

THE COMMERCIAL STORAGE SOLUTION

Easy & efficient

Lithium batteries for commercial and industrial customers





**DISCOVER
NEW MARKETS &
CUSTOMERS**

GROWTH ON A BRIGHTER BASIS

TESVOLT THE MANUFACTURER FOR COMMERCIAL STORAGE SOLUTIONS

Lithium batteries for commercial and industrial customers

> TESVOLT

PRODUCT DEVELOPMENT & PRODUCTION

RESEARCH WITH SMA &

TECH UNIVERSITY OF BERLIN

START UP

MADE IN GERMANY

ISO 9001:2008 TÜV Rheinland

WORLDWIDE APPLICATIONS

INVESTITONSBANK

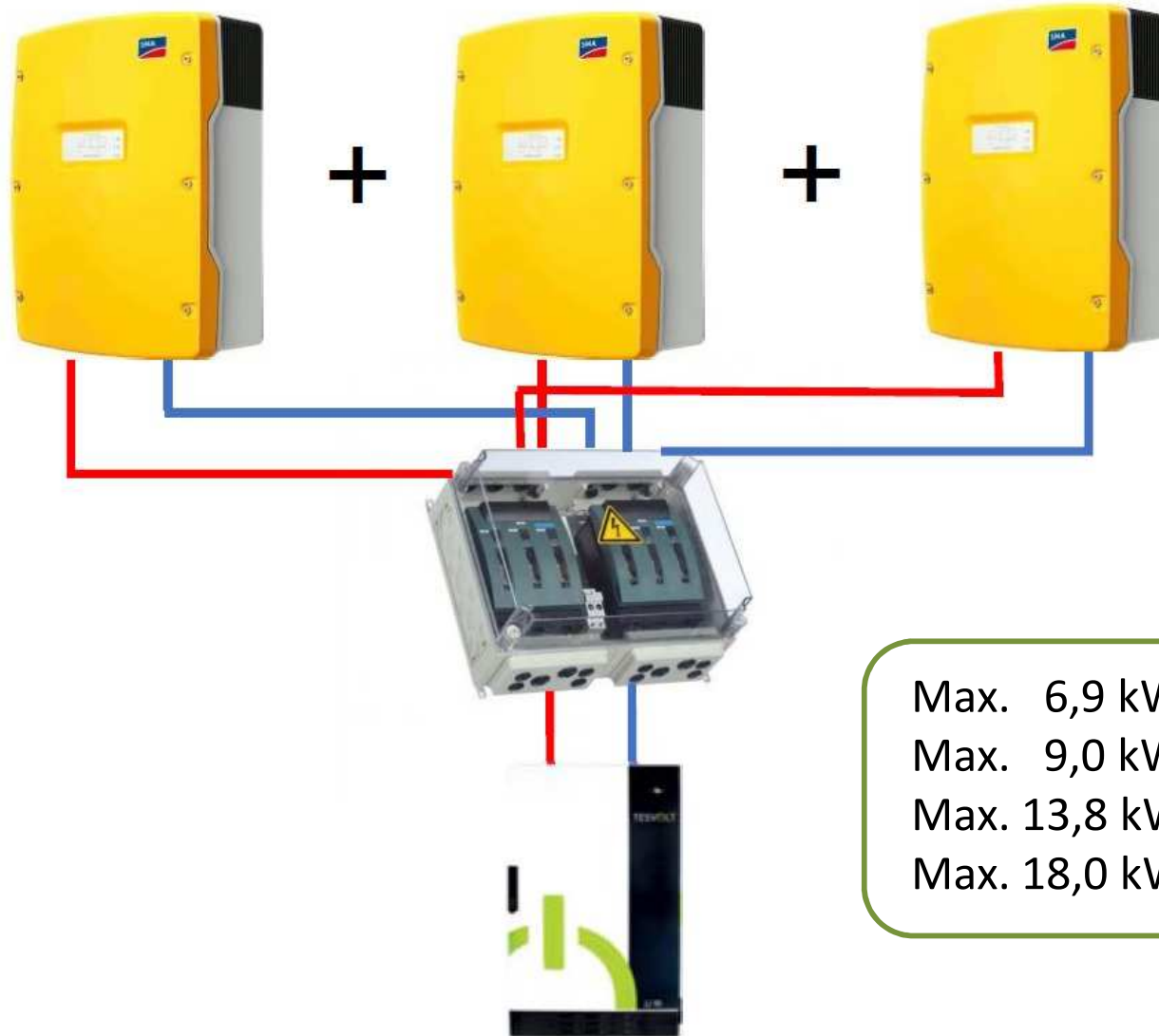
> UNIQUE

ACTIVE BIDIRECTIONAL BMS

OVERALL EFFICIENCY

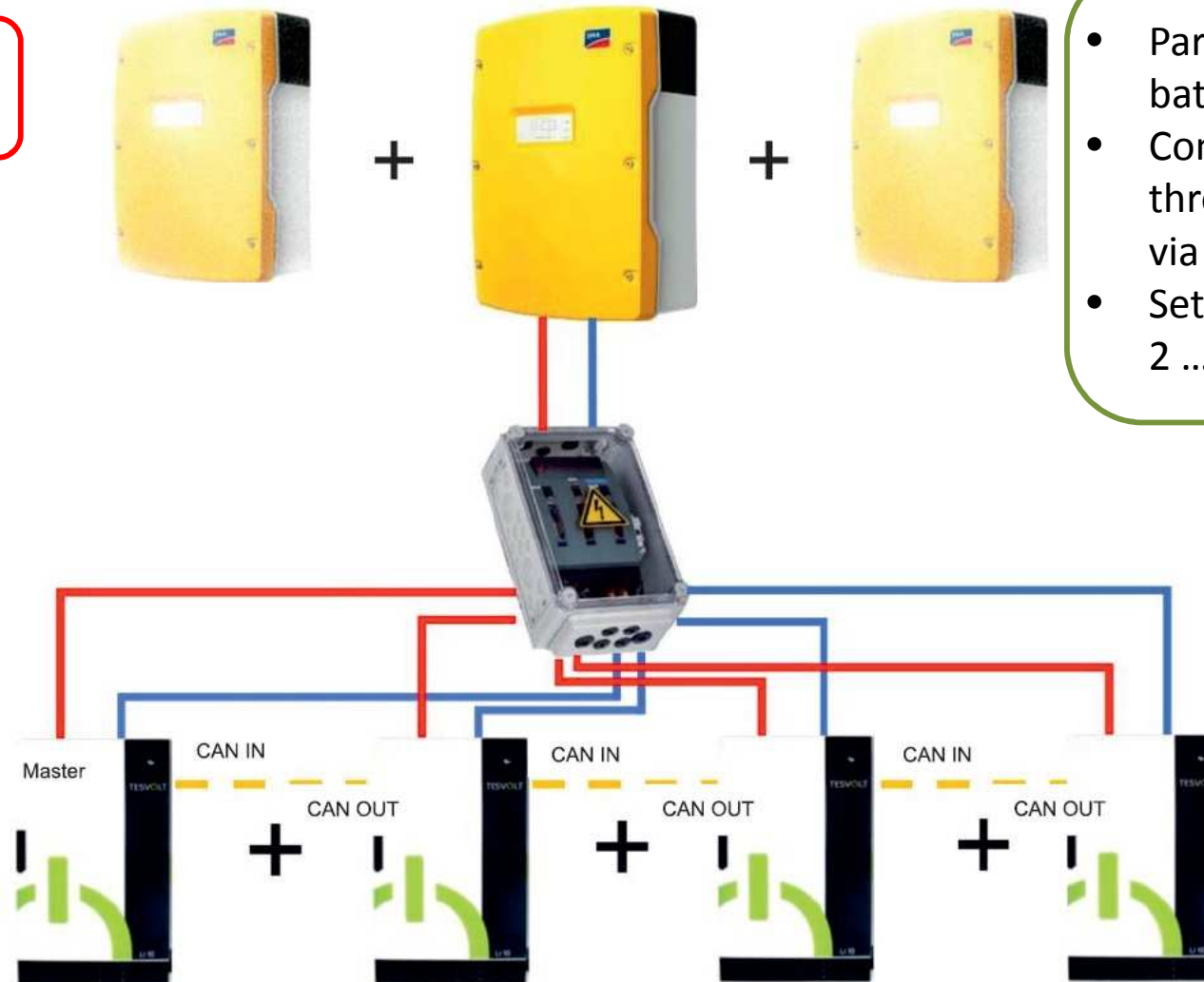
MODULAR ASSEMBLY

QUICK INSTALLATION



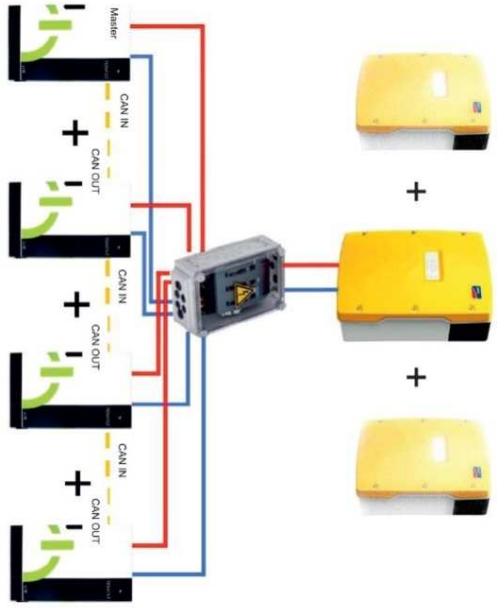
Max. 6,9 kW → 3 x S.I. 3.0M
Max. 9,0 kW → 3 x S.I. 4.4M
Max. 13,8 kW → 3 x S.I. 6.0H
Max. 18,0 kW → 3 x S.I. 8.0H

Maximum 4
batteries in parallel.

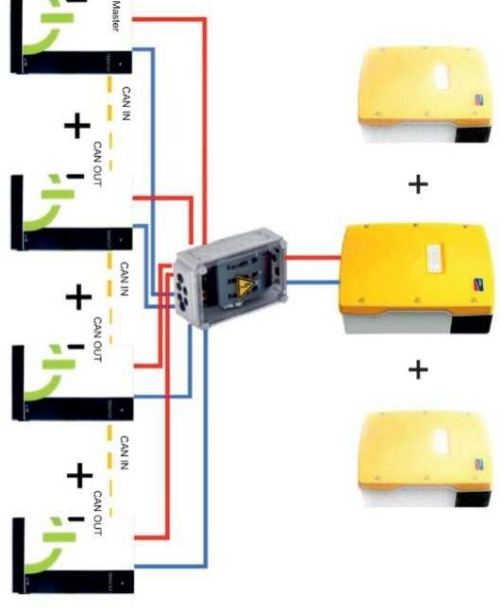


- Parallel connection of batteries at BatFuse
- Communication of batteries through CAN in and CAN out via Patch-cabel
- Setting Master, Slave 1, Slave 2 ... at the TESVOLT Display

Main Cluster



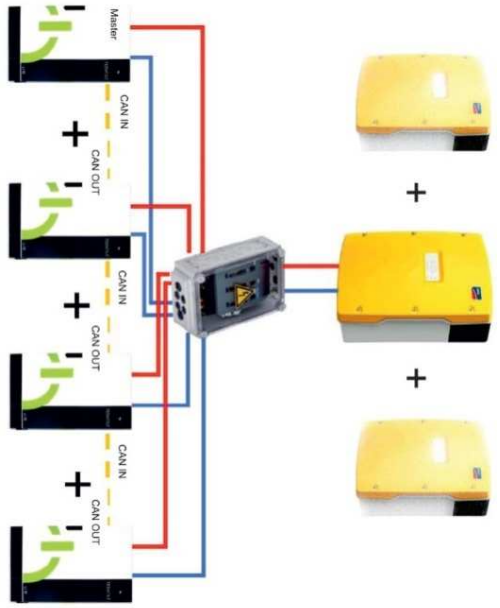
Extension Cluster 1



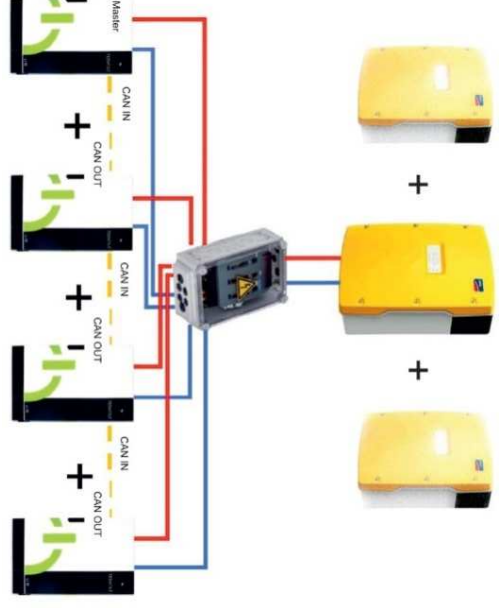
MC BOX



Extension Cluster 2



Extension Cluster 3





Storage capacity

1 MWh													
500 kWh													
240 kWh													
180 kWh													
120 kWh													
80 kWh													
60 kWh													
40 kWh													
30 kWh													
20 kWh													
10 kWh													
	1	3	6	9	12	15	18	21	24	27	30	33	36

Sunny Island 8.0H | 6.0 kW
 Sunny Island 6.0H | 4.6 kW
 Sunny Island 4.4M | 3.3 kW
 Sunny Island 3.0M | 2.3 kW



Quantity of Sunny Islands

> **SUBSIDY**, MARKET

PV FIT Payment Rate (0.82-4.59 p/kWh)

CHP up to 2kW max. (~13.61 p/kWh)

HYDRO GENERATION (~12.5 p/kWh)

SMALL WIND POWER (10.98-13.89 p/kWh)

> **YES**, TESVOLT CAN

10 kWh UP TO MWh

OFF GRID

EMERGENCY SUPPLY

SELF SUFFICIENCY

FREQUENCY BALANCING

PEAK SHAVING

ZERO FEED-IN MODE

VS GRID PRICES AT **13-16** pence/kWh

DISCOVER

NEW MARKETS & CUSTOMERS

TO GROW AND CREATE SUCCESSFULLY



BUSINESS CASE
Commercial area

> Business Model

LEVELIZED COSTS OF ELECTRICITY

CHP + STORAGE (5 – 8.5 p/kWh)

PV + STORAGE (7 – 11.6 p/kWh)

PV + CHP + STORAGE (6 – 9.6 p/kWh)

> Sort of business

CONTRACTING

LEASING

LOCAL POWER PURCHASE AGREEMENT

E-MOBILITY CHARGING STATION

OFF GRID

> Cost Effectiveness

Simplified calculation for cost price at the example of one UK project

Power of pv installation: 60 kWp

Specific yield: $900 \frac{\text{kWh}}{\text{kWp}}$

Invest PV: $800 \frac{\text{GBP}}{\text{kWp}} \times 60 \text{ kWp} = 48.000 \text{ GBP}$

Invest storage: 15.000 GBP (Li 20)

Running cost during operation:

Maintenance: $3,5 \frac{\text{GBP}}{\text{kWp} \cdot \text{a}}$

Insurance: $2,75 \frac{\text{GBP}}{\text{kWp} \cdot \text{a}}$

$60 \text{ kWp} \times 900 \frac{\text{kWh}}{\text{kWp}} \times 20 \text{ years} \times 82\% \text{ PR} = 885.600 \text{ kWh}$ (sum of electricity generation from PV install during 20 years of operation)

Rough cost price estimation:

$48.000 \text{ GBP Investment} + 15.000 \text{ GBP Storage Invest} + [(3,5 \frac{\text{GBP}}{\text{kWp}} \times 60 \text{ kWp}) + (2,75 \frac{\text{GBP}}{\text{kWp}} \times 60 \text{ kWp}) \times 20 \text{ years}]$
= 70.500 GBP Total Investment cost

$$\text{Cost price} = \frac{70.500 \text{ GBP}}{885.600 \text{ kWh}} = \mathbf{7,9 \text{ pence} \frac{\text{GBP}}{\text{kWh}}}$$

Indication: It is a simplified static examination. Additionally there there should be added losses of degradation of the pv generator and currency inflation



> Hotel in Germany

LCOE: 12 p/kWh

SOLAR (60 kWp) + Li 40

Self-Sufficiency: 90 %

Grid price: 19 p/kWh

IRR: 8 %

> TESLA E-Mobility Charge Station

LCOE: 9 p/kWh

SOLAR (300 kWp) + Li 240

Commercial use of charging station (3.5 GBP / 100 KM)

House connection power + 72 kVA

Peak Shaving & Emergency supply



> Sibiria

CHP with storage

Frequency Balancing

Self-sufficiency

Emergency Supply

> Philippines

PV with storage

Emergency supply

Ability of islanding

WORLDWIDE, SUSTAINABLE COMMITMENT



Management System
ISO 9001:2008
www.tuv.com
ID: 9108627178

