System Monitoring

SUNNY SENSORBOX

Installation Guide

Sensorbox-IEN084413 | 98-0001113 | Version 1.3

EN

Table of Contents

1 Notes on this Manual. 7
1.1 Area of Validity. 7
1.2 Target group 7
1.3 Symbols Used 7
2 Security 8
2.1 Appropriate Usage 8
2.2 Safety Precautions. 9
3 Unpacking. 10
3.1 Scope of Delivery 10
3.2 Identifying the product 11
3.2.1 Type plate 11
3.2.2 Firmware version 11
4 Mounting the Device 12
4.1 Selecting the Mounting Location. 12
4.1.1 Sunny SensorBox 12
4.1.2 RS485 Power Injector 12
4.1.3 Module Temperature Sensor. 12
4.2 Mounting the Sunny SensorBox 13
4.2.1 Mounting on a Module Frame 14
4.2.2 Mounting on a Rafter 15
4.3 Mount the RS485 Power Injector 17
4.3.1 Wall Mounting 17
4.4 Installing the Module Temperature Sensor 19

5 Electrical Connection 21
5.1 Connection Area Overview 22
5.1.1 Sunny SensorBox 22
5.1.2 RS485 Power Injector 23
5.2 Connecting the Sunny SensorBox to the RS485 Communication Bus 23
5.2.1 Connect the RS485 Power Injector to the RS485 Devices 24
5.2.2 Connect the RS485 Power Injector to the Sunny SensorBox 26
5.2.3 Connecting the Sunny SensorBox to other Sunny SensorBox units. 29
5.2.4 Connect the Sunny SensorBox to an additional RS485 bus device.. 33
5.2.5 Terminating the RS485 Bus 35
5.3 Connect the Module Temperature Sensor 35
6 Commissioning 37
6.1 Connecting the RS485 Power Injector to the Power Supply. . . 37
7 Maintenance and Care 38
7.1 Maintenance. 38
7.2 Care 38
8 Decommissioning 39
8.1 Remove the Sunny SensorBox 39
8.2 Remove the RS485 Power Injector 39
8.3 Remove the Sensors 40
8.4 Pack the Sunny SensorBox and the Sensors 40
8.5 Disposal of the Sunny SensorBox and the Sensors. 40

9 Troubleshooting 41
9.1 Sunny SensorBox 41
9.1.1 Meaning of the LEDs 41
9.2 Ambient temperature sensor 42
9.3 Anemometer 42
9.4 Integrated Irradiation Sensor 42
9.4.1 Connection of the Integrated Irradiation Sensor 43
10 Channel List 44
10.1 General Parameters 44
10.2 Internal Solar Irradiation Sensor 45
10.3 Module Temperature Sensor 45
10.4 Ambient temperature sensor 45
10.5 External Irradiation Sensors 46
10.6 Anemometer 46
11 Technical Data 47
12 Accessories 50
12.1 Mounting accessories 50
12.2 RS485 Power Injector 50
12.3 Sunny SensorBox Seals 50
12.3.1 Scope of Delivery 51
12.3.2 Changing cable screw connection seals 51
12.4 Ambient temperature sensor 53
12.4.1 Scope of Delivery 53
12.4.2 Recommended Cables 53
12.4.3 Selecting the Mounting Location 54
12.4.4 Mount the ambient temperature sensor 54
12.4.5 Connect the ambient temperature sensor to the Sunny SensorBox 55
12.4.6 Technical Data for the Ambient Temperature Sensor 56

12.5 Anemometer 57
12.5.1 Scope of Delivery 57
12.5.2 Recommended Cables 57
12.5.3 Selecting the Mounting Location 58
12.5.4 Mount the Anemometer 59
12.5.5 Connect the Anenometer to the Sunny SensorBox 60
12.5.6 Technical Data for the Anenometer 61
13 Contact 62

1 Notes on this Manual

This manual describes the installation, electrical connection, and commissioning of the Sunny SensorBox and the external module temperature sensor. Store this manual where it will be accessible at all times.

1.1 Area of Validity

This manual applies to Sunny SensorBox models with firmware version 1.3 or later and hardware version B3 or later.

1.2 Target group

This manual is intended for the installer.

1.3 Symbols Used

The following types of safety precautions and general information appear in this document as described below.

DANGER!

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

WARNING!

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

CAUTION!

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

ATTENTION!

ATTENTION indicates a situation that can result in property damage if not avoided.

Note

A note provides tips that are valuable for the optimal installation and operation of your product.

2 Security

2.1 Appropriate Usage

With the Sunny SensorBox and the external sensors you can acquire environmental data at your PV system site which is relevant to performance monitoring.

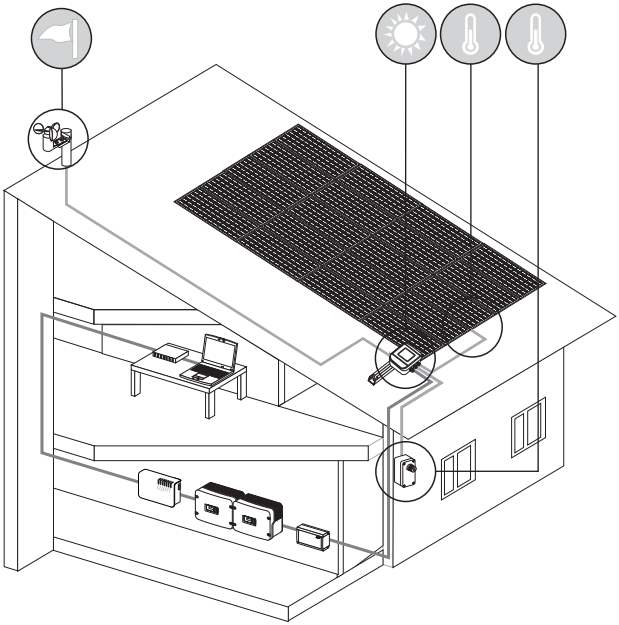
For this purpose, the Sunny SensorBox has an integrated irradiation sensor as a standard feature, as well as an external module temperature sensor. In addition, you also have the option of connecting an ambient temperature sensor and/or an anemometer to the Sunny SensorBox.

The Sunny SensorBox is integrated into a RS485 communication bus. A maximum of 50 devices are allowed onto a RS485 bus (including the Sunny SensorBox).

The RS485 Power Injector provides the Sunny SensorBox with electricity, and must be mounted indoors. Up to 5 Sunny SensorBox devices can be connected to an RS485 Power Injector.

The Sunny SensorBox sends the sensor data to the SMA communication devices via an RS485 interface.

- Sunny WebBox (Sunny WebBox firmware version 1.30 and above)
- Sunny Boy Control/ Plus (Sunny Boy Control firmware 5.0 and above and Sunny SensorBox hardwareversion B2 and above)



On the basis of the irradiation intensity data (W/m^2) from the integrated irradiation sensor, and the recorded output of the PV system over the course of one day, you can make a comparison between the PV output produced and the measured irradiation intensity. If this data is observed over a longer period of time, this system constitutes a practical method of identifying a malfunction in the PV system. Visualization of the collected Sunny SensorBox data is possible with Sunny Portal or with Flashview.

The Sunny SensorBox is only suitable for use with original accessories from SMA Solar Technology AG or with accessories recommended by SMA Solar Technology AG.

In addition, observe the Sunny SensorBox technical data.

2.2 Safety Precautions

Follow all safety precautions in this manual. Failure to follow these instructions could result in damage to the device and cause personal injury.

DANGER!

Risk of lethal electric shock when opening the inverter.

- Work on the inverter may only be carried out by qualified electrical personnel.
- Disconnect the inverter on the AC and DC sides as described in the inverter manual.

WARNING!

Risk of lethal electric shock when working on the inverter.

- All electrical connections are to be carried out by qualified electricians exclusively.

DANGER!

Death hazard due to a fall from a great height.

- Work on rooftops entails a safety risk, and requires that special safeguards be implemented. Thus, work on rooftops should be performed by an accordingly qualified electrician.

ATTENTION!

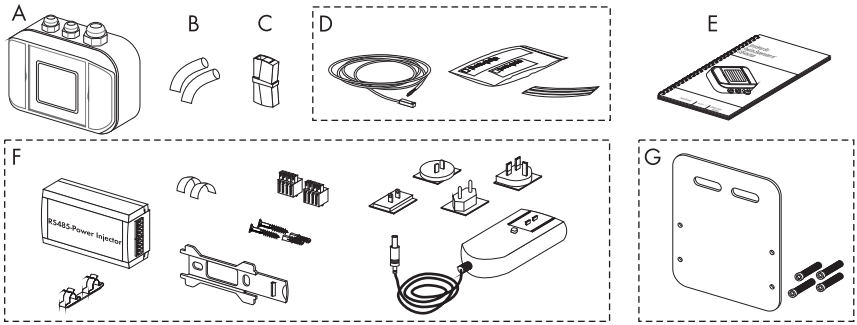
Destruction of the PV system by lightning

- All devices which are mounted on rooftops must be integrated within the existing lightning protection for the PV system.

3 Unpacking

3.1 Scope of Delivery

Check the delivery for completeness and for any external damage. Please contact your dealer if you find any damage or if the delivery is incomplete.



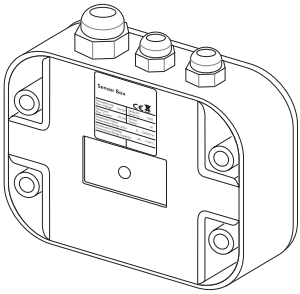
A	1	Sunny SensorBox (with integrated irradiation sensor)
B	2	insulating tubes
C	1	Connection terminal
D	1	Module Temperature Sensor including 1 heat-conducting adhesive (resin and hardener) and 2 adhesive band strips
E	1	installation guide
F	1	RS485 Power Injector including 2 plugs, 1 bracket, 2 conducting adhesive foils, 2 screws, 2 dowels, 1 shield clamp and 1 plug-in power supply with 4 adapters (only with the order option SUNNYSENSOR-1xxxx)
G	1	retaining plate for module frame mounting includes 4 M4 allen screws (only with order option SUNNYSENSOR-x1xxx)

3.2 Identifying the product

3.2.1 Type plate

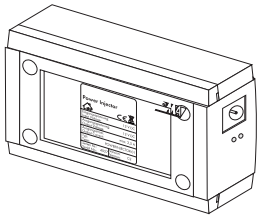
Sunny SensorBox

You can identify the Sunny SensorBox using the type plate (see figure to the right). The name plate is located on the underside of the Sunny SensorBox.



RS485 Power Injector

You can identify the RS485 Power Injector using the type plate. The type plate is located on the underside of the RS485 Power Injector.



3.2.2 Firmware version

The firmware version of the Sunny SensorBox is displayed via the communication device as channel "FwVer".

4 Mounting the Device

This section describes the installation of the Sunny SensorBox, the RS485 Power Injector and the module temperature sensors.

4.1 Selecting the Mounting Location

4.1.1 Sunny SensorBox

Installation location requirements for the Sunny SensorBox:

- The Sunny SensorBox is suitable for outdoor installation (IP65).
- The ambient temperature must be between -25 °C and 70 °C.
- If the integrated irradiation sensor is used, the Sunny SensorBox must be installed at the same tilt angle and facing the same direction as the solar power system in order to attain measurement results that can be compared with the system yield.
- The installation location is to be selected according to the sensors used, taking into account the sensors' maximum cable lengths.
- Module temperature sensor: prefabricated cable length 2.5m. The cable may not be extended or cut.
- Ambient temperature sensor: maximum cable length 30m.
- Wind sensor: prefabricated cable length 3m (the cable can be shortened or extended to a maximum of 30m).
- The maximum cable length from the final Sunny SensorBox to the RS485 Power Injector is 150m.
- The maximum cable length of the entire RS485 communication bus is 1,200m.

4.1.2 RS485 Power Injector

Installation location requirements for the RS485 Power Injector:

- The RS485 Power Injector is only suitable for indoor installation.
- In the vicinity of a 230V/110V socket (cable length of the power supply approx. 180cm).
- Protect the RS485 Power Injector from dust, moisture and corrosive substances.
- the ambient temperature must lie between -20 °C and +65 °C
- The maximum cable length from the final Sunny SensorBox to the RS485 Power Injector is 150m.
- The maximum cable length of the entire RS485 communication bus is 1,200m.

4.1.3 Module Temperature Sensor

Installation location requirements for the module temperature sensor:

- Select a solar cell which is never in the shade during the day.
- The module temperature sensor is adhered to the rear of the solar module.
- Retain the prefabricated cable length of 2.5m, it must not be increased or reduced.

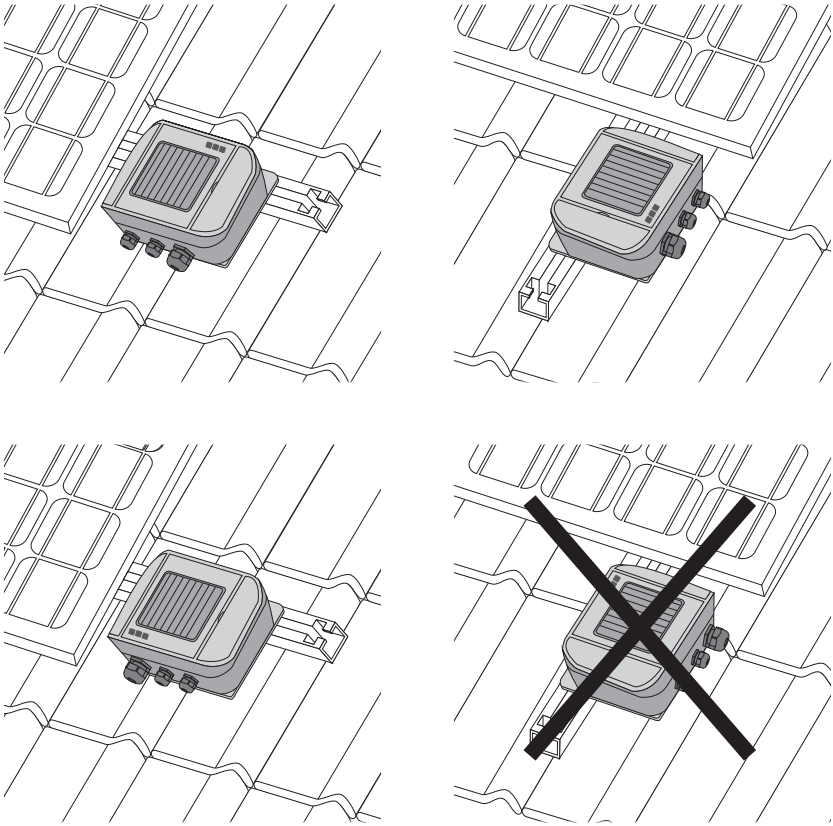
4.2 Mounting the Sunny SensorBox

The Sunny SensorBox can be mounted on a module frame, or on a rafter.

ATTENTION!

Damage to the Sunny SensorBox due to infiltration of water.

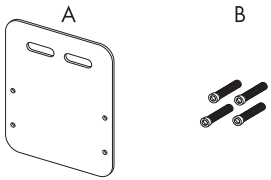
- The Sunny SensorBox may be installed in one of three different alignments.
- The Sunny SensorBox must not be installed vertically with the SMA logo at the top, as this allows water to enter the device (ventilation membrane).



4.2.1 Mounting on a Module Frame

Mounting accessories provided

Only with order option SUNNYSENSOR-x1xxxx

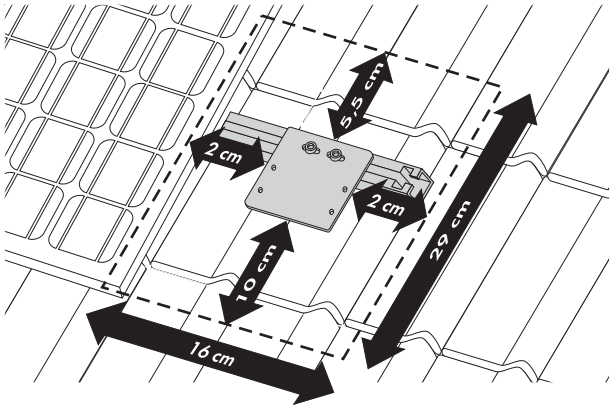


A	1	Mounting plate
B	4	M4 allen screws

It is possible to mount the device on a module frame if the module frame protrudes about 16cm out of the side of the modules. The mounting plate is also available by itself, see section 12 „Accessories“ (50).

Mounting the Sunny SensorBox onto the Module Frame

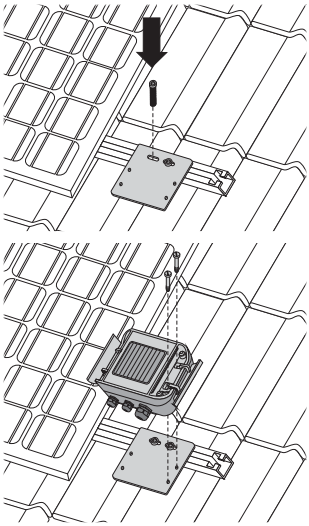
1. Determine the mounting location considering the necessary space and prescribed orientation of the Sunny SensorBox (see page 13).



2. Fasten the mounting plate onto the module frame using suitable screws and slot nuts (provided by the module frame manufacturer).

   Usually, screws up to a maximum size of M10 fit into the module frame manufacturer's slot nuts.
3. Open the side flaps of the Sunny SensorBox using the cutouts.
4. Fasten the Sunny SensorBox onto the mounting plate using the screws provided. Consider the orientation of the Sunny SensorBox (see page 13).
5. Carry out the Sunny SensorBox connections (see section 5 „Electrical Connection“ (21)).

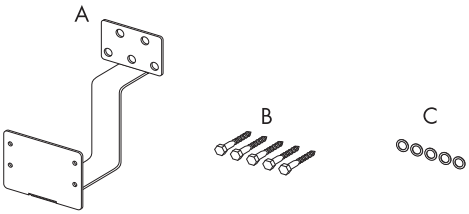
☑ The Sunny SensorBox is now mounted on the module frame.



4.2.2 Mounting on a Rafter

Optional mounting accessories

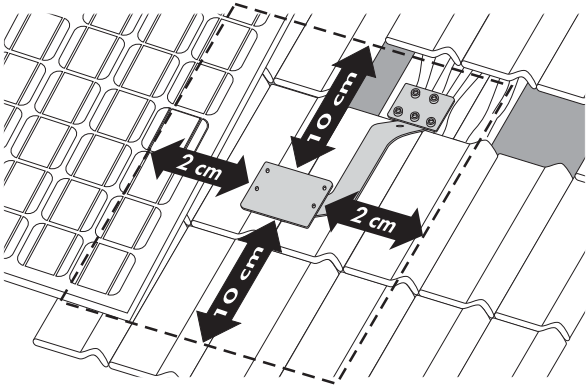
SMA order number: Roofann-Ssensor



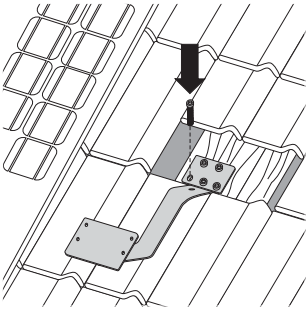
A	1	Roof bracket
B	5	Allen wood screws
C	5	washers

To mount on a rafter, you need the optional roof bracket (see section 12 „Accessories“ (50)).

1. Determine the mounting location considering the necessary space and prescribed orientation of the Sunny SensorBox (see page 13).

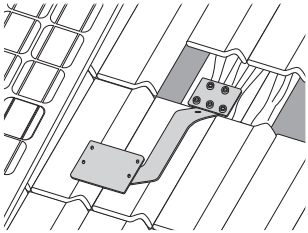


2. Remove the tiles in the installation area, so that the rafter is exposed.
3. Attach the roof bracket to the rafter using the screws and washers provided.



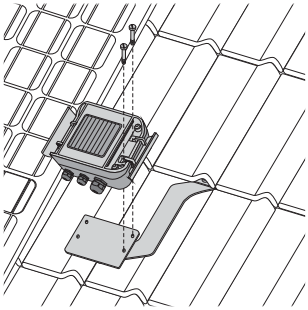
4. Integrate the Sunny SensorBox into the existing lightning protection.

   On the roof bracket, the position where the lightning protection system can be connected is situated on the lower incline.
5. Open the side flaps of the Sunny SensorBox using the cutouts.



6. Fasten the Sunny SensorBox onto the mounting bracket using the screws provided. Consider the orientation of the Sunny SensorBox (see page 13).
7. Replace the roof tiles.
8. Carry out the Sunny SensorBox connections (see section 5 „Electrical Connection“ (21)).

☑ The Sunny SensorBox is now mounted on the rafter.



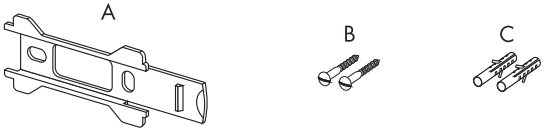
4.3 Mount the RS485 Power Injector

The RS485 Power Injector is mounted onto the wall with the aid of the wall mounting bracket.

4.3.1 Wall Mounting

Mounting accessories provided

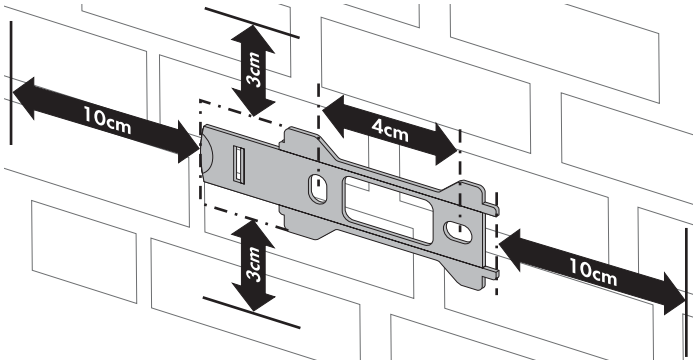
Only with order option of the Sunny SensorBox: SUNNYSENSOR-1xxxx



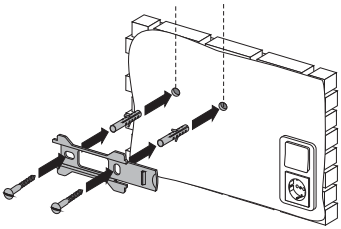
A	1	wall mounting bracket
B	2	Screws
C	2	Wall dowels

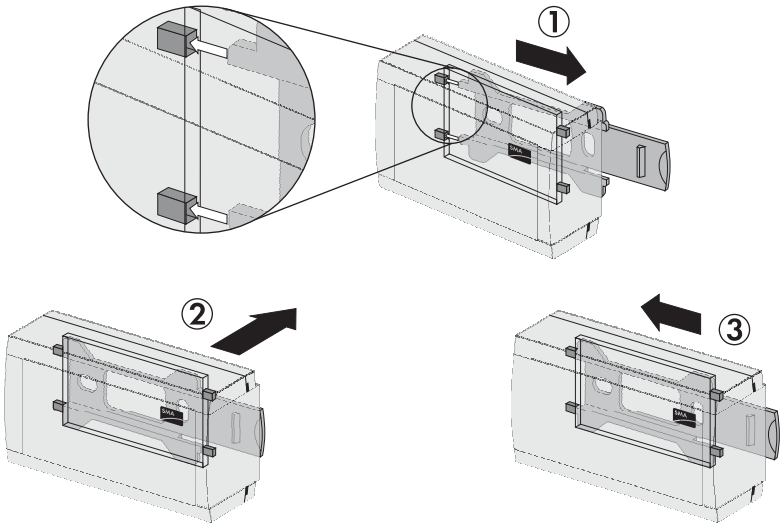
Mount the RS485 Power Injector

1. Determine the installation location upon consideration of the installation space.



2. Mark the position of the drill holes using the wall mounting bracket.
3. Drill holes (diameter: 6 mm) at the marked points and insert dowels.
4. Attach the wall mounting bracket to the wall using the two screws provided.
5. Slide the RS485 Power Injector onto the wall mounting bracket as shown below

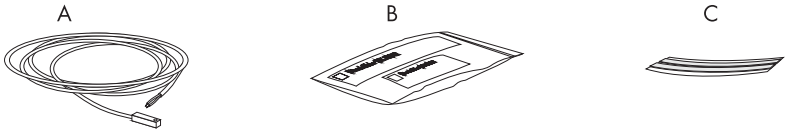




☑ You have successfully mounted the RS485 Power Injector on the wall.

4.4 Installing the Module Temperature Sensor

Mounting accessories provided



A	1	PT100 module temperature sensor with 2.5m connection cable
B	1	Thermally conductive adhesive (protective gloves, resin and hardener) with instructions on the packaging.
C	2	Adhesive tape strips

The module temperature sensor is also available by itself, see section 12 „Accessories“ (50).

CAUTION!

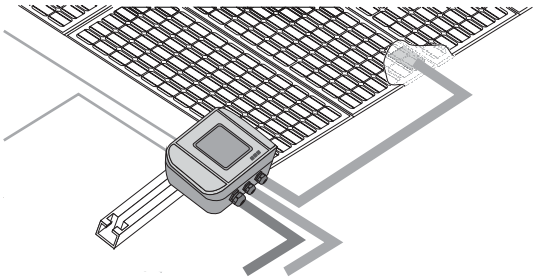
Danger of irritation due to contact with the thermally conductive adhesive.

- Avoid contact with skin, mucosae and eyes.
- Use appropriate protective clothing, gloves and eye protection while working.
- Follow the safety instructions and indications of the manufacturer of the thermally conductive adhesive.

Thermally conductive adhesive

Mix the thermally conductive adhesive following the manufacturer's instructions. During preparation, observe the preparation and hardening times indicated by the manufacturer.

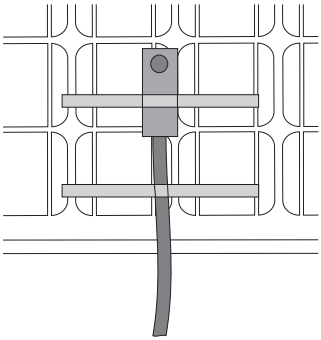
1. Determine the installation location upon consideration of the sensor's cable length.



2. Prepare the thermally conductive adhesive following the manufacturer's instructions.

3. Attach the module temperature sensor on the underside of a solar cell with the aid of the thermally conductive adhesive included.
4. Affix the module temperature sensor and the cable with the adhesive strips to the underside of the solar cells.
5. After the thermally conductive adhesive has hardened, you can remove the adhesive band strips.

☑ The module temperature sensor has been mounted.



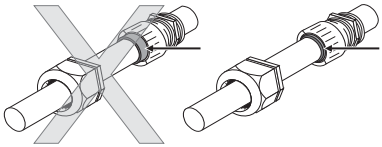
5 Electrical Connection

The Sunny SensorBox connection to the RS485 communication bus and the connection of the module temperature sensor are described below.

ATTENTION!

Damage to the Sunny SensorBox due to infiltration of liquids.

- When working outdoors, make sure that no liquids (e.g., due to rain or snow) enters the open Sunny SensorBox.
- When inserting or removing cables through the cable screw connection make sure that the conduit gasket sits correctly in the screw connection.



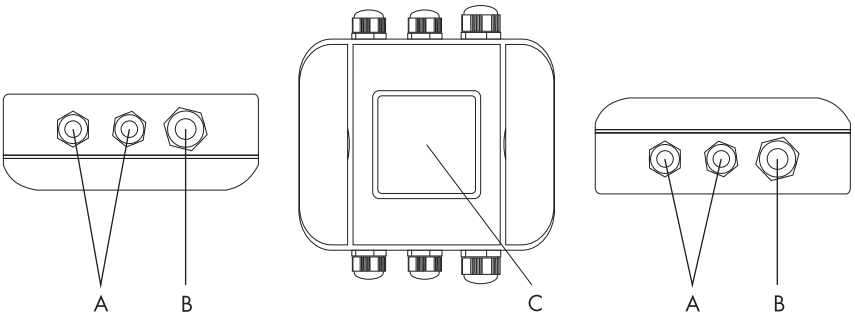
ATTENTION!

Damage to the Sunny SensorBox due to porous rubber gaskets.

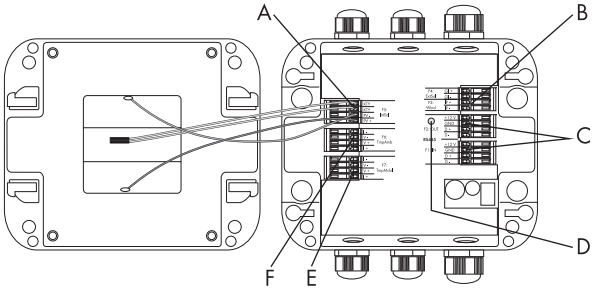
The rubber seal in the Sunny SensorBox cover becomes porous over the course of time, and will no longer provide a tight seal if the Sunny SensorBox is then opened. For this reason, if you open the Sunny SensorBox after an operating period of more than 5 years, e.g., for retrofitting purposes, the rubber seal in the Sunny SensorBox cover must be replaced by a new one. Therefore, please order a replacement seal before commencing maintenance work (see section 12.3 „Sunny SensorBox Seals“ (50)).

5.1 Connection Area Overview

5.1.1 Sunny SensorBox

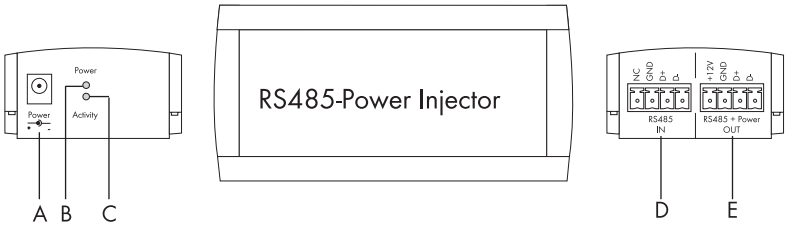


A Cable opening for sensors
B Cable opening for the RS485 communication bus
C Integrated Irradiation Sensor



A Connection terminal for the integrated irradiation sensor
B Connection terminal for the wind sensor
C Terminal fo the RS485 communication cables
D LED for RS485 communication
E Connection terminal for the module temperature sensor
F Connection terminal for the ambient temperature sensor

5.1.2 RS485 Power Injector



A Connection for the power supply plug

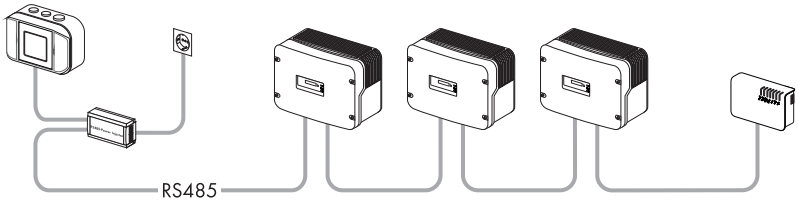
B The power LED shows whether the device is being supplied with voltage.

C The activity LED shows the data traffic through the RS485 communication cable

D RS485 IN: connection for the RS485 bus

E RS485 + Power OUT: connection for the RS485 bus

5.2 Connecting the Sunny SensorBox to the RS485 Communication Bus

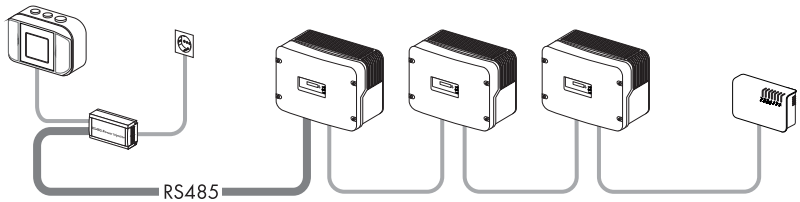


The Sunny SensorBox is integrated into the RS485 communication bus via the RS485 Power Injector. The RS485 Power Injector supplies the Sunny SensorBox with voltage. Make sure that the Sunny SensorBox which is to be placed at the end of the RS485 communication bus has the necessary termination as a prefabricated feature.

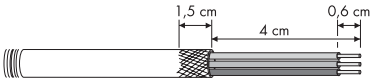
Notes on the RS485 cabling

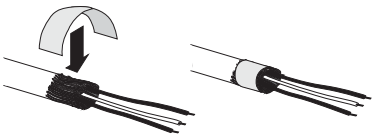
See the RS485 cabling plan poster for information on cabling.

5.2.1 Connect the RS485 Power Injector to the RS485 Devices



1. Connect the cable to the RS485-bus devices used.
2. Remove around 4 cm of cable sheath at the RS485 Power Injector end of the RS485 communication cable.
3. Shorten the shield to 1.5 cm.
4. Fold back the shielding and wrap it with conductive adhesive foil. This is where the shield clamp will be attached later.
5. Cut off unused wires at the cable sheath.
6. Strip approx. 6 mm off the wires.





Connection layout and system wiring

See the RS485 cabling plan poster for the connection layout and system wiring.

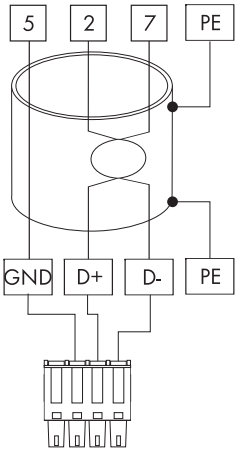
7. Connect the leads to the plug. Observe the configurations in your RS485 communication bus.

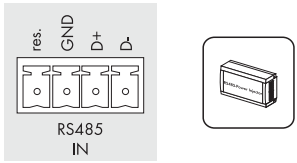
   If necessary, write down the color of the conductors.

   2 | D+ _____

   5 | GND _____

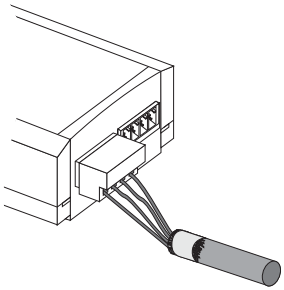
   7 | D- _____



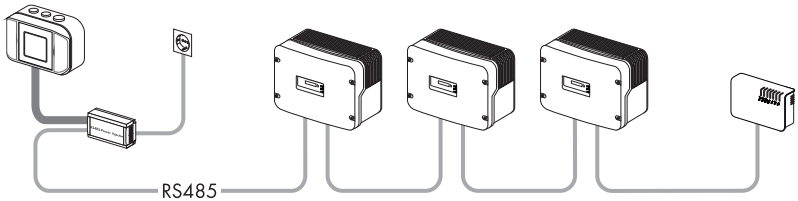


8. Plug the plug into the RS485 Power Injector input port (IN).

☑ The RS485 Power Injector is connected to the RS485 communication bus.

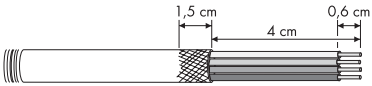


5.2.2 Connect the RS485 Power Injector to the Sunny SensorBox

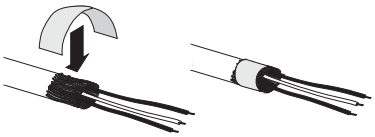


RS485 Power Injector

1. Remove around 4 cm of cable sheath at the RS485 Power Injector end of the RS485 communication cable.



2. Shorten the shield to 1.5 cm.
3. Fold back the shielding and wrap it with conductive adhesive foil. This is where the shield clamp will be attached later.



4. Cut off unused wires at the cable sheath.
5. Strip approx. 6 mm off the wires.
6. Connect the leads to the plug.

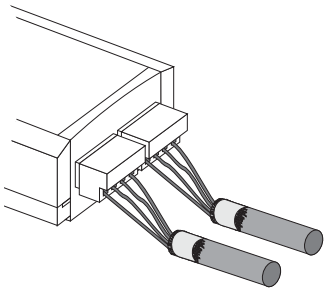
   Write down the color of the conductor:

   +12V _____

   GND _____

   D+ _____

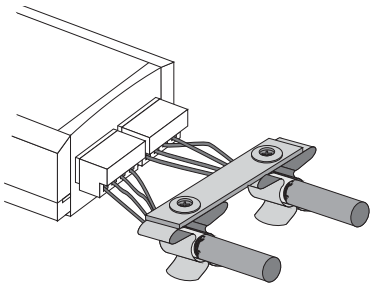
   D - _____



7. Plug the plug into the RS485 Power Injector output port (OUT).

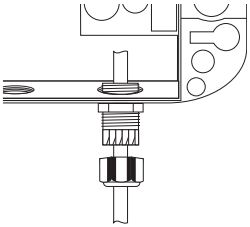
   ☑ The RS485 Power Injector is connected

8. Affix the shield clamp.
9. Lay a cable from the RS485 Power Injector to the Sunny SensorBox.



Sunny SensorBox

10. Open the side flaps of the Sunny SensorBox using the cutouts.
11. Loosen the screws in the corners of the Sunny SensorBox and fold the housing cover up towards the left. The cover is connected to the lower shell by hooks.
12. Unscrew the cable screw connection's lock nut on the right at the bottom of the Sunny SensorBox and remove the seals.
13. Thread the new cable through the lock nut and the cable screw connection into the Sunny SensorBox housing.

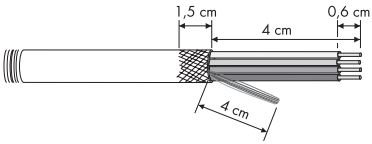


ATTENTION!

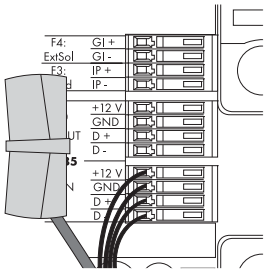
Metal or cable scraps in the housing can damage the Sunny SensorBox.

When working with cables, make sure to prevent any metal scraps from the shield or cable from falling into the open inverter.

14. Remove 4cm of cable shielding from the RS485 communication cable at the Sunny SensorBox.
15. Strip approx. 6 mm off the wires.
16. Twist the shielding into a strand. The shield is only needed if you wish to connect an additional Sunny SensorBox.

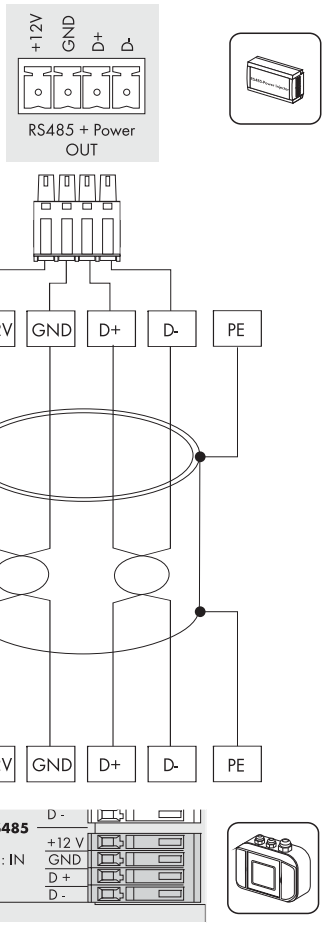


17. Fold back the cable insulation over the shielding. Allow 1cm of the shielding to protrude from the insulation tube.
18. Plug the free portion of the shielding in the connector.

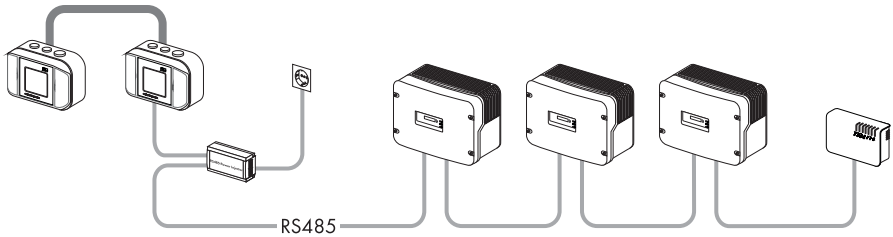


19. Connect the wires to RS485 F1: IN clamp of the Sunny SensorBox. Observe the wire colors which were noted.
20. Check the conduit seals of the cable screw connection for correct placement.
21. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
22. If you now wish to connect another Sunny SensorBox, read section 5.2.3 „Connecting the Sunny SensorBox to other Sunny SensorBox units." (29).
23. If the Sunny SensorBox is found in the middle of the RS485 communication bus, read section 5.2.4 „Connect the Sunny SensorBox to an additional RS485 bus device." (33)
24. If you wish to connect the module temperature sensor, read section 5.3 „Connect the Module Temperature Sensor" (35)
25. Connect additional sensors to the Sunny SensorBox.
26. Check the termination, see chapter 5.2.5 „Terminating the RS485 Bus" (35).
27. Place the Sunny SensorBox housing cover on the lower housing shell.
28. Turn the screws of the housing cover a little to the left initially, until the screws fall into the first turn of the thread.
29. Turn the screws finger tight (torque: 1 Nm) into the lower housing shell.

☑ The RS485 Power Injector is connected to the Sunny SensorBox.



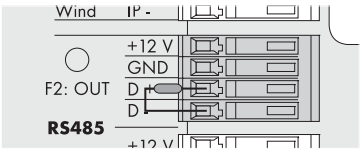
5.2.3 Connecting the Sunny SensorBox to other Sunny SensorBox units.



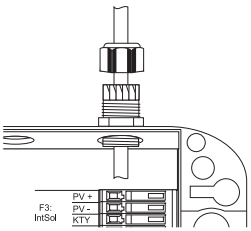
You can extend the Sunny SensorBox by means of another Sunny SensorBox In doing this, you can use the RS485 Power Injector for the additional Sunny SensorBox units (up to a maximum of 5 Sunny SensorBox units).

Connection to Existing Sunny SensorBox Units

1. Open the side flaps of the Sunny SensorBox using the cutouts.
2. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
3. Remove the termination resistance at the F2:OUT RS485 in the existing Sunny SensorBox.



4. Unscrew the cable screw connection's lock nut on the right at the top of the existing Sunny SensorBox and remove the seals.
5. Thread the new cable through the lock nut and the cable screw connection into the housing of the existing Sunny SensorBox.

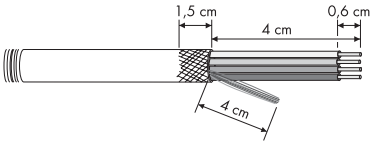


ATTENTION!

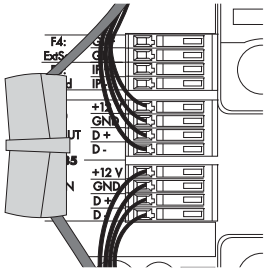
Metal or cable scraps in the housing can damage the Sunny SensorBox.

- When working with cables, make sure to prevent any metal scraps from the shield or cable from falling into the open Sunny SensorBox. Remove metal or cable scraps, if necessary.

6. Remove 4cm of cable shielding from the RS485 communication cable at the existing Sunny SensorBox.



7. Strip approx. 6 mm off the wires.
8. Twist the shielding into a strand.
9. Fold back the cable insulation over the shielding. Allow 1cm of the shielding to protrude from the insulation tube.
10. Plug the free portion of the shielding in the connector.
11. Connect the wires to RS485 F1: IN clamp of the existing Sunny SensorBox.



Write down the color of the conductor:

+12V _____

GND _____

D+ _____

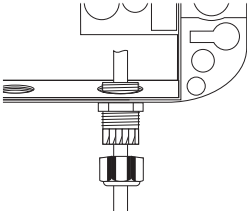
D- _____

12. Check the conduit seals of the cable screw connection for correct placement.
13. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
14. Place the housing cover of the existing Sunny SensorBox on the lower housing shell.
15. Turn the screws of the housing cover a little to the left initially, until the screws fall into the first turn of the thread. Turn the screws finger tight (torque: 1 Nm) into the lower housing shell.

☑ The cable is connected to the existing Sunny SensorBox.

Connection to the Yet-to-be-Connected Sunny SensorBox

16. Mount the Sunny SensorBox to be connected, as described in chapter 4.2 „Mounting the Sunny SensorBox“ (13).
17. Open the side flaps of the Sunny SensorBox to be connected using the cutouts.
18. Loosen the screws in the corners of the Sunny SensorBox to be connected and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
19. Unscrew the cable screw connection's lock nut on the right at the bottom of the yet-to-be-connected Sunny SensorBox.
20. Thread the new cable through the lock nut and the cable screw connection into the Sunny SensorBox housing.

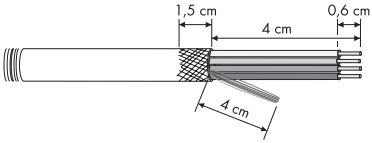


ATTENTION!

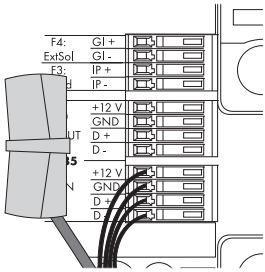
Metal or cable scraps in the housing can damage the Sunny SensorBox.

- When working with cables, make sure to prevent any metal scraps from the shield or cable from falling into the open Sunny SensorBox. Remove metal or cable scraps, if necessary.

21. Remove 4cm of cable shielding from the RS485 communication cable at the Sunny SensorBox.
22. Strip approx. 6 mm off the wires.
23. Twist the shielding into a strand. The shield is only needed if you wish to connect an additional Sunny SensorBox.

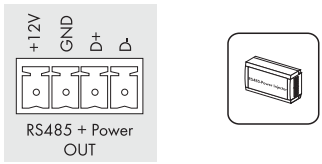


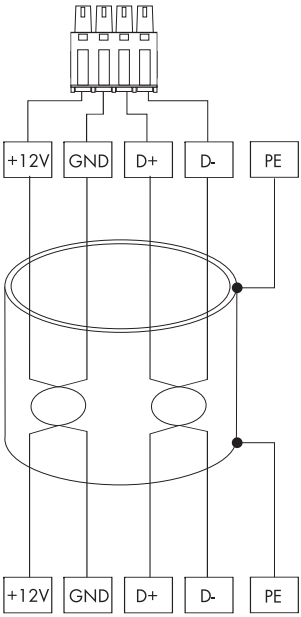
24. Fold back the cable insulation over the shielding. Allow 1cm of the shielding to protrude from the insulation tube.
25. Plug the free portion of the shielding in the connector.

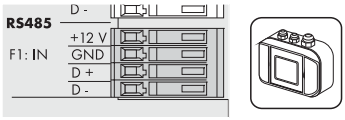


26. Connect the cable to RS1 F485: IN clamp of the Sunny SensorBox. Observe the wire colors which were noted.
27. Check the conduit seals of the cable screw connection for correct placement.
28. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
29. If you now wish to connect another Sunny SensorBox, read section 5.2.3 „Connecting the Sunny SensorBox to other Sunny SensorBox units.“ (29).
30. If the Sunny SensorBox is found in the middle of the RS485 communication bus, read section 5.2.4 „Connect the Sunny SensorBox to an additional RS485 bus device.“ (33)
31. If you wish to connect the module temperature sensor, read section 5.3 „Connect the Module Temperature Sensor“ (35)
32. Connect additional sensors to the Sunny SensorBox.
33. Check the termination, see chapter 5.2.5 „Terminating the RS485 Bus“ (35).
34. Connections must be made at the pre-installed cable screw connections , because otherwise water and humidity can enter.
35. Place the Sunny SensorBox housing cover on the lower housing shell.
36. Turn the screws of the housing cover a little to the left initially, until the screws fall into the first turn of the thread.
37. Turn the screws finger tight (torque: 1 Nm) into the lower housing shell.

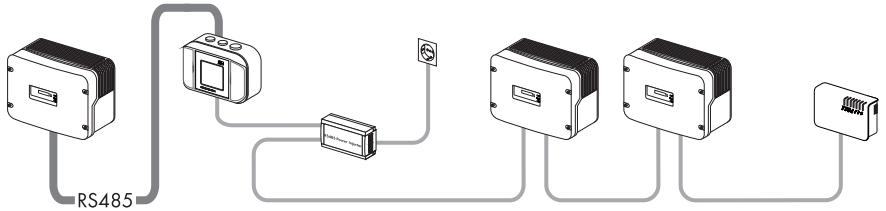
☑ The additional Sunny SensorBox is connected.



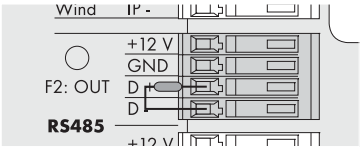




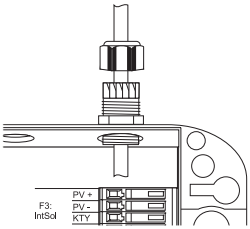
5.2.4 Connect the Sunny SensorBox to an additional RS485 bus device.



1. Open the side flaps of the Sunny SensorBox using the cutouts.
2. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
3. Remove the termination resistance at the F2:OUT RS485 in the Sunny SensorBox.



4. Unscrew the cable screw connection's lock nut on the right at the top of the Sunny SensorBox and remove the seals.
5. Thread the new cable through the lock nut and the cable screw connection into the Sunny SensorBox housing.

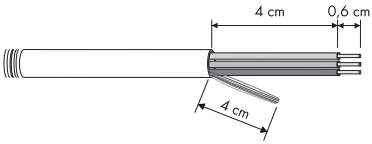


ATTENTION!

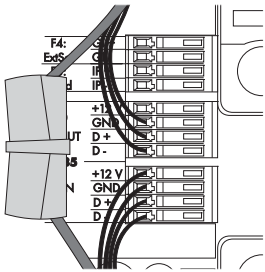
Metal or cable scraps in the housing can damage the Sunny SensorBox.

- When working with cables, make sure to prevent any metal scraps from the shield or cable from falling into the open Sunny SensorBox. Remove metal or cable scraps, if necessary.

6. Remove 4cm of cable shielding from the RS485 communication cable at the Sunny SensorBox.
7. Strip approx. 6 mm off the wires.
8. Twist the shielding into a strand.
9. Fold back the cable insulation over the shielding. Allow 1cm of the shielding to protrude from the insulation tube.



10. Plug the free portion of the shielding in the connector.



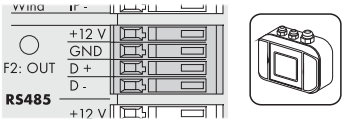
11. Connect the wires to F2: OUT RS485 clamp of the Sunny SensorBox. Observe the configurations in your RS485 communication bus.

    Write down the color of the conductor:

    GND | 5 _____

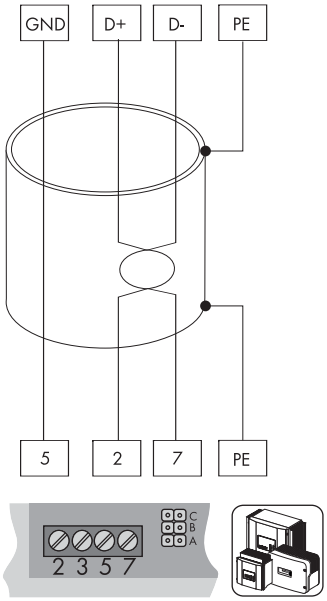
    D+| 2 _____

    D- | 7 _____



12. Check the conduit seals of the cable screw connection for correct placement.
13. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
14. Place the housing cover of the existing Sunny SensorBox on the lower housing shell.
15. Turn the screws of the housing cover a little to the left initially, until the screws fall into the first turn of the thread. Turn the screws finger tight (torque: 1 Nm) into the lower housing shell.

☑ The SensorBox is connected to the RS485 device.



5.2.5 Terminating the RS485 Bus

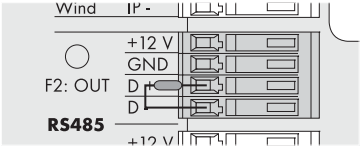
Terminating the RS485 Communication Bus

See the RS485 cabling plan poster for the termination of the RS485 communication bus.

Only connect the termination if the Sunny SensorBox is situated at the end of the RS485 communication bus. The termination is made using a termination resistor. The termination resistor is mounted upon delivery.

1. Connect the resistor to the termination at the RS485 F2:OUT connector on the D+ and D- clamps.

☑ The Sunny SensorBox is terminated.

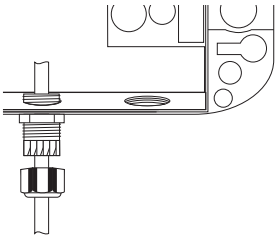


5.3 Connect the Module Temperature Sensor

Length of cable in a 2-conductor technology connection

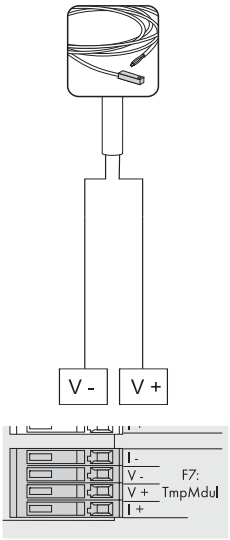
The connection is made using a cable 2.5m in length. The cable must not be extended or shortened. The measuring accuracy depends on the cable length.

1. Open the side flaps of the Sunny SensorBox using the cutouts.
2. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
3. Unscrew the cable screw connection's lock nut on the bottom left of the Sunny SensorBox and remove the seals.
4. Thread the sensor cable through the lock nut and the cable screw connection at the bottom left into the Sunny SensorBox housing.



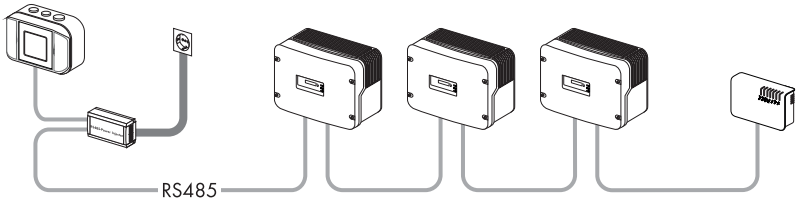
5. Connect the sensor to the Sunny SensorBox's "F7: TmpMdul" terminal. The polarity of the cables is arbitrary.
6. Check the conduit seals of the cable screw connection for correct placement.
7. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
8. Lay the cable securely, using suitable fastening materials.

☑ The module temperature sensor has been connected.



6 Commissioning

6.1 Connecting the RS485 Power Injector to the Power Supply



Connect the RS485 Power Injector to the power supply only after all cabling has been completed. The Sunny SensorBox starts up once it is connected to the power supply and is ready for use after about 1 minute.

1. Connect the DC plug connector of the power supply unit to the DC connection of the RS485 Power Injector.
2. Plug the power supply unit into a socket.
3. Lay the cable securely, using suitable fastening materials.
4. Commission the inverter as described in its installation manual.
5. Commission the communication device as described in its manual.

☑ The RS485 Power Injector is connected to the power supply.

You can display the data from your Sunny SensorBox's sensors at the Sunny Portal (www.SunnyPortal.com). For the sensors, you can have Sunny Portal automatically generate the standard pages for performance ratio and standardized system yield. You can read more information in the Sunny Portal operation manual.

7 Maintenance and Care

7.1 Maintenance

Conduct regular visual inspections of the Sunny SensorBox and the RS485 Power Injector to check for external damage or dirt.

Dirt (e.g., leaves or bird excrement) on the Sunny SensorBox's integrated solar cell, or on the sensors, can lead to incorrect measurements. Carry out a cleaning.

If functionality or safety is impaired by damage, have a qualified electrician replace the damaged device, sensor, or cable.

7.2 Care

To clean the Sunny SensorBox and the RS485 Power Injector, use a soft, damp cloth. Make sure that the cloth is made of scratch-free material so that the surface of the housing will not be damaged. If there is a considerable amount of dirt, you can also use a mild, non-abrasive and non-corrosive cleaning agent.

8 Decommissioning

8.1 Remove the Sunny SensorBox

1. Pull the RS485 Power Injector's plug-in power supply out of the socket.
2. Remove the Sunny SensorBox and RS485 Power Injector cables in the sequence opposite to that which is described in section 5.2.2 „Connect the RS485 Power Injector to the Sunny SensorBox“ (26).
3. Observe the termination of the RS485 communication bus.
4. Remove the Sunny SensorBox following the installation steps described in section 4.2 „Mounting the Sunny SensorBox“ (13) in reverse order.

☑ The Sunny SensorBox has been removed.

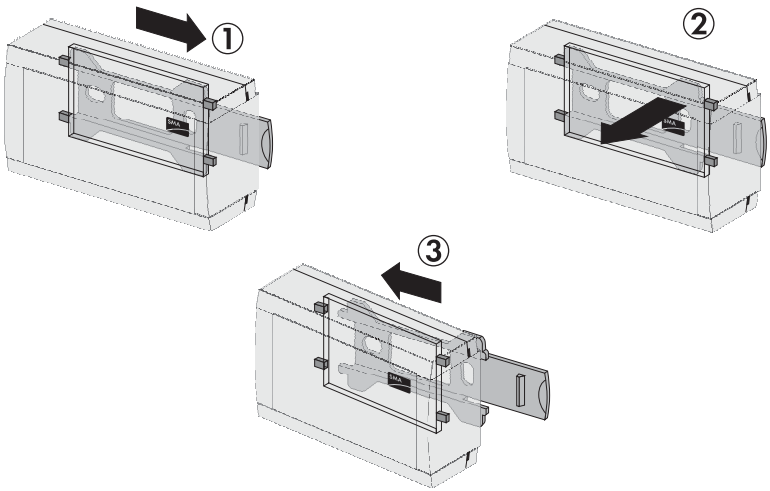
8.2 Remove the RS485 Power Injector

ATTENTION!

Damage to the Wall Mounting Bracket due to Careless Removal of the Cabling

- Hold the RS485 Power Injector tight whenever pulling out or plugging in the power cable or a plug. Otherwise, the device may spring out of the wall mounting or the wall mounting may be damaged.

1. Remove the electric cabling.
2. Remove the RS485 cabling.
3. Remove the RS485 Power Injector from the wall mounting bracket as shown below.



4. Remove the wall mounting bracket from the wall.

☑ The RS485 Power Injector has been removed.

8.3 Remove the Sensors

If you remove the ambient temperature sensor, the module temperature sensor, or an irradiation sensor, and remove the connections in the Sunny SensorBox, irregular values will be displayed for these sensors because the resistors will have been removed.

- Remove the cables for the sensors in reverse order to that in which each was connected.

8.4 Pack the Sunny SensorBox and the Sensors

Use packaging which adequately protects the devices from damage during transport and, if possible, use the original packaging.

8.5 Disposal of the Sunny SensorBox and the Sensors

Dispose of the Sunny SensorBox and the RS485 Power Injector at the end of their service life in accordance with the disposal regulations for electronic waste which apply at the installation site at that time. Alternatively, send them back to SMA Solar Technology with shipping paid by the sender, and labeled "ZUR ENTSORGUNG" ("for disposal").

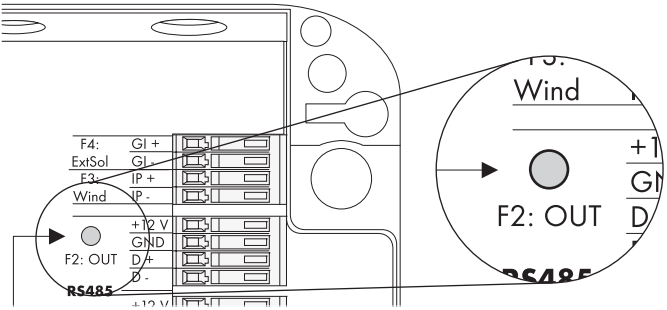
9 Troubleshooting

If the fault cannot be traced, call our service hotline with the information that is listed in section 13 „Contact“ (62) at the ready.

9.1 Sunny SensorBox

9.1.1 Meaning of the LEDs

The LED is situated in the Sunny SensorBox.



LED Status/Color	Function
off	When you perform a reset, the LED remains off for 60 seconds. If you are not performing a reset, and the LED remains off for more than 10 seconds (required startup time), the Sunny SensorBox is not being supplied with power. • Check whether the RS485 Power Injector's power plug is plugged in. • Check the connection from the RS485 Power Injector to the Sunny SensorBox, as described in section 5.2.2 „Connect the RS485 Power Injector to the Sunny SensorBox“ (26).
glows yellow	The Sunny SensorBox is connected to the power supply, and is ready for operation.
blinks yellow 2x very quickly	The Sunny SensorBox is connected to the power supply, and is at present receiving data from the communication device via the RS485 bus.
blinks yellow once every second	An error has occurred in the firmware. Ask your installer to perform a firmware update.

9.2 Ambient temperature sensor

In the channel "TmpAmb C", depending on the selected unit, one of the following values is permanently displayed: -273.15 °C, 0K, -459.67 °F:

- No sensor is connected
- Connection fault in the Sunny SensorBox.

  I+/V- or I-/V+ were interchanged during connection. Check the connection, referring to the description in section 12.4.5 „Connect the ambient temperature sensor to the Sunny SensorBox“ (55).

Unrealistic values are displayed:

- Check whether the sensor is connected to the correct terminal, as described in section 12.4.5 „Connect the ambient temperature sensor to the Sunny SensorBox“ (55).
- Check the cable for external damage.
- Check the sensor for external damage or dirt.
- The sensor has been deactivated, and the resistor is no longer plugged into the Sunny SensorBox.

9.3 Anemometer

Unrealistic values are displayed:

- Check whether the anemometer is connected to the correct terminal, as described in section . Interchanging the wires at the "F3: Wind" terminal does not affect the functionality.12.5.5 „Connect the Anenometer to the Sunny SensorBox“ (60)
- Check the cable for external damage.
- Check the sensor for external damage or dirt.

9.4 Integrated Irradiation Sensor

Unrealistic values are displayed:

- Check whether the integrated irradiation sensor is connected correctly, as described in section 9.4.1 „Connection of the Integrated Irradiation Sensor“ (43).
- Check the cable for external damage.
- Check the sensor for external damage or dirt.
- The sensor has been deactivated, and the resistor is no longer plugged into the Sunny SensorBox.

9.4.1 Connection of the Integrated Irradiation Sensor

Upon delivery, the integrated irradiation sensor in the cover of the Sunny SensorBox is already pre-connected. If you have decommissioned the integrated irradiation sensor, you can reconnect it as described here.

1. Pull the RS485 Power Injector's plug-in power supply out of the socket.
2. Open the side flaps of the Sunny SensorBox using the cutouts.
3. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
4. Connect the sensor to the Sunny SensorBox's "F5: IntSol" terminal.

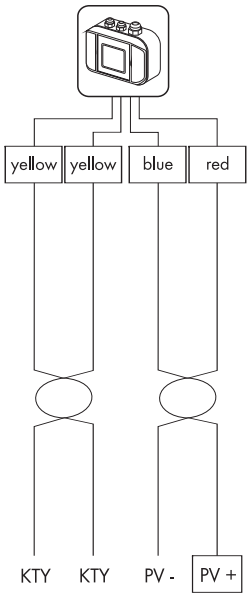
   KTY yellow cable

   KTY yellow cable

   PV- blue cable

   PV+ red cable

☑ The integrated irradiation sensor connected to the Sunny SensorBox.



10 Channel List

The channel list is subdivided into values and parameters. Values, such as the series number (SN) for example, are read-only. You can change the settings of the parameters, for example the temperature units (TmpUnit).

10.1 General Parameters

Channel	Explanation	Value	Parameters
SN	Here, the series number of the Sunny SensorBox is displayed.	x	
FwVer	Here, the firmware version of the Sunny SensorBox is displayed.	x	
HwVer	The hardware version of the Sunny SensorBox is displayed here.	x	
OpTm	Here, the number of hours for which the Sunny SensorBox has been in operation since commissioning is displayed.	x	
TmpUnit	This allows you to select the unit in which the temperature is to be displayed. You can select one of the following units: • °C (default) • K • °F		x
WindUnit	This allows you to select the unit in which the wind speed is to be displayed. You can select one of the following units: • m/s (factory setting) • km/h • mph		x
DevRs	With this channel, you can reset the Sunny SensorBox. The value of this channel is always "0". If you wish to reset the Sunny SensorBox, enter the value "1", and save it. The Sunny SensorBox then resets, but the alteration to the channel's setting is not applied. The LED in the Sunny SensorBox then remains off for 60 seconds.		x
RS485DI	Sunny SensorBox response delay on the RS485 bus. This channel must be set to "200ms" if you are using a Sunny Boy Control/ Plus as communication device. 200ms is the default setting. When operating the Sunny SensorBox with a Sunny WebBox, the response delay can be reduced to 10ms. This channel is only visible if you are logged in at the communication device as "installer". Refer to your communication device's user manual.		x

10.2 Internal Solar Irradiation Sensor

Channel	Explanation	Value	Parameters
IntSolIrr	Here, the present solar irradiation level is displayed in W/m².	x	

10.3 Module Temperature Sensor

If no module temperature sensor is connected, absolute zero is displayed (-273.15°C, 0K, -459.67°F).

Channel	Explanation	Value	Parameters
TmpMdul C TmpMdul K TmpMdul F	Here, the present module temperature is displayed in the unit selected: • °C (degrees Celsius) • K (Kelvin) • °F (degrees Fahrenheit). The only channel ever visible is that of the selected unit. You can set the required unit using the general TmpUnit channel.	x	

10.4 Ambient temperature sensor

If no ambient temperature sensor is connected, absolute zero is displayed.

(-273.15 °C, 0 K, -459.67 °F).

Channel	Explanation	Value	Parameters
TmpAmb C TmpAmb K TmpAmb F	Here, the present ambient temperature is displayed in the unit selected: • °C (degrees Celsius) • K (Kelvin) • °F (degrees Fahrenheit). The only channel ever visible is that of the selected unit. You can set the required unit using the general TmpUnit channel.	x	

10.5 External Irradiation Sensors

An external irradiation sensor is not on offer at this time.

Channel	Explanation	Value	Parameters
ExtSolIrr	Here, the present solar irradiation level is displayed in W/m2.	x	
ExtSolIrrCal	Here, you must set the voltage of the connected irradiation sensor in mV. "100mV" is the default setting.		x
ExlSolIrrFnc	Here, you must set the input range of the connected irradiation sensor. The default setting is 0mV to 300mV.		x

10.6 Anemometer

If no anemometer is present, the value "0" is displayed in these channels.

Channel	Explanation	Value	Parameters
Wind m/s Wind km/h Wind mph	Present wind speed in the selected unit. • m/s • km/h • mph The only channel ever visible is that of the selected unit. You can set the required unit using the general WindUnit channel.	x	

11 Technical Data

Sunny SensorBox

General data	
Dimensions (W/H/D) in mm	120/50/90
Weight	500 g
Mounting Location	outdoors
Applicability	Mounting plate, roof bracket
Enclosure Rating	IP65
Connections	
Connections	integrated irradiation sensor, RS485, anemometer, module temperature sensor, ambient temperature sensor
Communication	
Data logger communication	RS485 to SunnyWebBox, RS485 to Sunny Boy Control.
Max. Communication Range	
RS485	1,200 m
Power Supply	
Power supply via	RS485 Power Injector
Number of Sunny SensorBox devices which can be operated with one RS485 Power Injector:	5 devices
Power consumption	< 1 W
Measured data of the integrated irradiation sensor	
Solar cell type	amorphous
Accuracy	± 8 %
Measuring range	0 W/m² to 1500 W/m²
Divestiture	1 W/m²
Environmental conditions for operation	
Ambient temperature	-25 °C to +70 °C
Relative humidity	5 % to 95 %, non-condensing
Warranty, certificates and permits	
Warranty	5 years
Certificates and approvals	www.SMA.de

RS485 Power Injector

General data	
Dimensions (W/H/D) in mm	105/55/30
Weight	80 g
Mounting Location	indoors
Applicability	wall mounting, tabletop device
Connections	
Connections	Connection for the power supply plug, RS485 IN, RS485 + Power OUT
Max. range	
RS485 Power Injector to the last Sunny SensorBox	150 m
Power Supply	
Power supply via	Plug-in power supply
Power consumption	< 5 W with 5 Sunny SensorBox devices
Environmental conditions for operation	
Ambient temperature	-20 °C to +65 °C
Relative humidity	5 % to 95 %, non-condensing
Warranty, certificates and permits	
Warranty	5 years
Certificates and approvals	www.SMA.de

Plug-in power supply

General data	
Dimensions (W/H/D) in mm	107.77/57.6/33.5
Weight	300 g
Mounting Location	indoors
Power Supply	
Input voltage	100 V – 240 V AC, 50 / 60 Hz
Output voltage	12 V DC ± 2 %
Output current	max. 2.5 A
Warranty	
Warranty	5 years

Module Temperature Sensor

General data	
Measuring resistor	PT100
Mounting the Device	outdoors
Enclosure Rating	IP62
Connection cable	
Connection cable (for 2-conductor technology)	Prefabricated cable length 2.5m
Measured values	
Accuracy	± 0.5 °C
Measuring range	-20 °C to +110 °C
Divestiture	0.1 °C
Warranty	
Warranty	5 years

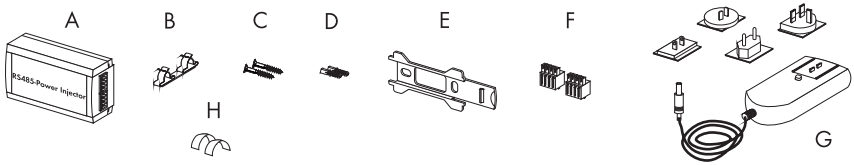
12 Accessories

12.1 Mounting accessories

	SMA order number
Roof bracket for mounting the Sunny SensorBox	Roofan-Ssensor
Mounting plate for mounting the Sunny SensorBox.	Monplat-Ssensor

12.2 RS485 Power Injector

SMA order number: Power-Injector



A	1	RS485 Power Injector
B	1	Shield clamp
C	2	Screws
D	2	Wall dowels
E	1	wall mounting bracket
F	2	Plug (4 poles)
G	1	Plug-in power supply with adaptors
H	2	conducting foil

12.3 Sunny SensorBox Seals

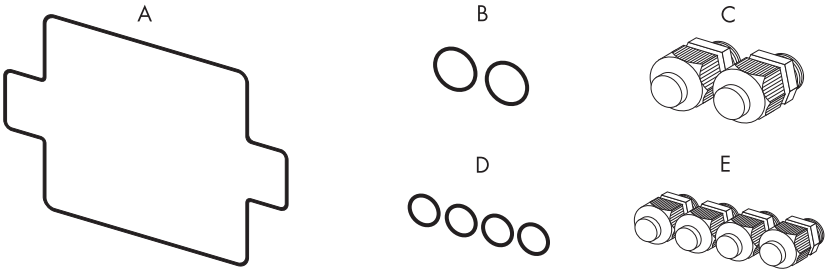
ATTENTION!

Damage to the Sunny SensorBox due to porous rubber gaskets.

The rubber seal in the Sunny SensorBox cover becomes porous over the course of time, and will no longer provide a tight seal if the Sunny SensorBox is then opened. For this reason, if you open the Sunny SensorBox after an operating period of more than 5 years, e.g., for retrofitting purposes, the rubber seal in the Sunny SensorBox cover must be replaced by a new one. In this case please order a replacement seal before commencing maintenance work.

12.3.1 Scope of Delivery

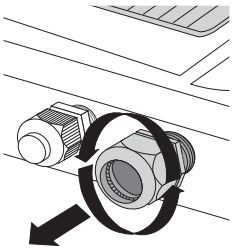
SMA order number: Sealkit-Ssensor



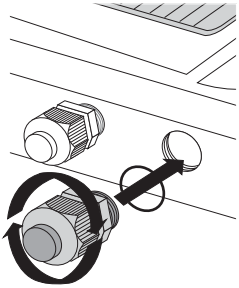
A	1	Housing seal
B	2	Cable screw connection seal for the RS485 communication bus
C	2	Cable screw connection for the RS485 communication bus
D	4	Cable screw connection seal for the sensors
E	4	Cable screw connection for the sensors

12.3.2 Changing cable screw connection seals

1. Pull the RS485 Power Injector's plug-in power supply out of the socket.
2. Open the side flaps of the Sunny SensorBox using the cutouts.
3. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
4. Remove the connection cables for the sensors or the RS485 cable in the Sunny SensorBox in reverse order to that in which they were connected.
5. Unscrew the old cable screw connection from the Sunny SensorBox.



6. Put in place the appropriate gasket on the thread of the new cable screw connection.



ATTENTION!

Damage to the Sunny SensorBox due to infiltration of water.

The gasket can be damaged or may not sit correctly on the thread of the cable screw connection when it is tightened. This way the Sunny SensorBox becomes permeable.

- Check to see that the gasket ring sits correctly.

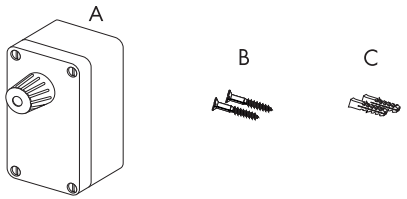
7. Screw the cable screw connection finger tight into the Sunny SensorBox (torque: 0.8Nm).
8. Remove the porous rubber seal in the Sunny SensorBox cover, and replace it with the new one.
9. Insert the sensor cable or the RS485 cable into the housing again and reconnect.
10. Check that the cable screw connection conduit seals sit correctly.
11. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
12. Replace the Sunny SensorBox cover so that it sits perfectly in position.
13. Turn the four screws of the housing cover a little to the left initially, until the screws fall into the first turn of the thread. Then turn the screws finger tight (torque: 1 Nm) into the lower housing shell.
14. Close the Sunny SensorBox's side flaps.
15. Remove each sensor in the sequence opposite to the one in which it was mounted.

☑ The cable screw connection has been changed.

12.4 Ambient temperature sensor

12.4.1 Scope of Delivery

SMA order number: TEMPSENSOR-AMB



A	1	JUMO PT100 sensor
B	2	Screws
C	2	Wall dowels

12.4.2 Recommended Cables

The cable length and quality have an effect on the signal quality. To achieve a good quality signal, observe the following instructions regarding cabling:

Outdoors

Outdoors, use a cable with the following basic properties:

- Cross-section: min. 4 x 0.25 mm2, min. 4 x AWG 24
- External diameter: min. 4 mm, max. 6 mm
- UV-resistant
- The maximum cable length of 30m may not be exceeded.

We recommend the following cable types:

- Lapp cable: UNITRONIC S-LifY11Y 4 x 0.34 mm2, order no.: 7038 861
- UL-listed Lapp cable: UNITRONIC S-LifY11Y 4 x 0.34 mm2, order no.: 7038 865

Indoors, or Using a Cable Channel

If you protect the cable from UV radiation outdoors by means of a suitable cable channel, you can also use a non-UV-resistant (indoor) cable with the basic properties mentioned above.

We recommend the following cable types:

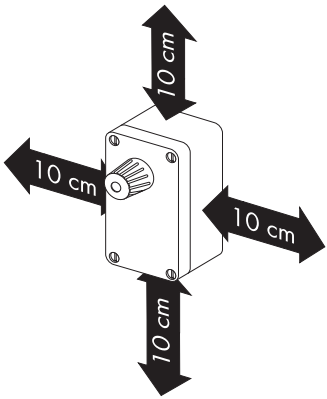
- Lapp cable: Unitronic LiYY 4 x 0.25 mm2, order no.: 0028 304
- UL-listed Lapp cable: UNITRONIC LiYY UL/CSA 4 x AWG22/7, order no.: 0022 604
- Helucable: TRONIC LiYY 4 x 0.25 mm2, order no.: 18031

12.4.3 Selecting the Mounting Location

- The ambient temperature sensor must be installed with the cable screw connection pointing downwards in order to prevent water from accumulating on the cable screw connection.
- Select an installation location which is in shade throughout the entire day.
- Make sure that heat cannot accumulate at the installation location (e.g. by means of an overlapping roof).
- Protect the ambient temperature sensor from severe soiling.
- Observe the maximum cable length of 30m from the ambient temperature sensor to the Sunny SensorBox.

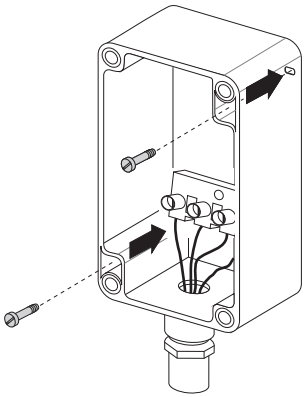
12.4.4 Mount the ambient temperature sensor

1. Unscrew the four screws on the sensor housing, and remove the cover.
2. Determine the installation location upon consideration of the installation space and mark it.



3. Fasten the sensor housing onto the mounting plate using the screws provided.

☑ You have successfully mounted the ambient temperature sensor.



12.4.5 Connect the ambient temperature sensor to the Sunny SensorBox

Connection in the Ambient Temperature Sensor

Length of cable in a 4-conductor technology connection

The use of 4-conductor technology is recommended for the connection of the PT100 measuring resistor, in order to ensure accuracy over longer distances. The cable cannot be over 30m in length.

1. Unscrew the screws on the sensor housing, and remove the cover.
2. Unscrew the cable screw connection on the sensor housing.
3. Remove the small interior protective plate. Take care that the interior seal does not fall out.
4. Screw the cable screw connection halfway onto the sensor housing.
5. Pull the cable through the sensor's cable screw connection.
6. Connect the cable to the terminals in the sensor.

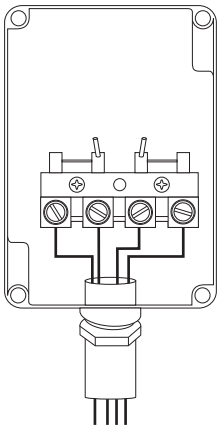
   Note down the wire color:

   I+:_____

   V+:_____

   V+:_____

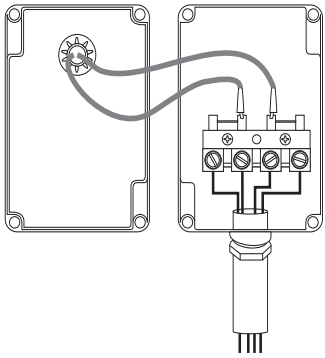
   I-:_____



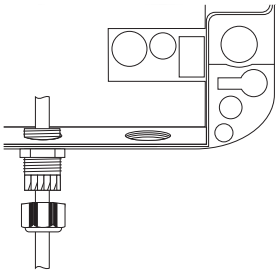
7. Screw the sensor's cable screw connection finger tight into the sensor housing (torque: 0.8Nm).
8. Attach the cables from the sensor's cover to the plugs. The polarity of the cables is arbitrary.

Connection to the Sunny SensorBox

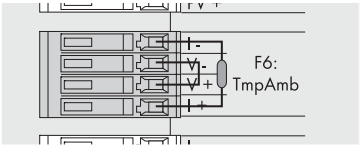
9. Open the side flaps of the Sunny SensorBox using the cutouts.
10. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.



11. Unscrew the cable screw connection's lock nut on the bottom center of the Sunny SensorBox and remove the seals.
12. Thread the sensor cable through the lock nut and tighten the cable screw connection of Sunny SensorBox housing.

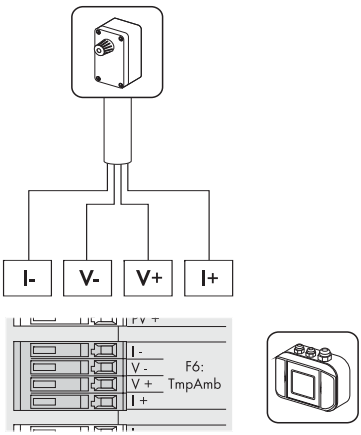


13. Remove the resistor and the jumper at the "F6: TmpAmb" terminal in the Sunny SensorBox.



14. Connect the sensor to the Sunny SensorBox's "F6: TmpAmb" terminal. Observe the wire colors which were noted.
15. Check the conduit seals of the cable screw connection for correct placement.
16. Tighten the lock nut on the cable screw connection by hand to secure the cable (Torque: 0.8Nm).
17. Lay the cable securely, using suitable fastening materials.
18. Mount and connect additional sensors.

☑ The ambient temperature sensor is connected.



12.4.6 Technical Data for the Ambient Temperature Sensor

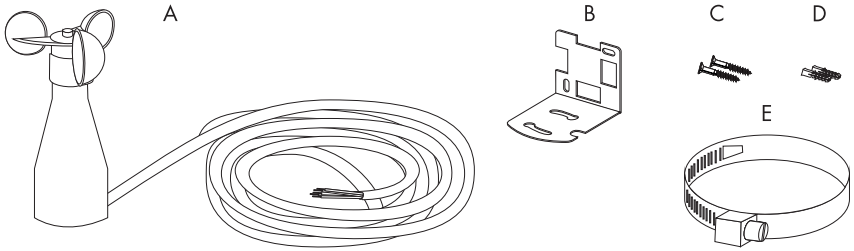
General data	
Dimensions (W/H/D) in mm	100/52/67
Measuring resistor	PT100
Mounting the Device	outdoors
Enclosure Rating	IP65
Connection cable	
Connection cable (for 4-conductor technology)	Max. 30 m
Measured values	
Accuracy	± 0.5 °C
Measuring range	-30 °C to +80 °C

Divestiture	0.1 °C
Warranty	
Warranty	5 years

12.5 Anemometer

12.5.1 Scope of Delivery

SMA order number: WIND-SENSOR



A	1	Anemometer with 3m connection cable and screws on the underside
B	1	mounting bracket
C	2	Screws
D	2	Wall dowels
E	2	Straps

12.5.2 Recommended Cables

The cable length and quality have an effect on the signal quality. To achieve a good quality signal, observe the following instructions regarding cabling:

For the anemometer, you only need to use two of the four conductors.

The cable specifications listed below describe a four-conductor cable. You can also use a two-conductor cable with the same properties.

Outdoors

For the outdoors, use a communication cable with the following key properties.

- Cross-section: min. 4 x 0.25 mm2, min. 4 x AWG 24
- External diameter: min. 4 mm, max. 6 mm
- UV-resistant
- The maximum cable length of 30m may not be exceeded.

We recommend the following cable types:

- Lapp cable: UNITRONIC S-LifY11Y 4 x 0.34 mm2, order no.: 7038 861
- UL-listed Lapp cable: UNITRONIC S-LifY11Y 4 x 0.34 mm2, order no.: 7038 865

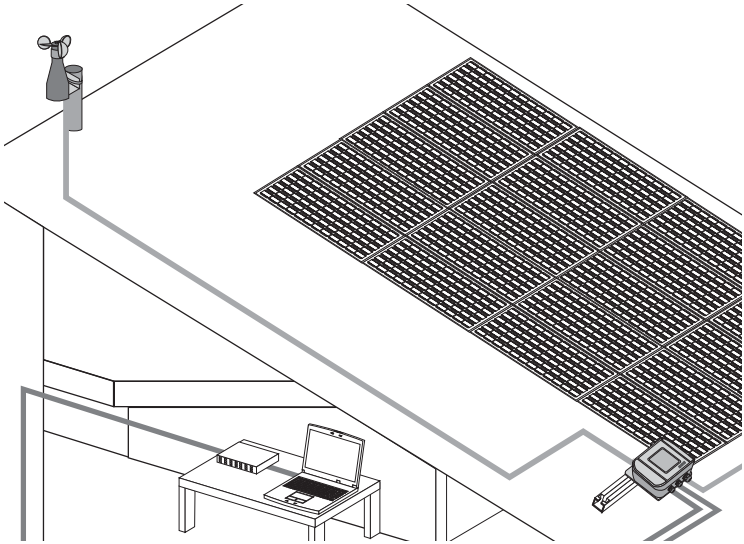
Indoors, or Using a Cable Channel

If you protect the cable from UV radiation outdoors by means of a suitable cable channel, you can also use a non-UV-resistant (indoor) cable with the basic properties mentioned above.

We recommend the following cable types:

- Lapp cable: Unitronic LiYY 4 x 0.25 mm2, order no.: 0028 304
- UL-listed Lapp cable: UNITRONIC LiYY UL/CSA 4 x AWG22/7, order no.: 0022 604
- Helucable: TRONIC LiYY 4 x 0.25 mm2, order no.: 18031

12.5.3 Selecting the Mounting Location



- The anemometer must be installed vertically, otherwise water can penetrate it.
- The anemometer is to be installed on the end of a mast to one side.
- The installation location must not be shielded from the wind, or in the lee of, for example, a chimney or satellite dish.
- Observe the prefabricated cable length of 3m. The cable can be shortened or extended to a maximum of 30m.

12.5.4 Mount the Anemometer

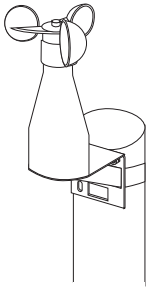
ATTENTION!

Damage to the anemometer due to infiltration of water.

- The anemometer must be mounted vertically.

Fasten the provided mounting bracket depending on the installation method:

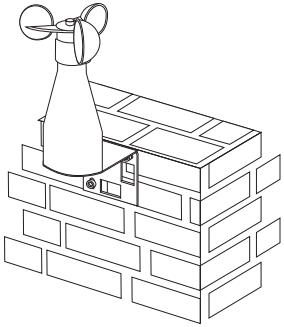
Mast mounting



1. Affix the mounting bracket provided to the upper end of the mast.
2. Place the anemometer with the screws into the mounting bracket's broad cutouts and turn the anemometer to the end of the thin cutouts.
3. Tighten the screws beneath the anemometer.

☑ The anenometer is mounted.

Wall mounting

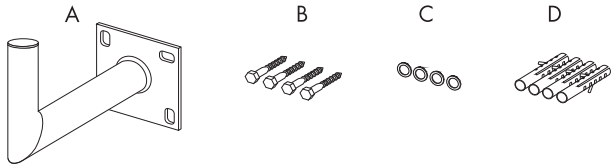


1. Affix the provided mounting bracket to the side of the end of a wall using the provided screws and wall anchors, as shown in the figure to the right.
2. Place the anemometer with the screws into the mounting bracket's broad cutouts and turn the anemometer to the end of the thin cutouts.
3. Tighten the screws beneath the anemometer.
4. If the anemometer is mounted directly on the wall, turbulence may occur, which reduces the precision of measurements. We recommend mounting on the wall with the mast, in order to achieve more distance from the wall, which avoids turbulences.

☑ The anenometer is mounted.

Wall-mast mounting

SMA order number	Wall-Mount-Bracket

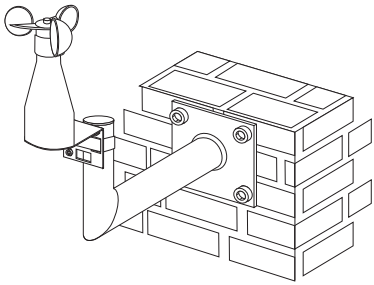


A	1	wall mounting bracket
B	4	hexagon wood screws (8x80)
C	4	washers
D	4	dowels S10

For wall-mast mounting, you require an optional SMA "wall bracket" accessory.

1. Attach the wall bracket to the wall using the screws, washers and wall anchors provided.
2. Affix the mounting bracket with the strap to the upper end of the mast.
3. Place the anemometer with the screws into the mounting bracket's broad cutouts and turn the anemometer to the end of the thin cutouts.
4. Tighten the screws beneath the anemometer.

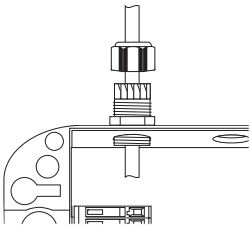
☑ The anenometer is mounted.



12.5.5 Connect the Anenometer to the Sunny SensorBox

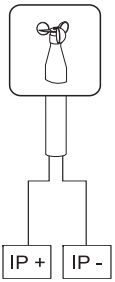
Connection to the Sunny SensorBox

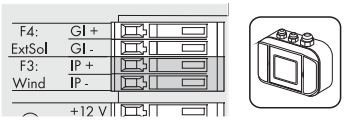
1. Open the side flaps of the Sunny SensorBox using the cutouts.
2. Loosen the screws in the corners of the Sunny SensorBox and open the housing cover up towards the left. The cover is connected to the lower shell by hooks.
3. Unscrew the cable screw connection's lock nut on the top left of the Sunny SensorBox and remove the seals.
4. Thread the sensor cable through the lock nut and the cable screw connection at the top left into the Sunny SensorBox housing.



5. The sensor is to be connected to the Sunny SensorBox's "F3: Wind" terminal. The polarity of the cables is arbitrary.
6. Tighten the lock nut onto the cable screw connection by hand (torque: 0.8Nm).
7. Lay the cable securely, using suitable fastening materials.
8. Mount and connect additional sensors.

☑ The anenometer is connected.





12.5.6 Technical Data for the Anenometer

General data	
Electric output port	Frequency proportional to wind speed: 100 Hz at 40 m/s
Weight	300 g
Mounting Location	outdoors
Applicability	mounting bracket, wall mounting bracket (optional)
Measured values	
Accuracy	± 0.5 %
Measuring range	-0,8 m/s to 40 m/s (max. 60 m/s short term)
Divestiture	0.4 m wind run
Environmental conditions for operation	
Ambient temperature	-25 °C to +60 °C (if free of ice)
Warranty	
Warranty	5 years

13 Contact

If you have technical problems concerning our products, please contact the SMA Service Line. We require the following information in order to provide you with the necessary assistance:

- Type of inverters and series number
- Serial number and firmware version of the communication device
- Series number and firmware version of the Sunny SensorBox

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