

HIGH VOLTAGE SOLUTIONS

ADVANCED ENERGY
STORAGE SOLUTIONS

+ 20.4kWh – 61.5kWh



POWERING
YOUR BUSINESS

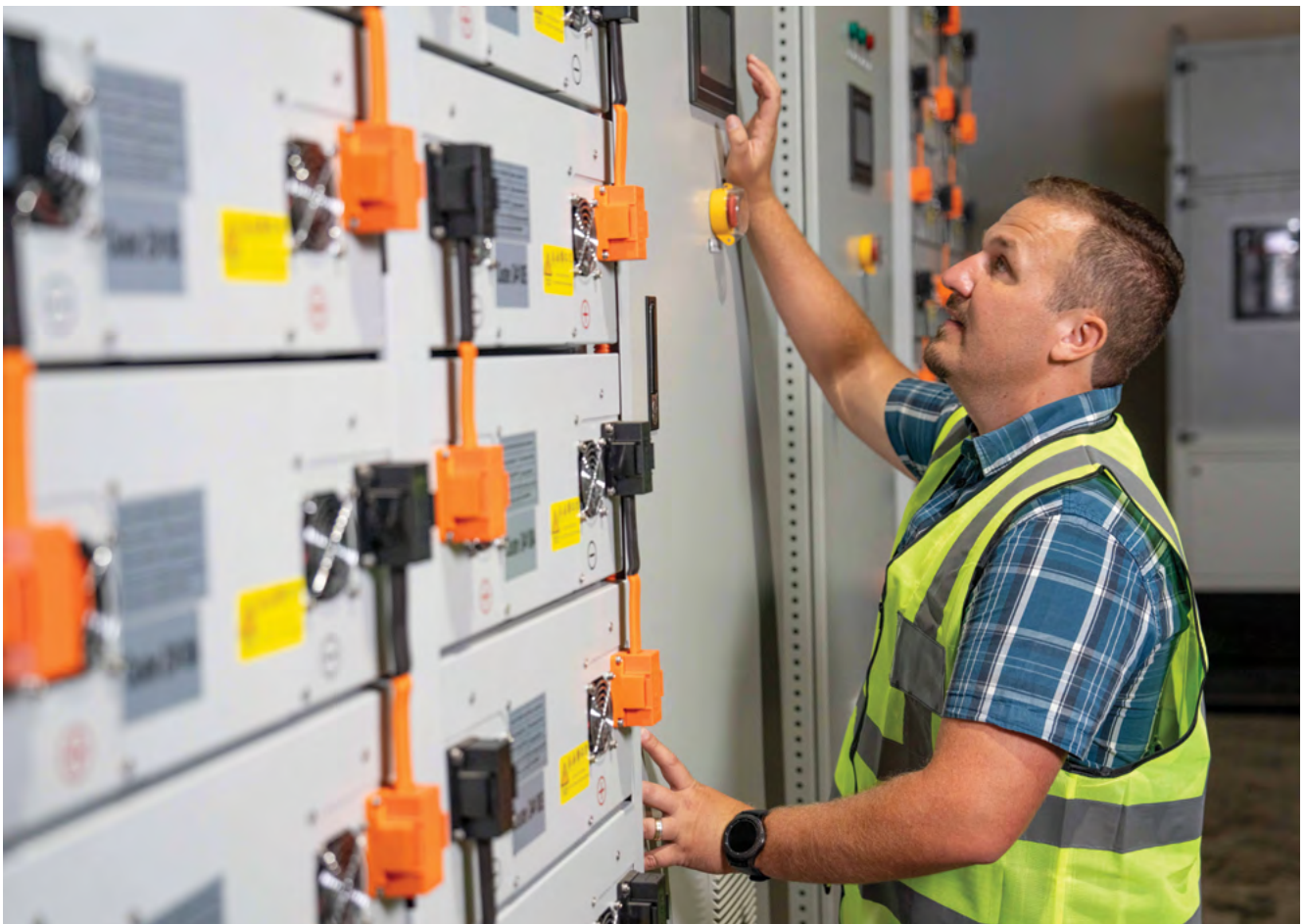


HUBBLE ENERGY DESIGNS, ENGINEERS AND SUPPLIES LITHIUM BATTERIES FOR THE SOLAR, RENEWABLE AND POWER BACK UP INDUSTRY IN SOUTH AFRICA, SUB-SAHARAN AFRICA AND EUROPE.

+ Hubble has the technology and capability to execute large commercial and industrial off grid projects.

+ The long term energy cost of such a solution is lower than most utility costs, and provides uninterrupted, secure renewable energy.

+ Hubble High Voltage solutions caters for a wide variety of needs from commercial to industrial.



ON THE
COVER

Cerebos



Our Hubble high voltage solution mitigates the impact of loadshedding, arbitrages the expensive peak electricity costs and minimizes our carbon footprint.

John Drinkwater
MD Cerebos

2.211MWh

76.8V120ah 1C battery
24 X 92.16kWh battery racks

The Hubble High Voltage System uses **innovative smart technology** to bring you an easily upgradeable solution, with an **advanced BMU** that automatically detects the number of modules connected. It is easy to transport and install with a **modular, buildable design** that fits into standard server cabinets.

Featuring an intelligent **touchscreen display** and **Wi-Fi-enabled monitoring** for both live and historical data and improved control over mission-critical features. The range currently includes four models, ranging from 204-615V, built with a **1C rating, a rated capacity (5hr) of 100Ah**, and can be **paralleled with up to 8 ESS systems** with full communications.



HV-204



HV-410



HV-512

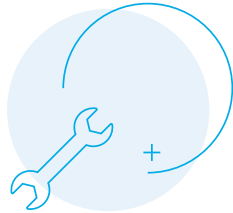


HV-615

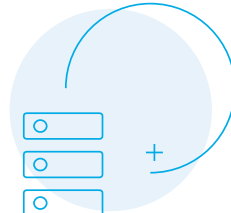
HV – SERIES



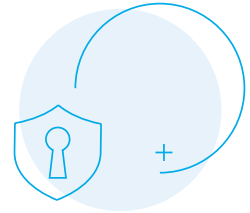
**MONITORING
INCLUDED**



**EASY
INSTALLATION**



SCALABLE



**SAFE +
RELIABLE**

Item	HV-204	HV-410	HV-512	HV-615
Design Capacity	20.4 kWh	41.0 kWh	51.2 kWh	61.5 kWh
*Rated Capacity (5HR)	100 Ah			
Nominal Voltage	204 V	410 V	512 V	615 V
Discharge Cutoff Voltage	179 V	358 V	448 V	576 V
Equalized Charge Voltage	223 V	446 V	557 V	668 V
Max. Continuous Charging Current	100 A			
Max. Continuous Discharging Current	100A			
C Rating	1.0 C			
Depth of Discharge	100%			
Cycle Life @ 1C	+/- 6000 Cycles @ 50% DOD, Above 3000 cycles @ 100% DOD			
Design Life	+/- 15 Years			
Monitoring	Wi-Fi enabled cloud monitoring			
Parallel	Parallel connection up to 8 packs with full communications			
Ports	1x CAN-bus, 2x Battery Link Ports			
Cells	New Li-ion Prismatic LiFePO4 Cells			
Cells Per Pack	16 Cells per pack			
Total Cells	64 Cells Total	128 Cells Total	160 Cells Total	192 Cells Total
Protection	Electronic Circuit Breaker, BMS Voltage Protection, Current Limiting			
Operating Temperature	Charging: 0 to +55°C Discharging: 0 to +55°C Storage: 0 to +55°C			
Weight	Approx. 230kg without cabinet	Approx. 500kg without cabinet	Approx. 600kg without cabinet	Approx. 650kg without cabinet
Dimensions (WxDxH) mm	22U Cabinet: 1200 x 693 x 1102	47U Cabinet: 2090 x 693 x 1102		
Outer Package Material	Black Baked Lacquer Steel Case			
Certification	CE, UN38.3, GBT31484-2015, GBT31485-2015, GBT31486-2015			

* Due to continuous product improvements specifications are subject to change without prior notice.



POWERING SUPPLY.

Lebone Litho Printers

1.74MWh

34 X HV512
Battery sets installed



POWERING LUXURY.

The Outpost

204kWh

4 X HV512
Battery sets installed



POWERING SOLUTIONS.

Bud Rental Services

204kWh

4 X HV512
Split into 2 X battery sets



POWERING INDUSTRY.

Cerebos

2.211MWh

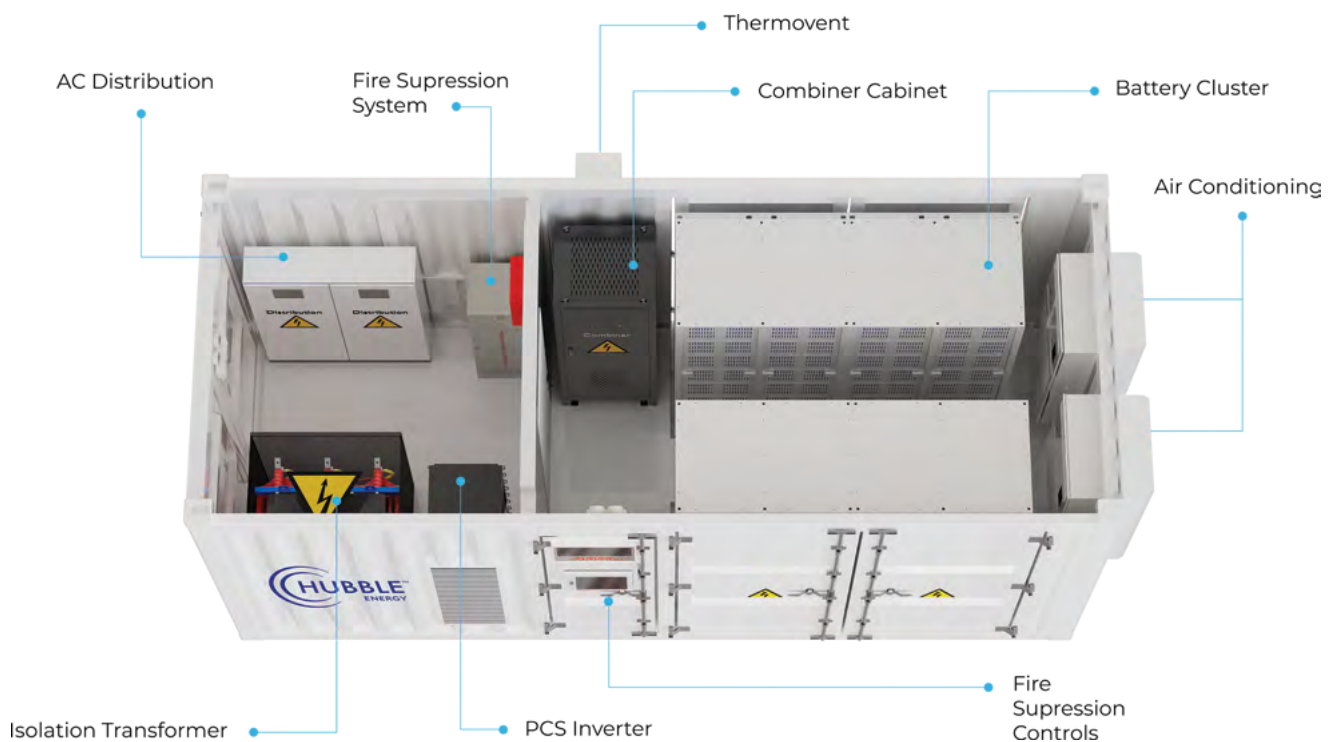
76.8V120ah 1C battery
24 X 92.16kWh battery racks

CONTAINER SOLUTIONS

SCALABLE

215kWh – 860kWh

860kWh



215kWh



- + Tested and Certified
- + On-site Assistance and Commissioning
- + Fire Detection and Fire Suppresant System
- + Insulated Walls and Temperature Controlled
- + Remote Monitoring, Management and Diagnostics
- + Off Grid, On Grid and Solar Ready

Bespoke Solutions

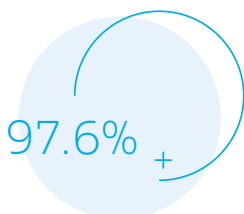
Our dedicated team can create custom solutions that match your distinct requirements.

Free Remote Monitoring

Cloudlink allows for real-time and historical data monitoring. Our internal control room and dedicated monitoring team can quickly provide diagnosis and support.

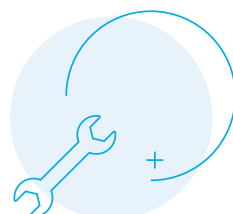
Durability

Our containers are built to withstand tough conditions, ensuring uninterrupted power when you need it the most.



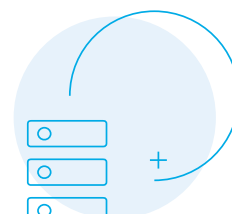
HIGH EFFICIENCY

Cooling system ensures higher efficiency and longer battery life cycle.



EASY INSTALLATION

Highly integrated ESS for easy transportation and O&M. All pre-assembled, no battery module handling on site.



VARIOUS SOLUTIONS

Variety of applications are supported such as peak-shift, peak-cut, frequency regulation etc.



SAFETY + RELIABILITY

Multi-level battery protection layers formed by discreet stand-alone systems offer impeccable safety.

CONTAINER SOLUTIONS

ESS Parameters	215kWh Solution		860kWh Solution
Design Capacity	215 kWh		860 kWh
Rated Capacity	280 Ah (0,5 C)		
Nominal Voltage	768 V		
Max. Continuous Charging Current	0,5 C @ 25°C		
Max. Continuous Discharging Current	0,5 C @ 25°C		
Depth of Discharge	Recommended 80% DoD		
C Rating	0,5 C		
Cells	LiFePO4		
Cycle Life	6000 Cycles @ 0.5 C, 25°C, 80% DoD		
Design Life	+/- 15 Years		
Communication	Two-Way CAN2.0/RS485		CAN/RS485/RS232
Total Cells	240 Cells		960 Cells
Protection	IP65		
Operating Temperature	-30°C to 60°C		
Battery Cluster Weight	+/- 2200 kg		+/- 8800 kg
Dimensions	7,5 ft Container		20 ft Container
Operating Humidity Range	0 to 95% without Condensation		
Max. Working Altitude	3000 m		
Installation Environment Requirements	Outdoor Installation Forced Air Cooling, Industrial Air Conditioner		Outdoor Installation Forced Air Cooling, Industrial Air Conditioner (9,3KW*2)
BESS Fire Supression	Supported (Heptafluoropropane)		
Auxiliary Power Supply	220Vac, ≤4.2KW		
ESS Communication Protocol	Modbus TCP		
EMC Level Requirements	Class A		
DC Side Lightning Protection Level	Type II		
Certification	UN 38.3, IEC 62619, NB/T 42091-2016, GBT 34131-2017, GB/T 36276-2018, GB 51048-2014, NB-T 31016-2011, GB 4208-2008, NBT 33014-2014, DL/T 614-2007, GB 14048.1-2006, GB/T 17626, DL/T 621-1997		

Cell Parameters	215kWh Solution	860kWh Solution
Battery Dimension	72mm(D)*174mm(W)*207mm(H)	
Nominal Capacity	280Ah @0.5C 25 °C	
Nominal Voltage	3.20V @0.5C, 25 °C	
Operating Voltage Range	2.50V-3.65V	
Continuous Charge Rate	0.5C 25°C	
Continuous Discharge Rate	0.5C 25°C	
Pulse Discharge Rate	1C 25°C, ≤3min	
Cycle Life	6000 Cycles @0.5C, 25 80%DoD	

Battery Module Parameters	215kWh Solution	860kWh Solution
Battery Module Dimension	550mm(W)*750mm(D)*270mm(H)	
Nominal Capacity	280Ah@0.5C, 25°C	
Nominal Voltage	51.2V (16 Cells)	
Working Voltage Range	44.8V-58.4V	
Continuous Charge Rate	0.5C@25°C	
Continuous Discharge Rate	0.5C@25°C	
Weight	115Kg	
Energy	14.336kWh	
Max. Continuous Charge Rate	0.5C@25°C	
Max. Continuous Discharge Rate	0.5C@25°C	
Insulation Standards	Insulation Resistance of Battery Housing > 1GΩ (1000VDC)	
Withstand Voltage Standard	3840VDC, no Breakdown or Flashover Occurring	
Max. Charge Voltage of a Single Cell	3.65V	
Min. Discharge Voltage of a Single Cell	2.5V	
Instantaneous Max. Discharge Current	180A@5S	
Instantaneous Max. Charge Current	180A@5S	
High Temperature Protection during Charge	≥ 45°C	
High Temperature Protection during Discharge	≥ 50°C	
Low Temperature Protection during Charge	≤ 0°C	
Low Temperature Protection during Discharge	≤ -20°C	
Cycle Times	≥ 6000 Cycle	
Application Environment	Indoor, Dry, Constant Temperature	
Waterproof Grade	IP21	
Working temperature Range (°C)	Charge 0°C to 45°C Discharge to 50°C	
Storage Temperature Range (°C)	-30°C to 45°C	
Storage Environment Humidity (RH)	5% to 95%	

Battery Cluster BMS System Parameters	215kWh Solution	860kWh Solution
Working Power Supply	DC 24V ±5%	
Cluster Voltage Collection Range	0-1000V	
Cluster Voltage Collection Accuracy	≤±0.2%FSR	
Current Collection Range	0-± 500A (CAN Communication Hall)	
Current Acquisition Accuracy	≤±1%	
Temperature Acquisition Accuracy	±3°C	
Balanced Current	2A	
SoC Estimation	≤10%	
Protection	Short Circuit, Overcharge, Over-Discharge, Over Temperature	
Communication Interface	CAN/RS485/RS232	

CONTAINER SOLUTIONS

PCS - General

	215kWh Solution	860kWh Solution
Allow Environment Temp.	-30~60°C	
Humidity	0-95%	
Noise	<70dB	
Protection Level	IP20	
Cooling Method	Air Cooling	

PCS - DC Input Side

	215kWh Solution	860kWh Solution
Voltage	420-850VDC(768V)	350 - 1000 (768V)
Max. Power	120kW	240kW

PCS - PV Input Side

	215kWh Solution	860kWh Solution
Max. Photovoltaic Power	120kW	240kW
Max. Photovoltaic Voltage	1000V	1000V
Starting Voltage	150V	200V
MPPT Range	250-850VDC	250-850VDC
Full Load DC Voltage	450-850VDC	350-1000VDC
Rated DC Input	600V	800V
PV Input Current	36A+36A+36A+36A	86A+86A+86A+86A
PV Input Channels	4 Ways	
Communication Method	Two Way CAN2.0/RS485	

PCS - AC Output Side (Off-Grid)

	215kWh Solution	860kWh Solution
Rated AC Power	110kVA	264kVA
Active Power	100kW	240kW
Rated Voltage	400VAC	230/400VAC
Rated Current	144A	344A
THOU	<2% Linear	
Rated Frequency	50/60Hz	
Overload Capacity	110% Long-Term	

PCS - AC Side (On-Grid)	215kWh Solution	860kWh Solution
Rated AC Power	110kVA	264kVA
Active Power	100kW	240kW
Rated Voltage	400VAC	230/400VAC
Rated Current	144A	344A
Voltage Range	320-460VAC	
Rated Frequency	50/60Hz	
THDi	<3% Linear	-
Power Factor	Standard: 1.0; Lead 0.8 /Lag 0.8	
AC Phase	Three-Phase Four - Wire+ Ground Wire (3 W+N+P E)	Three-Phase Four - Wire+ Ground Wire (3 W+N+P E)
Working Temp. Range	-30-60°C, >45°C Freq. Reduction	-30-60°C, >45°C Freq. Reduction

STS	215kWh Solution	860kWh Solution
Rated Output Power	120kW	240kW
Max Rated Current	172A	360A
Overload Capacity	1.1 (10%)	
AC Frequency	50 ± 5Hz	
Wiring Method	Three Phase, Three Wire	
On/Off Grid Switching Time	<20ms	



HUBBLE ENERGY
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THE BUD GROUP

The Bud Group is a services, manufacturing and distribution group.
A diversified group, operating across manufacturing,
industrial services, minerals beneficiation and energy solutions.

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POWERING YOUR BUSINESS.

JOIN THE HUBBLE HIGH VOLTAGE EVOLUTION

Store

Energy from solar panels or the grid is stored in a convenient, transportable, and easy-to-install modular design

Control

Stay connected and manage your business's energy using an intelligent touchscreen display and integrated Cloudlink for remote monitoring

Power

Power your business with innovative, smart technology

Protect

Your business is protected against power outages with wi-fi enabled monitoring for both live and historical data



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