Asigin

Energy M&V and Demand Management

KEY FEATURES

- Supports simultaneous data acquisition from up to 122 metering devices (power, water, gas, flow, environmental, etc.)
  - Up to 20 metering devices with RS-485 serial communication (Modbus RTU, BACnet RTU, or other published serial protocol)
  - Up to 100 IP-Based metering devices (Modbus TCP, BACnet/IP, SNMP, or other published IP-based protocol)
  - One KYZ Pulse Output energy meter
  - One ZigBee SEP-enabled Utility Smart Meter
- Streams 1-minute energy data in real-time to the ESP Cloud and to as many additional remote databases as desired (using an API)
- Onboard demand management control over IP or dry contacts with less than 1 minute response time
- Certified with an embedded Automated Demand Response (ADR) client compatible with Open ADR 1.0 and 2.0b protocols
- Preserves data in local memory for up to a year until receiving confirmation of cloud storage
- Utilizes features that optimizes existing EMS and BMS infrastructures
- Designed to leverage currently deployed automation infrastructure and avoid stranded asset costs
- Exceeds LEED v4 requirements
- Complies with International Performance Measurement and Verification Protocol (IPMVP)
- Additional data security with 128-bit encryption

In the Ojibwe Language, Asigin means to Gather Up or Collect.

Energy Challenge

Increasing energy costs are a challenge around the world. Understanding and managing the various energy programs and billing methods continues to become more and more complex. At the same time, facility managers are tasked with finding means to reduce energy costs year over year to maintain profitability. Utilities are faced with an increase in demand from their customers. Traditional reliable energy generation is being replaced with unreliable and unpredictable alternative clean energy generation.

The Solution: ESP Asigin

The ESP Asigin is an Internet-of-Things (IoT) device that combines the functionality of a Gateway, Data Logger, On-Site Server, Demand Management Controller, and ADR DRAS Client all in one. It collects and streams data from existing meters (power, water, gas, environmental, etc.) and sends that data to the ESP Cloud (a cloud-based database). It collects and streams data from existing EMS, BMS, SCADA, utility meters, and energy meters to the Cloud for storage, analytics, visualization and reporting. Once in the cloud, the data is accessible by energy managers and authorized service providers via automated and secure API.

Variety of communication protocols:

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

No longer are energy meters stranded due to incompatibility – you can now connect a variety of meters and view all of that data in the EnergiStream user-interface.

DRAS Server and Demand Management Controller:

The ESP Asigin is also a Demand Response Automated Server (DRAS) client for implementation of Automated Demand Response (ADR) actions using OpenADR 1.0 and 2.0b. The ESP Asigin 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 an existing energy meter to the ESP Cloud, install the ESP Asigin and connect it to the meter using Modbus, BACnet, SNMP, or other protocol. Once connected, the ESP Asigin starts to collect data from the energy meter and sends it to the ESP Cloud (or another database using an API).

Once in the cloud, use the ESP User Interface to view, analyze, and generate reports on that data.

Unleash the Power of Big Data

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

TECHNICAL SPECIFICATIONS

Communication Protocols and I/O
- Modbus RTU, Modbus TCP
- BACnet/IP
- SNMP
- ZigBee
- RS-485 serial interface
- KYZ pulse counter (input)
- 4 dry contact relays (output)
- 4 USB ports

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
- 12.5" x 13.6" x 4.7" (317.5mm x 345.4mm x 119.4mm)

Asigin Pro
Energy M&V and Demand Management
EMG-1212/EMG-2412 Series

In the Ojibwe Language, Asigin means to Gather Up or Collect

DESCRIPTION

The Asigin Pro system is the preferred solution for energy measurement & verification and demand management. The Asigin Pro combines the functionality of multiple hardware systems, including up to 24 meters, integrators for flexible CTs, data acquisition software, a data logger, multi-protocol drivers (BACnet, Modbus, etc.), and a data server to stream real time energy information to cloud-based servers. The Asigin Pro also includes a built-in Automated Demand Response (ADR) Client to obtain ADR event notification and pricing information from utility servers. The built-in multi-protocol drivers allow the Asigin Pro to serve as an interface with existing building automation systems (BAS) or energy management systems (EMS) for peak demand management and demand response controls.

The built-in data acquisition software allows for the collection of data from existing sensors (power, gas, water, temperature, occupancy) and the uploading of that data to the cloud servers for analysis and reporting. The energy data is protected and stored on secure cloud-based servers. The EMG comes with a web-enabled application to view the energy information in real time, and a reporting engine to automatically generate and distribute (via email) intuitive, concise and informative reports to an unlimited number of stakeholders. The EMG's integrated capabilities shatter the cost of energy metering, making detailed and real time energy monitoring, analysis, reporting and control an affordable and value added proposition for ALL businesses.

FEATURES

Power Metering Features

- 12/24 channel smart meter
- Single model used for 120-480VAC systems
- Single model accommodates 10A – 10,000A split core and flexible CTs
- Built-in integrator for flexible CTs (Rogowski coils)
- Single model configurable for single, split, and three-phase configurations
- Monitored metrics: RMS Voltage, RMS Current, Power (kW), Energy (kWhr), Total Energy (kVAhr) and Power Factor
- Rolling Demand (kW, 15-minute window)
- Sampling frequency up to 1 Hz (1-minute standard)

Data Gateway Features

- Interoperable with BAS and EMS systems (BACnet/IP, Modbus IP, SNMP)
- Real time streaming of energy data to the cloud
- Acquires and forwards data from existing meters and sensors
- Pulsed input via Ethernet
- Downloads controls to local systems
- Auto-download of system configuration
- Auto-update of firmware
- Auto-Reporting of a non-responsive channel
- Embedded ADR DRAS client
- Built-in web server
- Automated data sharing via web services
- Data viewing, reporting and download via web-enabled application

TECHNICAL SPECIFICATIONS

Device
- AM3571 CPU @ 600 MHz
- Linux Distribution OS
- 256 MB DDR2 Memory

Accuracy
- + / - 0.5% of reading

Power Rating
- Single-phase loads: 10 to 10,000 Amps, 120/277 VAC
- Three-phase loads: 30,000 Amps (3 x 10,000A), 480Delta, 480Wye, 208Wye

Communications
- Wired Ethernet communication (standard)
- MODBUS IP
- BACnet/IP
- SNMP
- OpenADR compliant
- TCP/IP control of Control interfaces (relays)
- 3G/4G LTE option for wireless connection to the cloud

Packaging
- Wall mountable, metallic enclosure
- Custom enclosures available

Environmental
- Operating Temperature -20º C (-4ºF) to 55º C (131ºF)
- Storage Temperature 60º C
- 95% non-condensing humidity

Duty Cycle
- 100% duty cycle

Certifications
- CE
- EN-61010-1
- RoHS compliant
- UL certification

Dimensions & Weight
- 13.9" x 11" x 2.1" (353mm x 273mm x 53mm)
- Weight 8 lbs. (3.6kg)

Communications to Cloud database
- RS-485, Ethernet 10 Base T and 100Base-TX (Autosensing)

CT Connectors
- Plug-in terminal blocks for external CT sensors and Rogowski coils
- Built-in integrator for Rogowski coil sensors
- 12 / 24 measurement points

METERING GATEWAYS

MODEL	DESCRIPTION
EMG-1212	EnergiStream12 Metering Gateway. Accommodates up to 12 power sensors. 600 MHz CPU, 256MB, Linux OS, Ethernet interface, 120 - 480 VAC, streaming data server.
EMG-2412	EnergiStream24 Metering Gateway. Accommodates up to 24 power sensors. 600 MHz CPU, 256MB, Linux OS, Ethernet interface, 120 - 480 VAC, streaming data server.

ACCESSORIES

SCT-60	60A CT. Split core CT sensor, 60A rating. 1.0cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-200	200A CT. Detachable head CT. 3m / 10ft lead wire, 1.9cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-400	400A CT. Detachable head CT. 3m / 10ft lead wire, 3.2cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-600	600A CT. Detachable head CT. 2.4m / 8 ft lead wire, 3.2cm window size. +/- 1% linearity @ 10 to 130% of rated current.
DCT-1000	1000A CT. Detachable head CT. 2.4m / 8 ft lead wire, 5.1cm window size. +/- 1% linearity @ 10 to 130% of rated current.
FCT-3KXS	3000A XS Flex CT. 100A - 3000A linear range. 20 cm diameter, 3m / 10ft lead wire, 5.5cm window size. Linearity 1%. Positioning 2%.
FCT-3KM.1	3000A S Flex CT. 100A - 3000A linear range. 60 cm diameter, 3m / 10ft lead wire, 17.9 cm window size. Linearity 1%. Positioning 2%.
FCT-3KL.1	3000A L Flex CT. 100A _ 3000A linear range. 100 cm diameter, 3m / 10 ft lead wire, 30.6cm window size. Linearity 1%. Positioning 2%.
FCT-5K.1	5000A Flex CT. 250A - 5000A linear range. 45 cm diameter, 2.4m / 8ft lead wire, 15.0cm window size. Linearity 1%. Positioning 2%. [Other CT sizes available.]