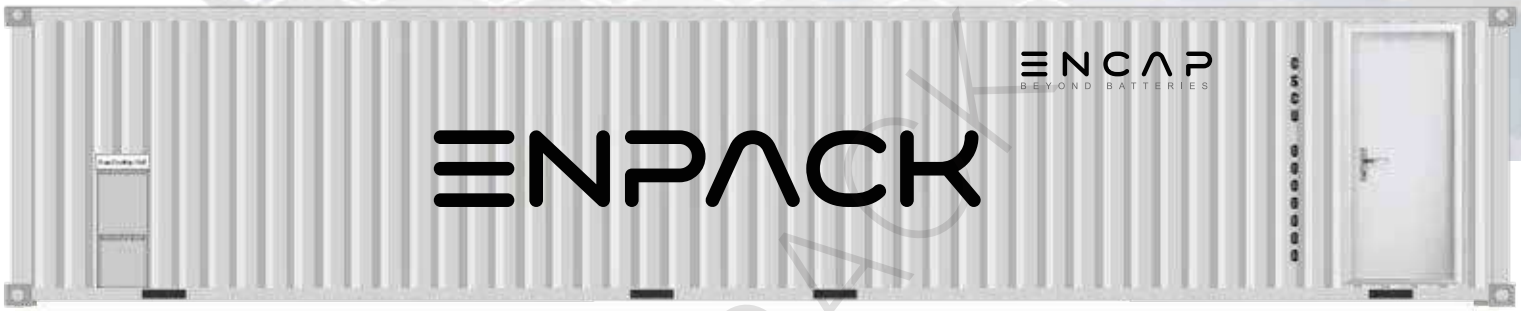
SAMPLE
ENPACK CONTAINERIZED SOLUTION
TECHNICAL DATA SHEET

CONTAINERIZED ENERGY STORAGE:

INTRODUCTION:

The ENCAP containerized system generally consists of an energy storage battery system, a monitoring system, a battery management unit, a dedicated fire protection system, a dedicated air conditioner, an energy storage converter, and an isolation transformer, and is finally integrated in a 40-feet container. This “turnkey” system is designed to meet the demanding requirements for residential, C&I and utility side applications alike, committed to making the power interconnected reliably.

FEATURES



LOW COST

- Advanced integration technology ensures optimal system performance and lower cost
- Plug and play design: >95% pre-assembled

SAFE & RELAIBLE

- DC electric circuit safety management includes fast breaking and anti-arc protection
- Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

EFFICIENT & FLEXIBLE

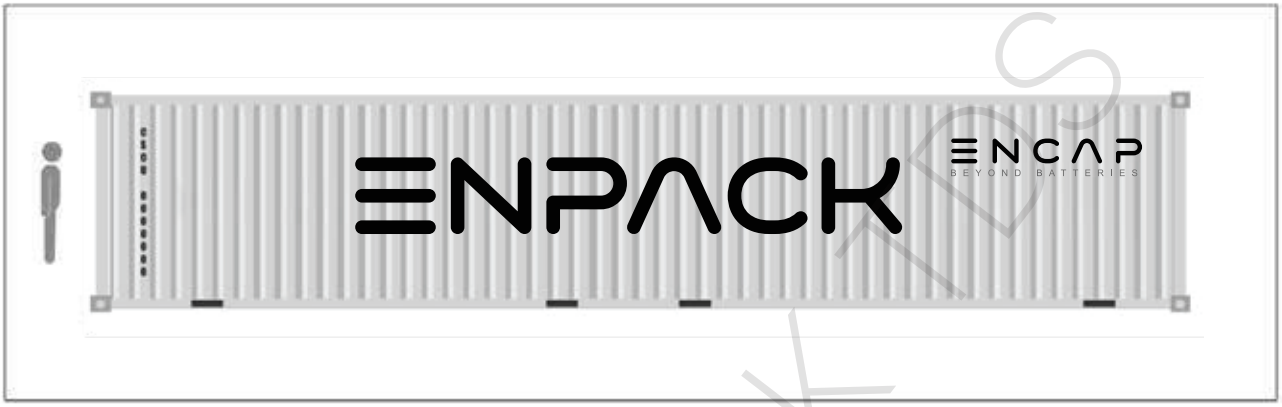
- Intelligent liquid cooling ensures higher efficiency and longer battery cycle life
- Modular design supports parallel connection and easy system expansion
- IP25 outdoor cabinet with anti-corrosion

SMART & ROBUST

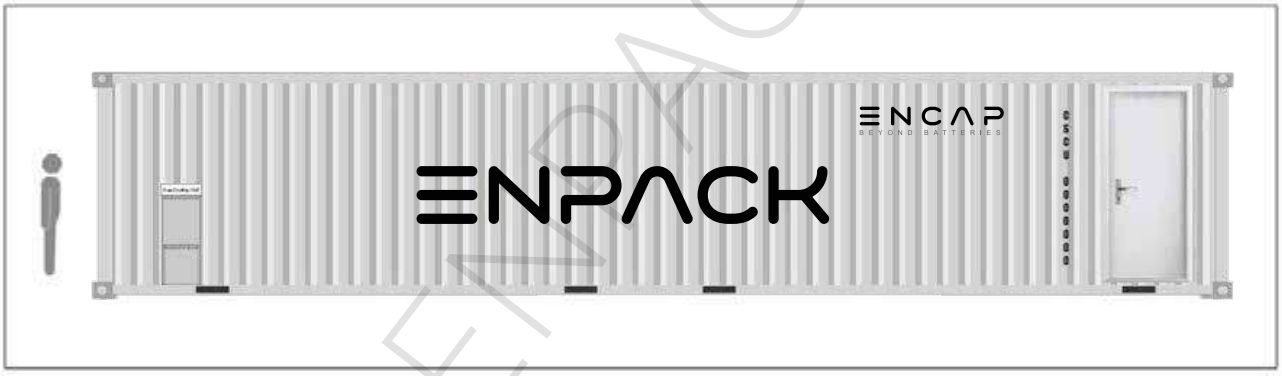
- Fast state monitoring and faults recording and identification
- Integrated battery performance monitoring and logging

SYSTEM LAYOUT

Left View



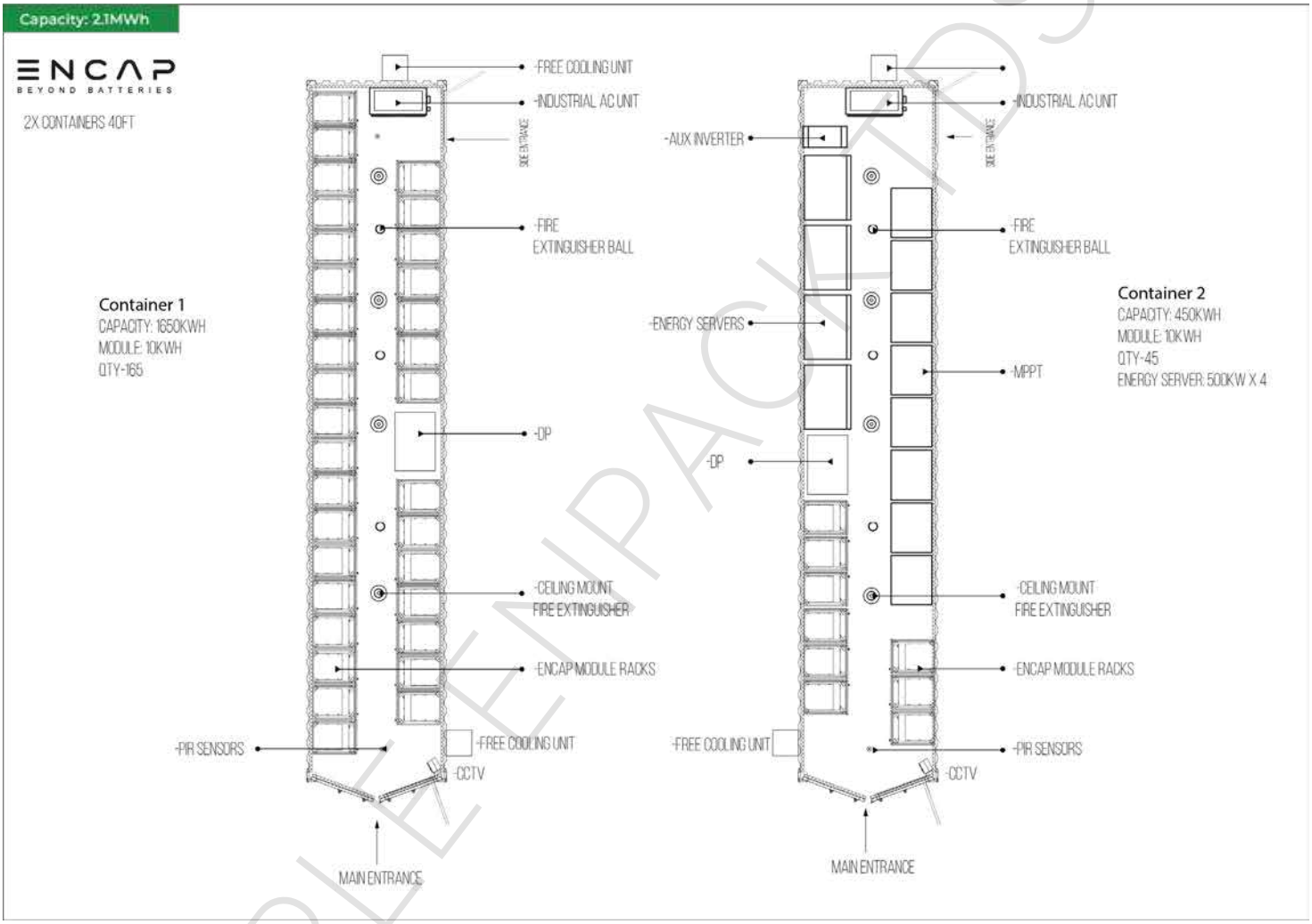
Right View



FEATURES:

- 40Ft containerized complete design with Battery, Power Conditioning System (PCS), Heating, Ventilation and Air Conditioning (HVAC), Fire Suppression and Distribution System.
- Maximum safety utilizing the safest type of hybrid battery chemistry combined with an intelligent Battery Management System.
- Outstanding performance and long lifespan with over 500,000 cycles at 1C.
- Bi-directional PCS with multiple modes for flexible Battery charging and discharging.
- Delivered 95% pre-assembled.
- Optimized for both on-grid and off-grid applications.
- Integrated distribution for operation status control, DC grid-connection control, protection and data exchange.

CONTAINER 2D DIAGRAM



CONTAINER OVERVIEW

DC STORAGE

DC STORAGE				
S/N	**Items**	**Description**	**Size**	**Quantity**
1	Storage Capacity	10kwh,48V x 165		1650KWh
2	Monitoring Rack			1
3	Distribution panel			1
4	Industrial PC	19 Inch		1
5	Modules Rack			33
6	CCTV Dome Camera			2
7	Industrial WIFI Router			1

8	Surface Light	18W White	Round Shape	5
9	T&T infrared Motion Sensor	Roof Mounted		2
10	PVC Wall Switch 1Gang 2-way ,16AX/250V	With Box		2
11	AC Isolator Switch	35A, UKF2, 250V		1
12	Emergency Exit Light			3
13	Environment controller	CC Controller 3000		1
14	Free Cooling Unit			2
15	AC Unit	45000BTU		1
16	Fire Ball			3
17	Fire Extinguisher	Dry Powder		2
18	Fire Extinguisher	Automatic (Dry Powder)	Ceiling Mounted	2
19	Automatic Fire Suppression System	Direct Module		1
20	Fire Alarm Intelligent Con-troller	Wireless		1
21	Heat Detector	Wireless		2
22	Main Controller			1
23	Sub Controller			11
24	Contactor Box			11

AC CONTAINER

AC CONTAINER				
S/N	**Items**	**Description**	**Size**	**Quantity**
1	Energy Server	Ac Input/Output 400V, 50Hz	500kw x 4	2MW
2	Storage Capacity	10kwh,48V x 45		450KWh
3	Monitoring Rack			1
4	Distribution panel			1
5	Industrial PC	19 Inch		1
6	Modules Rack			9
7	CCTV Dome Camera			2

8	Industrial WIFI Router			1
9	Surface Light	18W White	Round Shape	5
10	T&T infrared Motion Sensor	Roof Mounted		2
11	PVC Wall Switch 1Gang 2-way ,16AX/250V	With Box		2
12	AC Isolator Switch	35A, UKF2, 250V		1
13	Emergency Exit Light			3
14	Environment controller	CC Controller 3000		1
15	Free Cooling Unit			2
16	AC Unit	45000BTU		1
17	Fire Ball			3
18	Fire Extinguisher	Dry Powder		2
19	Fire Extinguisher	Automatic (Dry Powder)	Ceiling Mounted	2
20	Automatic Fire Suppression System	Direct Module		1
21	Fire Alarm Intelligent Controller	Wireless		1
22	Heat Detector	Wireless		2
24	Main Controller			1
25	Sub Controller			3
26	Contactor Box			3
27	Auxiliary Inverter	20kVA		1
28	Auxiliary Module	28Kwh, 384V		1

CONTAINER SPECIFICATIONS	
PERFORMANCE	
Total Energy	2MWh
DC SIDE	
Voltage (Nominal)	750Vdc
Maximum Charge Voltage	810 Vdc (Adjustable)
Discharge Cut-Off Voltage	720 Vdc (Adjustable)
Maximum Continuous Charge Current	3668A (~1C)
Maximum Continuous Discharge Current	3668A (~1C)
AC SIDE	
Voltage	400Vac
Frequency	50/60 Hz
Maximum Current	2888A
SMART FEATURES	
Monitoring Data	Temperature, Total Voltage, Current and Energy
Remote control (optional)	Via Centauri View App
Communication and Connectivity	CANBUS
Alarm	Audible alarms in the event of Over/ under-Voltage, Over-Current, Over Temperature
ENVIRONMENTAL SPECIFICATIONS	
Cell Operating Temperature	-30 ^{o}C to 70 ^{o}C
Operating Humidity	Non-Condensing

CENTAURI VIEW SOFTWARE	
Module Monitoring	Current, Voltage, Temperatures, CAN ID, Graphs, Daily Energy Consumed
System Monitoring	Instant Generator Solar Power, Daily Generated Solar Energy, Daily Consumption Solar Energy, Total Generated Solar energy from the start, Daily Consumption Energy
SAFETY PERFORMANCE	
Over/under voltage	Hardware protection, DC line will be disconnected
Over Current	Hardware protection, DC line will be disconnected
Over temperature	Hardware protection, DC line will be disconnected
COMPLIANCE3 INFORMATION	
EN55032:2015, EN55024:2010, EN61000-4-2:2009, EN61000 EN61000-4-2:2009, EN61000 EN61000:2008+A2:2010	

ENERGY SERVER

500kW x 4 Units

FEATURES

- Flexible Configuration

Configurable with solar charge controller, bypass cabinet, or stand-alone

- Programmable working mode

Peak-shaving, backup, use the system however you want it

- Scalable

Applicable in MW-level systems by paralleling multiple units

- Touchscreen LCD

More convenient for parameter settings and maintenance

- Dry contact output

Supports remote control of DG

PERFORMANCE SPECIFICATIONS	
MODEL	500 KW
Apparent Power	550kVA
Noise(dB)	<65dB(A) @ 1m
Communication with BMS	RJ48/CAN
BATTERY INPUT DATA	
Battery Voltage Range(V)	500V - 820V
Max. Charging Current(A)	917A
Max. Discharging Current(A)	917A
Current Regulation	±1%
Voltage Regulation	±1%
Current Ripple	<2%
Voltage Ripple	<3%
AC (ON GRID)	
Rated Voltage	400V
Rated Current	722A
Voltage Range	360V-440V
Rated Frequency	50/60Hz
Frequency Range	45-55/55-65Hz
THDU	<3%
Power Factor	0.8 lagging to 0.8 leading
AC Connection	3/N/PE

AC (ON GRID)	
Rated Voltage	400V
Rated Current	722A
Rated Frequency	50/60Hz
Overload Capability	110%- 10 mins, 120% -1 min
THDU	<3%
EFFICIENCY	
Max. Efficiency	98.50%
PROTECTION	
PV Input Lightning Protection	Integrated
Anti-islanding Protection	Integrated
PV Input Lightning Protection	Integrated
Insulation Resistor Detection	Integrated
Residual Current Monitoring Unit	Integrated
Output Over Current Protection	Integrated
Output Shorted Protection	Integrated
Output Over Voltage Protection	DC Type II / AC Type III
Battery Over Current Protection	Fuses
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-25°C - 55°C
Relative Humidity	0-95% non- condencing
Cooling Method	Forced Air

MECHANICAL DIMENSIONS	
Size(mm)	1200W×1900H×800D
Weight(kg)	870
Installation Style	Wall-mounted
Maximum Altitude	6000m (Derate above 3000m)
Protection Degree	IP20

ENCAP MODULE

10kWh 48V

FEATURES

1. EFFICIENT

• Highly Efficient: > 95% RTE (Round Trip Efficiency)

• 100% DOD (Depth of Discharge)

• 500,000 Cell Life Cycles

2. SAFE & RELIABLE

• Wide Operating Temperature Range

• Deployable in Various Environments including High Altitudes

• No Thermal Runaway Risk

PERFORMANCE SPECIFICATIONS	
DC Energy	10kWh
Voltage Range	48Vdc to 54Vdc
DC Voltage (Nominal)	48Vdc
Internal Resistance	< 4 mili Ohms
CELL SPECIFICATIONS	
Technology	Encapsulated Cell
Nominal Cell Voltage	6.4 ~6.6Vdc / Cell (Encapsulated) 1/2 + 0.12V Envelope
CHARGE CHARACTERISTICS	
Maximum Continuous Charge Current	300A (~1.5C)
Charging Method	CC/CP/VP
DISCHARGE SPECIFICATIONS	
Maximum Continuous Discharge Current	300A (~1.5C)
Discharging Method	CC/CP/VP
ENCONNECT SOFTWARE	
Module Monitoring	Total Voltage, Individual Cell Voltages, Current, Temperatures, SOC and Energy Consumed
MODULE ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature Range	-30°C to +70°C
Operating Humidity	Non-Condensing

MECHANICAL SPECIFICATIONS	
Dimensions (W x H x D) mm	463 x 313 x 646
Weight (kg)	120
Module Casing Material	GI Powdered
Terminal Type	175A Anderson Connectors
SMART FEATURES	
OLED Display	Monitor Module
Communication	WIFI / CANBUS
Alarm	Buzzer alarm in the event of Over/under-Voltage, Over-Current, Over Temperature
Dry Contacts Output	Four programmable Dry Contacts
Dry Contacts Input	24Vdc three digital input with isolated ground
SERVICE LIFE	
Cells Projected Cycle Life	500,000 cycles
Cells Projected Calendar Life	25 years
Module Projected Shelf Life	10 years
Warehousing	Can be stored at any SOC without affecting cycle life

Summary of other accessories

ENCAP MODULE RACK

- Each Module rack has 5 units of 10kWh 48V ENCAP Module installed
- Dimension of rack: 740W x 800D x 2200H (mm)
- Weight of rack: 90kg (Approximately)

ENCONTROLLER

- String Charge & Discharge Control
- Independent String Communication Control
- Modules Over Voltage, High Current and High Temperature Protection

DISTRIBUTION PANEL

- The Distribution Panel is a dedicated controller which has been developed specifically for rack and containerized solutions. It's central to operations of the Containerized Energy Storage System.
- It's principle function is to control, protect and communicate.
- It's key features include System Operations, Status Control, DC Grid Connection Control, System Protection and Data Exchange.

MONITORING RACK

- Embedded NVR
- 20kVA Inverter for auxiliary power
- 28kWh Encap Module for auxiliary power
- 19 inches industrial PC for monitoring the container

EMBEDDED NVR (DS-7600 Series NVR)

- 4 Channel PoE IP Camera Ports
- Support for up to 8MP recording and playback
- Support for 4k video output
- H.264/H.264+/H.265 video codecs
- 1 SATA interface to connect 1 x 10TB hard drive

INVERTER 20kVA FOR AUXILIARY POWER

- The energy server is stand-alone, fully integrated power electronics hardware + software platform.
- It can deliver utility grade power from any combination of DC or AC generation sources and storage.

ENCAP MODULE FOR AUXILIARY

3.55kWh - 48V x 8 Units

• Highly Efficient: > 95% RTE (Round Trip Efficiency)

• 100% DOD (Depth of Discharge)

• 500,000 Cell Life Cycles

FAN LESS INDUSTRIAL PC

Size	19"
Resolution	1280 * 800
Color	Chroma: 16.7M
Brightness (Standard Value)	Brightness: 300cd/m2

24/7 CAMERA

FIRE EXTINGUISHER

FIRE EXTINGUISHER BALL

HANGING TYPE FIRE EXTINGUISHER

ETHERNET CONNECTOR

FREE COOLING UNIT

Further details available after confirmation