

# Electro Industries/GaugeTech™

AI Driven Energy Management and Power Quality Monitoring



**Exclusively Delivering Integrated Energy and PQ Monitoring Solutions that Utilize AI and Deep Industry Expertise to Improve Reliability, Efficiency, and Sustainability**



**Energy & PQ  
Monitoring  
Solutions**

+



**Artificial  
Intelligence**

+



**Industry  
Expertise**

=



**Reliability,  
Sustainability, and  
Efficiency**

## Our Solutions

### Energy & PQ Monitoring Systems

- Industrial AI
- Energy Management
- PQ Monitoring
- Identifiable Action Plans
- Sustainability Enablement

### Power Monitoring

- PQ Monitors
- Revenue Metering
- Power & Submetering
- Instrument Transformers
- Industrial Communications

### OEM Solutions

- Embedded Metering
- Brand Labelling
- Custom Engineering
- New Product Development
- Standards Compliance

### Engineering Services

- PQ & Energy Consulting
- Commissioning
- Engineered Solutions
- System Integration
- Maintenance & Optimization



# Our Focus at EIG

Integrated Energy and PQ Monitoring Solutions **Deliver Results in Days, not Years**

## Domain Expertise

50+ Years in the Industry

Energy Management & PQ Experts  
Over 50% of Employees are Engineers  
Specialized Customer Applications  
Expertise in Industrial AI

## Reliable Solutions

1M Solutions Deployed

Industrial Grade Components  
Patented Auto-calibrating Metrology  
Trusted for Critical Applications  
Industry leading Type Test Lab

## Technology Investments

150+ Energy Management & PQ patents

Intelligent Plug & Play Systems  
3rd Party Compliance Certification  
~15% Reinvestment in R&D  
Cybersecurity Compliance

## Advanced Manufacturing

Fastest Industry Leadtime

End to End Automated Testing  
Integrated Component Traceability  
Buy America Act Compliant  
Assembled in the USA

## Applications We Solve

Improving **Reliability, Efficiency, and Sustainability** from Generation to Consumption



### Critical Infrastructure

Data centers, military, airports, hospitals, telecom



### Commercial & Industrial

Buildings, universities, shopping malls, manufacturing, oil & gas, mining



### Renewable Energy

Wind, solar, distributed energy applications



### Utilities

Power generation, gas, water, transmission, distribution

Power Quality Analysis  
Energy Management  
Alarming & Notifications  
Cost Allocation  
Sustainability Benchmarking

Energy Management  
Submetering & Billing  
Power Quality Analysis  
Energy Efficiency  
Sustainability Benchmarking

Grid Stability  
Generator Control  
Demand Response  
Planning & Optimization  
Revenue & SCADA Metering

Revenue Metering  
SCADA Connectivity  
Grid Stability  
Consumer PQ  
Capacity Planning



# Nexus<sup>®</sup> 1500+

Power Quality Meter with Phasor Measurement Unit



The Nexus<sup>®</sup> 1500+ meter provides invaluable power quality analysis using the latest PQ standards to record electrical disturbances, improving power system reliability and reducing downtime costs. It is also a precision revenue meter that collects energy usage to the ANSI C12.20 0.1 CL accuracy standard. Its Resilient Cyber Security<sup>™</sup> protects the meter and its data from hacking and tampering, helping you meet NERC CIP compliance. It has six available communication ports, including dual, separately addressable Ethernet ports. Supported communication protocols include Modbus, DNP3, IEC 61850, GOOSE messaging, SNMP, IEEE 1588 PTPv2, and IEEE C37.118.1-2011/1a-2014.

The Nexus<sup>®</sup> 1500+ power quality meter supports substation automation, grid monitoring, and distribution substation reliability measurements. It provides a host of communication options for substation SCADA and energy management communication. Its phasor measurement unit (PMU) capability enables it to support grid stability by integrating directly into any synchrophasor system. Its IEC 61850 GOOSE messaging can be used for EIG's unique distributed fault recording, providing system-wide distribution fault analysis on an event, letting you view many different circuits after an event occurs. The meter is also ideal for co-generation and independent power providers.



## Features

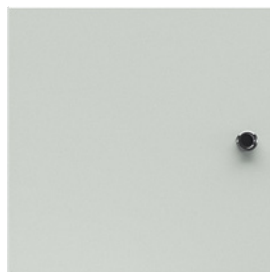
- Ideal for smart grid, critical needs, and power quality sensitive applications
- Certified ANSI C12.20 0.1 Accuracy Class
- 0.06% energy accuracy with Constant Calibration<sup>™</sup> architecture
- IEC 61000-4-30 Class A and EN 50160 power quality analyzer
- 50 MHz transient speed capture (800,000 samples per cycle)
- Up to 4 GB of data storage for trending and analysis
- Advanced data server with multiple protocols: Modbus, DNP, SMTP, SNMP, FTP, and more
- IEC 61850 protocol server with GOOSE messaging for grid automation applications
- Synchrophasor measurements improve power system stability
- Resilient Cyber Security<sup>™</sup> provides encryption, role-based authorization, and digital firmware signature

# Nexus<sup>®</sup> 1450

## Cyber Secure Power Quality Meter with Multiport Communication

The Nexus<sup>®</sup> 1450 meter is a powerful, power quality meter that provides high accuracy electrical energy measurements. It offers advanced capabilities for power quality analysis and determining electrical power reliability. The meter is a transducer base with a separate display. The transducer base is a direct retrofit upgrade to existing Electro Industries' Nexus<sup>®</sup> 1250 and 1252 meters. The Nexus<sup>®</sup> 1450 meter is also ideal for existing switchboard panels, since it can be installed without cutting panel doors. The separate display mounts into existing analog meter knockouts.

The Nexus<sup>®</sup> 1450 meter is protected with a multilevel cyber secure encrypted configuration. Highly secure encrypted passwords, configurable user profiles, and role-based authorization help prevent tampering and hacking of your power system data. 256-bit digital firmware signature ensures firmware integrity during meter updates. Physical seals and lock-outs provide additional protection against interference with the meter.



## Features

- Highly accurate and stable measurements using Multi-Gain<sup>™</sup> sensing (0.06% energy accuracy)
- Six simultaneously operating serial and Ethernet communication ports that support Modbus, DNP3, IEC 61850, and IEC 61850 GOOSE
- Resilient Cyber Security<sup>™</sup> - multilevel cyber secure encrypted configuration
- Advanced HTML5-based web server with waveform analysis tools
- IEC 61000-4-30 Class A and EN 50160 power quality analyzer
- IEC 61850 GOOSE messaging supports system-wide fault distribution analysis
- Built-in CORE<sup>™</sup> log automatically logs over 142 metering parameters
- Wideband frequency support - (20-500) Hz
- Optional color touchscreen display for easy viewing of meter readings
- Optional meter and display in a NEMA 4 enclosure

# Shark<sup>®</sup> 270

## Socket and Switchboard Form Revenue Energy Meter

The Shark<sup>®</sup> 270 is a revenue meter designed for both critical meter applications and basic commercial/industrial metering. In a significant improvement on existing technology, it incorporates high end revenue metering functions into an economical design. The meter has advanced revenue metering features that allow it to be used not only for measuring basic energy, but also for providing a full complement of necessary tools, such as transformer/line loss compensation, CT/PT compensation, advanced test mode, perpetual TOU, and extensive logging for interval energy storage.

The Shark<sup>®</sup> 270 meter is designed to be field upgradeable. When enabled, the meter will provide extensive power quality features, including the ability to measure harmonics to the 40th order. In addition, it will provide a captured waveform of voltage surges and sags; current fault events; unbalance analysis, including symmetrical components; and much more.



## Features

- Meets and exceeds ANSI C12.20 0.1 Accuracy Class and IEC 62053-22 0.2S
- Time of Use, Transformer/Line Loss compensation, and CT/PT compensation
- Test mode to verify accuracy
- Extensive power quality and 512 samples/cycle waveform recording
- Up to 128 MB memory for data logging and storage
- Multiport SCADA communication: Modbus, DNP3, and IEC 61850
- Multiple communication ports, including optional dual, separately addressable RJ45 Ethernet ports with IPv4/IPv6 support, HTML5-based web server, email on alarm, encryption, port control, configurable firewalls, and digital firmware signature
- Optional 4G LTE<sup>™</sup> cellular modem
- Role-based, encrypted cybersecurity and digital firmware signature for NERC CIP compliance
- WYSIWYG screen designer for creating customized display screens
- Rugged design with primary surge suppression
- Available in socket form, A-base, or drawout switchboard case

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# Shark<sup>®</sup> 250

## Power and Energy Meter

The Shark<sup>®</sup> 250 is an ANSI C12.20 0.1 Accuracy Class meter that provides highly stable, precise, and reliable measurements that maintain accuracy over time. It has comprehensive revenue energy measurement capability, including CT/PT compensation, test mode and energy presets, pulse accumulators and totalizers, and up to eight pulse outputs/inputs. It is field upgradeable and offers multiple I/O and communication capabilities.

The Shark<sup>®</sup> 250 advanced power and energy meter is designed for utility substation and critical industrial applications. Its high accuracy and power quality monitoring capability help you improve the reliability, efficiency, and sustainability of your facility. It is equipped with an advanced communication architecture suited to the specific needs of utilities and other critical metering applications. And its multilevel encrypted cyber secure configuration supports NERC CIP compliance.



## Features

- Certified ANSI C12.20 0.1 Accuracy Class
- High precision Frequency measurements - 0.007 Hz
- NERC CIP compliant cyber secured encrypted configuration
- Power quality analyzer with programmable alarm limits, THD, and harmonic magnitude measurement
- 512 samples/cycle waveform recording of up to 319 events
- Perpetual Time of Use, Transformer/Line Loss, CT/PT compensation, test mode, and energy presets
- Real time SCADA communication: Modbus, Level 2 DNP3, and IEC 61850
- Standard RS485 and front panel USB
- Data logging with six historical trending logs of 64+ parameters each
- Optional dual, separately addressable RJ45 Ethernet ports with IPv4/IPv6 support, HTML5-based web server, email on alarm, encryption, port control, configurable firewalls, and digital firmware signature

# Shark<sup>®</sup> 200

## Data Logging Power and Energy Meter

Demonstrating a new standard in panel mounted power metering, the Shark<sup>®</sup> 200 unit is an ultra-compact power metering device that provides industry leading revenue metering functionality combined with advanced data logging, communication, and I/O traditionally found only in high performance and high cost systems. This product is designed to incorporate advanced features in a cost effective, small package for large scale, low cost deployment within an electrical distribution system.

The Shark<sup>®</sup> 200 meter is equipped with EIG's exclusive V-Switch<sup>™</sup> technology. This technology allows users to upgrade and add features to the meter without removing it from installation. At V2, the Shark<sup>®</sup> 200 meter has 2 Megabytes of data logging to be used for historical trends, limit alarms, I/O changes, and sequence of events (V5 and V6 offer even more memory). The unit has a real time clock that enables timestamping of all the data in the instrument when log events are created.



## Features

- Certified ANSI C12.20 0.2 Accuracy Class and IEC 62053-22 0.2S
- High precision Frequency measurements - 0.007 Hz
- Expandable communication and I/O
- V-Switch<sup>™</sup> key technology enables upgrading in the field
- Extensive data logging
- Power quality recording
- Embedded web server with smartphone and tablet support
- Protocols include Modbus and DNP3 over Ethernet
- Email on alarm and periodic notification email with Ethernet card
- Optional dual, separately addressable RJ45 Ethernet ports with web server, port control for security, alarm and periodic notification email, and exclusive client feature

# Shark® 100

## Multifunction Power and Energy Meter



Electro Industries' Shark® 100 multifunction power and energy meter is one of the industry's highest performance revenue grade panel meters. With a sampling rate of over 400 samples per cycle, the meter excels in accuracy, with readings rated at ANSI C12.20 0.2 CL and IEC 62053-22 0.2S classes. The meter has an easy-to-read, bright red LED display with intuitive navigation. The Shark® 100 meter is ruggedly designed using intrinsically safe current inputs. It is ideal for both new metering applications and as an easy replacement for existing, installed meters. A transducer only option is available.

### Features

- ANSI C12.20 0.2 Accuracy Class and IEC 62053-22 0.2S
- Expandable communication, with optional Ethernet port
- Virtual upgrade switches add features after installation
- Modbus and DNP3 protocols
- Power quality feature upgrade enables THD and programmable alarm limits
- Universal ANSI and DIN mounting supports retrofit and new switchboard meter installations
- Rugged and safe voltage and current inputs designed for harsh electrical applications
- Intuitive display designed for ease of use
- Available with native BACnet/IP protocol (Shark® 100B meter)

# Shark® 50

## Multifunction Electrical Switchboard Meter

The Shark® 50 meter is an affordable 0.5% class electrical panel meter. Featuring a bright red, 3-line LED display sized 0.56" per line, this unit is designed to be installed in industrial/commercial electrical panels and switchgear. The Shark® 50 meter includes a unique anti-dither algorithm to improve reading stability, benefiting operators. The unit utilizes high speed DSP technology with high resolution A/D conversion to provide stable and reliable measurements. The Shark® 50 meter is easy to use and install and is perfect both for new metering applications and as a simple replacement of existing analog meters.



### Features

- ANSI C12.20 0.5 Accuracy Class and IEC 62053-22 0.5S
- Built-in test pulse for accuracy verification
- ANSI and DIN mounting ideal for retrofit and new applications
- Extends switchgear capability
- RS485 option offers serial Modbus communication and KYZ pulse outputs
- Virtual upgrade switches add features after installation
- Designed for harsh electrical environments with high isolation universal voltage inputs and short circuit-safe current inputs
- Available with native BACnet MS/TP protocol (Shark® 50B meter)



# ST40

## Compact DIN Rail Mounted Energy and Power Quality Meter

The ST40 DIN rail energy meter is one of the smallest energy and power quality meters in the world. It was designed specifically for DIN rail installation where space is at a premium. The meter provides 0.2% class energy accuracy and advanced power quality features.

The ST40 meter has extensive memory for storing load profiles, system events, limits, and alarms. It has RS485, RJ45 Ethernet, or BACnet/IP communication that brings data back to existing software or directly to EIG's EnergyPQA.com® energy management system for energy analytics and predictions. The meter is also compatible with MV90 and many different power monitoring software systems.



## Features

- Small footprint for machine-level monitoring, solar, wind, and other applications with limited installation space
- ANSI C12.20 0.2 Accuracy Class and IEC 62053-22 0.2S
- Power quality waveform recording at up to 512 samples per cycle
- Extensive memory for storing load profiles, system events, limits, and alarms
- Modbus, BACnet/IP, or DNP3 communication for easy software integration
- RS485, RJ45 Ethernet, or BACnet/IP ports
- Advanced metering features include Transformer Line Loss and CT/PT compensation
- Supports 0.333 V CTs and Rogowski Coil CTs
- Virtual upgrade switches add features after installation
- Easily integrates with the EnergyPQA.com® AI driven energy management system

# Shark<sup>®</sup> MP200<sup>™</sup>

## Multi-Point High Density Metering System

The MP200<sup>™</sup> high density metering system measures and reports on energy usage from 8 three phase circuits or 24 single phase circuits. Consolidate many metering points in a compact, highly rugged multi-circuit design that saves mounting space, installation time, and equipment costs. The MP200<sup>™</sup> multi-point WiFi energy meter is ideal for industrial, campus, or multi-tenant installation. Use EIG's EnergyPQA.com<sup>®</sup> system to collect energy usage data, view dashboards, provide reporting, and analyze energy use reduction opportunities. The system can also generate customized monthly energy billing that supports most common rate structures.



## Features

- ANSI C12.20 0.5 Accuracy Class and IEC 62053-22 0.5S (per circuit)
- Save space by metering 8 three phase or 24 single phase circuits with one unit
- Communicate via simultaneous optional Ethernet and WiFi, standard RS485, or standard USB
- Ethernet/WiFi module provides ten simultaneous sockets of communication, web server for configuration, and extensive WiFi security
- Reduce energy costs through submetering, Peak Demand alerts, and detailed usage optimization
- Four pulse inputs for counting pulses from other meters, e.g., water meters
- Two historical logs provide up to 64 parameters and up to 7 years of logging
- Optional touch screen HMI display for remote meter reading
- Generate accurate submetering bills and executive summary reports



# Shark<sup>®</sup> 200S/100S

## Multifunction WiFi Electric Submeters

The Shark<sup>®</sup> 200S/100S submeters are revenue certified 0.2% energy accuracy meters. They provide standard Modbus communication over RS485 serial or simultaneous Ethernet and WiFi. WiFi communication is protected with WPA2 and other advanced WiFi encryption technology. These high-performance products measure revenue grade electrical energy usage and communicate that data to energy management and reporting applications. The Shark<sup>®</sup> 200S/100S submeters use standard 5 or 1 A CTs (either split or donut). They surface mount to any wall and are easily programmed in minutes. An optional remote antenna kit is available for order.



## Features

- ANSI C12.20 0.2 Accuracy Class and IEC 62053-22 0.2S
- Simultaneous Ethernet and WiFi or RS485 communication
- Standard IrDA
- WPA/WPA2/WPA2-Enterprise/WPS, Trust & Go 608 Chip WiFi Security
- Modbus and DNP3 protocols
- Revenue certifiable test pulse with KYZ output
- Extensive data logging memory standard with 200S
- Total Harmonic Distortion optional with 100S
- Programmable alarm limits
- Compact and easy to install



# EnergyPQA.com<sup>®</sup>

AI Driven Energy Management System



The EnergyPQA.com<sup>®</sup> AI driven energy management system transforms traditional energy management by identifying the most energy wasteful facilities and circuits and those with the highest power quality risk. Maximize energy efficiency improvements and increase electrical reliability by using the system's deep power quality insights to focus on the least efficient and least reliable circuits. Make the biggest improvements in energy usage efficiency and reliability by spending time and resources where they are most needed and where they will have the most impact.

The EnergyPQA.com<sup>®</sup> energy management system reduces your enterprise energy costs in multiple ways. The system's AI algorithms predict usage trends into the future, so that you can be proactive in reducing demand and saving on energy costs. Power quality email alerts enable quick response to avoid equipment damage and expensive downtime. Predicted peak demand email alerts up to three days in advance support demand mitigation efforts to avoid costly penalties. And focusing on facilities and circuits most in need of repair ensures that money is spent where it will have the most impact on the enterprise's bottom line.

## Features

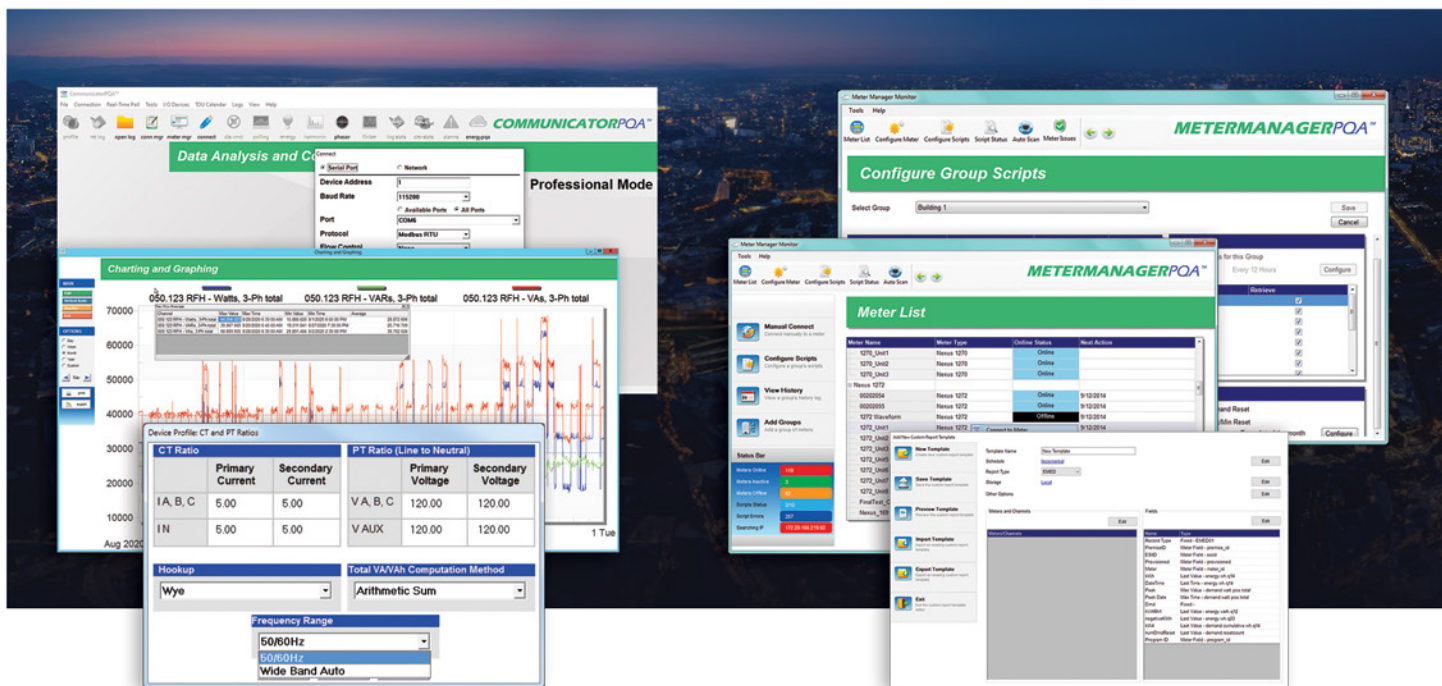
- Enterprise-level energy usage analysis and facility comparisons
- Custom reporting with AI predictions
- C-Suite reporting provides actionable insights for your facilities
- Identification of energy inefficiency from enterprise to facility to circuits
- Power usage effectiveness (PUE) for data centers
- Automatic grading of your facilities for risk of downtime and equipment failure
- Alarming for critical events, such as power quality or energy demand penalties
- Current and predicted commodity usage and costs
- Leak Detective™ feature that discovers and alarms on water and air leaks
- Cyber secure, encrypted data, dual factor authentication, and security reports
- Sustainability reporting for carbon footprint and green initiatives
- Energy billing, cost allocation, and executive summary usage reporting

# CommunicatorPQA®

Power Monitoring Software

# MeterManagerPQA®

Meter Data Management Software



The CommunicatorPQA® power monitoring software enables users to view real time metered data, configure meters, and analyze collected information from remote EIG power monitors. This software provides superior screen visualization, graphing, and reporting functions for quick access to metering data and easy database archiving. The stored metering information is available for automatic integration into any third party package.

## Features

- Quickly configure meter settings
- View real time meter data
- Configure meters' historical logs and retrieve log data
- View and analyze recorded waveforms
- View CBEMA and SEMI F47 charts
- Download data to MV90 and PQDIF applications
- Enable and program meter security
- Update meter firmware
- Define paths for stored meter data

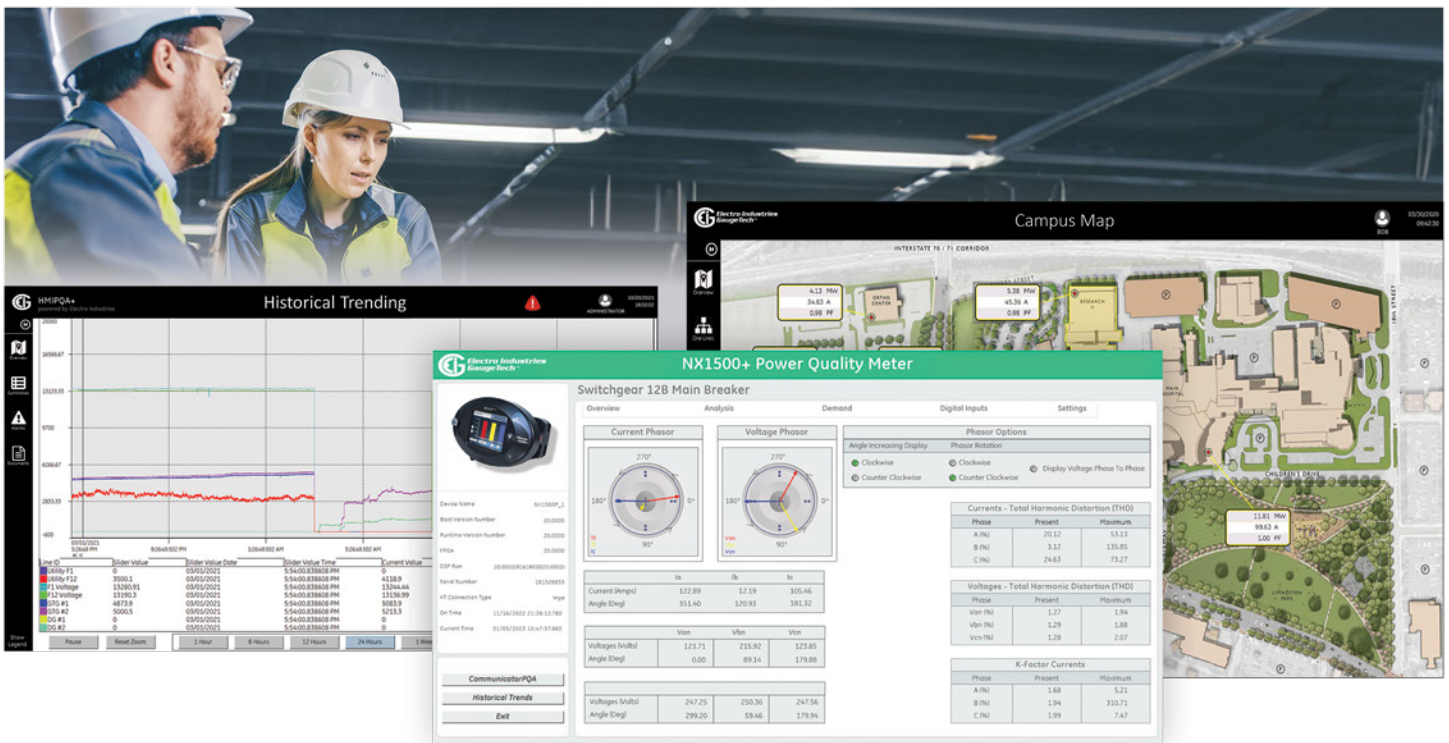
MeterManagerPQA® is a software service application that runs in conjunction with the CommunicatorPQA® application as an automated service on a computer. It functions as an automation engine to manage, control, and store meter information for up to 1,200 meters.

## Features

- Easily manage large fleets of meters
- Automatically find and group meters on your network
- Efficiently manage network meters in a unified group, rather than individually
- Connect directly to other EIG software applications
- Perform meter integrity analysis
- Automatic data collection and system-wide data storage from meters
- Automatically download logs
- Generate and email customized reports
- Connect existing meters to the EnergyPQA.com® AI Driven energy management system

# HMIPQA+™

Advanced SCADA Solution Made Simple



Electro Industries' HMIPQA+™ offers a next generation SCADA solution. It is easily scalable to fit your requirements with highly customizable and intuitive graphical displays of both energy metering and other commodity data. It seamlessly puts the right tools at the operator's fingertips for informed energy management decisions.

## Features

- Empower energy management decisions with a simplified user-friendly interface
- Ensure operators have the real time and historical information they need to manage and control their power system's reliability and safety
- Gain full visibility into the electrical distribution system with centralized data from EIG meters and third party devices
- Unleash the full potential of your system by converting data into information you can act on
- Track, trend, and assess energy and other commodity usage
- Optional reporting solution provides customized reports
- Supports multi-vendor equipment and protocols
- Open connectivity with third party systems



# Engineering Services

Industry-leading Engineering Services Give Customers the Ability to Maximize their Energy Monitoring Investments

## Benefits

- On-site consulting and commissioning
- System integration
- On-site customer training
- Factory-based meter calibration services
- Free email and phone support



## Why Use EIG Engineering Services?

- EIG's engineering services team works directly with our customers to help them get their project up and running and ensure it will be successful.
- EIG's technical staff consists of highly experienced and talented engineers with a variety of skills in the fields of electrical, software, and meter engineering.
- EIG can assist in commissioning, start-up verification and certification of installations, depending on your needs.
- EIG has a group of system integration engineers that can create custom SCADA (HMIPQA+™ application) or other energy management software applications, to fit your particular needs.
- When training is needed, EIG can also support you with webinar or on-site training that covers all EIG solutions. Training staff are certified RCEP instructors.
- Our engineers can assist with troubleshooting and correcting pre-installed systems, even if they include equipment not manufactured by EIG.



## Utility Applications for Metering

- Provide SCADA data to RTUs via DNP3, IEC 61850, or analog outputs
- Monitor power system voltage reliability
- Improve power distribution uptime
- Meter customer and generation plants, using highly accurate metrology for superior energy flow and usage calculation
- Monitor power system faults, power quality, and reliability using IEC 61000-4-30 Class A standards
- Ensure grid stability and give operators system-wide data with PMU synchrophasor support



## Industrial / Commercial Applications for Metering

- Measure and control energy usage
- Generate usage bills and reports
- Improve energy efficiency by identifying wasteful facilities and circuits
- Monitor power quality and record waveform events to analyze cause and failures
- Be alerted to poor power factor and high demand
- Accurately submeter tenants for their actual energy usage



## Meet the Team

Electro Industries/GaugeTech™ (EIG) strives every day to be the best and most reliable provider of power and energy metering, power quality, and energy management. EIG ensures success with our dependable metering technology, our advanced cloud software, and our world-wide field engineering support. We have a long history of innovation, including hardware, software, artificial intelligence, IOT, and advanced reporting. Contact our sales engineering team at [sales@electroind.com](mailto:sales@electroind.com) or 516-334-0870 for help with building a solution for your specific application.

## Trademarks

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