EdgeTunePower

POWER MANAGEMENT SYSTEM | PMS

iT-1000

Platform

www.edgetunepower.com

THE IT-1000 PLATFORM

Revolutionary Power-Management-System (PMS)

ETP's iT-1000 platform facilitates a real-time Power Management System (PMS), specifically crafted to ensure seamless coordination among Distributed Energy Resources (DERs) at the distribution level. The iT-1000 is an industrial-grade, rugged-ready platform designed for the reliable and resilient operation of microgrid systems at commercial and industrial scales.

KEY FEATURES

In-Millisecond Operation Time-Frame:

Achieve millisecond-level response times to optimize utility-scale Battery Energy Storage Systems (BESS) and improve grid reliability and resiliency.

Patented Decision-Making Algorithm:

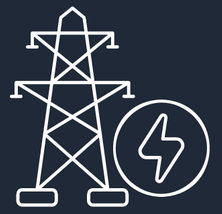
The computationally powerful and patented algorithm optimizes grid stability, reduces outages, and enhances overall grid performance.

Modular and Scalable Design:

The PMS can be implemented in a distributed architecture to both reduce communication latency and enable a scalable solution upon power system expansion.

Industrial Cyber-Security:

The PMS complies with the latest grid codes and cybersecurity standards, including North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP).



Microgrid Operation:

The PMS enables real-time power sharing between microgrid Distributed-Energy- Resources (DERs) to enable grid-connected and islanded operations as well as seamless islanding and re-synchronization processes.

Virtual-Power-Plants (VPPs):

The PMS enables real-time coordination of utility-scale BESS, solar-PV, and wind power plants, allowing fixed power or voltage modes at the PCC and facilitating VPP operation for the utility.

Electrification of Mining Facilities:

The EMS enables real-time integration of electrified mining equipment, renewables, and battery storage, ensuring stable power, load balancing, and grid support.

EV Bus Charging & L-3 DCFC Stations:

High-power charging solutions optimize EV bus and Level 3 DCFC station performance, ensuring fast and efficient charging while managing grid demand and stability.

APPLICATIONS:

EMBRACE THE FUTURE WITH SMART ENERGY SOLUTIONS THAT OPTIMIZE DER INTEGRATION.

Energy solutions improve the integration of distributed energy resources (DER), leading to better efficiency and reliability in managing renewable resources.

REAL-TIME POWER SYSTEM TESTING WITH IT-1000

SEL - RTAC

iT-1000 (PMS)

SEL - 2488 GPS

IBR and DER Controllers

Data exchange between the simulator and Device Under Test (DuT) occurs via:

- Industrial Communication Protocols (e.g., IEC-61850)
- Analog and Digital I/O
- Fiber Optic connections.

The control commands (or setpoints) and protection trip signals, issued by the DuT, are sent back to the real-time simulator

Protection Relays

Real-Time Simulator:
A real-time simulation shows a complete power system model, including DERs, electrical machines, loads, and transmission and distribution equipment.

A wide range of electric grid signals, such as voltage, current, and breaker status, is sent to the DuT.

Monitoring Devices

The dynamic performance of a wide range of embedded control and protection components (i.e., DuT) is verified

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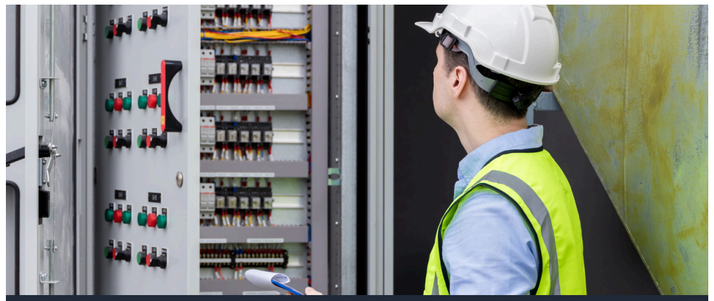
FACTORY ACCEPTANCE TESTING (FAT)



Control-Hardware-In-the-Loop (C-HIL) Testing:

The PMS unit will be tested for each project at ETP's real-time simulation laboratory to ensure that the complete HW+SW (embedded) PMS system is operational prior to field deployment.

Dynamic Performance Compliance:

Interacting the PMS with the targeted power system transients and dynamics to ensure that the PMS is achieving its objectives. For example, ensuring proper performance of the PMS unit for islanded and grid-connected operation of the microgrid system.

Communication Medium Testing:

Measuring latency and sampling rate of communication medium that will interconnect the PMS to the power system apparatus, e.g., IEC-61850, MODBUS, DNP3, TCP, UDP, MMS.

COMPLIANCE WITH INDUSTRY STANDARDS

Grid Code Compliance:
Meets IEEE-1547, CSA, NERC, and FERC standards for reliable performance and integration.

CSA & UL Certification:
Certified to meet the highest safety and operational standards, ensuring dependable.

IEC-61850 Compliance:
Ensures compatibility with modern communication protocols for seamless grid integration.

NERC (North American Electric Reliability Corporation):
Adheres to reliability standards for robust system performance.

Secure Microgrid & SCADA Compliance:
Compliance with microgrid control systems, SCADA devices, and critical cyber assets with encryption, access controls, and firewalls.

WHY CHOOSE OUR POWER-MANAGEMENT-SYSTEM

Dependability:
Designed to deliver consistent performance across diverse operating conditions.

Optimization:
Equipped with advanced features to boost energy output while minimizing operational expenses.

Versatility:
Easily adaptable to various configurations and energy demands.

Ongoing Support
Supported by a committed team focused on ensuring the success of your system.

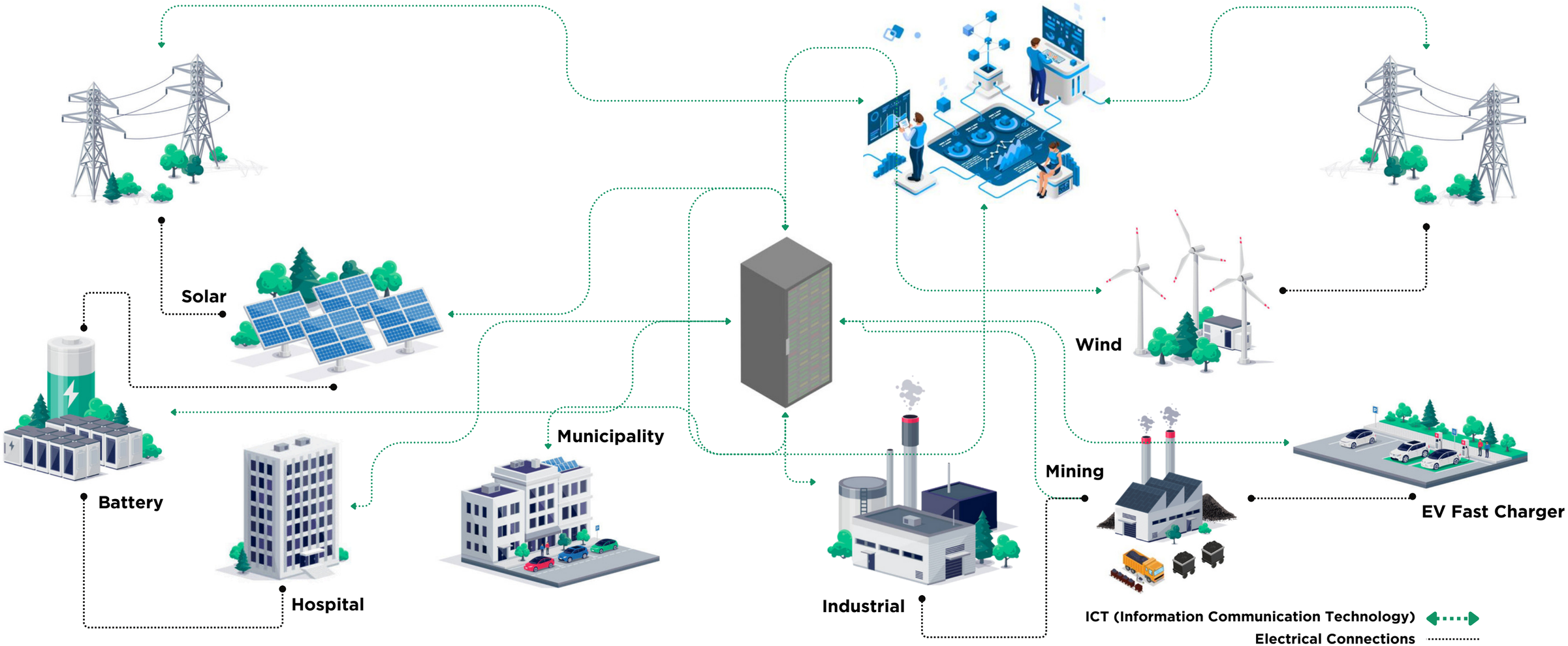
Established Performance

We have a track record of delivering scalable solutions in the energy sector by integrating advanced technologies and optimizing processes. Using data analytics and engineering principles, we create sustainable energy solutions that comply with regulations and cut costs. Our commitment to excellence has strengthened stakeholder relationships and collaboration across teams.

Comprehensive Warranty Coverage

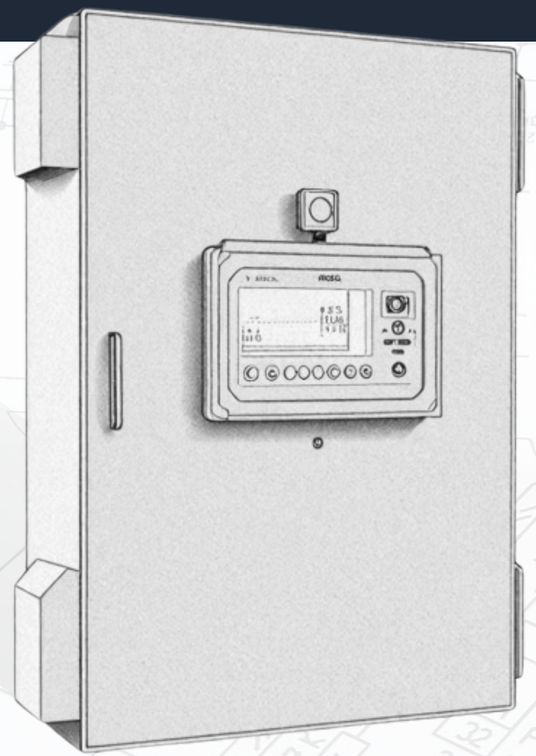
This product includes a standard three-year warranty that covers any manufacturing defects. You also have the option to extend the warranty for up to ten years, providing you with extra peace of mind. This thorough plan guarantees dependable quality and performance, whether for personal or professional use.

POWER MANAGEMENT SYSTEM



IT-1000 PLATFORM

POWER PLANT CONTROLLER SPECIFICATIONS



Specifications | Physical Features	
High-definition HMI panel	• 25.7 cm / 10.1" TFT-display, 1280 x 800 pixels (WXGA) • Arm® Cortex®-A53, 4x 1.2 GHz • 2x USB host 2.0, 1x Ethernet (10/100 Mbps), RJ45 • Yocto/Linux, Chromium Browser
HVAC System	• Condensation prevention • Temperature range: -18°C to +38°C (0°F to +100°F) • Fan Auto/On switch with pilot light, aluminum alloy casing
SEL-RTAC Control System	• Up to 480 GB, DVI/VGA, Form C IO, IEC 61131 Programming
Power-supply System	• QUINT POWER, 24 V DC / 10 A, DIN rail mounting
Input-Output Modules	• Axioline F, 8 analog inputs and outputs
Cabinet Rating	• NEMA 3R / IP44
Cellular-based Module	• Industrial LTE 4G router, fallback to 3G and 2G • 2 Ethernet interfaces, SMS, and email transmission
Single Cabinet Dimensions	• 800 mm (W) x 1200 mm (H) x 400 mm (D) • 31.5" (W) x 47.2" (H) x 15.7" (D)
Performance | Compliance Data	
Grid Code Compliance	• IEEE-1547, CSA, NERC, FERC
Warranty	• Standard: 3 years, Extended: 4-10 years
Certifications	• UL and CSA
Compliance	• IEC-61850, IEEE-1547, NERC-CIP
Advanced Features	• Computationally powerful algorithm for grid management • Modular, scalable, and future-proof • Cyber-security ready for harsh environments

CONTACT US

GET YOUR FREE DEMO TODAY AND EXPLORE OUR ENERGY SOLUTIONS!

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