Salish Tribal Alliance

EMTEL ENERGY

ENPACK
BEYOND BATTERIES
CONTAINERIZED SOLUTION

1MW-1MWHr 1200V @ 0.05C
ENP-1M-1200V-0.05C-X-X-X-20

ENERCAP

Version-1 Revision-1
Release Date: 17/12/2024

ENPACK
BEYOND BATTERIES

Introduction

The containerized system generally consists of an electrostatic, graphene-based energy storage system that represents the latest in innovative solid-state LDES. Included are: monitoring system, a battery management unit, an energy storage converter, and an isolation transformer integrated in a 20-feet container. Also included are a dedicated air conditioning unit (needed only for AC electronics) and a precautionary fire safety system. The system is "turnkey" with everything needed and in place for seamless commissioning. This data sheet represents a 1MWh/1MW project; each project is custom-configured and a custom data sheet will be provided.

Scope of work

The scope of work of the proposed container system under design consideration is to support Grid tied Solar hybrid application with a DC load of <=50KW. Total Storage Capacity will be 1MWHr 1200Vdc @ 0.05C. Transformer will be used to provide output Voltage Vac 208/3P.

Feature	Value
Load (KW)	<=50
Storage Capacity (MWHr)	1
Total Backup Time (Hrs)	~20
External MPPT (KW)	200

Salish Tribal Alliance

Features

Integrated Design

A complete system with DC storage, power conversion system, safeties, racks, cabling, fire suppression, HVAC, comms, internal lighting, auxiliary power and enclosure

Modular & Flexible

- Modular design provides ease of scalability
- Hot swappable modules allow the system to stay on while the single string is swapped
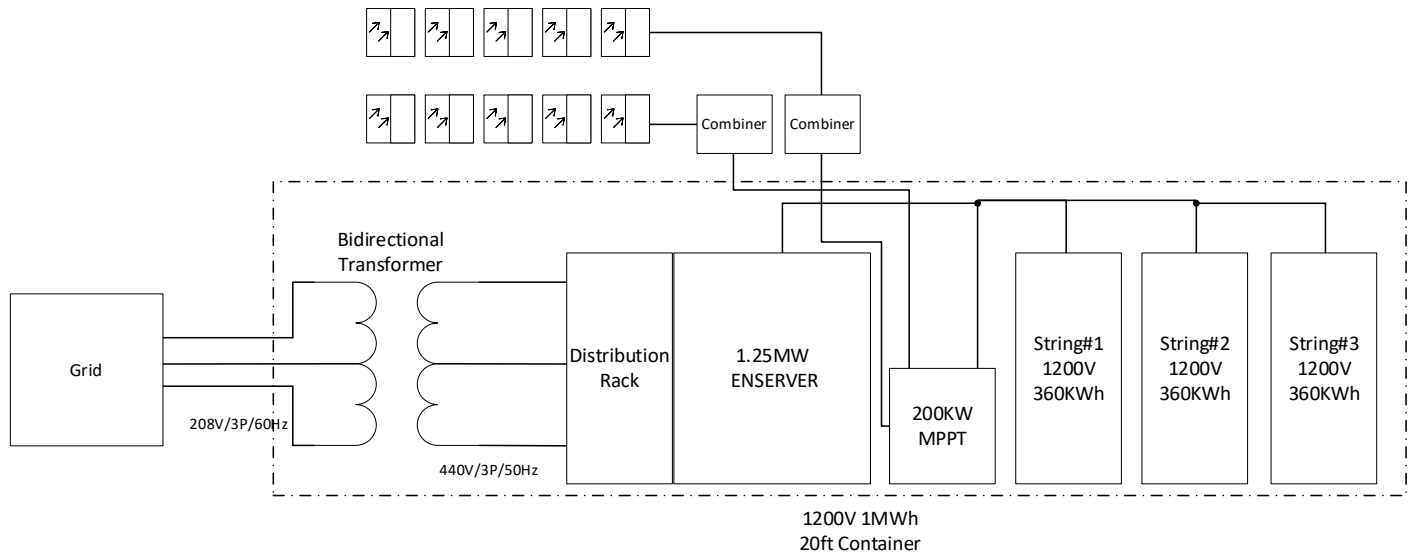
Smart Monitoring

- Fast state monitoring and fault-recording identification
- Integrated module performance
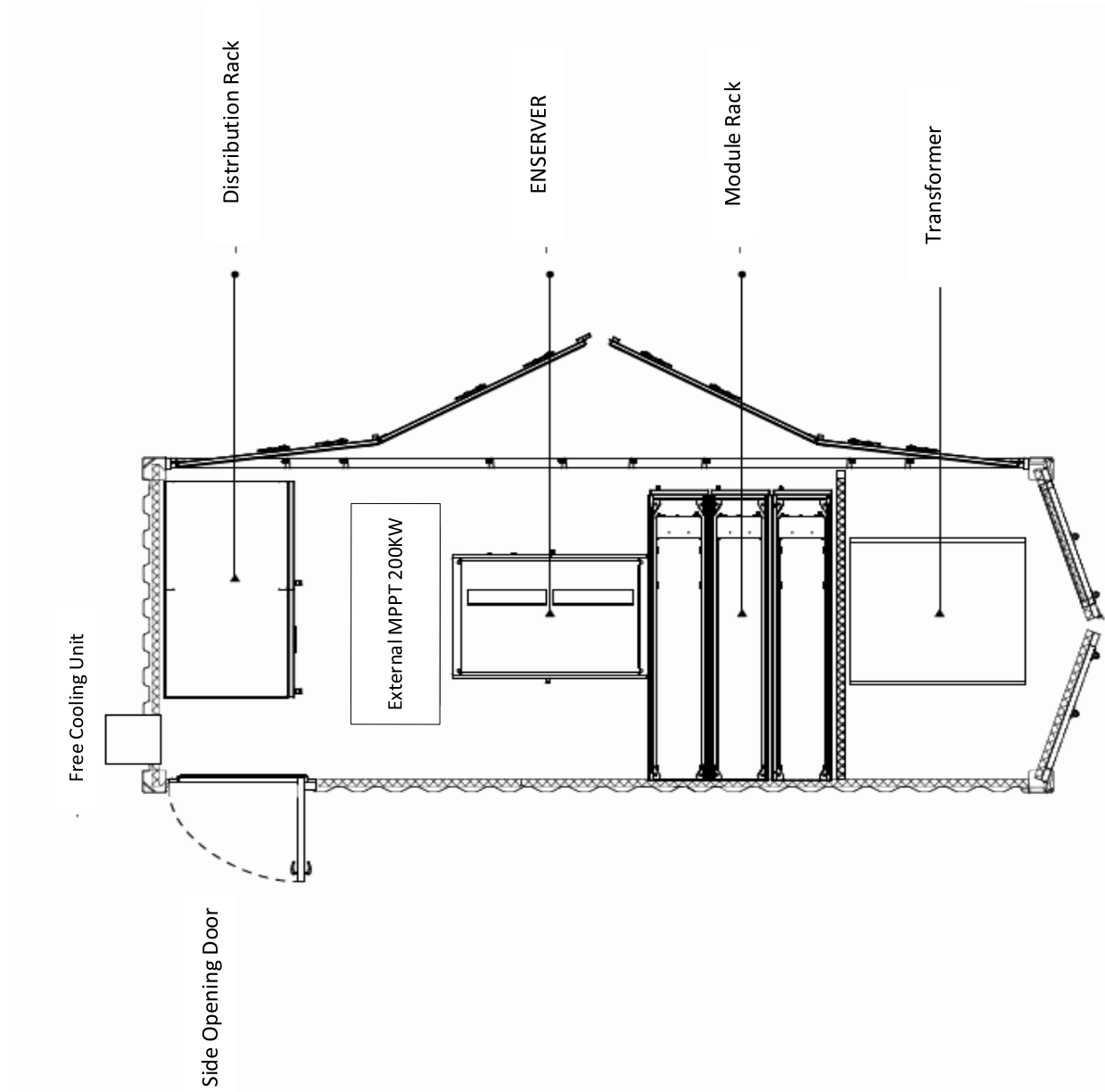- Cloud-enabled remote monitoring OR self-contained monitoring on-board

Safe & Reliable

- No thermal runaway = low fire risk.
- Fire safety equipment is included in AC container as a precaution.
- Monitoring down to cell-level
- Non-combustible
- Built-in redundancy

Single Line Diagram

Bidirectional Transformer

Grid

208V/3P/60Hz

440V/3P/50Hz

Combiner | Combiner

Distribution Rack

1.25MW ENSERVER

200KW MPPT

String#1 1200V 360KWh

String#2 1200V 360KWh

String#3 1200V 360KWh

1200V 1MWh
20ft Container

Salish Tribal Alliance

EMTEL
ENERGY

Container Layout

Distribution Rack

ENSERVER

Module Rack

Transformer

External MPPT 200KW

Free Cooling Unit

Side Opening Door

Salish Tribal Alliance

Container Overview

No.	Item	Description	Qty.
1	20ft Container, High Cube, Side Door open		1
2	ENCAP Modules	15KWHr 50V	72
3	Module Rack		3
4	CCTV Camera		1
5	Industrial Wifi Router		1
6	Surface Light	18W White	3
7	T&T Infrared Motion Sensor	Roof Mounted	1
8	Emergency Exit Light		1
9	Fire Ball		1
10	Fire Extinguisher	Dry Powder	1
11	Automatic Fire Suppression System	Direct Module	1
12	Heat Detector	Wireless	1
13	Main Controller		1
14	Sub Controller		2
15	Contactor Box		2
16	Smart Alarm Controller		1
17	Industrial PC	19"	1
18	Monitoring Rack		1
19	Free Cooling Unit		1
20	Climate control		1
21	ENSERVER	1.25MW	1
22	MPPT Charger	200KW	1
23	Aux Inverter		1
24	Aux Storage Module		1

Container Specifications

PERFORMANCE	
Total Energy	1MWHr
DC CONTAINER	
Voltage (Nominal)	1200Vdc
Maximum Charge Voltage	1344Vdc (Adjustable)
Discharge Cut-Off Voltage	1152Vdc (Adjustable)
Maximum Continuous Charge Current	38A (0.05C)
Maximum Continuous Discharge Current	44A (0.05C)
SMARTFEATURES	
Monitoring Data	Temperature, Total Voltage, Current and Energy
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
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
COMPLIANCE INFORMATION	
EN55032:2015, EN55024:2010, EN61000-4-2:2009, EN61000, EN61000-4-2:2009, EN61000, EN61000:2008+A2:2010	

Salish Tribal Alliance

EMTEL ENERGY

ENSERVER 1.25MW

MODEL 1.25MW	
AC (ON-GRID)	
Apparent power	1375kVA
Rated power	1250kW
Rated Output voltage	660V
Rated current	1203A
Voltage range	360V-440V
Rated frequency	50/60Hz
Frequency range	45~55/55~65Hz
THDI	<3%
PF	0.99 at rated power
Adjustable Range of Reactive Power	(-105% to 105%)
DC Side	
Number of DC input	8
Voltage Range	1000 - 1500 Vdc
Max DC Current	1440A

This Technical Data sheet may change without notice and at the sole discretion of Manufacturer

Salish Tribal Alliance

ENP-1M-1200V-0.05C-X-X-X-20

GENERAL INFORMATION

Maximum efficiency	99.00%
Protection degree	IP54
Operating temperature	-30°C~+60°C
Cooling method	Smart Fan
Relative humidity	0-95% non-condensing
Maximum altitude	4000m
Dimension mm	1300W×2300H×1300D
Weight	<=1500kg
Grid Support	L/HVRT, Active popwer Control, Reactive power Control, power Slope Control

COMMUNICATION

Display	Touch screen
Communication With BMS	RS485/CAN

EMTEL
ENERGY

ENCAP Module 15 KWHr 50V

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

SERVICE LIFE

Cells Projected Cycle Life[2]	500,000 cycles
Cells Projected Calendar Life[3]	25 years
Module Projected Shelf Life[4]	10 years
Warehousing	Can be stored at any SOC without affecting cycle life

Salish Tribal
Alliance

EMTEL
ENERGY

Rack for Modules

Features

- 24 x 15 KWHrs Modules can be installed in each Rack
- One Contactor Box can also be installed in each Rack

Salish Tribal
Alliance

EMTEL ENERGY

CONTACTOR BOX

Features

- Short circuit protection

- High current Charge/Discharge Protection

- DC bypass for overload current >20A
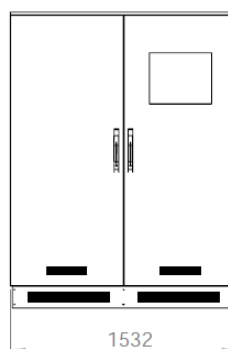
- Manual bypass breaker for maintenance purposes

Salish Tribal Alliance
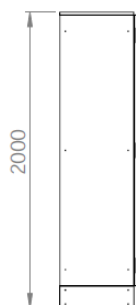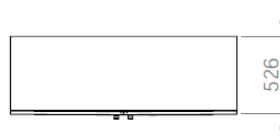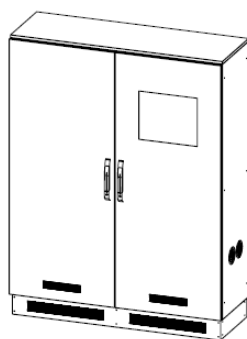
ENCONTROLLER

Features

- Input 220Vac

- String Charge and Discharge Control

- Independent string communication control

- Modules Over voltage, High current and High Temperature Protection

Monitoring & Distribution

Monitoring Rack

Features

1. Embedded NVR
2. 19-inch Industrial PC for monitoring
3. Industrial Wi-Fi router

Embedded NVR DS-7600 Series

Features

1. 4 channel PoE IP camera port
2. Support for 8MP recording and playback
3. Support for 4K video output
4. 1 SATA interface to connect 10TB Hard drive
5. Support for VCA detection alarm
6. Compatible with 3rd party IP camera
7. Support Hikvision ANPR Solution

This Technical Data sheet may change without notice and at the sole discretion of Manufacturer

EMTEL
E N E R G Y

Fan-less Industrial PC

PERFORMANCE SPECIFICATIONS	
Size	19 inches
Resolution	1280 x 800
Color	Chroma 16.7M
Brightness	300 CD/m^2
Response Time	6.5ms
Screen Type	Resistive Touch Screen
Resolution	500DPI

Salish Tribal
Alliance

EMTEL ENERGY

Industrial Wi-fi Router

Stable and Reliable

1. Industrial design, metal enclosure, protection class IP30
2. Wide input voltage DC9-36V, with reverse polarity protection
3. ESD, Surge, EFT/Burst protection
4. Hardware and software watchdog, multi-layer link detection mechanism make it self-recovery from unexpected failure and guarantee reliable communication between remote devices and data center
5. Provides comprehensive security protections for sensitive business data, including secure VPN transmission, firewall against network attacks

Flexible Networking

1. Supports 2G/3G/4G network all over the world, supports APN/VPDN private network access
2. Supports automatic detection of cellularnet work, 4G/3G/2G mode automatics witching
3. Supports fail over between 4G and WAN, ensures automatic switch to alternative back-up connection, effectively ensuring uninterrupted data transmission
4. Supports 2.4GHz WiFi, scaling more devices access, support wired and wireless connecting Internet
5. Compatible with 5.8GHz WiFi (optional)

This Technical Data sheet may change without notice and at the sole discretion of Manufacturer

Salish Tribal Alliance

PERFORMANCE SPECIFICATIONS

Cellular Interface	Antenna	2xSMA-K
	SIM card	1 x (3V & 1.8V) Standard 2FF SIM, drawer-type sim card slots
Ethernet		1 x WAN port, 10/100 Mbps, compliance with IEEE 802.3, supports auto MDI/MDIX, 1.5KV network isolation transformer protection
		4 x LAN ports,10/100Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX, 1.5KV network isolation transformer protection
Indicators	LED	PWR: red, always on after powered on Work: green, blinking when the router is ready and working properly WLAN: green, always solid on when WiFi is enabled and working properly USR: user defined. Net indicator: Red always on after connected to 2G network Green always on after connected to 3G network Orange always on after connected to 4G network Signal strength: 3 solid bars, strongest signal
Terminal block	Pinout	V+, V-: 2cores terminal power supply socket, built-in power supply phase-reversal protection GND: ground terminal Tx/B:RS-232/RS485 pin (set up by software) Rx/A:RS-232/RS485 pin (set up by software) DI:2 x Digital input, passive switch DO:2 x Digital open collector output, max output-36V,300mA COM: common terminal, use in conjunction with DOs

WiFi Interface	Standards & Frequency	IEEE802.11b/g/n, 2.4GHz, AP mode
	Data speed	IEEE802.11b/g, maximum 54 Mbps. IEEE802.11n, maximum 150Mbps
	Antenna	2xRP-SMA-K
	Transmission distance	80 meters by line of sight. Actual transmission distance depends on environment of the site.
Power Supply	Adapter	DC12V/1A
	Connector	DC Power Jack Barrel Type Female 5.5*2.1mm Round socket or industrial terminal block,reverse polarity protection
	Input voltage	DC9~36V
	Working power	Average 522mA/12V, Maximum 811mA/12V
Serial Interface	RS485/ RS232(alternative)	Industrial terminal block. Note: RS232 default.
	Baud rate(bps)	1200,2400,4800,9600,19200,38400,57600,115200,230400
	Data bits	8
	Stop bits	1,2
	Parity	NONE, ODD, EVEN
Physical Characteristics	Housing	Metal shell, IP30
	Dimensions	125.0*103.0*45.0mm
	Installation method	Ear mounting ,DIN-Rail mounting
	EMC	Static IEC61000-4-2, level 3

EMTEL ENERGY

Fire Extinguisher Ceiling Mount

PERFORMANCE SPECIFICATIONS	
Capacity	4Kg
Type	Ceiling Mounted
Extinguisher Agent	Dry Chemical Powder
Activation Time	10 to 20 Sec
Coverage Area	3 x 3 m
Test Pressure	35bar 30sec
Operating Pressure	15bar
Bulb Temperature	68 degree C

Salish Tribal Alliance

FREE COOLING UNIT

CONTROL YOUR CLIMATE

FEATURES

1. The CC3000 controller is based on latest technology within embedded microcontrollers.

2. The CC3000 is designed as a single board controller, including all connections needed for supporting free cooling products.

3. It has connection for two flexi box/DFC products, two motorized dampers and two dry contacts for start/stop signal to AC/DC air conditioner.

4. A dry contact for signal to heater unit is also provided.

5. 10 dry contacts for alarming, full configurable.

6. All connections are done with multi connectors using spring loaded terminations.

7. LAN connection is provided for remote monitoring and setup using SNMP protocol.

8. Embedded micro controller is a 32 bit Cortex M3 core.

9. User interface is designed with a 2,4 inch TFT color display.

10. Product configuration and firmware update can be done by use of standard SD card or SNMP over Ethernet / WEB GUI.

11. The CC3000 controller is enclosed in a special designed plastic enclosure, with UL rating 94-V0, dedicated for wall mount.

12. Control circuit is all low voltage and is designed according to EN/UL 60950.

Salish Tribal
Alliance

PERFORMANCE SPECIFICATIONS

Model Number	FB900-48V-G4

CAPACITY & PERFORMANCE

Operational temperature range, min./max.	- 25 to + 55 °C
Cooling capacity at Δt=10°C, 50/80%	4950 / 7210 W
Maximum cooling capacity at Δt=10°C, 100%	8140 W
Airflow, maximum	2450 m³/h
Electrical connection	Phoenix PC 4/2-STF-7.62
Input voltage range	48VDC (42-57VDC) VDC
Power consumption 50/80/100%	78/239/366 W

Sound level, 50/80%, 3m distance*	47/56 dB(A)
Expected operation life	Min. years 10
*Sound power 50/80%	62/71 dB(A)

SHIPMENT, STORAGE & MOUNTING

Unit dimensions (height×width×depth)	1260 x 512 x 518 mm
Net weight	45 kg
Storage relative humidity, min./max.	0 to 95 RH %
Storage temperature, min./max.	-40 to +80 °C
Mounting method	Wall-mounted
Filter	Item no. 077164
Filter type	Class Compact G4
Filter area	0.75 m2

CONTROLLER DETAILS

Communication interface	Ethernet SNMP
Mounting method	Wall-mounted

CERTIFICATIONS

Protection according to EN 60529	IP class no.X5
Complies with standards	EN 60950

Salish Tribal Alliance

Where to find us

PHONE: 702-706-1995
info@salishtribalalliancegroup.com
https://salishtribalalliancegroup.com/emtel-energy-storage

EMTEL
GROUP OF COMPANIES

EMTEL ENERGY **EMTEL** COMMUNICATIONS LLC **EMTEL** COMMUNICATIONS Pvt Ltd. **EMBOOST** SIGNAL BOOSTERS BUILD GREEN TECH

www.emtel.group