

### DESCRIPTION

The IQ Energy Sentinel is a highly accurate, microprocessor-based submeter designed to monitor power and energy readings. It represents an alternative to installing separate watt meters, watt-hour meters, and watt demand meters.

Key advantages include unmatched savings in space, lower installation costs, and the capability to communicate data readings in a variety of ways.

IQ Energy Sentinels with its built-in CTs and communications has the added benefit of greater overall system accuracy. Conventional metering often is less accurate since external CTs and separate transducers may each have inaccuracies of 1% or more.

The IQ Energy Sentinel provides a unique and cost effective method to implement energy submetering at lower levels in the distribution system economically.

Submetering application examples for the IQ Energy Sentinel include energy monitoring and demand management, product cost analysis, process/machine tool efficiency and productivity improvement, and energy cost allocation or tenant billing for commercial, industrial, recreational, and residential facilities.

Commercial applications include energy within convention halls, office buildings, shopping malls, hospitals, warehouses, and storage facilities.

Industrial applications include departmental billing and process/assembly line energy cost analysis. IQ Energy Sentinels may be substituted for watt transducers when monitoring machine tool and equipment performance within plants.

Recreational facilities include sports arenas, camping grounds, trailer parks, and marinas.

Multitenant residential buildings and apartment buildings can be submetered as well.

The IQ Energy Sentinel may be applied on three-phase (3-wire or 4-wire) systems as well as on single-phase (3-wire) systems.

IQ Energy Sentinels may be applied on either 50 or 60 Hz Systems.



**Westinghouse Series C Breaker Mount**

The breaker mount IQ Energy Sentinel installs in less than 10 minutes on the load side of a Cutler-Hammer Series C F-frame (150-Amp), J-frame (250-Amp), or K-frame (400-Amp) circuit breaker.



**Universal Mount With Internal CTs**

The Universal mount IQ Energy Sentinel with internal CTs may be panel-mounted or DIN-rail mounted.

A pull-apart terminal block is provided on the device for connection of the system voltage reference wiring.



**Universal Mount Requires External CTs**

The Universal mount IQ Energy Sentinel for external CTs may be panel-mounted or DIN-rail mounted.

A pull-apart terminal block is provided on the device for connection of the system voltage reference wiring as well as another terminal block for connection to the user's existing 5-Amp secondary CTs which may range in standard ratios from 5:5 up to 4000:5.

### APPLICATIONS

#### New Equipment

Designed for mounting on Cutler-Hammer Series C Circuit Breakers utilized in Cutler-Hammer assemblies such as:

- Pow-R-Line 4 Panelboards - feeder circuits
- Pow-R-Line C Switchboards - feeder circuits
- Series 2100 Motor Control Centers and Enclosed Control with circuit breaker disconnects
- Enclosed Starters
- Enclosed Circuit Breakers
- Pow-R-Way II Bus Plugs with circuit breaker disconnects

#### Retrofitting

The space saving design characteristics of the breaker mount IQ Energy Sentinels allow them to be added to existing Series C Circuit Breakers at any time . . . often with no additional space or modifications required.

Or they may be installed when upgrading to Series C from older circuit breakers . . . often with no additional space or modifications required.

The Universal mount IQ Energy Sentinel with internal CTs may be utilized wherever breaker mounting is not feasible or possible.

The Universal mount IQ Energy Sentinel for external CTs may be utilized for monitoring loads larger than 400 Amps or when the use of existing CTs is desired.



### DESCRIPTION

#### Features

- Monitors (1% of full scale accuracy)
  - Kilowatts
  - Kilowatt Demand
  - Kilowatt Hours
- Built-in CTs
- Breaker, panel or DIN-rail mounting options
- Powered directly off the line
- Built-in communications capability
  - Address set by DIP switches
  - Communicates at 9600 baud
  - Noise immune INCOM protocol
- Choice of operator interfaces
  - IQ Central Energy Display
  - Breaker Interface Module
  - Custom Billing Software
  - IMPACC Series III Software
- UL and CSA listed

#### Benefits

- One device replaces multiple meters
- Improved system accuracy
- Savings in space
- Savings in cost
- Savings in space
- Savings in installation cost
- No external power source is needed
- Permits remote monitoring and interconnection with programmable logic controllers and building management systems
- Flexibility - displays what is needed where it is needed
- For further information, see section on IMPACC communications

### SPECIFICATIONS

#### Accuracy

±1% of full scale current rating

#### Current Input

Current Range: 1% to 125% of current rating  
Burden: 1VA

#### Voltage Input

Voltage Range ±20% of Voltage Rating

#### Frequency

50 or 60 Hertz

#### Power Factor Range

All (-1 to +1)

#### Communication

9600 Baud  
IMPACC compatible

#### Environmental Conditions

Operating Temperature: -25° to 70°C  
(-13° to 158°F)  
Storage Temperature: -40° to 85°C  
(-40° to 185°F)  
Operating Humidity: 5% to 95% relative humidity noncondensing

#### Dimensions DxWxH (inches)

F 3.20 x 4.12 x 1.30; hole diameter\* .59  
J 4.04 x 4.12 x 1.28; hole diameter\* .77  
K 4.04 x 5.31 x 1.25; hole diameter\* .96  
UI 4.36 x 5.31 x 3.00; hole diameter 1.17  
UE 4.36 x 5.31 x 3.00

\* Hole clearance available for bare cable after stripping insulation.

#### Weight (Lbs.):

F .65  
J .69  
K .87  
UI 1.10  
UE 1.05

### FURTHER INFORMATION

Selling Policy 25-000

User's Manual

F-frame IL 17537

J-frame IL 17538

K-frame IL 17539

UI IL 17540

UE IL 17541

Sales Aid (Commercial) SA 11919

Sales Aid (Industrial) SA 11920

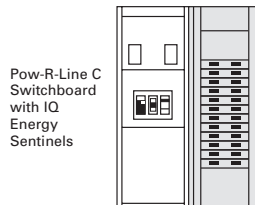
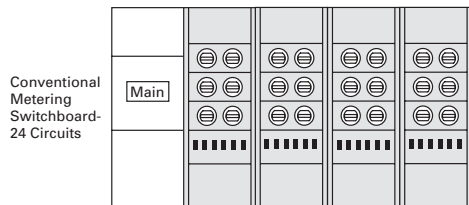
Descriptive Bulletin DB 8178

Price List 8174

UL File No. E64983

### IQ ENERGY SENTINELS

Description	Voltage Rating - Vac	Current Rating (Amps)	Catalog Number	List Price
For F-frame Breakers	120/240, 240, 208Y/120	150	<b>IQESF208</b>	<b>\$ 700</b>
For F-frame Breakers	220/380, 230/400, 240/415	150	<b>IQESF400</b>	<b>700</b>
For F-frame Breakers	480, 480Y/277	150	<b>IQESF480</b>	<b>700</b>
For F-frame Breakers	600, 600Y/347	150	<b>IQESF600</b>	<b>700</b>
For J-frame Breakers	120/240, 240, 208Y/120	250	<b>IQESJ208</b>	<b>830</b>
For J-frame Breakers	220/380, 230/400, 240/415	250	<b>IQESJ400</b>	<b>830</b>
For J-frame Breakers	480, 480Y/277	250	<b>IQESJ480</b>	<b>830</b>
For J-frame Breakers	600, 600Y/347	250	<b>IQESJ600</b>	<b>830</b>
For K-frame Breakers	120/240, 240, 208Y/120	400	<b>IQESK208</b>	<b>910</b>
For K-frame Breakers	220/380, 230/400, 240/415	400	<b>IQESK400</b>	<b>910</b>
For K-frame Breakers	480, 480Y/277	400	<b>IQESK480</b>	<b>910</b>
For K-frame Breakers	600, 600Y/347	400	<b>IQESK600</b>	<b>910</b>
Universal w/ Internal CTs	120/240, 240, 208Y/120	400	<b>IQESUI208</b>	<b>900</b>
Universal w/ Internal CTs	220/380, 230/400, 240/415	400	<b>IQESUI400</b>	<b>950</b>
Universal w/ Internal CTs	480, 480Y/277	400	<b>IQESUI480</b>	<b>975</b>
Universal w/ Internal CTs	600, 600Y/347	400	<b>IQESUI600</b>	<b>1095</b>
Universal for External CTs	120/240, 240, 208Y/120	4000	<b>IQESUE208</b>	<b>1085</b>
Universal for External CTs	220/380, 230/400, 240/415	4000	<b>IQESUE400</b>	<b>1145</b>
Universal for External CTs	480, 480Y/277	4000	<b>IQESUE480</b>	<b>1180</b>
Universal for External CTs	600, 600Y/347	4000	<b>IQESUE600</b>	<b>1300</b>



Same Number of Circuits in 1/4 the Space