

Smart Sensor Systems

For Medium Voltage Applications (up to 36 kV)

QinetiQ North America's Medium Voltage Feeder Meter System is designed for use in a variety of applications for monitoring performance of the power grid distribution system. With a robust design and integrated, flexible communications, the feeder meters are designed for easy deployment directly onto power lines using a hotstick.

One or more feeder meters is paired with a data collector, creating a wireless data link between them. The feeder meters provide non-contacting current measurements using Rogowski coil technology and a novel, patented capacitive voltage divider for voltage measurements eliminating the need for a neutral connection at the feeder meters. The data collector houses the integrated microprocessor system, which includes the data analysis, database and communications capabilities. The communication module is designed to accommodate the customer's preferred utility data network. The voltage and current waveforms that are captured by the sensing system are processed by the integrated microprocessor, and the following values are calculated and reported either via web-based interface or directly into a utility database over a data network such as a smart meter mesh network:

- Voltage reported in Volts RMS (up to 36 kV)
- Current reported in Amperes RMS (up to 400 A)
- Temperature (of the monitor station) reported in either degrees Celsius or Fahrenheit (user preference)
- Power Factor
- Harmonic Distortion
- Reactive Power reported in kVAR
- Real Power reported in kW
- Energy in kW-hr and Reactive Energy in kVAR-hr



QinetiQ's Medium Voltage Feeder Meter System samples the line continuously and can transmit data using three different reporting modes:

- Report by unsolicited messages when an exception occurs. When values exceed user defined alarm levels, the monitor station alerts operations that an exception has occurred. Alarm limits can be remotely set and modified through two-way network communications.
- Report at time intervals. As with alarms, time intervals for reporting can be remotely set and modified through two-way network communications.
- Report only when requested by the central monitoring or SCADA system.

The system also has sufficient on-board storage to log up to four months of data. This data can be examined and/or downloaded in .CSV file format via the device's web-based interface.

Smart Sensor Systems

For Low Voltage Applications (up to 600 V)

QinetiQ North America's Low Voltage Sensor System is designed for use in both single-phase three-wire and three-phase four-wire applications for monitoring the performance of the distribution system on the low side of a power transformer. With a robust NEMA 4X enclosure design and flexible communications, the systems are designed for use in both above-ground and underground low voltage applications.

A single, integrated unit includes clamps which provide non-contacting current measurements using Rogowski coil technology and contacting voltage measurements. The voltage contacts also provide power for the integrated microprocessor system, which includes the sensor interfaces, data acquisition and analysis and communications capabilities. The communication module is designed to accommodate the customer's preferred utility data network. The voltage and current waveforms that are captured by the sensing system are processed by the integrated microprocessor and the following values are calculated and reported either via web-based interface or directly into a utility database over a data network such as a smart meter mesh network:

- Voltage (phase to neutral, single or three phases) reported in Volts RMS (up to 600 V)
- Current (phase to neutral, single or three phases) reported in Amperes RMS (up to 1800 A)
- Temperature (of the monitor station) reported in either degrees Celsius or Fahrenheit (user preference)
- Power Factor (three phases)
- Harmonic Distortion
- Reactive Power (three phases) reported in VAR
- Real Power (three phases) reported in Watts or kW (user preference)
- Energy (three phases) in kW-hr and Reactive Energy (three phases) in kVAR-hr



QinetiQ's Low Voltage Smart Sensor System samples the line continuously and can transmit data using three different reporting modes:

- Report by unsolicited messages when an exception occurs. When values exceed user defined alarm levels, the monitor station alerts operations that an exception has occurred. Alarm limits can be remotely set and modified through two-way network communications.
- Report at time intervals. As with alarms, time intervals for reporting can be remotely set and modified through two-way network communications.
- Report only when requested by the central monitoring or SCADA system.

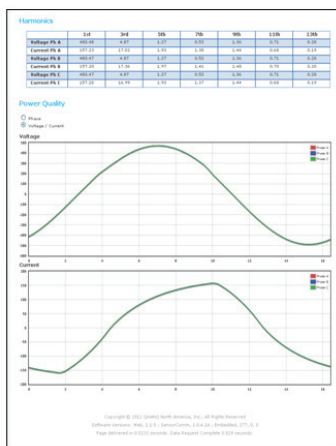
The system also has sufficient on-board storage to log up to four months of data. This data can be examined and/or downloaded in .CSV file format via the device's web-based interface.

Smart Sensor Systems

For Low Voltage Applications (up to 600 V)



Instantaneous Values



Waveform Graphs / Quality



Historical Trending

Specifications:

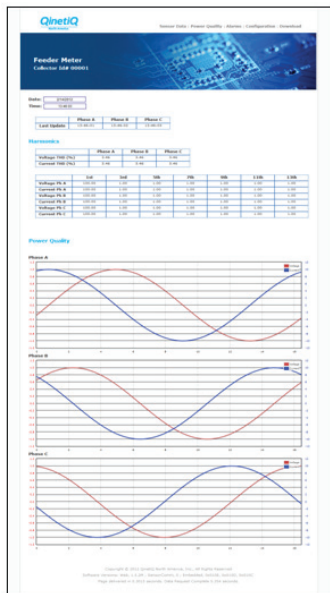
- Design Electrical Frequency: 60Hz
- Nominal Voltage: 120V (line-to-neutral) / 208V (line-to-line) or 347V (line-to-neutral) / 600V (line-to-line)
- Voltage Measurement Accuracy: +/- 0.5% from 85% to 115% of rated voltage
- Rated Current: 1200 A
- Maximum Current: 1800 A
- Current Accuracy: +/-0.5% from 10% to 150% of rated current
- Power Measurement Accuracy: +/-1%
- Power Factor Accuracy: +/-1%
- Ambient Temperature Operating Range: -40° C to 50° C
- Power Quality: computes amplitude of voltage/current up to the 13th harmonic
- Default Communications Format: WiFi (802.11g)
- Optional Communications Format: cellular modem, WiMAX and others
- Sensor Operating System: embedded Windows

Smart Sensor Systems

For Medium Voltage Applications (up to 36 kV)



Instantaneous Values



Waveform Graphs / Quality



Historical Trending

Specifications:

- Design Electrical Frequency: 60Hz
- Nominal Voltage: 7.2 kV to 36 kV (line-to-neutral)
- Rated Current: 400 A
- Maximum Current: 600 A
- Current Accuracy: +/-0.5% from 10% to 150% of rated current
- Power Measurement Accuracy: +/-1%
- Power Factor Accuracy: +/-1%
- Ambient Temperature Operating Range: -40° C to 50° C
- Power Quality: computes amplitude of voltage/current up to the 13th harmonic
- Default Communications Format: WiFi (802.11g)
- Optional Communications Format: cellular modem, WiMAX and others
- Collector Operating System: embedded Windows

Line mounted voltage/current sensor dimensions:

- Maximum width: 16 cm
- Maximum length: 20 cm
- Maximum height: 16 cm
- Maximum weight: 8.5 lbs (3.9 kg)

Pole mounted collector dimensions:

- Dimensions: 30.5 cm high, 25.4 cm wide, 15 cm deep
- Weight: approx. 10 lb (4.5 kg)