SMA

Installation Manual

SMA SPEEDWIRE/WEBCONNECT DATA MODULE

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for the following product:

- SMA Speedwire/Webconnect Data Module

This manual must be followed during installation and maintenance.

The product is designed and tested according to international safety requirements, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the product. To reduce the risk of personal injury and to ensure the safe installation and operation of the product, you must carefully read and follow all instructions, cautions and warnings in this manual.

Warnings in this document

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the SMA equipment and/or other equipment connected to the SMA equipment or personal injury.

Symbol	Description
⚠ DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	NOTICE is used to address practices not related to personal injury.

General Warnings

⚠ WARNING

All electrical installations must be made in accordance with the local and *National Electrical Code*® ANSI/NFPA 70 or the *Canadian Electrical Code*® CSA C22.1. This document does not and is not intended to replace any local, state, provincial, federal or national laws, regulations or codes applicable to the installation and use of the product, including without limitation applicable electrical safety codes. All installations must conform with the laws, regulations, codes and standards applicable in the jurisdiction of installation. SMA assumes no responsibility for the compliance or noncompliance with such laws or codes in connection with the installation of the product.

The product contains no user-serviceable parts.
For all repair and maintenance, always return the unit to an authorized SMA Service Center.

Before installing or using the product, read all of the instructions, cautions, and warnings in this manual.

Wiring of the product must be made by qualified personnel only.

Table of Contents

1 Information on this Document

1.1 Validity

This document is valid for device type "SWDM-10.GRUS" (Speedwire/Webconnect data module) from hardware version A and firmware version 1.00.20.R.

1.2 Target Group

The tasks described in this document must only be performed by qualified persons. Qualified persons must have the following skills:

- Training in the installation and commissioning of electrical devices and systems
- Knowledge of how to deal with the dangers and risks associated with installing and using electrical devices and systems
- Knowledge of all applicable standards and directives
- Knowledge of how an inverter works and is operated
- Knowledge of and compliance with this document and all safety precautions

1.3 Additional Information

Links to additional information can be found at www.SMA-Solar.com:

Document title	Document type
Firmware Update with SD Card	Technical description
SMA Speedwire Fieldbus	Technical information
SMA Modbus® Interface	Technical description
SunSpec® Modbus® Interface	Technical description

1.4 Symbols

Symbol	Explanation
i	Information that is important for a specific topic or goal, but is not safety-relevant
☐	Indicates a requirement for meeting a specific goal
☑	Desired result
✖	A problem that might occur

1.5 Typographies

Typography	Explanation	Example
Bold	• Display texts • Elements on a user interface • Terminals • Elements to be selected • Elements to be entered	• The value can be found in the field **Energy**. • Select **Settings**. • Enter the value **10** in the **Minutes** field.
>	• Connects several elements to be selected	• Select **Settings > Date**.
[**Button/Key**]	• Button or key to be selected or pressed	• Select [**Next**].

1.6 Nomenclature

Complete designation	Designation in this document
Photovoltaic system	PV system
Small-scale photovoltaic system	Small-scale PV system
Large-scale photovoltaic power plant	Large-scale PV power plant
SMA America Production, LLC	SMA
SMA Solar Technology Canada Inc.	SMA
SMA Cluster Controller	Cluster Controller
SMA Speedwire	Speedwire
SMA Speedwire/Webconnect data module	Speedwire/Webconnect data module
SMA Webconnect function	Webconnect function
SMA inverter	Inverter

1.7 Illustrations

The illustrations in this document have been created for Sunny Boy inverters so there may be slight deviations in the case of Sunny Tripower inverters.

2   Safety

2.1   Intended Use

The Speedwire/Webconnect data module is a Speedwire communication interface with Webconnect function for inverters.

Speedwire is a cable-based type of communication based on the Ethernet standard and the communication protocol SMA Data2+. This enables inverter-optimized 10/100 Mbit data transmission between Speedwire devices in PV systems. The Webconnect function enables direct data transmission between the inverters of a small-scale PV system and the Internet portal Sunny Portal without any additional communication device and for a maximum of four inverters per Sunny Portal system. For this, a Speedwire/Webconnect data module must be installed in each of the inverters. You can access your Sunny Portal system from any computer with an Internet connection.

The inverter still complies with the applicable standards after the product has been installed.

For safety reasons, it is not permitted to modify the product or install components that are not explicitly recommended or distributed by SMA for the product.

The type label must remain permanently attached to the product.

Use the Speedwire/Webconnect data module only in accordance with the enclosed documentation and with the local standards and directives. Any other application may cause personal injury or property damage.

The enclosed documentation is an integral part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

2.2   Safety Precautions

This section contains safety precautions that must be observed at all times when working on or with the product. To prevent personal injury and property damage and to ensure long-term operation of the product, read this section carefully and follow all safety precautions at all times.

⚠ DANGER

Danger to life due to electric shock when opening the inverter

High voltages are present in the conductive components of the inverter. Touching live components results in death or serious injury.

- Prior to performing any work on the inverter, always disconnect the inverter from all voltage sources on both AC and DC sides (see inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

> **⚠ CAUTION**
>
> **Risk of burns due to hot enclosure parts**
>
> Some parts of the inverter enclosure can get hot during operation. Touching these enclosure parts can result in burn injuries.
>
> • Do not touch any parts other than the lower enclosure lid of the inverter during operation.

> **NOTICE**
>
> **Damage to the inverter or the Speedwire/Webconnect data module due to electrostatic discharge**
>
> The internal electronic components of the inverter or the Speedwire/Webconnect data module can be irreparably damaged by electrostatic discharge.
>
> • Ground yourself before touching any electronic component.

2.3 Operating Instructions

> **NOTICE**
>
> **High costs possible due to inappropriate Internet tariffs**
>
> When using the Webconnect function, a constant Internet connection is required.
>
> Depending on the quality of the Internet connection, the data transfer volume for an inverter is between 150 MB and 550 MB per month. If the system overview in Sunny Portal with live data display is used, there will be an additional data volume of 600 kB per hour.
>
> • Since the Internet connection to Sunny Portal is permanent, time-based billing systems should be avoided. High costs could be incurred. SMA recommends using an Internet flat rate.

> ⓘ **If UMTS is used, VoIP is required**
>
> If UMTS is used, VoIP (Voice over IP) is required to use the Webconnect function.
>
> • Make sure that the UMTS provider can also provide a VoIP service.

2.4 Supported Products

SMA Inverters

The Speedwire/Webconnect data module can only be installed in the following SMA inverters from the specified inverter firmware version:

SMA inverter*	From inverter firmware version
SB 3000TL-US-22	2.60**
SB 3800TL-US-22	
SB 4000TL-US-22	
SB 5000TL-US-22	
SB 6000TL-US-22	All
SB 7000TL-US-22	
SB 7700TL-US-22	
STP 12000TL-US-10	All
STP 15000TL-US-10	
STP 20000TL-US-10	
STP 24000TL-US-10	

* For information on which of these SMA inverters with Speedwire/Webconnect data module support the mode interface of the Speedwire/Webconnect data module, refer to the datasheet "SMA_Modbus-DB-en.xlsx" at www.SMA-Solar.com.

** If the firmware version of the inverter is less than 2.60, you must perform a firmware update for this inverter to version 2.60 or higher. For information on performing a firmware update, refer to the technical description "Firmware Update with SD Card" at www.SMA-Solar.com.

Additional SMA Products

The Speedwire/Webconnect data module can be configured with the following communication products:

• SMA Cluster Controller from firmware version 1.0
• Sunny Explorer from software version 1.06
• SMA Connection Assist from software version 1.00.8.R

Sunny Explorer and SMA Connection Assist are available free of charge at www.SMA-Solar.com.

3   Scope of Delivery

Check the scope of delivery for completeness and any visible external damage. Contact your distributor if the scope of delivery is incomplete or damaged.

Order Option: Speedwire/Webconnect Data Module Pre-Installed in the Inverter

A   B   C
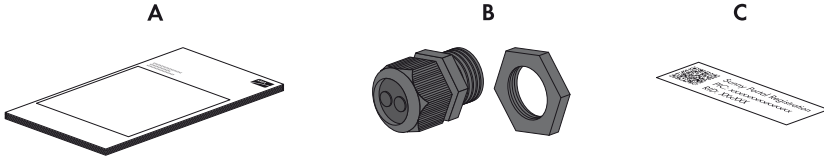
Figure 1:   Components of the order option "Speedwire/Webconnect data module pre-installed in the inverter"

Position	Quantity	Designation
A	1	Installation manual
B	1	Cable gland
C	1	Label with PIC (Product Identification Code, identification key for registering devices in Sunny Portal) and RID (Registration Identifier, registration code for registering devices in Sunny Portal)

Order Option: Speedwire/Webconnect Data Module as Retrofit Kit

A   B   C   D
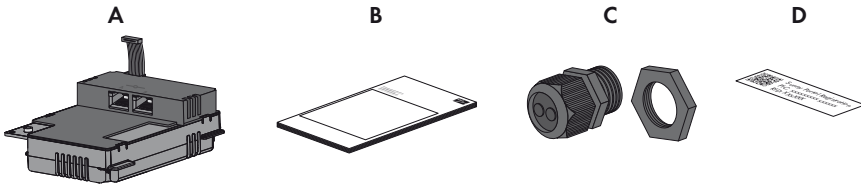

Figure 2:   Components of the order option "Speedwire/Webconnect data module as retrofit kit"

Position	Quantity	Designation
A	1	Speedwire/Webconnect data module (SWDM-US-10)
B	1	Installation manual
C	1	Cable gland
D	2	Label with PIC and RID for registration of a small-scale PV system in Sunny Portal

4   Product Description

4.1   Speedwire/Webconnect Data Module

The Speedwire/Webconnect data module is a Speedwire communication interface with Webconnect function for inverters.

Speedwire is a cable-based type of communication based on the Ethernet standard and the communication protocol SMA Data2+. This enables inverter-optimized 10/100 Mbit data transmission between Speedwire devices in PV systems.

The Webconnect function enables direct data transmission between the inverters of a small-scale PV system and the Internet portal Sunny Portal without any additional communication device and for a maximum of four inverters per Sunny Portal system. For this, a Speedwire/Webconnect data module must be installed in each of the inverters. You can access your Sunny Portal system from any computer with an Internet connection.

The Speedwire/Webconnect data module performs the following tasks:

- Setup of a Speedwire network in small-scale and large-scale PV systems
- Data exchange with Sunny Portal:
    - In small-scale PV systems via a router with Internet connection
    - In large-scale PV power plants via the Cluster Controller
- Data exchange with Sunny Explorer from software version 1.06
- The Modbus interface* of the Speedwire/Webconnect data module is designed for industrial use and offers the following functions:
    - Remote querying of measured values
    - Remote setting of parameters
    - Specification of setpoints for PV system control

The Speedwire/Webconnect data module is available as a retrofit kit or pre-installed in the inverter.
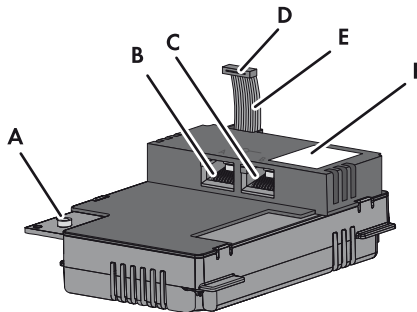

Figure 3:   Design of the Speedwire/Webconnect data module

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*   For information on which of the supported SMA inverters (see Section 2.4) support the Modbus interface of the Speedwire/ Webconnect data module, refer to the datasheet "SMA_Modbus-DB-en.xlsx" at www.SMA-Solar.com.

Position	Designation
A	Hexagon socket screw (AF 3)
B	Network port A
C	Network port B
D	Ribbon cable plug
E	Ribbon cable
F	Type label

Label with PIC and RID for registration of a small-scale PV system in Sunny Portal

To activate the Speedwire/Webconnect data module of a small-scale system in Sunny Portal, you will need the PIC and RID numbers printed on the supplied label. After installation of the Speedwire/ Webconnect data module, one label should be attached to the exterior of the inverter in the vicinity of the type label. Keep the other label in a safe place for future reference.

4.2 Possible Network Topologies

The possible network topologies depend on the devices used and on the number of network ports. The Speedwire/Webconnect data module has two network ports. For further information on network topologies, refer to the technical information "SMA Speedwire Fieldbus" at www.SMA-Solar.com.

4.3 Type Label

The type label clearly identifies the product. The type label is located in the right-hand top corner on the front of the product. You can read the following data from the type label:

- Device type (Type)
- Serial number
- Hardware version (Version)
- PIC
- RID
- MAC address

You will require the information on the type label to use the product safely and when seeking customer support from the SMA Service Line.

Symbols on the Type Label

Symbol	Designation	Explanation
	FCC marking	The product complies with the requirements of the applicable FCC standards.
	Data matrix code	2D code for device-specific characteristics

4.4 Cable Gland

The cable gland is used to fix the network cables to the inverter enclosure. The cable gland also protects the interior of the inverter from dust intrusion and moisture penetration.
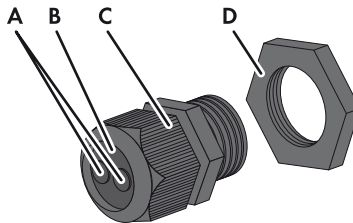
Figure 4:   Components of the cable gland

Position	Designation
A	Filler plug
B	Seal
C	Swivel nut
D	Counter nut

5   Connection

5.1   Mounting Position and Cable Route
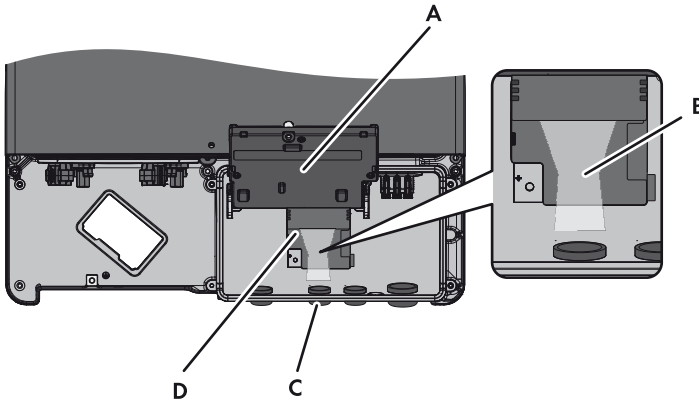
Figure 5:   Mounting position and cable route in the inverter with the lower enclosure lid open and the display flipped up

Position	Designation
A	Flipped up display
B	Cable route to the network ports
C	Inverter enclosure opening for cable gland or conduit fitting and conduit
	• Size for Sunny Boy inverters (SB): $3/4$ in (19 mm)
	• Size for Sunny Tripower inverters (STP): $1\,3/32$ in (27.8 mm) to $1\,7/64$ in (28.0 mm)
D	Mounting position of the Speedwire/Webconnect data module in the inverter

5.2   Cable Requirements and Information on Cable Routing

The cable length and cable quality affect the signal strength in the Speedwire network. Observe the following cable requirements and the cable routing information.

| i | **Interference in data transmission due to unshielded energy cables** |

If unshielded power cables are used, they generate an electromagnetic field during operation which may induce interference in network cables during data transmission.

- When laying network cables, observe the following minimum clearances to unshielded energy cables:
    – For installation without separating strip: at least 8 in (200 mm)
    – For installation with aluminum separating strip: at least 4 in (100 mm)
    – For installation with steel separating strip: at least 2 in (50 mm)

Cable requirements:

☐ UV-resistant for outdoor use

☐ Number of conductor pairs and conductor cross-section: at least 2 x 2 x 24 AWG (2 x 2 x 0.22 mm^2)

☐ External diameter of cable:

– When using conduits: the maximum diameter of the cable depends on the size of the enclosure opening at the bottom of the inverter and the number of network cables to be inserted through the opening (see Section 5.1 "Mounting Position and Cable Route", page 16).

– If using the supplied cable gland: max. $^{17}/_{48}$ in (9 mm)

☐ Cable category: Cat5, Cat5e, Cat6, Cat6a, Cat7

☐ Cable shield: SF/UTP, S/UTP, SF/FTP, S/FTP

☐ Plug type: RJ45 for Cat5, Cat5e, Cat6, Cat6a

☐ Cable length between two nodes: max. 164 ft (50 m) with patch cable, max. 328 ft (100 m) with installation cable

SMA recommends the following cable types:

• For outdoor use: SMA COMCAB-OUTxxx

• For indoor use: SMA COMCAB-INxxx*

The cables are available in the lengths xxx = 328 ft (100 m), 656 ft (200 m), 1,640 ft (500 m) and 3,280 ft (1,000 m).

5.3 Installing the Speedwire/Webconnect Data Module

1. **⚠ DANGER**

Danger to life due to electric shock when opening the inverter

High voltages are present in the conductive components of the inverter. Touching live components results in death or serious injury.

• Disconnect the inverter from voltage sources on the AC and DC sides and open it (see the inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

2. Release the screw of the display far enough to allow the display to be flipped up.
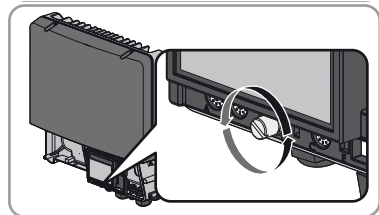
3. Flip the display up until it clicks into place.

4. Push the pre-mounted filler plug out of the second hole from the left in the inverter enclosure and retain it for future decommissioning.
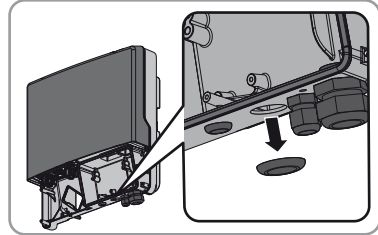
5. Attach the cable gland to the enclosure opening using the counter nut.
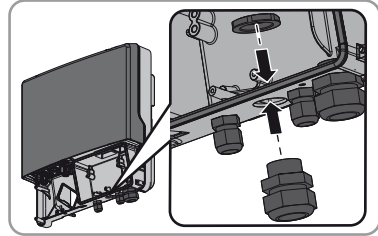
6. Insert the Speedwire/Webconnect data module and push the ribbon cable upwards behind the display. The key on the top edge of the Speedwire/Webconnect data module must fit into the hole in the plastic retainer in the inverter.
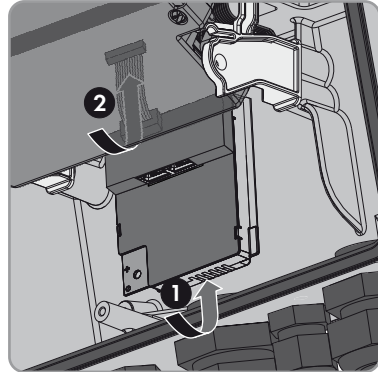
7. Fasten the Speedwire/Webconnect data module hand-tight with a torque of 13 in-lb (1.5 Nm) using the hexagon socket screw (AF 3).
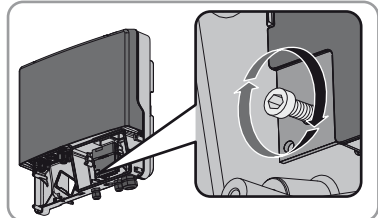
8. Flip the display down.

9. Plug the ribbon cable plug onto the center
   connector strip.
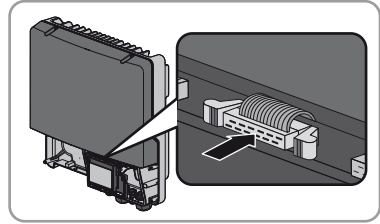
10. Stick one of the labels with the data for registration in Sunny Portal (PIC and RID) on the outside
    of the inverter in the vicinity of the type label.

11. If you do not wish to proceed immediately with the connection of the Speedwire/Webconnect
    data module, close the inverter (see inverter installation manual).

5.4 Connecting the Speedwire/Webconnect Data Module

Depending on the system topology you require, you will need to connect either one or two cables to
the Speedwire/Webconnect data module.

Requirements:

☐ All electrical installations must be carried out in accordance with the electrical standards
  applicable on site and the *National Electrical Code*® (NE, ANSI/NFPA 70).

☐ Installations in Canada must comply with the applicable Canadian standards.

☐ The network cables must be pre-assembled in accordance with the system topology and the
  cable requirements (see Section 5.2, page 16).

Additionally required material (not included in the scope of delivery):

☐ Network cable (see Section 5.2 "Cable Requirements and Information on Cable Routing",
  page 16)

☐ If cables are routed in a conduit:

  – 1 rain-tight or wet-strength conduit fitting (diameter: $^3/_4$ in)

  – 1 conduit (diameter: $^3/_4$ in)

Procedure:

1. **⚠ DANGER**

   Danger to life due to electric shock when opening the inverter

   High voltages are present in the conductive components of the inverter. Touching live
   components results in death or serious injury.

   • If the inverter has not yet been opened, disconnect the inverter from voltage sources on
     the AC and DC sides and open it (see the inverter installation manual). Observe the
   waiting time to allow the capacitors to discharge.

2. Flip the display up until it clicks into place.

3. Push the pre-mounted filler plug out of the second hole from the left in the inverter enclosure.
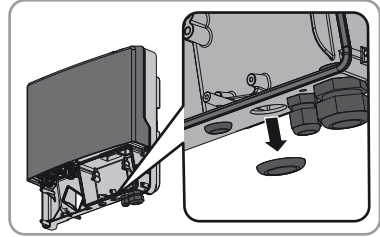
4. If a conduit is to be used, proceed as follows:
   - Insert one rain-tight or wet-strength conduit fitting into the enclosure opening and fasten from the inside using a counter nut.
   - Install one conduit at the enclosure opening.
   - Lead one or two cables through the conduit into the inverter.
   - Insert the network cables into the network ports. This can be done in any order.

5. If no conduit is to be used, proceed as follows:
   - Attach cable gland to the enclosure opening using the counter nut.
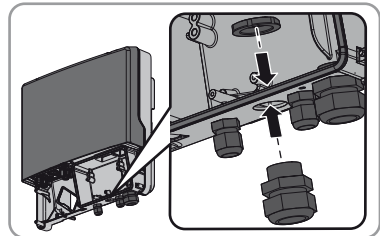
   - Unscrew the swivel nut of the cable gland on the inverter.
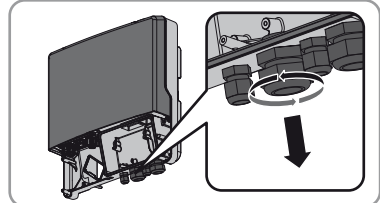
   - Press the seal out of the cable gland from the inside.
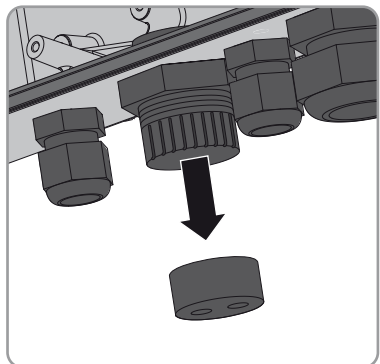
- Lead the network cables from the outside through the released swivel nut and the cable gland into the inverter.

- For each network cable, remove one of the filler plugs from the seal and retain for later decommissioning.
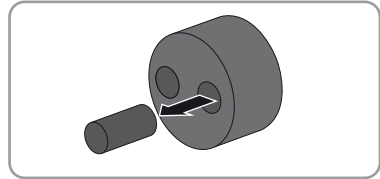
- Lead the network cables through the swivel nut and into the seal. The network cable plugs must lead to the network ports in the inverter.
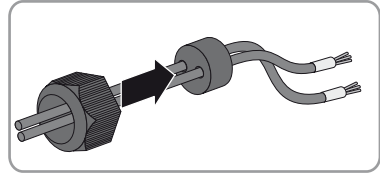
- Press the seal into the cable gland. Make sure that any unused cable openings are sealed with filler plugs.

- Screw the swivel nut of the cable gland on loosely.

- Insert the network cables into the network ports. This can be done in any order.

- Fasten the swivel nut on the cable gland hand-tight. This will fix the network cables in place.

6. Flip the display down and fasten it hand-tight with the screw.

7. Close the inverter (see inverter installation manual).

8. In a small-scale PV system, depending on the system topology connect one or more inverter(s) directly to the router.

9. In a large-scale PV power plant with Cluster Controller, connect the Cluster Controller to the Speedwire network in accordance with the required network topology (see the Cluster Controller installation manual).

6   Commissioning

6.1   Commissioning a Large-Scale PV Power Plant with Cluster Controller

Requirements:

☐ Speedwire/Webconnect data modules must be installed in the inverters (see Section 5.3, page 17).

☐ Speedwire/Webconnect data modules must be connected (see Section 5.4, page 19).

☐ The Cluster Controller must be connected to the Speedwire network in accordance with the required network topology (see installation manual of the Cluster Controller).

Procedure:

1. Commission all inverters (see inverter installation manual).

2. For optimum operation of large-scale PV power plants with Cluster Controller, deactivate the Webconnect function of the inverters with installed Speedwire/Webconnect data module (see user manual of the Cluster Controller). In large-scale PV power plants with Cluster Controller, communication with Sunny Portal takes place via the Cluster Controller itself.

6.2   Commissioning a Small-Scale PV System

Requirements:

☐ Speedwire/Webconnect data modules must be installed in the inverters (see Section 5.3, page 17).

☐ Speedwire/Webconnect data module must be connected (see Section 5.4, page 19).

☐ There must be a router with Internet connection in the local network of the PV system.

☐ At least one inverter must be connected to the router.

☐ If the IP addresses in the local network are to be assigned dynamically, DHCP must be activated in the router (see the router manual). If you do not want to use DHCP or your router does not support DHCP, use either the SMA Connection Assist or Sunny Explorer to integrate the inverters with Speedwire/Webconnect data module into the local network (see Section 2.4 "Supported Products", page 11).

Procedure:

• Commission all inverters (see inverter installation manual).

6.3   Managing Small-Scale PV Systems with Sunny Explorer

6.3.1   Functions and Parameter Settings in Sunny Explorer

The following functions for small-scale PV system management are available in Sunny Explorer:

- Overview of the PV system status
- Graphic display of key PV system data, device data and the respective energy values
- Parameterization of individual devices or entire device classes
- Simple diagnostics thanks to display of faults and events
- Data export of inverter energy values and events in CSV format
- Device updates

You can change the following parameters with Sunny Explorer:

- Device name of the inverter
- Automatic IP configuration On/Off
- DNS-IP, gateway IP, IP address, subnet mask
- Webconnect function On/Off
- Modbus function On/Off

6.3.2   Creating a Small-Scale PV System in Sunny Explorer

Requirements:

☐ The small-scale PV system must be commissioned (see Section 6.2, page 22).

☐ Sunny Explorer must be installed on the computer (see Section 2.4 "Supported Products", page 11).

Procedure:

1. Connect the computer to the PV system router with a network cable.

2. If you have used the SMA Connection Assist for static network configuration, ensure that the SMA Connection Assist has terminated.

3. Start Sunny Explorer and create a Speedwire system for the small-scale PV system in Sunny Explorer (see Sunny Explorer help).

6.4   Configuring the Modbus Function

If you wish to access SMA inverters with Modbus interface, make sure that the Modbus connection of the devices has been configured correctly. In each of the devices with Modbus, the same port must be configured for Modbus communication. The Modbus function is deactivated by default in the Speedwire/Webconnect data module, and port 502 is configured for the Modbus servers TCP and UDP. Information on how to use the Modbus interface can be found in the technical description "SMA Modbus® Interface" or "SunSpec®Modbus® Interface" at www.SMA-Solar.com.

For information on which of the supported SMA inverters (see Section 2.4) support the Modbus interface of the Speedwire/Webconnect data module, refer to the datasheet "SMA_Modbus-DB-en.xlsx" at www.SMA-Solar.com.

Procedure:

- If necessary, adjust the preset ports in the Speedwire/Webconnect data module for Modbus communication (see technical description "SMA Modbus® Interface" or "SunSpec®Modbus® Interface" at www.SMA-Solar.com).

6.5   PV System Registration in Sunny Portal

6.5.1   Registering a Large-Scale PV Power Plant with Cluster Controller in Sunny Portal

Requirements:

- ☐ The large-scale PV power plant with Cluster Controller must be be commissioned (see Section 6.1, page 22).
- ☐ The computer must have an Internet connection.
- ☐ The Cluster Controller must be connected to a router with Internet connection (see installation manual of the Cluster Controller).
- ☐ JavaScript must be enabled in the web browser.

Procedure:

- In large-scale PV power plants with Cluster Controller, carry out registration in Sunny Portal via the user interface of the Cluster Controller (see user manual of the Cluster Controller).

6.5.2   Registering a Small-Scale PV System in Sunny Portal

Requirements:

- ☐ The small-scale PV system must be commissioned (see Section 6.2, page 22).
- ☐ PIC and RID of the Speedwire/Webconnect data module must be available.
- ☐ Your computer must have an Internet connection.
- ☐ JavaScript must be enabled in the web browser.
- ☐ On the router, all UDP ports > 1024 must be open for outgoing connections. If there is a firewall installed on the router, you may have to adjust the firewall rules.
- ☐ The outgoing router connections must be enabled for all Internet destinations (target IP, target port). If there is a firewall installed on the router, you may have to adjust the firewall rules.
- ☐ In routers with NAT (Network Address Translation), no port forwarding should be set up. This will help prevent potential communication problems.
- ☐ There must be no packet filtering or manipulation for SIP packets on the router.

i	**Maximum permissible number of devices for a small-scale PV system in Sunny Portal**

In Sunny Portal, a maximum of four inverters with installed Speedwire/Webconnect data module is permitted per small-scale PV system.

ℹ️ Small-scale PV system with Speedwire/Webconnect data module cannot be combined with other PV systems

If you already have a PV system set up in Sunny Portal with a different communication device, e.g. Sunny WebBox, you will still need to create a separate small-scale PV system with Speedwire/Webconnect data module. It is not possible to combine the Speedwire/Webconnect data module and other communication devices in one system in Sunny Portal. Sunny Portal treats the existing PV system and the new small-scale PV system with Speedwire/Webconnect data module as independent PV systems.

- Create a new small-scale PV system with Speedwire/Webconnect data module.

ℹ️ Replacement of the Speedwire/Webconnect data module in the inverter

If you have replaced the Speedwire/Webconnect data module in the inverter with a new Speedwire/Webconnect data module, the PIC and the RID of the inverter will be changed. Therefore, you will also need to replace the inverter in Sunny Portal using the Plant Setup Assistant (see the Sunny Portal user manual). In the Plant Setup Assistant, you must enter the PIC and the RID of the new Speedwire/Webconnect data module.

Starting the Plant Setup Assistant in Sunny Portal

The Plant Setup Assistant is a step-by-step guide to the procedure required for user registration and the registration of your PV system in Sunny Portal

Procedure:

1. Go to **www.SunnyPortal.com**.
2. Select [**Plant Setup Assistant**].
   - ☑ The Plant Setup Assistant opens.
3. Follow the instructions of the Plant Setup Assistant.

7 Decommissioning

7.1 Disassembling the Speedwire/Webconnect Data Module

1. ⚠ **DANGER**

   Danger to life due to electric shock when opening the inverter

   High voltages are present in the conductive components of the inverter. Touching live components results in death or serious injury.

   - Disconnect the inverter from voltage sources on the AC and DC sides and open it (see the inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

2. Press the left-hand and right-hand lock hooks outwards and remove the ribbon cable plug from the center connector strip of the inverter.
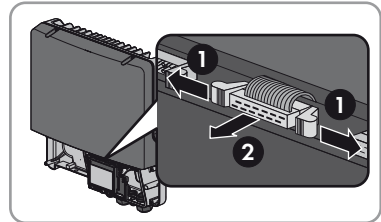
3. Release the screw of the display far enough to allow the display to flip up.

4. Flip the display up until it clicks into place.

5. Unscrew the swivel nut of the cable gland.

6. Remove the network cables from the Speedwire/Webconnect data module.

7. Unscrew the counter nut of the cable gland or conduit fitting.

8. Pull the cable gland or conduit fitting with conduit and the cables out of the inverter.

9. Release the hexagon socket screw of the Speedwire/Webconnect data module (AF 3) and remove the module.

10. Flip the display down and fasten the display screw hand-tight.

11. Seal the enclosure opening of the inverter with the corresponding filler plug.

12. Close the inverter (see inverter installation manual).

7.2 Packaging the Speedwire/Webconnect Data Module for Shipping

- Package the Speedwire/Webconnect data module for shipping. Use the original packaging or packaging that is suitable for the weight and size of the Speedwire/Webconnect data module (see Section 9 "Technical Data", page 29).

7.3 Disposing of the Speedwire/Webconnect Data Module

- Dispose of the Speedwire/Webconnect data module in accordance with the regulations for disposal of electronic waste applicable at the installation site.

8   Troubleshooting

i	**Corrective measures for Modbus errors**

Corrective measures for Modbus errors can be found in the technical description "SMA Modbus® Interface" or "SunSpec®Modbus® Interface".

Problem	Cause and corrective measure
The Speedwire/ Webconnect data module cannot be accessed.	Possibly, there is no Speedwire connection. **Corrective measures:** • Ensure that all network cable plugs are inserted and locked. • Ensure that all inverters in the PV system are in operation. • Make sure that the PV system router is switched on. • Make sure that the ribbon cable plug of the Speedwire/ Webconnect data module is correctly plugged into the center connector strip in the inverter.
	Possibly, the Speedwire/ Webconnect data module does not have a valid IP address. **Corrective measures:** • Make sure DHCP is enabled for the router **or** • Use SMA Connection Assist or Sunny Explorer to assign an appropriate static IP address to the Speedwire/Webconnect data module. You can obtain the Sunny Explorer and SMA Connection Assist software free of charge from the download area at www.SMA-Solar.com.
	Possibly, the firewall has not been configured correctly. **Corrective measures:** • Enable ports 3478 and 9523 in the firewall (see firewall manual).
	Possibly, the UDP ports in the router are not open for outgoing connections. **Corrective measures:** • Open the UDP ports > 1024 in the router for outgoing connections.
	Possibly, the IP filter has not been configured correctly. **Corrective measures:** • Adjust IP filter settings (see router manual).

Problem	Cause and corrective measure
The Speedwire/ Webconnect data module cannot be accessed.	Possibly, there is a packet filter or SIP packet manipulation activated in the router.
	Corrective measures:
	• Disable packet filters or SIP packet manipulation in the router.
	Possibly, port forwarding options have been set up in a router with NAT function (Network Address Translation).
	Corrective measures:
	• Remove the port forwarding options in the router with NAT function.
	Possibly, the inverter does not recognize the Speedwire/Webconnect data module. The firmware version of the inverter is not supported (see Section 2.4, page 11).
	Corrective measures:
	• Perform a firmware update on the inverter. For information on performing a firmware update, refer to the technical description "Firmware Update with SD Card" at www.SMA-Solar.com.

9 Technical Data

General Information	
Mounting location	In the inverter
Voltage supply	Via the inverter

Mechanical Data	
Width x height x depth	$2 \frac{7}{8}$ in x $3 \frac{7}{16}$ in x $1 \frac{3}{8}$ in (73 mm x 88 mm x 34 mm)

Communication	
Communication interface	Speedwire/Webconnect
Maximum cable length	328 ft (100 m)

Protocols	
Data interface	SMA Modbus, SunSpec

Terminals	
Type of plug	RJ45
Number of RJ45 terminals	2

Ambient Conditions for Storage/Transport	
Ambient temperature	− 40°F to +185°F (− 40°C to +85°C)
Relative humidity, non-condensing	10% to 100%

10 Compliance Information

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

The user is cautioned that changes or modifications not expressly approved by SMA America, LLC could void the user's authority to operate this equipment.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.

IC Compliance

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

11 Contact

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

- Inverter:
  - Device type and serial number (see type label)
  - Firmware version (tap the inverter display twice or see Sunny Portal or Sunny Explorer)
- Speedwire/Webconnect data module:
  - Device type, serial number and hardware version (see type label)
  - Number of Speedwire/Webconnect data modules connected
- In large-scale PV power plants:
  - Serial number and firmware version of the Cluster Controller
- In small-scale PV systems:
  - Name of your Sunny Portal system
  - PIC and RID of the Speedwire/Webconnect data module

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  **   international / internacional

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