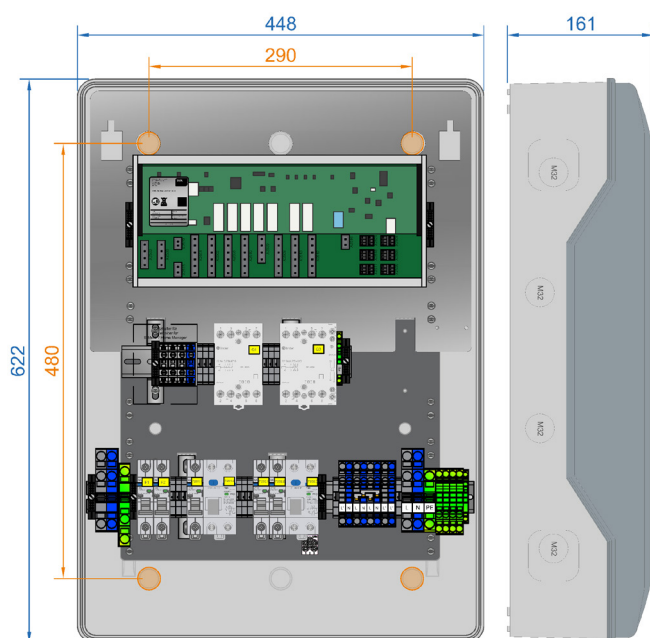


## 1PH-Battery Backup Distribution for 1 x Sunny Boy Storage

1PH\_SMA\_1ST6\_X\_2SB5\_BBDAP\_12KW\_1PH\_PREP\_IT\_1.0

Art.No. 10013490

Designation	Battery Backup Distribution 1PH
Application	Battery Backup Function - SMA Flexible Storage System
Region	Italy
Battery-Inverter	1 x Sunny Boy Storage 3.7/5.0/6.0
PV-Inverter	1 x Sunny Boy 3.0/3.6/4.0/5.0/6.0 or max. 2 x Sunny Boy 3.0
Monitoring & Control	<ul style="list-style-type: none"> <li>integrated SMA - Backup-Controller</li> <li>prepared for retrofitting of SMA - Energy Meter/Home Manager 2.0</li> </ul>
Meter connection	Connection M2 and M3 are prepared for connection according to CEI 0-21 „12.1.1.2“ or „12.1.1.3“
Grid structure	Single Phase - 1PH 230V - TT or TN-S System



All values in [mm]  
Dimensions  
Fastening points

„blue“  
„orange“

### Minimum distances

top	200
bottom	400
lateral	200
front	1.200

## SCOPE OF DELIVERY

Quantity	Designation
1	Battery Backup Distribution
2	Cable gland M32 x 1,5 (clamping range Ø 13 – 21mm)
8	Cable gland M25 x 1,5 (clamping range Ø 9 – 17mm)
4	Cable gland M20 x 1,5 (clamping range Ø 6 – 13mm)
2	Enlargement adaptor -M20 to M25-
1	Reduction adaptor -M20 to M12- (pressure equalisation valve)
2	Locknut M32
4	Locknut M25
7	Locknut M20
1	Special sealing insert (CAT 5e cable „RJ45 plug“-M25-)

Quantity	Designation
1	Pressure equalisation valve
1	Cover caps for fastenting screws
1	N-supply terminal 3-fold (mounted on the RCD)
1	Communication plug (plugged into the backup controller - X2504)
1	Warning label „high voltage“
1	Label - image „with reference to an island mode system ability“
1	Installation instructions
1	Wiring diagram (DIN A3 printout)
1	Circuit diagram (DIN A3 printout)



enwitec electronic GmbH

Scherrwies 2 | 84329 Wurmansquick | Tel. +49 8725 9664-0  
Mail [info@enwitec.eu](mailto:info@enwitec.eu) | [www.enwitec.eu](http://www.enwitec.eu)

Status: January 2022

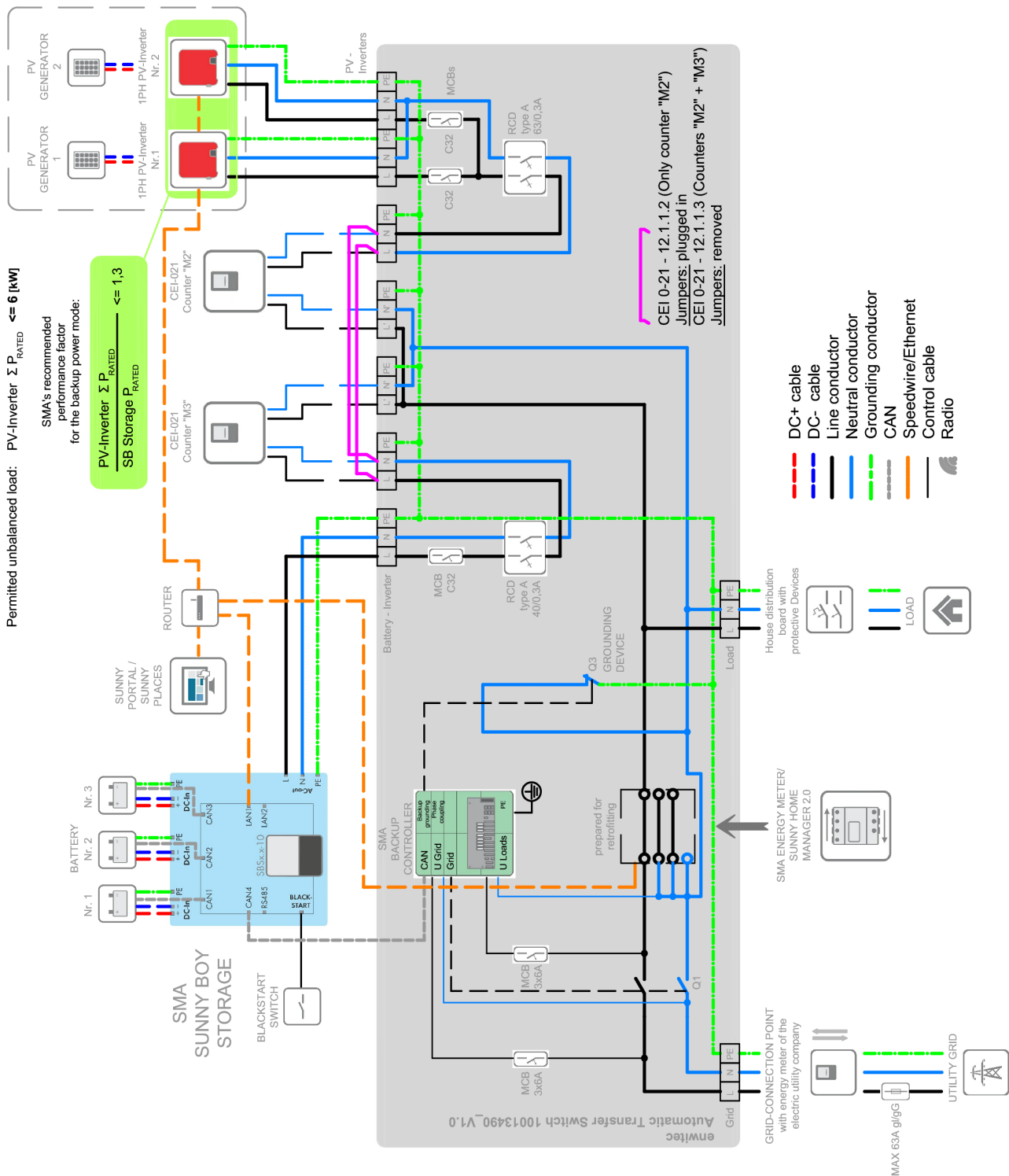
10013490\_datasheet\_1PH\_SMA\_1ST6\_X\_2SB5\_BBDAP\_12KW\_1PH\_PREP\_IT\_1.0

## 1PH-Battery Backup Distribution for 1 x Sunny Boy Storage

1PH\_SMA\_1ST6\_X\_2SB5\_BBDAP\_12KW\_1PH\_PREP\_IT\_1.0

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### CIRCUITRY OVERVIEW



### SELECTION GUIDE - PV INVERTER

For stable backup power operation, the ratio of the Sunny Boy Storage to the installed PV inverter power must be observed.  
PV inverter power must be taken into account!

SMA's recommended performance factor for the backup power mode:

$$\frac{\text{PV-Inverter } \Sigma P_{\text{RATED}}}{\text{SB Storage } P_{\text{RATED}}} \leq 1,3$$

This ratio can also be higher. The following influencing variables play a role here:

- Local output situation/PV irradiation or weather (installed PV inverter output does not always correspond to the PV output power)
- State of charge of the battery (if the battery is fully charged, it can absorb less surplus PV energy).
- Behaviour of the connected consumer loads (large load changes can impair the affect the stability of the backup current).

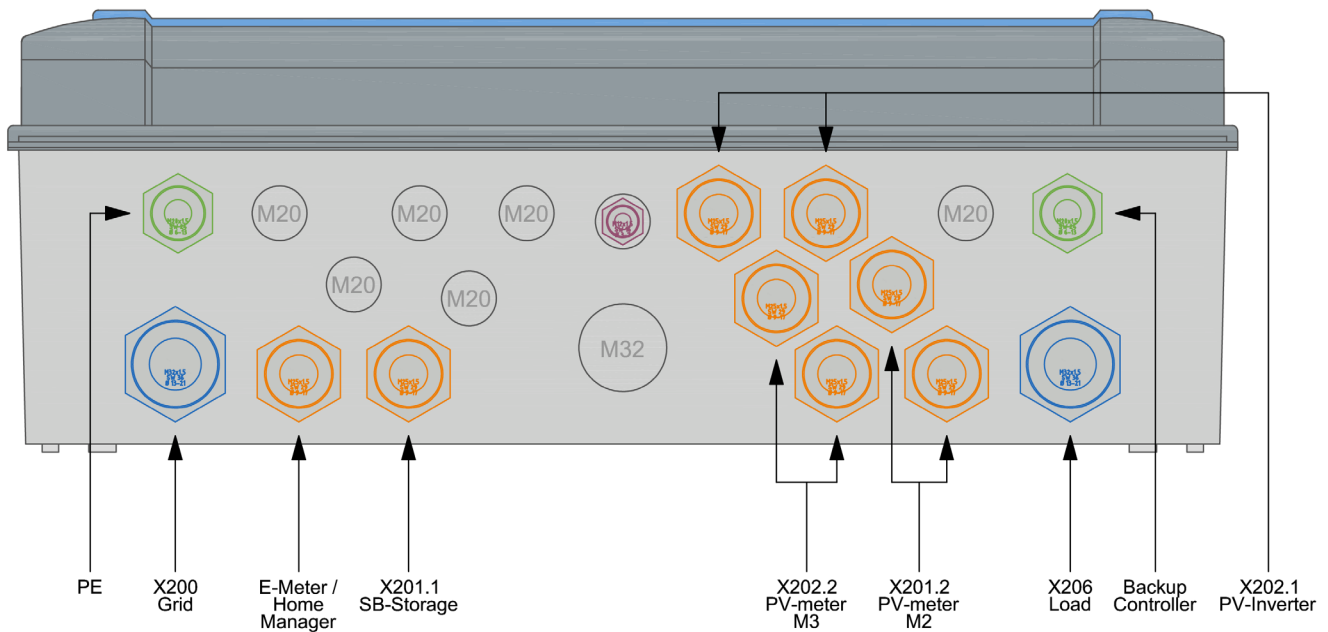
For example, it is also possible to use a Sunny Boy 5.0 or two Sunny Boy 3.0 in the battery-backup system on a Sunny Boy Storage SBS3.7 (marked # in the table).  
However, in the case of large load jumps, short-term interruptions in the backup power system may then occur.









Permitted unbalanced load  $\text{PV-Inverter } \Sigma P_{\text{RATED}} \leq 6 \text{ [kW]}$

Permitted total inverter power  $(\text{Battery-Inverter} + \text{PV-Inverter}) \Sigma P_{\text{RATED}} \leq 11,08 \text{ [kW]}$

Amount of PV-Inverters	PV-Inverter	SB-Storage 3.7	SB-Storage 5.0	SB-Storage 6.0
1	Sunny Boy 3.0	✓	✓	✓
1	Sunny Boy 3.6	✓	✓	✓
1	Sunny Boy 4.0	✓	✓	✓
1	Sunny Boy 5.0	✓ #	✓	✓
1	Sunny Boy 6.0	✓ #	✓	X
2	Sunny Boy 3.0	✓ #	✓	X

### CABLE ENTRY AND CONNECTIONS



Cable gland	Terminal block	Clamping range [mm]	Wire type	Cross section max. [mm <sup>2</sup> ]	Stripping length [mm]	Wire-end sleeve
	M32	X200 - Grid	solid	16	18 - 20	-
			stranded	25		-
			stranded	16		✓
	M32	X206 - Load	solid	16	18 - 20	-
			stranded	25		-
			stranded	16		✓
	M25	X201.1 - SB-Storage	solid	10	13 - 15	-
			stranded	10		-
			stranded	6		✓
	M25	X202.1 - PV-Inverter	solid	10	13 - 15	-
			stranded	10		-
			stranded	6		✓
	M25	X201.2 - Meter M2 X202.2 - Meter M3	solid	10	13 - 15	-
			stranded	10		-
			stranded	6		✓
	M25	E-Meter / Home Manager	special sealing insert for RJ45 connector	-	-	-
	M20	X2504 - Communication	Communication cable according to SMA's specifications			
	M20	PE	solid	16	18 - 20	-
			stranded	25		-
			stranded	16		✓

## 1PH-Battery Backup Distribution for 1 x Sunny Boy Storage

1PH\_SMA\_1ST6\_X\_2SB5\_BBDAP\_12KW\_1PH\_PREP\_IT\_1.0

Art.No. 10013490

### TECHNICAL DATA

• applicable / - not applicable

#### NOMINAL VALUES

Rated operating voltage	[V]	1PH - 230
Rated insulation voltage	[V]	400
Operating frequency	[Hz]	50 ±5%
Max. prospective short circuit current	[kA]	10
Permitted grid structure		TT / TN-S
Max. value of pre-fuses gL/gG	[A]	63
Max. thermal power	[kW]	12
Max. power feed-in (limited by the system)	[kW]	6
Standby-loss, approx.	[W]	15

#### BATTERY BACKUP FUNCTION

##### Max. overload currents (effective value)

Sunny Boy Storage SBS3.7-10		20
Sunny Boy Storage SBS5.0-10	[A]	28
Sunny Boy Storage SBS6.0-10		32
Max. Output - fault current (<200µs)	[A]	198
Voltage to ground during preparedness of short circuit current	[V]	<20
Temporary current carrying - Island Grid grounding for 5 seconds	[A]	240
Continuously current carrying - Island Grid grounding	[A]	63
Switch-off time - starting at the point of exceeding the overload current	[ms]	80
Switch-off time - starting at the point of exceeding the current of 55A Peak (= short circuit)	[µs]	250

#### CIRCUIT BREAKERS

F1	Backup Controller	[A]	B6
F2	Backup Controller	[A]	B6
F201.1	SB-Storage	[A]	C32
F202.1/2	PV-Inverter	[A]	2 x C32
F201.2	SB-Storage	[A]	Type A / 40 - 0,3
F202.3	PV-Inverter	[A]	Type A / 40 - 0,3

#### CONTACTORS (IEC/EN 61095; IEC/EN60947-1; IEC 60947-5-1)

Q1	Grid disconnection	AC1/AC3 [A]	63 / 30
Q3	Grounding device	AC1/AC3 [A]	63 / 30
Control voltage		[V]	230
Hum-free		•/-	•

#### GENERAL DATA

Dimensions WxHxD (without cable glands)	[mm]	448 x 622 x 161
Weight, approx.	[kg]	12
Operating temperature range	[°C]	-25 ... +40
Temperature - transport/storage (24h 70°C)	[°C]	-25 ... +55
Humidity - condensing allowed	•/-	-
Humidity - permitted range	[%]	5...95
Max. altitude above sea level	[m]	2000
Protection class IP (EN 60529)		65
Outdoor suitability (protected area)	•/-	-
Installation type		Indoor area
Protection against electric shock (EN 61140)		II
Case material		Polycarbonate
RoHS-conformity (2011/65/EU)	•/-	•
Case colour		RAL7035
Cover		transparent
Mounting method		Wall mounting
Locking system		without tool

#### MISCELLANEOUS

Customs tariff number	85371098
SMA Backup Controller - spare part number	10012490

### EC DECLARATION OF CONFORMITY

The product,	designation:	1PH_SMA_1ST6_X_2SB5_BBDAP_12KW_1PH_PREP_IT_1.0
	article number:	10013490
	manufacturer:	enwitec electronic GmbH Scherrwies 2 84329 Rogglfing
	description:	Battery Backup Distribution for the SMA Flexible Storage System

to which this declaration relates, is in conformity to the following standards or normative documents:

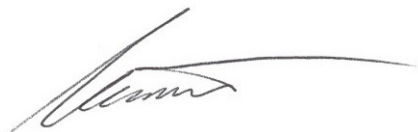
EN 61439-1	Low-voltage switchgear and controlgear assemblies
EN 61439-2	Power switchgear and controlgear assemblies
EN 61439-3	Distribution boards intended to be operated by ordinary persons (DBO)
CEI 0-21:2019-04	Low-voltage directive

and is in accordance with the provisions of the following EC-directives:

Low-voltage directive 2014/35/EU  
Restriction of Hazardous Substances Directive 2011/65/EU (RoHS)

Year of affixing CE-marking:	2018
Date of issue:	09.10.2018

enwitec electronic GmbH



Name / Signature

Johann Wimmer  
CEO

