



ETB Control Center

ALL-IN-ONE ENCLOSURE

ETB CONTROLLER

Intelligent energy storage controls software that utilizes AI and machine learning to forecast and optimally discharge energy storage systems operating in the field. Best-in-class technology coupled with industry-leading domain expertise.

ETB CONTROL CENTER

Our turnkey, fully wired enclosure houses all of the necessary hardware components in a single box, enabling a streamlined installation and commissioning. Pre-configured for the specific project and application.

FEATURES

- ✓ **Turnkey**
Pre-configured for your project and ready for operation. Simple installation and connectivity.
- ✓ **Rugged**
NEMA 4 rated, robust design to withstand the elements and extreme environments.
- ✓ **Proven**
Utilizing best-in-class hardware components to ensure reliability and maximum uptime.

Technical Specifications

PART NUMBER	PA3124	PA3124-LTE
MECHANICAL DATA		
Dimensions	16" X 16" X 8" (WxHxD) / 405 mm x 405 mm x 203 mm (WxHxD)	
Weight	24 lb/10.9 kg	24.5 lb/11.1 kg
ENVIRONMENTAL		
Enclosure Rating	NEMA 4	
Storage Temperature	-40°C to 70°C	
Operating Temperature	-20°C to 45°C	
Max Ambient Temperature	45°C with 50% shade coverage	
POWER RATINGS		
Input Voltage	120VAC	
Input Current	1A (Max 15A overcurrent protection required)	
System Frequency	60hz	
Output Voltage	24V	
SCCR	5kA	
COMPLIANCE STANDARDS		
Enclosure	UL508A	
Metering	ANSI C12.2 - 0.5%	
Controls	Sunspec IEEE 2030.5	
COMMUNICATIONS		
Internet Connectivity	Wired Ethernet	Embedded LTE
Device Communications	Modbus TCP, Modbus RTU (RS485), CAN bus, SunSpec 2030.5	

Technical Specifications for North America

OPERATING MODES

Demand Charge Management, Time-of-Use Arbitrage, Solar Self-Consumption, DC Clipping Recapture, Demand Response Programs, Signal-Based Dispatching

CERTIFICATION

EMS Certifications
CE & FCC Class A
UL Listed Device
Sunspec IEE 2030.5

Storage Partner Certifications
UL1741 (SA/SB)
UL9540 (A)

METERING

Integrates with Modbus TCP enabled Revenue Grade Meter
High Accuracy CT's (ANSI .06 or Better)
Data Capture from Solar PV, Storage, Utility Metered Load

RESILIENCE

Autonomous operation for limited periods of time with no Internet
Sustained operations during power interruptions

COMMUNICATIONS

RS-485 or Ethernet/ TCP Networks
Modbus RTU
Modbus TCP
Sunspec/Mesa Modbus API

CONNECTIVITY

Wired Ethernet
Embedded LTE

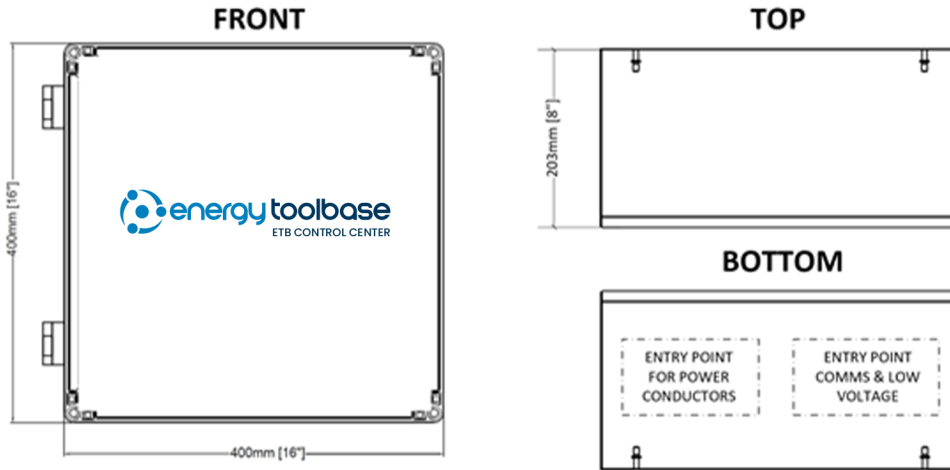
COMPATIBILITY

ETB Monitor - a single monitoring platform for all ESS hardware deployed at site with ETB Controller
Integrated with tier one hardware vendors

ENVIRONMENT

Operating Temperature: -25°C to 70°C
Relative Humidity: 10% to 95% (non-condensing)

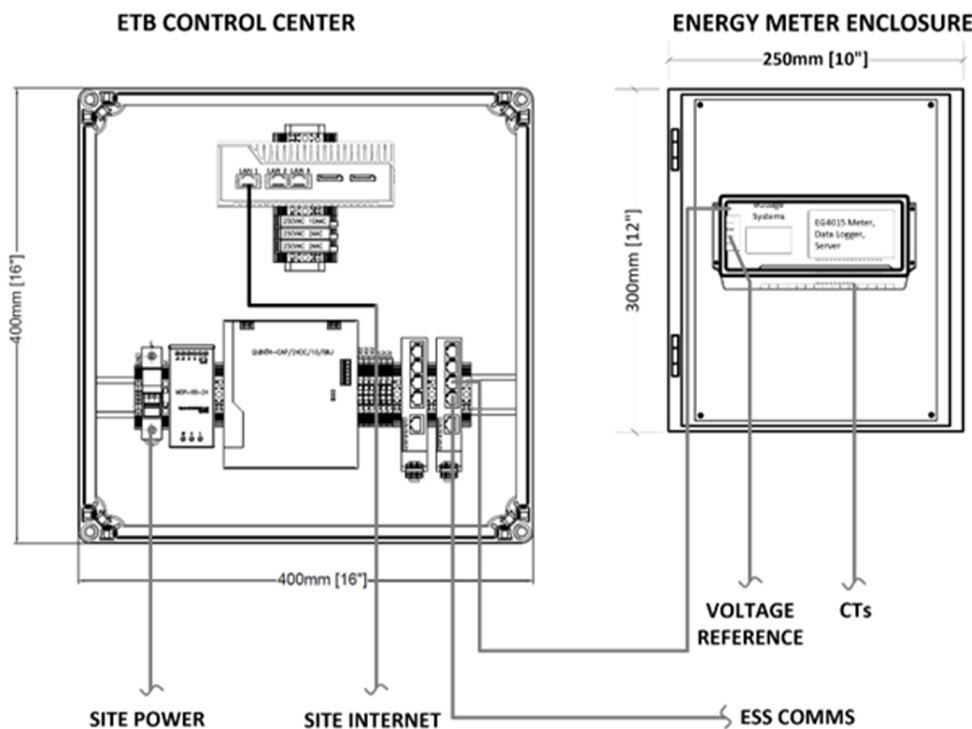
Dimensional Drawings



NOTES

- ▶ Penetrations for cable & conduit entry must be made on the bottom of the enclosure.
- ▶ ETB Control Center conduit entrances must use properly rated hubs/connectors sealed with fire rated compound to prevent moisture intrusion.
- ▶ CT leads should be ran in dedicated conduit, separate from current carrying conductors.
- ▶ Enclosure contains serviceable parts and must abide by working clearances per NEC.

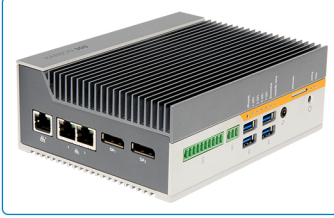
Wiring Diagrams



NOTES

- ▶ CT leads cannot extend beyond 100FT. There are a number of situations where the CT leads must exceed 100FT. In these cases, please consult with Energy Toolbase for further guidance.
- ▶ When extending factory leads, use twisted stranded pairs and ensure proper splicing. All CT measurements must be validated with a field test.
- ▶ Excess CT leads should be cut and spliced, do not leave bundled coils in the CT lead wiring.

Hardware Components



Ruggedized EMS PC

Karbon 410 ruggedized industrial computer.
Houses Acumen EMS processing and data logging applications.



Industrial Ethernet Switch

Industrial Ethernet Switch. 5-port unmanaged switch used to connect on-site Modbus Devices to the ETB Controller.



Energy Meter (ANSI. 06)

EG4015 - 64E (eGauge) eGauge Core energy meter. Direct site energy measurements on ESS, PV and building consumption.



Uninterruptible Power Supply (UPS)

Capacitor based DC-UPS. Backup power supply to rugged PC, industrial Ethernet switch, and cellular modem (if applicable).



Power Supply

Din-Rail mountable power supply. 120-240VAC input. 24VDC Output.



Cellular Modem (Optional)

High power, Gigabit Ethernet, and up to 300 Mbps downlink speeds over LTE-Advanced.

**While ETB maintains strict quality control over all components due to availability components may be swapped out for an equivalent product.*