accessible and so that all labels on the inverter are visible.

Figure 3 Clearances and side ventilation



*Only applicable if installed without a Schneider Boost. If installed with a Schneider Boost, follow the clearances described in the *Schneider Boost Installation and Operation Guide (TME12665)*.

Installing the Lift Handles

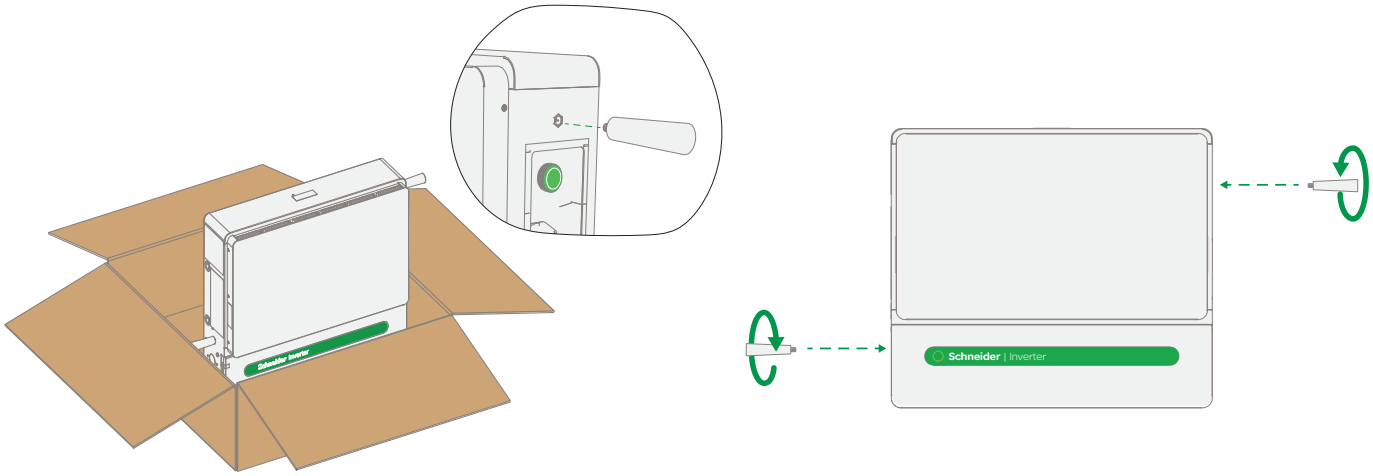
⚠ CAUTION

EQUIPMENT DAMAGE OR PERSONAL INJURY

- Verify that the lift handle threads are not crossed during installation.
- Verify that the lift handles are screwed in all the way and tightened so that they will not turn or come loose during use.

Failure to follow these instructions can result in injury or equipment damage.

Figure 4 Installing lift handles



To install the lift handles:

1. With two people, raise the top of the inverter so that the inverter is standing vertically inside the box.
2. Install the two lift handles (provided) into the left and right sides of the Inverter.

Mounting Surfaces

Figure 5 Mounting bracket

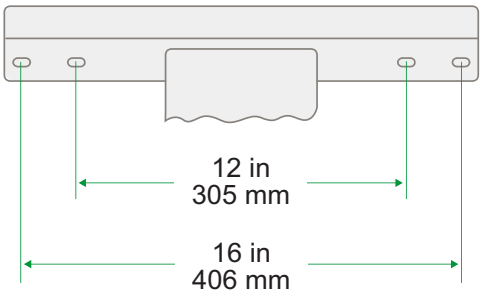
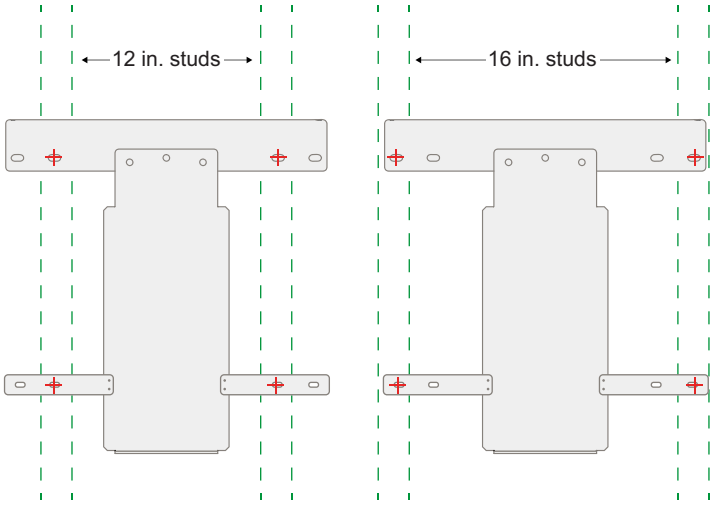
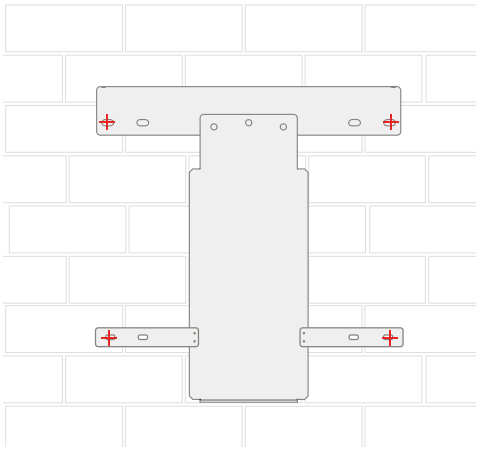


Table 2 Mounting surfaces

Wood or Metal Studs	
Wood studs: Use four 5/16 in. lag bolts with washers. The bolts must be long enough so that it can embed at least 3 in. into the studs. **Metal studs (non-preferred):** Can be used only for inverters that are installed without the Schneider Boost. Studs must be minimum 18 gauge. Use appropriate metal stud mounting hardware (not provided) for your specific installation, in compliance with your local codes. The screw must be long enough so that there are at least 3 threads beyond the stud.	
Concrete or Brick	
Minimum strength must be 2500 PSI (concrete) or 1500 PSI (brick/masonry). Use four 5/16 in. fasteners with washers. The fastener must be long enough so that at least 1.5 in (38 mm) can be embedded into the mounting material. All fasteners must be at least 1.5 in (38 mm) away from the edges of masonry blocks or bricks.	

Mounting the Inverter

⚠ WARNING

HEAVY EQUIPMENT

- The Inverter weighs approximately 102 lb (46.4 kg). A minimum of two people must be present to lift the inverter. To prevent personal injury, always use proper lifting techniques during installation, and follow local work safety rules.
- Do not lift the inverter using the heatsink cover.
- For structural and seismic stability, the Inverter must be mounted onto a vertical supporting surface strong enough to support the Inverter and all other equipment that is installed on the same surface.
- Use mounting hardware that is appropriate for the mounting surface and weight of the Inverter.

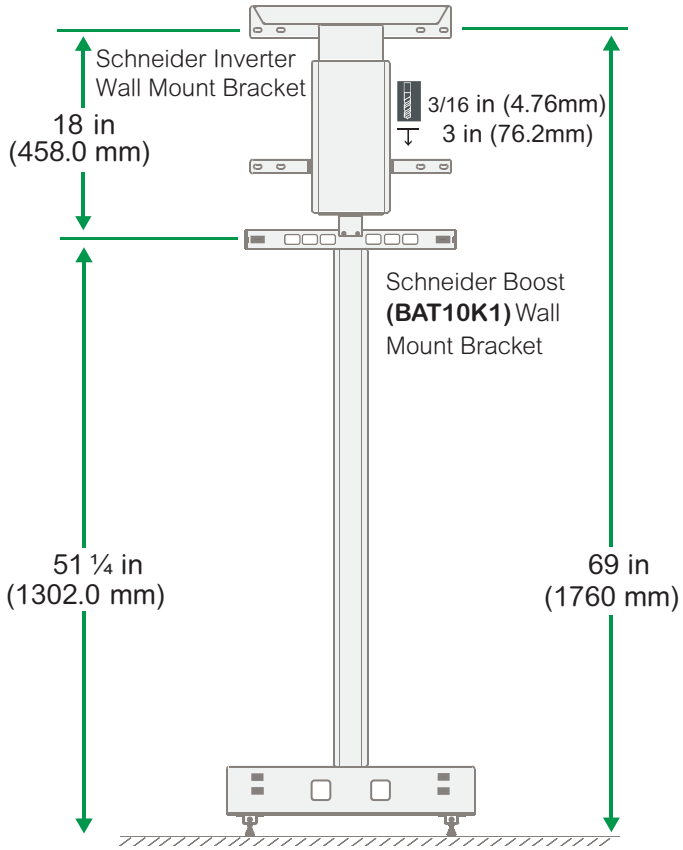
Failure to follow these instructions can result in death, serious injury, or equipment damage.

IMPORTANT: If you are installing a Schneider Boost battery with the inverter, the battery must be installed first.

To mount the Schneider Inverter:

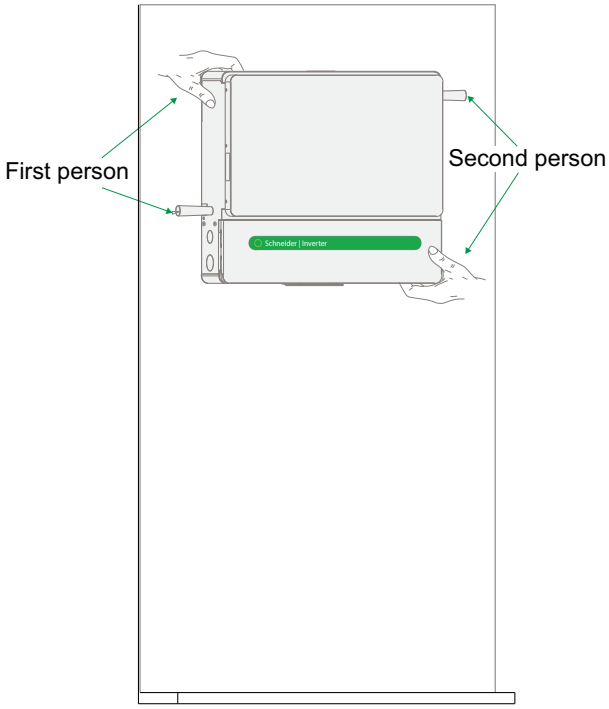
1. Install the wall mount bracket(s) as shown below. Dimensions shown are from the floor to the mounting slots. **IMPORTANT:** If you are installing a Schneider Boost battery with the inverter, the battery must be installed first.

Figure 6 Installing wall bracket(s)



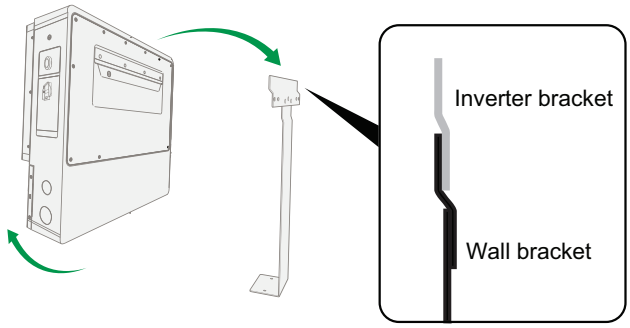
2. With a minimum of two people, lift the inverter up to the wall bracket.

Figure 7 Lifting the inverter



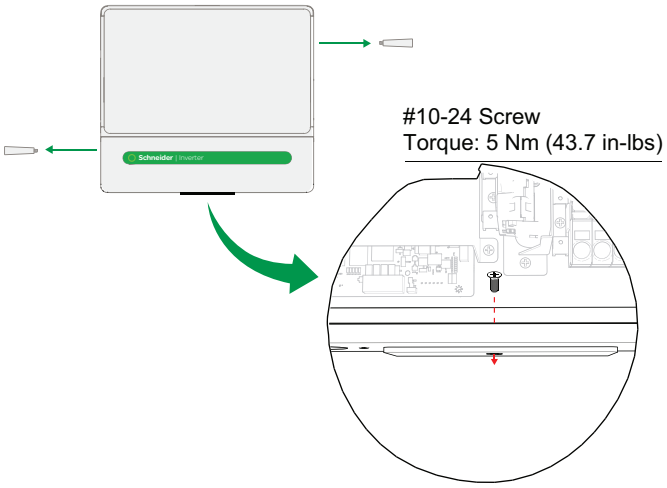
3. Tilt the inverter until the inverter's bracket is behind the wall mount bracket. Then slide the inverter down until the brackets are as shown below.

Figure 8 Install inverter onto mounting bracket



4. Remove handles from the inverter and then install a #10-24 screw to attach the bracket to the bottom of the inverter, as shown below. Torque to 5 Nm (43.7 in-lbs).

Figure 9 Lifting the inverter



3 Wiring

What's in This Chapter?

Wiring the Inverter

For system spacing and wiring diagrams for your Schneider Home energy management system, see the *Schneider Home System Planning and Wiring Guide (TME13782)*.

- Complete "Lock-out and Tag-out (LOTO)" on the facing page before working.
- Follow all local codes and standards.

IMPORTANT: Connected backup loads must not exceed the inverter's power rating.

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- All cable entry points must be sealed to meet and maintain the requirements for 3R enclosure standards.
- After connecting wires, ensure that the wiring door is closed and locked, and that the door gasket is properly seated.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Guidelines for Routing Cables

Follow these guidelines when routing the cables:

- Use enclosed conduits for routing any cables outside of the enclosure.
- Route the cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable—no less than a 4 in. (100 mm) radius.
- Allow for some slack in the cable tension.
- Keep the alignment of wire pairs inside the sheath as straight as possible.
- If possible, allow separation between data and power cables.
- Use appropriate hardware fasteners to avoid damage to the cable.

Lock-out and Tag-out (LOTO)

De-energize, lock-out and tag-out the inverter from all power sources.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND ARC FLASH

- This equipment and its accessories must be installed, uninstalled and serviced by qualified electrical personnel only.
- Use appropriate personal protective equipment (PPE) and follow safe electrical work practices according to NFPA 70E or CSA Z462.
- Equipment energized from multiple sources including PV, Batteries, and AC. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait five minutes for circuits to discharge.
- When the photovoltaic array is exposed to light, it supplies a DC voltage to the inverter.
- To turn the battery(ies) OFF: On all batteries, press the power button for six seconds, and turn the disconnect switch to the **OFF** position.
- Verify de-energization with a voltage sensing device, rated 600 V or higher.
- Never energize the system or turn the Inverter disconnect switch to the ON position doors or covers removed.

Failure to follow these instructions will result in death or serious injury.

To lock-out and tag-out the Schneider Inverter:

1. On the Schneider Inverter, turn the disconnect switch to the **OFF** position. Lock-out and tag-out the disconnect switch.
2. Press the battery's power button for six seconds. **Repeat for all batteries that are connected to the same inverter.**
3. Turn the Schneider's battery disconnect switch to the **OFF** position. **Repeat for all batteries that are connected to the same inverter.** Lock-out and tag-out the disconnect switch(es).
4. Locate the external AC (grid) disconnect, and turn it to the **OFF** position.
5. Wait [[[Undefined variable CIB.DischargeTime]]] for circuits to discharge.
6. Open the inverter's wiring door and, using a voltage sensing device rated 600 V, CAT III or higher, confirm that all circuits are de-energized before performing work: Measure voltage at the PV, battery, and AC terminals in the inverter.

Opening the Wiring Compartment Door

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- This equipment must only be installed and serviced by qualified electrical personnel.
- Qualified electrical personnel must apply appropriate personal protective equipment (PPE), follow safe electrical work practices, and adhere to all applicable local and national electrical codes. See NFPA 70E or CSA Z462.Refer to EN 50110 or other regional safety standards.
- Never operate energized with covers removed.
- Energized from multiple sources. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait [[[Undefined variable CIB.DischargeTime]]] for circuits to discharge.
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.

Failure to follow these instructions will result in death or serious injury.

NOTICE

EQUIPMENT DAMAGE

Ensure that the gaskets are not damaged while opening and closing the inverter door.

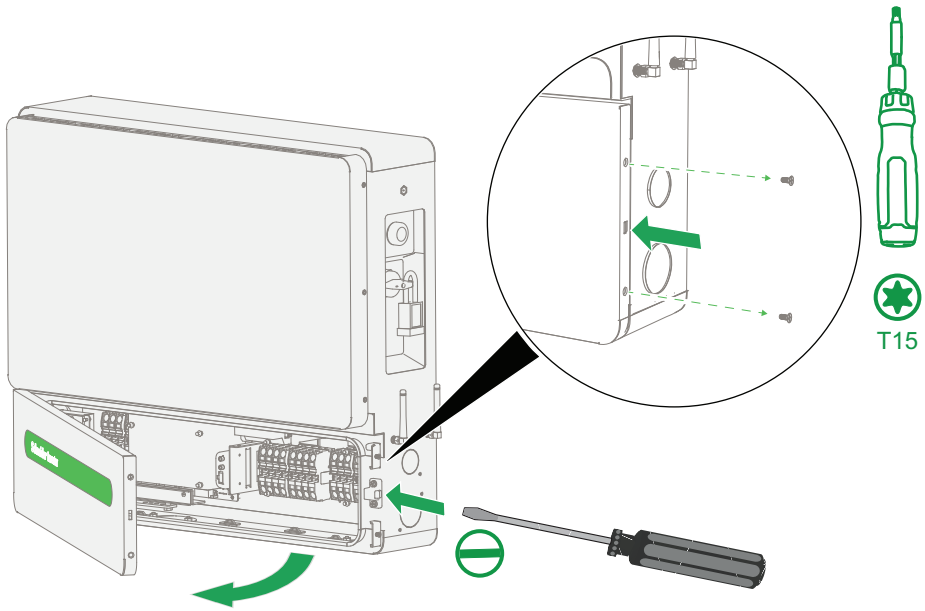
Failure to follow these instructions can result in equipment damage.

To access the wiring terminals, you will need to open the door over the wiring section of the inverter. **Note**: Do not disassemble any other part of the inverter.

To open the door:

1. Remove the two T15 Torx screws from the right side of the door. Save the screws (see Figure 10).
2. Push the latch in and then open the door.

Figure 10 Opening the inverter door



Removing Conduit Hole Plugs

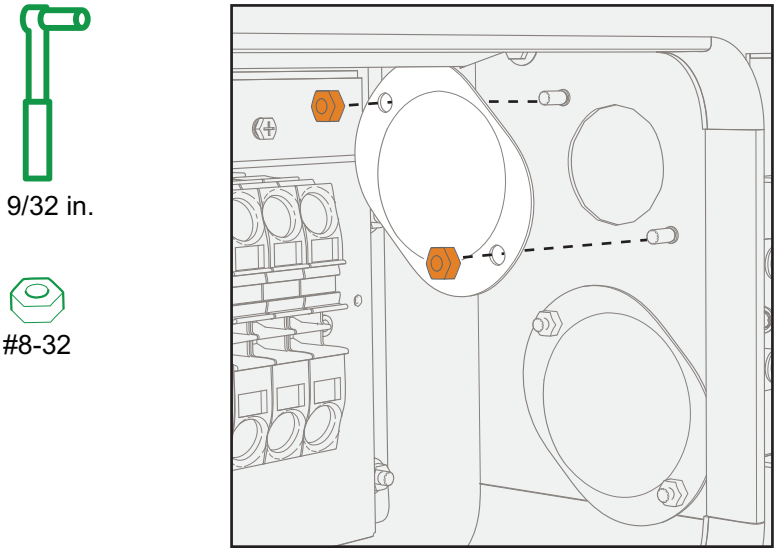
The inverter is provided with metal conduit hole plugs. Remove plugs as needed, and install appropriate conduit fittings.

To remove the metal hole plugs:

1. Open the wire compartment door (see Figure 10).
2. Using a right-angle socket wrench, unscrew the two nuts from the conduit hole cover.
3. Remove the cover.

4. Install conduit fittings and conduits that are suitable for the selected wire size and local environmental conditions.

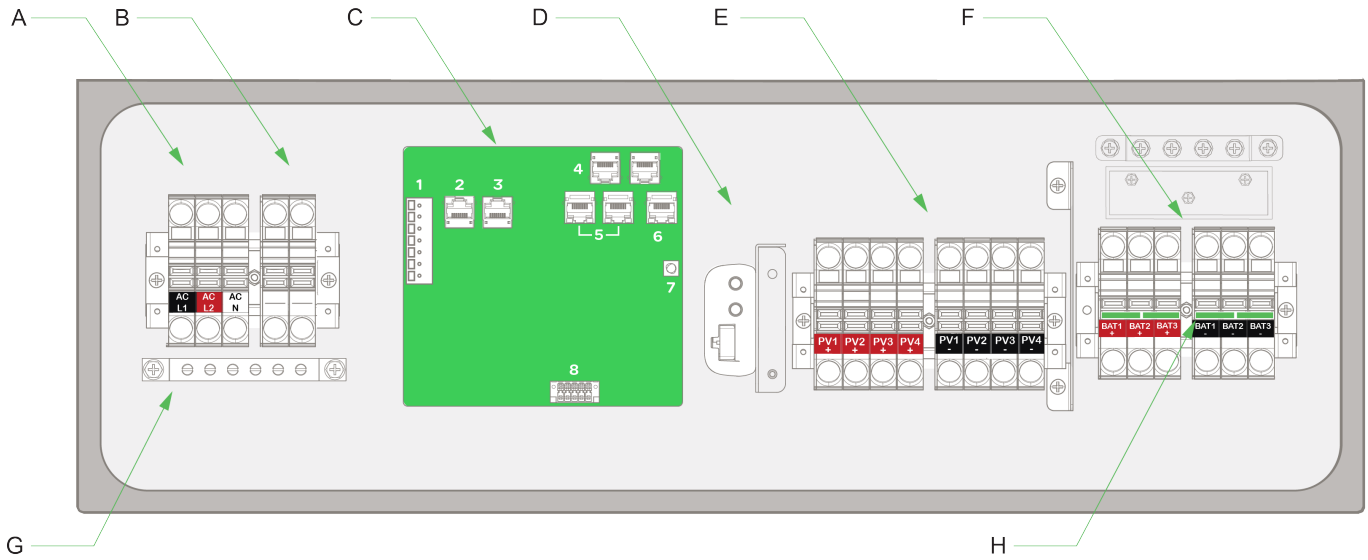
Figure 11 Removing hole plugs



Wiring Compartment Overview

All installations must comply with national and local codes.

Click the terminal blocks in the image below to see wiring instructions. To return to this page after clicking a hyperlink, type **Alt** + ←.



Label	Description
A	AC terminals
B	Do not use
C	Communications board (see table below)
D	Cellular modem (future accessory)
E	PV terminals
F	Battery terminals
G	Ground terminals (for main AC panel and connected equipment)
H	Battery combiner jumpers (on + and - terminals). Do not remove.

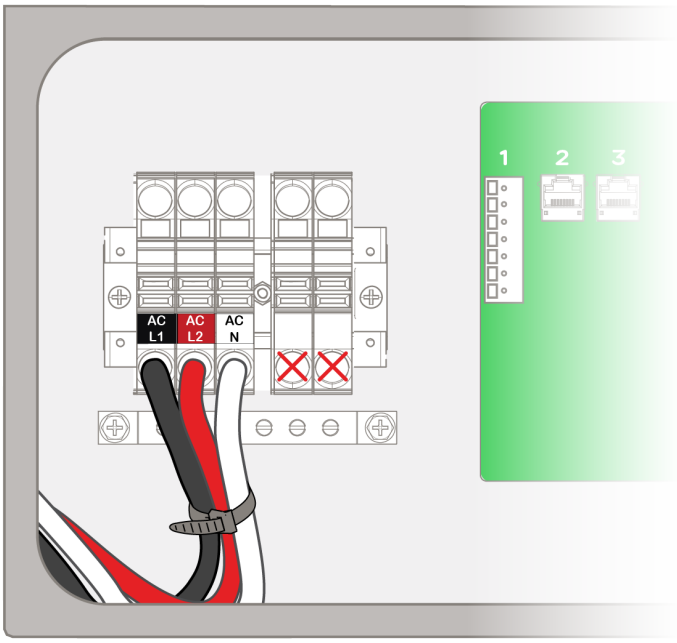
Label	Description	Use
1	Rapid Shutdown (RSD) and Auxiliary terminals	• Rapid Shutdown Switch (E-Stop) • Auxiliary port (not used)
2	Do not use	N/A
3	BMS CAN port	For Schneider Boost battery communications
4	Sync ports	Reserved for future use
5	PoE ports	For Schneider Energy Monitor and/or Pulse Backup Controller
6	Ethernet port	For connection to router
7	Wi-Fi cable terminal	For connection to inverter's Wi-Fi antenna
8	Cellular terminals	For connection to inverter's cellular antenna

AC Cable Connections

Notes:

- Do not use a GFCI-equipped AC source to power the Grid inputs. The AC input filters on the Inverter may cause nuisance tripping of ground fault protected outputs.
- The inverter must be connected to AC with a 40 Amp circuit breaker.
- The Inverter is designed for operation with single phase, three wire (120 V/240 V) AC sources and should not be connected to a three-phase AC source.
- For grid-tied solar and battery systems with no Backup Controller, a Schneider Energy Monitor is required. For more information, see the *Schneider Energy Monitor Installation Guide (TME39049)* and the *Schneider Home System Planning and Wiring Guide (TME13782)*.

Figure 12 AC terminals



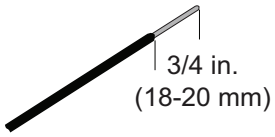
Note: Wire routing may vary by site.

To connect the AC cables:

1. Verify that all power sources are turned off (see Lock-out and Tag-out (LOTO) on page 49).
2. Remove the cover from one of the larger (1¼ in.) conduit holes on either the left or right side of the Inverter, depending on the location of other components in your installation (see "Physical Features" on page 26 and Removing Conduit Hole Plugs on page 51).

3. Install conduit fittings and conduits that are suitable for the selected wire size and local environmental conditions.
4. Route 6 AWG AC wires through the conduit fittings.
5. Strip the wires.

   Figure 13 Wire strip length



6. Connect the L1, L2 and N wires to the AC terminal blocks in the Inverter:
   a. Use a flat, insulated screwdriver to push the terminal block latch open, and then insert the cable until.
   b. Perform a push-pull test on all wires to confirm that they are not loose.

Battery Cable Connections

Before installing the battery, see the *Schneider Boost Installation and Operation Guide (TME12665)* for additional installation and wiring details.

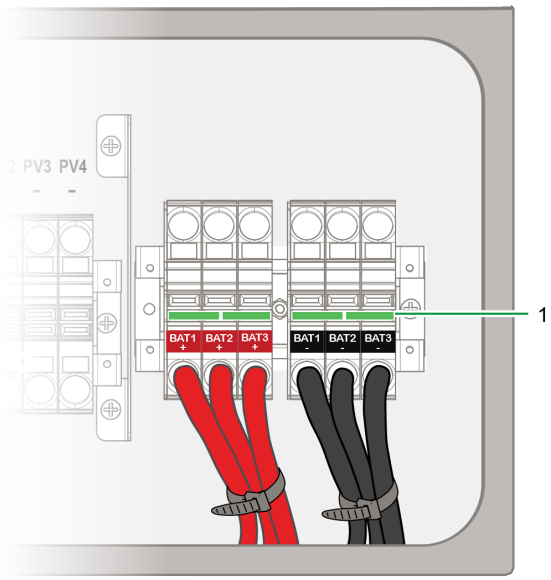
NOTICE
RISK OF EQUIPMENT DAMAGE Verify cable polarity at both the battery and the inverter. Positive (+) must be connected to positive (+). Negative (–) must be connected to negative (–). **Failure to follow these instructions can result in equipment damage.**

NOTICE
RISK OF EQUIPMENT DAMAGE ▪ A maximum of three Schneider Boost batteries can be installed per Inverter. See the *Schneider Boost Installation and Operation Guide (TME12665)* for details. ▪ Use only the Schneider Boost battery with the Schneider Inverter. Other batteries are not compatible. **Failure to follow these instructions can result in equipment damage.**

Note: Inverter PV terminals must only be used for PV, and Battery terminals must only be used with the Schneider Boost battery, as indicated in this manual.

For battery communication wiring, see Wi-Fi and Ethernet Connections on page 71.

Figure 14 Battery terminals

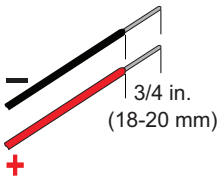


1	Battery combiner jumpers. Do not remove.

To connect battery power cables in the inverter:

1. Verify that all power sources are turned off (see Lock-out and Tag-out Procedure on page 1).
2. Remove a 1 in. plug from the side or bottom of the Inverter (see "Physical Features" on page 26 and Removing Conduit Hole Plugs on page 51).
3. Install a 1 in. conduit fitting suitable for the selected wire size and environmental conditions.
4. Route the Battery **+** and Battery **-** cables through the conduit fitting.
5. Strip the wires.

   Figure 15 Wire strip length



6. Connect to the Battery+ and Battery- terminals in the Inverter:
   a. Use a flat, insulated screwdriver to push the terminal block latch open, and then insert the cable.
   b. Perform a push-pull test on all wires to confirm that they are not loose.

IMPORTANT: Verify cable polarity at both the battery and the inverter. Positive (+) must be connected to positive (+). Negative (–) must be connected to negative (–).

7. To connect the other end of the cables in the Schneider Boost battery, see *Schneider Boost Installation and Operation Guide (TME12665)*.

PV Cable Connections

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- The PV conductors of this photovoltaic system are ungrounded and may be energized.
- Disconnect the PV panels prior to connecting or disconnecting PV terminals.

Failure to follow these instructions will result in death or serious injury.

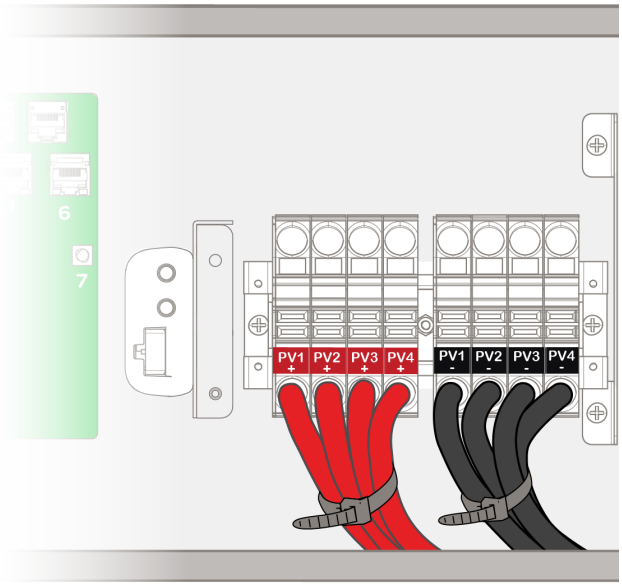
NOTICE

RISK OF EQUIPMENT DAMAGE

- The connected PV array must be ungrounded.
- All installations must comply with national and local codes. Consult national and local codes for specific grounding and bonding requirements.

Failure to follow these instructions can result in equipment damage.

Figure 16 PV terminals

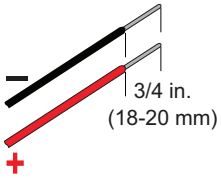


To connect the PV cables:

1. Verify that all power sources are turned off (see Lock-out and Tag-out Procedure on page 1).
2. Remove a 1 in. knockout from the side or bottom of the Inverter (see "Physical Features" on page 26 and Removing Conduit Hole Plugs on page 51).

3. Install a 1 in. conduit fitting suitable for the selected wire size and environmental conditions.
4. Route the PV+ and PV- cables through the conduit fitting.
5. Strip the wires.

   Figure 17 Wire strip length



6. Connect to the PV+ and PV- terminals in the Inverter:
   a. Use a flat, insulated screwdriver to push the terminal block latch open, and then insert the cable.
   b. Perform a push-pull test on all wires to confirm that they are not loose.

Rapid Shutdown (PV Systems)

A Rapid Shutdown (RSD) Initiator Switch and the Rapid Shutdown devices are required for systems equipped with Rapid Shutdown, with or without the Schneider Boost battery. When the RSD Initiator Switch is connected to the Backup Controller, the Backup Controller RSD inputs must be daisy chained to the inverter RSD inputs.

⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

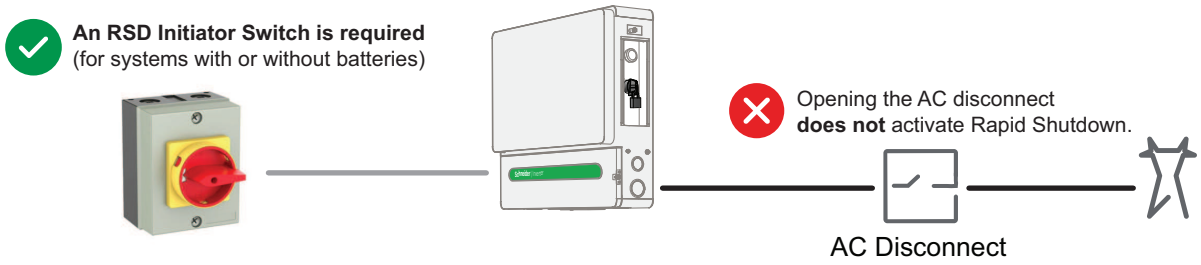
For systems equipped with Rapid Shutdown (RSD):

- A Rapid Shutdown Switch (E-Stop) is required (for systems with or without batteries), in order to provide emergency shutdown functionality.
- Do not use an AC Disconnect in place of a Rapid Shutdown Switch, as it will not initiate rapid shutdown on any Schneider Inverter system, with or without a battery. For details, see the *Schneider Home System Planning and Wiring Guide (TME13782)*.
- All installations must meet the requirements of the National Electrical Code (NEC), ANSI/NFPA 70 Section 690.12.
- This Photovoltaic Rapid Shutdown System (PVRSS) incorporates one or more pieces of equipment that exercise the rapid shutdown control of PV system conductors required by section 690.12 of the NEC (NFPA 70). Other equipment installed in or on this PV system may adversely affect the operation of this PVRSS. It is the responsibility of the installer to ensure that the completed PV system meets the applicable Rapid Shutdown functional requirements. This equipment must be installed according to the manufacturer's installation instructions.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

IMPORTANT: For systems that do not require the Rapid Shutdown function (per local codes), ensure that the factory-installed jumper is installed between the positive (pin 4) and negative (pin 6) terminals on the RSD terminal block. For pin-out details, see Table 3 on page 60.

Figure 18 Rapid Shutdown Switch requirement



Connecting the Rapid Shutdown (E-Stop) Switch

Figure 19 RSD push-in terminals

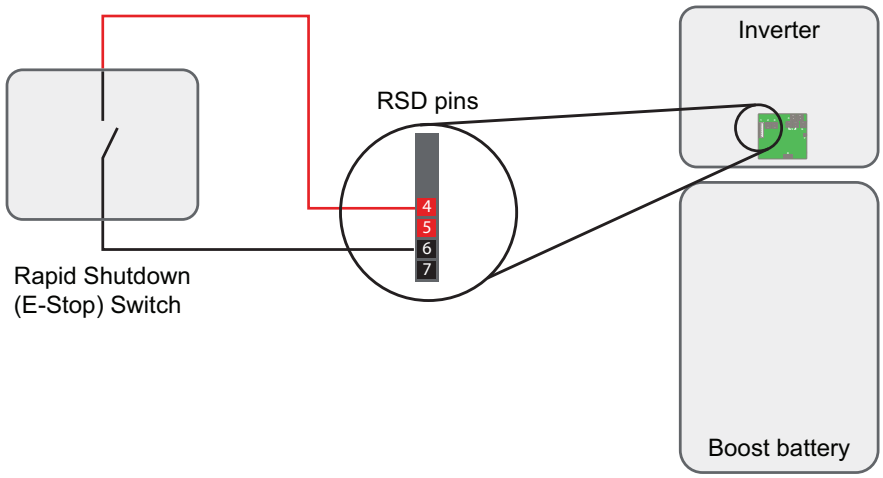
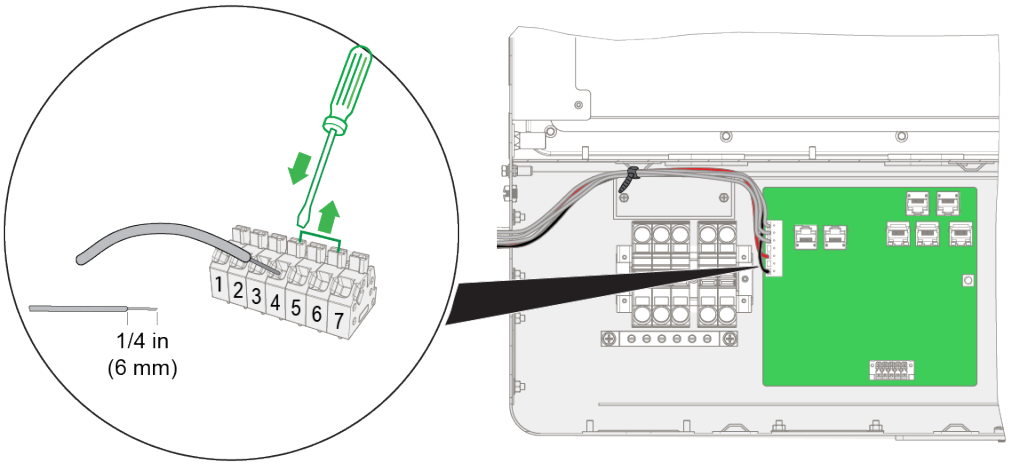


Figure 20 RSD push-in terminals



IMPORTANT: For systems that require the Rapid Shutdown function (per local codes), remove the factory-installed jumper between positive (pin 4) and negative (pin 6) terminals on the RSD terminal block, and replace with the RSD switch. For pin-out details, see **Table 2 on page 1**.

Note: RSD Pins 4-5 and pins 6-7 are joined internally.

Table 3 RSD connections

Pin	Signal	Description
1	COM	Not used
2	Relay NC	Not used
3	Relay NO	Not used
4	RSD+	RSD input (positive)

5	RSD+	RSD input (positive)
6	RSD-	RSD input (negative)
7	RSD-	RSD input (negative)

Follow the procedure on the next page.

To connect to E-Stop:

1. Remove the plastic barrier over the Communications board. Save the barrier and screws for later reinstallation.
2. Install the Rapid Shutdown (E-Stop) switch according to the manufacturer's instructions.
3. Prepare the 18 AWG cable with a strip length of 1/4 in. (6 mm).
4. On the inverter's communications board, remove any jumper between the positive and negative RSD terminals, if installed.
5. Connect the Rapid Shutdown (E-Stop) switch to the positive (+) and negative (-) RSD terminals in the Inverter or Backup Controller. Use the second set of + and - RSD terminals to connect the circuit between the Inverter and Backup Controller.
6. Perform a push-pull test to verify that the wires are connected firmly.
7. During commissioning, complete Verifying Rapid Shutdown Operation on page 78.

Installing and Connecting Rapid Shutdown (RSD) Devices

Refer to the list of compatible RSD devices and the following information to install the devices on the PV array and connect to the Schneider Inverter.

Table 4 Compatible RSD devices

Name	Model	Description
APSmart RSD-S-PLC*	RSD-S-PLC-A RSD-S-PLC-B	Single PV module Rapid Shutdown device (see Figure 21 on page 63)
APSmart RSD-D*	RSD-D-15-1000 RSD-D-20-1000 RSD-D-25-1000 RSD-D-15-1500 RSD-D-20-1500 RSD-D-25-1500	Dual PV module Rapid Shutdown device (see on page 59)

* For the latest information and installation guides, go to https://apsmartglobal.com/

NOTICE

DAMAGE TO EQUIPMENT

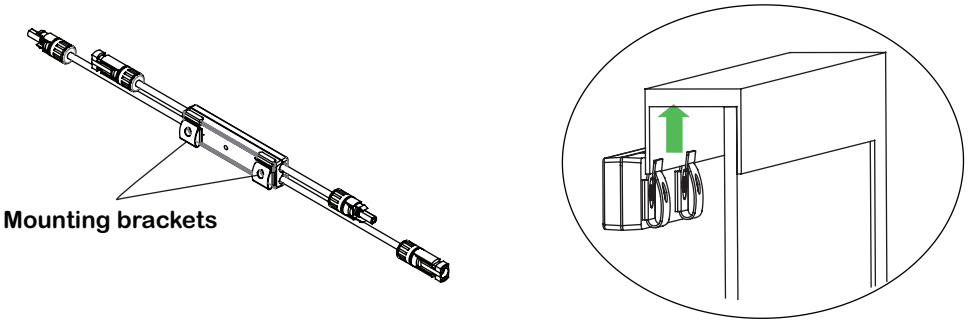
- Do not expose the RSD devices to sun, rain, or snow.
- Maintain a minimum air flow clearance of 0.75 in. (15 mm) between the roof and the bottom of the RSD device.
- Do not short circuit the RSD device output connectors.
- Maintain a minimum bending radius of 2 in. (50 mm) as the cable exits the RSD device casing.
- Use the same type of DC connector for the RSD device and connections in the system.
- Complete all RSD device connections and tests before connecting to the inverter.

Failure to follow these instructions can result in equipment damage.

To install a single module RSD device:

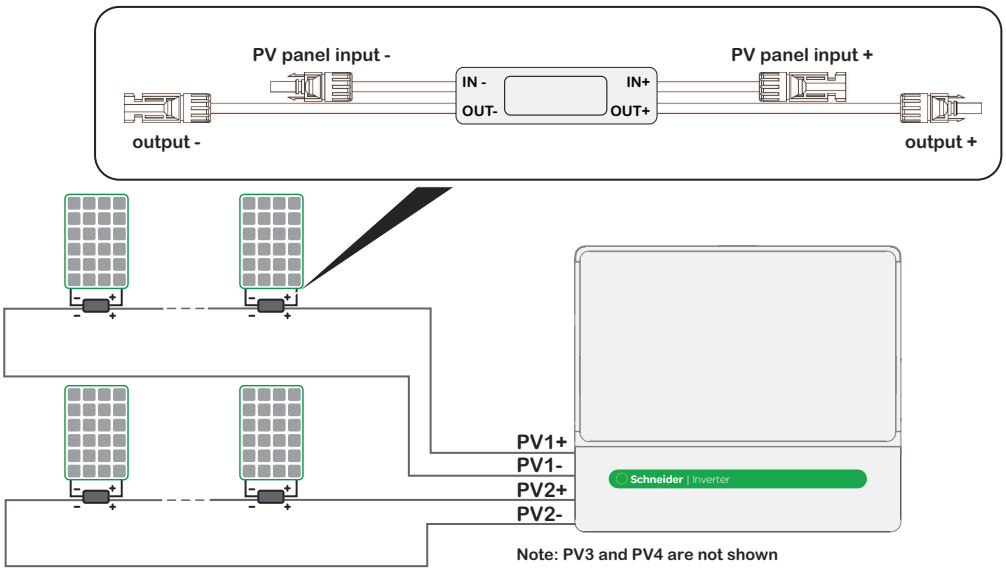
1. Attach the RSD device to the PV module frame. RSD devices must be installed on the outside of PV module frames that are <1.56 in. (40 mm).

   Figure 21 Installing RSD-S-PLC



2. Connect the input connectors of the RSD device to the PV module junction box. Verify the device output DC voltage is between 0.6 V and 1 V.

Figure 22 Single PV module Rapid Shutdown device (RSD-S-PLC)

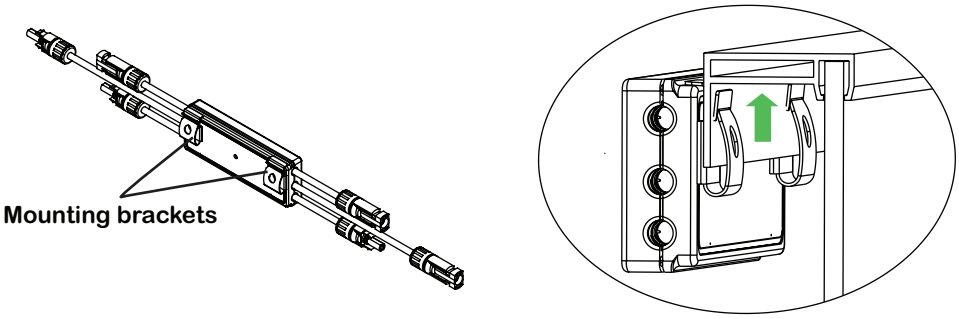


3. Connect the output connectors of the RSD device in series to the string.
   Verify the string open-air DC voltage is between 0.6 V and 1 V times the number of RSDs (0.6~1 V) x (# of RSDs).
   This range many vary due to on-site environmental conditions.

To install a dual module RSD device:

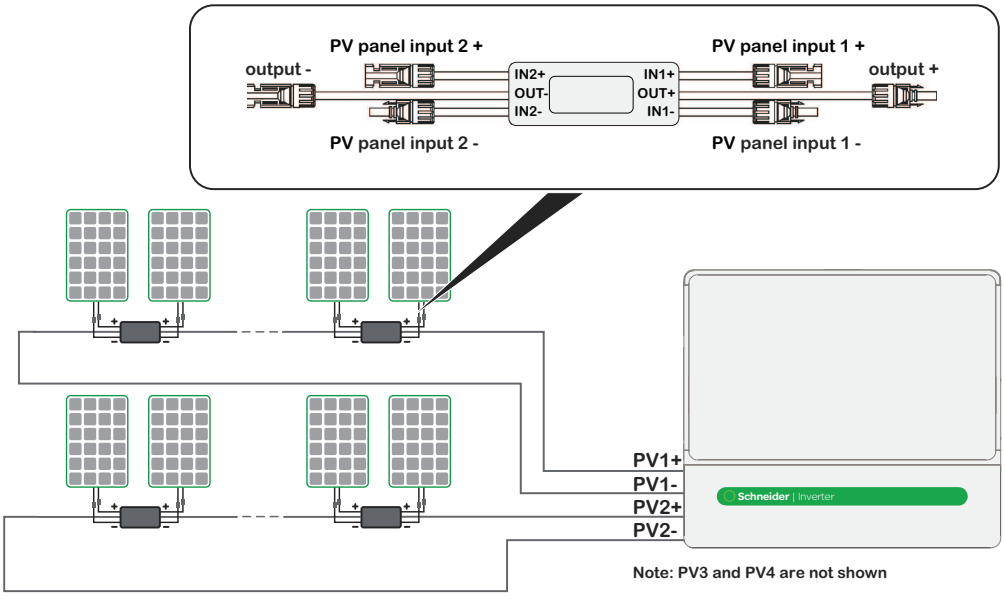
1. Attach the RSD device to the PV module frame. RSD devices must be installed on the outside of PV module frames that are <1.56 in. (40 mm).

   Figure 23 Installing RSD-D-PLC



2. Connect the INPUT1 connectors of the RSD device to the first PV module junction box and connect the INPUT2 connectors to the second PV module junction box. Verify the device output DC voltage is between 1.2 V and 2 V.

   Figure 24 Dual PV module Rapid Shutdown device (RSD-D-PLC)



3. Connect the output connectors of the RSD device in series to the string.
   Verify the string open-air DC voltage is between 1.2 V and 2 V times the number of RSDs (1.2~2 V) x (# of RSDs).
   This range many vary due to on-site environmental conditions.

IMPORTANT: When connecting the RSD-D to only one PV module, use INPUT1 port ONLY, then connect a DC extension cable to both terminals of INPUT2 to short the unused side. If you do not follow these instructions, the RSD-D may be damaged.

Grounding the Inverter

AC System Bonding

Follow NEC guidelines and local codes and standards.

⚠ ⚠ WARNING

HAZARD OF ELECTRIC SHOCK AND FIRE

Verify that only one neutral-to-ground bond exists in the system.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

System bonding must be done at only one location. Procedures for system bonding vary between on-grid and off-grid systems.

The Inverter does not connect the neutral to ground. The AC input neutral is already bonded to ground by the incoming utility grid system. Do not connect the neutral to ground in any additional location.

The Inverter does not switch or disconnect the AC neutral in any mode of operation, so even in invert (back-up) mode, the inverter load sub-panel neutral is bonded to ground by the utility grid system. It must not be grounded again in the inverter load sub-panel.

GroundEarth Connections

The Inverter is provided with ground terminals that must be reliably connected to ground (protective earth) by appropriately sized equipment grounding conductors. System grounding for the AC and DC systems must be done according to all applicable NEC and local installation codes.

⚠ WARNING

UNGROUNDED EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult national and local codes for specific grounding and bonding requirements.

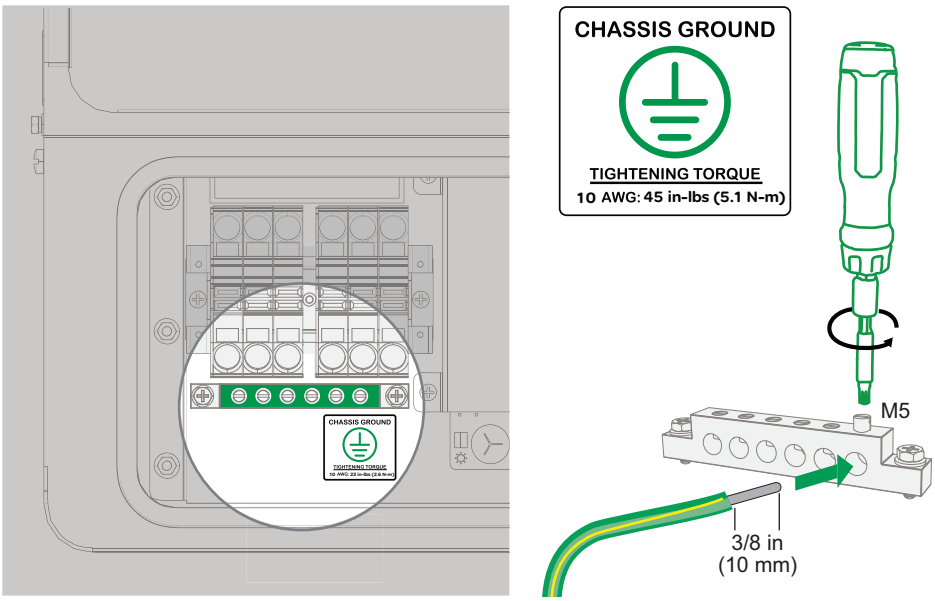
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Note: The ground cables can be installed with or without ferrules.

Install the following ground connections:

1. Connect a ground cable from the main AC panel to a ground terminal inside the inverter, using an M5 screw (see Figure 25). Torque to 45 in-lbs (5.1 Nm).
2. Connect a 10 AWG ground cable from connected equipment to the ground terminals inside the wiring compartment of the inverter, using an M5 screw (see Figure 25). Torque to 45 in-lbs (5.1 Nm).

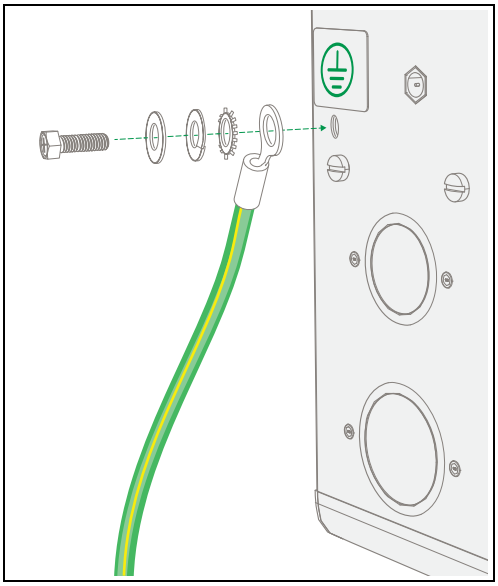
Figure 25 Ground terminals



3. Connect a ground cable from the main AC panel to the inverter's enclosure:
   a. Crimp a ring terminal to a 10 AWG (600 V) ground cable.
   b. Attach the ring terminal to the rivet nut on the left-side exterior of the inverter using an M4 hex head screw with one spring and one flat washer. Torque to

23 in-lb (2.6 Nm).

Figure 26 Equipment ground connection

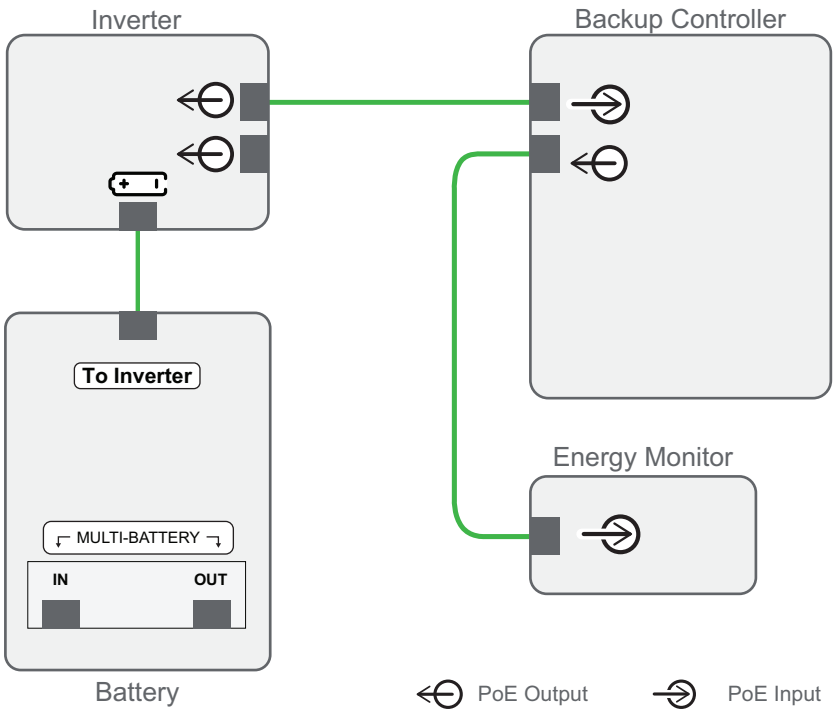


Communication Between Devices

The Inverter requires a Cat5e cable with RJ45 connectors to communicate with the Schneider Boost battery, Backup Controller, and Schneider Energy Monitor (if installed).

- Install the Cat5e cables between installed devices, as shown in Figure 27, using the symbols to identify the correct ports on the equipment.
- Use only 600 V rated Cat5e cables, 4 twisted pair.

Figure 27 Example of a daisy chain connection from the Backup Controller to the Schneider Energy Monitor



Install the Cat5e cable between the installed equipment, as shown in Figure 27.

Note: The equipment will vary per site. If the Backup Controller is not installed, the Schneider Energy Monitor can be connected directly to the PoE port of the inverter.

PoE Ports

The inverter uses Power over Ethernet (PoE) to connect to the Backup Controller and Schneider Energy Monitor (if installed). The PoE connections provide communication and auxiliary power supply using Cat5e cables and RJ45 connectors. The PoE ports can be identified on the equipment as follows:

⟵⊖	PoE Output (power supply)
⊖⟶	PoE Input

For reference, Table 5 on page 70 provides the PoE pin-out details.

Figure 28 PoE communication ports

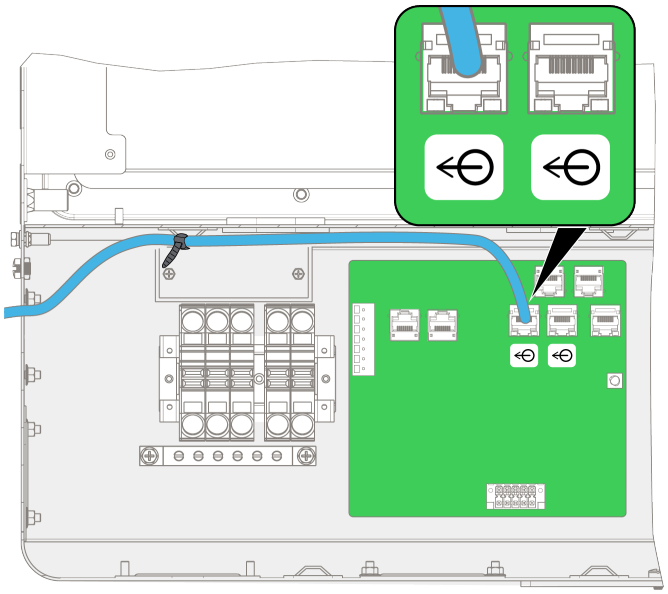


Table 5 PoE pin-out

Pin	Signal	Description
1	TD+	Ethernet Transmit +
2	TD-	Ethernet Transmit -
3	RD+	Ethernet Receive +
4	DC+	Power over Ethernet +
5	DC+	Power over Ethernet +
6	RD-	Ethernet Receive -
7	DC-	Power over Ethernet -
8	DC-	Power over Ethernet -

Battery Communication Port

If batteries are installed, the inverter communicates with the primary battery using a Cat5e cable with RJ45 connectors. The Cat5e connection to the battery includes both communication and rapid shutdown signals, as described in Table 6. For more information, see the *Schneider Boost Installation and Operation Guide (TME12665)*.

Figure 29 Battery communication port

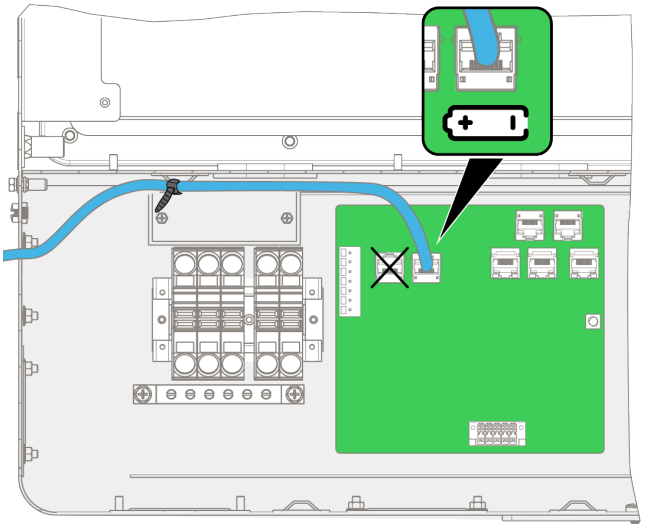


Table 6 BMS pin-out

Pin	Signal	Description
1	CAN_H	CAN-High
2	CAN_L	CAN-Low
3	GND	Ground
4	RSD+	Rapid Shutdown, positive
5	RSD+	Rapid Shutdown, positive
6	RSD-	Rapid Shutdown, negative
7	GND	Ground
8	RSD-	Rapid Shutdown, negative

Wi-Fi and Ethernet Connections

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

Never open the door or covers while any power is applied to the inverter. Do not connect to any communication ports while power is applied.

Failure to follow these instructions will result in death or serious injury.

- The Wi-Fi antenna is provided with the inverter and is required for all sites.

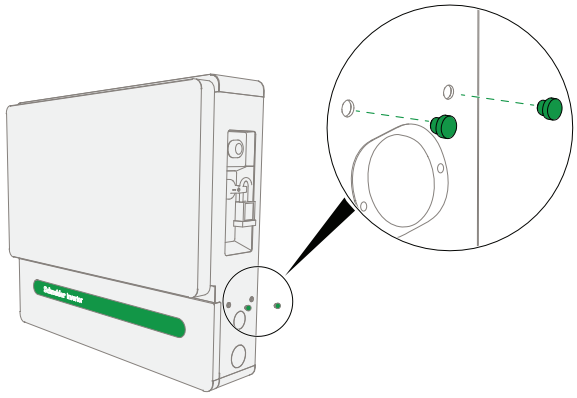
  Note: The Wi-Fi antenna is required, even for sites using a wired Ethernet connection. The Wi-Fi antenna is required for commissioning with eSetup as well as Schneider Home app registration.

Installing the Wi-Fi Antenna and Cable

To install the mandatory Wi-Fi antenna:

1. Remove one of the small antenna hole plugs from the right or left side of the inverter.

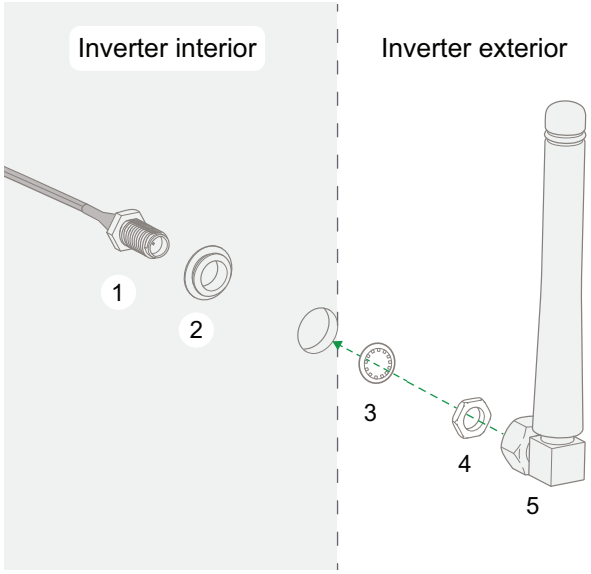
   Figure 30 Removing Antenna plugs

   Note: The antennas can be installed on the left or right side of the inverter.

2. Insert the rubber gasket through the enclosure opening, with the larger side inside the enclosure (to help create a tight seal).

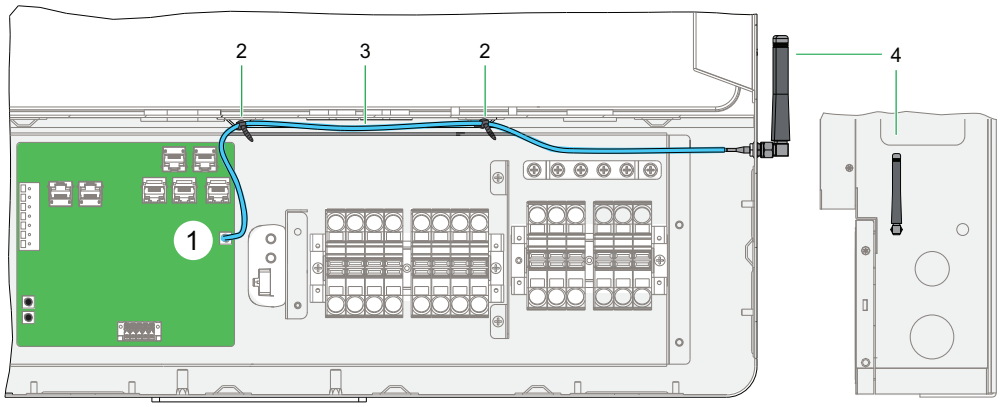
Figure 31 Installing the antenna



1	Cable
2	Rubber gasket
3	Lock washer
4	Hex nut
5	Antenna

3. Attach the antenna using the supplied hardware and cable, as shown above.
4. Remove the plastic barrier over the Communications board. Save the barrier and screws for later reinstallation.
5. Attach the cable to the connector on the Communications board.
6. Use cable ties to fasten the cable in place.

Figure 32 Wi-Fi cable and antenna installation



1	Wi-Fi cable connection on Communications board	**3**	Wi-Fi antenna cable
2	Cable tie	**4**	Wi-Fi antenna (front position recommended)

Installing an Ethernet Cable

For a hard-wired Ethernet connection, connect an Ethernet cable to the Ethernet port on the inverter's Communications board. Connect the other end of the Ethernet cable to the LAN port on the network router.

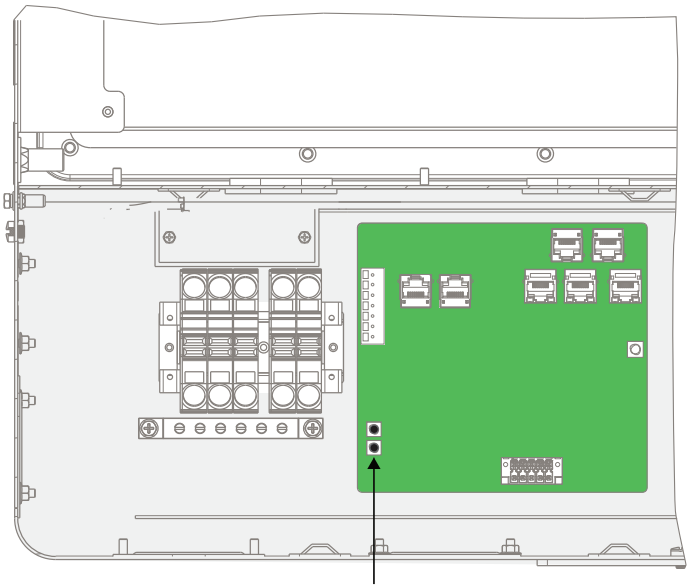
Use only 600 V rated Cat5e cable, 4 twisted pair for LAN connections.

Note: The maximum CAT 5e cable length should be 330 ft. (100.6 m).

Resetting the Communications Board

During installation, if communication cannot be established, press and release the Reset button on the Communications board. This resets the Communications board without needing to power cycle the system.

Figure 33 Communications Board Reset Button



4 Commissioning

What's in This Chapter?

Commissioning Checklist

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

Thoroughly inspect the Inverter prior to energizing. Verify that no tools or materials have inadvertently been left inside the Inverter, and that all covers and doors are properly closed and secured.

Failure to follow these instructions will result in death or serious injury.

Before powering on the inverter, perform the following inspections:

Physical Inspections

- The inverter and heat sink are free of debris, and there are no objects such as tools or extra screws inside or on top of the inverter.
- The cables are routed through cable glands or conduits and protected against potential mechanical damage. Conduits are sealed properly to avoid water or other ingress. Do not over-tighten the sealing locks, if used.
- The wires are properly and firmly connected.
- The cable polarity at both the battery and the inverter is correct.
- The plastic barrier is installed over the Communications board.
- The door gasket is properly seated, and there is no damage to the gasket.
- The Wi-Fi antenna is installed (required for commissioning with eSetup).
- Once all of the checks above are complete, close the inverter door and re-install the two screws.

Prepare network and phone for commissioning

- Check that you have an iPhone® or Android phone with the latest operating system and a charged phone battery at the commissioning site.
- Read *Schneider Home System Commissioning: Getting Started (TME42958)*
- Check that you have eSetup installed on your phone (see the link below).
- If connectivity will be limited at the site and you are viewing this document online, download or print a copy that you can access offline.
- Use eSetup to configure the inverter (and battery, if installed) and verify operation.

Commissioning with eSetup

Download eSetup to commission the Inverter and system.

Notes:

- The Wi-Fi antenna Wi-Fi antenna must be installed before commissioning with eSetup (see the *Schneider Inverter Installation Guide (TME12664)*.
- Create a MySchneider account and complete the **Schneider Home Certification training** before signing into the eSetup app. To log in to the app, use your mySchneider account email ID and password. Do not sign up with a new ID.

For more information or to download **eSetup™** click below or go to:

https://www.se.com/ww/en/work/solutions/software/applications/esetup-for-electricians.jsp

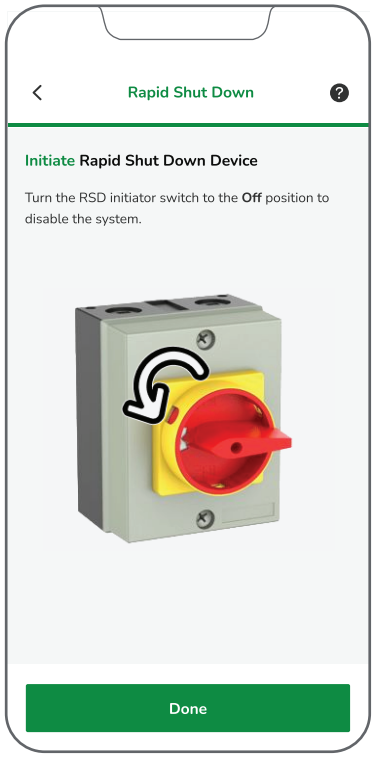
Verifying Rapid Shutdown Operation

Rapid Shutdown is verified during system commissioning, using the eSetup mobile app (see Required Installer App and Web Portal on page 28). If Rapid Shutdown is added to a system after initial commissioning, the system must be recommissioned using eSetup.

To verify Rapid Shutdown operation:

1. Download eSetup (see Commissioning with eSetup on page 77).
2. Follow the on-screen prompts to sign in (using the same account that you created for the **Schneider Home Installer Certification**. See Required Installer App and Web Portal on page 28).
3. Follow the steps in eSetup, and when prompted, turn the RSD switch to the OFF position.

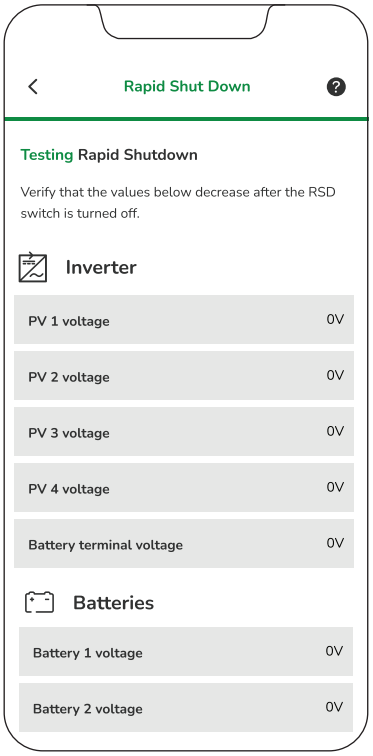
Figure 34 RSD verification in eSetup



Procedure continues below

4. Verify the following:
    a. The PV voltages are at zero within 30 seconds after turning the RSD switch off.
    b. The battery voltages are at zero within five minutes after turning the RSD switch off.

Figure 35 RSD verification in eSetup



5. If the devices report a voltage other than zero, troubleshoot before proceeding.
6. Complete the rest of the eSetup commissioning steps.

Returning the System to Operation

After commissioning, if Rapid Shutdown is used to turn the system off, turn off the Rapid Shutdown switch to return the system to normal operation.

To turn the system on:

1. Turn off or deactivate the Rapid Shutdown switch.

    Note: There will be a delay of 5 minutes after turning off the Rapid Shutdown switch while the inverter's communication board starts up.

2. After five minutes, use the Installer Portal to verify that the inverter is back online and that the battery is providing power.
3. Turn on breakers and other devices, as needed.

5 Operation

What's in This Chapter?

Inverter Operation

This section describes inverter operation, including physical switches, and operating modes in the Installer Portal.

Bidirectional Theory of Operation

The Inverter is a grid forming device consisting of a bidirectional inverter/charger. It is capable of inverting DC power into AC power and controlling the voltage and frequency of its inverter output. It powers external loads attached to the AC terminals.

The Inverter is also capable of charging external batteries by converting AC power into DC power. The Inverter accepts AC power through the AC terminals for charging batteries. The Inverter will convert externally sourced DC power into AC power for export to the utility grid attached to its AC connection.

Standby and Reset Modes

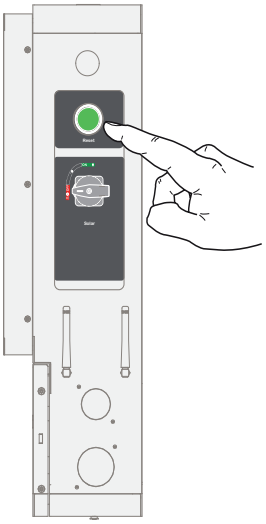
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, AND FIRE

Turning the disconnect switch on the Inverter to the **OFF** position will NOT isolate the electrical connections to the inverter. To de-energize the inverter, qualified personnel must de-energize, lock-out, and tag-out all power sources.

Failure to follow these instructions will result in death or serious injury.

Figure 36 Push button



User Action	Function
One short press (1 second)	Clear Inverter events*
One long press (> 6 seconds)	Change system state (Automatic/Standby)
Two short presses	Enable Wi-Fi Access Point (AP) Mode
Three short presses	Network reset (see Network Configuration and Reset on page 83)
Four short presses	Clear AFD events

* Except AFD events. To clear AFD events after troubleshooting, use four short pressescall 1-877-SEHOME1 for technical support.

Standby mode (long press)

In Standby mode, the Inverter stops charging and inverting. Also in Standby mode, the Inverter disconnects its internal transfer relays, which stops AC from passing through to the AC output. However, the unit remains powered and present on the network. Lastly,

in Standby mode, Inverter basic and advanced settings can be changed and put into effect.

Network Configuration and Reset

The network can be reset using the push button on the Inverter. For other network settings, customers can use the Schneider Home app. Use the network reset function to:

- Disconnect the inverter from the Wi-Fi network (if you do not want to reconnect to the network anymore)
- Disconnect the inverter from the Wi-Fi network and use an ethernet cable to connect to a network router instead
- Change the inverter's network access from one Wi-Fi Access Point (AP) to another one

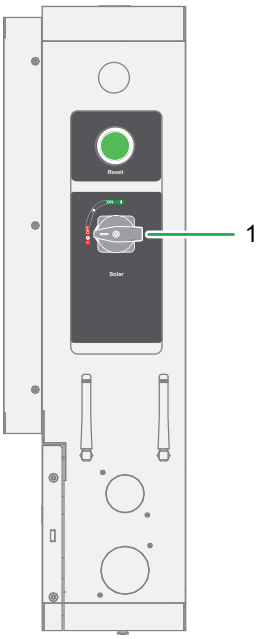
To edit network settings using Schneider Home:

1. From the home screen, tap the menu ☰ at the top right.
2. Go to **Hardware** > **Schneider inverter** > **Wi-Fi Configuration**
3. Follow the on-screen prompts.

Solar Disconnect

IMPORTANT: When the Inverter is disabled, network power is off and network-connected accessories could lose power and stop operating.

Figure 37 Solar disconnect switch



1	Solar disconnect switch
IMPORTANT: For installation or servicing, see the full LOTO instructions "Lock-out and Tag-out (LOTO)" on page 49.	

To use the Solar disconnect switch:

- To disconnect solar input from the inverter, turn the Solar disconnect switch to the O (open) position.
- To connect solar input to the inverter, turn the Solar disconnect switch to the I (closed) position.

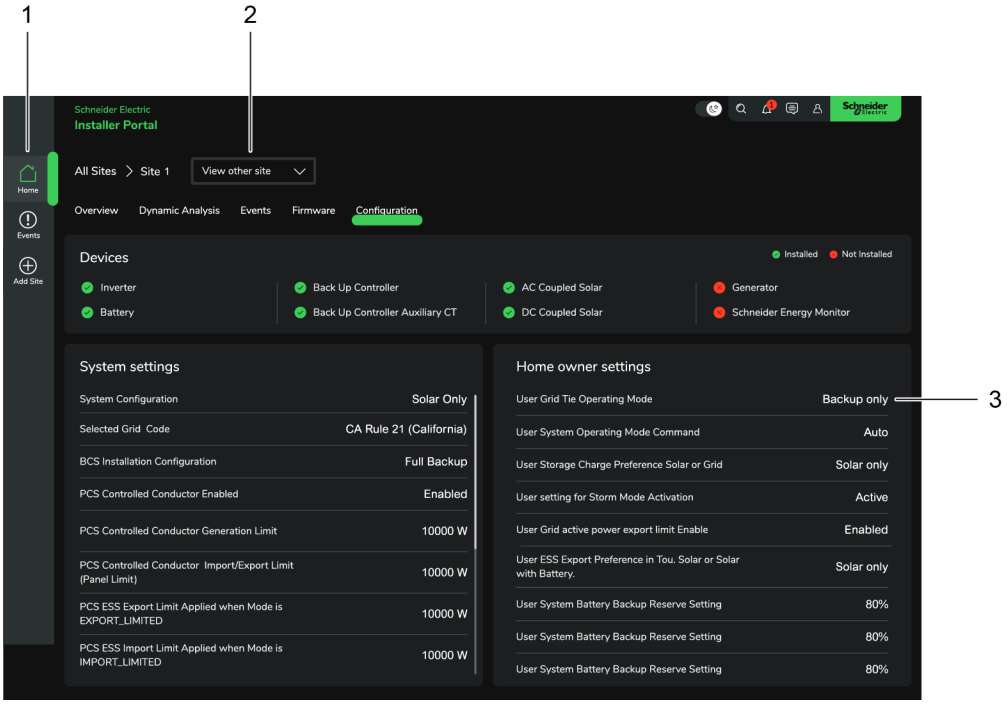
Modes of Operation in the Installer Portal

Modes of operation can be set by the home owner, using the Schneider Home app. Qualified personnel can monitor the system using the Installer Portal. For more information, see Monitoring Operation on page 91.

To view the current mode of operation in the Installer Portal:

1. Log in to Installer Portal (see Accessing the Installer Portal on page 95).
2. If the site hasn't been added yet, follow the instructions in Adding a Site on page 96.
3. From the **Home** tab, select a site to view.
4. Click **Configuration**.
5. View the Mode(s) of operation under **Home owner settings**.

Figure 38 Installer Portal Modes of Operation



1	Home tab
2	Select a site
3	Mode of operation

Table 7 Modes of Operation (grid-tie)

Name	Type	Description
Solar Only Mode	Standard	Solar is used to power the AC loads, and excess power is exported to the grid.
Self Consumption	Standard	Solar and storage are used to minimize energy consumption from the grid during the day in order to maximize utility bill cost savings.
	Temporary	**Storm Mode:** Temporary override mode that charges the battery(ies) to 100% and disables any energy management to prepare for a grid outage during a storm.
Time of Use (ToU) Savings	Standard	In addition to Self-Consumption Mode, this mode is used to discharge the battery during peak rate periods in order to further maximize utility bill cost savings.
	Temporary	**Storm Mode:** Temporary override mode that charges the battery(ies) to 100% and disables any energy management to prepare for a grid outage during a storm.
Backup Priority Mode	Standard	The battery(ies) are kept charged to 100% in order to maximize run time when there is a grid outage.
Low Power Mode	Temporary	Puts the home in low power mode by turning off designated devices. This mode: ■ Is set by the home owner ■ Is independent of the Schneider Inverter ■ Can be set in addition to the other modes

Power Control System Modes (PCS)

PCS operating modes control the power flow in the system. If the power flow is not restricted according to any utility or AHJ requirements, PCS modes can remain off (unrestricted).

PCS ESS Operating Modes

PCS ESS operating modes are configured in eSetup during commissioning. eSetup will guide the installer through the steps for configuration.

The PCS can operate in one of two modes:

- ESS Import Only Mode
  - The battery can charge from the grid and from solar.
  - The battery cannot discharge to the grid.
- ESS Export Only Mode
  - The battery cannot charge from the grid and can only charge from solar.
  - The battery can discharge to the grid.

IMPORTANT:

- Configuring or changing the PCS settings must only be done by qualified personnel.
- PCS settings must be set according to the requirements of the utility and Authority Having Jurisdiction.

Hardware Requirements for PCS

In addition to a Schneider Inverter and Schneider Boost battery, you must install at least one of the following devices for grid metering, as described in the relevant product manual:

- Pulse Backup Controller(using either integrated CTs or aux CTs
- Schneider Pulse CSED (in Service Equipment configuration)

Table 8 PCS ESS configuration 1: Using Backup Controller Integrated CTs

Device	SKU	Quantity	Document
Schneider Inverter	HY8K1NA1	1	*Schneider Inverter Installation Guide (TME12664)*
Schneider Boost	BAT10K1	1 –3	*Schneider Boost Installation and Operation Guide (TME12665)*
Pulse Backup Controller in Service Equipment configuration	BC200A1NAWM	1	*Pulse Backup Controller: Installation and Operation Guide (TME13781)*
OR			
Schneider Pulse CSED with Backup Controller	CC18X18M200PCZ	1	*Schneider Pulse CSED Instruction Bulletin (GEX79652)*

Table 9 PCS ESS configuration 2: Backup Controller with Auxiliary CTs

Device	SKU	Quantity	Document
Schneider Inverter	HY8K1NA1	1	*Schneider Inverter Installation Guide (TME12664)*
Schneider Boost	BAT10K1	1 –3	*Schneider Boost Installation and Operation Guide (TME12665)*
Pulse Backup Controller in Main Lug configuration	BC200A1NAWM	1	*Pulse Backup Controller: Installation and Operation Guide (TME13781)*
Aux CTs when there are loads on the grid side of the Backup Controller	CT200AXNA	2	

See the *Schneider Home System Planning and Wiring Guide (TME13782)* for single-line diagrams showing example configurations.

Arc Fault Detection (AFD)

The Inverter includes an arc fault circuit to detect arc faults within the PV array circuit (per UL1699B USA Product Safety UL 1699B 2021 Photovoltaic (PV) DC Arc-Fault Circuit Protection). In the event of an arc fault in the PV system, the Inverter opens both internal relays and enters standby mode. The arc fault status will remain active until reset manually by an operator.

Residual Current Monitoring Unit (RCMU)

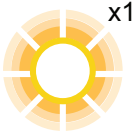
The Inverter includes a residual current detector that supports both fire and shock hazard protection (per UL1741CRD). If the inverter detects that the residual current level is higher than the preset level (dictated by UL1741CRD), the inverter will go into Standby mode and wait until the residual current level returns to normal and the RCMU alarm is no longer active.

6 Monitoring Operation

What's in This Chapter?

LED States

The LED on the front of the Inverter indicates the inverter status.

LED	LED behavior	Meaning
	Green (solid)	The inverter is enabled and operating as expected, including idle.
	Green (fast blinking)	The inverter is operating in Backup mode.
	Green (2 blinks, pause)	The Wi-Fi Access Point is enabled.
	Amber (solid)	The inverter is offline in Backup mode due to a low battery shutdown (see "Troubleshooting" on page 101).
	Amber (1 blink, pause)	The inverter is offline in Backup mode due to an overload trip (see "Troubleshooting" on page 101).
	Amber (5 seconds on, 5 seconds off)	Indicates that there is a firmware upgrade in progress, OR that the communication card is booting up after completing a firmware upgrade.
	Red (solid)	The inverter is offline and will recover on its own.
	Red (2 blinks, pause)	The inverter is in standby mode because the Push button has been pressed for <6 seconds. If this was unintentional, return to automatic mode by pressing the Push button again for <6 seconds (see "Troubleshooting" on page 101).
	Red (3 blinks, pause)	Indicates a RSD (rapid shutdown device) activation (see "Troubleshooting" on page 101). If this was unintentional, turn the RSD switch back to the OFF position and refer to "Returning the System to Operation" on page 79 to reset the system.
	Red (4 blinks, pause)	Indicates an arc event. Contact Schneider Electric customer service at: ■ Toll Free: 1 (877) 734-8000 ■ Phone: 1 513-605-8000

LED	LED behavior	Meaning
	Red (fast blinking)	Indicates that there is an event that needs addressing (see "Troubleshooting" on page 101).
	Off	The inverter is not enabled or is switched off.

Monitoring Operation with the Schneider Electric Installer Portal

The Installer Portal provides remote monitoring capability for the Inverter and other devices in the network. It is for use by qualified personnel.

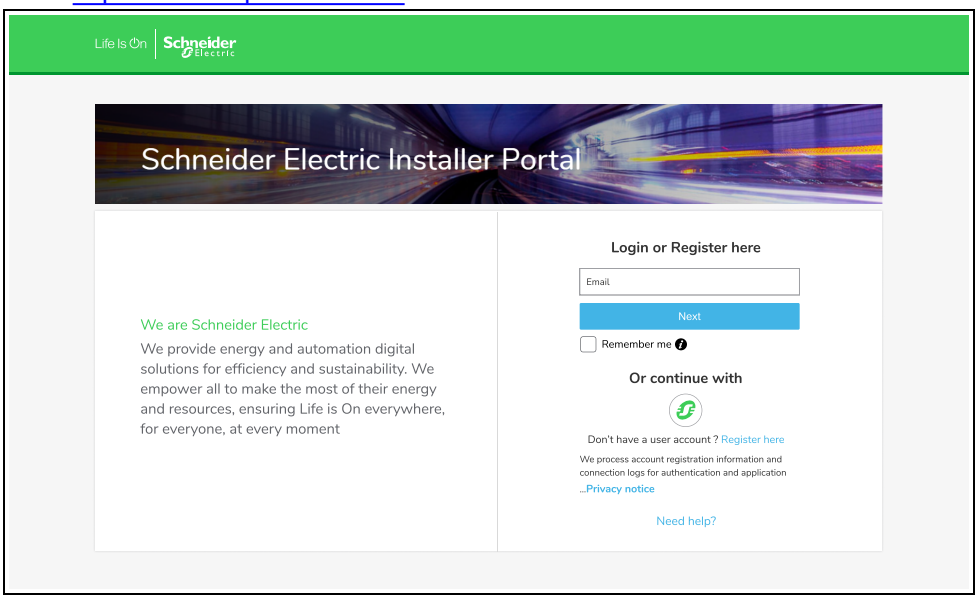
Figure 39 Monitoring sites with the Installer Portal

Accessing Installer Portal

Note: You will need a **mySchneider** account in order to log in to Installer Portal.

To access Installer Portal:

1. Go to https://installerportal.se.com.

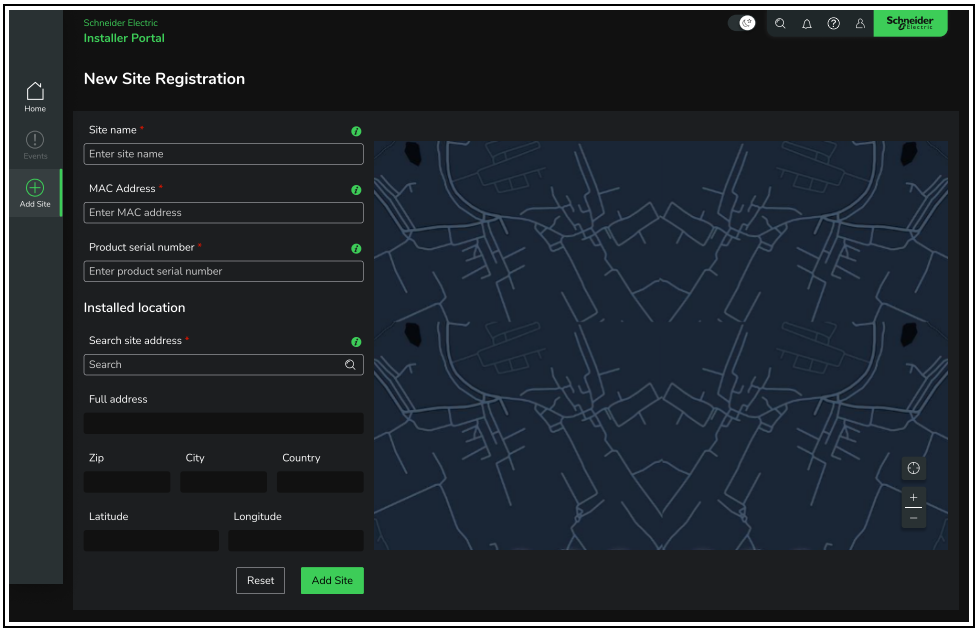


2. Enter your credentials or select for single sign-on.

IMPORTANT: Do not share your login credentials.

Adding a Site

Once you have registered and logged into the Installer Portal, you can add your site(s). From the left menu, click **Add Site**, and enter the required information.

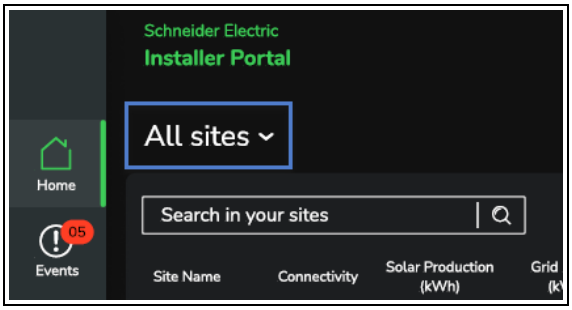


Viewing Events in the Installer Portal

To view events:

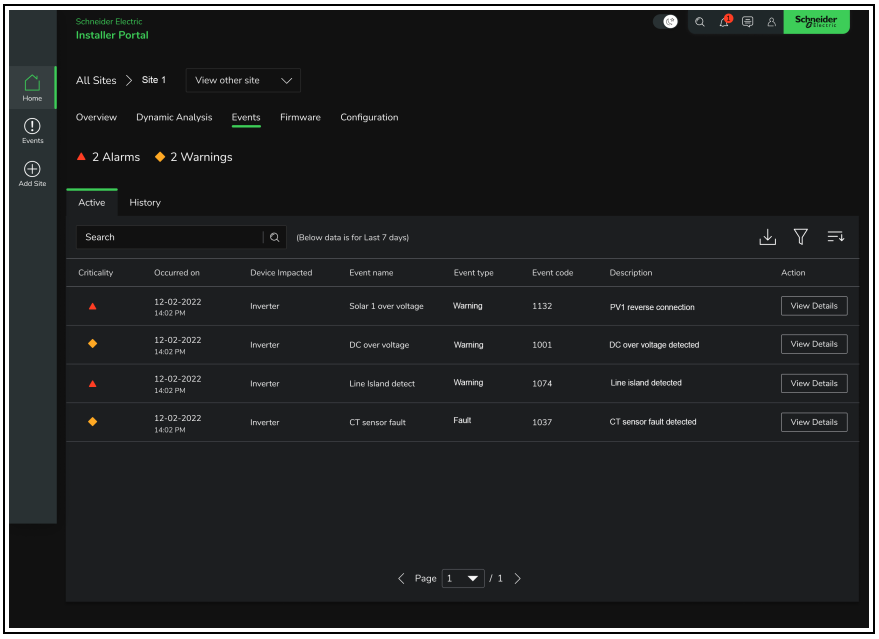
1. To view the events for a specific site, click **Home** from the left menu.
    a. Select a site from the **All Sites** drop-down menu.

Figure 40 All sites menu



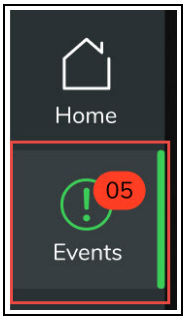
    b. Select the **Events** tab.

Figure 41 Viewing site events



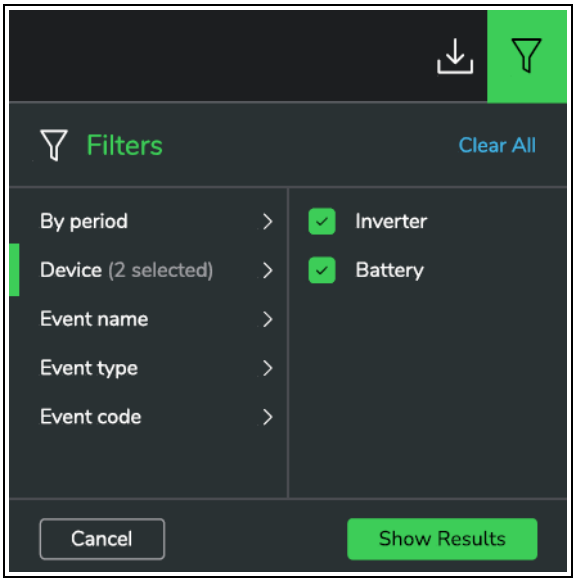
2. To see the events for all of your sites, click **Events** from the left vertical menu.

Figure 42 Events menu



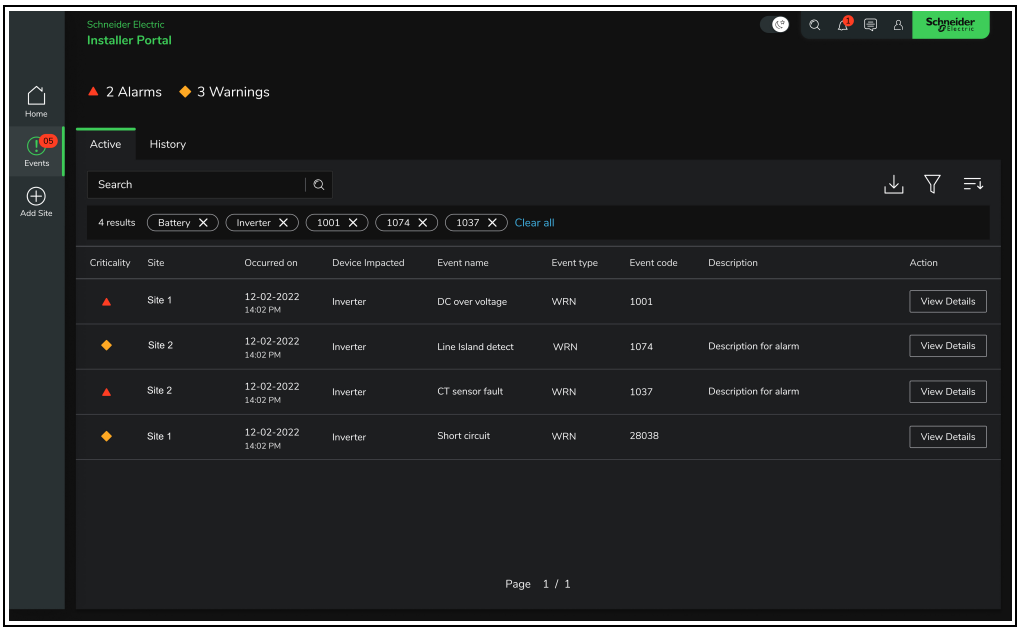
3. Click the filter icon to filter the events.

Figure 43 Event filters



4. Click **View Details** to see the Event cause and solution (if required).

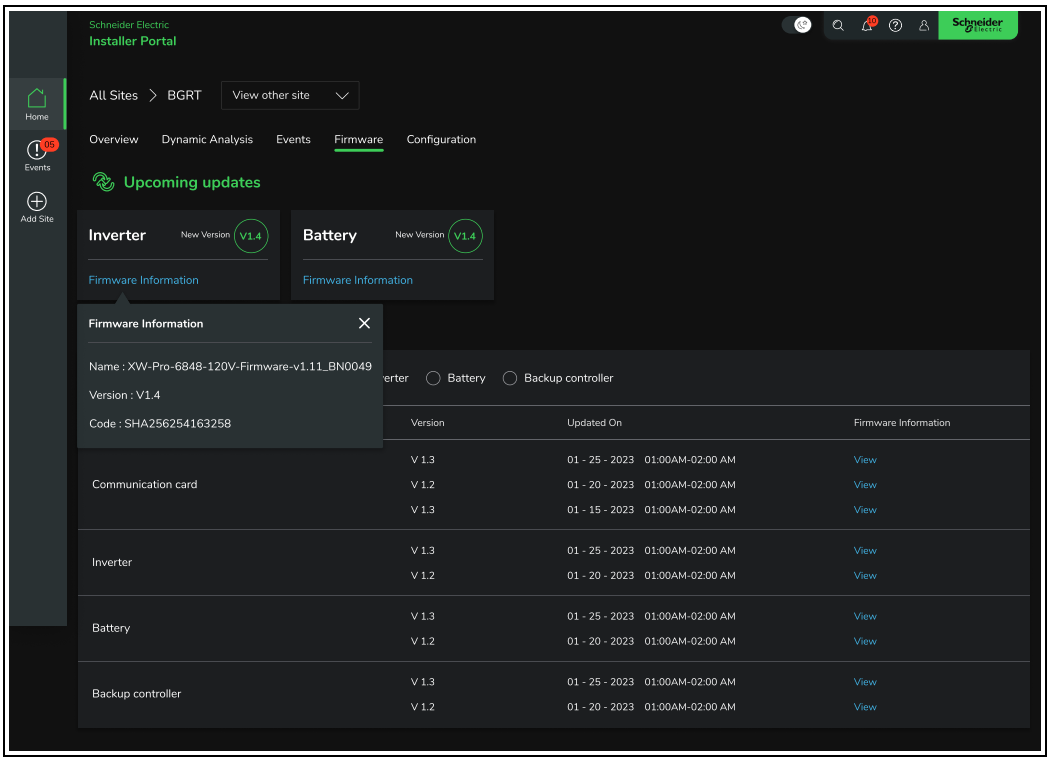
Figure 44 Events page



Viewing Firmware Information

After commissioning, firmware is updated automatically. You can view the firmware version using the Installer Portal, as shown below.

Figure 45 Viewing firmware information



7 Troubleshooting

What's in This Chapter?

General Troubleshooting Checklist

Before contacting Technical Support, qualified personnel can perform the following troubleshooting steps:

Table 10 General troubleshooting steps

Troubleshooting Step	Record
1. Attempt the solution corresponding to the event on the Events page in Installer Portal.	
2. If communication cannot be established during installation, follow the instructions in Resetting the Communications Board on page 73.	
3. Check the following to make sure that the present state of the installation allows for proper operation of the unit.	■ Is the Inverter located in a clean, dry, adequately ventilated area? ■ Have the AC input breakers opened? If so, your passthrough load may have exceeded the rating of one or more of the input breakers. ■ Are the battery cables adequately sized and short enough? ■ Is the battery in good condition and are all DC connections tightened to the specified torque value? ■ Are the AC input and output connections and wiring in good condition? ■ Are the configuration settings correct for your particular installation? ■ Are the communications cables properly connected and undamaged? ■ Are the battery temperature sensor and its cable properly connected and undamaged?

If the issue persists after performing the steps above, fill in the form below and have all details ready when you call: 1-877-SEHOME1.

Table 11 Troubleshooting checklist

Site Information	
Product serial number	
Purchase date (attach receipt)	
Commissioning date	
Energy produced until shutdown	
Warranty expiration date	
Software version(s) Installed	
Download and attach the Event Log, Service Log, and Energy Data Log (download from Installer Portal)	
General Details	
Check for an event message on Installer Portal. If a message is displayed, record it immediately and export the event log from Installer Portal.	
When did the event occur?	
Create a detailed record of the conditions at the time the issue occurred. These details should include, but not be limited to, the following: ■ Loads the inverter was running or attempting to run. ■ Battery condition at the time that the event occurred (for example: battery voltage or temperature) if known. ■ Recent sequence of events (for example, charging had just finished, utility grid had failed but the inverter did not start up). ■ Any known unusual AC input factors, such as low voltage. ■ Extreme conditions which may have existed at the time (for example, temperature or moisture).	
Where in the system was the issue detected?	
How many times has the problem been detected?	
Attach additional information (photographs, reports, etc.) that could be useful for troubleshooting.	

AC System Details	
AC measurements during the event. Include the location of measurement.	
Conductor size/length (1 way)	
Fuse/breaker rating(s)	
Surge protection details	
Power quality/harmonics for Distributed Generation (DG) and Grid	
Neutral to ground voltage with/with out DG	
Majority load type (Motor, AC, lighting)	
Frequency of DG switching during the day time	
Voltage/phase/frequency values	
Min./Max. voltage and frequency range	
Include a single-line diagram, detailing connection with DG and voltage stabilizer	
Other Notes:	

PV System Details				
	MPPT1	**MPPT2**	**MPPT3**	**MPPT4**
Modules installed (make/ model)				
Module specifications (Pmp/ Voc/Isc/T cof of Voc)				
Array configuration/orientation				
System grounding details				
Measurements/readings during the event. Include the location of measurement.				
Site record low/average high temperature				
Surge protection details				
Conductor size/length (1 way)				
Fuse/breaker ratings				
Age of array				

Troubleshooting Inverter Load Operation

The Inverter performs differently depending on the AC loads connected to it. If you are having problems with any of your loads, read this section.

Resistive Loads

Resistive loads are the easiest and most efficient to drive. Voltage and current are in phase, which means they are in step with one another. Resistive loads generate heat in order to accomplish their tasks. Toasters, coffee pots, and incandescent lights are typical resistive loads. It is usually impractical to run larger resistive loads—such as electric stoves and water heaters—from an inverter due to their high current requirements. Even though the inverter may be able to accommodate the load, the size of battery bank will limit inverter run time.

Motor Loads

Induction motors (AC motors without brushes) require up to six times their running current on startup. The most demanding are those that start under load (for example, compressors and pumps). Of the capacitor start motors (typical in tools such as drill presses and band saws), the largest you can expect to run is 1 horsepower. Universal motors are generally easier to start. Check that the Locked Rotor Amps (LRA) rating of the motor load does not exceed the maximum surge current rating of the inverter. Since motor characteristics vary, only testing will determine whether a specific load can be started and how long it can be run.

If a motor fails to start within a few seconds or loses power after running for a time, it should be turned off. When the inverter attempts to start a load that is greater than it can handle, the inverter may shut down from an AC overload fault.

8 Maintenance and End of Life

What's in This Chapter?

Maintenance

Visually inspect the Inverter exterior to verify that:

- It is free of debris. If necessary, clean the Inverter exterior with a lint-free, soft cloth.

NOTICE

RISK OF EQUIPMENT DAMAGE

- Use only a soft cloth dampened with water and mild soap to clean the Inverter.
- Do not use solvents or chemicals that are corrosive or flammable.

Failure to follow these instructions can result in equipment damage.

- All doors are left closed.
- All wires, conduits (and seals) remain undamaged.

Recycling and Disposal

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

Do not dispose of the Inverter in a fire. Always follow local guidelines for recycling and disposal.

Failure to follow these instructions will result in death or serious injury.

Electric appliances marked with the symbol shown must be professionally treated to recover, reuse, and recycle materials in order to reduce negative environmental impact. When the product is no longer usable, the consumer is legally obligated to ensure that it is collected separately under the local electronics recycling and treatment scheme.

9 Specifications

What's in This Chapter?

Specifications

NOTE: Specifications are subject to change without notice.

Specifications	HY8K1NA1
Solar PV Input & Optimization	
Maximum PV Array Power	15.36 kWp
Absolute Maximum Open Circuit Voltage (Voc)	600 Vdc
PV Array Configuration	Ungrounded
Optimizer Type	String Level, Integrated MPPT
# of Optimizers	4
PV Strings per Optimizer	1
Startup Voltage	100 Vdc
Optimizer MPPT Voltage Range	50 - 550 Vdc
Full Power MPPT Range	200 - 480 Vdc
Maximum Useable Input Current (Imp)	12 A × 4
Maximum PV Module Short Circuit Current (Isc)	16 A × 4
PV Over Voltage Category	II
MPPT Efficiency	>99.0%
Max Input Backfeed Current to PV	0 A
AC Output - Grid Tied	
Rated Grid Voltage	120 V/240 V (L1, L2 and N)
Grid Operating Voltage Range	211.2 to 264 Vac (240 V +10%/-12%)
Rated Continuous Current	32 A
Grid Current THD	< 3%
Grid Nominal Frequency	60 Hz
Grid Frequency Range	57 to 63 Hz
Grid Power Factor Range	0.8 pF Lag /Lead
AC Over Voltage Category	111
Rated Continuous Output Power	7.68 kVA
Maximum Output Fault Current (AC) and Duration	231 Apk, 98.5 ms, 81 Arms@3cycle
AC Output - Backup Power	
Rated Continuous Output Power	7.68 kW
Peak Output Power	15.4 kW (10 seconds)
Rated Continuous Current	32 A per Phase
Peak Output Current	64 A (10 seconds)
Voltage	120/240 V Split-Phase

Frequency	60 Hz
Battery Charger - DC Output	
Battery Compatibility	Schneider Boost Only
Battery Capacity	Up to 45 kWh (up to qty 3 Boost Batteries)
Nominal Battery Voltage	420 V
Max Battery Voltage	468 V
Voltage Range	380~470 Vdc
Max Charging/ Discharging Power	7.68 kW
Rated Continuous Charge Current	20 A
Safety	
PV AFCI	Yes
PV Insulation Measurement	Yes
Rapid Shutdown	Integrated Transmitter, compatible with: a) APSmart RSD-S-PLC (1 device for 1 solar panel) b) APSmart RSD-D (1 device for 2 solar panels)
Ground Fault Detection	Residual Current Monitoring
Reverse Polarity	Yes
Anti-Islanding	Yes
Regulatory	
Safety	UL1741, UL1741 SA, UL1741 SB, UL1741 PCS, UL 1741 PVRSS, UL1699B, UL9540, CSA C22.2 No.107.1-16
Grid Connection	IEEE1547-2018: • Normal operating performance category: Category B • Abnormal operating performance category: Category III California Rule 21, Puerto Rico Energy Power Authority (PREPA)
EMC Immunity	IEC/EN 61000-6-2 EN 301 489-1, EN 301 489-3, EN 301 489-17
EMC Emission	FCC – Part 15 Subpart B (Class B) ICES-003 (Class B), RSS-Gen Issue 5 IEC/EN 61000-6-3 EN 301 489-1, EN 301 489-3, EN 301 489-17

RF	FCC – Part 15 Subpart C, Part 15 Subpart E RSS-247 Issue 2 EN 300 328, EN 301 893, EN 300 440
FCC ID	Contains 2AODL-HY8K1NA1
IC ID	Contains 24209-HY8K1NA1
FCC ID (Cellular- Optional accessory)	Contains N7NHL78C
IC ID (Cellular- Optional accessory)	Contains 2417C-HL78C
Seismic	AC 156
Environmental	REACH, RoHS, Prop 65

General Specifications	
Revenue Grade Metering	Yes
Communication	LAN / Wi-Fi
Grid Isolation for Backup Power	Schneider Pulse Backup Controller
Inverter Type	Transformerless

Installation Specifications	
Overcurrent Protective Device	40 A
Maximum Operating Temperature Range[1]	-40°F to 140°F (-40°C to 60°C)
Storage Temperature	-40°F to 185°F (-40°C to 85°C)
Enclosure Type	Type 4X
Cooling Concept	Natural Convection
Max Operating Altitude without Derating	9842.5 ft (3000 m)
Operating Humidity	0 to 100% Non -Condensing
Dimensions	W×H×D: 25.6 × 22.4 × 6.5 in (650 × 570 × 165 mm)
Weight	102 lb (46.4 kg)
Solar (PV) Disconnect Switch	Yes
AC Conduit/Wire Size	1 or 1¼ in./ 8-4 AWG
PV Conduit/Wire Size	1 or 1¼ in. / 4-8 AWG
Battery Conduit/Wire Size	1¼ in. / 8 AWG
Ground Conduit/Wire Size	1¼ in./ 10 AWG
Communications cable conduit	1 or 1¼ in.

[1] Derating above 104°F (40°C)

Radio Frequency Interference Notices

Federal Communications Commission (FCC)

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 help 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 the receiver.
- Connect the equipment to a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 8 in. (20 cm) between the radiator and your body.

Industry Canada (IC) Notices

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The Wi-Fi Module device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

The maximum antenna gain permitted for devices in the bands 5250–5350 MHz and 5470–5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

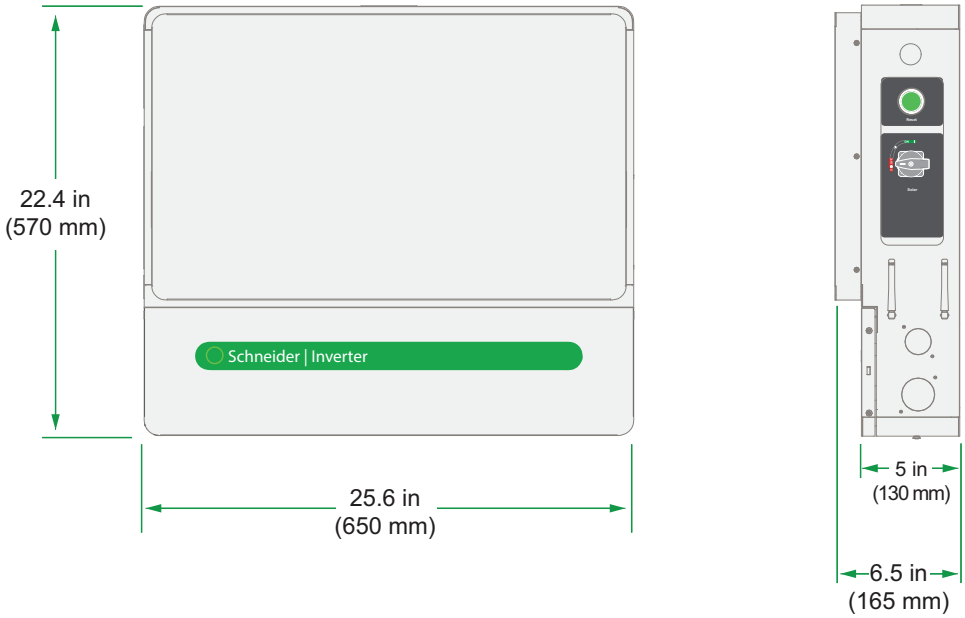
The maximum antenna gain permitted for devices in the band 5725–5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

RF Exposure

This device has been evaluated and shown compliant with the RF exposure requirements listed in RSS-102 - Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus limits under fixed exposure conditions (antennas are greater than 20cm from a person’s body) when installed in certain specific OEM configurations.

Cet appareil a été évalué et montré conforme aux exigences d'exposition RF énumérées dans RSS-102 - Exposition aux fréquences radio (RF) Conformité des limites des appareils de communication radio dans des conditions d'exposition fixes (les antennes sont à plus de 20 cm du corps d'une personne) lorsqu'elles sont installées dans certains configurations OEM spécifiques.

Dimensions


22.4 in
(570 mm)
Schneider | Inverter
25.6 in
(650 mm)
5 in
(130 mm)
6.5 in
(165 mm)

Schneider Electric

201 Washington St, Suite 2700, One Boston Place
Boston, Massachusetts 02108
United States
https://www.se.com/

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

For other country details please contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at: https://www.se.com/

TME12664D

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