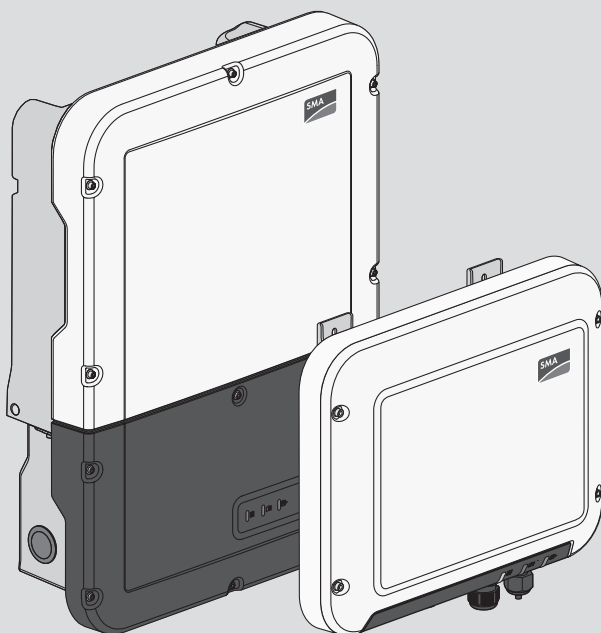


Technical Information

## SUNNY BOY STORAGE

Approved Batteries and Information on Battery  
Communication Connection



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# 1 Approved Batteries

In these tables, you find the batteries that are approved for the operation with the following battery inverters of SMA (status: 05/2018):

- SBS2.5-1VL-10 (Sunny Boy Storage 2.5)
- SBS3.7-10 (Sunny Boy Storage 3.7)
- SBS5.0-10 (Sunny Boy Storage 5.0)
- SBS6.0-10 (Sunny Boy Storage 6.0)
- SBS3.8-US-10 (Sunny Boy Storage 3.8-US)
- SBS5.0-US-10 (Sunny Boy Storage 5.0-US)
- SBS6.0-US-10 (Sunny Boy Storage 6.0-US)

Manufacturer	Type	Product number	Required inverter firmware version for:			Battery firmware that can be updated by the inverter:
			SBS2.5-1VL-10	SBS3.7-10, SBS5.0-10, SBS6.0-10, SBS3.8-US-10, SBS5.0-US-10, SBS6.0-US-10		
LG Chem	RESU10H	R15563P3SDLT	≥ 2.04.14.R	≥ 1.00.20.R	✓	
LG Chem	RESU7H	EH111063P3S3	≥ 2.04.23.R	≥ 1.00.20.R	✓	
BYD Company Limited	Battery-Box HV 6.4	-	≥ 2.04.23.R	≥ 1.00.20.R	✗	
BYD Company Limited	Battery-Box HV 7.7	-	≥ 2.04.23.R	≥ 1.00.20.R	✗	
BYD Company Limited	Battery-Box HV 9.0	-	≥ 2.04.23.R	≥ 1.00.20.R	✗	
BYD Company Limited	Battery-Box HV 10.2	-	≥ 2.04.23.R	≥ 1.00.20.R	✗	

## Synchronizing the battery and battery inverter

All batteries mentioned supply a defined nominal current. Please pay attention to the battery manufacturer's recommendation regarding the suitable dimensioning of the battery in order to achieve the nominal and overload currents of the systems stated in the datasheet with a Sunny Boy Storage. Only if the dimensioning of the battery size is synchronized (battery capacity, battery currents, number of battery modules if necessary), the full functionality and power incl. overload can be guaranteed for the PV storage system with the respective battery inverter in use.

### Recommendations for the use in various systems for SBS3.7-10 / SBS5.0-10 / SBS6.0-10 und SBS3.8-US-10 / SBS5.0-US-10 / SBS6.0-US-10:

Type	Use in systems for increased self-consumption	Use in battery-backup systems	Use in systems with secure power supply operation
RESU7H	✓	✗*	✓**
RESU10H	✓	✗*	✓
Battery-Box HV 6.4	✓	✓***	✓
Battery-Box HV 7.7	✓	✓***	✓
Battery-Box HV 9.0	✓	✓	✓
Battery-Box HV 10.2	✓	✓	✓

\* New firmware version for the inverter is available as of 09/2018.

\*\* The use depends on the battery power.

\*\*\* The use of the SBS6.0-10 and SBS6.0-US-10 is not recommended.

### Recommendations for the use in various systems for SBS2.5-1VL-10:

Type	Use in systems for increased self-consumption	Use in battery-backup systems	Use in systems with secure power supply operation
RESU7H	✓	✗	✗
RESU10H	✓	✗	✗
Battery-Box HV 6.4	✓	✗	✗
Battery-Box HV 7.7	✓	✗	✗
Battery-Box HV 9.0	✓	✗	✗
Battery-Box HV 10.2	✓	✗	✗

✓ = Yes, ✗ = No

## 2 Battery Communication Connection

### 2.1 Cable Requirements

#### 2.1.1 SBS2.5-1VL-10 / SBS3.7-10 / SBS5.0-10 / SBS6.0-10

- Twisted pair conductors
- Cable category: minimum CAT5e
- Shielding: yes
- Conductor cross-section: 0.25 mm<sup>2</sup> to 0.34 mm<sup>2</sup> (24 AWG to 16 AWG)
- Recommended number of conductor pairs: 4
- External diameter: 6 mm to 8 mm (0.24 in to 0.3 in)
- Maximum cable length: 10 m (33 ft)
- The cable has to be insulated for 600 V.
- UV-resistant for outdoor use.
- Comply with the requirements of the battery manufacturer.

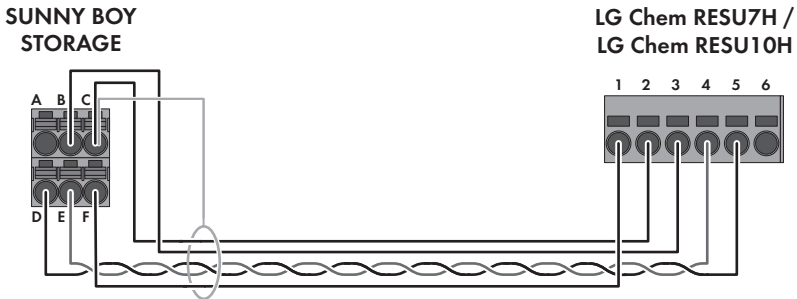
#### 2.1.2 SBS3.8-US-10 / SBS5.0-US-10 / SBS6.0-US-10

- Twisted pair conductors
- Cable category: minimum CAT5e
- Shielding: yes
- Conductor cross-section: 0.25 mm<sup>2</sup> to 0.34 mm<sup>2</sup> (24 AWG to 16 AWG)
- Recommended number of conductor pairs: 4
- External diameter: 6 mm to 8 mm (0.24 in to 0.3 in)
- Maximum cable length between battery and inverter and, in battery-backup systems, between automatic transfer switch and inverter: 10 m (33 ft)
- If the cables are routed together with the DC conductors in a conduit, each cable has to be insulated for 600 A.
- UV-resistant for outdoor use.
- Comply with the requirements of the battery manufacturer.

## 2.2 Cabling Plan

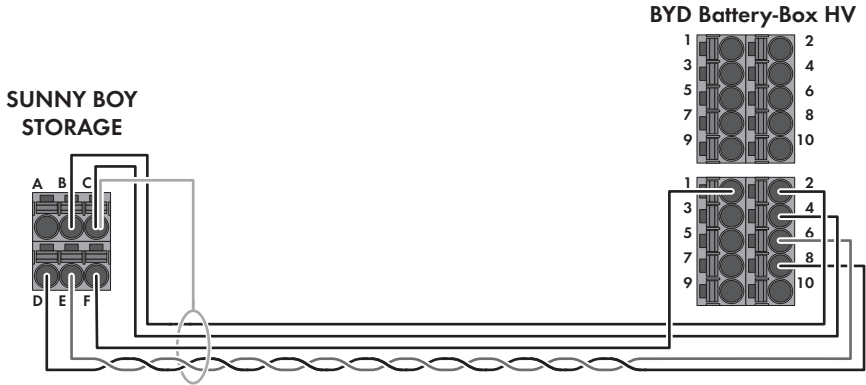
### 2.2.1 SBS2.5-1VL-10

#### Sunny Boy Storage with LG Chem RESU7H / RESU10H



Clamping position	Assignment	Clamping position	Assignment
A	Not assigned	-	-
B	Enable	3	BAT EN
C	GND and shielding	2	GND - AUX
D	CAN L (twisted pair conductors, at least CAT5e)	5	CAN - L
E	CAN L (twisted pair conductors, at least CAT5e)	4	CAN - H
F	+12V	1	12V - AUX

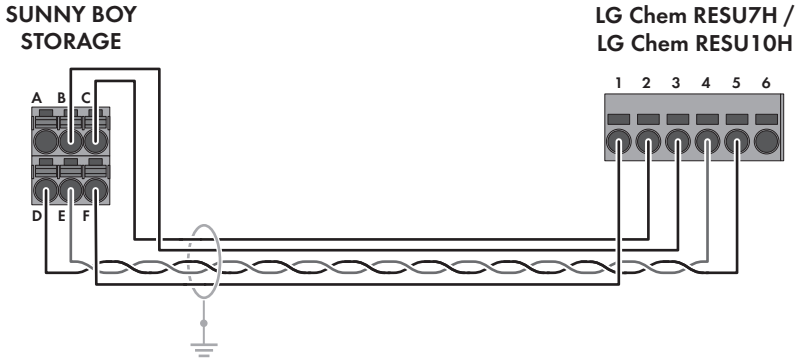
## Sunny Boy Storage (SBS2.5-1VL-10) with BYD Battery-Box HV



Clamping position	Assignment	Clamping position	Assignment
A	Not assigned	-	-
B	Enable	2	EN 11 V +
C	GND and shielding	4	EN 11 V-
D	CAN L (twisted pair conductors, at least CAT5e)	8	CANL
E	CAN L (twisted pair conductors, at least CAT5e)	6	CANH
F	+12 V	1	13V

## 2.2.2 SBS3.7-10 / SBS5.0-10 / SBS6.0-10 / SBS3.8-US-10 / SBS5.0-US-10 / SBS6.0-US-10

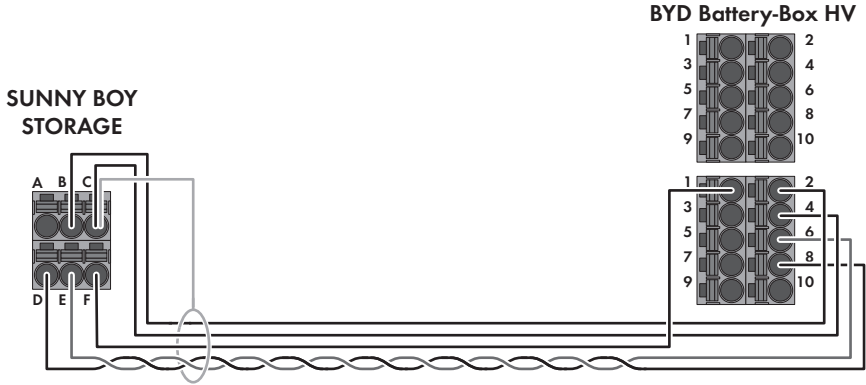
### Sunny Boy Storage with LG Chem RESU7H / RESU10H



Clamping position	Assignment	Clamping position	Assignment
A	Not assigned	-	-
B	Enable	3	BAT EN
C	GND	2	GND - AUX
D	CAN L (twisted pair conductors, at least CAT5e)	5	CAN - L
E	CAN L (twisted pair conductors, at least CAT5e)	4	CAN - H
F	+12V	1	12V - AUX



**Sunny Boy Storage (SBS3.7-10 / SBS5.0-10 / SBS6.0-10 / SBS3.8-US-10 / SBS5.0-US-10 / SBS6.0-US-10) with BYD Battery-Box HV**



Clamping position	Assignment	Clamping position	Assignment
A	Not assigned	-	-
B	Enable	2	EN 11 V +
C	GND	4	EN 11 V -
D	CAN L (twisted pair conductors, at least CAT5e)	8	CANL
E	CAN L (twisted pair conductors, at least CAT5e)	6	CANH
F	+12 V	1	13V

