StorEdge®
Three Phase Inverter

SE5K-RWS / SE7K-RWS / SE8K-RWS / SE10K-RWS

12 YEAR WARRANTY

STOREDGE®

Ideal solution for three phase installations with battery storage

- Simple installation with single inverter for managing both PV production and battery storage

- More energy using DC-coupled solution architecture that stores PV power directly to the battery without AC conversion losses

- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp

- Designed to eliminate high voltage during installation, maintenance or firefighting for enhanced safety

- Built-in module-level monitoring and full visibility of battery status, PV production, and self-consumption data

- Allows connection of low voltage 48V batteries from multiple battery vendors to provide greater flexibility

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/ StorEdge® Three Phase Inverter

SE5K-RWS / SE7K-RWS / SE8K-RWS / SE10K-RWS

Iris Hellas
Technology Innovations
www.irishellas.com

Applicable for inverters with part number	SEXK-XXS48XXXX				
	SE5K-RWS	SE7K-RWS	SE8K-RWS	SE10K-RWS	
OUTPUT					
Rated AC Power Output	5000	7000	8000	10000	VA
Maximum AC Power Output	5000	7000	8000	10000	VA
AC Output Voltage — Line to Line / Line to Neutral (Nominal)	380/220 ; 400/230				Vac
AC Output Voltage — Line to Neutral Range	184 - 264.5				Vac
AC Frequency	50/60 ± 5				Hz
Maximum Continuous Output Current (per Phase)	8	11.5	13	16	A
Residual Current Detector / Residual Current Step Detector	300 / 30				mA
Grids Supported — Three Phase	3 / N / PE (WYE with Neutral)				
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes				
INPUT PV					
Maximum DC Power (Module STC)	6750	9450	10800	13500	W
Transformer-less, Ungrounded	Yes				
Maximum Input Voltage	900				Vdc
Nominal DC Input Voltage	750				Vdc
Maximum Input Current	8.5	12	13.5	16.5	Adc
Reverse-Polarity Protection	Yes				
Ground-Fault Isolation Detection	700kΩ Sensitivity				
Maximum Inverter Efficiency	98				%
European Weighted Efficiency	97.3	97.4	97.6		%
INPUT BATTERY					
Supported Battery Types	LG Chem RESU3.3, RESU6.5, RESU10, RESU13 BYD Battery-Box LV 3.5, 7.0, 10.5, 14.0 BYD Battery-Box Premium LVS 4.0, 8.0, 12.0, 16.0, 20.0, 24.0				
Number of Batteries per Inverter	1				
Maximum DC Power	5000				W
Input Voltage Range	40-62				Vdc
Maximum Continuous Input Current	130				Adc
Peak Battery to Grid discharge Efficiency	96.1				%
Battery Communication	CAN				
ADDITIONAL FEATURES					
Supported Communication Interfaces	2 x RS485, Ethernet, ZigBee communications for Smart Energy[1], Wi-Fi[2], Built-in cellular (optional)				
STANDARD COMPLIANCE					
Safety	IEC-62109				
Grid Connection Standards[3]	VDE 0126-1-1, VDE-AR-N-4105, G98 / G99				
Emissions	IEC61000-6-2, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12				
RoHS	Yes				
INSTALLATION SPECIFICATIONS					
AC Output – Cable Gland Diameter	15 - 21				mm
Battery DC – Cable Gland Diameter	2 x 8-11				mm
PV DC Input	2 x MC4 pair				
Dimensions (H x W x D)	853 x 316 x 193				mm
Weight	37				kg
Operating Temperature Range	-40 to +60				°C
Cooling	Internal and external fans				
Noise	< 50				dBA
Protection Rating	IP65 — outdoor and indoor				
Mounting	Brackets provided				

(1) For more information refer to: https://www.solaredge.com/sites/default/files/se-zigbee-plug-in-wireless-communication-for-setapp-datasheet.pdf
(2) Wi-Fi connectivity requires an external antenna. For more information refer to: https://www.solaredge.com/sites/default/files/se-wifi-zigbee-antenna-datasheet.pdf
(3) For all standards refer to Certifications category in Downloads page: http://www.solaredge.com/groups/support/downloads

CE

SolarEdge Home Battery
Low Voltage, for Europe

BAT-05K48

10 YEAR WARRANTY

PRELIMINARY

Optimized storage solution for SolarEdge Home Hub Inverter - Three Phase with Backup

/ DC coupled battery featuring superior overall system efficiency, generating more energy to store and use for on-grid and backup* power application

/ Integrates seamlessly with the complete SolarEdge Home ecosystem, offering a single source for warranty, support and training, to streamlined logistics & operations

/ Includes enhanced safety features for battery protection

/ Scalable solution that enables to stack up multiple battery modules per inverter for increased capacity (up to 23 kWh)

/ Solar, storage, EV charging, and smart devices all monitored and managed by a single app for optimized production, consumption, and backup* power

/ Simple plug and play installation, with automatic SetApp-based configuration

* Backup applications are subject to local regulation and may require additional components and firmware upgrade

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/ SolarEdge Home Battery
Low Voltage, for Europe

BAT-05K48

Iris Hellas Technology Innovations
www.irishellas.com

	BAT-05K48 [1]	UNITS
BATTERY MODULE SPECIFICATION		
Usable Energy (100% depth of discharge)	4600	Wh
Continuous Output Power (Charge/Discharge) – for a single module	2825/4096	W
Continuous Output Power (Charge/Discharge) – for multiple modules	5000/5000	W
Peak Roundtrip Efficiency	>94.5	%
Warranty [2]	10	years
Voltage Range	44.8 – 56.5	Vdc
Communication Interfaces	RS485 between modules, CAN bus to inverter	
Modules per Inverter	Up to 5 connected in parallel	
STANDARD COMPLIANCE		
Safety (cell level)	IEC62619, UL1973, UL9540A, UN38.3	
Safety (Module level)	IEC62619, IEC63056, IEC62040-1, VDE-AR-E 2510-50	
Emissions	IEC61000-6-1, IEC61000-6-2, IEC61000-6-5, EN55011	
MECHANICAL SPECIFICATIONS		
Dimensions (W x H x D)	540 x 500 x 240	mm
Weight	54.7	kg
Mounting	Floor stand and wall attach	
Operating Temperature [3] Discharge/Charge	-10 to +50	°C
Storage Temperature (12 months between recharge)	-10 to +30	°C
Storage Temperature (8 months between recharge)	-10 to +45	°C
Maximum Altitude	2000	m
Enclosure Protection	IP65 / NEMA 3R - indoor and outdoor (water and dust protection)	
Cooling	Natural convection	
Noise (at 1m distance)	<25	dBA

(1) Specification applies to PN "BAT-05K48S0B-01"
(2) For warranty details, please refer to the SolarEdge Home Battery Limited Warranty.
(3) Derating applies. Please note that operating the SolarEdge Home Battery at extreme temperatures for extended durations of time may void the Battery warranty coverage. Please see the SolarEdge Home Battery Limited Product Warranty for additional details.

SOLAREDGE HOME BATTERY - ACCESSORIES (PURCHASED SEPARATELY)	
DESCRIPTION	**PN**
Accessory residential battery, top cover (1 required per tower)	IAC-RBAT-5KMTOP-01
Accessory Residential battery, cable set battery to inverter	IAC-RBAT-5KCINV-01
Accessory residential battery, cable set battery to battery	IAC-RBAT-5KCBAT-01
Accessory Residential battery, cable set tower to tower	IAC-RBAT-5KCTOW-01
Floor stand (optional)	IAC-RBAT-5KFSTD-01

RoHS

Technical Note - Compatibility Matrix for SolarEdge Home Three Phase Inverters and Batteries

This matrix shows the compatibility between SolarEdge Home Three Phase Inverters and SolarEdge Home batteries, as well as third-party batteries. In addition, it includes the maximum number of batteries or battery modules per inverter. For SolarEdge Home Network and inverter compatibility, see the SolarEdge Home Network plug-in kit selection technical note.

	Model Name	SolarEdge Home Battery - Low Voltage	BYD Battery-Box Premium LVS	LG Chem LV Battery	SolarEdge Home Battery - High Voltage
Maximum Number of Batteries per Inverter		1-5 battery modules per inverter	1-6 battery modules per inverter	Up to 2 batteries with RESU Plus Box per inverter	Up to 3 batteries per inverter
SolarEdge Home Hub Inverter – Three Phase	SExxxK-RWB48	✔	✔[1]	✔[1]	✘
SolarEdge Home Wave Inverter – Three Phase (Formerly StorEdge Three Phase Inverter)[2]	SExxxK-RWS	✔[1,2]	✔	✔[3]	✘
SolarEdge Home Wave Inverter – Three Phase (Formerly SolarEdge Three Phase Inverter for Short PV strings)	SExxxK-RWB	✘	✘	✘	✔[1]

---

[1] Pending firmware version support

[2] Supported from Production Week 29, 2021 and excluding "BYD-only" Part Numbers SE*K-RWS48BEB4. The production week can be identified by the serial number of the inverter. "SxWWYY" indicates production week WW in year YY. For example, "SJ3021" was produced in week 30, 2021

[3] Excluding "BYD-only" Part Numbers SE*K-RWS48BEB4

Inline Energy Meter

5 YEAR WARRANTY
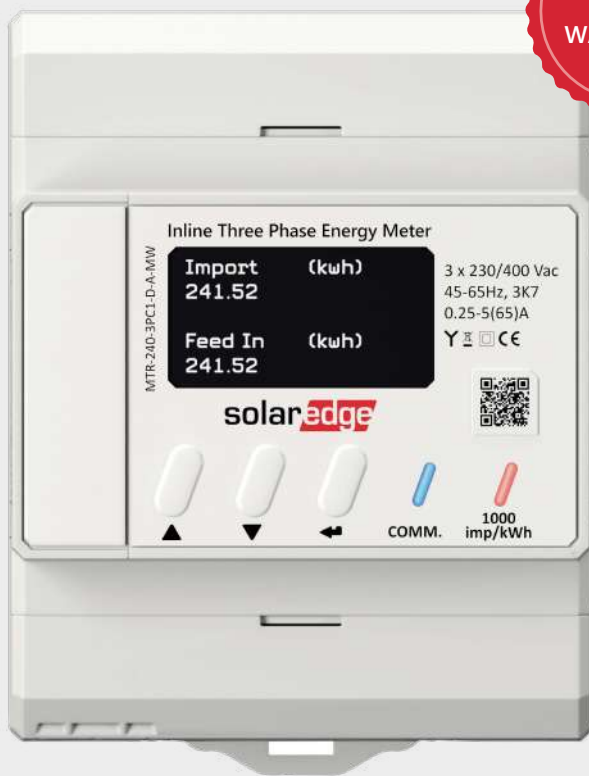
Grow your revenues with an easily installed metering solution that fits comfortably into standard electrical DIN-rail cabinets

/ Performs export/import, production and consumption energy readings with 1% accuracy

/ Includes integrated current transformers for faster installations, reduced labor costs and simplified logistics

/ Easier installations using SolarEdge Energy Net to communicate wirelessly with the inverter (RS485 connectivity is optional)

/ Supports export/import limitation and SolarEdge Smart Energy applications

/ Integrates smoothly and easily with SolarEdge Smart Energy solutions

/ Enables direct connection of up to 65A per phase, for single and three phase grid connections

/ Quick setup with automatic meter detection by the SolarEdge inverter

/ Intuitive meter configuration and visibility to meter status using the SetApp mobile app

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/ Inline Energy Meter

Iris Hellas
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Part Number		MTR-240-3PC1-D-A-MW	MTR-240-1PC1-DW-MW	UNITS
Model Number		MTR EU3	MTR EU1	
ELECTRICAL SERVICE				
Nominal Voltage		3 x 230/400	1 x 230	Vac
Voltage Range	Line to Line	320 - 460	-	Vac
	Line to Neutral	184 - 264.5		
Supported Grids		L1 / L2 / L3 / N (WYE)	L / N	
Power Consumption (max)	SolarEdge Energy Net Wireless Connection	< 2.0		W
	RS485 Wired Connection	< 1.8		
AC Frequency		45 - 65		Hz
Maximum Current (Imax)		65		A
Transitional Current (Itr)		0.5		A
Starting Current (Ist)		20		mA
Minimum Current (Imin)		0.25		A
Reference Current (Iref)		5		A
Active Energy Accuracy		EN54070 Class B[1] IEC 62053-21 Class 1		
Active Energy Accuracy Error	$Itr \le I < Imax$	1		%
	$Imin \le I < Itr$	1.5		
Reactive Energy Accuracy		IEC 62053-23 Class 2		
Reactive Energy Accuracy Error	$Itr \le I < Imax$	2		%
	$Imin \le I < Itr$	2.5		
Over-voltage		CAT III 600		Vac
RS485 COMMUNICATION				
RS485 Terminal Cross Section		0.2 - 2		mm²
Interface		RS485 half duplex, 3 wires (A, B, GND)		
Protocol		MODBUS RTU		
Power Register Update Resolution		<200		ms
All Other Registers		< 4		sec
RS485 Line Termination		120 (selectable)		Ω
WIRELESS COMMUNICATION[2]				
Frequencies		863 - 876 (band 868) 902 - 930 (band 915)		MHz
Transmit Power EIRP		14 (with internal antenna) 16 (with external antenna)		dBm
Transmit Power (Max)		14		dBm
Modulation		OQPSK		
Internal Antenna Gain		0		dBi
External Antenna[3] Gain		2		dBi
Antenna Connector		SMA-RP		
External Antenna Mounting		Wall mount with bracket		
PULSE DISPLAY				
Pulse Frequency		1000		imp / kWh
Pulse Length		5 (min), 80 (max)		ms
INSTALLATION/MECHANICAL				
Display		8 digits		
Protection Rating (Indoor)		IP51		
Mounting Support		DIN rail		
Weight		320		g
Material		PC Lexan 503R		
Dimensions (W x H x D)		72 x 90 x 58		mm
AC Terminal Cross Section Area		1.5 - 25		mm²

(1) EN54070 Class B, when AC inputs are connected to the upper terminal blocks. EN54070 Class A, when AC inputs are connected to the lower terminal blocks
(2) SolarEdge Energy Net wireless communication requires inverter support
(3) External antenna kit should be purchased separately (PN: SE-ANT-ENET-HB-01)

/ Inline Energy Meter

Part Number	MTR-240-3PC1-D-A-MW	MTR-240-1PC1-DW-MW	UNITS
Model Number	**MTR EU3**	**MTR EU1**	
ENVIRONMENTAL			
Operating Temperature	-40 to +70 Suitable for outdoor installations		°C
Storage Temperature	-40 to +85		°C
Relative Humidity (non-condensing)	75 (yearly average) 95 (30 days/year)		%
Installation Altitude	< 2000		m
Pollution Degree	2		
STANDARD COMPLIANCE			
Safety	UL 61010-1; CAN/CSA-C22.2 No. 61010-1-04; IEC 61010-1		
Immunity	EN 61000-4-8; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11		
Emissions	FCC Part 15, Class B; EN 55032 Class B, EN 61000-3-2,EN 61000-3-3		
Wireless	IEC EN 300 220		

SolarEdge is a global leader in smart energy technology. By leveraging world-class engineering capabilities and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

SolarEdge developed an intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. The SolarEdge DC optimized inverter maximizes power generation while lowering the cost of energy produced by the PV system.

Continuing to advance smart energy, SolarEdge addresses a broad range of energy market segments through its PV, storage, EV charging, UPS, and grid services solutions.

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Cautionary Note Regarding Market Data and Industry Forecasts: This brochure may contain market data and industry forecasts from certain third-party sources. This information is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such market data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such market data and industry forecasts, we believe that the market data is reliable and that the industry forecasts are reasonable.

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CE

Energy Bank Floor Mount Battery Stand Assembly Guide

Content

Floor Mount Battery Stand Overview

The SolarEdge Energy Bank battery can be floor mounted with each battery secured in a SolarEdge Energy Bank Floor Mount battery stand. The floor mount stand is provided as a kit that is purchased separately from the SolarEdge Energy Bank battery.

This document lists the contents of the SolarEdge Energy Bank Floor Mount stand kit and provides a guideline for assembling the stand and securing the battery on the stand. For convenience you can view a video that guides you through the process.

Energy Bank Floor Mount Arrangement and Gross Dimensions

Where more than one battery is used for a system, multiple floor mount stands can be placed against and secured one to the other to form a battery bank. Figure 1 shows the arrangement of a bank of SolarEdge Energy Bank batteries mounted on floor stands and arranged in a row.
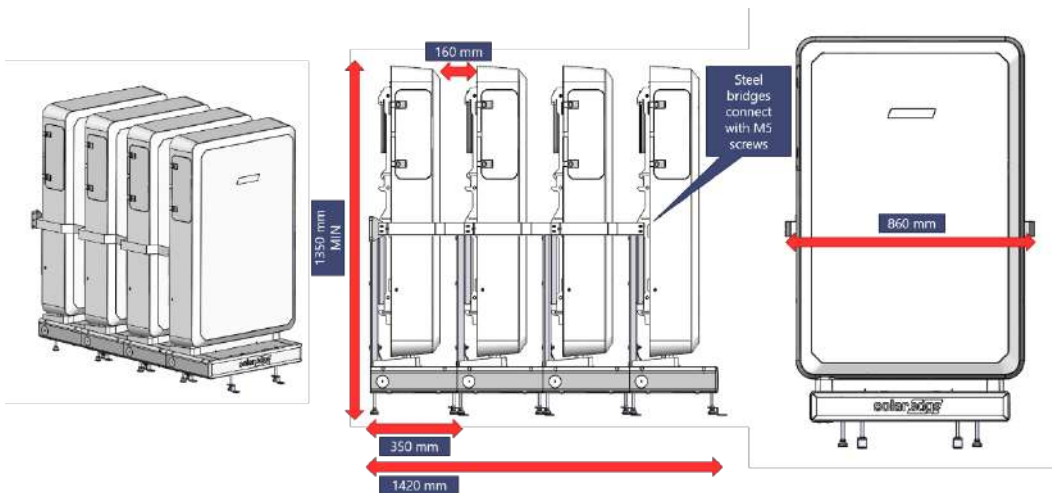
Figure 1: Energy Bank Arrangement – Perspective, Side and Front Views

Table 1: Stand and Mounted Battery Dimensions

Dimension	Minimum Measurement (mm)
Stand and Mounted Battery height	1350
Stand and Mounted Battery Width	860
Stand Depth	350
Space between Mounted Batteries	160

Floor Stand Base Mount and Back Holder

Parts for the Floor Stand Base Mount and Back Holder are supplied as part of the SolarEdge Energy Bank Floor Mount kit.
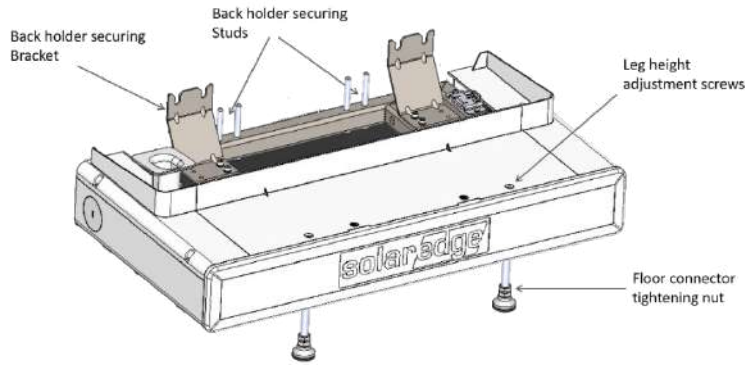
Figure 2: Base mount assembly and securing points
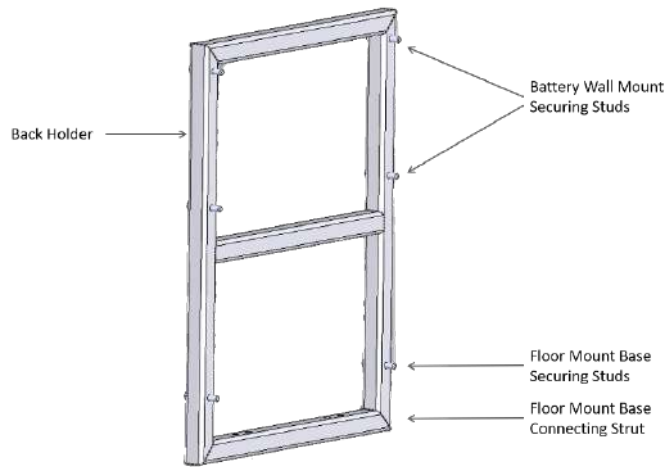
Figure 3: Back Holder

Assembled Floor Stand

The assembled floor stand includes the base and back holder as illustrated on the left in the Figure 4. The right part of the figure shows the Battery Wall Mount after being attached to the assembled floor mount stand.

Assembled Battery Floor Stand as Supplied in the Energy Bank Floor Mount kit

Energy Bank Floor Stand with the Battery Wall Mount Attached
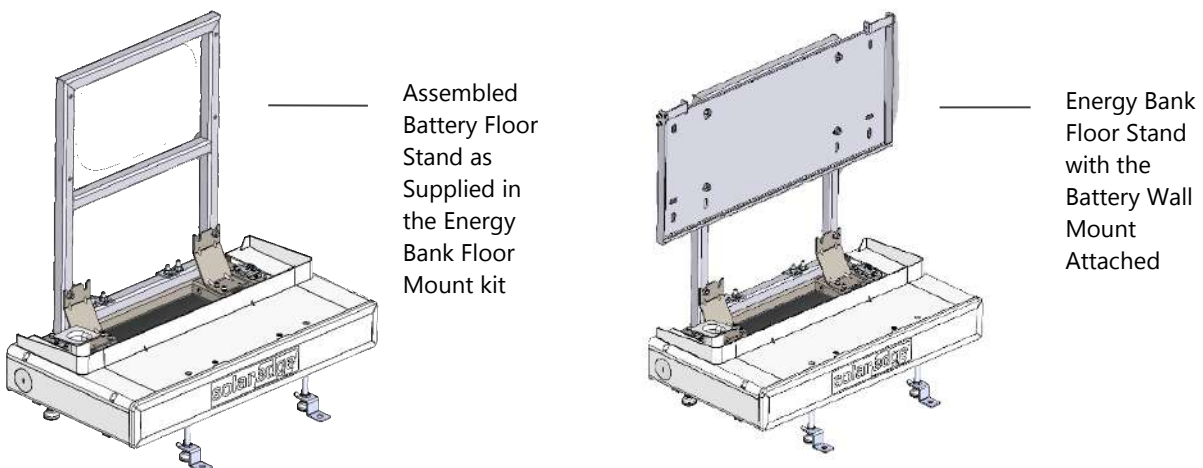
Figure 4: Assembled Floor Stand and Floor Stand with Battery Wall Mount

NOTE

The Battery Wall Mount is distributed togther with the Battery and is not part of the SolarEdge Energy Bank Floor Mount kit.

Energy Bank Floor Stand Kit Parts List

Part Number	Part Name	Part Image	Quantity
TBD	Base Mount		1
MCM-AS-00937-02	Back Holder		1
MCM-BR-00353-05	Wall Bracket		2
MCM-BR-00422-02	Side Bracket		2
MCM-MC-06694-02	Stand to Stand Connector		2
MCM-MC-05595-04	Floor Connector (for optional use)		2
MCI-NT-00109	M8 nut		10
MCI-SC-00307	Screw M5x13		6
MCI-SC-01519	Screw M5x80		2
MCI-SC-00077	Screw M5x10		2
MCP-MC-02218	decorative front cover		

Required Tools

- Power drill
- Spirit level
- Allen Keys: 5/32", 5/16", 5mm
- Drill bits
- Torque Wrench
- Wrench or Sockets: M8 / 1/2"

Assembling the Energy Bank Floor Stand

1. Unpackage the SolarEdge Energy Bank Floor Mount Stand kit and arrange the parts so you can check the parts against the parts list.

2. Move and position the floor mount base close to but not against the wall to which it will be secured. Position the base so that the front of the base is parallel to and facing away from the wall.

3. Level and set the height of the base mount using a 5mm Allen key to turn the **leg height adjustment screws** for each of floor mount base legs.

4. Hold the back holder so that the six studs are facing toward you and the connecting strut with four holes is at the bottom.

5. Lower the back holder over the four connecting studs located at the rear of the base. As you do this, the two lower studs on the Back Holder must sit in the outer slots of the Back Holder Securing Bracket.

6. Loosely screw the M8 (1/2") nuts onto each of the back holder and base studs to hold the back holder in place. Fully tighten at 17Nm/150 in lb to finally secure the back holder.

7. Hold the wall mount, front facing you, and position the mount on the securing studs of the back-holder's battery mounting bracket.

8. Loosely screw an M8 (1/2") nut onto each of the four back holder studs to hold the wall mount in place and then fully tighten at 17Nm/150 in lb to finally secure the wall mount as shown in Figure 4.

9. Use the M5 (5/32" Allen) short screw to attach the lower slot of the wall bracket to each side of the wall mount and then position the Floor Mount against the wall.
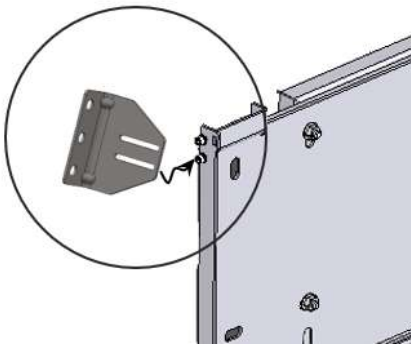
10. Use the holes in the wall bracket to mark the position on the wall for three attachment holes on each side. Move the Floor Mount aside to allow access to drill. Drill the holes, reposition the Floor Mount and attach the wall brackets to the wall.

11. (Optional) Insert a floor connector bracket between the bracket securing nut and the foot of each leg. Position the floor connector bracket and mark a drilling hole. Remove the bracket and drill the floor attachment holes.

> ⚠ **CAUTION!**
> Attaching the Floor Connector Brackets is optional. This step should be only be performed after determining that doing so does not:
> - Breach any local or national safety codes.
> - Damage any infrastructure built into the floor. For example, sealing, plumbing lines or floor heating systems.

12. Position and hang the battery on the wall mount.

13. Check that the battery is turned off.

14. Open the wiring gutter on the left side of the floor mount base and lay the wires in place. Pass the cables through the wiring sleeve on the top left side of the floor mount base and connect to the battery. If installing more than one battery per inverter, use branch connectors. See the Energy Bank Quick Installation Guide.

15. Insert and loosely tighten the long m5 wall bracket securing screw in the upper wall bracket slot on each side. The long securing screw threads through the battery housing and acts a safety suspension pin.

16. Recheck that the stand is level and if necessary fine tune the height of the legs until the stand is level.

17. In case the floor stand is being optionally fastened to the floor, replace the floor connector brackets, and position them over the drilled hole. Secure to the floor at 17Nm/150 in lb and then tighten the M10 (11/16") bracket securing nuts on each leg also at 17Nm/150 in lb.

18. Tighten the two Wall Bracket screws M5 (5/32" Allen) on each wall bracket at 17Nm/150 in lb.

19. Assemble the decorative cover.

20. If installing more floor stands arranged front to back , position the additional base mount against the front of the already positioned base mount and repeat the floor mount assembly process for steps 1-8. The figure indicates how the batteries are arranged and attached to each other.
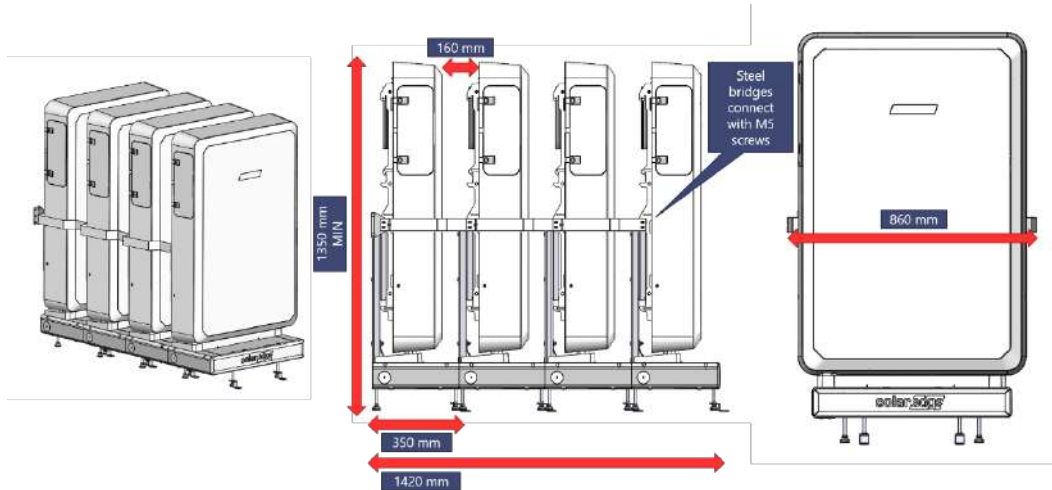
21. Attach the Stand to Stand connectors from the front of the rear base mount to the two internal base mount studs and tighten the M8 (1/2") nuts to secure the front base mount to the rear base mount.

22. Disregard the steps that refer to the wall bracket and continue from step 11 to mount the battery, wire the battery, attach the decorative cover, and then secure the two batteries to each other using M5 screws to attach a side bracket to each side of the battery.

23. You can reverse the positioning of the floor connector bracket for the last floor stand in the bank so that the connector is hidden under the front of the stand. This prevents the floor connector bracket from getting in the way of anyone walking around the battery stand. This step is optional, see the caution Optional Floor Connector.

24. Clip the gutter cover to the base.

25. Screw the front decorative logo to the base.

Note

Use the QR-Code to view a video that shows you how to wire and chain up to 3 batteries together on floor stands.

SolarEdge Home Battery
Low Voltage
Used with SolarEdge inverters

Quick Installation and Operation Guide
for Europe

solaredge

MAN-01-00968-1.0

What's in the Package

SolarEdge Home Battery

Mounting Bracket and Screws
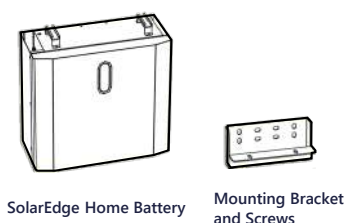
Ordered Separately

Floor Stand

Battery Top Cover
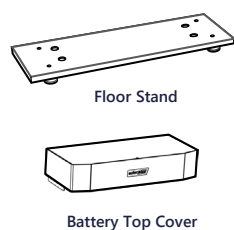
Available Cables

	Battery to Battery	Tower to Tower	Battery to inverter
DC cables	57cm	260 cm	260 cm
Ground cable	55cm	170 cm	260 cm
Communication cable	57cm	170 cm	260 cm

Required Personnel

Min 2 qualified installers

54.7KG

Tools and Materials

Drill	Level	18 mm Wrench
Pencil	Hammer	Wire Cutter
Phillips screwdriver	Flat-Blade screwdriver	Mounting screws and studs - max M10 (min 2)
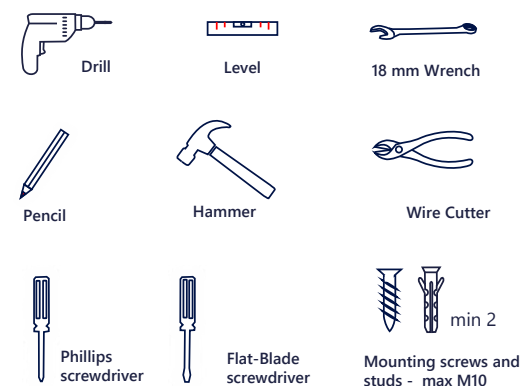
⚠ **WARNING!**
This symbol denotes a hazard. It calls attention to a procedure that if not correctly performed or adhered to could result in injury or loss of life. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.

⚠ **WARNING!**
Before installing or operating the SolarEdge Home Battery, read the Safety and Handling instructions at the back of this page.

---

1 Turning off the Battery Power

LEDs

ON
OFF

⚠ **WARNING!**
Make sure that the circuit breakers of the battery are in the OFF position and all LEDs are turned off

---

2 Planning and Considerations

⚠ **WARNING!** Connect no more than 5 batteries per inverter. Use no more than 3 batteries per battery tower.

D: 24 cm
W: 50 cm
H: 54 cm
30-50 cm

Inverter
30 cm
20 cm
25 cm
Max 500 cm
30 cm
EMERGNCY EXIT
100 cm

---

3 Floor Stand Positioning and Leveling

⚠ **WARNING!**
Mount the battery on a stable surface

FRONT

3-5 cm

FRONT

NOTE: Before installing batteries on top of each other, checked that the max tilt of the wall is 1.5%

---

4 Installing the Mounting Bracket

2.5 Nm

NOTE: Use a minimum of two wall screws to install the bracket. Use additional screws to reinforce installation according to wall condition.

5 | Wiring

⚠ **WARNING!** Connect a ground cable according to local regulation.

Communication Cable

INV

④

Inverter

Ground Cable (Yellow/green)

− +

+Battery Cable (Red)

− Battery Cable (Black)

Max cables length 5 m

①

② BAT-   BAT-   ③ BAT+   BAT+

Optional

6 | Installing the Battery Top Cover

7 | Configuring Installation

1. Hold the Reset button pressed for 3 to 6 seconds till the LEDs blink.
2. Turn on the circuit breakers of the battery.
3. Run SetApp.
4. Scan the QR code on the inverter.
5. Follow the on-screen instructions.

For post-installation settings, see **Connection and Configuration** application note.

NOTE: The battery operation is managed by the SolarEdge inverter connected to the battery.

① 3 to 6 Sec

② ON / OFF

③ SetApp

④ (QR scan)

⑤ **Commissioning**
∨
CAN
∨
Add New Devices
∨
Self Test
∨
Power Mode
∨
Finish Settings

8 | LED Indications

Battery Capacity:
76-100%
51-75%
26-50%
0-25%

Fault Indicator

Operation Indicator: Steady – Charging
Flashing – Discharging

Reset Button

IMPORTANT! For detailed LED indications and button operation, refer the Battery Installation Manual

Operation

- The Battery contains rechargeable lithium-ion cells that are potentially hazardous and can present a serious fire hazard, injury and/or property damage if damaged, defective or improperly used.
- In case of an electrolyte leak from the Battery, avoid contact with electrolyte and follow the instructions in the *SolarEdge Home Battery – Emergency Response Guide*.

Emission Compliance

- Changes or modifications not expressly approved by SolarEdge for compliance may void the user's authority to operate the Battery.
- Use the Battery only as directed in this document.
- Do not use the Battery if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.
- The Battery and its components are not user-serviceable.
- Do not attempt to open, disassemble, repair, tamper with, or modify the Battery. The Battery cells are not replaceable.
- Do not operate the Battery at ambient temperatures of above 50°C/122°F or below -10°C/14°F. Operating the Battery in temperatures outside the specified range might cause damage to the Battery.
- Do not expose the Battery or its components to direct flame.
- Do not store or use flammable liquids or gasses in the vicinity of the Battery.
- Do not place any combustible items in the vicinity of the Battery.
- If the Battery catches fire, or if fire breaks out near the Battery, call the fire department immediately and follow the instructions in the *SolarEdge Home Battery – Emergency Response Guide*.
- The Battery is prone to re-ignition after extinguishing. Use caution and follow the emergency response instructions.
- Do not immerse the Battery or its components in water or other fluids.
- Charge and discharge voltage: 44.8-56.5 Vdc.
- Do not use solvents to clean the Battery or expose the Battery to flammable or harsh chemicals or vapors.
- Do not use fluids, parts, or accessories other than those specified in this guide, including use of non-genuine SolarEdge parts or accessories, or parts or accessories not purchased directly from SolarEdge or a SolarEdge certified party.
- After the installation, do not place the Battery in storage conditions for more than one (1) month, or permit the power feed to the Battery to be discontinued for more than one (1) month.
- Do not paint any part of the Battery, including any internal or external components such as the exterior shell or casing.
- Ensure that snow does not accumulate around the Battery.
- A non-functioning Battery must be handled with caution. The Battery state of charge and risk of venting may be unknown. Contact SolarEdge for assistance.
- Do not attempt to remove or transport a damaged or non-functioning battery. Contact SolarEdge or your SolarEdge certified installer for support.
- This symbol ⌧ on the product means: Do not dispose of this product with general household waste. Consult your local regulations for proper disposal instructions.

SAFETY AND HANDLING INSTRUCTIONS

Read this entire document before installing or operating the SolarEdge Home Battery (referred to as the "Battery"). Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or may damage the Battery and other property.
Do not discard this document! After installation, keep it adjacent to the Battery for future reference!

Installation

- Install the battery according to national and local codes and standards and in locations compliant with local building codes and standards.
- The Battery installation must be carried out only by qualified electricians who have been trained in handling low voltage electricity works.
- The Battery is heavy. Adhere to local regulations for material handling and heavy lifting, when installing heavy equipment.
- Do not install the Battery in habitable spaces, including sleeping rooms.
- Make sure the mounting surface can sustain the total weight of the Battery and mounting bracket.
- Do not install the Battery, if it has been dropped, crushed, or has signs of physical damage.
- When the Battery is installed in a residential environment, fire detection and protection equipment must be installed in accordance with local building and fire codes.
- Do not install the Battery near heating equipment, ignition sources, or open flames.
- Install the Battery only on non-combustible surfaces and under non-combustible ceilings, overhangs, or eaves.
- Do not install the Battery in proximity to gas meters, valves, regulators, lines, or gas appliances. Follow local codes. However, 2m / 6ft or more spacing is highly recommended. A failing battery may ignite flammable gasses resulting in property damage, serious injury, or death.
- Avoid installing the Battery in direct sunlight.
- Install the Battery in a location protected from flooding.
- Do not install the Battery in the vicinity of water sources, including downspouts, sprinklers, or faucets.
- When installing the Battery in a garage or near vehicles, keep it out of the driving path. If possible, install the Battery on a side wall and/or above the height of vehicle bumpers.
- Before beginning the wiring, ensure that the Battery is switched off. Also, make sure that the DC safety switch of all inverters in the PV system is turned off.

Home Battery 48V Installation Guide

with SetApp Configuration

For Europe and APAC

Version 1.0

Iris Hellas
Technology Innovations
www.irishellas.com

Disclaimers

Important Notice

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The content of these documents is continually reviewed and amended, where necessary. However, discrepancies cannot be excluded. No guarantee is made for the completeness of these documents.

The images contained in this document are for illustrative purposes only and may vary depending on product models.

This manual describes installation of theSolarEdge Home Battery 48V . Read this manual before you attempt to install the product, and follow the instructions throughout the installation process. If you are uncertain about any of the requirements, recommendations, or safety procedures described in this manual, contact SolarEdge Support immediately for advice and clarification. The information included in this manual is accurate at the time of publication. However, the product specifications are subject to change without prior notice. In addition, the illustrations in this manual are meant to help explain system configuration concepts and installation instructions. The illustrated items may differ from the actual items at the installation location.

solar**edge**

Contents

Revision History

Version 1.0 (June 2022)

- First version of this guide

Handling and Safety Instructions

Read these instructions carefully before installing or operating the SolarEdge Home Battery 48V (referred to as the *Battery* or *Battery Pack*). Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or may damage the battery and other property.

Failure to abide by these instructions may void your warranty!

Do not discard this document! After installation, keep it adjacent to the battery for future reference!

Installation

⚠️ WARNING!
Install the battery according to national and local codes and standards and in locations compliant with local building codes and standards.

⚠️ WARNING!
The battery installation must be carried out only by qualified electricians who have been trained in handling low voltage electricity works.

⚠️ WARNING!
The battery module is heavy. Adhere to local regulations for material handling and heavy lifting, when installing heavy equipment.

⚠️ WARNING!
Do not install the battery in habitable spaces, including sleeping rooms.

⚠️ WARNING!
Make sure the mounting surface can sustain the total weight of the battery module and mounting bracket.

⚠️ WARNING!
Do not install the battery, if it has been dropped, crushed, or has signs of physical damage.

⚠️ WARNING!
When the battery is installed in a residential environment, fire detection and protection equipment must be installed in accordance with local building and fire codes.

⚠️ WARNING!
Do not install the battery near heating equipment, ignition sources, or open flames.

⚠️ WARNING!
Install the battery only on non-combustible surfaces and under non-combustible ceilings, overhangs, or eaves.

WARNING!
⚠ Do not install the battery in proximity to gas meters, valves, regulators, lines, or gas appliances. Follow local codes. However, 2m or more spacing is highly recommended. A failing battery may ignite flammable gasses resulting in property damage, serious injury, or death.
WARNING!
⚠ Avoid installing the battery in direct sunlight.
WARNING!
⚠ Install the battery in a location protected from flooding.
WARNING!
⚠ Do not install the battery in the vicinity of water sources, including downspouts, sprinklers, or faucets.
WARNING!
⚠ When installing the battery in a garage or near vehicles, keep it out of the driving path. If possible, install the battery on a side wall and/or above the height of vehicle bumpers.
WARNING!
⚠ Before beginning the wiring, ensure that the battery is switched off. Also, make sure that the DC safety switch of all inverters in the PV system is turned off.

Operation

WARNING!
⚠ The battery contains rechargeable lithium-ion cells that are potentially hazardous and can present a serious fire hazard, injury and/or property damage if damaged, defective or improperly used.
WARNING!
⚠ Lithium-ion batteries and products that contain lithium-ion can expose you to chemicals, including antimony trioxide, cobalt lithium nickel oxide, and nickel.
WARNING!
⚠ In case of an electrolyte leak from the battery, avoid contact with electrolyte and follow the instructions in the SolarEdge Home Battery 48V Emergency Response Guide.
WARNING!
⚠ Use the battery only as directed in this document.
WARNING!
⚠ Do not use the battery if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate. The battery and its components are not user-serviceable.

⚠️ **WARNING!**
Do not attempt to open, disassemble, repair, tamper with, or modify the battery. The battery cells are not replaceable.

⚠️ **WARNING!**
Do not operate the battery at ambient temperatures of above 50°C or below - 10°C.

⚠️ **WARNING!**
Do not expose the battery or its components to direct flame.

⚠️ **WARNING!**
Do not store flammable liquids or gasses in the same room with the battery. When the battery is installed outdoors, keep any flammable liquids or gasses at a distance of at least 15m from the battery.

⚠️ **WARNING!**
Do not place any combustible items within less than 2m of the battery.

⚠️ **WARNING!**
If the battery catches fire, or if fire breaks out near the battery, call the fire department immediately and follow the instructions in the SolarEdge Home Battery 48V Emergency Response Guide.

⚠️ **WARNING!**
 The battery is prone to re-ignition after extinguishing. Use caution and follow the emergency response instructions. .

⚠️ **WARNING!**
Do not immerse the battery or its components in water or other fluids.

⚠️ **WARNING!**
Operating the battery in temperatures outside the specified range might cause damage to the battery.

⚠️ **WARNING!**
Do not use solvents to clean the battery, or expose the battery to flammable or harsh chemicals or vapors.

⚠️ **WARNING!**
Do not use fluids, parts, or accessories other than those specified in this guide, including use of non-genuine SolarEdge parts or accessories, or parts or accessories not purchased directly from SolarEdge or a SolarEdge certified party.

⚠️ **WARNING!**
After the installation, do not place the battery in storage conditions for more than one (1) month, or permit the power feed to the battery to be discontinued for more than one (1) month.

⚠	WARNING!
	Do not paint any part of the battery, including any internal or external components such as the exterior shell or casing.
⚠	WARNING!
	Ensure that snow does not accumulate around the battery.
⚠	WARNING!
	A non-functioning battery must be handled with caution. The battery state of charge and risk of venting may be unknown. Contact SolarEdge for assistance.
⚠	WARNING!
	Do not attempt to remove or transport a damaged or non-functioning battery. Contact SolarEdge or your SolarEdge certified installer for support.
⚠	WARNING!
	Do not dispose of this product with general household waste. Consult your local regulations for proper disposal instructions.

Installation Tools

Make sure you have the following tools, before starting the installation:

- Crimping tool
- Torque wrench
- Drilling machine
- Level
- Phillips screwdriver
- Flat-blade screwdriver
- Cable cutter
- Wall plugs and screws
- Hammer

Charging cable requirements

- Conductor cross section - 35mm^2
- Outer diameter 14-21mm
- maximum cable length 5m

What's in the Package

- Battery module
- Mounting bracket
- 2 x M5 screws

Battery accessories

SOLAREDGE HOME BATTERY - ACCESSORIES (PURCHASED SEPARATELY)	
DESCRIPTION	PN
Accessory SolarEdge Home Battery 48V , mechanical top cover (1 required per tower)	IAC-RBAT-5KMTOP-01
Accessory SolarEdge Home Battery 48V to **SolarEdge Home Hub** Inverter – Three Phase (PN SE*K-RWB48)	IAC-RBAT-5KCINV-01
Accessory SolarEdge Home Battery 48V cable set SolarEdge Home Battery 48V to **SolarEdge StorEdge** Inverter –Three Phase (PN SE*K-RWS)	IAC-RBAT-5KCINV-02
Accessory SolarEdge Home Battery 48V , cable set battery module to battery module	IAC-RBAT-5KCBAT-01
Accessory SolarEdge Home Battery 48V , cable set tower to tower	IAC-RBAT-5KCTOW-01
Floor stand support SolarEdge Home Battery 48V (optional)	IAC-RBAT-5KFSTD-01
Accessory 10 * Spare connector kit for battery to Inverter connection, SolarEdge Home Battery 48V	IAC-RBAT-5KCNCT-01
Accessory 10 * Spare connector kit for tower to tower connection, SolarEdge Home Battery 48V	IAC-RBAT-5KCNCT-02

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Selecting and Preparing the Installation Site

Make sure to observe the following requirements, when selecting an installation site.

Configurations

The term *Battery module* refers to a single battery. The term *Battery Tower* or *Tower* refers to a number of modules stacked on top of each other and connected in parallel. The term *Battery pack* or *Battery* refers to all the battery modules connected to each other and to the same inverter, in one or two towers.

Connect up to 5 battery modules in two towers (maximum 3 in a tower).

| Content | PN | Number of Towers | | | | | | |
| | | 1 | | | 2 | | | |
		1 battery	2 batteries	3 batteries	2 batteries	3 batteries	4 batteries (3+1 or 2+2)	5 batteries (3+2 or 4+1)
Battery pack with	BAT-05K48M0B-01	1	2	3	2	3	4	5
Tower cover with 5 screws	IAC-RBAT-5KMTOP-01	1	1	1	2	2	2	2
Battery to battery cable kit (same tower)	IAC-RBAT-5KCBAT-01	0	1	2	0	1	2	3
Tower to tower cable set	IAC-RBAT-5KCINV-01	0	0	0	1	1	1	1
Battery to inverter cable set	IAC-RBAT-5KCTOW-01	1	1	1	1	1	1	1
Floor support stand(recommended)	IAC-RBAT-5KFSTD-01	1	1	1	2	2	2	2

1 module   2 modules   3 modules

4 modules 2 towers   5 modules 2 towers
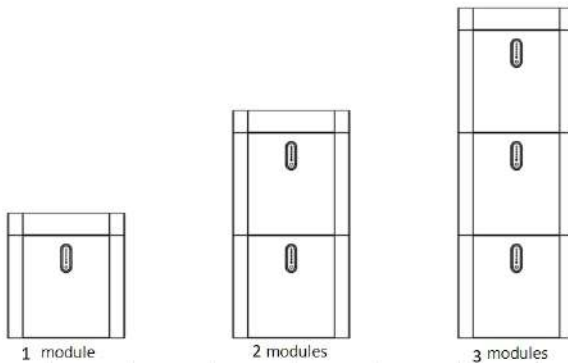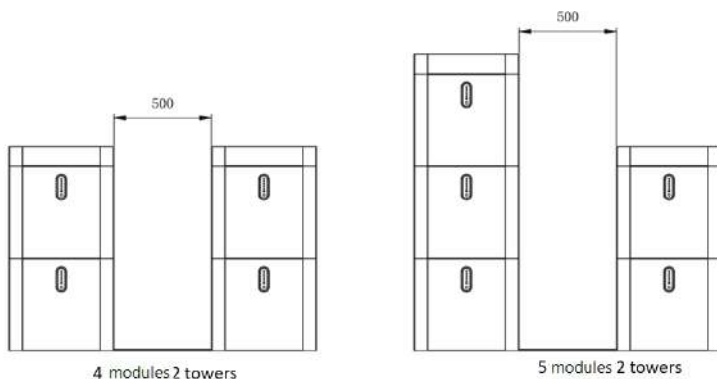
General Guidelines and Requirements

- The battery may be installed in an outdoor or indoor location.
- Since the battery must be secured to a wall using the supplied mounting bracket, the installation location must be adjacent to a wall.
- When installed indoors, the battery must not be obstructed by any building structure, room furniture or equipment.
- The battery shall not be exposed to direct sun or rain.
- Since the battery has natural convection, the installation site must be clean, dry and well ventilated.
- The installation location must allow easy access to the battery for installation and maintenance.
- The front panel or battery module should not be covered.

Restricted Locations

Do not install the battery at any of following locations:

- residential rooms
- wall or ceiling niches
- entrance/exit areas or below a staircase/passage
- environments with humidity and condensed water level of over 90%
- earthquake zones where additional safety measures are required
- sites at altitudes of more than 2000 meters above the sea level

sites exposed to direct sunlight or sites where the ambient temperature may exceed the specified maximum temperatures

near flammable materials or gases or explosive environments

Clearance

Observe the following minimum clearance:

20 cm from all sides of the battery module
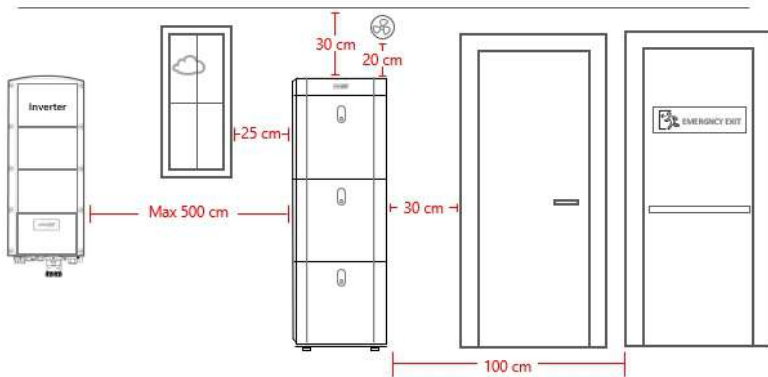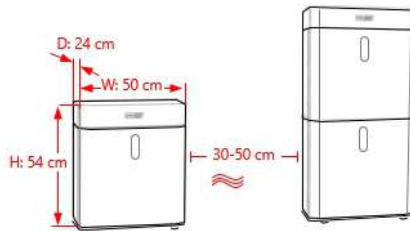
30 cm from another battery module or any heat source, such as water heater unit, gas-fueled heater, air conditioning unit or any other equipment

100 cm from emergency exits

30 cm from doors

20 cm from windows or air vents

20 cm from other devices

Residential Barrier

In order to prevent a fire from spreading, install a non-combustible barrier on the other side of the wall or structural surface, on which the battery is installed. If the installation surface is not made of a non-combustible material, a non-combustible barrier can be installed between the battery and the wall or structural surface.

If the Battery pack is installed on a wall or at a distance of 300mm from the wall that isolates the energy storage system from a residential space, the distance from other structures or objects must be increased.

Installing the Battery Modules

Battery description

Figure below shows the single battery module with completed connections.
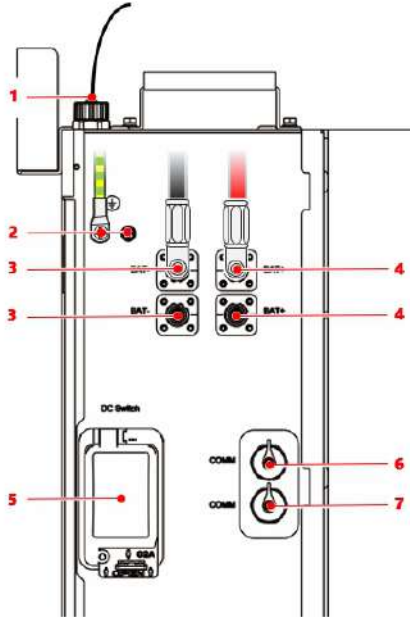
|			
1	CAN-bus (RJ45) connection to inverter communication	5	Circuit breakers, 120A
2	Grounding terminal	6	RS485 Communication socket to connect the battery module above to this battery module (in a battery tower)
3	DC bat - connector	7	RS485 Communication socket to connect the battery module below to this battery module (in a battery tower)
4	DC bat + connector		

Installation procedure

1. Install a floor stand (recommended by SolarEdge). Depending on wall leveling, consider when installing more than one module.

   a. Place the floor stand at a distance of 3-5cm from the wall.
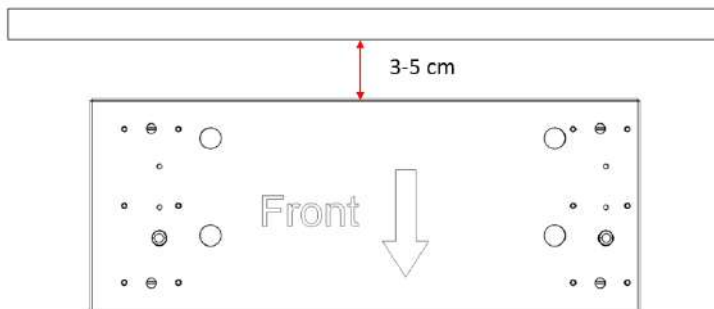
   > **NOTE**
   > The arrow should point at the battery module front.

   b. To level the floor stand, adjust each of the four legs by turning the screw using a flat screwdriver.
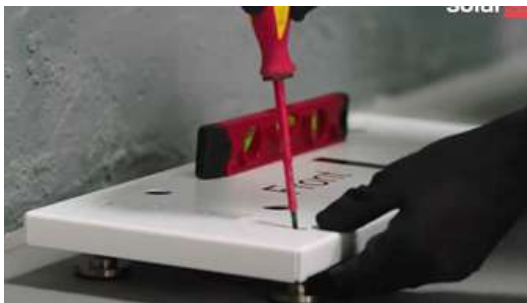
   c. When the floor stand is balanced, tighten the nut with an open wrench in order to secure the leg's height, then close the nut.

CAUTION!

⚠️ Before moving the battery module to its location, make sure that both the CB switch and the power button (soft switch) of the battery module are off – refer to *Connecting a Single Battery Module* on page 19.

2. Take the battery module out of the box, move it to the installation location. You can use the battery handles located at the top of the battery for convenience of moving and placing it on the the right position.

3. Place the battery module on the floor stand using the top handles.
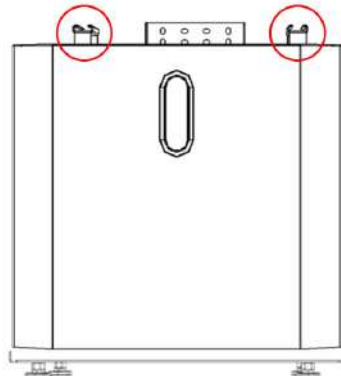
4. Put the bracket on the wall, mark the drilling holes location, then remove the bracket and drill holes in the wall.

> **NOTE**
> Don't drill through the bracket.

5. Assemble the supplied mounting bracket to the battery module using two M5 screws. Tighten the screws to a torque of 2.5Nm.
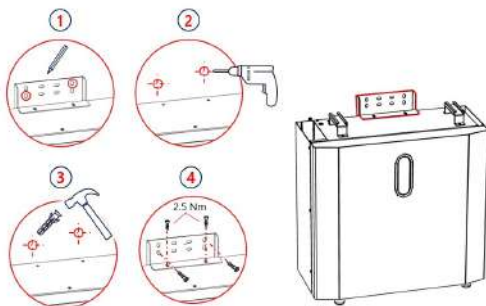
> **NOTE**
> For better cable routing, use the mounting bracket oval hole in a way to enable the maximum available distance between the battery module and the wall.
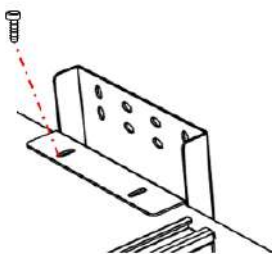

6. Secure the battery module to the wall with screws and wall plugs. When using only two screws, make sure to use the two outer screws diagonally as shown on the figure below.

7. When installing battery modules in a tower configuration (one on top of the other):
   - Before securing the wall brackets, make sure the battery modules are aligned (see the figure below).

- Secure all battery modules to the wall as described above.
- Note that the maximum allowed amount of battery modules in a tower is three.
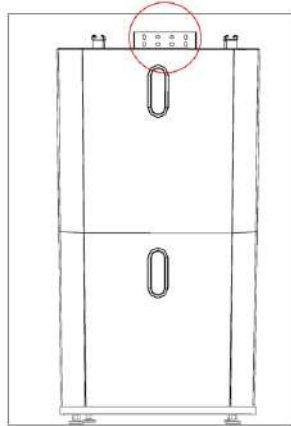
Connecting a Single Battery Module

If you are installing a single battery module, connect it to the inverter as follows:

1. Make sure the battery module's DC switch is off.

2. Before connecting the cables to the inverter, make sure the accessory kit is on the correct length. If you need longer cable, you will have to crimp the connectors yourself using one of the following kits:

|	
IAC-RBAT-5KCNCT-01	10 DC connectors (red) – battery side 10 DC connectors (black) – battery side 10 RJ45 connectors – inverter side 10 waterproof RJ45 – connectors
IAC-RBAT-5KCNCT-02	20 DC connectors (red) 20 DC connectors (black) 20 waterproof RJ45 connectors

3. Release the three screws and slide the side door, that covers control interfaces on the left side of the battery module, to allow clear and secure access to the battery module interfaces.
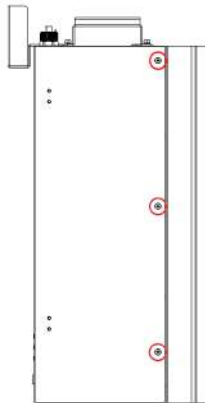
4. Before continuing with the installation, make sure the battery is OFF, then make sure that the front panel LEDs are OFF. If the battery is on, use the following procedure to turn it off:

    a. To turn off the battery module circuit breaker, remove the cover screw, click the door open, turn off the circuit breaker.
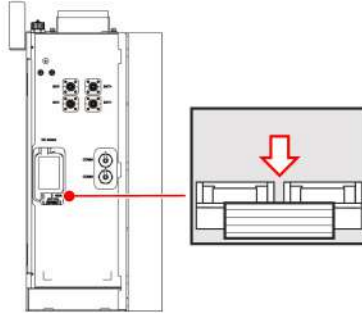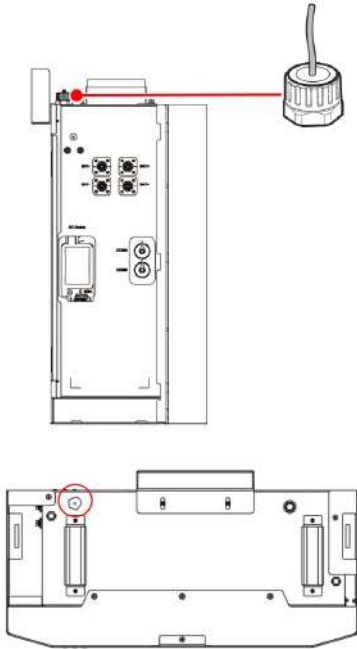
   b. Press the power button (soft switch) for 3-6 seconds until the indicator lights go out.
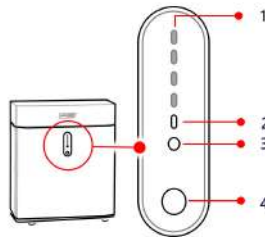
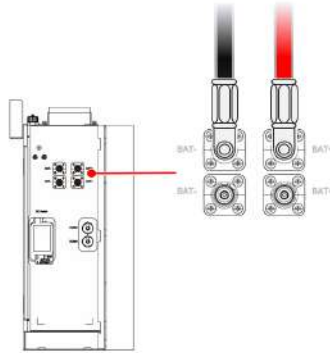| 1	Battery Capacity/ Alarm ID
2	Indication LED
3	Operation Indicator
4	Power/Reset Button

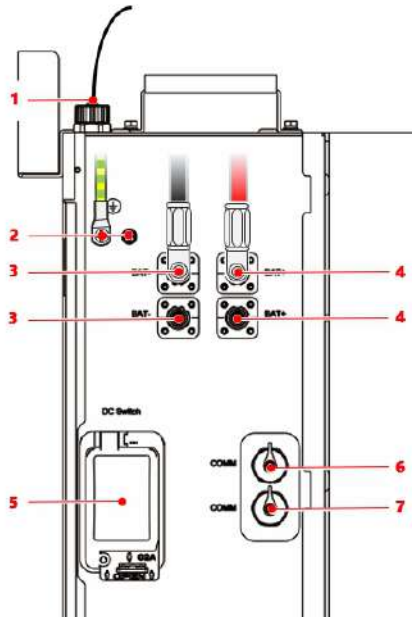5. Connect the CAN-bus communication cable (RJ45) coming from the inverter, with the top battery module connector.

6. Use the left grounding terminal to connect the battery module, depending on the local regulation, to the inverter grounding or to the main grounding.
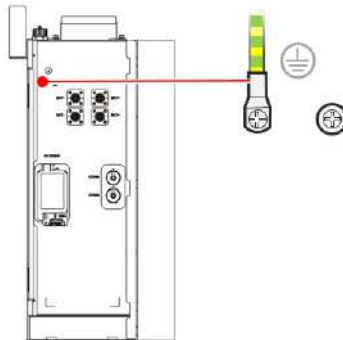
7. Use the upper pair of DC connectors (BAT- and BAT+) to connect power from the inverter. Note the polarity. Insert the connectors until you hear a click.


8. Figure below shows the single battery module with completed connections.

1	CAN-bus (RJ45) connection to inverter communicaiton	5	Circuit breakers, 120A
2	Grounding terminal	6	RS485 Communication socket to connect the battery module above to this battery module (in a battery tower)
3	DC bat - connector	7	RS485 Communication socket to connect the battery module below to this battery module (in a battery tower)
4	DC bat + connector		

9. Using the power button (soft switch), turn on the battery modules, refer to *Powering on the Battery Module* on page 27. Press the power button (soft switch) shown on the figure below for 3-6 seconds, the LEDs will light. If this is a new battery (e.g. not RMA) only the first green LED or the first and second green LED should light constantly. No other LEDs should light. If you observe a different LEDs sequence, refer to *LED Indications* on page 1 for LED troubleshooting, or contact SolarEdge support with the Battery module SN and the LED sequence. Until this is solved, do not proceed with the installation.
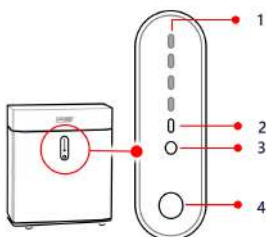
1	Battery Capacity/ Alarm ID
2	Indication LED
3	Operation Indicator
4	Power/Reset Button

	CAUTION!
⚠	Before turning on the battery module circuit breaker, make sure that the cables to the inverter are connected, with the DC cables, to the inverter at the right polarity. Failing to do so, may cause either the battery or the inverter to malfunction.

10. Turn on the battery module circuit breaker.

11. Close the side door and route all the cables above the door.

12. Fasten the side door with the three screws.

Connecting Multiple Battery Modules

⚠ **CAUTION!**
Before connecting additional modules, make sure the CB and the LEDs are OFF.

When installing multiple battery modules, connect them in parallel. Contact SolarEdge or your distributor to order the appropriate cable kit for your configuration. For cable kits and accessories, see *What's in the Package* on page 9.

1. Open the side doors of the battery modules.

2. We recommend to turn off the power button (soft switch) in all battery modules.

3. Connect the DC, communication and grounding cables between the battery modules as shown below (example; your actual configuration may differ).

solar**edge**
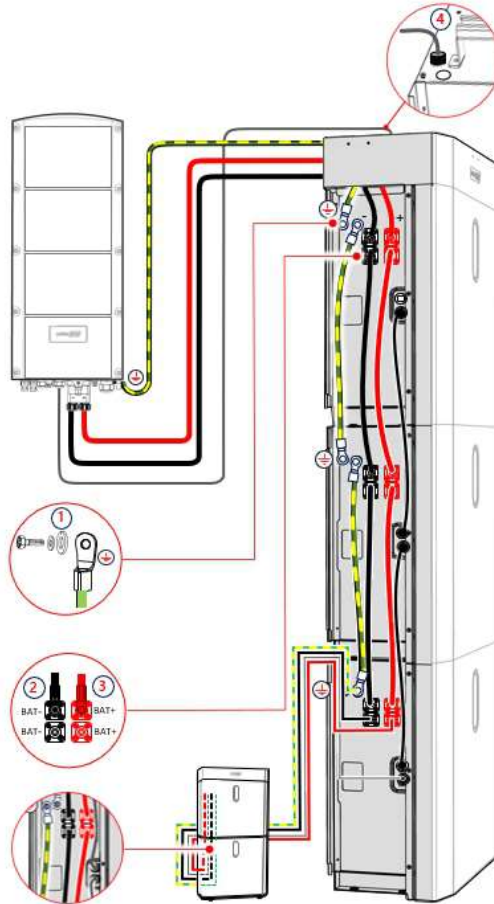
4. Connect the DC and communication cable of the first or last battery module to the inverter. See the inverter installation guide for connection instructions.
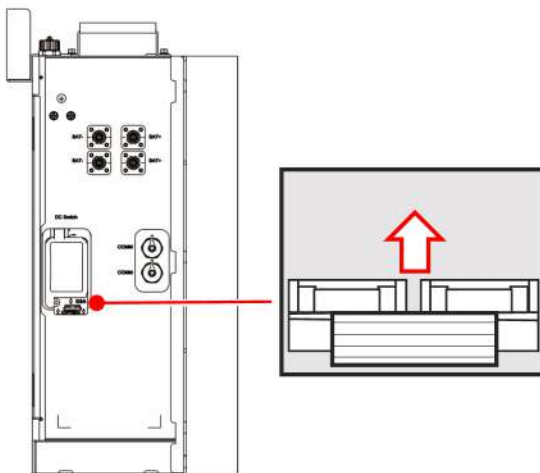
> NOTE
>
> When you have two battery modules on top of each other, they are connected in a way that the top connectors of the lower battery module are connected to the bottom connectors of the upper battery module.
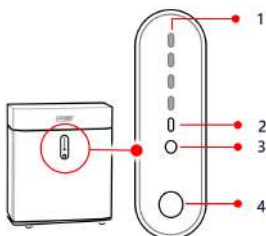
5. Fasten the side door with the three screws.

Powering on the Battery Module

1. Turn on the DC switch.

2. Press the power button for 3-6 seconds until the indicator lights are on.

| 1	Battery Capacity/ Alarm ID
2	Indication LED
3	Operation Indicator
4	Power/Reset Button

Top Cover Installation

After installing the battery and making all the connections, install the top cover on the top battery module in every tower.

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1. Take the top cover out of its box
2. Remove the top plate screws
3. Place the frame on top of the top battery module in the tower, secure it with the 3 screws provided in the kit
4. Assemble the top plate with the 5 screws.
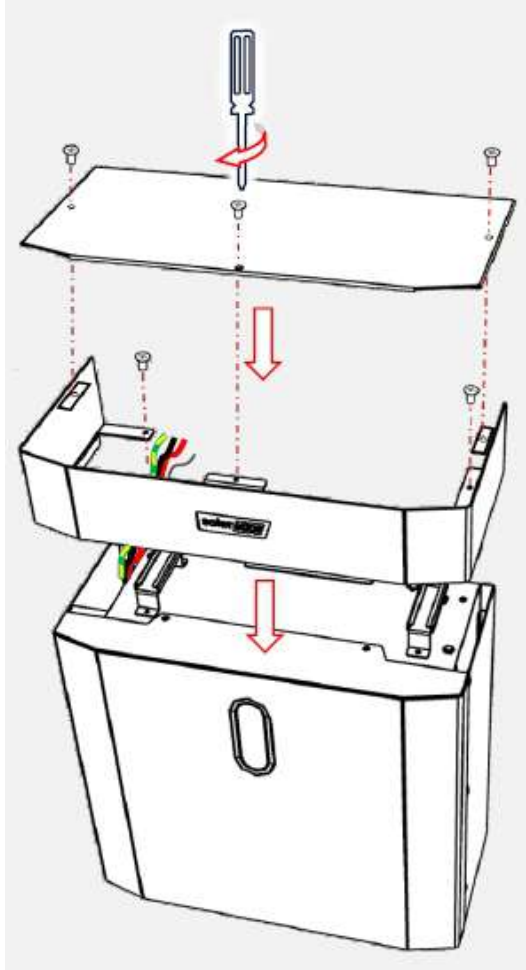
LED Indications

The following section describes the LED behavior of the SolarEdge Home Battery – Low Voltage.

Mode	Behavior
Normal operation of the battery	Operational LED is ON or Blinking once NO other cases of operational LED
Alarm – there is an alarm, but battery still function	Operational LED blinks 3 times, Fault is OFF
Protection – battery have limited operation	Operational LED blinks 3 times, Fault is ON

Battery status	Mode of operation	Operation LED ●	Fault LED ●	Battery Level Indicator LED ●●●●			
OFF	Hibernation	Off	Off	Off	Off	Off	Off
Normal	Idle	1 blink	Off	Indicates battery SoC level			
	Charge	On	Off	Indicates battery SoC level			
	Discharge	On	1 blink	Indicates battery SoC level			

Battery status	Mode of operation	Operation LED 🟢	Fault LED 🔴	Battery Level Indicator LED 🟢🟢🟢🟢			
Alarm	Module over voltage	3 blinks	Off	On	On	On	On
	Module Under voltage	3 blinks	Off	On	On	On	Off
	Cell over voltage	3 blinks	Off	On	On	Off	On
	Cell under voltage	3 blinks	Off	On	On	Off	Off
	Charge MOS fault	3 blinks	Off	On	Off	On	On
	Discharge MOS fault	3 blinks	Off	On	Off	On	Off
	Cell over temperature	3 blinks	Off	On	Off	Off	On
	Cell under temperature	3 blinks	Off	On	Off	Off	Off
	Charging Over Current	3 blinks	Off	Off	On	On	On
	Discharge Over Current	3 blinks	Off	Off	On	On	Off
	Cell sampling fault	3 blinks	Off	Off	On	Off	On
	Heating fault	3 blinks	Off	Off	On	Off	Off
	Low SoC	3 blinks	Off	Off	Off	On	On
	Temperature sensor malfunction	3 blinks	Off	Off	Off	On	Off
	Battery Cell malfunction	3 blinks	Off	Off	Off	Off	On
	Communication failure	3 blinks	Off	Off	Off	Off	Off

Battery status	Mode of operation	Operation LED 🟢	Fault LED 🔴	Battery Level Indicator LED 🟢🟢🟢🟢			
Protection	Short Circuit	3 blinks	On	On	On	On	On
	Charge Module Over Voltage	3 blinks	On	On	On	On	Off
	Module Over current	3 blinks	On	On	On	Off	On
	Module Over voltage	3 blinks	On	On	On	Off	Off
	Module Under voltage	3 blinks	On	On	Off	On	On
	Reverse Polarity	3 blinks	On	On	Off	On	Off
	Cell Over voltage	3 blinks	On	On	Off	Off	On
	Cell Under voltage	3 blinks	On	On	Off	Off	Off
	Cell Over Temperature Charge/Discharge	3 blinks	On	Off	On	On	On
	Cell Under Temperature Charge/Discharge	3 blinks	On	Off	On	On	Off
	Ambient Over Temperature	3 blinks	On	Off	On	Off	On
	Ambient Under Temperature	3 blinks	On	Off	On	Off	Off
	Mosfet Over Temperature	3 blinks	On	Off	Off	On	On
	Reserved	3 blinks	On	Off	Off	On	Off
	Reserved	3 blinks	On	Off	Off	Off	On
	Battery Locked	3 blinks	On	Off	Off	Off	Off

Blink Mode	On	Off
Blinks once every 4 seconds	0.25S	3.75S
Blinks three times every 6 seconds	0.5S	1.5S

Support Contact Information

If you have technical problems concerning SolarEdge products, please contact us:

[QR code]

https://www.solaredge.com/service/support

Before contact, make sure to have the following information at hand:

- Model and serial number of the product in question.
- The error indicated on the SetApp mobile application, LCD screen, on the monitoring platform, or by the LEDs, if there is such an indication.
- System configuration information, including the type and number of panels connected and the number and length of strings.
- The communication method to the SolarEdge server, if the site is connected.
- The product's software version as it appears in the ID status screen.

Inline Energy Meter
Quick Installation Guide
For Europe, APAC and South Africa

solar edge

Iris Hellas
Technology Innovations
www.irishellas.com

DE FR HU IT
NL PL SP SWE

Box Contents
One (1) Energy meter
One (1) Quick Installation Guide
One (1) RS485 Terminal block

A Usage Options

Default Communication

See section C on back page for optional Modbus communication

SolarEdge Energy Net

Scan for SolarEdge Energy Net plug-in kits to use with the inverter
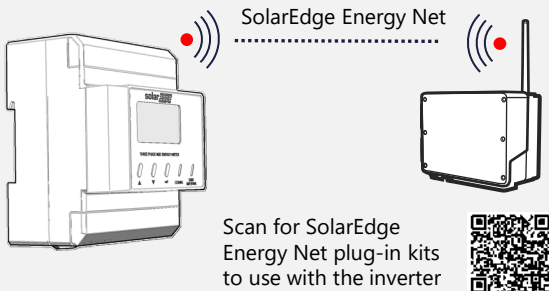
Metal Enclosure or Extended Range

③ 1.1Nm

①

②

④

Scan for External Energy Net antenna installation guide

Scan for SolarEdge Energy Net plug-in installation guide
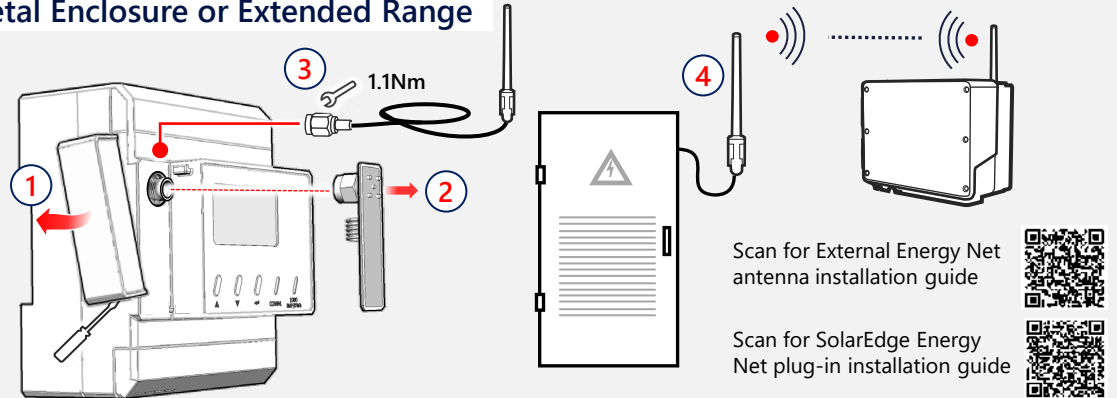
B Mounting and Wiring

WARNING! HAZARD OF ELECTRIC SHOCK DISCONNECT POWER BEFORE SERVICE OR INSTALLATION

CAUTION! DO NOT use circuit breaker with a rated current of more than 65A

OFF
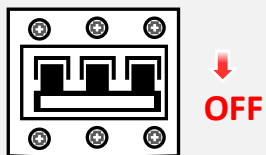
RS485 Defaults:
Termination = ON
ID = 2

① ② ③ ④

1Ø Meter Wiring - Accuracy class A (2%)

L   N

1.2Nm

CAUTION! DO NOT use circuit breaker with a rated current of more than 65A

Cross-section: 1.5 – 25 mm² / 15 - 3 AWG

L   N
1Ø 230/400 VAC Wye Grid (max. 65A)

1Ø Meter Wiring - Accuracy class B (1%)

CAUTION! DO NOT use circuit breaker with a rated current of more than 65A

L   N
1Ø 230/400 VAC Wye Grid (max. 65A)

Cross-section: 1.5 – 25 mm² / 15 - 3 AWG

1.2Nm

L   N

3Ø Meter Wiring - Accuracy class B (1%)

L1 L2 L3 N

3Ø 3X 230/400 VAC Wye Grid (max. 65A per each phase)

Connect to L3 when using this meter in 1Ø grid

Cross-section: 1.5 – 25 mm² / 15 - 3 AWG

1.2Nm

N
L3
L2
L1

3Ø Meter Wiring - Accuracy class A (2%)

L1
L2
L3
N

1.2Nm

Cross-section: 1.5 – 25 mm² / 15 - 3 AWG

L1 L2 L3 N
3Ø 3X 230/400 VAC Wye Grid (max. 65A per each phase)

Connect to L3 when using this meter in 1Ø grid

C Optional Modbus Connection (Not required when using SolarEdge Energy Net communication)

RS485 Wiring   Meter default Address ID: 2

Setting the Inverter DIP Switches

10 mm

CAT6 3-wire, shielded, twisted pair (0.2- 1 mm²)

RS485-1 or RS485-2

B A G

RS485-1 RS485-2
B A G B A G

SW1 SW2
ON

SW1 SW2
OFF

RS485-1 line Terminated
RS485-2 line Not Terminated

RS485-1 line Not Terminated
RS485-2 line Terminated

Set to OFF in StorEdge® inverter!
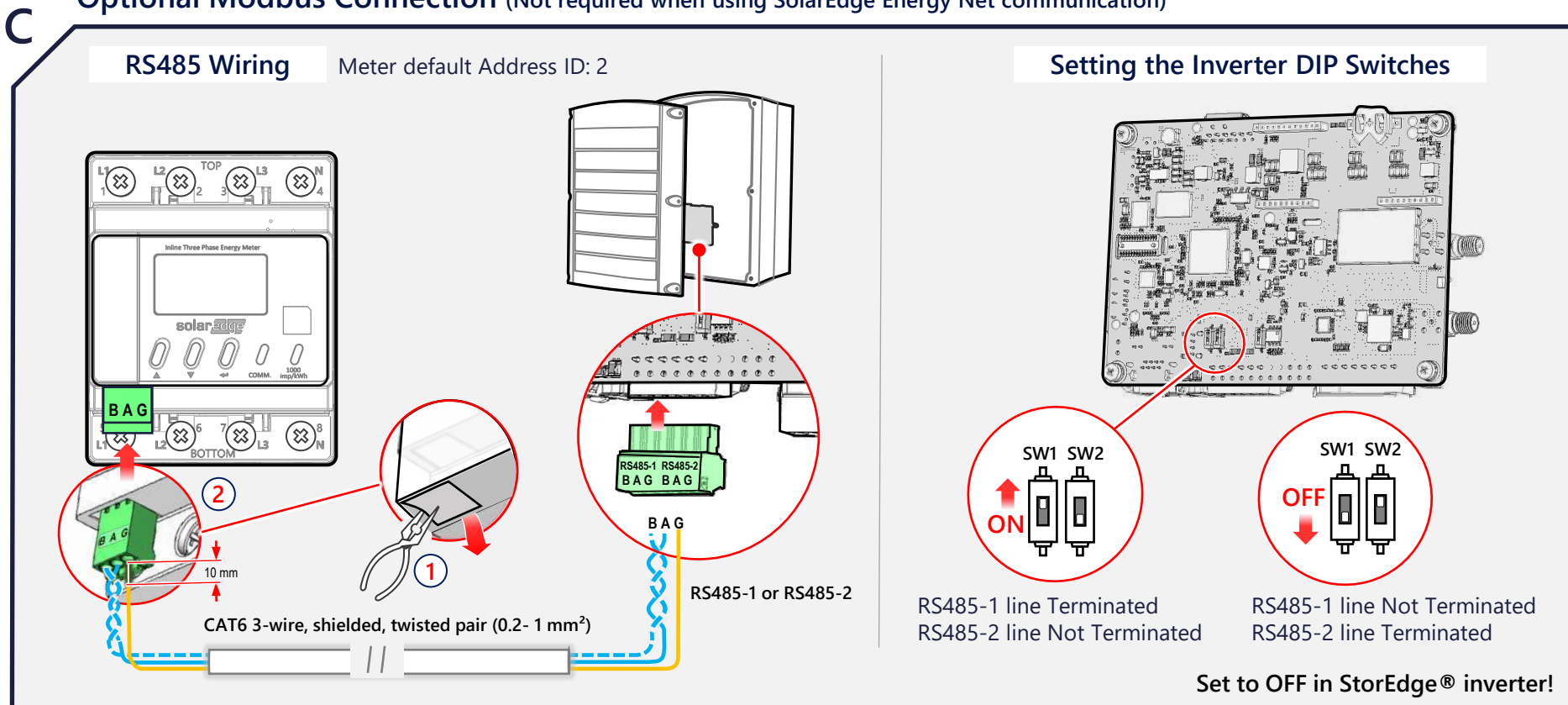
D Connecting and Managing the Meter Using the SetApp Application

ON

1
2
3

P (2 Sec)

SetApp

4

solaredge
Commissioning
- Country and Language
- Pairing
- Monitoring Communication
- **Site Communication**
- Power Control
- Grid Protection
- **Device Manager** Found new devices

For RS485
Site Communication
⌄
RS485-1: Modbus (Multi-Device)
⌄
Meter 1
⌄
Configure
- Meter Function
- Meter ID
- Meter RS485 termination
- AC-Grid Connection[(1)]
⌄
Meter Status
⌄
Done

For Energy Net
Device manager
⌄
Add Device
⌄
Firmware Upgrade (automatic)
⌄
Configure
- Meter Function
- AC-Grid Connection[(1)]
⌄
Meter Status
⌄
Done
⌄
New Installed Device ✔

[(1)] 3Ø meter only - Default: Top (recommended)

E Keys, LED Indications and Screen Navigation

To reset wireless connection: hold up △ and down ▽ pressed together for 5 seconds

Navigate down

- **Navigate up**
- **To reset meter**: hold pressed for 5 seconds

Set

To wakeup display: press any key

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△ ▽ ⏎ COMM 1000 IMP/KWh

Communication status:
- Blinking Blue: Searching for wireless connection.
- Steady Blue: connected

Orange blinking: 1000 pulses per hour = 1 kWh

Password
1231
Back   Set

MODBUS ID
RS485 Term
Factory Reset
Info
Back

Modbus ID
002
Back   Set

Terminate
No Terminate
Back

Factory Reset
Back

Factory Reset
Are You Sure?
Back   Set

Version: X.X.XX

Support Contact Information
If you have technical problems concerning SolarEdge products, please contact us: https://www.solaredge.com/service/support

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Installation Guide

Inline Energy Meter with SolarEdge Energy Net Communications

For Europe and Australia

Version 1.0

Disclaimers

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The content of these documents is continually reviewed and amended, where necessary. However, discrepancies cannot be excluded. No guarantee is made for the completeness of these documents.

The images contained in this document are for illustrative purposes only and may vary depending on product models.

Emission Compliance

This equipment has been tested and found to comply with the limits applied by the local regulations.

These limits are designed to provide reasonable protection against harmful interference. 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, you are 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

> CAUTION!
>
> Where EN55011 Class A is deemed applicable, the following requirements apply:
>
> - This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.
> - This equipment should be connected to inverters with a rated power > 20 kVA and is intended to be installed in a large photovoltaic power generating system by a professional.
> - This equipment should be physically separated from residential environments by a distance greater than 30 m, and can be equipped with additional filtering if necessary.

Version History

- Version 1.0 (August 2021) - FIrst issue

Contents

HANDLING AND SAFETY INSTRUCTIONS

Safety Symbols Information

The following safety symbols are used in this document. Familiarize yourself with the symbols and their meaning before installing or operating the system.

⚠️	**WARNING!** Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in **injury or loss of life**. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.
⚠️	**CAUTION!** Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in **damage or destruction of the product**. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.
💬	**NOTE** Denotes additional information about the current subject.
🔍	**IMPORTANT SAFETY FEATURE** Denotes information about safety issues.

Disposal requirements under the Waste Electrical and Electronic Equipment (WEEE) regulations:

🗑️	**NOTE** Discard this product according to local regulations or send it back to SolarEdge.

solar**edge**

Chapter 1: The SolarEdge Inline Energy Meter with SolarEdge Energy Net Communications

The SolarEdge Inline Energy Meter (also referred to as "the inline meter") is used to measure the power and energy of the photovoltaic (PV) system.

The inline meter:

- Fits in a standard EU electrical cabinet
- Supports a direct connection of up to 65A per phase, for three phase and single phase grid connections
- Is supplied with integrated current transformers - eliminating the need to install external CTs

The three phase inline meter (part number: MTR-240-3PC1-D-A-MW) supports both single-phase and three-phase grid connections.

The single phase inline meter (part number: MTR-240-1PC1-DW-MW) supports single-phase grids only.

> **NOTE**
>
> This installation guide provides instructions for configuration of the inline meter using SetApp. To connect the inline meter to display inverters, purchase the relevant communication board kit from SolarEdge. See *Energy Net Support* on page 14 to select the required kit.

SolarEdge Energy Net Wireless Connectivity

The inline meter supports wireless communication with the inverter using the SolarEdge Energy Net connectivity. To establish communications, the inverter must also support SolarEdge Energy Net.

Alternatively, serial RS485 connectivity can be implemented.

Package Contents

- SolarEdge Inline Energy Meter

> **NOTE**
>
> For the complete list of part numbers that this manual applies to, refer to the technical specification in the Appendix *Supplemental Documentation* on page 43.

- RS485 Terminal Block
- Quick Installation Guide

Terminology

The following terms are used in this document:

- **Export**: The power injected to the grid.
- **Import**: The power purchased from the grid.
- **Export/Import meter**: A meter that is installed at the grid connection point and measures the energy/power exported/imported to/from the grid.
- **Consumption**: The power consumed at the site. Consumption power is calculated as the sum of self-consumption power and import power.
- **Consumption meter**: A meter that is installed at the load consumption point and measures the energy/power consumed by the site.
- **Self-consumption**: The PV power consumed by the site and not fed into the grid.
- **Production**: The power produced by the PV system.
- **Production meter**: A meter that is installed at the inverter output or site AC connection, and measures the energy/power produced by the PV system or site.
- **External production meter**: A meter that is used for production metering of 3rd party generators, or for AC coupling with non-SolarEdge inverters.
- **Site production meter**: A meter that is installed at a SolarEdge inverter output, and reads the energy produced by all the inverters at the site.
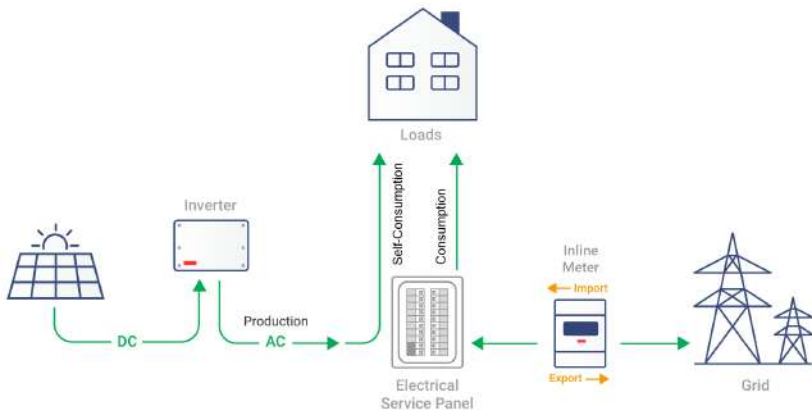- **Site limit**: The power level (in kW) that the inverter falls back to once an export limit event is triggered.

Figure 1: Terminology Illustration

Metering Applications

The SolarEdge inverter reads data from the inline meter, typically using one of the scenarios illustrated in the figures below:

- Production metering, using a meter installed at the output power connection of the inverter. Production metering functions (inverter production, external production, site production) are supported in software version 4.14.xx and above.
- Export/import metering, using a meter installed at the grid connection point
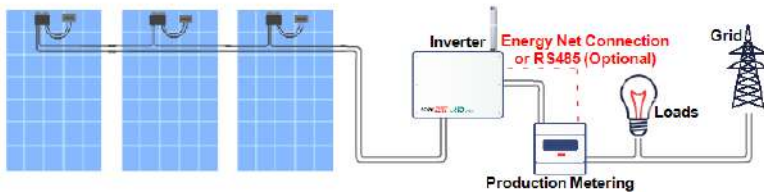- Consumption metering, using a meter installed at the load consumption point

Figure 2: Typical installation with production meter
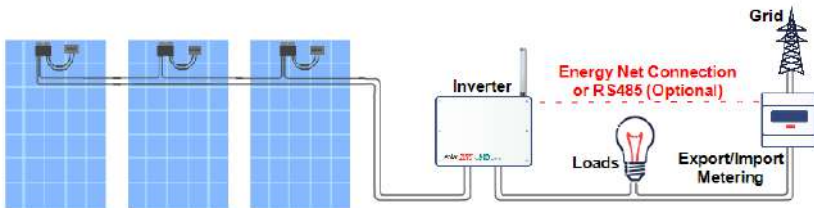
Figure 3: Typical installation with export/import meter
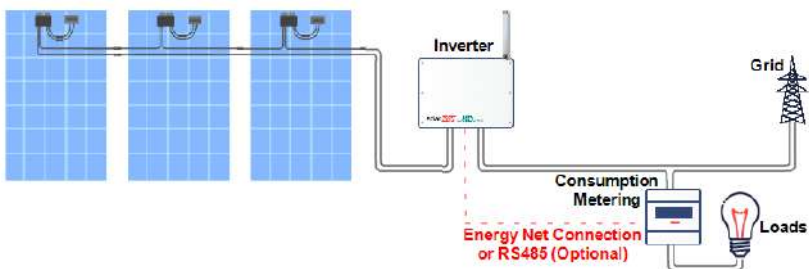
Figure 4: Typical installation with consumption meter

NOTE

The AC wires connected to the main terminal block of the inline meter can be swapped - allowing the grid to be connected to *either* the upper terminal blocks or the lower terminal blocks. For further details, see *Installing the Inline Meter* on page 17

NOTE

Up to three meters can be connected to a single inverter. Each meter should perform a different function. Any combination of Energy Net and Modbus/RS485 communication is supported.

Meter Connection Options

In a *single* inverter system, the inline meter is connected directly to an RS485 port of the inverter, or communicates over a wireless SolarEdge Energy Net channel.

> **NOTE**
>
> Hereafter, when an RS485 connection is mentioned in this installation guide, the user may opt alternatively to connect the inline meter to the inverter using a wireless SolarEdge Energy Net connection (the inverter should support Energy Net Communications).
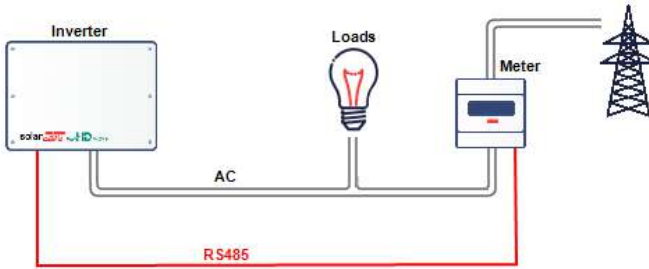
Figure 5: Single-inverter connection with export/import meter using RS485 link
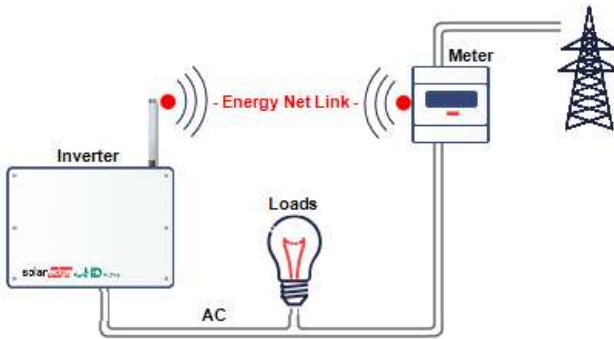
Figure 6: Single-inverter connection with export/import meter using SolarEdge Energy Net wireless link

In a *multiple* inverter system:

- The inline meter is connected to an RS485 port of one of the inverters.
- If the inverter has a second RS485 port, use this port to connect between the inverters.
- If the inverter has only one RS485 port, use an RS485 Plug-In (available from SolarEdge) to connect the inverters.

Meter Interfaces

This section describes the SolarEdge inline meter's interfaces.
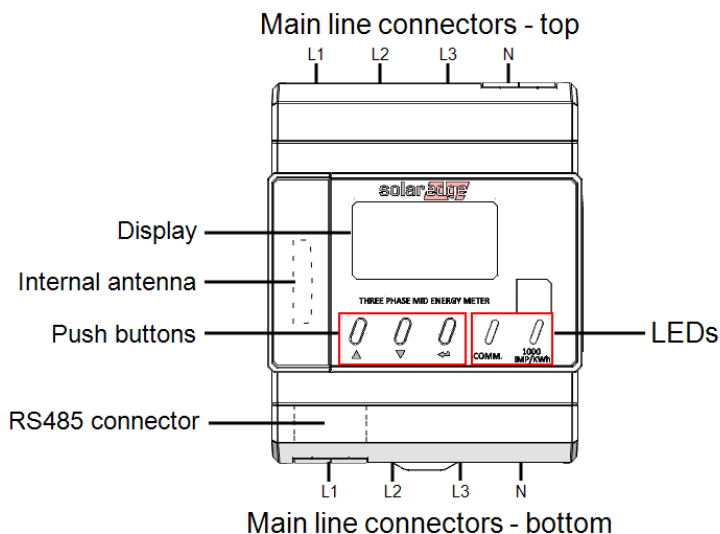
Figure 7: Inline Meter Interfaces

- **Main line connectors:** inputs/output terminal blocks
- **RS485:** detachable connector for wired connectivity with the inverter
- **Internal antenna:** for wireless connectivity with the inverter
- **Three push buttons:** to operate the inline meter display
- **LEDs:** used to monitor meter status:
    - Orange: meter operation
    - Blue: Energy Net/RS485 communication status
- **Display:** used to view energy readings and to configure the inline meter.

LEDs

The inline meter utilizes the orange and blue LEDs in the front of the unit (see the figure above) in order to indicate the meter's status:

- Orange: energy measurements
- Blue: Energy Net/RS485 communication status

Function	LED	Indication
Energy measurements	Orange	Blinking rate of 1000 pulses per hour indicates 1 kWh of measured energy.
Communication status	Blue	• Blinking: Meter is searching for an Energy Net network, or is not connected to RS485 bus. • Lit: Meter is in the reboot state, or has successfully paired with the Energy Net network, or was successfully connected to the RS485 bus. • Fast blinking during configuration of the inline meter.

Display Screen and Push Buttons

Display Screen

The inline meter display screen is used for basic configuration and operation of the meter, and for reapplying factory default settings.

Push Buttons

Button	Function	Combination
Left	• Up • Push the left button for 5 seconds in order to reset the meter.	Push the Left and Middle buttons simultaneously for 5 seconds in order to initiate an Energy Net network search session.
Middle	Down	
Right	Enter	

Energy Net Support

The inline meter supports wireless communication with the inverter over SolarEdge Energy Net. The inverter should be equipped with a communications board supporting Energy Net (and with the Energy Net module).

Access the following link for a list of all optional kits and their part numbers that can be used with the inverter:

https://www.solaredge.com/sites/default/files/
se-energy-net-plug-in-datasheet.pdf

Notes:

- All kits should be purchased separately.
- Solaredge Energy Net modules are supplied with an external antenna that is to be mounted on the inverter.
- Some Solaredge Energy Net modules and kits are supplied in sets of 5 units.

Chapter 2: Meter Installation

Installation Guidelines

AC wiring specifications:

- If an AC wiring extension is required, use the same type of AC wiring that is used in the cabinet.

RS485 wiring specifications:

- Cable type: Min. 3-wire shielded twisted pair (a 4-wire cable may be used)
- Wire cross-section area: 0.2-1 mm² (a CAT6 cable may be used)

NOTE
If using RS485 cable longer than 10 meters in areas where there is a risk of induced voltage surges by lightning, it is recommend to use surge protection devices. If grounded metal conduits are used for routing the communication wires, there is no need for a lightning protection device.

Additional Guidelines:

- The inline meter is considered "permanently connected equipment" and requires a disconnect means (circuit breaker, switch, or disconnect) and overcurrent protection (fuse or circuit breaker).
- The rating of any switches, disconnects, fuses, and/or circuit breakers is determined by the inline meter's current rating, the mains voltage, and the current interruption rating required.
- The switch, disconnect, or circuit breaker must be located near the inline meter and be easily operated.
- Use grouped circuit breakers when monitoring more than one line.
- The circuit breakers or fuses must protect the mains terminals labeled L1, L2, and L3. In the rare case in which neutral has overcurrent protection, the overcurrent protection device must interrupt both neutral and the ungrounded conductors simultaneously.
- The circuit protection / disconnect system must meet IEC 60947-1 and IEC 60947-3, as well as all national and local electrical codes.

Inline Energy Meter with SolarEdge Energy Net Communications

Installing and Connecting the Inline Meter

> **NOTE**
>
> Make sure the inline meter's rating is within maximum permitted current limitations.
>
> In export/import applications, check that the rating of the main circuit breaker is within maximum permitted current limitations.

Mounting the Inline Meter

→ To mount the inline meter on a DIN rail:

The inline meter is designed for permanent installation in indoor locations. It is intended for installation in switch cabinets or in small-installation distributors on a 35 mm mounting rail as per DIN EN 60715.

Mount the inline meter on the DIN rail as shown in the figure below. Fit the slot on the back of the meter over the DIN rail (see steps 1 and 2), and secure it in place on the DIN rail using the latching mechanism at the bottom of the meter.
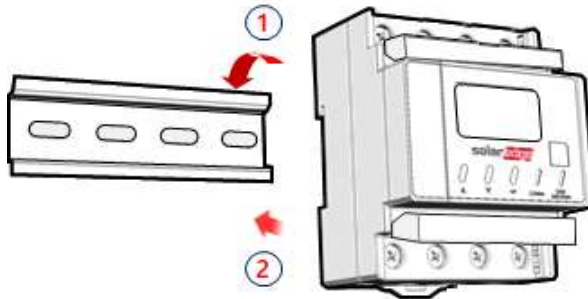

Figure 8: Mounting the inline meter on a DIN-rail

→ To detach the inline meter from the DIN rail:

1. Disconnect all AC wires and RS485 cable (if connected), or Energy Net antenna.

2. Detach the meter from the DIN rail by releasing the lever at the bottom of the meter, and then separating it from the rail.

Installing the Inline Meter

This section contains the following installation instructions:

- *General Installation Guidelines* on page 17
- *Installing the Three Phase Inline Meter* on page 18
- *Installing the Single Phase Inline Meter* on page 21

General Installation Guidelines

The valid wiring schemes are as follows:

- **Class B (meter accuracy: ±1%).** AC grid-side lines are connected to the upper terminal blocks of the inline meter.
- **Class A (meter accuracy: ±2%).** AC load-side lines are connected to the upper terminal blocks of the inline meter.

> NOTE
>
> The difference between accuracy classes A and B results from the differing current path through the meter in each scheme. For best performance, choose Class B if possible.

General guidelines for installing the inline meter:

1. Turn off the AC power (main circuit breakers) before connecting the inline meter.
2. Using one of the below wiring schemes, connect the AC wiring to the terminal blocks at the top and the bottom of the inline meter.

> NOTE
>
> Insert a flat-head screwdriver in the dedicated slot to open the screw covers. Use cable with a cross-section of 1.0 - 26.0 mm^2.

> CAUTION
>
> **DO NOT** use a circuit breaker with a rated current of more than 65A.

Installing the Three Phase Inline Meter
For Export/Import Metering Applications
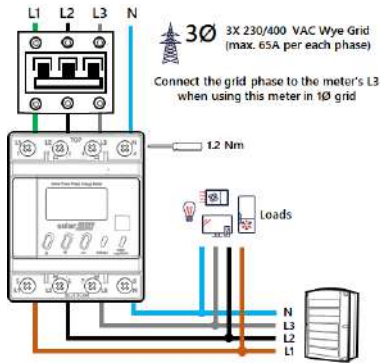
3Ø Meter Wiring - Accuracy class B (1%)   3Ø Meter Wiring - Accuracy class A (2%)

Figure 9: Export/Import Metering - Three Phase Wiring Schemes

NOTE
If the inline meter is connected to a single phase grid, connect phase 3 and N. The two installation schemes depicted in the figure above are valid for single-phase grids as well.

For Consumption Metering Applications

3Ø Meter Wiring - Accuracy class B (1%)   3Ø Meter Wiring - Accuracy class A (2%)

Figure 10: Consumption Metering - Three Phase Wiring Schemes

NOTE
If the inline meter is connected to a single phase grid, connect phase 3 and N. The two installation schemes depicted in the figure above are valid for single-phase grids as well.

For Inverter Production, Site Production, and External Production Metering Applications

3Ø Meter Wiring - Accuracy class B (1%)   3Ø Meter Wiring - Accuracy class A (2%)

Figure 11: Production Metering - Three Phase Wiring Schemes

NOTE
If the inline meter is connected to a single phase grid, connect phase 3 and N. The two installation schemes depicted in the figure above are valid for single-phase grids as well.

Installing the Single Phase Inline Meter

For Export/Import Metering Applications

1Ø Meter Wiring - Accuracy class B (1%)   1Ø Meter Wiring - Accuracy class A (2%)
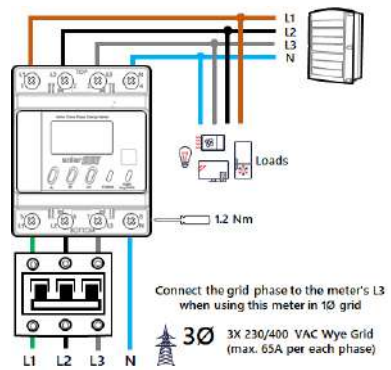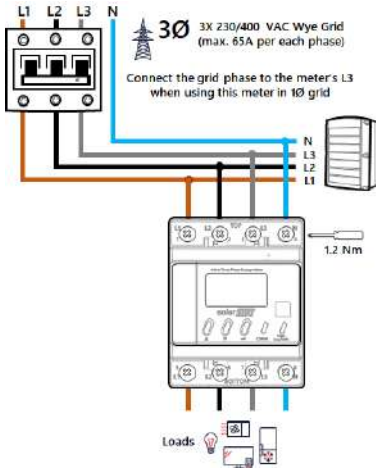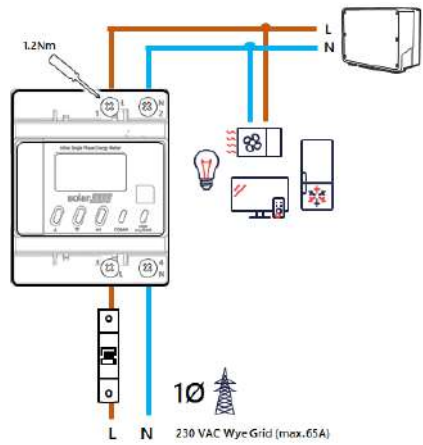

Figure 12: Export/Import Metering - Single Phase Wiring Scheme

For Consumption Metering Applications
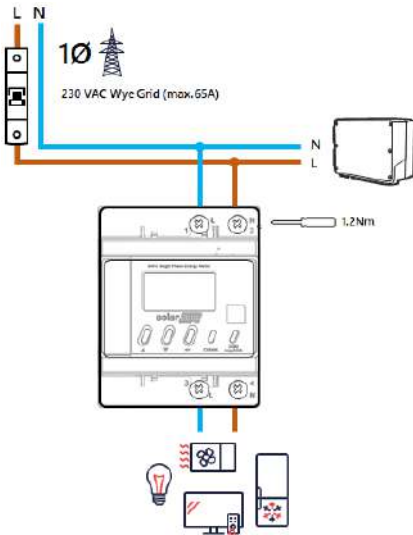
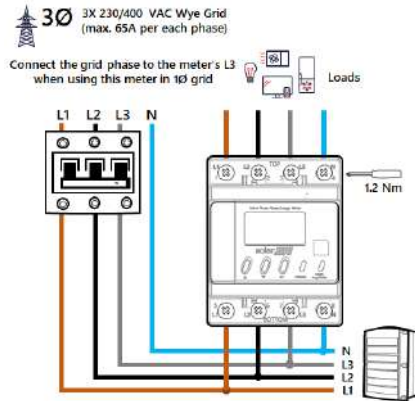1Ø Meter Wiring - Accuracy class B (1%)   1Ø Meter Wiring - Accuracy class A (2%)
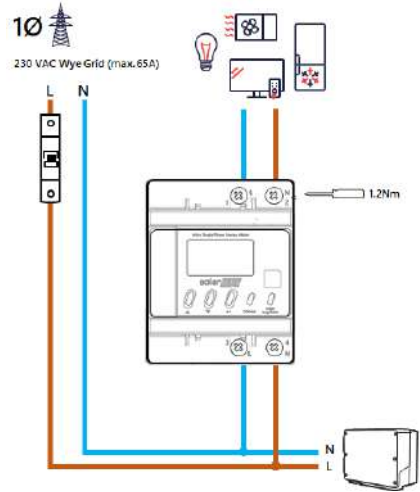
Figure 13: Consumption - Single Phase Wiring Scheme

For Production Metering Applications
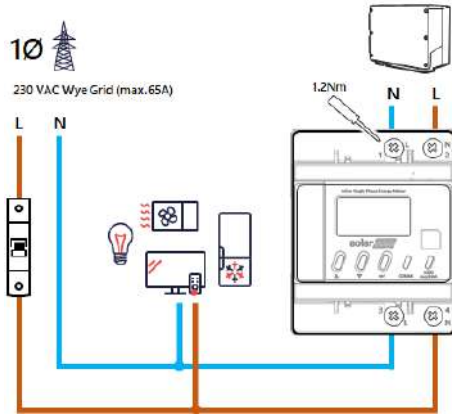
1Ø Meter Wiring - Accuracy class B (1%)   1Ø Meter Wiring - Accuracy class A (2%)

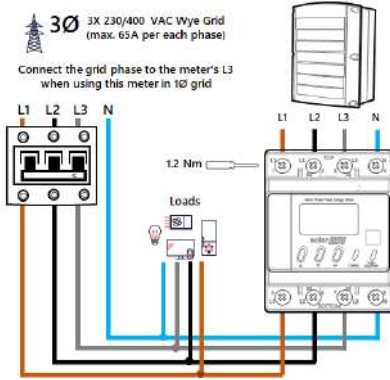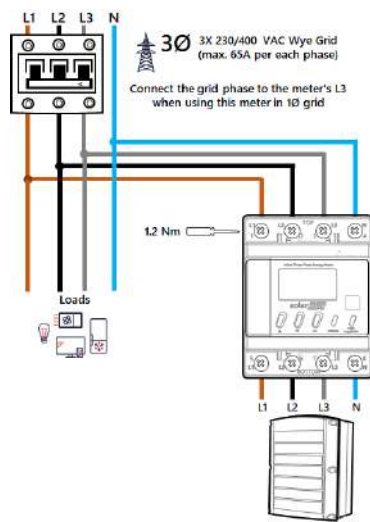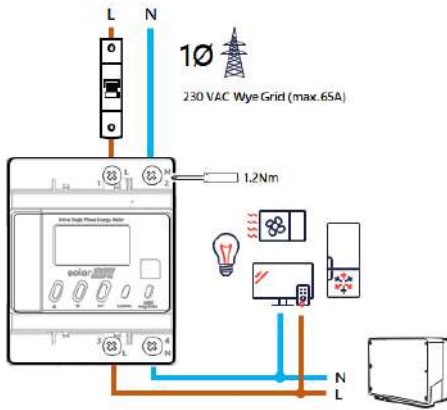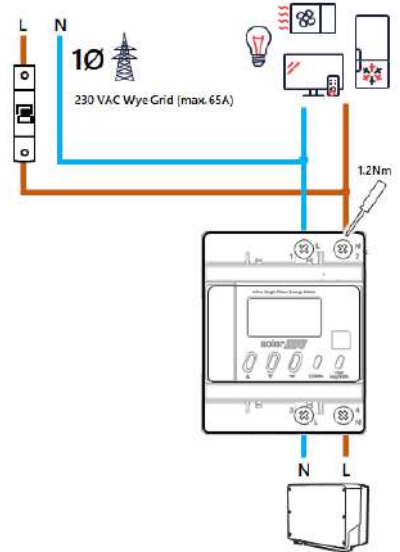Figure 14: Production Metering - Single Phase Wiring Scheme

Wired Connection of the Inline Meter and the Inverter (Optional)

You may opt to establish a wired, RS485 connection between the inline meter and the inverter, as shown in the figure below.
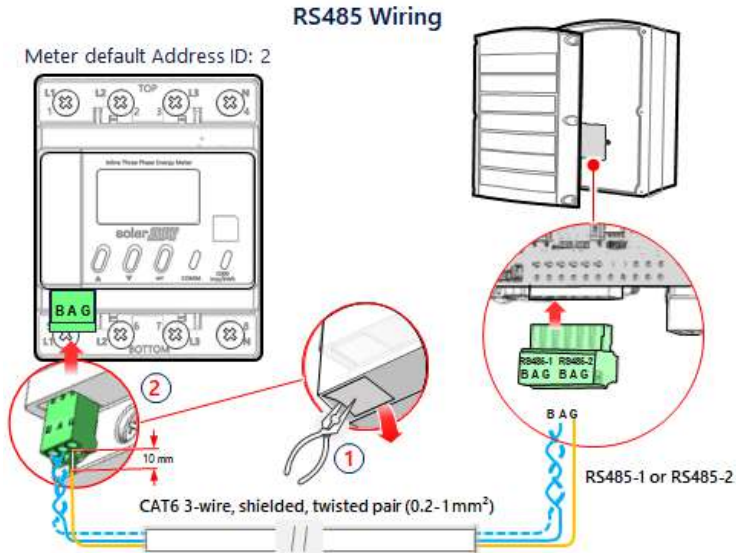
Figure 15: Wired connection between inline meter and inverter

→ To wire the inline meter's RS485 connection:

1. To establish RS485 communication with the inverter, connect the RS485 twisted pair cable to the 3-pin connector supplied with the inline meter, using a CAT6 cable:

   a. Detach the RS485 connector from the inline meter.

   b. Prepare the three wires, exposing 10 mm of insulation .

   c. Connect the wires to the A+ and B- terminals. Make sure the wires are twisted.

   d. Connect the shield to the G terminal.

   e. Re-attach the RS485 connector to the meter.

> **NOTE**
>
> The maximum supported length of the RS485 cable is 1000 meters.

→ To wire the inverter's RS485 connection:

1. Prepare to connect to one of the available RS485 ports of the device, as shown below:

   - Inverter RS485-1. Pull out the RS485 connector located on the communication board.
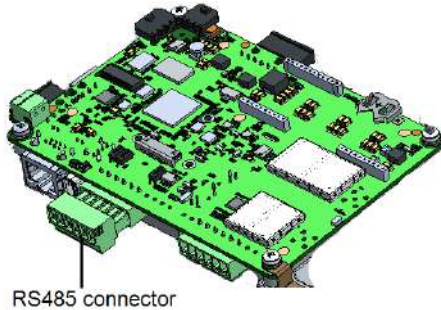
Figure 16: Inverter RS485 connectors

2. Connect the meter's RS485 B, A, and G connectors to the B, A, and G connecters in the inverter.

3. If the inverter is at the end of the RS485 bus, terminate the bus by switching a termination DIP switch inside the inverter to ON (top position).

> **NOTE**
>
> For StorEdge inverters, set a termination DIP switch inside the inverter to OFF.
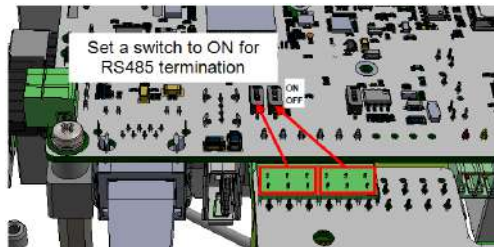
Figure 17: RS485 termination switch on inverter

Chapter 3: Configuration

SolarEdge Device Firmware Version

To ensure proper communication with the inline meter, make sure that the inverter communication board firmware (CPU) version is up-to-date.

NOTE

If the inverter uses an earlier firmware version, it will automatically upgrade the CPU to the required version upon connection of the inverter to SetApp. In the event that an upgrade is required, open SetApp, making sure that your smart phone has an Internet connection. This will enable it to download the most up-to-date CPU version.

→ To check the inverter CPU version using SetApp:

1. Select **Commissioning ➔ Information** to view the CPU Version.

Information	
CPU Version	**4.13.xx**
DSP1 Version	**1.0210.1066**
DSP2 Version	**2.0052.0410**
Serial Number	**7Fxxxxxx-yy**
Hardware IDs	⟩
Error Log	⟩
Warning Log	⟩

Device Configuration

This section describes basic configuration of SolarEdge inverters for use of the inline meter. In addition, a configuration that is specific to the application being used is required in some cases. Refer to the following documents:

➤ Export Limitation - https://www.solaredge.com/sites/default/files/feed-in_limitation_application_note.pdf

To configure two connected meters, refer to *Installing Multiple Meters* on page 39.

NOTE
Calculated meter readings, such as self-consumption, are calculated using the data measured by the inline meter and the inverters. Calculated meter readings are only sent when Energy Manager is enabled (for details refer to: https://www.solaredge.com/sites/default/files/feed-in_limitation_application_note.pdf).

Device Configuration using SetApp

Configuring the Inline Meter Connection using SetApp

→ To configure the inline meter for RS485 communication using SetApp:

1. From the SetApp main menu, select **Site Communication**, and select the port to which the inline meter is connected - **RS485-1** or **RS485-2**.

2. Select **Protocol >> Modbus (Multi-Device)**

3. Return to the RS485-x Menu and select **Add Modbus Device >> Meter**. A meter identified as "Meter n" (where n = 1, 2, 3...) is created. The RS485-x Menu reappears.

4. Select **Meter n**. The RS485-x Meter n Menu appears.

5. Select **Device ID** and enter the Modbus address corresponding to the inline meter's Modbus address. You can view and change the meter's Modbus address using the meter's display and push buttons. Refer to *Inline Meter Display Screen Operation* on page 31.

6. Select **Meter Function**, and choose one of the following options:

   - **Inverter Production:** The inline meter is installed at the inverter output and reads the energy produced by the inverter (valid for version 4.14.xx and above).

   - **Export+Import**: The inline meter is installed at the grid connection point and reads both export and import energy.

   - **Consumption**: The inline meter is installed at the load consumption point and reads the energy consumed by the site.

   - **Site Production:** The inline meter is installed at the inverter output and reads the energy produced by inverters at the site (valid for version 4.14.xx and above).

   - **Ext. Production**: The inline meter is used for export limitation with 3rd party generators and for AC coupling with non-SolarEdge inverters (valid for version 4.14.xx and above).

7. Select **AC-Grid Connection (Top / Bottom)** and specify whether the AC grid is connected to the upper terminal blocks or the bottom terminal blocks.

Configuring the Inline Meter Connection using the SetApp Device Manager

→   To configure the inline meter for Energy Net communication using the SetApp Device Manager:

1. From the SetApp Commissioning menu, select **Device Manager**.

2. From the Device Manager's New Devices page, select **Inline Meter >> Configure**.

3. Select **Meter Function**, and choose one of the options listed in step 5 of *To configure the inline meter for RS485 communication using SetApp:* on page 28. If the "Production" function was selected, enter the **Serial Number** of the inverter to be metered.

4. Select **AC-Grid Connection (Top / Bottom)**, and specify whether AC inputs are connected to the upper terminal blocks or the bottom terminal blocks.

5. To complete the configuration, select **Set and View Status** to view inline meter status details.

Notes:

- During the SetApp Device Manager's operation, the inline meter's blue LED will blink rapidly, signaling that the meter is being configured.

- If the AC grid is connected to the upper terminal blocks, the meter accuracy is 1% (Class B). If the AC grid is connected to the lower terminal blocks, the meter accuracy is 2% (Class A).

- Once powered on, the inline meter will search for an Energy Net network to join, for up to 48 hours. After 48 hours, the meter will stop searching for a network. Push the Up and Down buttons simultaneously for 5 seconds in order to initiate another search session.

- Push the Up and Down buttons simultaneously for 5 seconds in the following cases:
    - When a new communications board is installed in the inverter
    - When connecting to a new inverter
    - When switching from RS485 configuration to Energy Net

- To switch connectivity from RS485 to Energy Net, use SetApp to remove the RS485 meter from the connected device list. Push the Up and Down buttons simultaneously for 5 seconds in order to initiate Energy Net search session. Use the SetApp Device Manager to connect the meter to the inverter (see *To configure the*

inline meter for Energy Net communication using the SetApp Device Manager: on page 29).

- To switch connectivity from Energy Net to RS485, use SetApp to remove the Energy Net meter from the connected device list. Connect the RS485 cable and use SetApp to configure the meter (see *To configure the inline meter for RS485 communication using SetApp:* on page 28).

Inline Meter Display Screen Operation

The inline meter supports initial meter configuration and operations using the meter's display screen and push buttons. To change settings, unlock the meter using the "1231" password. Supported operations include:

- Factory reset. Resetting the meter's configuration parameters and energy counter to factory default values.

- The main screen displays export and import power readings, as shown in the figure below.
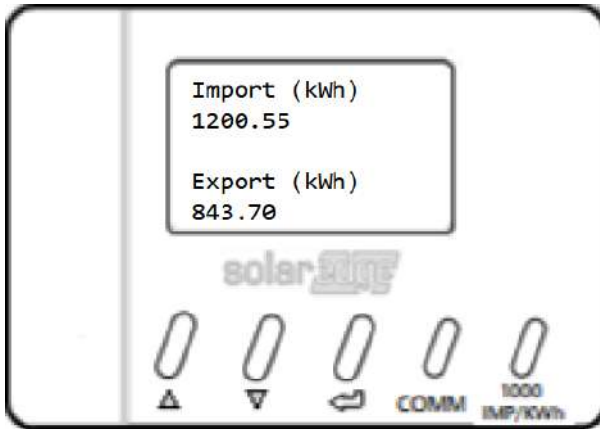
Figure 18: Display Screen Export and Import Power Readings

- **MODBUS ID** - This operation is used to set the inline meter's expected Modbus ID. The Modbus ID should match the meter's Modbus ID as configured in SetApp.

- Select **RS485 Term** to set the inline meter's RS485 termination (120 ohm) to ON or OFF (default = ON).

- Select **Info** to view the inline meter's firmware version.

The Inline Meter display screen automatically returns to the default Export/Import Energy Values screen following 30 seconds of inactivity. When the default screen is displayed, the display screen shuts down following 120 seconds of inactivity. Press any key to light the display.

A guide to display screen navigation appears in the figure below.
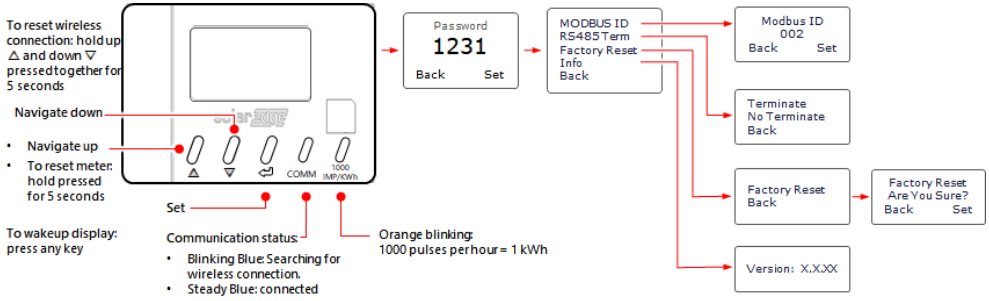
Figure 19: Display Screen Navigation

Verifying the Inline Meter Connection

Verifying the Inline Meter Connection using SetApp

→ To verify the inline meter connection using SetApp:

1. From the SetApp main menu, select **Status**.
2. If the inline meter is connected to the inverter via RS485:
   On the Status page, scroll down to the **Communication** status section. Check that one or more meters is connected to the RS485-1 or RS485-2 bus.

Communication		
LAN Connected	**RS485-1** Modbus 2 of 2	**RS485-2** SE Follower None
Cellular N/A	**Wi-Fi** NC	**ZigBee** NC

3. Continue scrolling to the **Meters** section. If there is more than one meter/function, there is a status sub-section for each one. An example appears below. The following information is displayed:

   ▬ **Type and function**: Displays the function performed by the inline meter.

   ▬ **Status**:

      ▬ Displays 'OK' if the meter is communicating with the inverter.

      ▬ <**Error message**>: If an internal error occurs in the meter, it will be displayed here. To resolve the error, refer to *Troubleshooting Meter Connection* on page 36.

   ▬ **Power**: The total power read by the meter

   ▬ **Energy**: The total energy read by the meter

Meters	
Production Meter	
SN: XXXXXXXX	
RS485-2	**Status**
Modbus ID #2	OK
Power	**Energy**
7.60 kW	13.68MWh
Export Meter	
SN: XXXXXXXX	
GPIO S0 meter	
1000 pulses per kWh	
Power	**Energy**
7.60 kW	13.68MWh

Verifying the Meter Connection using SetApp When Connected via Energy Net

→ To verify the inline meter connection using the SetApp Device Manager:

1. From the SetApp Commissioning menu, select **Device Manager**.
2. On the Device Manager page, select a specific meter (in case there is more than one meter installed). The following information is displayed:
   - **Meter Function**: Displays the function performed by the inline meter.
   - **Communication Type**: The method of communication with the inverter - either SolarEdge Energy Net (wireless) or RS485 (wired).
   - **Serial Number**: The serial number of the inline meter.
   - **Power**: The total power read by the meter.
   - **Energy**: The total energy read by the meter.
   - **FW Version**: The inline meter's firmware version.
   - **Address**: The SolarEdge Energy Net network address, or Modbus ID.
3. Select **View Status** to view meter status details:
   - Per phase: current, voltage, power
   - Total power and energy values
   - If the export/import metering function is in use, an arrow indicates the instantaneous energy direction flow, per phase.
4. Additional options:
   - **Remove Device**: Select to delete the meter.
   - **More Information**: Select to receive additional operational guidance regarding the meter.

Appendix A: Troubleshooting Meter Connection

This section describes how to troubleshoot meter-related installation and performance errors.

For troubleshooting dual-meter connections, refer to *Installing Multiple Meters* on page 39.

Troubleshooting the Meter using SetApp

Power Failure

If the inline meter does not power on, check the following:

- Make sure that the main circuit breaker is switched to ON.
- If the inline meter is functioning as a three phase meter in a single phase grid:
    - Make sure that the phase AC line is connected to the L3 connector on the meter.
    - Make sure that the neutral AC line is connected to the N connector on the meter.

Communications Failure

The following are indications of a connectivity failure between the inverter and the meter:

- If **NC** (not connected) appears for a meter in the RS485-1 or RS485-2 sub sections of the Communication page.

Communication		
LAN Connected	**RS485-1** Modbus 2 of 2	**RS485-2** SE Follower None
Cellular N/A	**Wi-Fi** NC	**ZigBee** NC

- If the following error message appears in the bottom left-hand corner of the Inverters section of the Status page: "Error 3x6E: Meter Comm. Error"
- If the status in the Meters section of the Status page is "Comm. Error"

Meters	
Export Meter	
RS485-1	**Status**
Modbus ID #2	Comm. Error
Power	**Energy**
7.60 kW	8.42 MWh

- If the inline meter is not detected by Energy Net, "New Device" will not appear in SetApp under "Device Manager" in the Commissioning page.

If a connectivity failure occurs, check the following:

- If Energy Net is employed:
  - Make sure that an Energy Net module (see *Energy Net Support* on page 14) and an external antenna are installed in the inverter.
  - If the inline meter is installed in a metal cabinet, or you suspect that there is a range issue, an external antenna for the meter may be required (see the appendix *Supplemental Documentation* on page 43).
- If RS485 wiring is used to connect the meter and the inverter, check that the wiring is in accordance with the guidelines in *To wire the inverter's RS485 connection:* on page 25
- Check that the meter is configured as required in the chapter *"Configuration" on page 26.*
- Check for water damage or sealing problems:
  - Inspect the entire conduit run for possible points of water penetration, and fix leaks.
  - Ensure that proper outdoor rated components are used.
- Use a Voltmeter to measure the voltage on the meter's AC wiring. The L1 – L2 – L3 line to line voltage should be 208-240 Vac.

The Energy value is not advancing

Make sure the correct meter function is selected.

Make sure that the AC Grid Connection is configured correctly.

Check the Energy value in the Meters section of the Status page, as shown in the figure below:

Meters	
Export Meter	
RS485-1	**Status**
Modbus ID #2	Comm. Error
Power	**Energy**
7.60 kW	8.42 MWh

If the Energy [in MWh] value displays a steady value even though the the site is consuming power, check the following:

- There are no loose connections at the inverter connectors and at the meter, specifically the AC wiring on the meter's AC wiring connector.
- Check for water damage or sealing problems:
  - Inspect the entire conduit run for possible points of water penetration, and fix leaks.
  - Ensure that proper outdoor rated components are used.

Appendix B: Installing Multiple Meters

You can connect up to three meters on the same RS485 bus and over SolarEdge Energy Net.

To connect two meters, install two wires into each screw terminal by twisting the wires together, inserting them into terminal, and securely tightening. RS485 wiring is daisy-chained between meters, as described in the following figure:
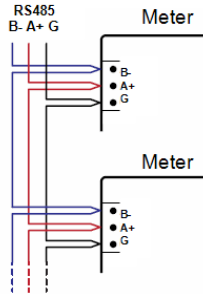
Figure 20: RS485 chain of meters

Connecting Two Meters

$\rightarrow$ To connect the inline meter and an additional meter to the inverter on the same RS485 bus:

1. Connect the twisted pair wiring to the meters as shown in the figure above.

2. Wire the RS485 connections between the meters and the inverter.

3. For a SolarEdge energy meter with Modbus connection, set the 120 ohm termination DIP switches as follows.

   a. If the meter is the closest to the inverter, the meter should be set for **No Termination**. Both switch 1 and switch 2 should be in the UP position.

   b. If the meter is the furthest from the inverter, the meter should be set for **Termination**. Both switch 1 and switch 2 should be in DOWN position.

4. Set Modbus IDs to available addresses as follows:

   a. For Modbus energy meters, set the address using the DIP switches.

   b. For inline meters, set the address using the meter's LCD display and buttons.

Configuring the Dual-Meter Connection

Configuring Dual-Meter Connection Using SetApp

In the sample configuration described below, a SolarEdge energy meter with Modbus connection is configured as a production meter, and is set to address 1, while an inline meter is configured as an export/import meter, and is set to address 2.

→ To configure the SolarEdge energy meter with Modbus connection using SetApp:

1. Verify that the meter at address 1 is configured as a production meter. From the SetApp main menu, select **Communication ➔ RS485-x ➔ Meter 1**
2. Verify the value of the following parameters:
   - **Meter Function ➔ Inverter Production**
   - **Protocol ➔ SolarEdge**
   - **Device ID ➔ 1**
3. Select **Meter 2** to configure the export/import meter in the following steps:
4. Select **Meter Function**, and select **Export+Import**.
5. Set the inline meter's Modbus ID to address 2.

Verifying Meter Connections

Verifying the Meter Connections using SetApp

To verify the connectivity of two meters using SetApp, refer to *Verifying the Inline Meter Connection using SetApp* on page 33

Troubleshooting Dual-Meter Connections

Troubleshooting Dual-Meter Connections using SetApp

To troubleshoot the connectivity of two meters using SetApp, refer to *Troubleshooting the Meter using SetApp* on page 36

Appendix C: Monitoring Platform - Meter Data

If your device is connected to the SolarEdge server, you can view the meter's readings in the monitoring platform. Verify that the meter type is set correctly in the Admin page > Logical Layout > Meter details:

Figure 21: Setting the Meter details in the monitoring platform

Calculated meter readings (also referred to as "virtual meters"), such as self-consumption, are calculated using the data measured by the meter and the inverters.

The data from the inverters and from installed meters is displayed in the Dashboard and Charts tabs of the monitoring platform. The displayed data depends on the meter(s) location: grid connection point (export), or load consumption point (consumption). The following tables detail the displayed information per meter location.

No meter installed:

Data	Displayed in Monitoring Dashboard	Displayed in Monitoring Charts
Production (inverter/site)	✔	✔
Consumption	X	X
Self-consumption	X	X
Export	X	X
Import	X	X

Export meter:

Data	Displayed in Monitoring Dashboard	Displayed in Monitoring Charts
Production (inverter/site)	✔	✔
Consumption	✔ (calculated)	✔ (calculated)
Self-consumption	✔ (calculated)	✔ (calculated)
Export	X	✔
Import	X	✔

Consumption meter:

Data	Displayed in Monitoring Dashboard	Displayed in Monitoring Charts
Production (inverter/site)	✔	✔
Consumption	✔	✔
Self-consumption	✔ (calculated)	✔ (calculated)
Export	X	✔ (calculated)
Import	X	✔ (calculated)

Appendix D: Supplemental Documentation
Inline Energy Meter with SolarEdge Energy Net Communications

For complete technical specifications, see the following datasheet:

https://www.solaredge.com/sites/default/files/se-Inline-energy-meter-datasheet.pdf

For installation guidelines on the inline meter's external antenna kit, see the following installation guide:

https://www.solaredge.com/sites/default/files/se-inline-energy-meter-antenna-installation.pdf

![solaredge logo]

Support Contact Information

If you have technical problems concerning SolarEdge products, please contact us:

https://www.solaredge.com/service/support

Before contact, make sure to have the following information at hand:

- Model and serial number of the product in question.
- The error indicated on the SetApp mobile application, on the monitoring platform, or by the LEDs, if there is such an indication.
- System configuration information, including the type and number of modules connected and the number and length of strings.
- The communication method to the SolarEdge server, if the site is connected.
- The product's software version as it appears in the status screen.