

COM-C

Communication distributor for large-scale plants

for **SUNNY CENTRAL**, **SUNNY MINI CENTRAL** or **SUNNY TRIPOWER**



Contents

The COM-C communication distribution box by SMA Solar Technology AG is used for cabling of all communication components used in large-scale PV plants with Sunny Central, Sunny Mini Central or Sunny Tripower.

This document includes the technical data of the communication distribution box and other important information for planning PV plants with PV inverters by SMA Solar Technology AG and COM-C communication distribution boxes.

1 Product Details

- COM-C is a central communication distribution box for a large-scale PV plant. Individual components can be combined variably. This allows you to adapt the communication distribution box to the individual requirements of your large-scale PV plant. The basic equipment of the COM-C includes safety sockets and a 24 V power supply unit. All other components can be ordered from SMA Solar Technology AG.
- With the Sunny WebBox available as an option, one can detect up to 50 nodes. Up to 3 Sunny WebBox devices can be selected. Sunny Central inverters can be connected to the Sunny WebBox via Ethernet; Sunny Mini Central and Sunny Tripower via RS485. Please use shielded cables with twisted pairs. Use at least a 5/5e category SF/UTP cable as a network cable. If there are large distances between nodes, one can use fiber-optic cables. For this you require the media converters available as an option.
- COM-C is suitable for indoor and outdoor installation. The communication distribution box for outdoor installation is available for base and wall mounting. Please observe that grid voltage is required to supply the COM-C.
- Using the optional GSM/GPRS or 3G-UMTS router allows you to transfer measurement data to the Sunny Portal even from remote locations where there is no DSL or telephone connection. The required external antenna is included in the scope of delivery.
- All routers used by SMA Solar Technology AG allow you to set up virtual private networks (VPN). This allows remote access to the plants in order to perform remote diagnoses.

1.1 COM-C Variant Matrix for Indoor Installation

"x" = can be combined; "-" = cannot be combined

		Sunny WebBox, Sunny WebBox including Sunny SensorBox							Router				Power Reducer Box		8-port Ethernet switch				RJ-45/Fiber-optic cable														
		Not installed	1 Ethernet	2 Ethernet	3 Ethernet	1 RS485	2 RS485	1 Ethernet, 1 RS485, 1 Sunny SensorBox	1 RS485, 1 Sunny SensorBox	2 RS485, 1 Sunny SensorBox	3 RS485, 1 Sunny SensorBox	Not installed	1 GSM/GPRS	2: GSM/GPRS	DSL, no modem	3G-UMTS Router	Not installed	1 device	2 devices	Not installed	1 device	2 devices	3 devices	4 devices	Not installed	1 device/multi-mode	2 devices/multi-mode	3 devices/multi-mode	4 devices/multi-mode	1 device/single-mode	2 devices/single-mode	3 devices/single-mode	4 devices/single-mode
Sunny WebBox, Sunny WebBox including Sunny SensorBox	Not installed										X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	1 Ethernet										X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	2 Ethernet										X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	3 Ethernet										X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	1 RS485															-	-	-															
	2 RS485															-	-	-															
	1 Ethernet, 1 RS485, 1 Sunny SensorBox															-	-	-															
	1 RS485, 1 Sunny SensorBox															-	-	-															
	2 RS485, 1 Sunny SensorBox															-	-	-															
	3 RS485, 1 Sunny SensorBox															-	-	-															
Router	Not installed	X	X	X	X	-	-	-	-	-						-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	GSM/GPRS	X	X	X	X	-	-	-	-	-						-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	2: GSM/GPRS	X	X	X	X	-	-	-	-	-						-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	DSL, no modem	X	X	X	X	-	-	-	-	-						-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	3G-UMTS Router	X	X	X	X	-	-	-	-	-						-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Power Reducer Box	Not installed	-	-	-	-	-	-	-	-	-																							
	1 device	-	-	-	-	-	-	-	-	-																							
	2 devices	-	-	-	-	-	-	-	-	-																							
8-port Ethernet switch	Not installed	X	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	
	1 device	X	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	
	2 devices	X	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	
	3 devices	X	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X							X	X	X	-	X	X	X	-	
	4 devices	X	X	X	X	-	-	-	-	-	X	X	X	X	X	X	X	X							X	X	X	-	X	X	-	-	

		Sunny WebBox, Sunny WebBox including Sunny SensorBox						Router				Power Reducer Box		8-port Ethernet switch				RJ-45/Fiber-optic cable														
		Not installed	1 Ethernet	2 Ethernet	3 Ethernet	1 RS485	2 RS485	1 Ethernet, 1 RS485, 1 Sunny SensorBox	1 RS485, 1 Sunny SensorBox	2 RS485, 1 Sunny SensorBox	3 RS485, 1 Sunny SensorBox	Not installed	1 GSM/GPRS	2: GSM/GPRS	DSL, no modem	3G-UMTS Router	Not installed	1 device	2 devices	Not installed	1 device	2 devices	3 devices	4 devices	Not installed	1 device/multi-mode	2 devices/multi-mode	3 devices/multi-mode	4 devices/multi-mode	1 device/single-mode	2 devices/single-mode	3 devices/single-mode
RJ-45/Fiber-optic cable	Not installed	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	X								
	1 device/multi-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	X								
	2 devices/multi-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	X								
	3 devices/multi-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	-								
	4 devices/multi-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	-	-								
	1 device/single-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	X								
	2 devices/single-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	X								
	3 devices/single-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	X	-								
4 devices/single-mode	X	X	X	X	-	-	-	-	-	X	X	X	X	X	-	-	-	-	X	X	X	-	-									

1.2 COM-C Variant Matrix for Outdoor installation

"x" = can be combined; "-" = cannot be combined

		Sunny WebBox, Sunny WebBox including Sunny SensorBox					Router				Power Reducer Box		8-port Ethernet switch				RJ-45/Fiber-optic cable																	
		Not installed	1 Ethernet	2 Ethernet	3 Ethernet	1 RS485	2 RS485	1 Ethernet, 1 RS485, 1 Sunny SensorBox	1 RS485, 1 Sunny SensorBox	2 RS485, 1 Sunny SensorBox	3 RS485, 1 Sunny SensorBox	Not installed	GSM/GPRS	2: GSM/GPRS	DSL, no modem	3G-UMTS Router	Not installed	1 device	2 devices	Not installed	1 device	2 devices	3 devices	4 devices	Not installed	1 device/multi-mode	2 devices/multi-mode	3 devices/multi-mode	4 devices/multi-mode	1 device/single-mode	2 devices/single-mode	3 devices/single-mode	4 devices/single-mode	
Sunny WebBox, Sunny WebBox including Sunny SensorBox	Not installed										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 Ethernet										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 Ethernet										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3 Ethernet										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 RS485										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 RS485										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 Ethernet, 1 RS485, 1 Sunny SensorBox										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 RS485, 1 Sunny SensorBox										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 RS485, 1 Sunny SensorBox										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3 RS485, 1 Sunny SensorBox										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Router	Not installed	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	GSM/GPRS	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2: GSM/GPRS	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	DSL, no modem	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3G-UMTS Router	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Power Reducer Box	Not installed	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	
	1 device	X	X	X	-	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	2 devices	X	X	-	-	X	-	-	X	-							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8-port Ethernet switch	Not installed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	
	1 device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	
	2 devices	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	
	3 devices	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	-	X	X	X	X	-	
	4 devices	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	-	-	X	X	-	-	

		Sunny WebBox, Sunny WebBox including Sunny SensorBox									Router				Power Reducer Box		8-port Ethernet switch				RJ-45/Fiber-optic cable										
		Not installed	1 Ethernet	2 Ethernet	3 Ethernet	1 RS485	2 RS485	1 Ethernet, 1 RS485, 1 Sunny SensorBox	1 RS485, 1 Sunny SensorBox	2 RS485, 1 Sunny SensorBox	3 RS485, 1 Sunny SensorBox	Not installed	GSM/GPRS	2: GSM/GPRS	DSL, no modem	3G-UMTS Router	Not installed	1 device	2 devices	Not installed	1 device	2 devices	3 devices	4 devices	Not installed	1 device/multi-mode	2 devices/multi-mode	3 devices/multi-mode	4 devices/multi-mode	1 device/single-mode	2 devices/single-mode
RJ-45/Fiber-optic cable	Not installed	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 device/multi-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 devices/multi-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3 devices/multi-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4 devices/multi-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1 device/single-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2 devices/single-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3 devices/single-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4 devices/single-mode	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

2 Technical Data

2.1 COM-C for Indoor Installation

General Data for the Enclosure

Wall mounting	Yes
Material	Steel plate
Color scheme	RAL 7035 structure
Lock cylinder	Switch cabinet key, dual bit

Mechanical Data for the Enclosure

Width x Height x Depth	760 mm x 760 mm x 300 mm
Weight*	50 kg

* The weight of the enclosure changes according to the weight of variant-dependent equipment.

Grid connection

Nominal voltage	230 V
Frequency	50 Hz / 60 Hz
Nominal current	1.0 A
Maximum back-up fuse protection	16.0 A
Connection terminal type*	3-conductor terminal

* Clamping range of the cage clamp terminal: 0.08 mm² ... 2.5 mm².

Basic Equipment

Protective contact plugs	5
Power supply unit	1 x 230 V _{AC} / 24 V _{DC}

Variant-Dependent Equipment

GSM/GPRS router*	2 at maximum
DSL router**	1 at maximum
3G-UMTS router*	1 at maximum
Sunny WebBox	3 at maximum
8-port Ethernet switch	4 at maximum
Multi- or single-mode media converter, RJ-45/ fiber-optic cable	4 at maximum

* including external antenna

** without modem

Variant-Dependent Interfaces

Communication	GSM/GPRS / UMTS / DSL / Ethernet / RS485 communication
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Protection Rating and Ambient Conditions

Protection rating*		IP 54
Permissible ambient temperatures		- 20 °C ... +50 °C
Relative humidity**	U _{air}	10 % ... 90 %
Tolerable contamination***		2
Maximum altitude above sea level, AMSL		1 000 m

* According to EN 60529

** Non condensing

*** According to DIN EN 50178:1197

2.2 COM-C for Outdoor Installation

General Data for the Enclosure

UV resistance	Yes
Base installation*	Yes
Wall mounting*	Yes
Material	Fiber glass reinforced polyester
Color scheme	RAL 7035 light gray, solid-colored
Lock cylinder (double-bit) with switch cabinet key**	Yes
Cable support rail***	Yes

* optional

** prepared for customer mounting

*** only for base mounting

Mechanical Data for the Base

Width x Height x Depth	1 100 mm x 940 mm x 310 mm
Burial depth	600 mm at maximum
Weight	25 kg
Total weight, enclosure and base*	65 kg

* The weight of the enclosure and base changes according to the weight of the variant-dependent equipment.

Mechanical Data for the Enclosure

Width x Height x Depth	1 000 mm x 750 mm x 320 mm
Weight*	40 kg

* The weight of the enclosure changes according to the weight of variant-dependent equipment.

Grid connection

Nominal voltage	230 V
Frequency	50 Hz / 60 Hz
Nominal current	1.0 A
Maximum back-up fuse protection	16.0 A
Connection terminal type*	3-conductor terminal

* Clamping range: 0.08 mm² ... 2.5 mm².

Connecting Optional Components

Digital inputs for Power Reducer Box*	4-conductor connection terminal
RS485 for Sunny WebBox*	4-conductor connection terminal
RS485 for Sunny SensorBox*	4-conductor connection terminal

* Clamping range of the cage clamp terminal: 0.14 mm² ... 1.5 mm². Connecting the cable shield with shield terminal clamps.

Basic Equipment

Number of electric safety sockets	5
Power supply unit	1 x 230 V _{AC} / 24 V _{DC}

Variant-Dependent Equipment

GSM/GPRS router*	1 at maximum
DSL router**	1 at maximum
3G-UMTS router*	1 at maximum
Sunny WebBox	1 at maximum
8-port Ethernet switch	2 at maximum
Multi- or single-mode media converter, RJ-45/ fiber-optic cable	2 at maximum

* including external antenna

** without modem

Variant-Dependent Interfaces

Communication	GSM/GPRS / UMTS / DSL / Ethernet / RS485 communication
---------------	---

Protection Rating and Ambient Conditions

Protection rating*		IP 54
Permissible ambient temperatures		- 20 °C ... +50 °C
Relative humidity**	U _{air}	10 % ... 90 %
Tolerable contamination***		2
Maximum altitude above sea level, AMSL		1 000 m

* According to EN 60529

** Non condensing

*** According to DIN EN 50178:1197

3 Dimensions

3.1 Indoor installation



3.2 Outdoor installation

