BYD BATTERY-BOX

EFT-Systems GmbH

BATTERY BOX

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-BYD
    -Battery Box Premium
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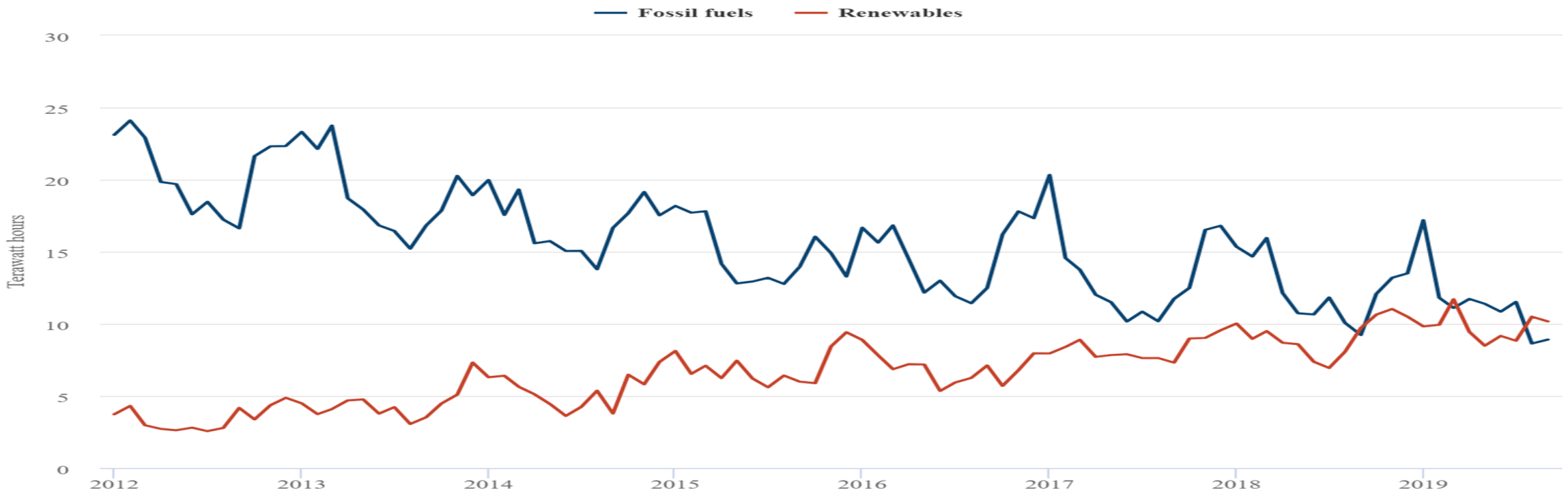
ENERGY STORAGE
MARKET POTENTIAL

BATTERY BOX

TOWARDS A WORLD OF 0 EMISSIONS

UK renewables generated more electricity than **fossil fuels** in August and September 2019

There have only ever been four such months, including September 2018 and March 2019



Households to be paid for daytime green electricity use during lockdown

Fall in energy use combined with bright, breezy weather leads to lowest electricity prices in 10 years

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PRIVATE ZERO EMISSION ECO SYSTEM - MOBILITY

Can you generate electricity for your own mobility?

Modell	Verbrauch im ADAC Ecotest in kWh/100 km
Hyundai Ioniq Elektro Style	14,7
VW e-Golf	17,3
VW e-up!	17,7
BMW i3 (120 Ah)	17,9
Smart Fortwo Coupé EQ Prime	18,3
Opel Ampera-e First Edition	19,7
Renault Zoe Intens (41 kWh)	20,3
Tesla Model 3 Long Range AWD	20,9

How much kWh does house system deliver?

https://www.adac.de/rund-ums-fahrzeug/tests/elektromobilitaet/stromverbrauch-elektroautos-adac-test/

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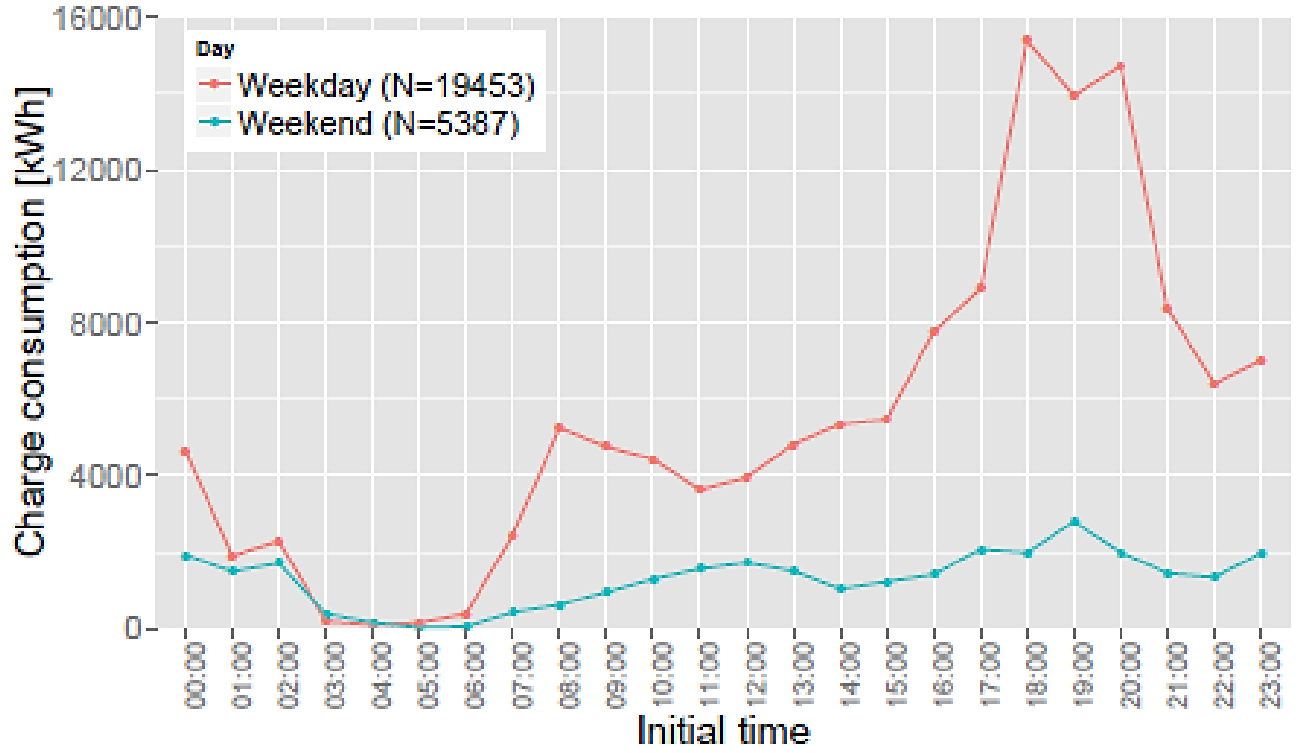
PRIVATE ZERO EMISSION ECO SYSTEM - MOBILITY

Is the electricity generated when the vehicle is to be charged?



Household CPs total hourly charge consumption by day of the week

Quelle: Green eMotion. Deliverable D1.10, European global analysis on the electro-mobility performance, Version 2.0. IREC, 2015.

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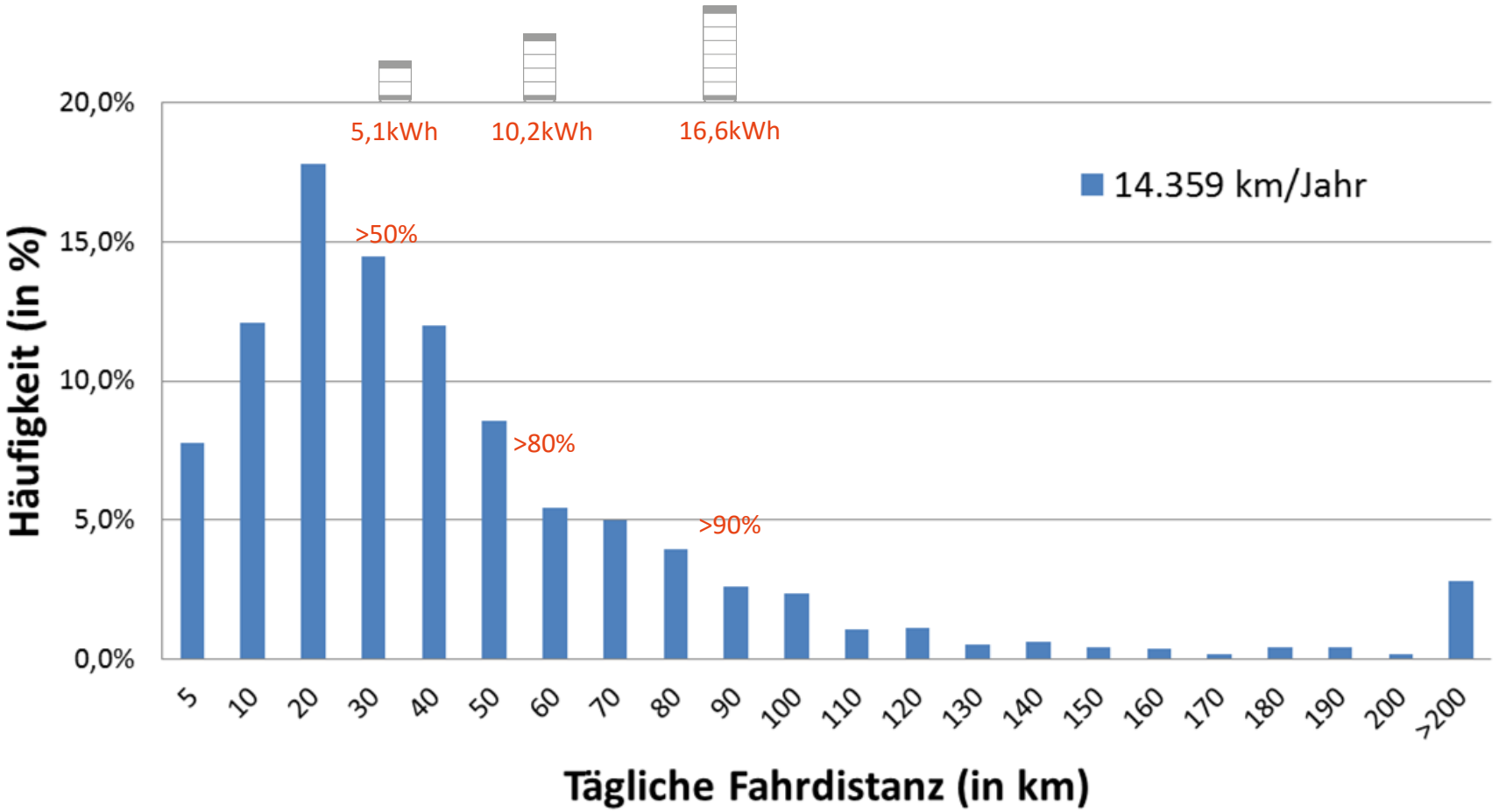
PRIVATE ZERO EMISSION ECO SYSTEM - MOBILITY

Is a home storage large enough to charge an electric vehicle?



Frequency distribution of the daily driving distance with an average mileage of 14,359 km / year
Source: DLR & Infas. Mobility in Germany (MiD) 2008. In: Federal Ministry of Transport Building and Urban Development. Bonn / Berlin: BMVBS, 2010

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SELLING & SIZING
ESS

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WHY DO PEOPLE BUY ENERGY STORAGE SYSTEMS?

- ~~Profitability -> Return on Invest~~
- Protection against rising electricity prices (1)
- Elimination of feed-in tariffs (2)
- Contribution to the energy transition (3)
- Protection against power failures (4)
- Financial investment (5)
- Technology interests (6)

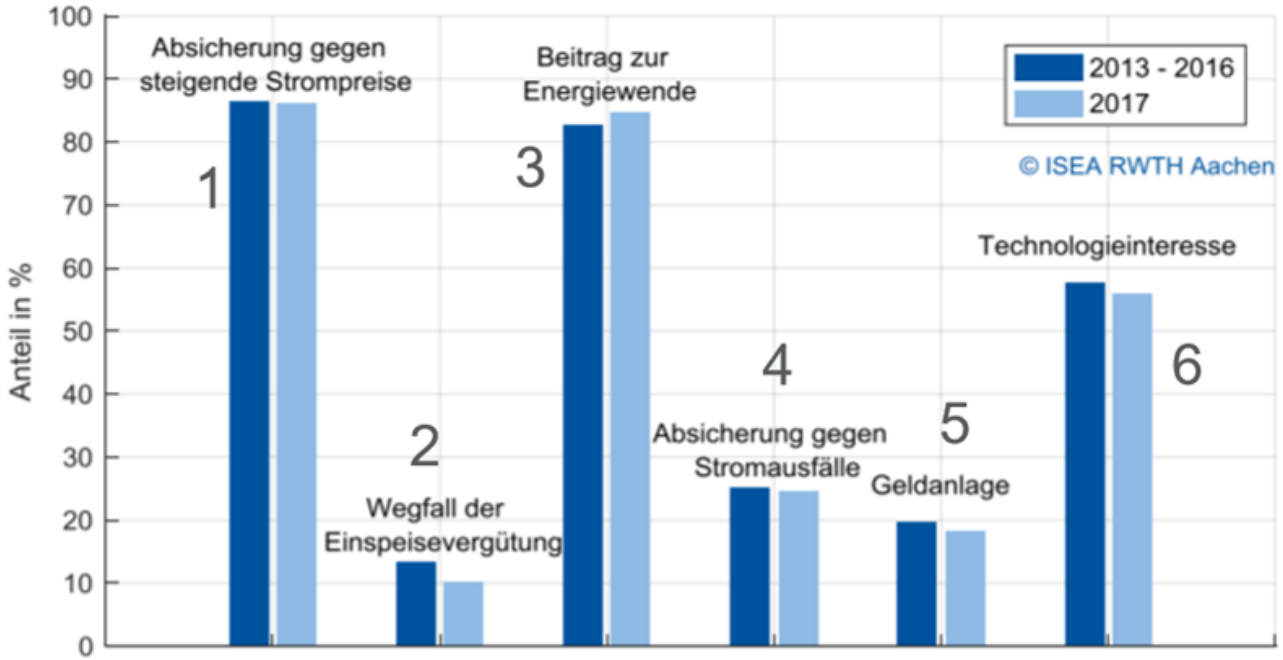
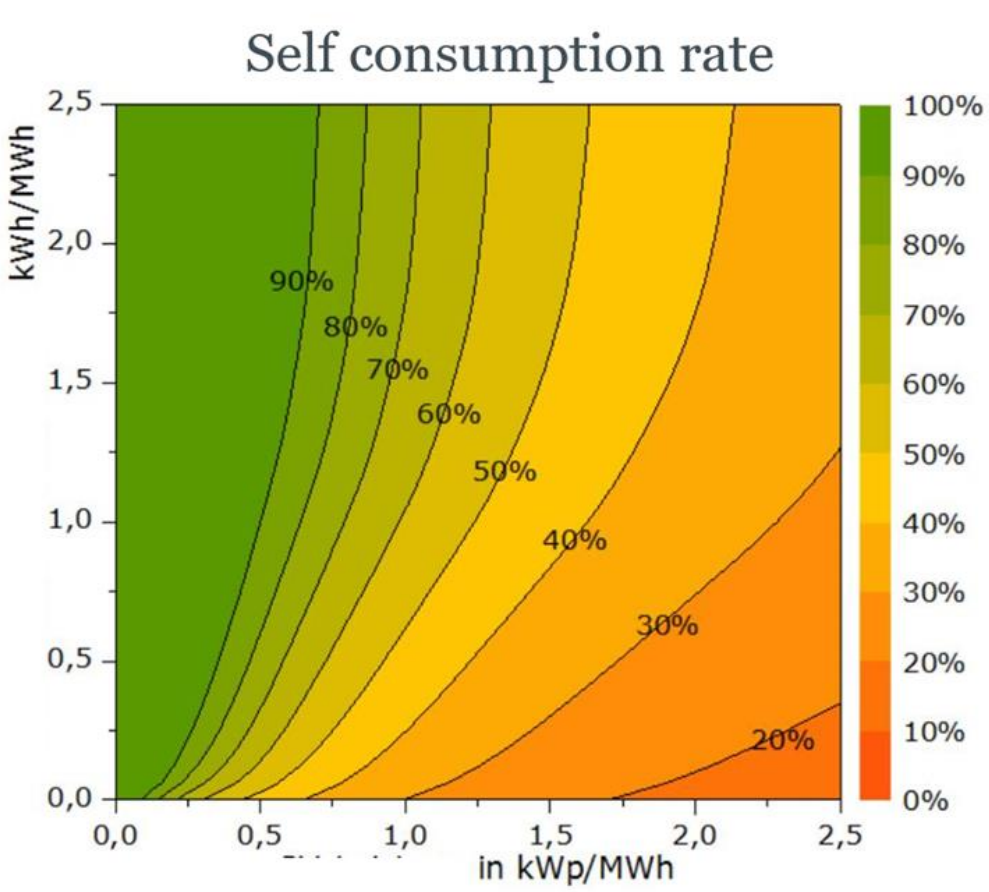
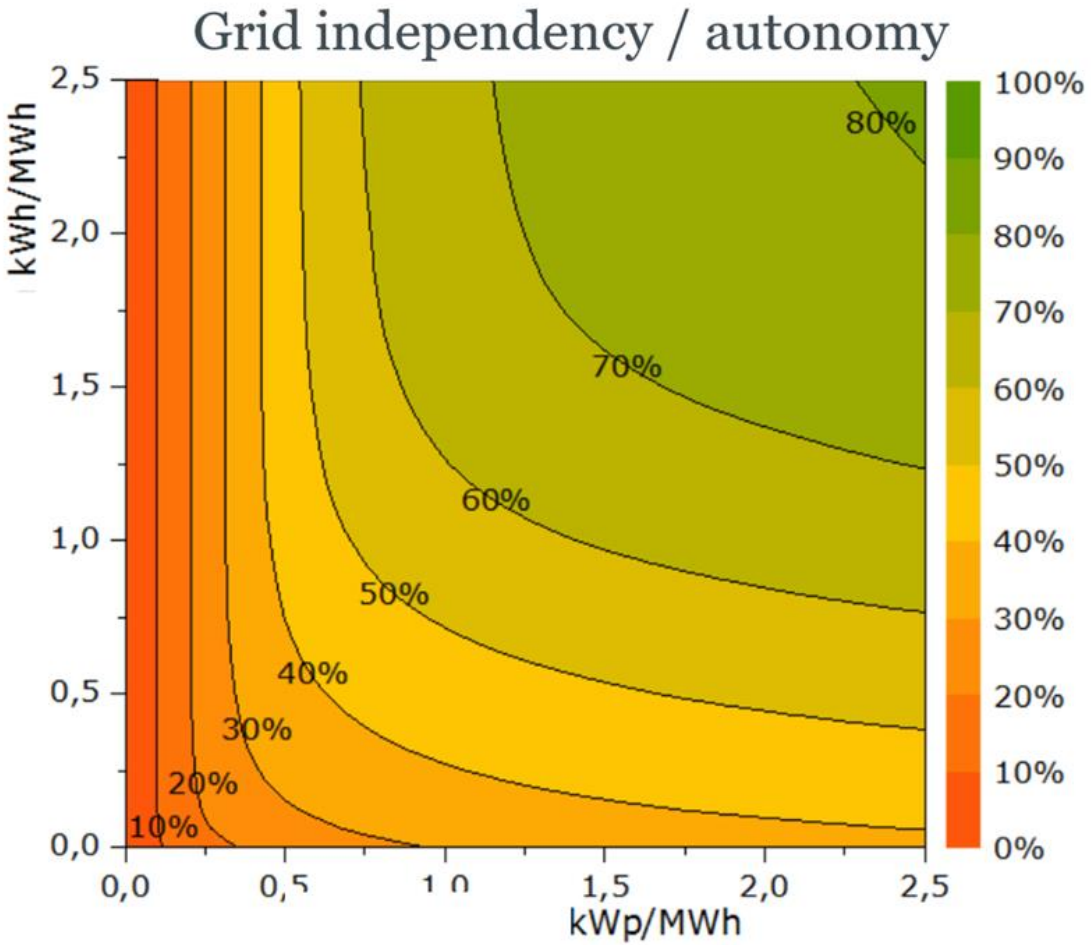


Abbildung 3.25: Motivationsgründe der Käufer KfW-geförderter Solarstromspeicher.
http://www.speichermonitoring.de/fileadmin/user_upload/Speichermonitoring_Jahresbericht_2018_ISEA_RWTH_Aachen.pdf

HOW TO DESIGN A SYSTEM-ON GRID





HTW Berlin: Useful dimensioning of photovoltaic systems for prosumers

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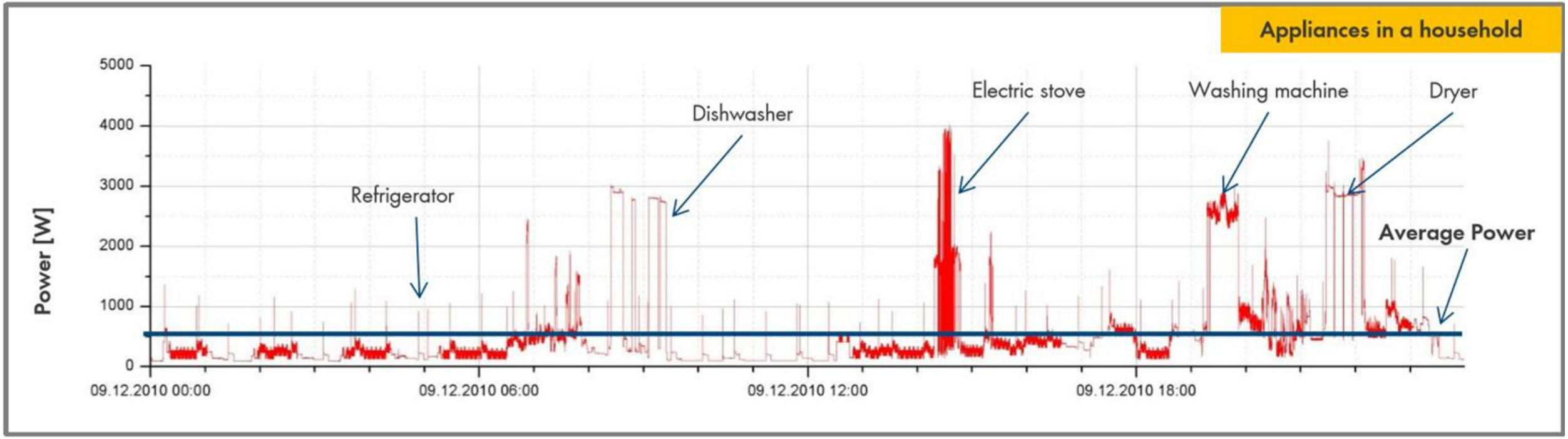
HOW TO DESIGN A SYSTEM-BACKUP



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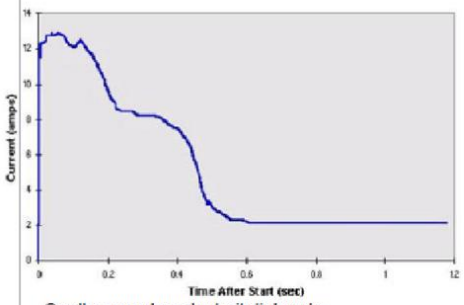
HOW TO DESIGN A SYSTEM-OFF GRID

Motor loads (refrigerator)

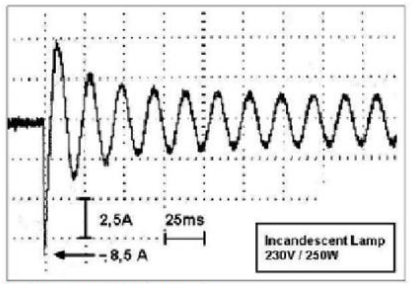


Quelle: www.haustechnikdialog.de

Examples:
- Refrigerators
- vacuum cleaner
- Food Processors

Starting current:
- 4 to 8 times nominal current in up to 5s

Ohmic loads

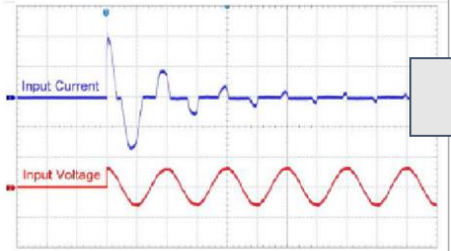


Quelle: www. Wikipedia.de

Examples:
- Lightbulbs
- Water heater
- Toaster

Starting current:
- 2 to 8 times nominal current

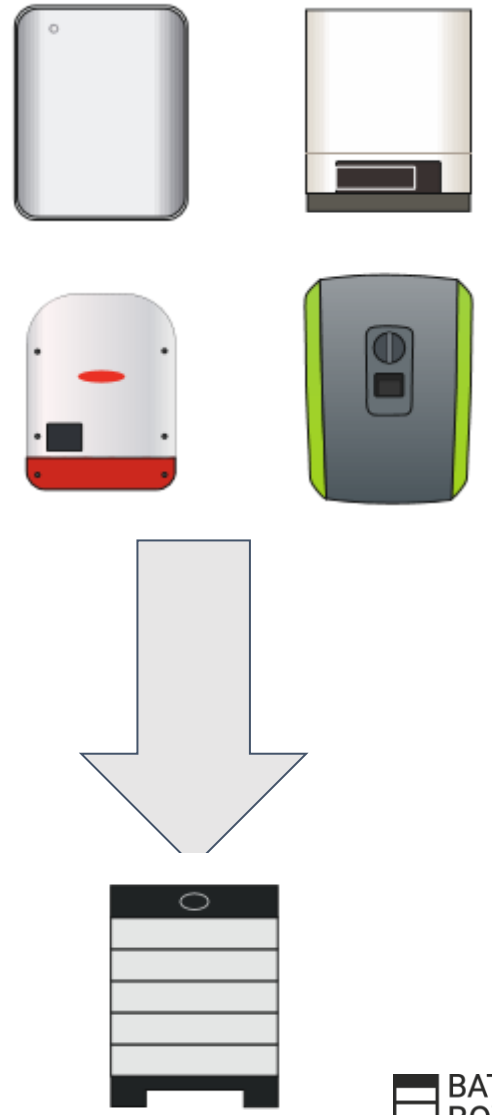
Electrical switching power supply



Quelle: M+R Multielektronik

Examples:
- LED lights
- PC
- TV

Starting current:
- 5 to10 times nominal current



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BYD - CHANGING THE WORLD

Bloomberg Green

FORTUNE CHANGE THE WORLD

THE TOP 10

1	Qualcomm
2	Mastercard
3	BYD
4	TE Connectivity
5	Walmart

Automotive World est. 1992

BYD's new blade battery set to redefine EV safety standards

Today, BYD officially announced the launch of the Blade Battery, a development set to mitigate concerns about battery safety in electric vehicles

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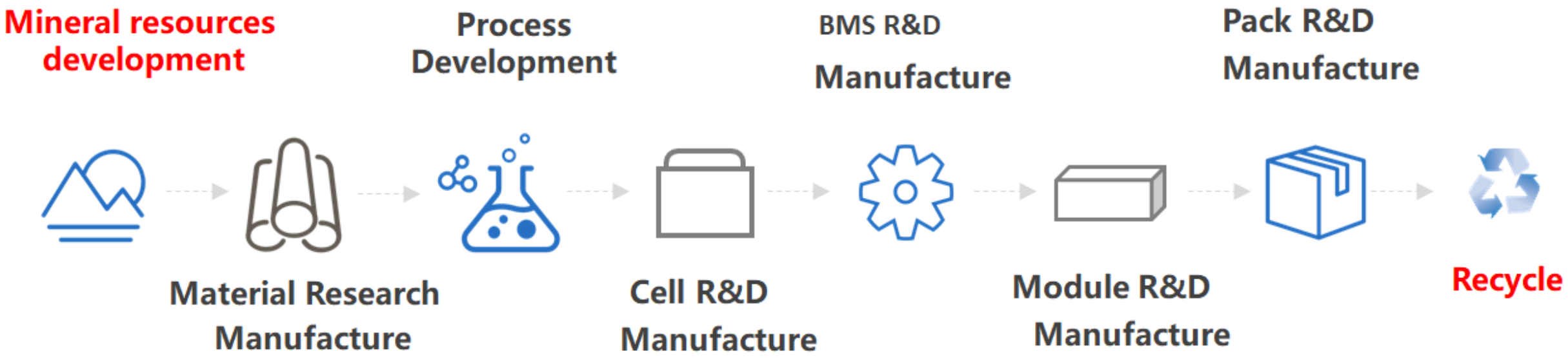
A WORLD LEADER IN ELECTROMOBILITY

FULL VERTICAL INTEGRATION



From the Investment of the core mineral resources (Li, Co) companies, Core raw materials development/manufacture, Cell development/manufacture, module design/manufacture, BMS design/manufacture, to PACK design and manufacture.

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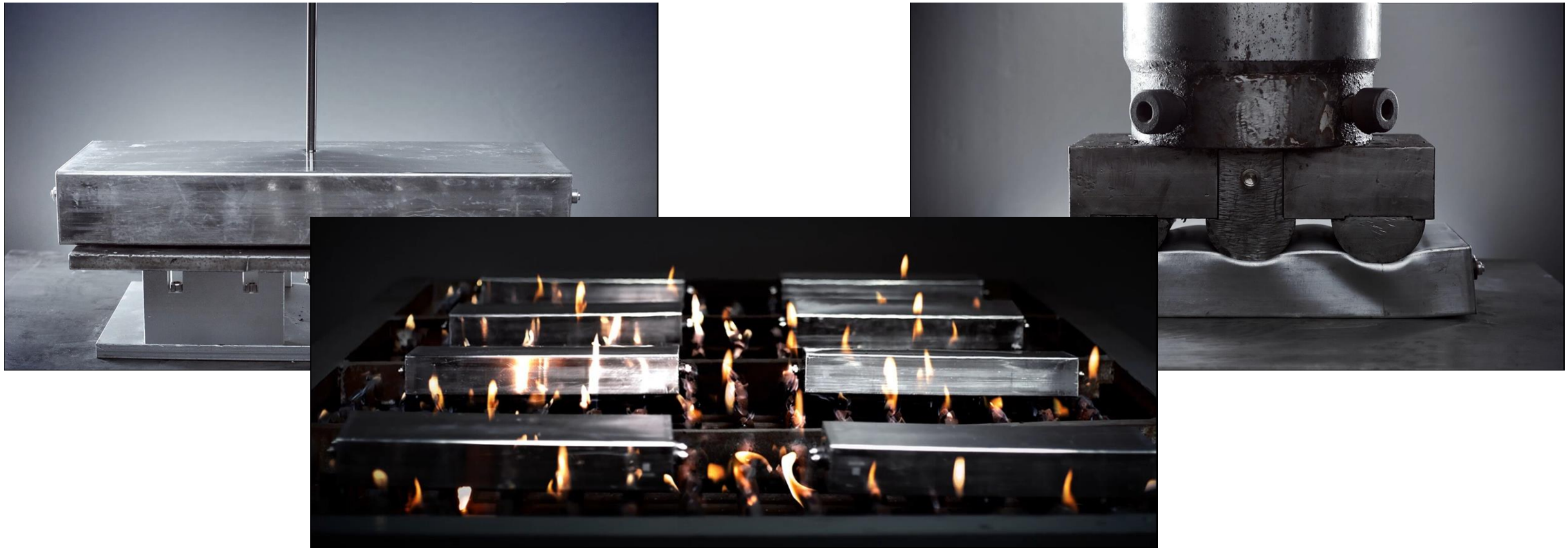
PREMIUM

BATTERY BOX

SAFETY AND RELIABILITY



Piercing test (39.12min)

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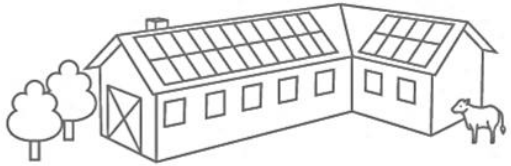
HIGHLY SCALABLE

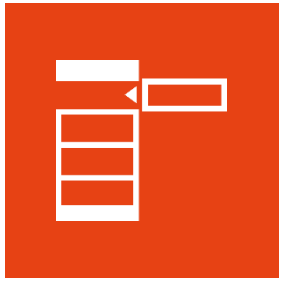
BATTERY BOX

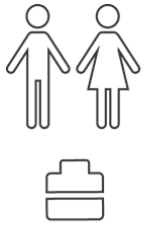
FOR ANY APPLICATION

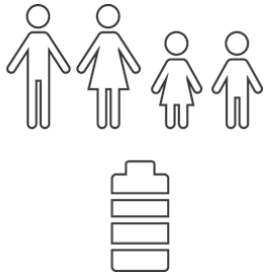


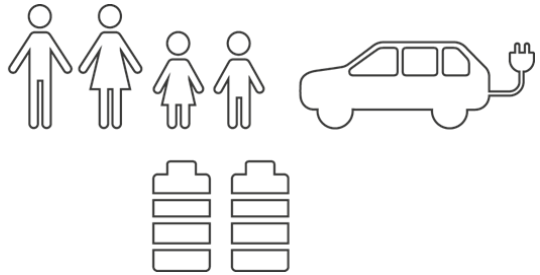
BATTERY BOX

EXPAND AT ANY TIME



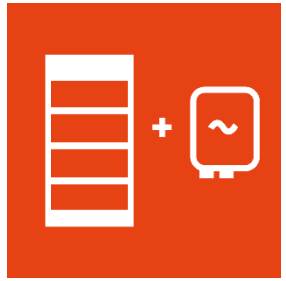






BATTERY BOX

COMBINE WITH THE BEST INVERTERS



victron energy
BLUE POWER

GOODWE
your solar engine

solis
inverters

SMA

Fronius

SUNGROW

KOSTAL

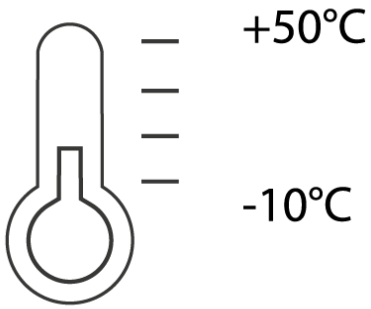
solaredge

STUDER

Ingeteam

BATTERY BOX

FOR ANY ENVIRONMENT



HV / LV

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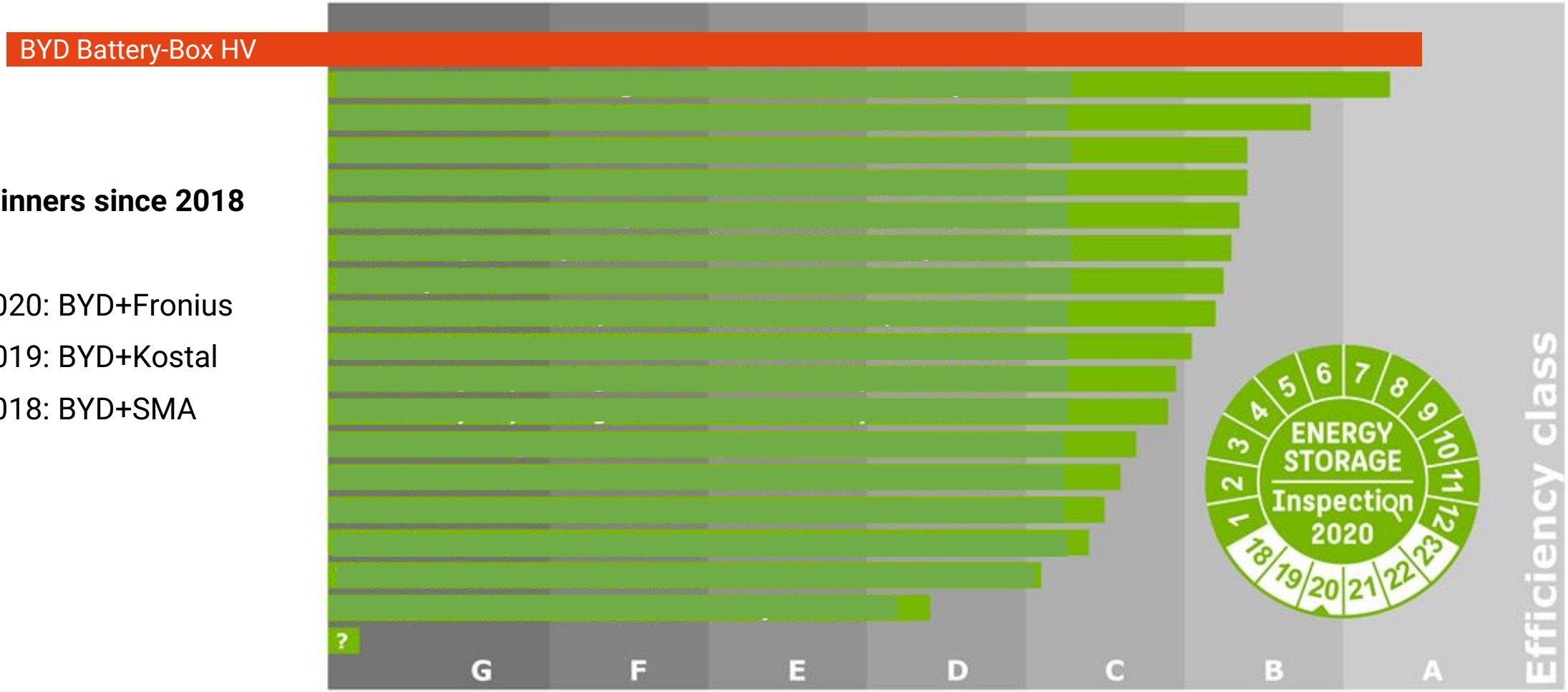
HIGHEST PERFORMANCE



Winners since 2018

2020: BYD+Fronius

2019: BYD+Kostal

2018: BYD+SMA

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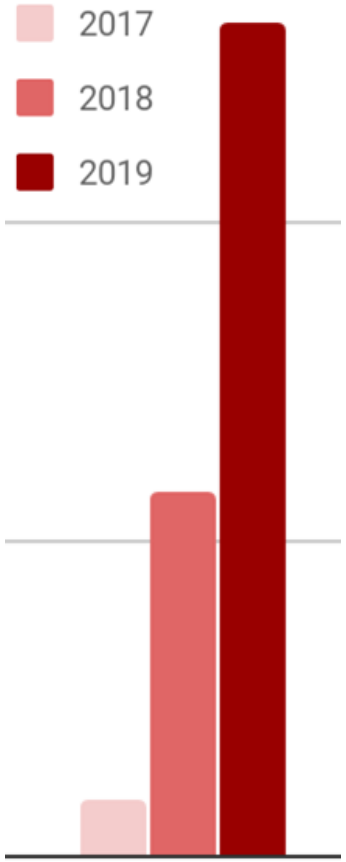
WHY A NEW GENERATION?



- Transfer the market feedback to the product
- New standards (e.g. VDE2510-50)
- Future proof the supply chain
- Increase production capacity

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WHAT´S NEW? MANUFACTURING

The largest and most advanced production in the sector
To produce **10 times as many systems as 2019**

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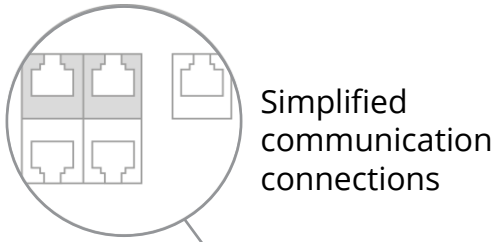
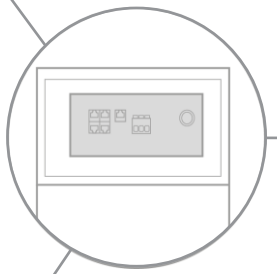
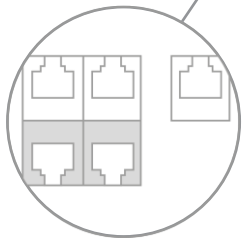
WHAT´S NEW? UNIVERSAL DESIGN



Simplified communication connections



Dedicated area for installation



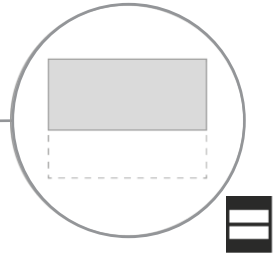
Direct Parallel Connection

New LED indicator status lights

Simplified and robust screw locking system

Future proof module design that can accommodate new cell types

Unified commissioning process



BATTERY BOX

WHAT’S NEW? - IMPROVEMENTS

More compact design
Higher energy density
Smaller footprint

Improved visual feedback
Uniform LED status display

Easier to install
Separate connection area for external cables
Improved closure between modules

Improved technical properties
Latest safety standards (VDE 2510-50)
Improved performance at low temperatures and for small loads

Simpler and more flexible parallel connection
Parallel connection without additional components
Greater scalability

Optimized packaging
Less material, cardboard instead of plastic
Increased transport efficiency

Uniform operation
Universal design framework
One interface for all versions

BATTERY BOX

FAMILY REPLACEMENT GUIDE

BATTERY-BOX

HV 200-450V

LV 48V

PRO 2.5-10.0 48V

PRO 13.8 48V

BATTERY-BOX PREMIUM

HVS 200-500V

2,56 kWh / module
5,1-38.4 kWh

HVM 200-400V

2,76 kWh / module
8,3-66,2 kWh

LVS 48V

4,0 kWh / module
4,0-256 kWh

LVL 48V

15,36 kWh / module
15,4 - 983 kWh

BATTERY BOX

HVS / HVM INSTALLATION

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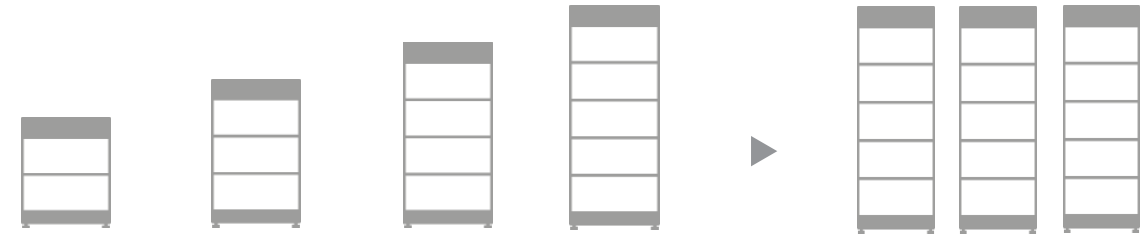
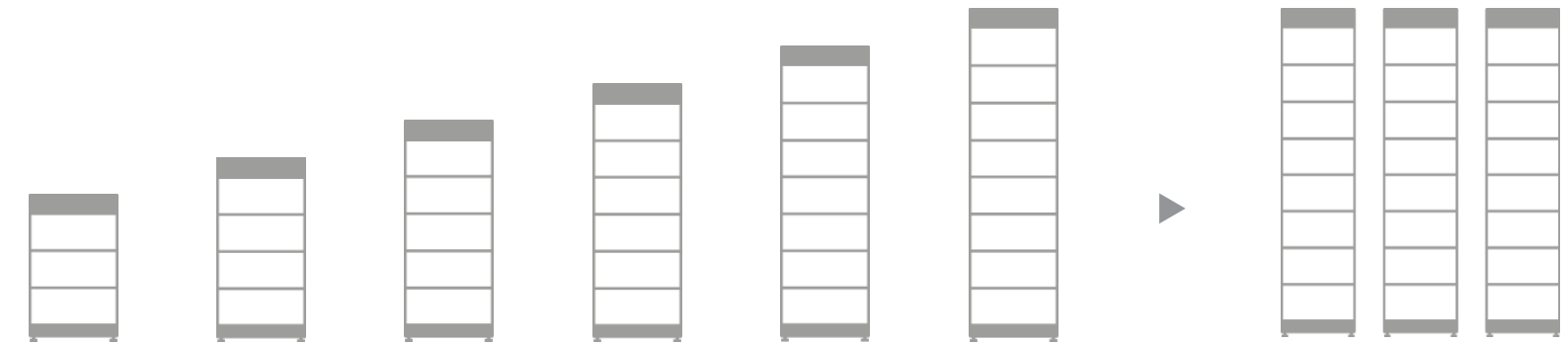
HVS / HVM



HVS 5.1 HVS 7.7 HVS 10.2 HVS 12.8 3 x HVS 12.8



HVM 8.3 HVM 11.0 HVM 13.8 HVM 16.6 HVM 19.3 HVM 22.1 3 x HVM 22.1

BATTERY BOX

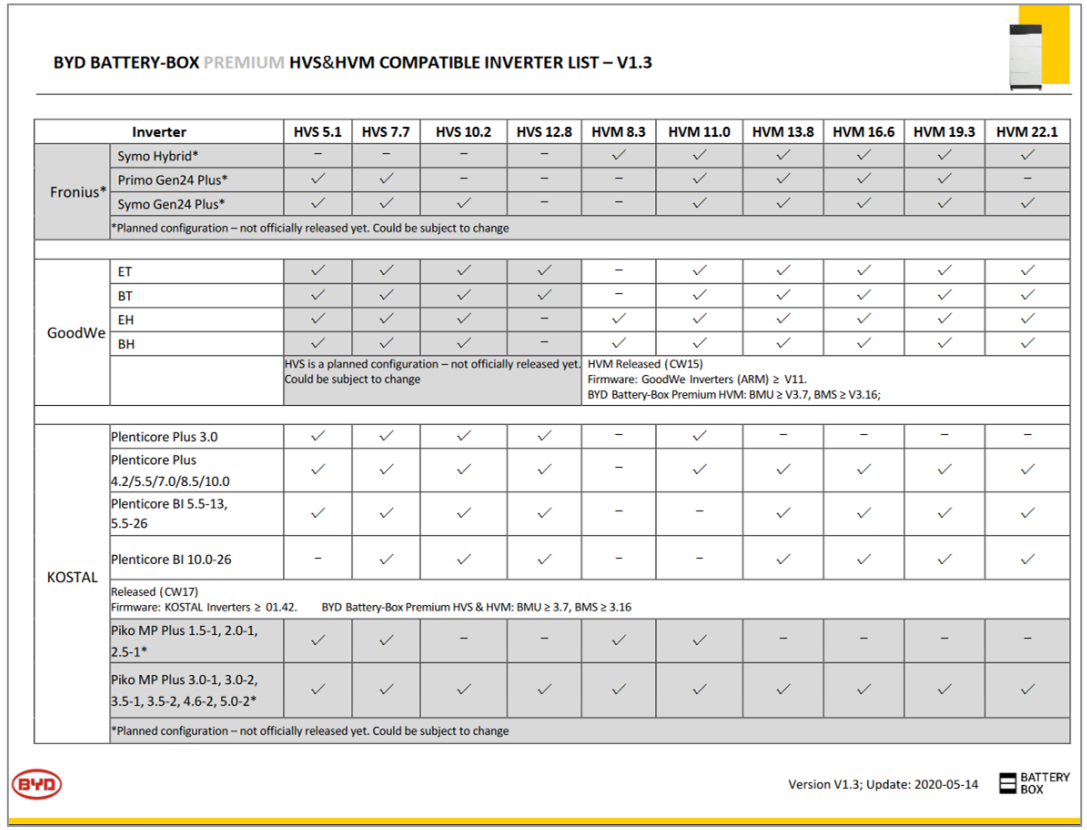
HVS/ HVM SPECS

The Popular Plug Design Without Cables and the Most Efficient High Voltage Technology Combined with New Advantages:

	HV	HVS	HVM
Patented Plug-In Design without Cables	✓	✓	✓
ON-Grid & Backup	✓	✓	✓
OFF-Grid	✗	✓	✓
Module	1.28 kWh 580x380x120mm, 26 kg, 51.2 V	2.56 kWh 585x298x238mm, 38 kg, 102.4 V	2.76 kWh 585x298x238mm, 38 kg, 51.2 V
Size Comparison Example	H10.2: 580 x 380 x 1254 mm	HVS 10.2: 585 x 298 x 1178 mm	HVM 11.0: 585 x 298 x 1178 mm
LED Indicator Light to Show the Status	✗	✓	✓
Capacity Range	5.1 – 11.5 kWh	5.1 – 12.8 kWh Up to 3 Direct Parallel: 38.4 kWh	8.3 – 22.1 kWh Up to 3 Direct Parallel: 65.1 kWh
Safety Standards	IEC62619 / CE / RCM / UN38.3	VDE2510-50 / IEC62619 / IEC62040 / CE / UN38.3	VDE2510-50 / IEC62619 / IEC62040 / CE / UN38.3
Cabeling to the Inverter	Open complete Top-Cover to Access BCU and Connectors	Dedicated Connection Area	Dedicated Connection Area
Port for Communication Cable to Inverter	PINs	PINs / Standard Ethernet Cable Port	PINs / Standard Ethernet Cable Port
Locking Mechanism between Modules	Hooks	Screws	Screws
Start of Temperature Derating	Below +10 °C	Below +5 °C	Below +5 °C

BATTERY BOX

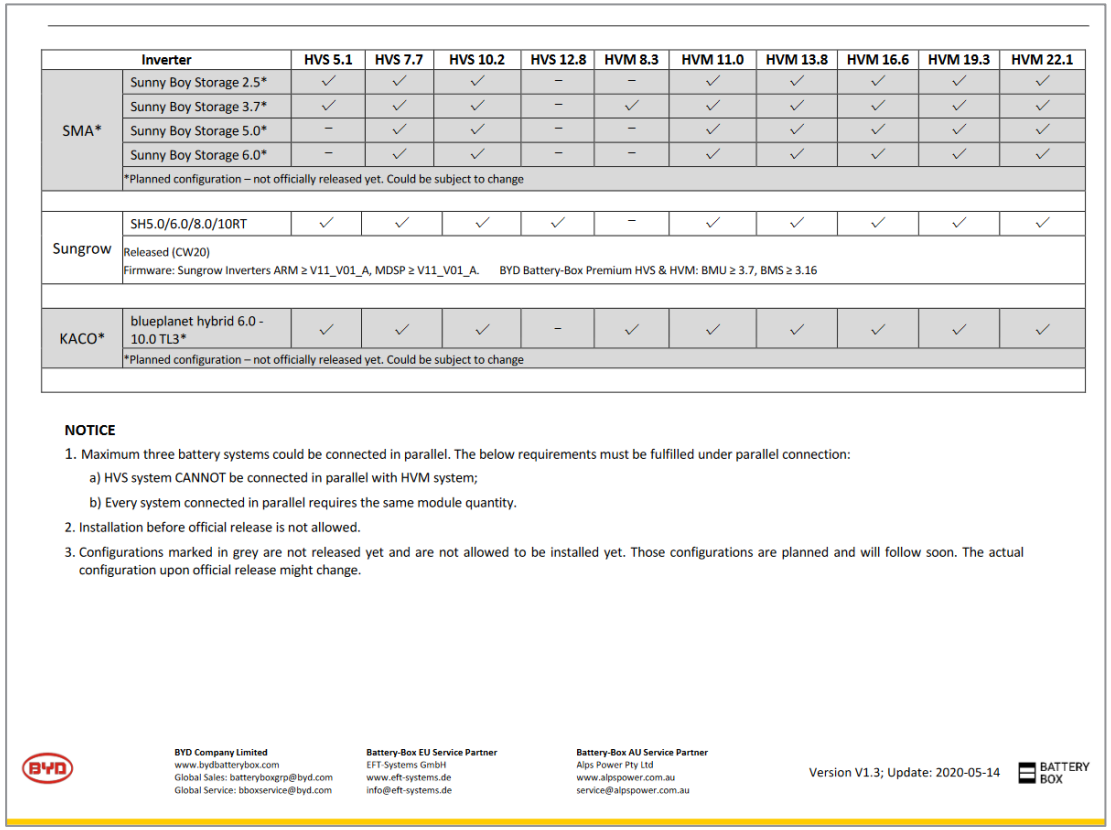
COMPATIBILITY LIST



BYD BATTERY-BOX PREMIUM HVS&HVM COMPATIBLE INVERTER LIST – V1.3

Inverter		HVS 5.1	HVS 7.7	HVS 10.2	HVS 12.8	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1
Fronius*	Symo Hybrid*	–	–	–	–	✓	✓	✓	✓	✓	✓
	Primo Gen24 Plus*	✓	✓	–	–	–	✓	✓	✓	✓	–
	Symo Gen24 Plus*	✓	✓	✓	–	–	✓	✓	✓	✓	✓
	*Planned configuration – not officially released yet. Could be subject to change										
GoodWe	ET	✓	✓	✓	✓	–	✓	✓	✓	✓	✓
	BT	✓	✓	✓	✓	–	✓	✓	✓	✓	✓
	EH	✓	✓	✓	–	✓	✓	✓	✓	✓	✓
	BH	✓	✓	✓	–	✓	✓	✓	✓	✓	✓
		HVS is a planned configuration – not officially released yet. Could be subject to change				HVM Released (CW15) Firmware: GoodWe Inverters (ARM) ≥ V11. BYD Battery-Box Premium HVM: BMU ≥ V3.7, BMS ≥ V3.16;					
KOSTAL	Plenticore Plus 3.0	✓	✓	✓	✓	–	✓	–	–	–	–
	Plenticore Plus 4.2/5.5/7.0/8.5/10.0	✓	✓	✓	✓	–	✓	✓	✓	✓	✓
	Plenticore BI 5.5-13, 5.5-26	✓	✓	✓	✓	–	–	✓	✓	✓	✓
	Plenticore BI 10.0-26	–	✓	✓	✓	–	–	✓	✓	✓	✓
	Released (CW17) Firmware: KOSTAL Inverters ≥ 01.42. BYD Battery-Box Premium HVS & HVM: BMU ≥ 3.7, BMS ≥ 3.16										
	Piko MP Plus 1.5-1, 2.0-1, 2.5-1*	✓	✓	–	–	✓	✓	–	–	–	–
	Piko MP Plus 3.0-1, 3.0-2, 3.5-1, 3.5-2, 4.6-2, 5.0-2*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	*Planned configuration – not officially released yet. Could be subject to change										

Version V1.3; Update: 2020-05-14



Inverter		HVS 5.1	HVS 7.7	HVS 10.2	HVS 12.8	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1
SMA*	Sunny Boy Storage 2.5*	✓	✓	✓	–	–	✓	✓	✓	✓	✓
	Sunny Boy Storage 3.7*	✓	✓	✓	–	✓	✓	✓	✓	✓	✓
	Sunny Boy Storage 5.0*	–	✓	✓	–	–	✓	✓	✓	✓	✓
	Sunny Boy Storage 6.0*	–	✓	✓	–	–	✓	✓	✓	✓	✓
	*Planned configuration – not officially released yet. Could be subject to change										
Sungrow	SH5.0/6.0/8.0/10RT	✓	✓	✓	✓	–	✓	✓	✓	✓	✓
	Released (CW20) Firmware: Sungrow Inverters ARM ≥ V11_V01_A, MDSP ≥ V11_V01_A. BYD Battery-Box Premium HVS & HVM: BMU ≥ 3.7, BMS ≥ 3.16										
KACO*	blueplanet hybrid 6.0 - 10.0 TL3*	✓	✓	✓	–	✓	✓	✓	✓	✓	✓
	*Planned configuration – not officially released yet. Could be subject to change										

NOTICE

1. Maximum three battery systems could be connected in parallel. The below requirements must be fulfilled under parallel connection:
   a) HVS system CANNOT be connected in parallel with HVM system;
   b) Every system connected in parallel requires the same module quantity.
2. Installation before official release is not allowed.
3. Configurations marked in grey are not released yet and are not allowed to be installed yet. Those configurations are planned and will follow soon. The actual configuration upon official release might change.

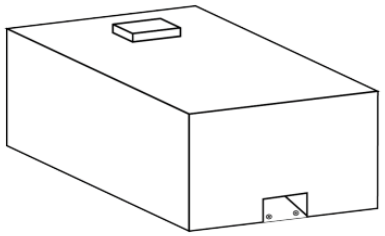
BYD Company Limited
www.bydbatterybox.com
Global Sales: batteryboxgrp@byd.com
Global Service: bboxservice@byd.com

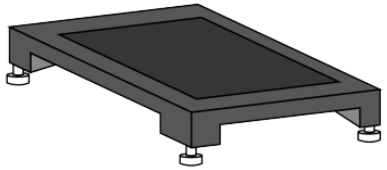
Battery-Box EU Service Partner
EFT-Systems GmbH
www.eft-systems.de
info@eft-systems.de

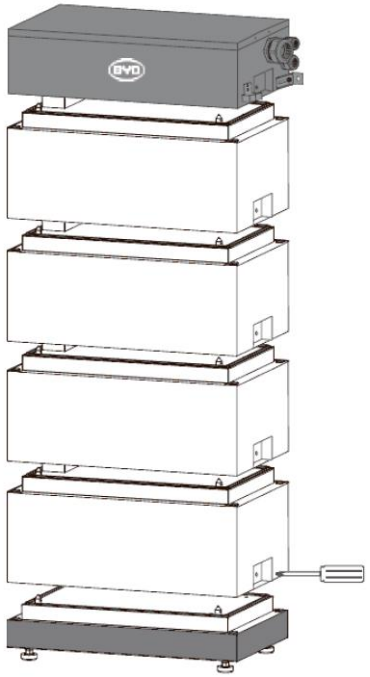
Battery-Box AU Service Partner
Alps Power Pty Ltd
www.alpspower.com.au
service@alpspower.com.au

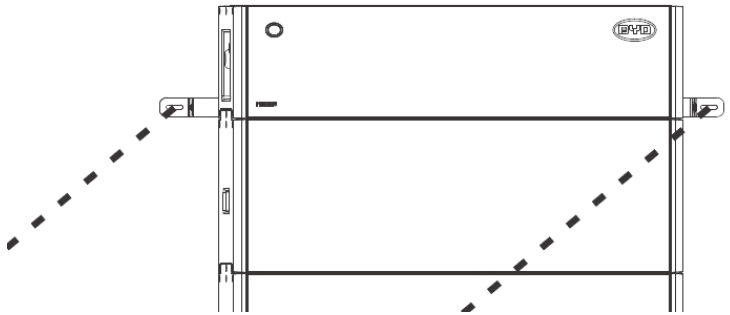
Version V1.3; Update: 2020-05-14

STEP 1 - CABLE-LESS ASSEMBLY









BATTERY BOX

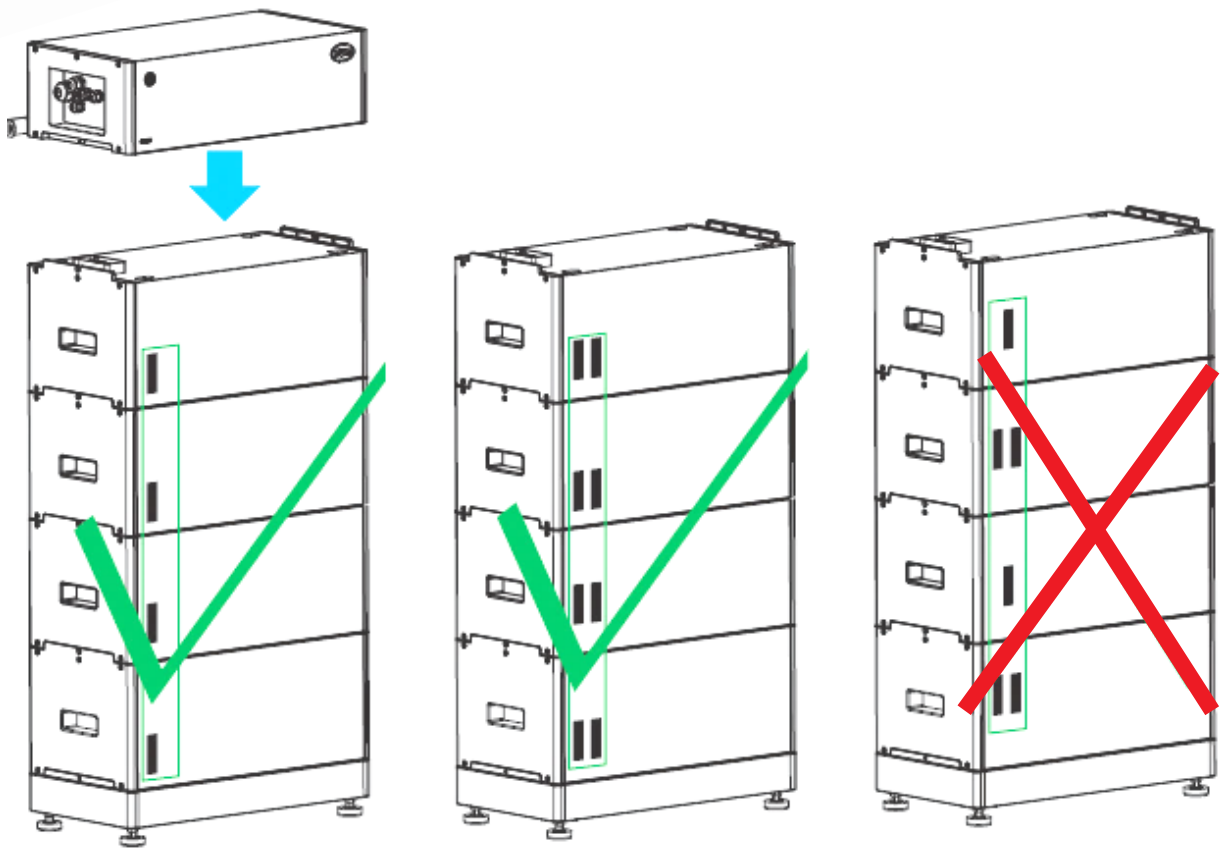
HVS/HVM

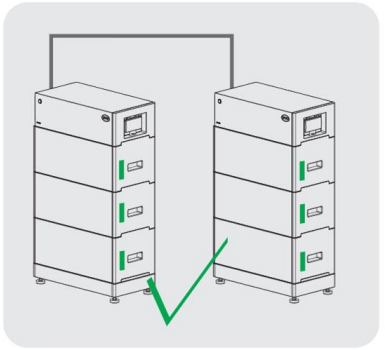
HVS 10.2

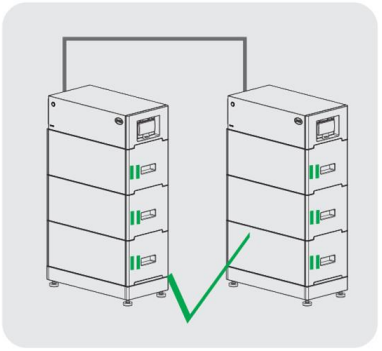
HVM 11.0

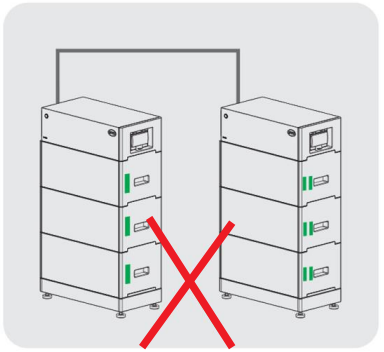
BATTERY BOX

HVS/HVM







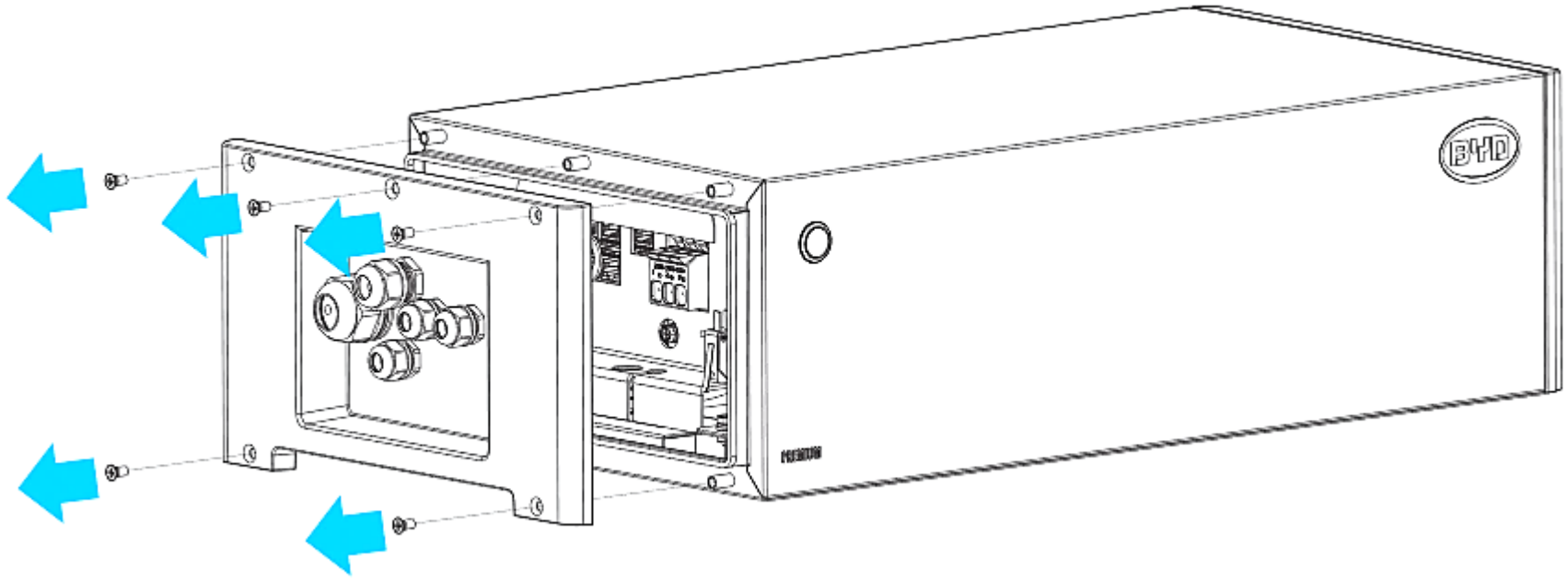


BATTERY BOX

STEP 2 – SIMPLE CONNECTIONS

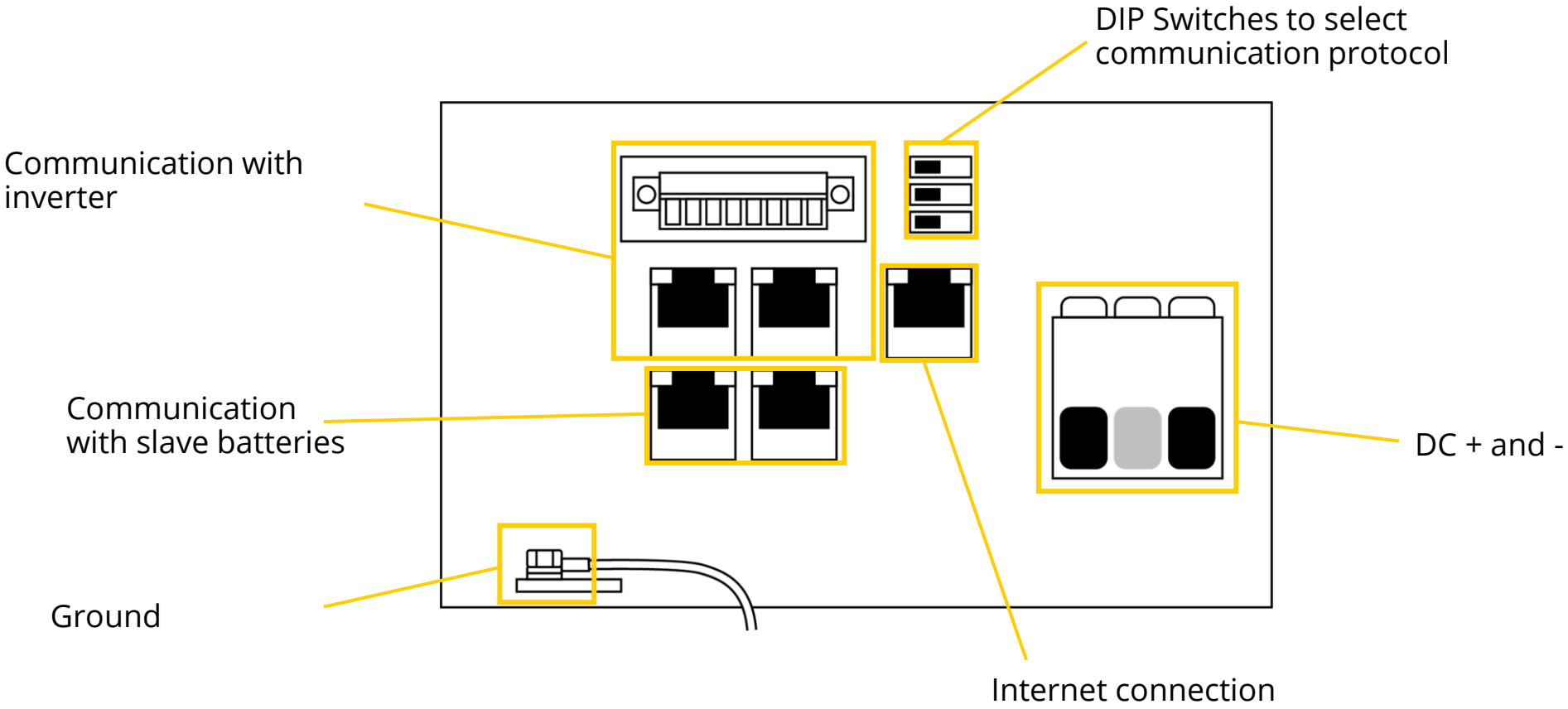
BATTERY BOX

STEP 2 – SIMPLE CONNECTIONS



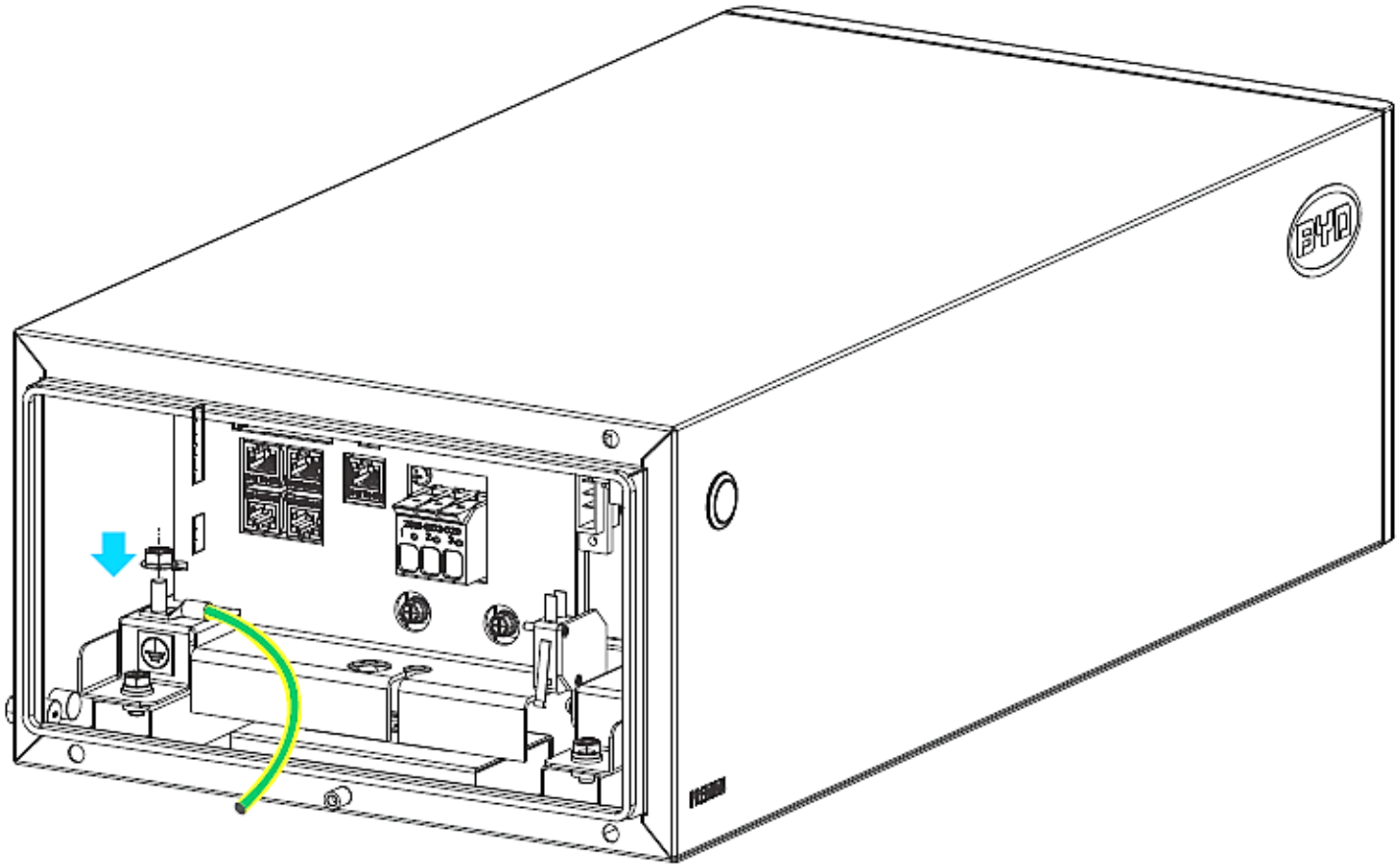
BATTERY BOX

CONNECTION AREA



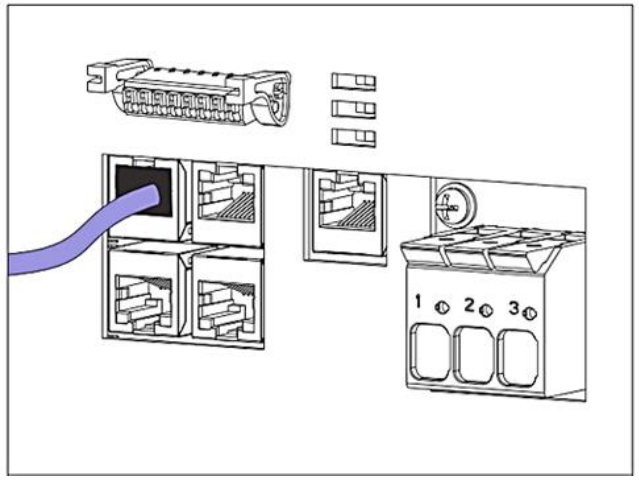
BATTERY BOX

GROUND CONNECTION



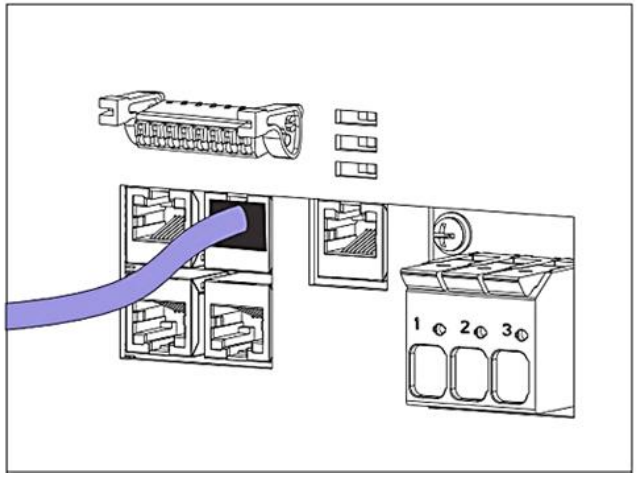
BATTERY BOX

COMMUNICATION



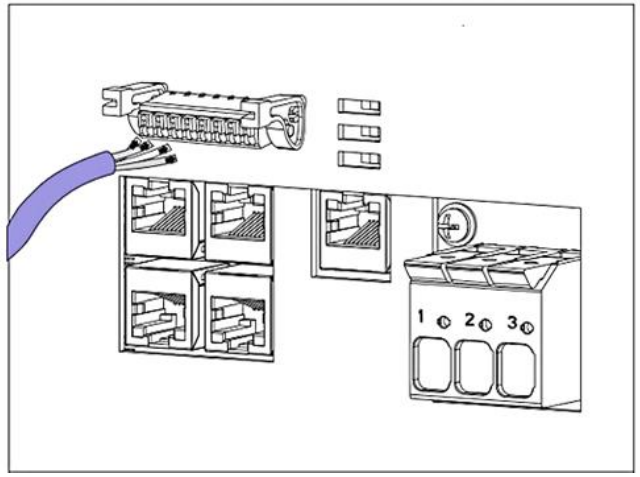
Option a)

CAN



Option b)

RS485

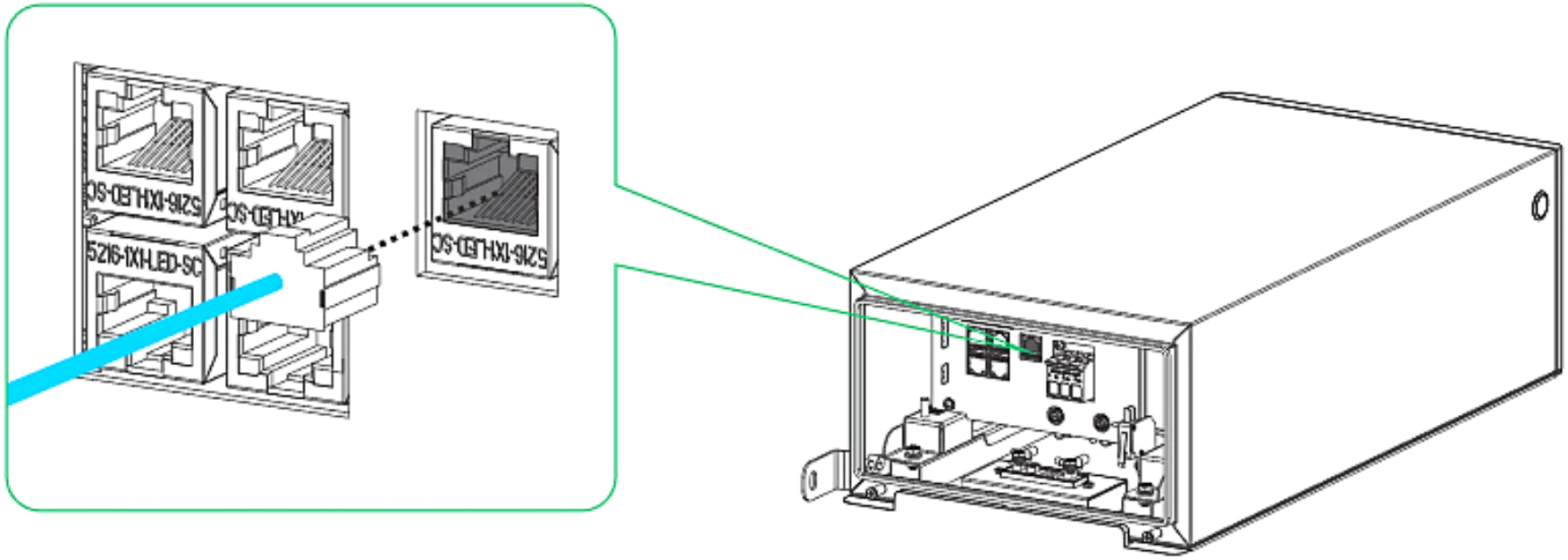


Option c)

CAN/RS485

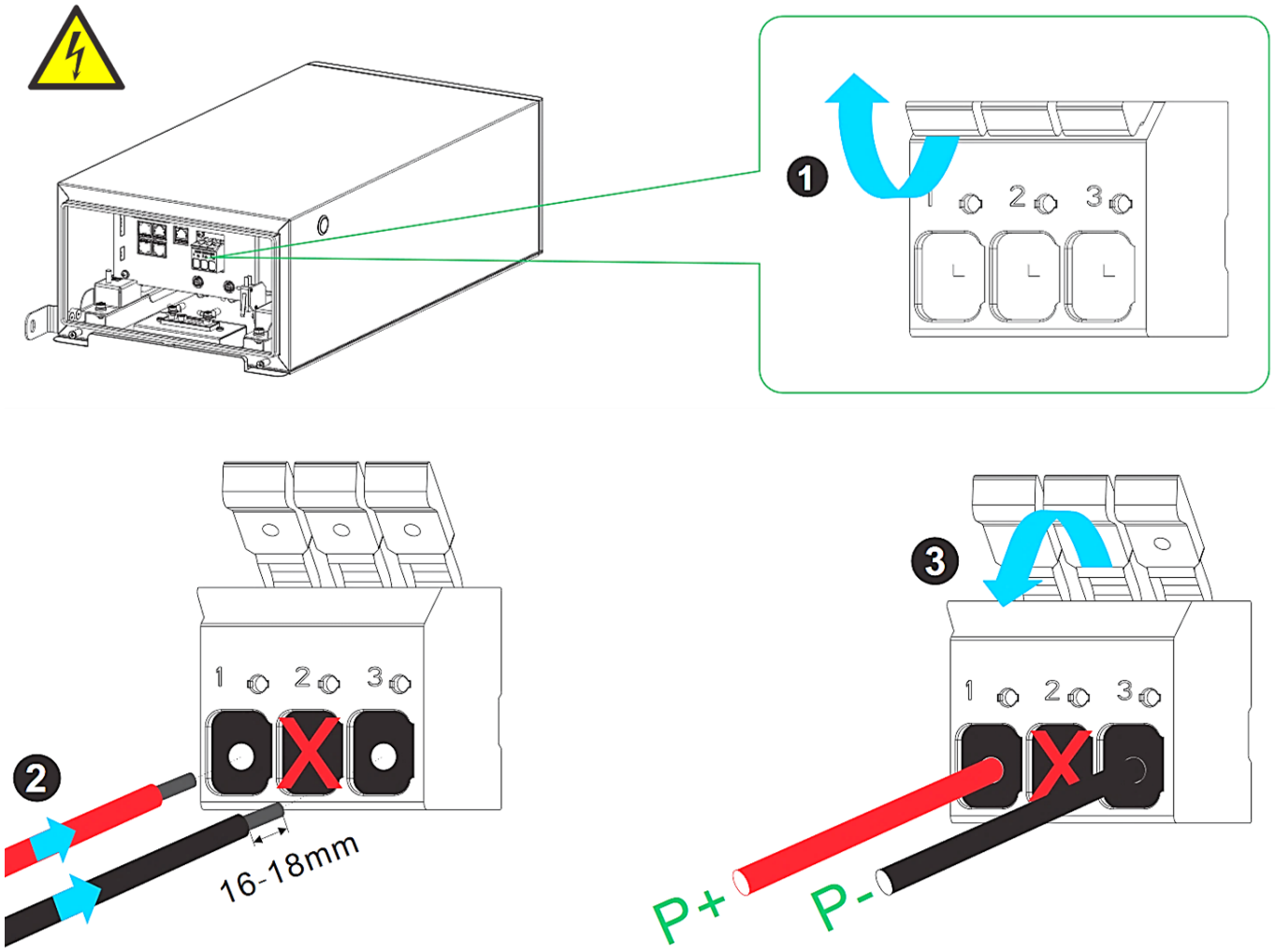
BATTERY BOX

INTERNET - FOR REMOTE SUPPORT



BATTERY BOX

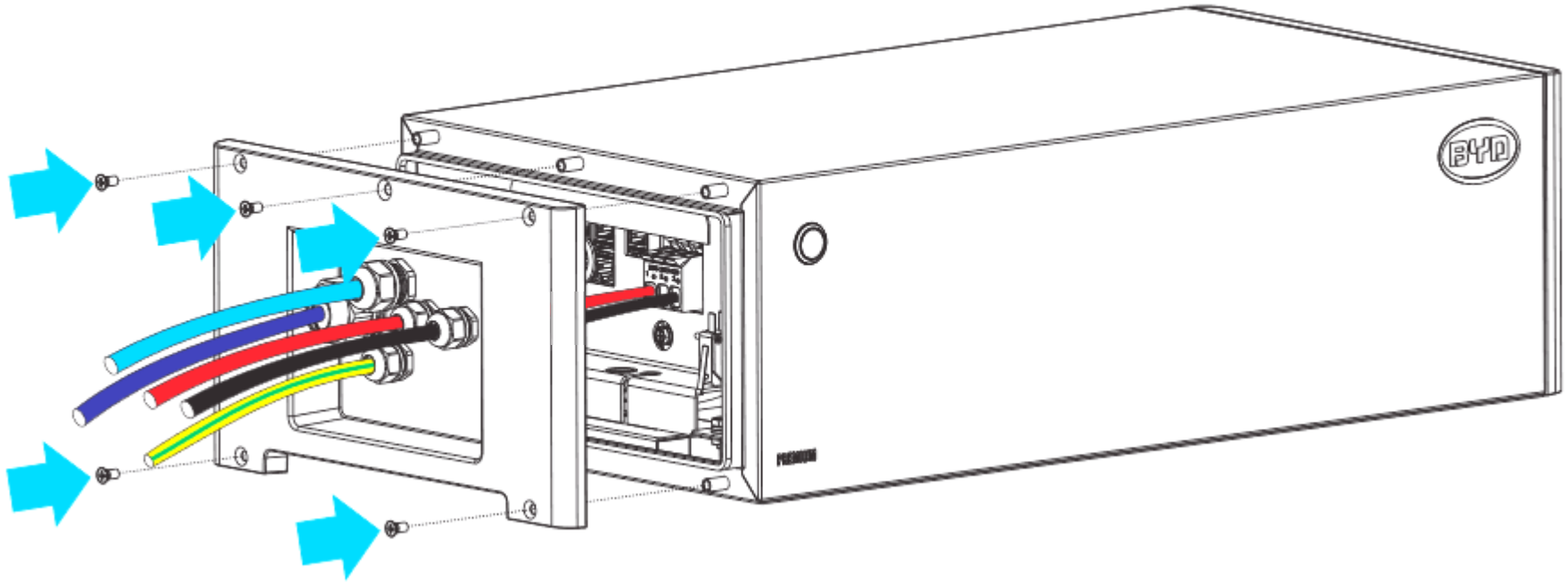
DC CONNECTIONS



BATTERY BOX

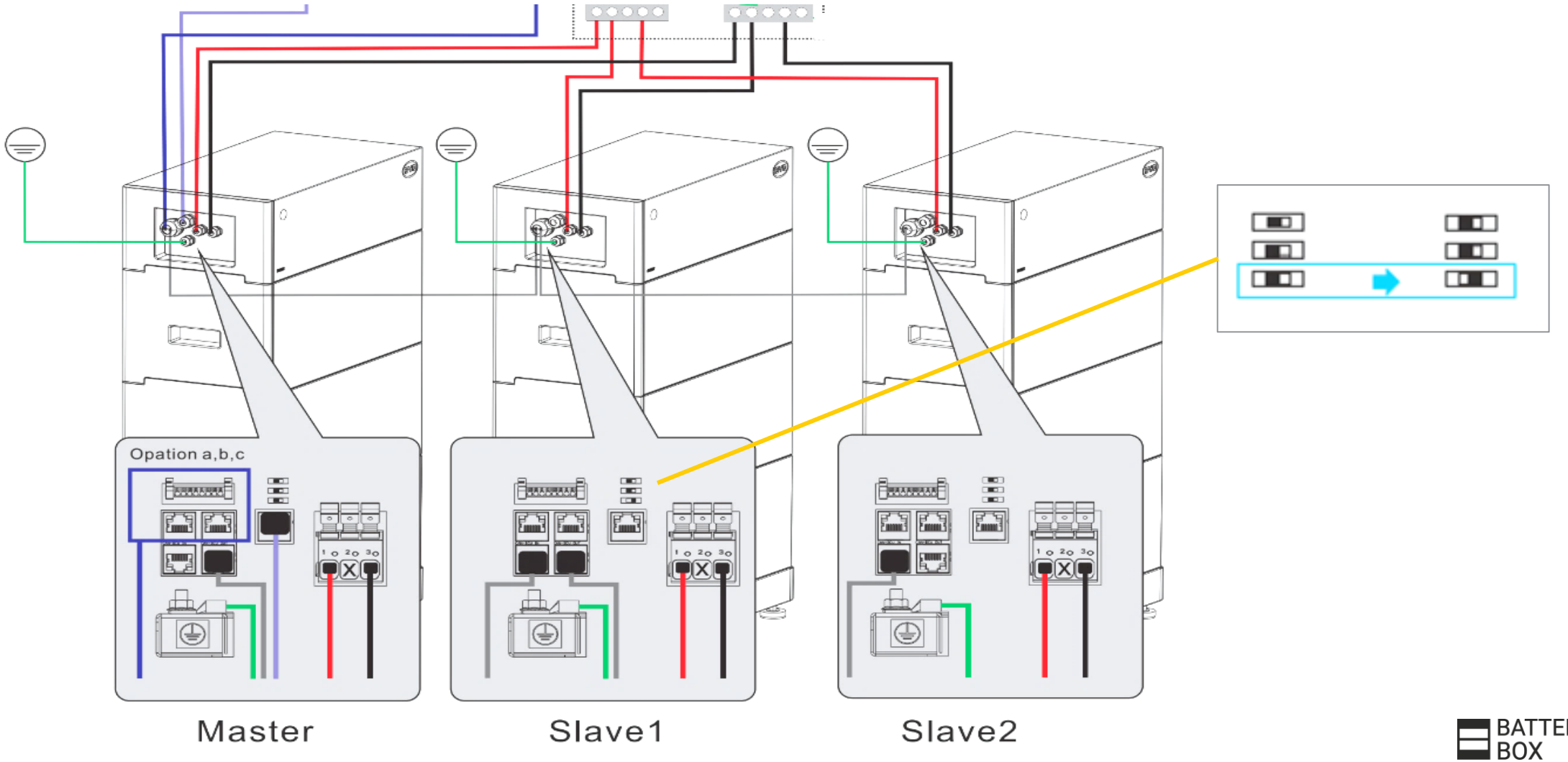
CLOSING THE COVER

IMPORTANT: The system will NOT work unless the cover is closed securely



BATTERY BOX

HVS/HVM - INSTALLATION – PARALLEL CONNECTION



BATTERY BOX

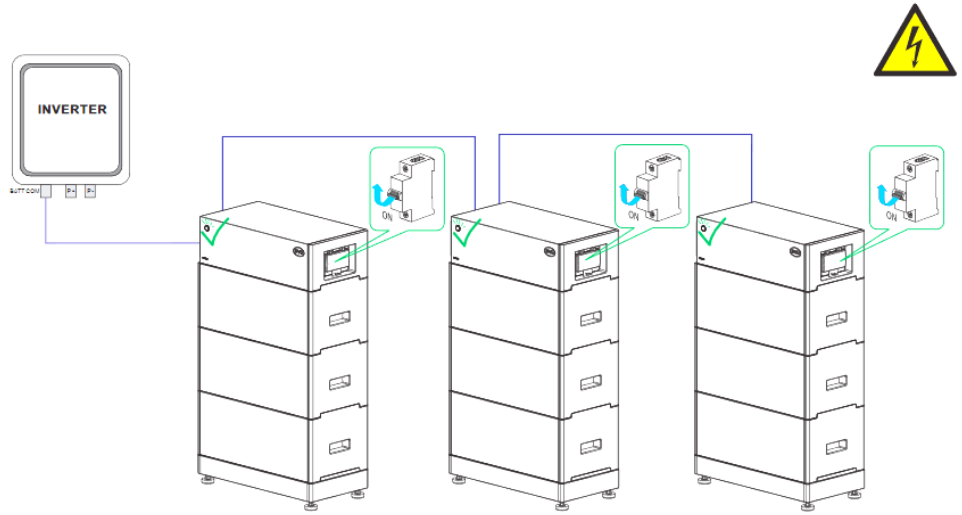
STEP 3 - COMMISSIONING

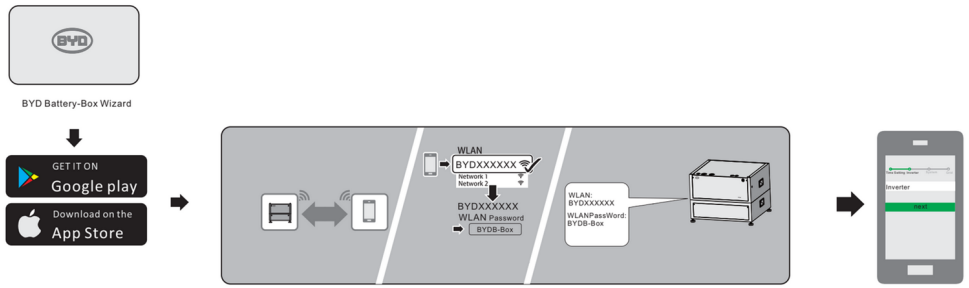
BATTERY BOX

STEP 3 - COMMISSIONING

Reihenfolge:

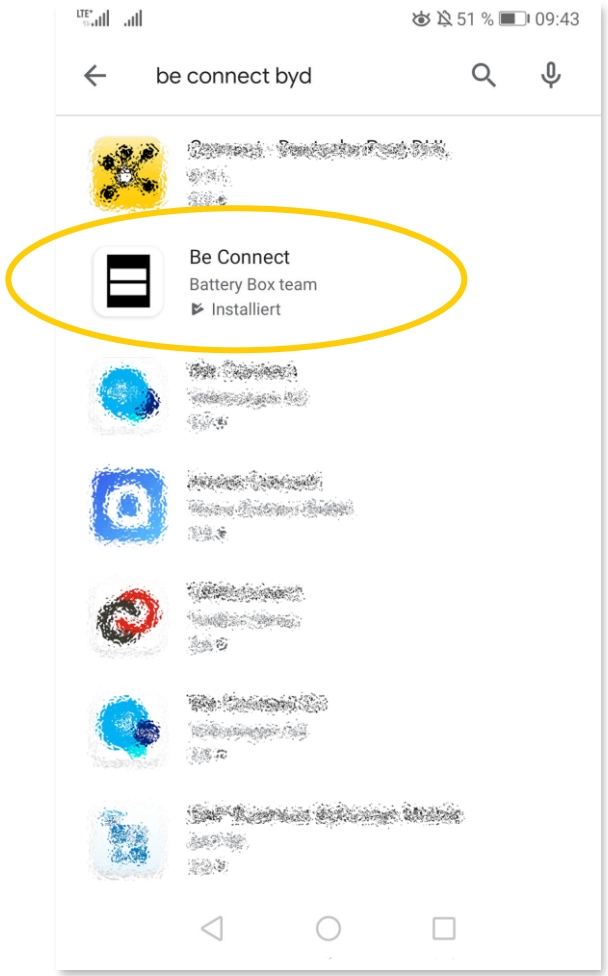
1. Switch on the battery
1. Using the BeConnect app setup the system
1. Switch on the inverter
1. Setup the inverter
1. The system is ready to use





BATTERY BOX

BYD BECONNECT APP

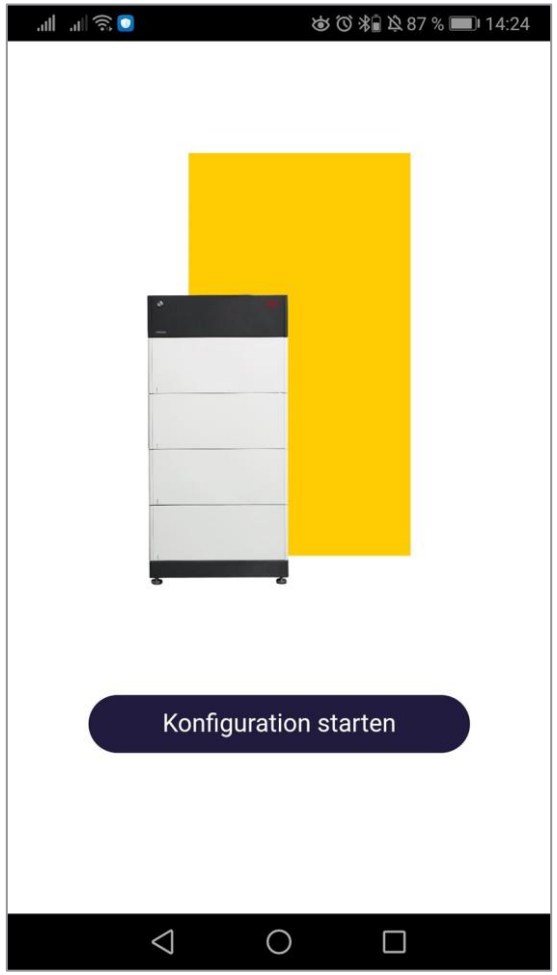


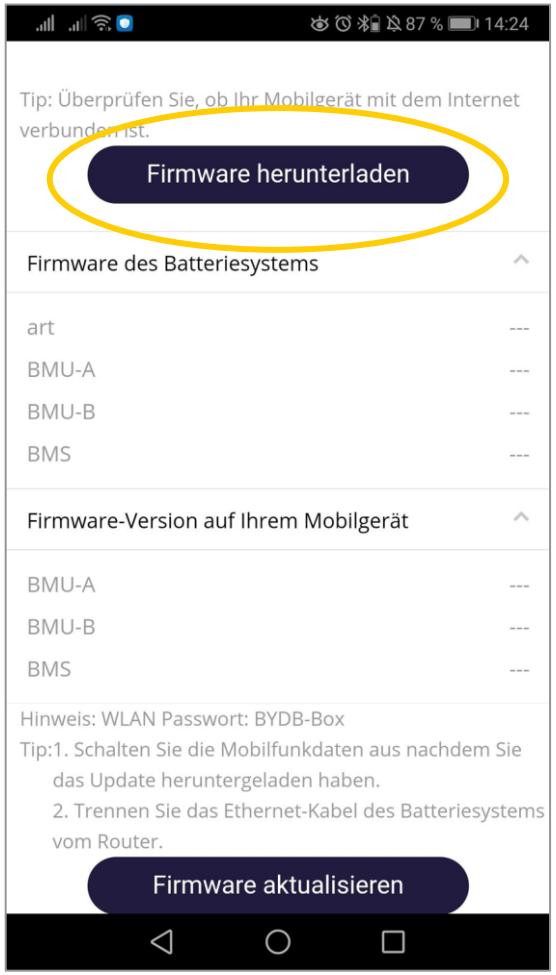
Android:

Apple:

BATTERY BOX

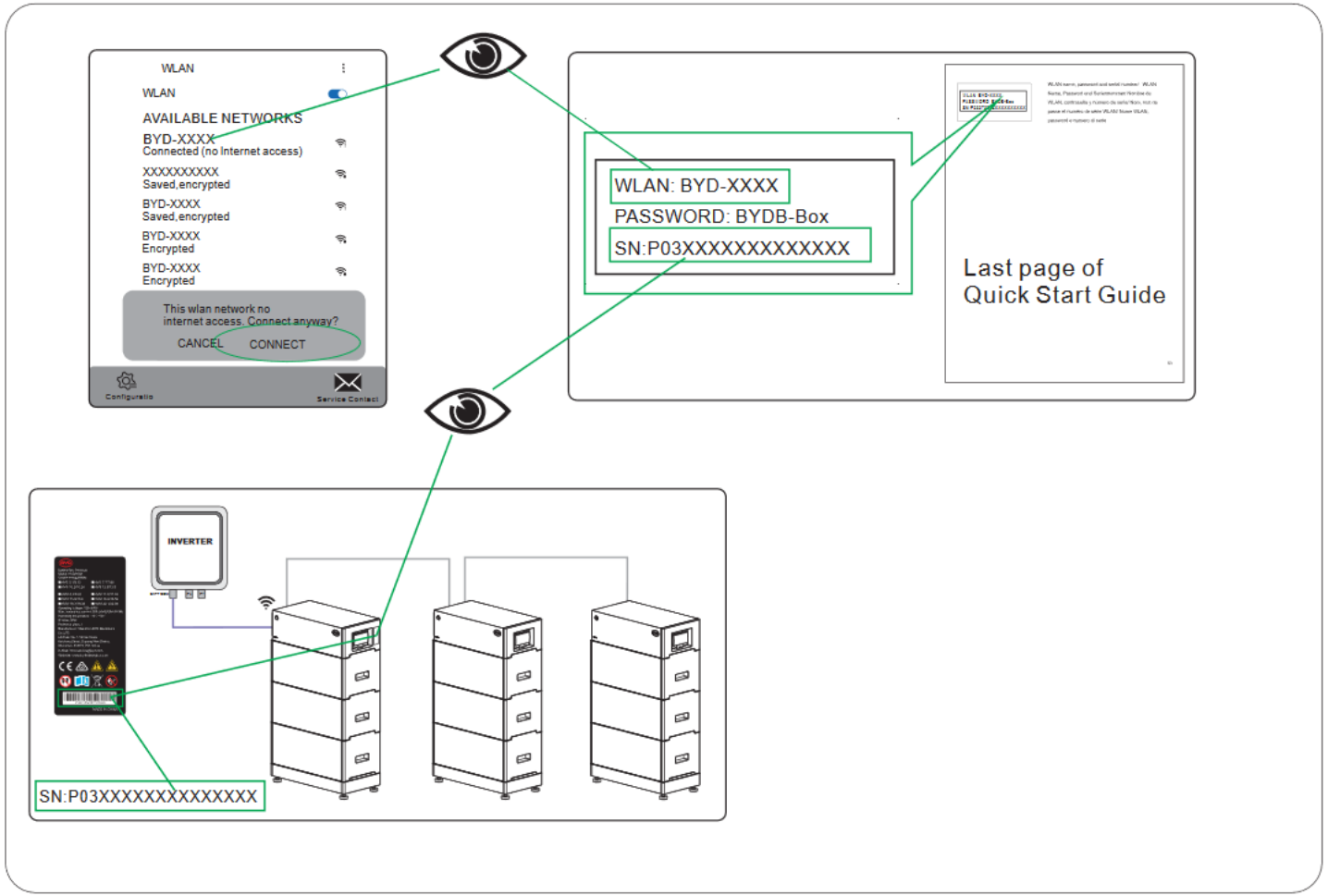
DOWNLOAD THE LATEST FIRMWARE





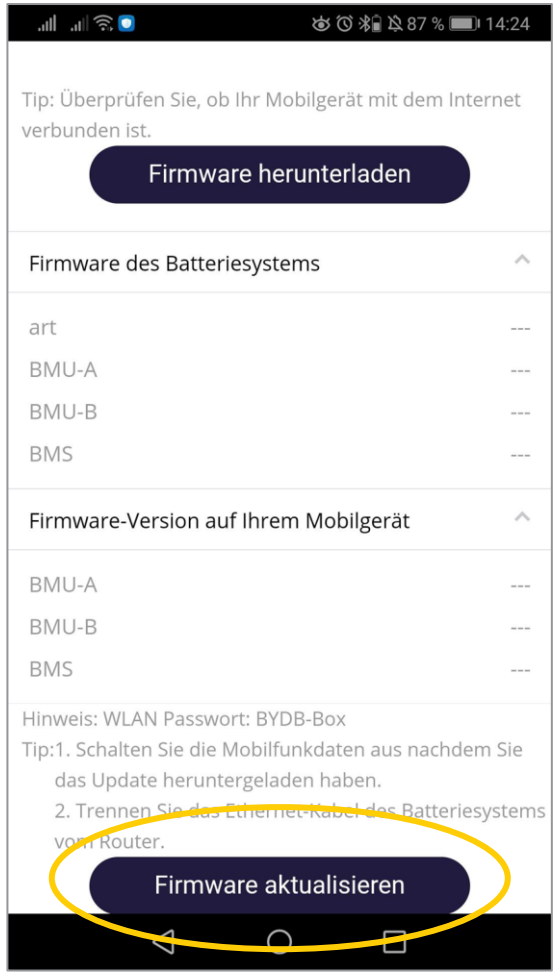
BATTERY BOX

CONNECT TO THE BATTERY WIFI



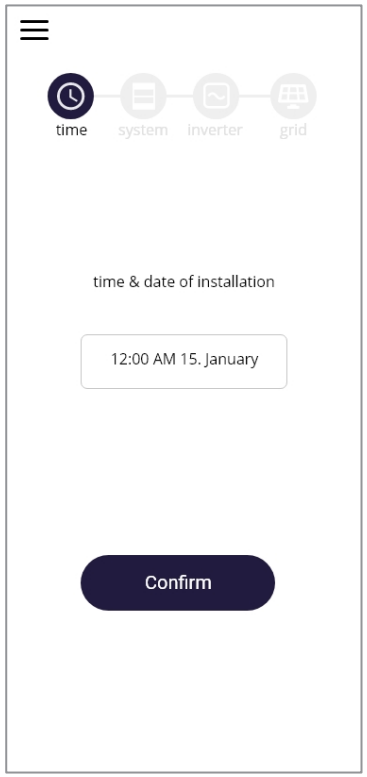
BATTERY BOX

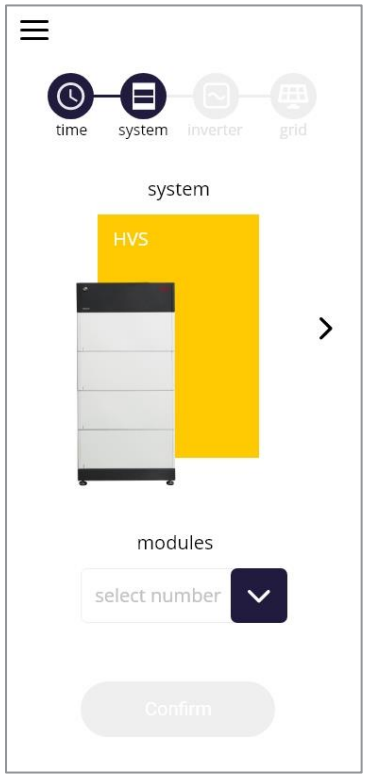
UPDATE THE BATTERY FIRMWARE



BATTERY BOX

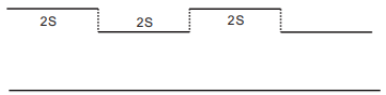
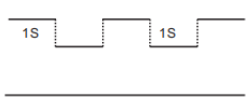
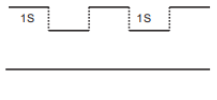
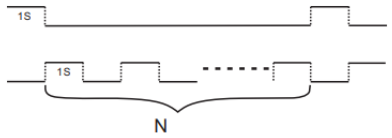
CONFIGURATION VIA THE BYD BECONNECT APP





BATTERY
BOX

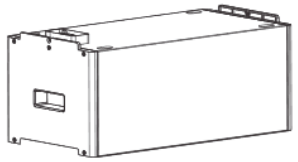
HVS/HVM – LED STATUS

Flashing white and blue alternatively	White ON OFF Blue ON OFF 	The battery system is initiating.
Glowing white	White ON OFF Blue ON OFF 	Idle (the battery system is neither charging nor discharging).
Flashing white slowly	White ON OFF Blue ON OFF 	The battery system is charging.
Flashing white quickly	White ON OFF Blue ON OFF 	The battery system is discharging.
Flashing white and glowing blue	White ON OFF Blue ON OFF 	The battery system is discharging, and the SOC is below 15%.
Flashing white and blue	White ON OFF Blue ON OFF 	An error has occurred.

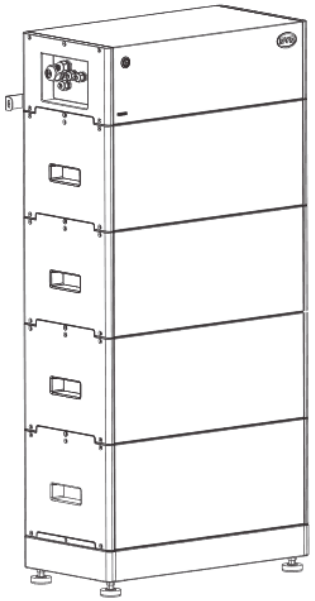
BATTERY BOX

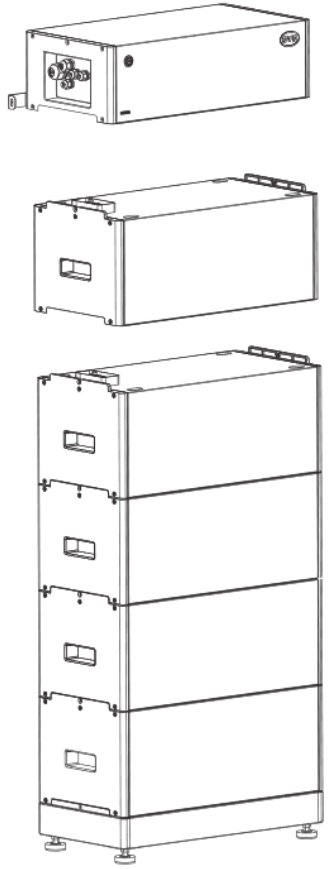
HVS/HVM – SYSTEM EXTENSION

New Battery
SOC = 30%



Original Battery
SOC = 30%





+ Remember to commission again

BATTERY BOX

LVL INSTALLATION

BATTERY BOX

LVL

LVL 15.4

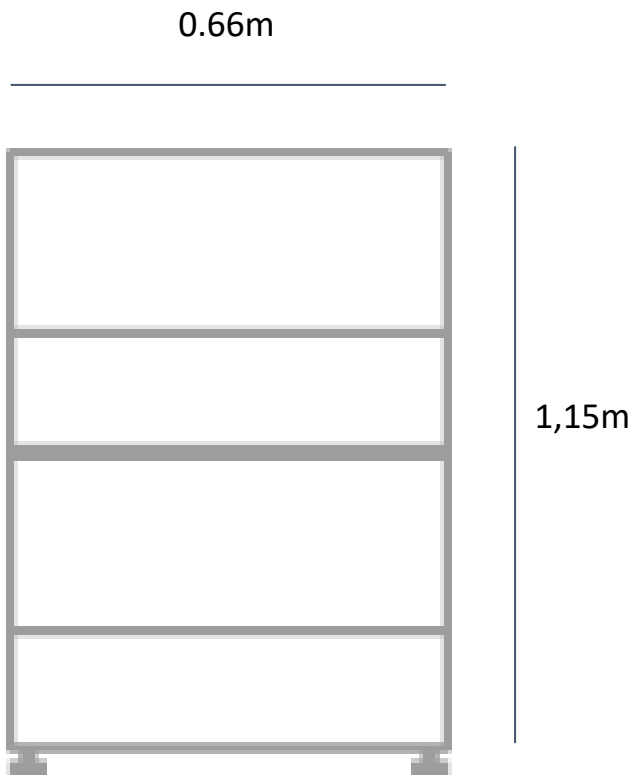
2 x LVL 15.4

64 x LVL 15.4

BATTERY BOX

LVL SPECS

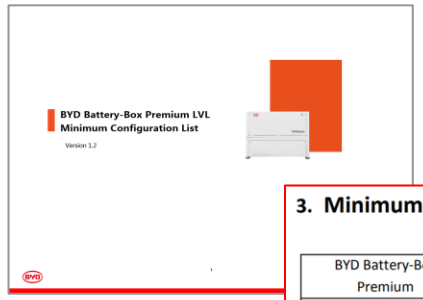
	PRO 13.8	LVL
Remote Control	✗	✓
ON-Grid & Backup	✓	✓
OFF-Grid	✓	✓
Automatic Address Configuration	✗	✓
Size	650 x 550 x 800 mm	500 x 660 x 575 mm
Capacity Range	13.8 kWh Up to 32 Parallel: 442 kWh	15.4 kWh Up to 64 Parallel: 983 kWh
Stackable	✗	✓ Up to two Systems
Start of Temperature Derating	Below +12 °C	Below +5 °C



2 x LVL 15.4

BATTERY BOX

COMPATIBILITY - MINIMUM CONFIGURATION



3. Minimum Configuration List Off Grid Single Phase

BYD Battery-Box Premium	Minimum Configuration (System Numbers)	Compatible Inverter Model	Compatible Inverter Brand
LVL 15.4	≥ 1	SI 4.4M	SMA
	≥ 1	SI 6.0H	
	≥ 1	SI 8.0H	
	≥ 1	Multiplus 48/3000/35	Victron
	≥ 1	Multiplus 48/5000/70	
	≥ 1	Multigrid 48/3000/35	
	≥ 1	Quattro 48/5000/70-100/100	
	≥ 1	Quattro 48/8000/110-100/100	
	≥ 1	Quattro 48/10000/140- 100/100	
	≥ **2**	Quattro 48/15000/200- 100/100	
	≥ 1	Easysolar 48/3000/35-50 MPPT150/70	
	≥ 1	Easysolar 48/5000/70-100 MPPT150/100	
	≥ 1	SPMC480-AU	Selectronic
	≥ 1	SPMC481-AU	
	≥ 1	SPMC482-AU	
	≥ 1	XTS1400-48	Studer
	≥ 1	XTM2600-48	
	≥ 1	XTM4000-48	
	≥ 1	XTH6000-48	
	≥ 1	XTH8000-48	
	≥ 1	VT-65	
	≥ 1	VT-80	
	≥ 1	VS-70	
	≥ 1	VS-120	

6. Minimum Configuration List Off Grid Three Phase

BYD Battery-Box Premium	Minimum Configuration for Typical Power Use (System Numbers)	Minimum Configuration for Inrush Power Use (System Numbers)	Compatible Inverter Model	Remarks for Inrush Power	Compatible Inverter Brand
LVL 15.4	≥1	≥2	SI 4.4M	5.5kw 3 seconds per inverter	SMA
	≥2	≥3	SI 6.0H	11kw 3 seconds per inverter	
	≥2	≥3	SI 8.0H		
	≥1	≥2	Multiplus 48/3000/35	6kw 5 seconds per inverter	Victron
	≥2	≥2	Multiplus 48/5000/70	10kw 5 seconds per inverter	
	≥1	≥2	Multigrid 48/3000/35	6kw 5 seconds per inverter	
	≥2	≥2	Quattro 48/5000/70-100/100	10kw 5 seconds per inverter	
	≥2	≥3	Quattro 48/8000/110-100/100	16kw 5 seconds per inverter	
	≥3	≥4	Quattro 48/10000/140- 100/100	20kw 5 seconds per inverter	
	≥4	≥6	Quattro 48/15000/200- 100/100	25kw 5 seconds per inverter	
	≥1	≥1	Easysolar 48/3000/35-50 MPPT150/70	6kw 5 seconds per inverter	
	≥2	≥2	Easysolar 48/5000/70-100 MPPT150/100	10kw 5 seconds per inverter	
	≥1	≥2	SPMC480-AU	6kw 60 seconds per inverter	Selectronic
	≥1	≥2	SPMC481-AU	12kw 30 seconds per inverter	
	≥2	≥3	SPMC482-AU	18kw 30 seconds per inverter	
	≥1	≥1	XTS1400-48	2.8kVA 5 seconds per inverter	Studer
	≥1	≥1	XTM2600-48	6.5KVA 5 seconds per inverter	
	≥1	≥2	XTM4000-48	10.5KVA 5 seconds per inverter	
	≥2	≥3	XTH6000-48	15 KVA 5 seconds per inverter	
	≥2	≥4	XTH8000-48	21 KVA 5 seconds per inverter	
	≥1	≥1	VT-65		
	≥1	≥1	VT-80		
	≥1	≥1	VS-70		
	≥1	≥2	VS-120		

Notice:

1. Inrush Power: Each Inverter has their Inrush power for off grid applications, please make sure to consult with inverter brands for the right value of correspondences.
2. Maximum 64 systems in parallel connection.
3. With SMA, Battery Firmware: BMU ≥ V1.7, BMS ≥ V1.3; inverter firmware ≥ 1.3.1R.
4. With Victron, Battery firmware: BMU ≥ V1.7, BMS ≥ V1.3; inverter firmware ≥ V2.52.
5. With Studer, Battery firmware: BMU ≥ V1.9, BMS ≥ V1.3; inverter firmware ≥ R664.

BATTERY BOX

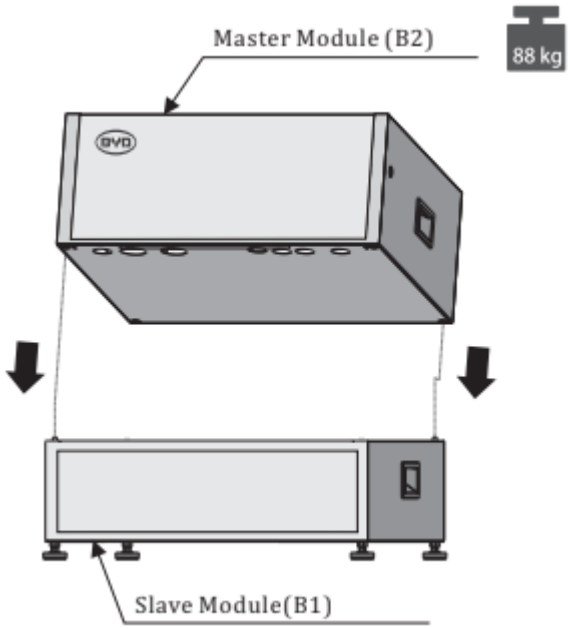
LVL – NECESSARY COMPONENTS

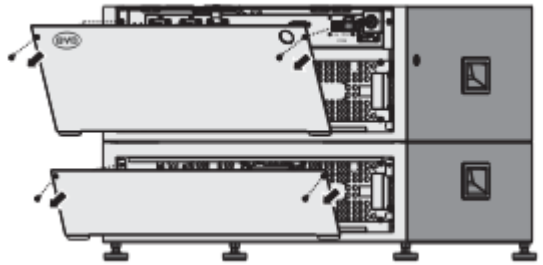
LVL

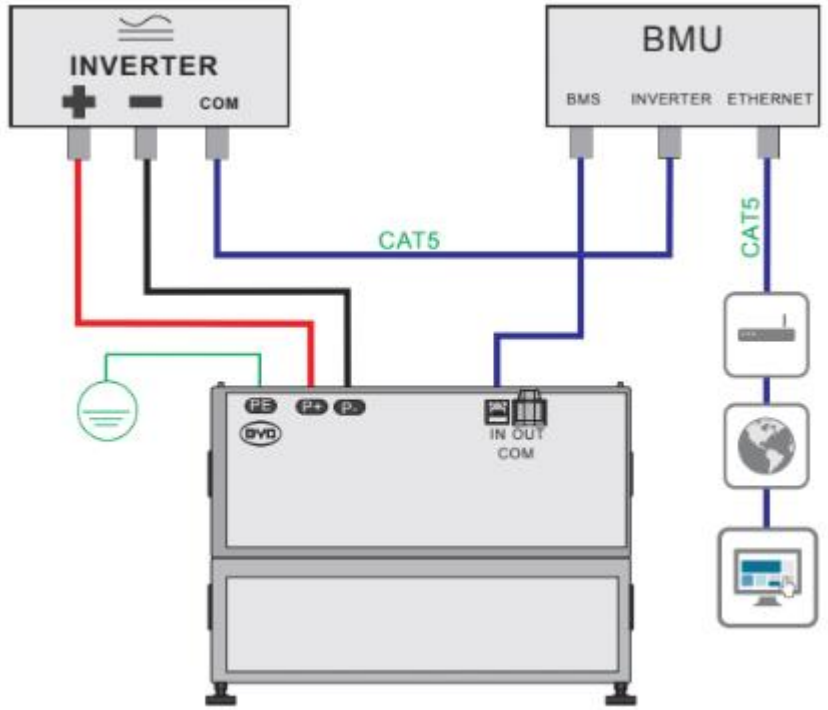
BMU - LVL/LVS

BATTERY BOX

LVL – INSTALLATION SINGLE SYSTEM

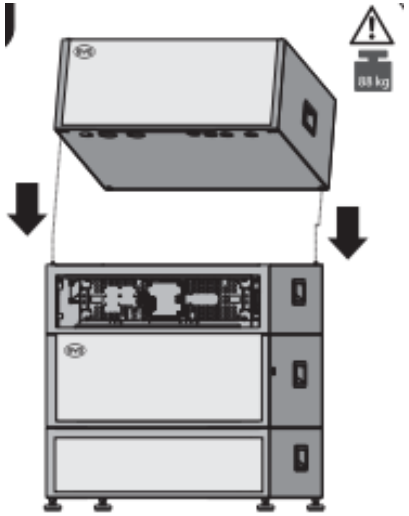


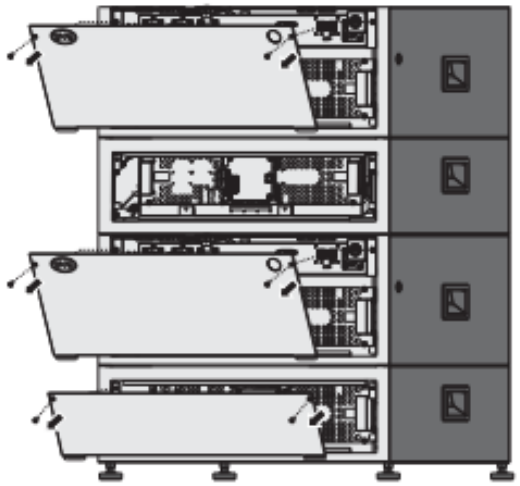


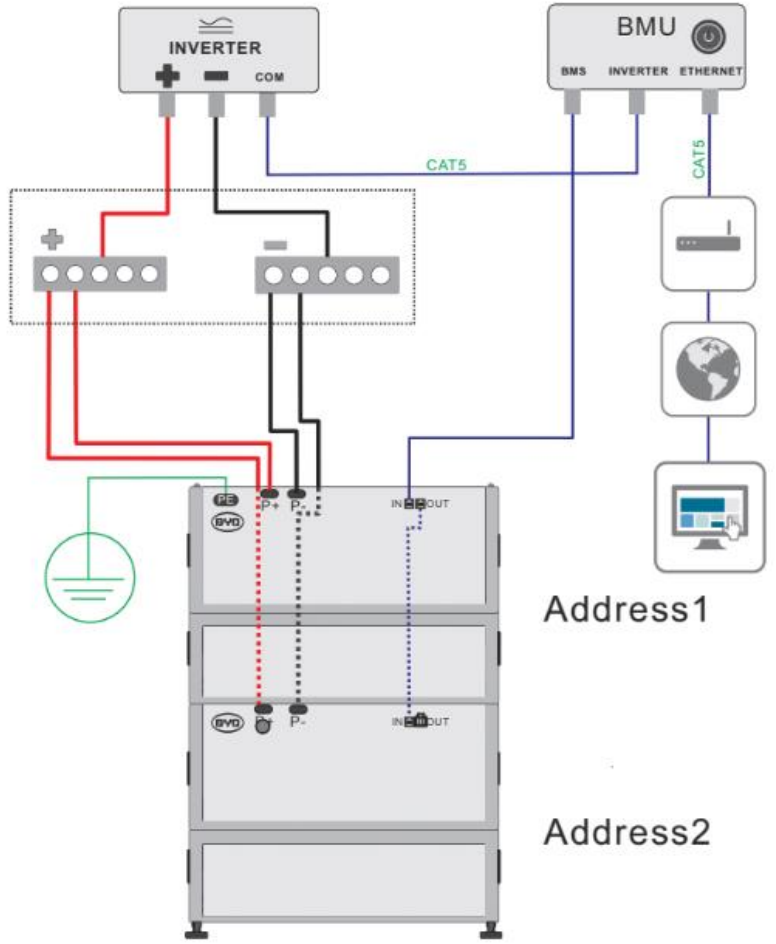


BATTERY BOX

LVL – INSTALLATION TWO SYSTEMS

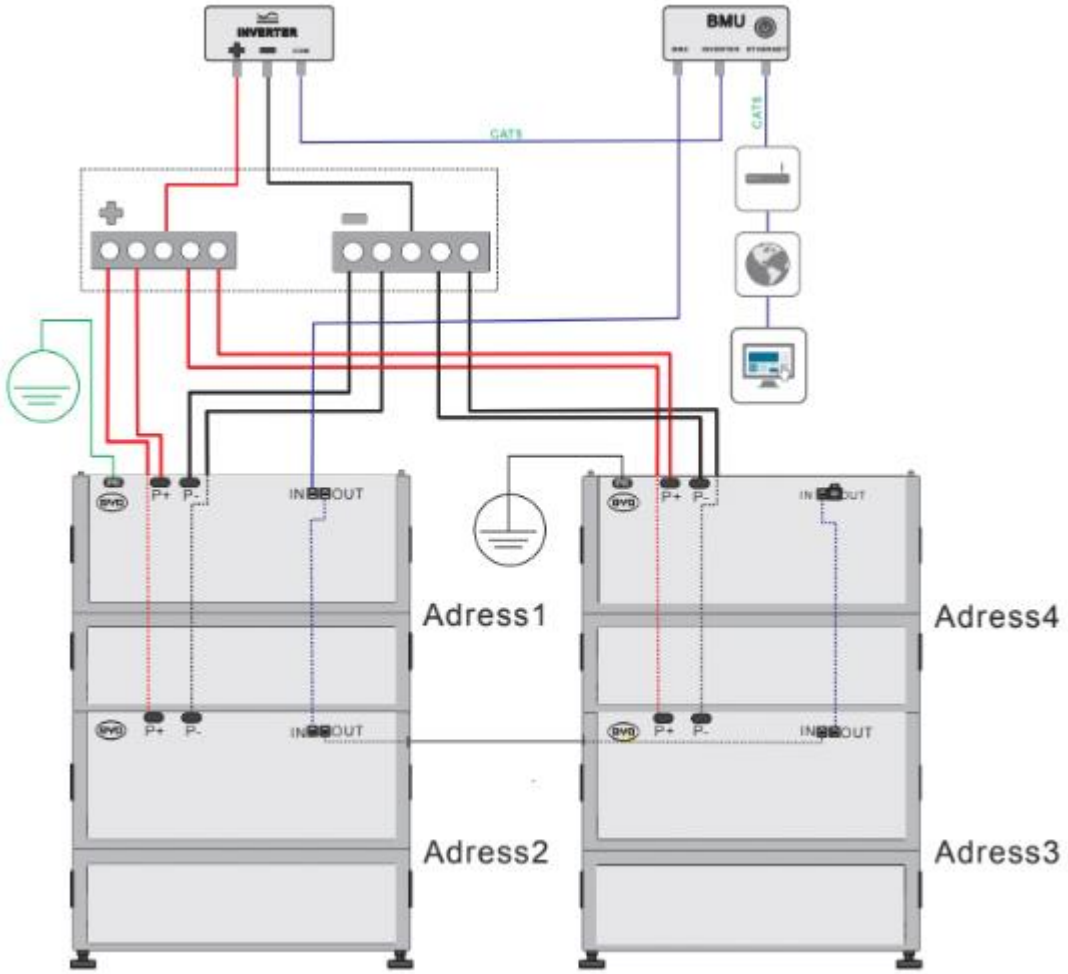






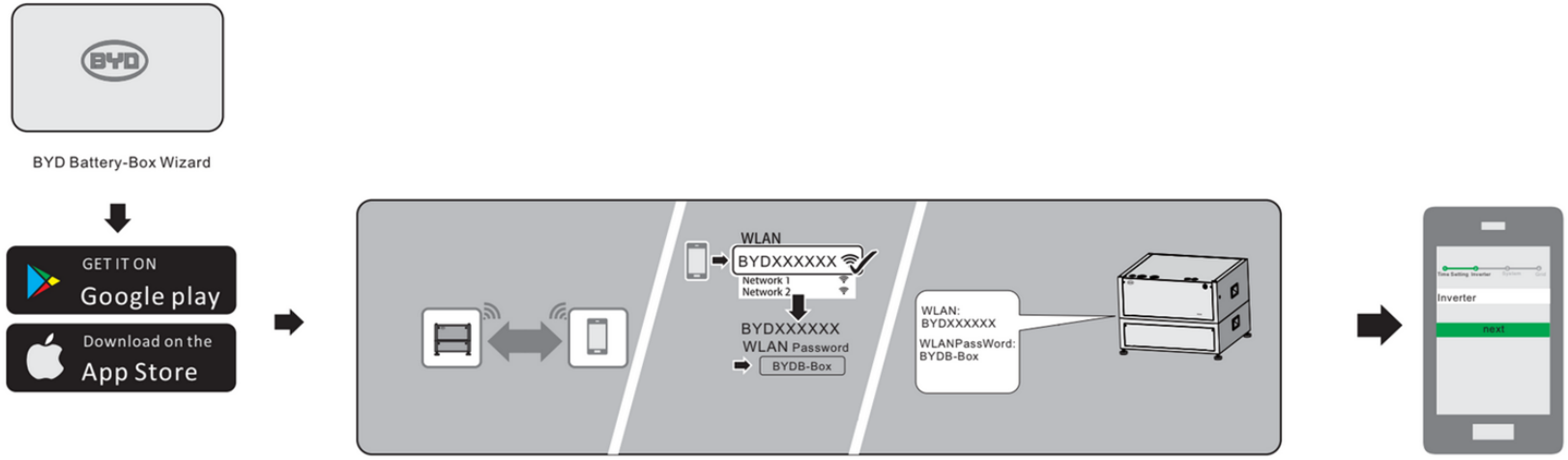
BATTERY BOX

LVL – INSTALLATION MULTIPLE SYSTEMS



BATTERY BOX

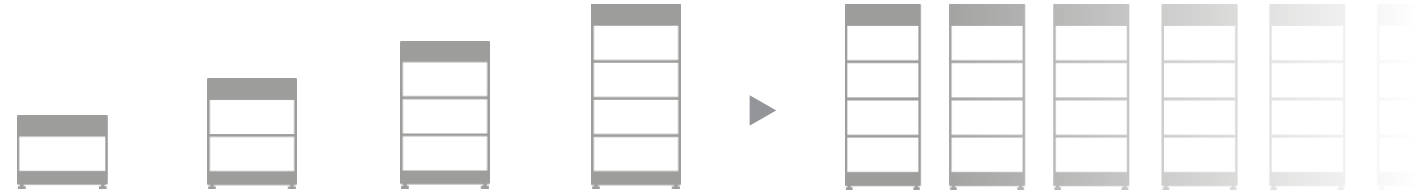
LVL – INSTALLATION CONFIGURATION



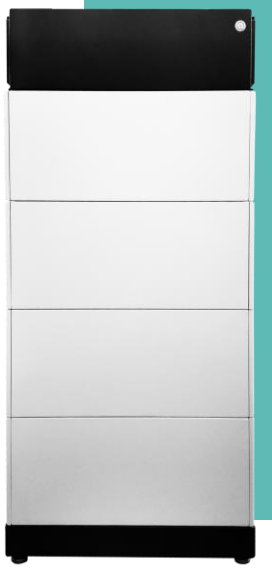
LVS INSTALLATION

BATTERY BOX

LVS



LVS 4.0 LVS 8.0 LVS 12.0 LVS 16.0 16 x LVS 16.0



BATTERY BOX

LVS SPECS

	LV	PRO 2.5-10.0	LVS
Patentiertes Plug-In-Design ohne Kabel	✓	✗	✓
ON-Grid & Not-/Ersatzstrom	✓	✓	✓
OFF-Grid	✗	✓	✓
Module	3.50 kWh 42 kg, 51.2 V	2.56 kWh 40 kg, 51.2 V	4 kWh 45 kg, 51.2 V
Größenvergleichsbeispiel	L10.5: 620 x 340 x 947 mm	PRO10.0: 600 x 510 x 883 mm	LVS 12.0: 650 x 298 x 944 mm
IP 55	✓	✗	✓
Kapazitätsbereich	3.5 – 14 kWh Parallel up to: 42 kWh	2.56 – 10.24 kWh Parallel up to: 81 kWh	4 – 24 kWh Parallel up to: 256 kWh
Temperaturabhängige Leistungsreduzierung	Derating below +12 °C	Derating below +12 °C	Derating below +5 °C

BATTERY BOX

LVS - NECESSARY COMPONENTS

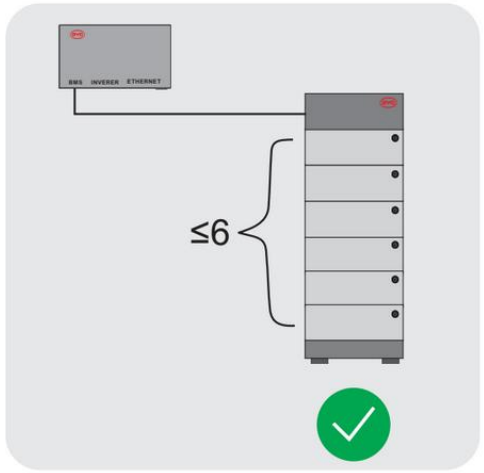
LVS PDU

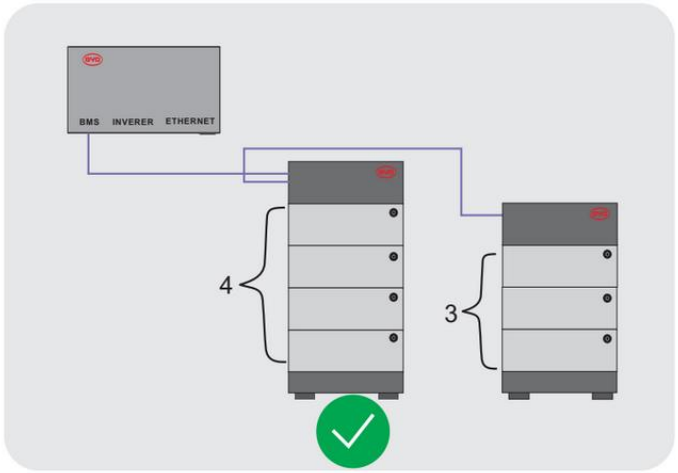
LVS Module

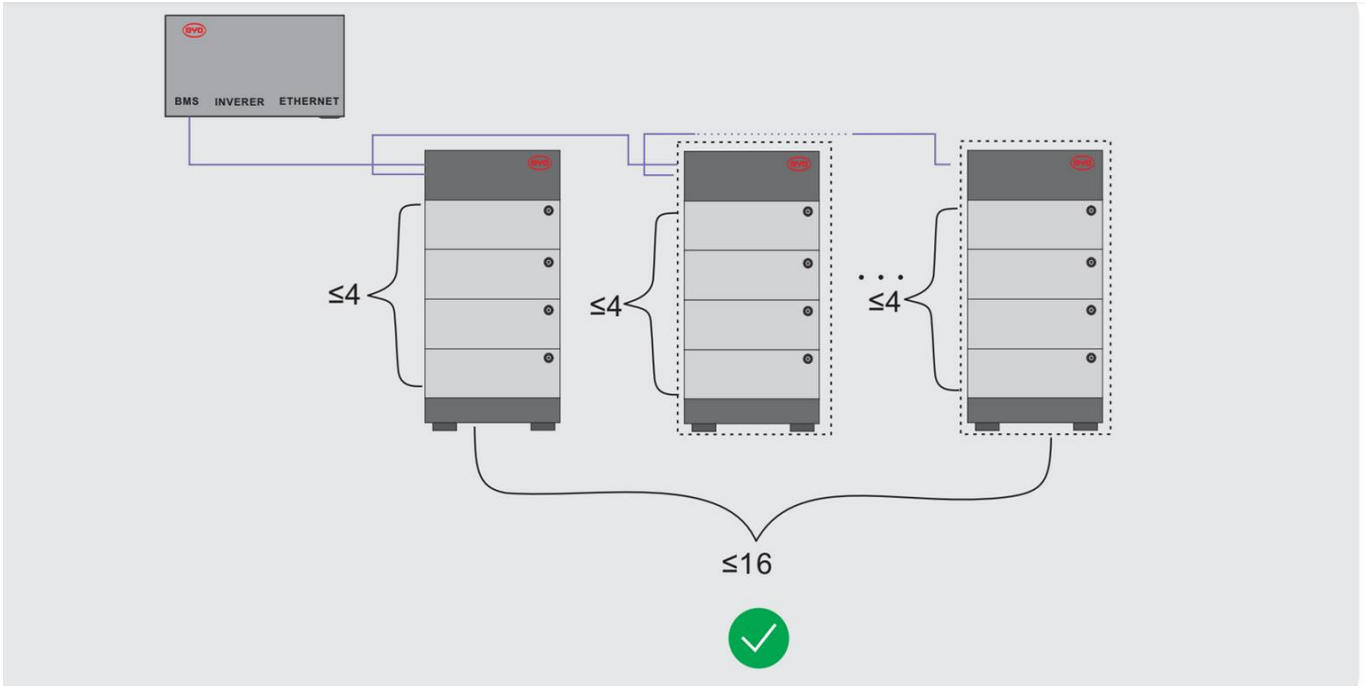
BMU - LVL/LVS

BATTERY BOX

LVS - SYSTEM DESIGN

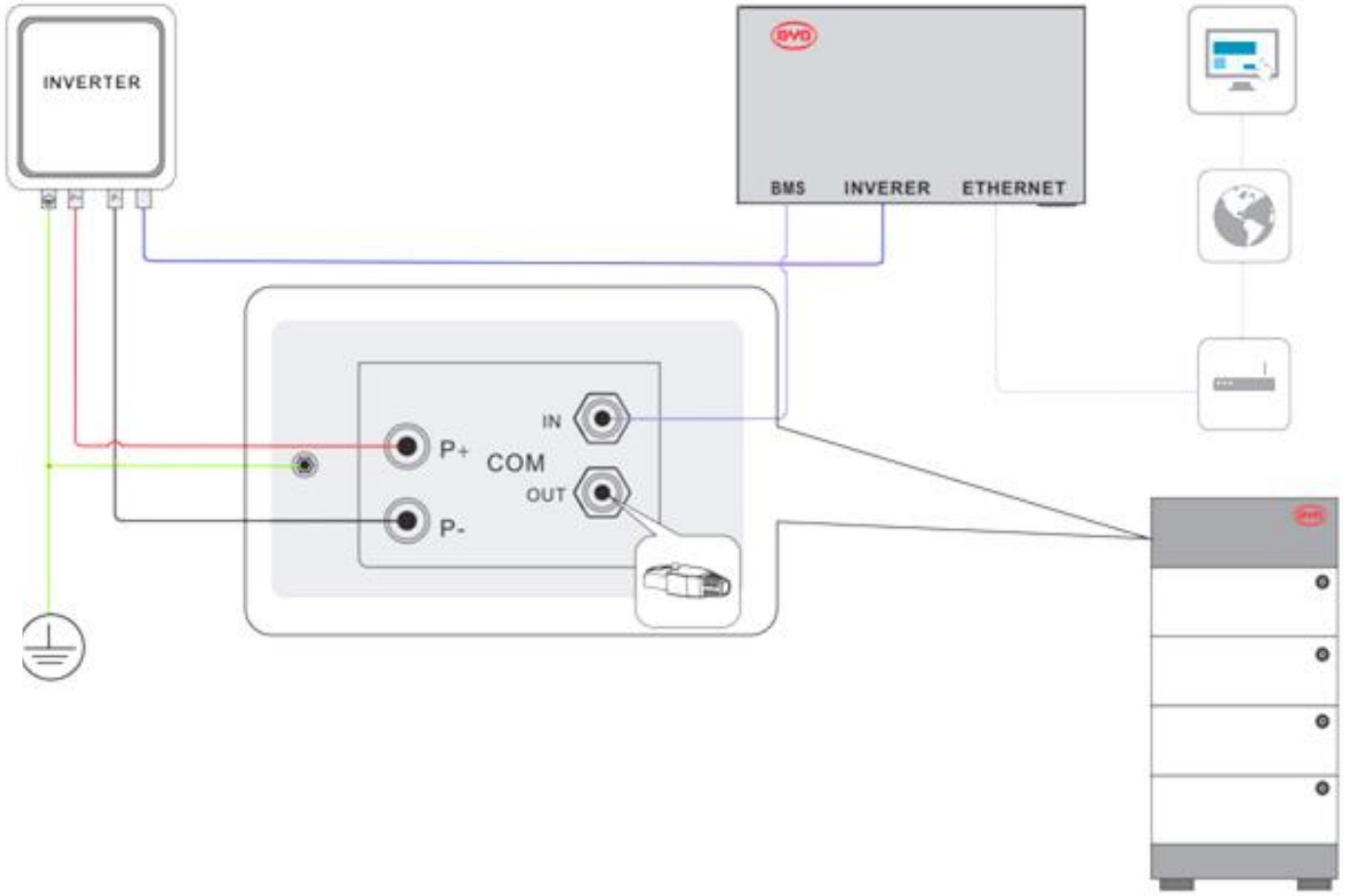






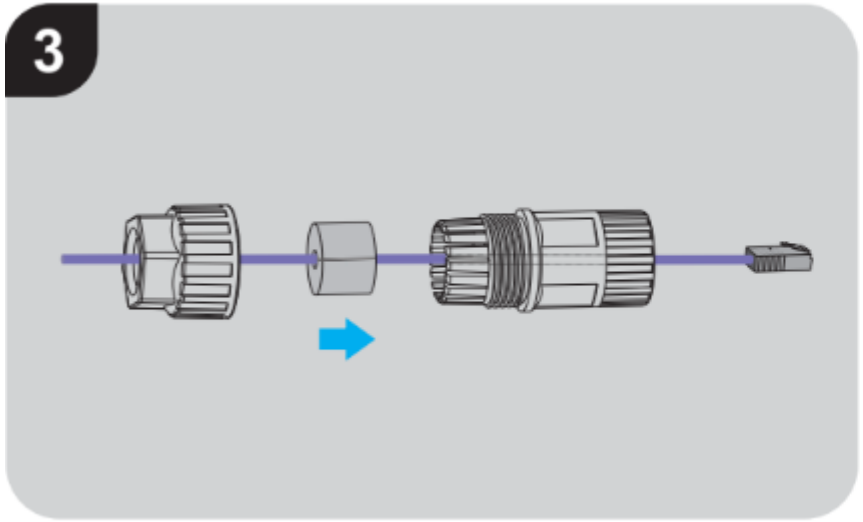
BATTERY BOX

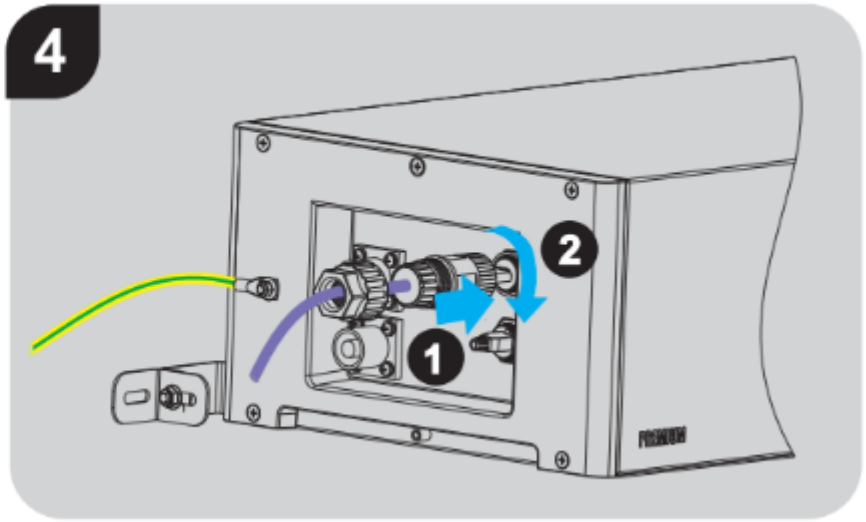
LVS - INSTALLATION



BATTERY BOX

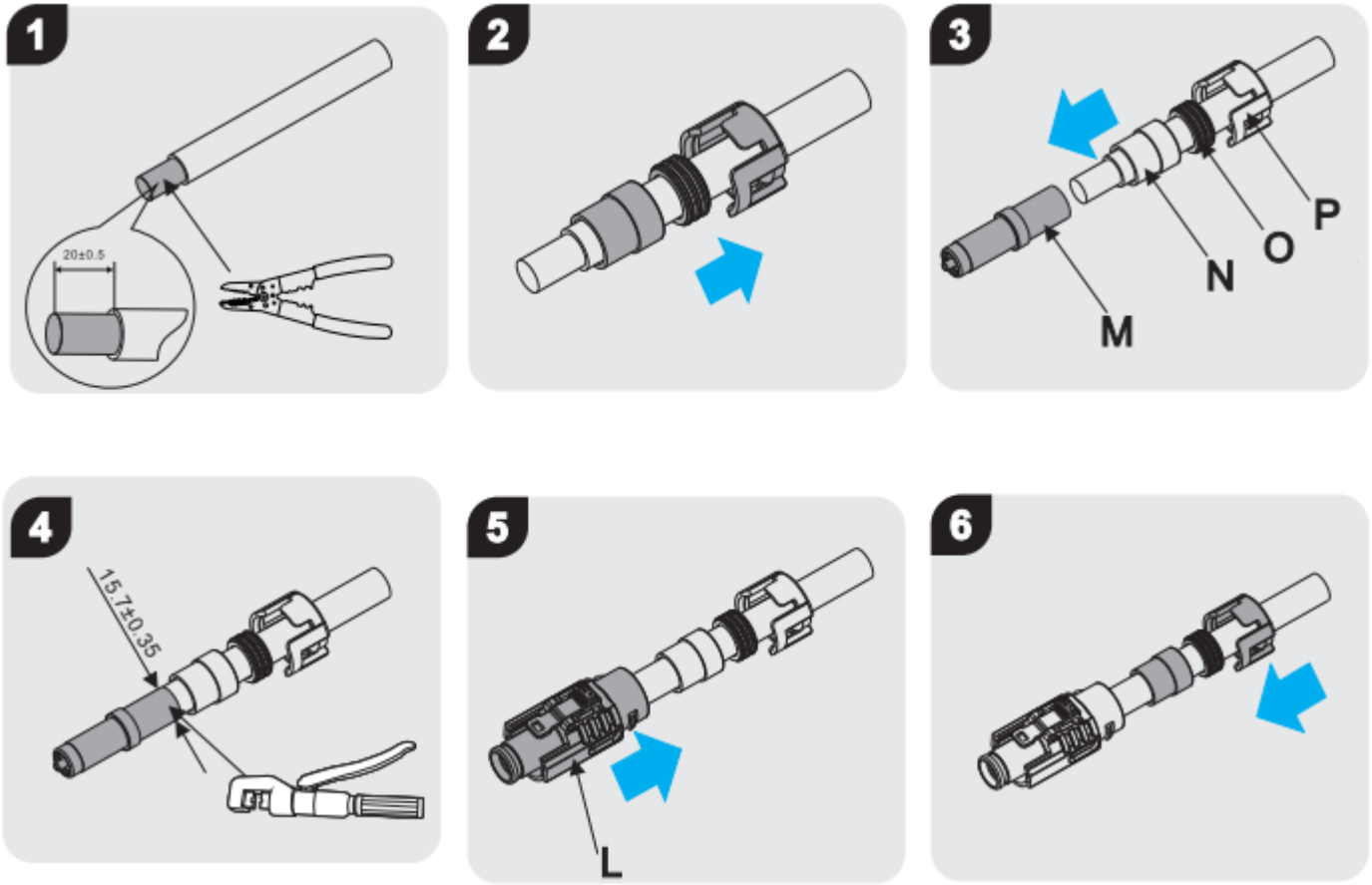
LVS – GROUNDING AND COMMUNICATION

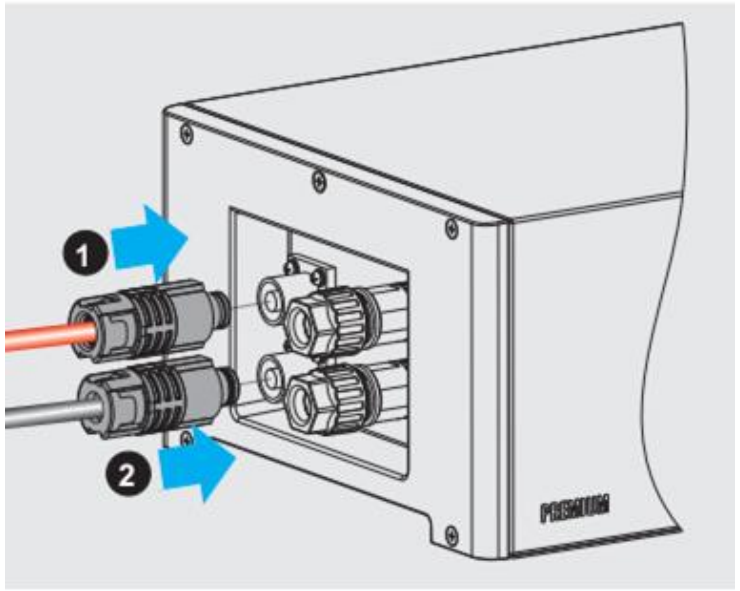




BATTERY BOX

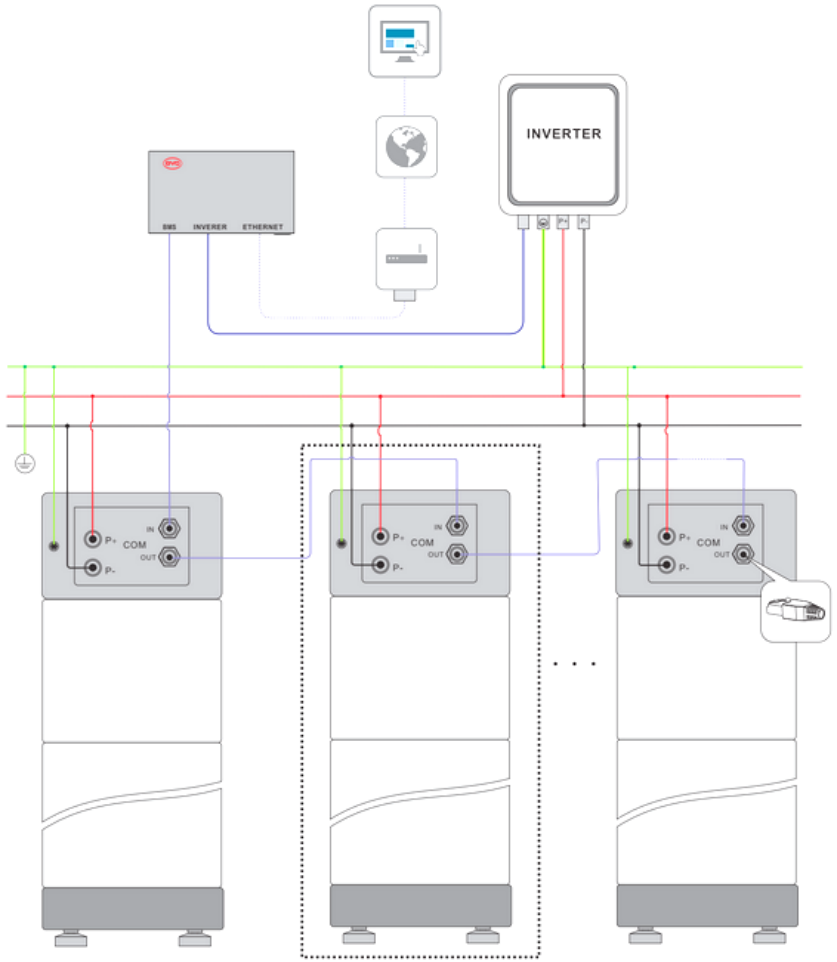
LVS – DC CABLE





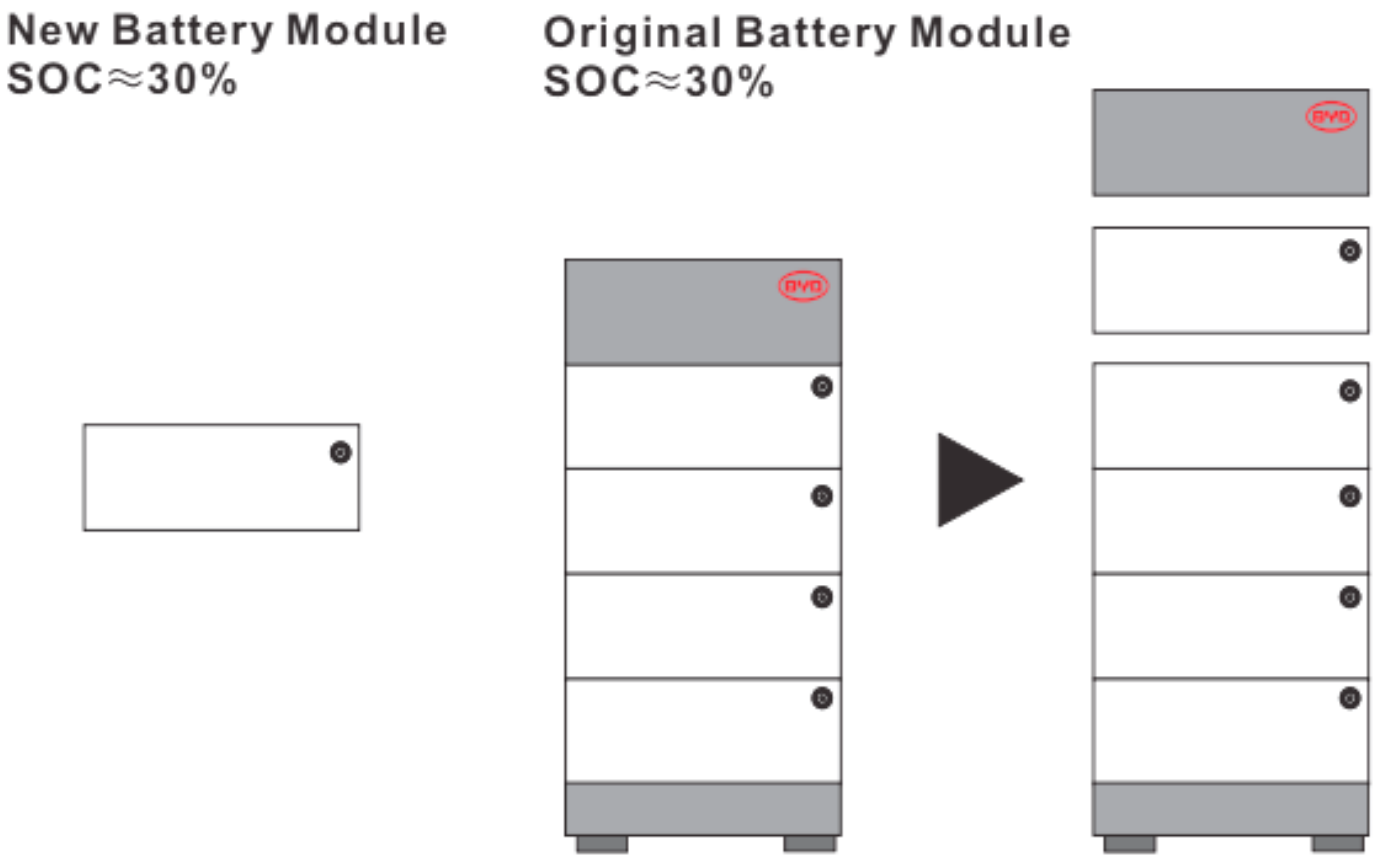
BATTERY BOX

LVS – PARALLEL



BATTERY BOX

LVS - EXTENSION (RECOMMENDED PROCEDURE)

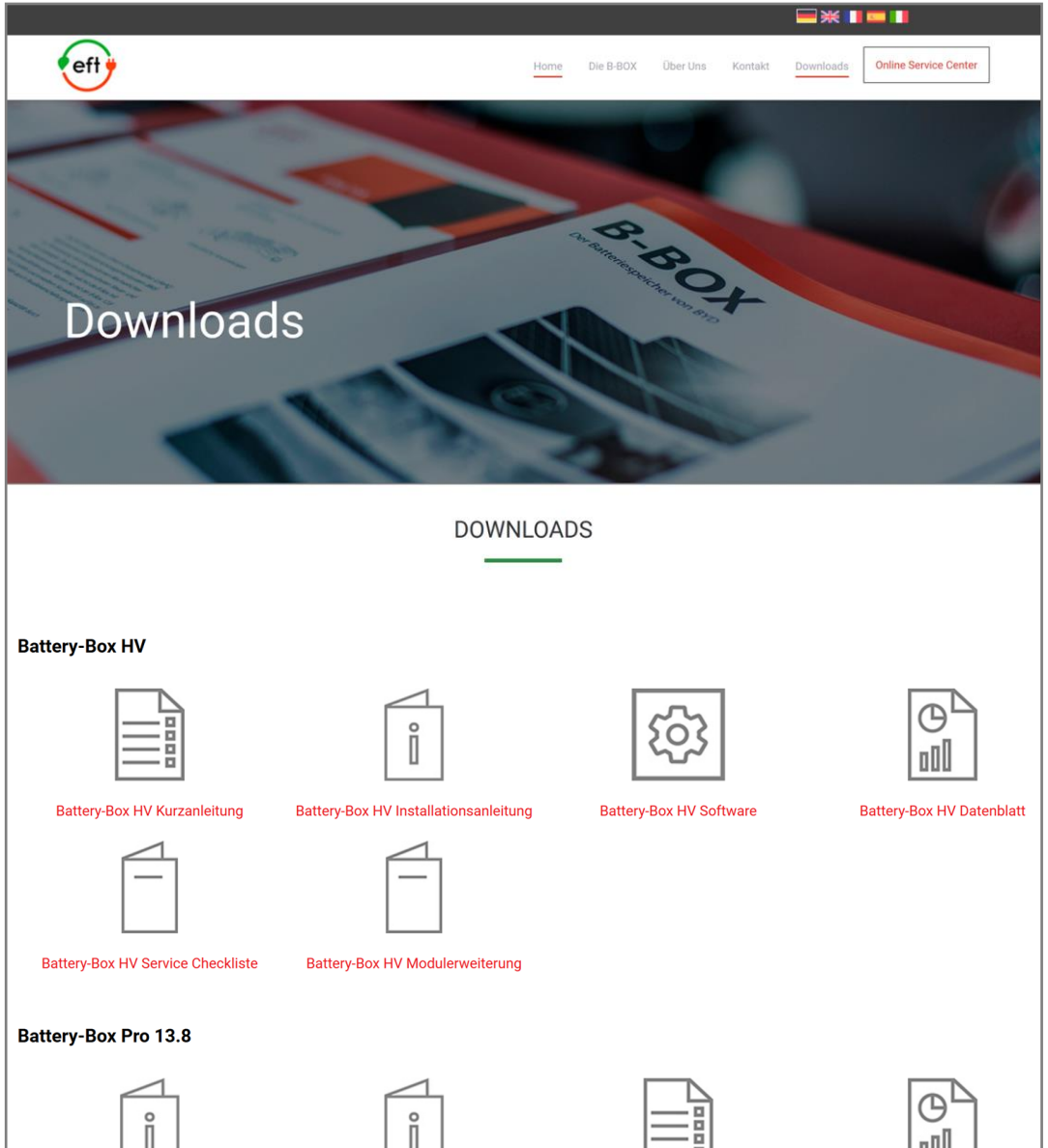


BATTERY BOX

SERVICE & SUPPORT

BATTERY BOX

WWW.EFT-SYSTEMS.DE DOWNLOADS / ONLINE SERVICE CENTER

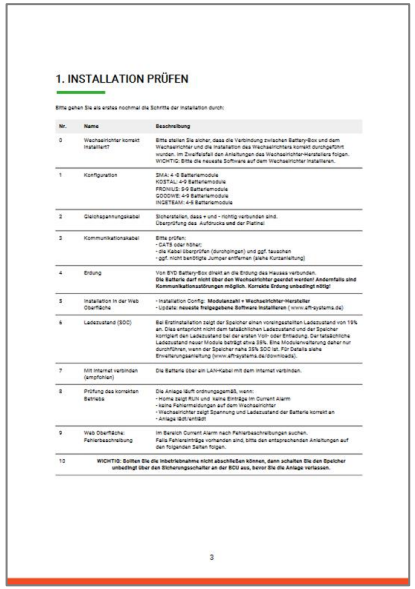


BATTERY BOX

SERVICE GUIDELINE

BYD Battery-Box HV
Service Guideline von EFT-Systems
Version 2.0
Gültig für H 5.1 / 6.4 / 7.7 / 9.0 / 10.2 / 11.5

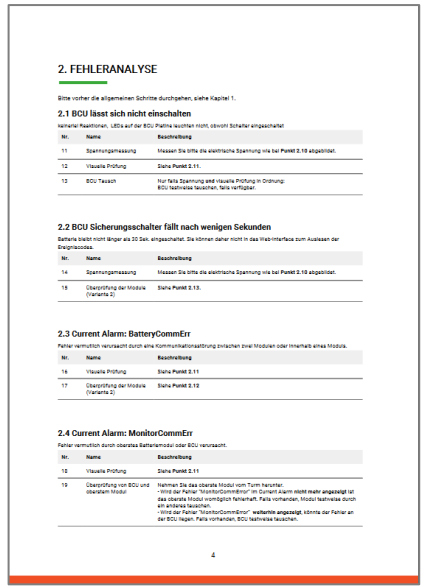
Wichtig: Die Installation und sonstige Arbeiten oder Messungen an der Battery-Box HV dürfen nur durch ausgebildete und qualifizierte Elektrofachkräfte durchgeführt werden!Achtung Hochvoltspeicher!
Diese Anleitung stellt eine nahtlose Hilfe dar, und ersetzt nicht die original Anleitung der Battery-Box, erhältlich auf www.eft-systems.de oder www.byd.com. Installation darf nur von Fachkräften durchgeführt werden. Achtung Hochvoltspeicher! Bei unsachgemäßer Handhabung kann Gefahr für Leib und Leben entstehen. Für weitere Informationen oder Kontakt: www.eft-systems.de



1. INSTALLATION PRÜFEN

Bitte gehen Sie als erstes nochmal die Schritte der Installation durch:

Nr.	Name	Beschreibung
0	Wechselrichter korrekt installiert?	Bitte stellen Sie sicher, dass die Verbindung zwischen Battery-Box und dem Wechselrichter und die Installation des Wechselrichters korrekt durchgeführt wurden. Im Zweifelsfall den Anleitungen des Wechselrichter-Herstellers folgen. WICHTIG: Bitte die neueste Software auf dem Wechselrichter installieren.
1	Konfiguration	SMA: 4-6 Batteriemodule KOSTAL: 4-9 Batteriemodule FRONIUS: 5-9 Batteriemodule GOODWE: 4-5 Batteriemodule HUAWEI/SAJH: 4-6 Batteriemodule
2	Gleichspannungskabel	Stromkreisfallen, dass + und - richtig verbunden sind. Überprüfung das Aufdrucks und der Platine!
3	Kommunikationskabel	Bitte prüfen: - CAT5 oder höher; - die Kabel überprüfen (durchgängig) und ggf. tauschen - ggf. nicht benötigte Jumper entfernen (siehe Kurzanleitung)
4	Erdung	Von BYD Battery-Box direkt an die Erdung des Hauses verbunden. **Die Batterie darf nicht über den Wechselrichter geerdet werden! Andernfalls sind Kommunikationsstörungen möglich. Korrekte Erdung unbedingt nötig!**
5	Installation in der Web Oberfläche	- Installation Config: **Modulanzahl + Wechselrichter-Hersteller** - Update: **neueste freigegebene Software installieren** (www.eft-systems.de)
6	Ladezustand (SOC)	Bei Erstinstallation zeigt der Speicher einen voreingestellten Ladezustand von 15% an. Dies entspricht nicht dem tatsächlichen Ladezustand und der Speicher kompliert den Ladezustand bei der ersten Voll- oder Entladung. Der tatsächliche Ladezustand neuer Module beträgt etwa 35%. Eine Modulanreihung daher nur durchführen, wenn der Speicher nahe 35% SOC ist. Für Details siehe Einzelteilungsanleitung (www.eft-systems.de/downloads).
7	Mit Internet verbinden (empfohlen)	Die Batterie über ein LAN-Kabel mit dem Internet verbinden.
8	Prüfung des korrekten Betriebs	Die Anlage läuft ordnungsgemäß, wenn: - Home zeigt Ruhi und keine Einträge im Current Alarm - keine Fehlermeldungen auf dem Wechselrichter - Wechselrichter zeigt Spannung und Ladezustand der Batterie korrekt an - Anlage lädt/entlädt
9	Web Oberfläche: Fehlerbeschreibung	Im Bereich Current Alarm nach Fehlerbeschreibungen suchen. Falls Fehlermeldige vorhanden sind, bitte den entsprechenden Anleitungen auf den folgenden Seiten folgen.
10	**WICHTIG: Sollten Sie die Inbetriebnahme nicht abschließen können, dann schalten Sie den Speicher unbedingt über den Sicherungsschalter an der BCU aus, bevor Sie die Anlage verlassen.**	



2. FEHLERANALYSE

Bitte vorher die allgemeinen Schritte durchgehen, siehe Kapitel 1.

2.1 BCU lässt sich nicht einschalten

keinerlei Reaktionen, LEDs auf der BCU Platine leuchten nicht, obwohl Schalter eingeschaltet

Nr.	Name	Beschreibung
11	Spannungsmessung	Messen Sie bitte die elektrische Spannung wie bei Punkt 2.10 abgebildet.
12	Visuelle Prüfung	Siehe Punkt 2.11.
13	BCU Tausch	Nur falls Spannung und visuelle Prüfung in Ordnung: BCU tashnelss tauschen, falls verfügbar.

2.2 BCU Sicherungsschalter fällt nach wenigen Sekunden

Batterie bleibt nicht länger als 30 Sek. eingeschaltet. Sie können daher nicht in das Web-Interface zum Auslesen der Ereigniscodes.

Nr.	Name	Beschreibung
14	Spannungsmessung	Messen Sie bitte die elektrische Spannung wie bei Punkt 2.10 abgebildet.
15	Überprüfung der Module (Variante 2)	Siehe Punkt 2.13.

2.3 Current Alarm: BatteryCommErr

Fehler vermutlich verursacht durch eine Kommunikationsstörung zwischen zwei Modulen oder innerhalb eines Modus.

Nr.	Name	Beschreibung
16	Visuelle Prüfung	Siehe Punkt 2.11
17	Überprüfung der Module (Variante 2)	Siehe Punkt 2.12

2.4 Current Alarm: MonitorCommErr

Fehler vermutlich durch oberstes Batteriemodul oder BCU verursacht.

Nr.	Name	Beschreibung
18	Visuelle Prüfung	Siehe Punkt 2.11
19	Überprüfung von BCU und oberstem Modul	Nehmen Sie das oberste Modul vom Turm herunter: - Wird der Fehler "MonitorCommError" im Current Alarm **nicht mehr angezeigt** ist das oberste Modul vermöglich fehlerhaft. Falls vorhanden, Modul tashnelss durch ein anderes tauschen. - Wird der Fehler "MonitorCommError" **weiterhin angezeigt**, könnte der Fehler an der BCU liegen. Falls vorhanden, BCU tashnelss tauschen.

2.10 Spannung messen

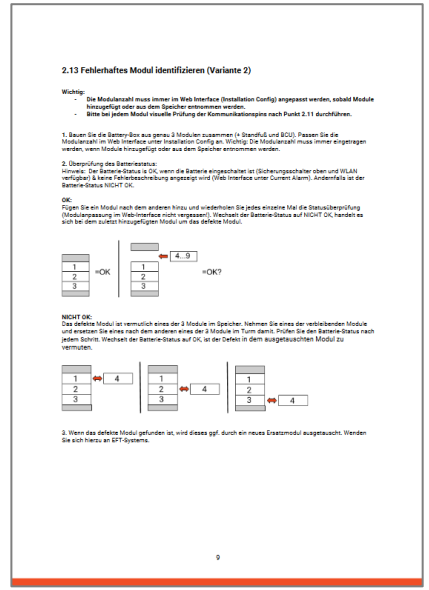
ACHTUNG: Hochspannung!
Die Soll-Spannung ergibt sich durch eine Multiplikation der Modulanzahl mit 50V und sollte daher im Bereich 200V-450V sein.

Wenn die gemessene Spannung deutlich vom Soll-Wert abweicht, überprüfen Sie bitte die elektrische Spannung an den einzelnen Modulen, wie nachfolgend abgebildet:

Positiv

Negativ

Messung:



2.13 Fehlerhaftes Modul identifizieren (Variante 2)

Wichtig:
- **Die Modulanzahl muss immer im Web Interface (Installation Config) angepasst werden, sobald Module hinzugefügt oder aus dem Speicher entnommen werden.**
- **Bitte bei jedem Modul visuelle Prüfung der Kommunikationspins nach Punkt 2.11 durchführen.**

1. Bauen Sie die Battery-Box aus genau 3 Modulen zusammen (+ Standfuß und BCU). Passen Sie die Modulanzahl im Web Interface unter Installation Config an. Wichtig: Die Modulanzahl muss immer eingetragen werden, wenn Module hinzugefügt oder aus dem Speicher entnommen werden.

2. Überprüfung des Batteriestatus:
Hinweis: Der Batterie-Status is OK, wenn die Batterie eingeschaltet ist (Sicherungsschalter oben und WLAN verfügbar) & keine Fehlerbeschreibung angezeigt wird (Web Interface unter Current Alarm). Andernfalls ist der Batterie-Status NICHT OK.

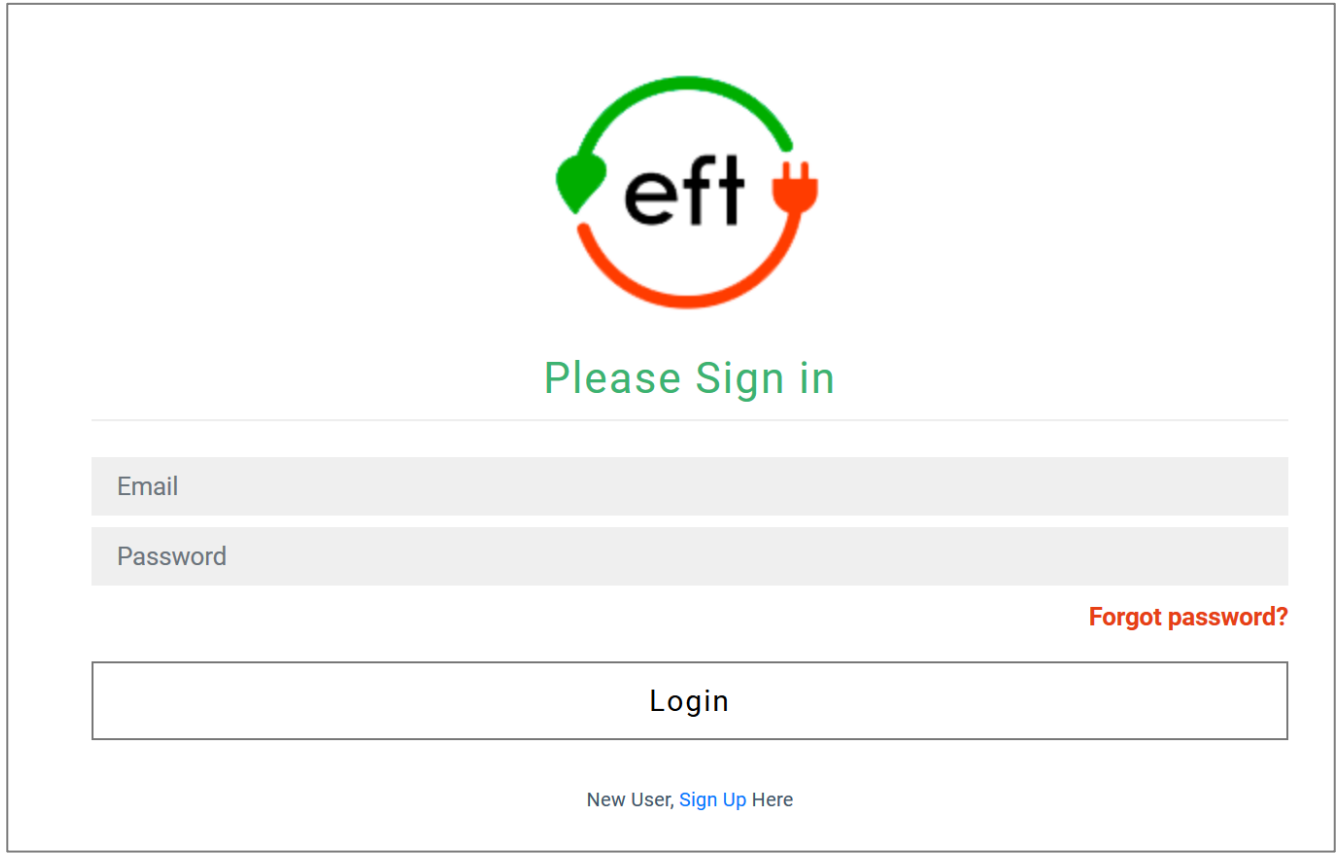
OK:
Fügen Sie ein Modul nach dem anderen hinzu und wiederholen Sie jedes einzelne Mal die Statusüberprüfung (Modulanpassung im Web-Interface nicht vergessen!). Wechselt der Batterie-Status auf NICHT OK, handelt es sich bei dem zuletzt hinzugefügten Modul um das defekte Modul.

NICHT OK:
Das defekte Modul ist vermutlich eines der 3 Module im Speicher. Nehmen Sie eines der verbleibenden Module und ersetzen Sie eines nach dem anderen eines der 3 Module im Turm damit. Prüfen Sie den Batterie-Status nach jedem Schritt. Wechselt der Batterie-Status auf OK, ist der Defekt in dem ausgetauschten Modul zu vermuten.

3. Wenn das defekte Modul gefunden ist, wird dieses ggf. durch ein neues Ersatzmodul ausgetauscht. Wenden Sie sich hierzu an EFT-Systems.

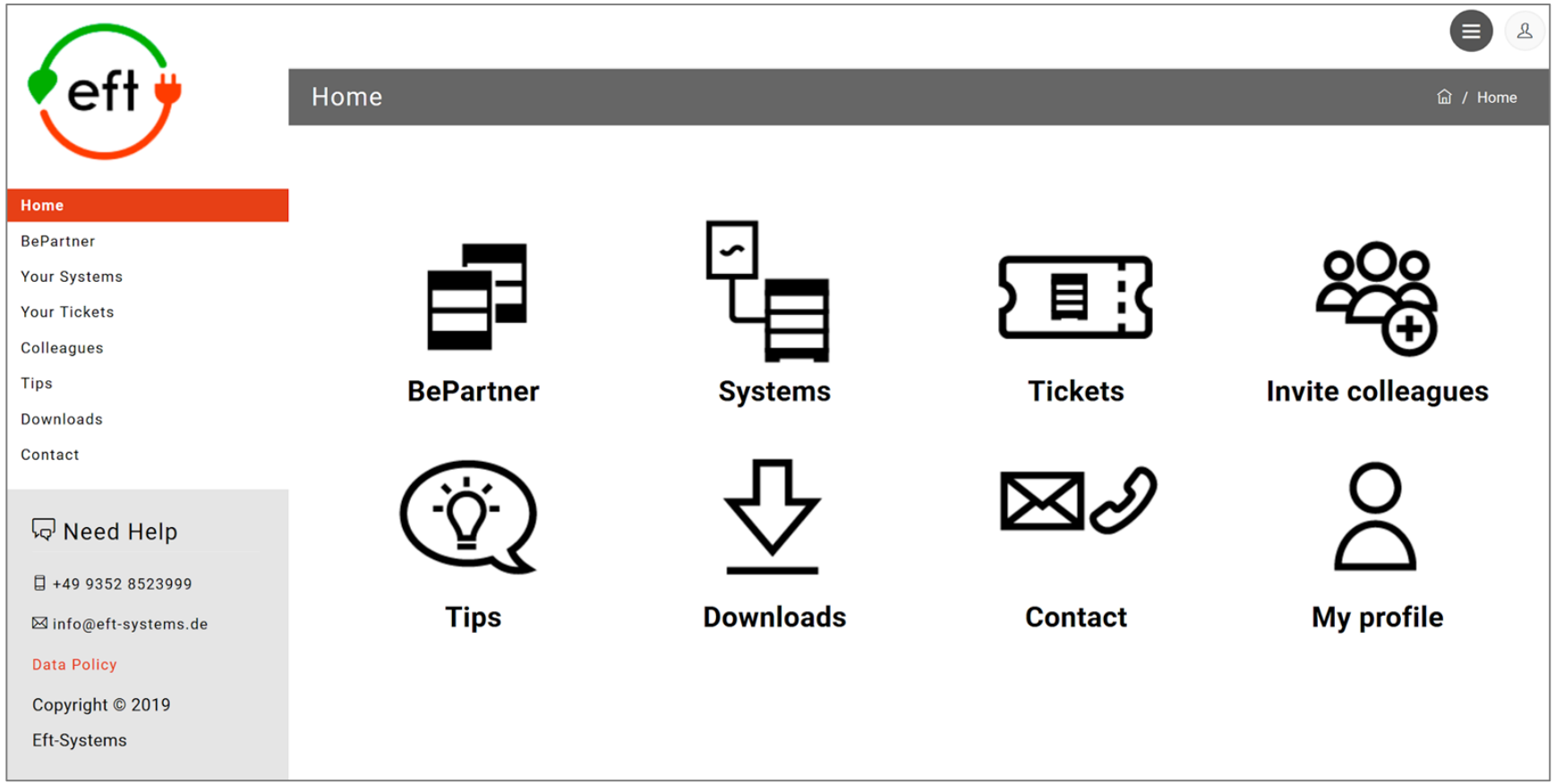
BATTERY BOX

https://support.eft-systems.de



BATTERY BOX

ONLINE SERVICE CENTER - HOME



BATTERY BOX

ONLINE SERVICE CENTER – NEW SYSTEMS

ADD NEW BATTERY-BOX SYSTEM

Battery-Box Premium HVS

Battery-Box Premium HVL

Battery-Box LVS

Battery-Box LVL

BATTERY BOX

EXTENSION REQUEST

1.

Register the system

¨@ https://support.eft-systems.de/login

2.

Submit an extension request

@ https://support.eft-systems.de/login

3.

Receive the extension ID

by E-Mail

4.

Order from your distributor

with this „Extension ID“

BATTERY BOX

READY FOR ANY APPLICATION

Small Residential On Grid

BATTERY BOX

Small Residential Off grid

BATTERY BOX

Large Residential On Grid

Charge Point type and power output	Likely installation location	Approximate connection lead-time	Network considerations	Approximate connection cost
Slow up to 3kW	Domestic	Immediate	None	None
Fast 3.7kW	Domestic or street side	Immediate in most cases	Usually none	Usually none
Fast 7kW	Domestic or street side	4 to 8 weeks	Likely upgrade to service cable and local mains	£1,000 to £3,000
Fast 22kW	Street side or public charging location	8 to 12 weeks	Streetworks and permissions	£3,500 to £12,000
Rapid 43kW	Public charging location	8 to 12 weeks	Streetworks and permissions	£3,500 to £12,000
Super 130kW or multiple rapid chargers	Public charging location	16 weeks	Streetworks, permissions and cost of land for transformer	£70,000 to £120,000

Source: Western Power Distribution Electric vehicle strategy

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Large Residential Off Grid

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Commercial On Grid (Three Phase)

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Commercial Off Grid (Three phase)

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