IQ Multipoint Energy Submeter II

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Product Description

Eaton's IQ Multipoint Energy Submeter II is a revenue class electronic submetering device that can be mounted in panelboards or switchboards. When mounted in a panelboard or switchboard, the IQ Multipoint Energy Submeter II provides customers with an integrated power distribution and energy metering solution that saves space, reduces installation labor and lowers total cost.

Application Description

The IQ Multipoint Energy Submeter II provides a cost-effective solution for residential or commercial metering installations. Typical installations include:

- High-rise buildings
- Government institutions
- Universities and campuses
- Office buildings
- Medical facilities
- Apartment and condominium complexes
- Airports
- Shopping malls
- Industrial parks
- Mixed-use facilities

The IQ Multipoint Energy Submeter II provides cost-effective and space-saving energy submetering for a wide variety of applications. The IQ Multipoint Energy Submeter II is ideally suited for energy metering of multi-tenant buildings. It can also be used to monitor energy to any load up to 600 volts for energy billing or cost allocation. Built-in communication capabilities enable an IQ Multipoint Energy Submeter II to be networked to a local PC or via modem to a remote master PC or energy service provider.
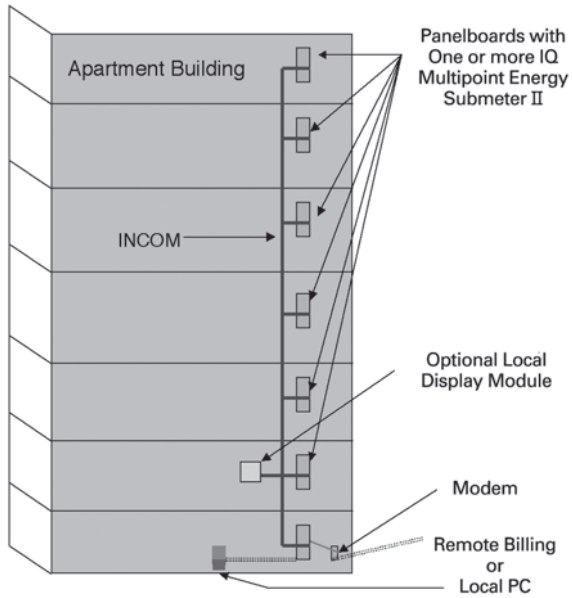
The IQ Multipoint Energy Submeter II is ideal for multi-tenant applications in which property managers are interested in measuring tenant energy usage for the purposes of monthly energy cost allocation. As such, its customers include apartment complex owners, office owners, tenant building managers and meter reading companies. The IQ Multipoint Energy Submeter II can measure any of the following number of circuits:

- 16 single-phase, two-wire (single-pole).
- Eight single-phase, three-wire (two-pole)
- Five three-phase, four-wire (three-pole)

Any of the circuits listed can be mixed provided the total number of Current Sensors does not exceed 16. The meter provides instantaneous (kW), demand and cumulative (kWh) measurements for each load. The unit also provides interval energy data logging, time of use energy registers, coincident peak demand storage and scheduled remote meter reading data in non-volatile memory. Bus voltage is also measured.

The IQ Multipoint Energy Submeter II uses highly accurate Current Sensors to monitor each load. Current Sensors can be provided in a number of ratings and are supplied with integral cable and plug-in connector. All Current Sensors are self-protecting in the event of an open circuit condition under load. The IQ Multipoint Energy Submeter II automatically detects the rating of each Current Sensor that is connected.

Typical Building Installation

Apartment Building

Panelboards with
One or more IQ
Multipoint Energy
Submeter II

INCOM

Optional Local
Display Module

Modem

Remote Billing
or
Local PC

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Features

The IQ Multipoint Energy Submeter II offers low-cost metering of kW and kWh for multiple tenants of residential and commercial office buildings for one- to three-phase voltage loads not exceeding 347/600 volts. The IQ Multipoint Energy Submeter II contains INCOM networking to chain together multiple meters in locations throughout the facility. See above for a typical apartment building layout.

- Multipoint electrical energy metering
- Built-in communication interface
- Flexible metering configuration
- Monitors single-phase and three-phase loads from 120 Vac to 600 Vac in three voltage ranges
- Monitors power in watts and energy in watthours for up to 16 Current Sensors
- Very low profile design, less than 1.50 inches (38.1 mm) in height
- Energy values stored in non-volatile memory
- Stores extensive energy profile data for each metering point. Can be used to identify coincidental peak demand contribution
- Space-saving stacking design allows two units to be mounted together
- Supports Time-of-Use energy monitoring
- Demand interval adjustable from 5 to 60 minutes
- Measures bus voltage
- Front panel LEDs provide status of unit and communication activity
- Meets rigid ANSI C12.1 and IEC 61036 accuracy specifications for revenue meters
- Can be directly mounted in a UL-approved panelboard or switchboard

Communication Capabilities

With the IQ Multipoint Energy Submeter II's built-in communication capabilities, remote meter reading and monitoring functions can be integrated into both new and retrofit applications.

Eaton's INCOM communications is built into each IQ Multipoint Energy Submeter II for chaining them together on a robust, field-proven, communications architecture. INCOM can be used to communicate to the complete line of Eaton's metering products and is also useful for those projects requiring local communications to Power Xpert Power Management system.

In addition **Page V3-T9-104** lists several Gateway products to enable communications to RS-232 Ethernet or RS-485 with Modbus protocol.

Software Compatibility

- The IQ Multipoint Energy Submeter II is fully compatible with Eaton's PowerNet software platform including the E-Bill cost allocation software
- The IQ Multipoint Energy Submeter II can be utilized as part of an electrical energy monitoring and billing system
- The IQ Multipoint Energy Submeter II can be remotely monitored via Eaton's FetchIT software package
- The IQ Multipoint Energy Submeter II is compatible with third-party software platforms and interface devices

Configuration

- The IQ Multipoint Energy Submeter II is fully configurable using Power Xpert or free PowerPort configuration software
- PowerPort can be downloaded free from either the Internet or the Eaton Intranet
- Each IQ Multipoint Energy Submeter II can be configured for up to 16 metering points in any combination of single-phase and three-phase metering points
- PowerPort is used to assign Current Sensors to metering points
- Either PowerPort or Power Xpert can be used to configure the built-in data logs for energy profiling
- Both Power Xpert and PowerPort can be used to set up the Time-of-Use energy registers and the Automatic Meter Reading schedule

Wiring

- The Current Sensor cable is rated 600 volts and is recognized by UL as Class 1 wiring
- IMPCABLE used for INCOM communication between devices is rated 600 volts and is recognized by UL as Class 1 wiring
- Consult TD17513 Wiring Specification Base Rules for detailed information on proper installation and termination of INCOM communications network cable

Easy to Install

- Approved by UL for mounting inside panelboards and switchboards
- Stacking design allows two units to be mounted in a panelboard using less that 8 inches (203.2 mm) of vertical space
- For retrofit applications, the IQ Multipoint Energy Submeter II can be mounted in an external auxiliary enclosure
- Quick connect terminals for Current Sensors, INCOM communications and bus voltages make wiring the unit quick and easy

Reduced Equipment Space

The IQ Multipoint Energy Submeter II consumes 80% less wall space compared to glass bulb meters that must be individually or group mounted independent of the loadcenter or panelboard. By installing the meter in the loadcenter and providing Current Sensors to each load within the panelboard, less real estate is occupied, not only in the ground floor, but at individual tenant floor spaces. A typical integrated distribution and metering solution using the IQ Multipoint Energy Submeter II uses 45% less wall space than separately mounted submeters.

Reduced Wiring and Cost

Because Current Sensors are provided with pre-wired leads and connectors for each load in the panelboard, there is 60% less field wiring to be performed on site, greatly reducing cost, time and potential for errors in the field.

High Accuracy

ANSI and IEC revenue-grade accuracy for each metering point permits the facility owner to charge each tenant confidently.

Time-of-Use Metering

The IQ Multipoint Energy Submeter II will keep track of four different utility rates for four (4) changes of rate seasons with separate weekday, weekend and holiday rates. The Time-of-Use logging supports eight (8) rate changes per day and also stores the peak demand for each rate period. All Time-of-Use information is stored in non-volatile memory.

Automatic Meter Reading

The IQ Multipoint Energy Submeter II can be configured for easy remote reading by saving just the needed energy information in a separate memory location. This location can be set up to save all of the necessary energy data for a periodic monthly read with a set day of the month and time of that day. Additionally the user can program up to six specific dates and times to save meter readings. The IQ Multipoint Energy Submeter II then stores the total energy and peak demand for each Time-of-Use rate for each meter point so that all of this information can be effortlessly downloaded to a remote system. The IQ Multipoint Energy Submeter II saves all of this data for up to 13 months in non-volatile memory.

Standards and Certifications

The IQ Multipoint Energy Submeter II is UL listed as a Class 1 device.

- UL listed under UL 8N83
- Current Sensors are UL-recognized components
- UL listed under file number E166079
- CSA approved
- Complies with UL 991 radiated susceptibility requirements
- Third-party tested for ANSI C12.1 (1%) accuracy
- Complies with FCC emission standard Part 15, Subpart B

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Product Selection

The IQ Multipoint Energy Submeter II, Current Sensors and other accessories can be ordered from Eaton distributors. Refer to the following catalog numbers when ordering.

IQ Multipoint Energy Submeter II

IQ Multipoint Energy Submeter II Products

Product Description	Catalog Number
IQ Multipoint Energy Submeter II 120V with INCOM	**IQMESIIN1**
IQ Multipoint Energy Submeter II 277V with INCOM	**IQMESIIN2**
IQ Multipoint Energy Submeter II 347V with INCOM	**IQMESIIN3**
Current Sensors—5 amperes, Qty. 3	**CS005**
Current Sensors—50 amperes, Qty. 6	**CS050**
Current Sensors—70 amperes, Qty. 6	**CS070**
Current Sensors—125 amperes, Qty. 3	**CS125**
Current Sensors—200 amperes, Qty. 3	**CS200**
Current Sensors—400 amperes, Qty. 3	**CS400**
Current Sensor Extensions—4 feet (1.2m), Qty. 6	**CSET04**
Current Sensor Extensions—8 feet (2.4m), Qty. 3	**CSET08**
Current Sensor Extensions—16 feet (4.9m), Qty. 3	**CSET16**

Note: Total sensor lead length must not exceed 20 ft (6m).

Support products for the IQ Multipoint Energy Submeter II include the Digital Input Module (DIM), the Local Display Module, IMPCABLE and a number of communications converters, as described below.

IQ Multipoint Energy Submeter II

IQ Multipoint Energy Submeter II Support Products

Product Description	Catalog Number
INCOM communication cable, 1000 feet (305m), 600 volts insulation	**IMPCABLE**
Subnetwork master local display allows local access to energy information (120 Vac)	**LDISP120**
Subnetwork master local display allows local access to energy information (24 Vac/DC)	**LDISP24**
INCOM to RS-232 Communication Gateway	**MINTII**
Power Xpert Gateway 200	**PXG200E**
Power Xpert Gateway 400	**PXG400E**
Power Xpert Gateway 600 (Data Logging and E-mail)	**PXG600E**
INCOM to RS-485 Communication Gateway with Modbus protocol	**MMINT**
Digital input module—supports four pulse inputs or eight status inputs	**DIM**

All of the gateway products above can support the conversion of multiple IQ Multipoint Energy Submeter II meters to another communication network. The MINT II can support up to 1000 units, the mMINT supports up to 32 units, the PXG400 and PXG600A support up to 64 units (sum of meter modules and current sensors).

The Digital Input Module (DIM) can be used to totalize pulse outputs from water meters, gas meters, steam meters or even old electrical meters with KYZ pulse outputs. The DIM can then be connected to the same INCOM network as the IQ Multipoint Energy Submeter II and this information can then be used in Power Management software packages.