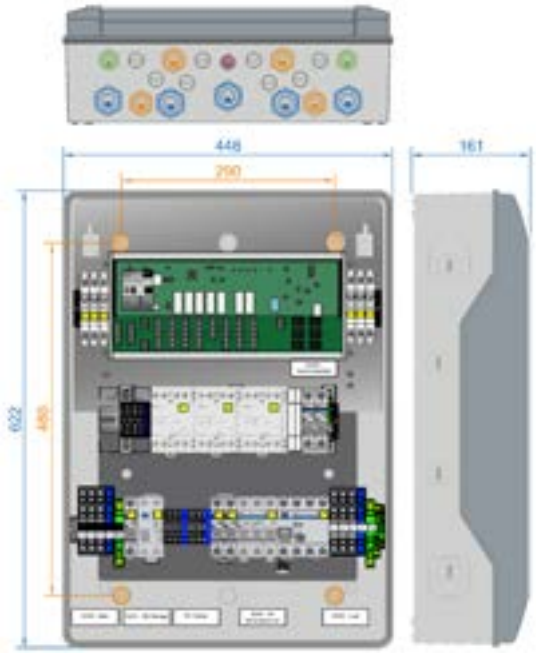
DATA SHEET

Automatic Transfer Switch Box

3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5

Art.No.
10012856

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 & Control	▪ 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



Alle values in [mm]
Dimensions „blau“
Fastening points „orange“

Minimum distances

top	300
bottom	300
lateral	200
front	800

SCOPE OF DELIVERY

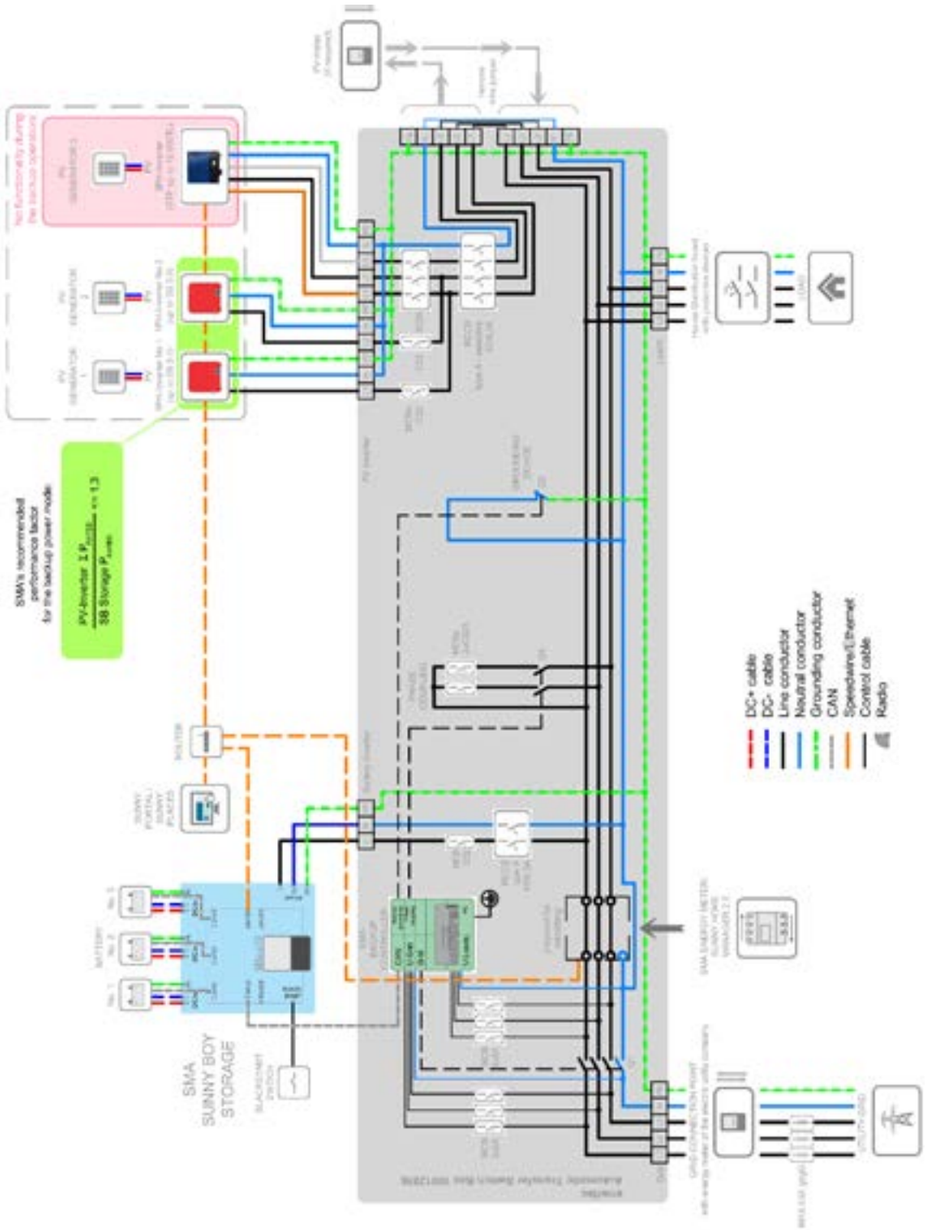
Quantity	Designation
1	Automatic Transfert Switch Box
2	Cable gland M40
5	Cable gland M32
4	Cable gland M25
2	Cable gland M20
2	Enlargement adaptor -M32 to M40-
2	Enlargement adaptor -M25 to M32-
2	Enlargement adaptor -M20 to M25-
1	Reduction adaptor -M20 to M12- (pressure equalisation valve)
3	Locknut 32
4	Locknut 25

Quantity	Designation
5	Locknut 20
1	Special sealing insert (CAT 5 cable „RJ45-contactor“-M25-)
1	Preassure equalisation valve
1	Cover caps for fastening 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 Wurmannsquick | Tel. +49 8725 9664-0
Mail info@enwitec.eu | www.enwitec.eu

Status: March 2022

CIRCUITRY OVERVIEW



DATA SHEET
Automatic Transfer Switch Box
3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5
Art.No. 10012856

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:

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

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

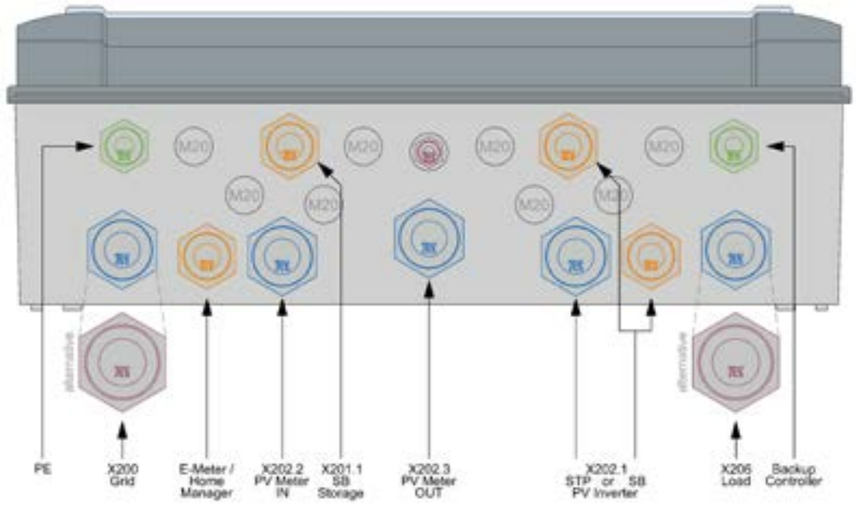
- Local output situation/PV irradiation or weather (installed PV inverter output does not always correspond to the PV output power)
- Active power setting limited by country specification on the PV inverter (e.g. 4.6KVA according to VDE-AR-N 4105)
- State of charge of the battery (if the battery is fully 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

enwitec electronic GmbH
Scherrwies 2 | 84329 Wurmannsquick | Tel. +49 8725 9664-0
Mail info@enwitec.eu | www.enwitec.eu
Status: March 2022
10012856_datasheet_3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5
The text and illustrations correspond to the technical status at the time of printing, subject to change without notice. Despite careful editing, all information is without guarantee. Liability is excluded.
© enwitec electronic GmbH

CABLE ENTRY AND CONNECTIONS



Cable gland		Terminal block	Clamping range [mm]	Wire type	Cross section max. [mm²]	Stripping length [mm]	Wire-end sleeve
	M32	X200 - Grid	13 - 21	solid	16	18 - 20	-
	M40		16 - 28	stranded	25		-
				stranded	16		✓
	M32	X206 - Load	13 - 21	solid	16	18 - 20	-
	M40		16 - 28	stranded	25		-
				stranded	16		✓
	M32	X202.2/3 - PV meter	13 - 21	solid	10	13 - 15	-
				stranded	10		-
				stranded	6		✓
	M32	X202.1 - PV-Inverter	13 - 21	solid	10	13 - 15	-
	M25		9 - 17	stranded	10		-
				stranded	6		✓
	M25	X201 - SB-Storage	9 - 17	solid	10	13 - 15	-
				stranded	10		-
				stranded	6		✓
	M25	E-Meter / Home Manager	special sealing insert for RJ45 connector	-	-	-	-
	M20	X2504 - Communication	6-13	Communication cable according to SMA's specifications			
	M20	PE	6-13	solid	16	18 - 20	-
				stranded	25		-
				stranded	16		✓

DATA SHEET
Automatic Transfer Switch Box
3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5
Art.No. 10012856

TECHNICAL DATA

• applicable / - not applicable

NOMINAL VALUES		
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	[kW]	20
Standby-loss, approx.	[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		•/-	•

BATTERY BACKUP FUNCTION		
Max. overload currents (effective value)		
Sunny Boy Storage SBS3.7-10	[A]	20
Sunny Boy Storage SBS5.0-10		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

enwitec electronic GmbH
Scherrwies 2 | 84329 Wurmannsquick | Tel. +49 8725 9664-0
Mail info@enwitec.eu | www.enwitec.eu
Status: March 2022
10012856_datasheet_3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5
The text and illustrations correspond to the technical status at the time of printing, subject to change without notice. Despite careful editing, all information is without guarantee. Liability is excluded.
© enwitec electronic GmbH

TECHNICAL DATA

• applicable / - not applicable

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		hinged door

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

DATA SHEET
Automatic Transfer Switch Box
3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5
Art.No. 10012856

EC DECLARATION OF CONFORMITY

The product, designation: **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

enwitec electronic GmbH
Scherrwies 2 | 84329 Wurmannsquick | Tel. +49 8725 9664-0
Mail info@enwitec.eu | www.enwitec.eu
Status: March 2022
10012856_datasheet_3PH_SMA.ST6.0_1STP12_2SB5_BBDAP_20KW_1PH_PREP_DACH_1.5