

Industry-Standard Communication Protocols

Standard Modbus RS-485 Communication

Standard communication includes an RS-485 output speaking Modbus protocol. This allows the unit to be connected to any serial RS-485 bus using the Modbus interface. The unit communicates easily with most building automation, Power Xpert Insight or other software systems. Baud rates are up to 57.6K baud to provide fast update times.

Wi-Fi or Land-Based Ethernet

The unit offers an Ethernet option—configured either as an RJ45 or Wi-Fi connection. The Wi-Fi configuration allows the 150S/250S to be used on standard Wi-Fi base stations. The unit is assigned an IP address; it communicates Modbus protocol over Ethernet TCP/IP. Wireless Ethernet is reliable and easy to integrate, making it the superior solution for mass meter deployment.

KYZ Pulse

For applications in which a pulse is needed, the unit also provides a KYZ output that pulses proportional to the amount of energy consumed. This feature is used for pulse counting applications into building management systems where serial or Ethernet protocol is not available.

Verify Energy Bills

The IQ 150S/250S models provide a traceable watthour test pulse (used with a watthour pulse recorder or totalizer), so you can verify the accuracy of your meter and in turn, the accuracy of billing from your utility company and to internal customers.

Integrated with Eaton's Power Xpert Architecture
IQ 150S/250S meters integrate into Eaton's Power Xpert Architecture, where meters, gateways and monitoring devices collaborate to create a unified, centralized view of the end-to-end power and facility infrastructure.

When used in this architecture, either with a Power Xpert Gateway or directly via Ethernet, the meters with the Modbus RTU option can provide Web-based graphics of current power conditions. Simply connect your meter to a Power Xpert Gateway to translate Modbus-based information from the meter into HTML-based Web pages that are accessible from any standard Web browser. If you select a model with the Ethernet option, the meter can easily be monitored remotely via Power Xpert Insight or another third-party monitoring system. With access to accurate, real-time information from IQ 150S/250S meters, Power Xpert Architecture can transform your power system into an integrated, agile system, and an easily managed entity that performs better and costs less.

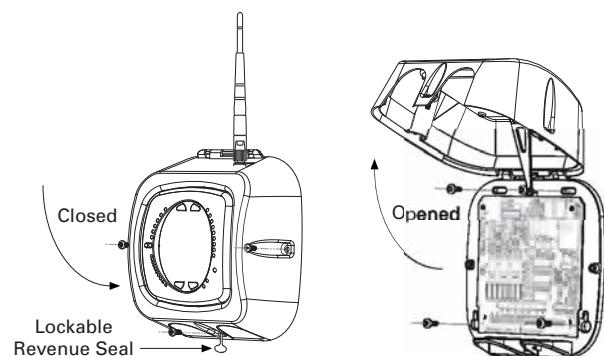
Designed for the User

When space is at a premium, yet you need ANSI C12.20 accuracy, Eaton IQ 150S/250S meters fit the bill. These ultra-compact meters are ideal for surface mounting next to a selected piece of equipment for energy monitoring. Requiring far less space than other meters with similar functionality, and offering a NEMA 12 enclosure and a large, easy-to-read faceplate, consistent with other Eaton meter models, these meters are designed with “knockouts” for easy retrofit installation.

Most meters in this class have small or dark displays that can be hard to see, especially from a distance. Eaton's IQ 150S/250S meters have a large, bright red, three-line LED display, each line more than a half-inch tall. This display is very easy to read, even if the meter is installed at a height or distance. Using the keypad and menus on the local display, users can display a variety of electrical system values or program the meter.

Installation Diagram

IQ 150S/250S Installation



Features of IQ 150S/250S Electronic Power Meters

Features	IQ 150S	IQ 250S
Instrumentation		
Current, per phase	■	■
Calculated neutral current	■	■
Voltage, per phase (L-L, L-N)	■	■
Frequency	■	■
Minimum/maximum readings, I ^① , V ^① , PF, F, W, VAR, VA	Total	Total and per phase
Power		
Real, reactive and apparent power (W, VAR, VA)	Total	Total and per phase
Power factor	Average	Average and per phase
Demand Methods		
Block interval (fixed, sliding)	■	■
Current demand	■	■
Real, reactive and apparent power demand	Total	Total and per phase
Energy		
Real, reactive and apparent energy (Wh, VARh, VAh)	Total	Total and per phase
Real and reactive, net and positive and negative (Wh, VARh)	Total	Total and per phase
I/O		
Pulse output	■	■
Communications		
RS-485, Modbus RTU, DNP 3.0	■	■
RJ45 or 802.11b, Modbus TCP ^②	Optional	Optional
Data Logging		
2 MB for data logging		■
Alarming		
Set point driven alarm		■

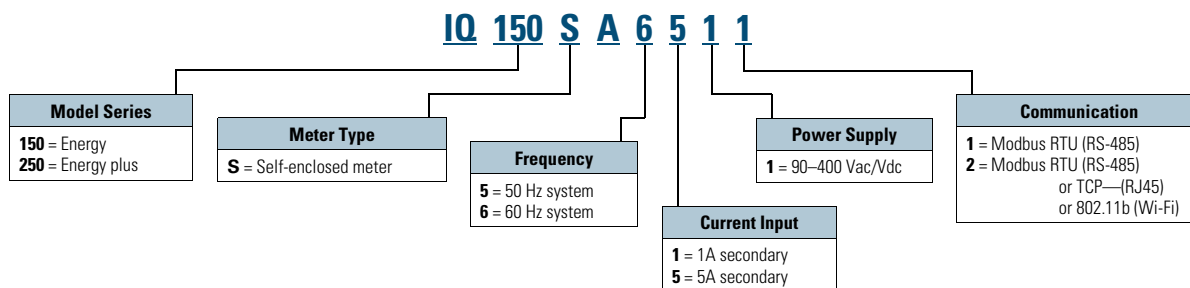
Notes

① Per phase only.

② If configured for Ethernet, RS-485 not available.

Catalog Number Selection

IQ 150S/250S Meter



Technical Data and Specifications

IQ 150S/250S Electronic Meter Technical Information

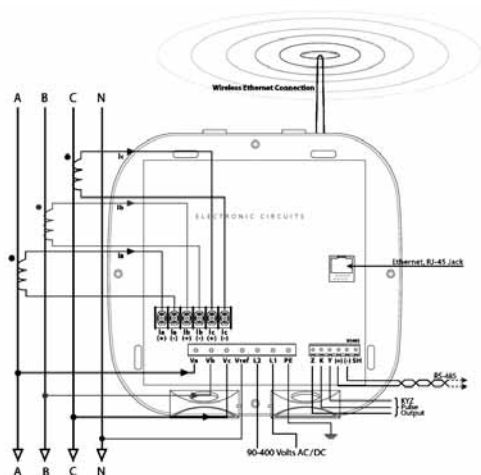
Description	Specifications
Current Inputs	
Class 10	5A nominal, 10A maximum
Class 2	1A nominal, 2A maximum
Fault Current Withstand	
20A for:	10 seconds
60A for:	3 seconds
100A for:	1 second
Programmable current	Full scale to any CT ratio
Burden	0.005 VA per phase maximum at 11A
Pickup Current	
Class 10	0.1% of nominal
Class 2	5 mA
Class 2	1 mA
Connections	
Screw terminal	#6–32 screws
Voltage Inputs	
Range	
Line-to-neutral	20–416 Vac (IQ150S), 20–576 Vac (IQ250S)
Line-to-line	20–721 Vac
Programmable voltage range	Full scale to any PT ratio
Supported systems	3 element wye, 2.5 element wye, 2 element delta, four-wire delta systems
Input impedance	1 megohm/phase
Burden	0.36 VA/phase maximum at 600V; 0.014 VA at 120V
Connection	7-pin, 0.400-inch screw terminal block, AWG #12–26 (0.129–3.31 mm ²)
Isolation	
All inputs and outputs are galvanically isolated to 2500V	
Environmental Ratings	
Operating temperature	–20° to +70°C
Storage temperature	–20° to +70°C
Operating humidity	To 95% RH noncondensing
Faceplate rating	NEMA 12
Sensing Method	
Voltage, current	rms
Power	Sampling at over 400 samples per cycle on all channels

Description	Specifications
Update Rate	
Watts, VAR and VA	100 msec at 60 Hz
All other parameters	1 second at 60 Hz
Power Supply	
AC/DC voltage option	90–400 Vac at 50/60 Hz or 100–370 Vdc, universal AC/DC supply
Burden	16 VA maximum
Standard Serial Communications Format	
Connection type	RS-485
Communications port baud rate	9600–57,600 Bauds
Communications port address	01–247
Data format	8-bit, no parity
Protocols	Modbus ASCII, RTU, DNP 3.0
Optional Ethernet Communications Format	
Connection type	RJ45 or 802.11b (wireless)
Protocols	Modbus TCP
KYZ Pulse	
Contacts	1 Form A
On resistance, maximum	35 Ohms
Peak switching voltage	350 Vdc
Continuous load current	120 mA
Peak load current	350 mA (10 ms)
Off-state leakage current at 350 Vdc	1 uA
Opto-isolation	3750 Vac
Dimensions and Shipping	
Weight	4 lbs
Basic unit	H 7.90 x W 7.50 x D 3.10 inches
Compliance	
IEC 687	0.2% accuracy
ANSI C12.20	0.2% accuracy
ANSI C62.41	Burst
ANSI (IEEE) C37.90.1	Surge withstand
UL/cUL	Electrical and electronic measuring and test equipment 22CZ

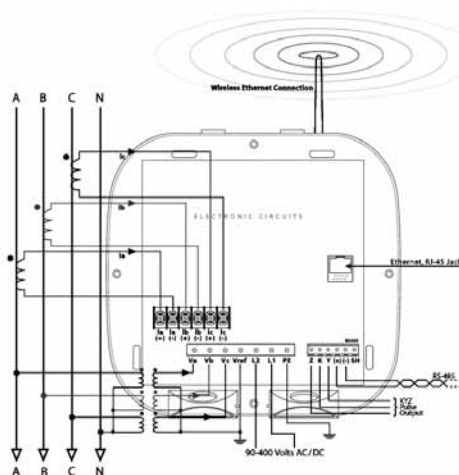
Note: Specifications are subject to change without notice and represent the maximum capabilities of the product with all options installed. This is not a complete feature list. Features and functionality may vary depending on selected options, firmware version and product model. Please refer to User Manual for detailed specifications.

Wiring Diagrams

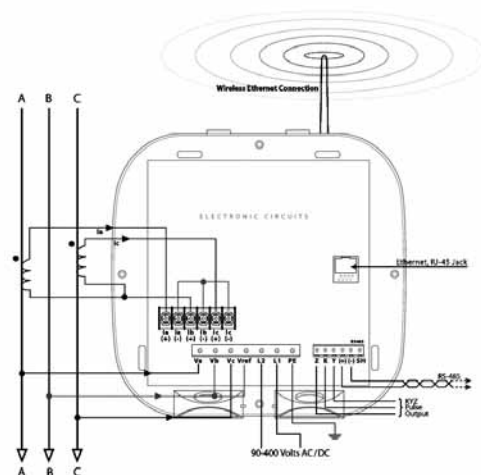
IQ 150S/250S Electronic Meter



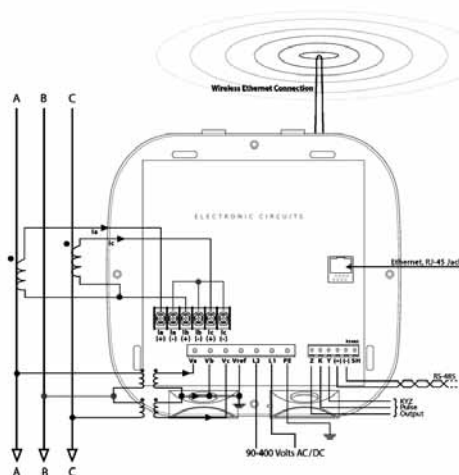
Three-Phase Four-Wire WYE Direct



Three-Phase Four-Wire WYE with PTS



Three-Phase Three-Wire DELTA Direct



Three-Phase Three-Wire DELTA Direct

Dimensions

Approximate Dimensions in Inches (mm)

IQ 150S/250S Electronic Meter

