

Art.Nr. 10012856

Automatic Transfer Switch Box | 3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5

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Type designation	Automatic Transfer Switch Box 3PH
Application	Battery-Backup Function - SMA „Flexible Storage System“
Region	Germany, Austria, Switzerland
Battery inverter	1 x Sunny Boy Storage 3.7/5.0/6.0
PV inverter	2 x Sunny Boy 3.0/3.6/4.0/5.0/6.0 1x Sunny Tripower 3.0 to 10.0 or 5000TL to 12000TL (no support of the backup power mode!)
PV meter	Connection possible
Monitoring and Control	<ul style="list-style-type: none"> integrated SMA - Backup Controller prepared for retrofitting a SMA - Energy Meter or Home Manager 2.0
Grid Structure	Three phase - 3PH 230/400V - TT or TN-S system

All values in [mm]

Dimensions

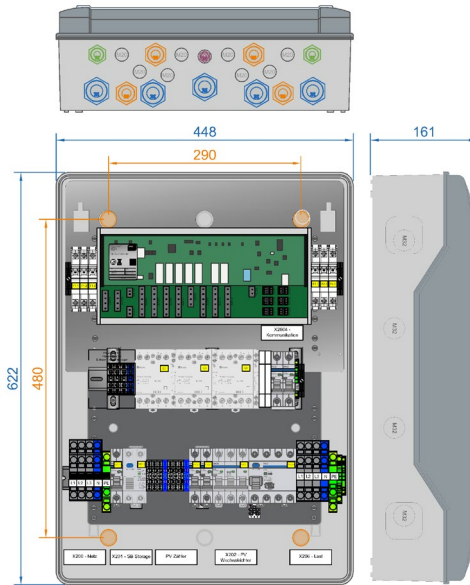
Fastening points

„blue“
„orange“

Inner construction as well as choice of components may differ within the variants!

Minimum distances

top	300
bottom	300
lateral	200
front	800



SCOPE OF DELIVERY

Quantity	Designation	Quantity	Designation
1	Automatic Transfert Switch Box	5	Locknut 20
2	Cable gland M40	1	Special sealing insert M25 (CAT 5 cable „RJ45-contactor“)
5	Cable gland M32	1	Pressure equalisation valve
4	Cable gland M25	1	Cover caps for fastening screws
2	Cable gland M20	1	N-supply terminal 3-fold (mounted on the RCD)
2	Enlargement adaptor M32/M40	1	Communication plug (plugged into the backup controller X2504)
2	Enlargement adaptor M25/M32	1	Warning label “high voltage“
2	Enlargement adaptor M20/M25	1	Label „Reference to an off-grid storage system“
1	Reduction adaptor M20/M12 (pressure equalisation valve)	1	Installation instructions
3	Locknut M32	1	Wiring diagram (DIN A3 printout)
4	Locknut M25	1	Circuit diagram (DIN A3 printout)

Status: April 2022

10012856_datasheet_3PH_SMAST60_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_15_2024_06_10

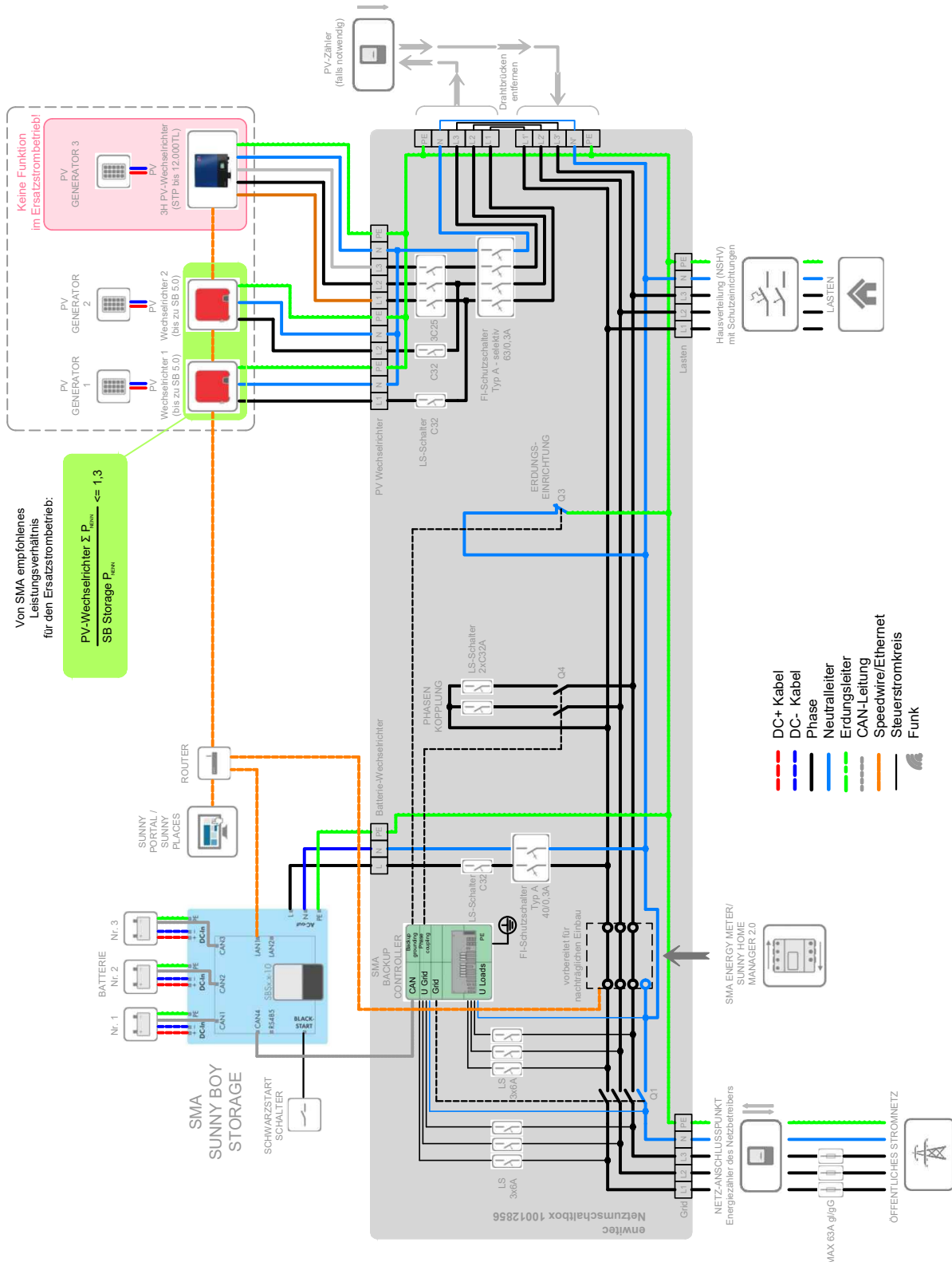
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◇ CIRCUITRY OVERVIEW



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◇ POSSIBLE COMBINATIONS OF PV INVERTERS

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)
- Active power setting limited by country specification on the PV inverter (e.g. 4.6KVA according to VDE-AR-N 4105)
- Active power setting limited by country specification on the PV inverter (e.g. 4.6KVA according to VDE-AR-N 4105)
- 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 Storage 3.7 with a Sunny Boy 5.0 or a Sunny Boy Storage 5.0 with two Sunny Boy 5.0 in the backup power system. However, in the case of large load jumps, short-term interruptions in the backup power system may then occur.

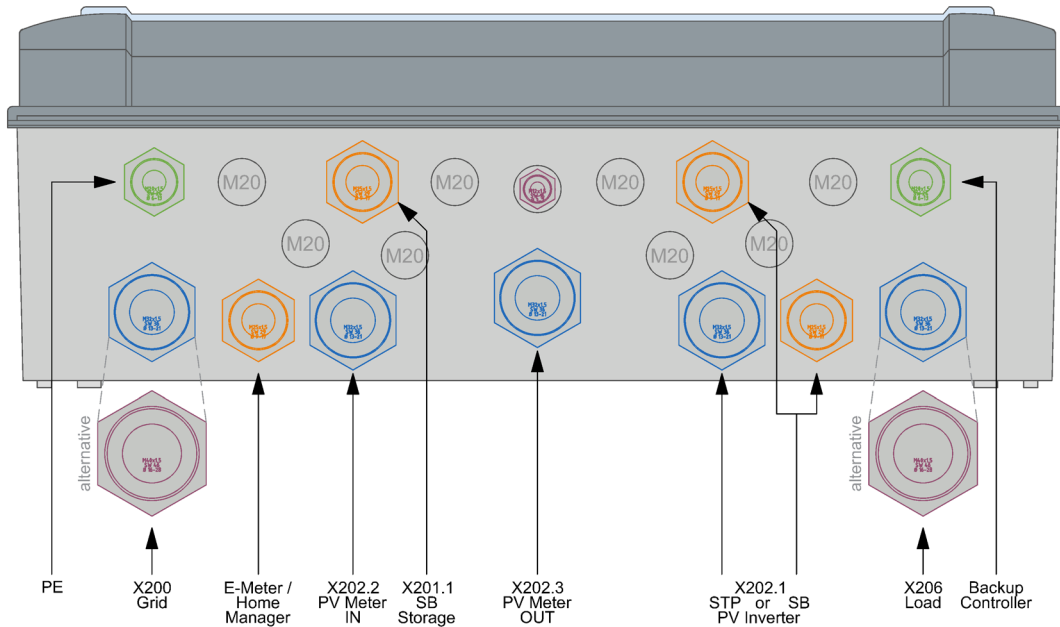
* single phase PV inverters that support the backup power mode

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CABLE ENTRY



Cable gland	Terminal block	Clamping range [mm]	Wire type	Cross section [mm ²]	Stripping length [mm]
M32 M40	X200 - Grid	13 - 21 16 - 28	solid /stranded fine stranded fine stranded + wire end ferrule	16 25 16	18 - 20
M32 M40	X206 - Load	13 - 21 16 - 28	solid /stranded fine stranded fine stranded + wire end ferrule	16 25 16	18 - 20
M32	X202.2/3 - PV meter	13 - 21	solid /stranded fine stranded fine stranded + wire end ferrule	10 10 6	18 - 20
M32 M25	X202.1 - PV-Inverter	13 - 21 9 - 17	solid /stranded fine stranded fine stranded + wire end ferrule	10 10 6	13 - 15
M20	X201 - SB-Storage	9 - 17	solid /stranded fine stranded fine stranded + wire end ferrule	10 10 6	10 - 12
M20	E-Meter / Home Manager	special sealing insert for RJ45 connector	-	-	-
	X2504 - Communication	6-13	Communication cable according to SMA's specifications		
	PE	6-13	solid /stranded fine stranded fine stranded + wire end ferrule	16 25 16	18 - 20

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GENERAL DATA

NOMINAL VALUES

• applicable / - not applicable

Rated operating voltage	[V]	3PH - 230/400
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	[A]	20
Standby-loss, ca.	[W]	15

CIRCUIT BREAKERS

F1.1/1.2/1.3	Backup Controller	[A]	3 x C6
F2.1/2.2/2.3	Backup Controller	[A]	3 x C6
F4.1/4.2	Phase coupling	[A]	2 x C32
F201.1	SB-Storage	[A]	C32
F202.1/2	PV inverter - 1PH	[A]	2 x C32
F202.3	PV inverter - 3PH	[A]	3C25

RESIDUAL CURRENT CIRCUIT BREAKERS

F201.2	SB Storage	[A]	Type A / 40 - 0,3
F202.4	PV inverter (selective)	[A]	Type A / 63 - 0,3

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

Q1	Grid disconnection	AC1 [A]	63
Q3	Grounding device	AC1 [A]	63
Q4	Phase coupling	AC1 [A]	63
Control voltage		[V]	230
Hum-free		•/-	•

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TECHNICAL DATA

BATTERY BACKUP FUNCTION

• zutreffend / - nicht zutreffend

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

GENERAL DATA

Dimensions W x H x D (without cable glands)	[mm]	448 x 622 x 161
Weight, ca.	[kg]	12
Operating temperature range t _a	[°C]	-25...+40
Temperature - transport/storage (24 h. 70°C)	[°C]	-25...+55
Humidity - condensing allowed	•/-	-
Humidity - permitted range	[%]	5...95
Max. altitude above sea level N.N.	[m]	2000
Protection class IP (EN 60529)	IP	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		similar RAL 7035
Cover		transparent
Mounting method		wall mounting
Locking system		hinged door

MISCELLANEOUS

Customs tariff number		85371098
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ACCESSORY (not included in scope of delivery)

SMA Backup Controller - spare part number		10012490
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EC DECLARATION OF CONFORMITY

The product, desogmatopm: **3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5**

article number: **10012856**

manufacturer: **enwitec electronic GmbH
Scherrwies 2
84329 Rogglfing**

description: **Automatic Transfer Switch Box 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)
VDE-AR-E 2510-2	Stationary electrical energy storage systems intended for connection to the low voltage grid

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: **04.07.2018**

enwitec electronic GmbH



Name / Signature

Johann Wimmer
CEO