MelRok Energy IoT™   Touch Gateway

Platform for Self-Driving Buildings™

Energy Meters & Energy Management Systems Universal Gateway

KEY FEATURES

- Simultaneous data acquisition from up to 100 metering devices (power, water, gas, flow, environmental, etc.)
  - Up to 100 metering devices with RS-485 serial communication (Modbus RTU)
  - Up to 100 IP-Based metering devices (Modbus TCP, BACnet/IP, or other published IP-based protocol)
  - One KYZ Pulse Output energy meter (option)
- Connects to BACnet Energy Management Systems (EMS) and acquires controller inputs, outputs, and setpoints
- Connects to Modbus and IP-based Battery Charge Controllers and PV Inverters
- Combined functionality of Data Gateway, Data Logger, Demand Management Controller, and ADR Client.
- Streams 1-minute energy and EMS data in real-time to the MelRok Cloud for storage, analytics and visualization
- Certified Automated Demand Response client (OpenADR2.0b)
- Onboard demand management control over IP
- Persists data in local memory until receiving confirmation of cloud storage
- Designed to leverage currently deployed automation infrastructure and avoid stranded asset costs

- Complies with International Performance Measurement and Verification Protocol (IPMVP), LEED v4 and CA Title 24
- Secure encrypted communication over https
- Nested layer of data encryption for added security
- Built-in IP Firewall for added security

Self-Driving Buildings™

Increasing energy costs, complexity of energy systems, and complexity of energy management systems are a challenge. Energy optimization requires increasing resources and is a necessity to eliminate the estimated 30% energy waste in commercial buildings. Having an energy management system is not enough and often becomes a burden rather than the solution. Furthermore, integration of renewable energy resources into the power grids requires real time response of buildings to grid demands.

MelRok's Self-Driving Buildings™ platform turns the building into a system where energy is monitored and continuously optimized in real time. The Touch Energy IoT Gateway is at the core of the MelRok platform.

Touch: Energy IoT Gateway

The Touch is an Internet-of-Things (IoT) device that combines the functionality of a Gateway, Data Logger, Demand Management Controller, and ADR Client all-in-one. It collects data from existing energy meters, environmental sensors, EMS, BMS, battery controllers, and PV inverters and sends the data to the MelRok Cloud for storage, analytics, visualization, fault detection, and reporting. Once in the cloud, the data can be stored indefinitely and is accessible via automated and secure APIs.

APPLICATIONS

•Measurement & Verification   •Automated Anomaly Detection   •Carbon Footprint Management   •Automated Demand Response
•Peak Demand Management   •Time-of-Use Management   •MicroGridManagemment   •Dispatchable Demand   •Dispatchable Renewables

Compatible with Multiple Communication Protocols

The Touch Gateway provides a very flexible solution for connecting your energy data to the cloud. The ESP Touch can communicate over multiple protocols: BACnet/IP, Modbus TCP, SNMP, Modbus RTU, KYZ Pulse, ZigBee, and other published IP-based protocols.

No longer are energy meters and energy management systems stranded due to incompatibility – you can now connect a variety of meters and energy systems and view all of that data on a single platform.

ADR and Demand Management Controller

The Touch Gateway is also a Demand Response Automated Server (DRAS) client for implementation of Automated Demand Response (ADR) actions using OpenADR 2.0b. The ESP Touch can implement manual (DR) or ADR actions across a nationwide portfolio of facilities with a 1-minute response time. The same embedded control mechanisms can be implemented for actions to manage manual Demand Management or automated Demand Management.

How does it work?

To connect existing energy systems to the cloud, install the Touch Gateway and connect it to the Modbus RTU network and / or the Ethernet network. Once connected, the Touch Gateway starts to collect data from energy meters and energy management systems and sends it to the MelRok Cloud for storage, visualization, analytics, reporting and fault detection.

Unleash the Power of Big Data

The Touch propels energy management to the world of real time big data collection, analytics, optimization, and reporting. The Touch amplifies the return on investment of spent energy capital expenditures by leveraging existing energy metering and management infrastructure for maximum benefits. Real time and actionable energy information, to levels only achievable using big data engines, are a necessity in today's energy reality. The MelRok Touch makes it possible.

Cloud Apps

The MelRok Touch Gateway is a two way Big Data Pipeline to MelRok's suite of cloud-based apps. The Self-Driving Buildings™ apps include anomaly detection, peak demand management, automated demand response as well as measurement and verification for accurate calculations of energy upgrades ROI.

The Touch is also used for management of distributed energy resources and the secure dispatching of renewables.

SPECIFICATIONS

Communication Protocols and I/O
- Modbus RTU, Modbus TCP
- BACnet/IP
- RS-485 serial interface
- KYZ pulse counter inputs
- 4 dry contact relays outputs (Touch⁺ only)
- 4 USB ports (Touch⁺ only)
- ZegBee SEP option
- 4G Cellular modem option

Device
- 1GHz ARM CPU with 512MB RAM
- Linux OS
- 4GB nonvolatile memory

Duty Cycle
- 100% duty cycle
- Communication to Cloud Database
- Wired Ethernet 10 Base T and 100Base-TX (autosensing)
- Wireless 3G/4G LTE

Environmental
- Operating temperature: -20 C (-4 F) to 55 C (131 F)
- Storage temperature: 60 C
- 95% non-condensing humidity

Packaging
- Wall mountable enclosure
- NEMA rated enclosures

Dimensions
- Touch Lite: 3" x 4" x 1.5" (76 mm x 51 mm x 38 mm)
- Touch: 12.5" x 13.6" x 4.7" (317.5mm x 345.4mm x 119.4mm)