



# PowerLogic™ ION7550 / ION7650

Energy and power quality meter



**Customer Metering**

**PowerLogic™ Power Monitoring and Control**

**NOTE:** Please refer to [www.schneider-electric.us](http://www.schneider-electric.us), Solutions, Power Management Systems for a complete and up-to-date list of feature availability. Some features are optional.

For available configurations/placement options for power meters, circuit monitors, and ION meters, see page 12. For additional clarification, contact your local Schneider Electric representative.

**Power Meter**

Class	Type	Description
3020	PM-820	Power meter module with display 0.25% accuracy with logging, alarms, I/O modules
	PM-850	Same as PM-820 plus trending/forecasting, steady state waveform capture
	PM-870	Same as PM-850 plus disturbance waveform capture, sag/swell metering

**Circuit Monitors**

Class	Type	Description
3020	CMDLC	Liquid crystal display used for both circuit monitors
	CMDVF	Upgrade to vacuum fluorescent display with infrared port
	CM4250	Multi-function, digital instrumentation, data acquisition, control device, cycle-by-cycle event recording
	CM4000T	Same as CM4250 plus transient voltage monitoring, flicker IEC 61000-4-15

**ION 7550/7650 Meters**

Catalog No.	Description
S7550A0C0B6A0A0A	Basic unit: Integrated display, instrumentation, power quality, waveform capture, one RS232/RS485 port, one RS-485 jack, one Type 2 optical port, eight digital inputs, four digital outputs, and three onboard relays
S7550A0C0B6E0A0A	Basic unit plus Ethernet
S7650A0C0B6A0A0A	Basic unit plus additional ION7650 features
<b>S7650A0C0B6E0A0A</b>	<b>Basic unit plus Ethernet and additional ION7650 features</b>
S7650A0C0B6C1A0A	Basic unit plus Ethernet, internal modem, and additional ION7650 features
S7650B1C0B6C1A0A	Basic unit plus Ethernet, 1,024 samples/cycle instead of 512, 10 MB of logging instead of 5 MB, internal modem, and additional ION7650 features



**Input/Output Modules**

Class	Type	Description
3020	IOC44	I/O card with 4 status in, 3 relay out, and 1 KYZ out
	IOX2411	I/O extender module with 4 DC status inputs, 2 DC digital outputs, and 1 analog output
	IOX0404	I/O extender module with 4 status inputs and 4 analog inputs
	IOX08	I/O extender module with 8 status inputs (120 Vac)
	IOX	I/O extender module only, no installed I/O
	PM8-ECC	Ethernet communications card with HTML capabilities for PM8 family
Not applicable	ECC21	Ethernet communications card with HTML capabilities, for CM3/4 family
	PM8M2222	2 digital outputs, 2 digital inputs, 2 analog outputs, and 2 analog inputs
	PM8M26	2 digital outputs and 6 digital inputs
	PM822	2 digital outputs and 2 digital inputs

**Instrument Transformer Requirements ^**

Device	1Ø3W 120/240 V	3Ø3W Delta	3Ø4W			Delta
			Wye			
			208Y/120	480Y/277	600Y/347	
Circuit monitor	2 CTs	2 CTs, 1 CPT <sup>■</sup>	3 CTs	3 CTs	3 CTs, 1 CPT	3 CTs
Power meter	2 CTs	2 CTs, 1 CPT <sup>■</sup>	3 CTs	3 CTs	3 CTs	3 CTs
Ion meter <sup>♦</sup>	2 CTs, 2 PTs	2 CTs, 1 CPT <sup>■</sup> , 3 PTs	3 CTs	3 CTs, 1 CPT, 3 PTs	3 CTs, 1 CPT, 3 PTs	3 CTs, 1 CPT, 3 PTs

<sup>^</sup> Drawout circuit breakers require three CTs for all voltages.  
<sup>■</sup> CPT is not required for 240 V Delta.  
<sup>♦</sup> PTs are necessary only when Canadian Standards Association (CSA) certification is required.

**Table 4.2: PowerLogic ION Enterprise Software Ordering Information**

Description	Catalog No.	\$ Price
<b>Core Software Products▲</b>		
ION Enterprise Base software	IONE56BASE	719.00
ION Enterprise Device license (For 100+ devices, please call the factory for volume pricing)	IONE56DL	251.00
ION Enterprise Client license	IONE56CL	719.00
OPC Server support for ION Enterprise	IONEOPCV1	3055.00
SQL Server 2005 bundle option (CD and 1-CPU license)	IONESQL2005	2440.00
SQL Server 2005 additional CPU license	IONESQL2005CPU	1525.00
<b>Upgrades from PowerLogic ION Enterprise 5.5</b>		
ION Enterprise Base Upgrade	IONE56UPGRADE	359.00
ION Enterprise Device upgrade	IONE56DLUPG	125.00
ION Enterprise Client license upgrade	IONE56CLUPG	359.00
<b>Related Items</b>		
ION Enterprise Replacement CD	IONE56REPCD	215.00
ION Enterprise 5.5 Software Documentation Binder	DOC-BINDERIE5	143.00
ION Enterprise 5.5 Administrator Guide	DOC-UGUIDE204	71.00
ION Enterprise 5.5 Client User Guide	DOC-UGUIDE205	35.00

▲ Every new system must be ordered with 1 IONE55-Base software and a minimum of 5 IONE55-DL device licenses.

**Table 4.3: PowerLogic ION Power and Energy Meter Selection**

Features■	ION8600			ION7650	ION7550	ION7350	ION7330	ION7300	ION6200
	A	B	C						
<b>Inputs, outputs and control power</b>									
3-phase / single-phase	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•
Digital in and out / analog in and out	16 / 4	16 / 4	16 / 4	20 / 8	20 / 8	8 / 8	8 / 8	4 / 8	2 /
Power supply options	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
<b>Power and energy measurements</b>									
V, I, F, PF	•	•	•	•	•	•	•	•	•
Power, demand	•	•	•	•	•	•	•	•	•
Energy / time-of-use (energy per shift)	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•
ANSI energy accuracy class (% of reading)	0.2	0.2	0.2	0.5	0.5	0.5	0.5		
Measurement Canada Approval	•			•	•	•	•		
Loss compensation	•	•	•	•	•				
<b>Power quality analysis</b>									
Compliance monitoring (e.g. EN50160)	•			•					
Flicker measurement	•			•					
Transient disturbance capture	•			•					
Sag and swell monitoring	•	•	•	•	•	•			
Harmonics measurement	63 rd	63 rd	31st	63 rd	63 rd	31st	15th	15th	THD
Uptime (number of 9's) calculation	•	•	•	•	•	•	•	•	
Waveform capture	•			•	•	•			
<b>Data and event logging</b>									
Trend / snapshot	*/•	*/•	*/•	*/•	*/•	•	•		
Min/max	•	•	•	•	•	•	•		
Events	•	•	•	•	•	•	•		
Timestamp resolution (seconds)	0.001	0.001	0.001	0.001	0.001	0.001	0.001		
GPS sync	•	•	•	•	•				
<b>Setpoints, alarms and control</b>									
Annunciation / call out on alarm	*/•	*/•	*/•	*/•	*/•	*/•	•		
Trigger logging	•	•	•	•	•	•	•		
Trigger relay or digital output control	•	•	•	•	•	•	•		
<b>Special features</b>									
Custom programming: arithmetic, boolean, object-oriented	•	•	•	•	•	•	•		
Downloadable firmware	•	•	•	•	•	•	•	•	•
Communications									
Ethernet port / web / email	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•
Telephone modem port	•	•	•	•	•	•	•		
Infrared port	•	•	•	•	•	•	•	•	
RS485 / RS232 ports	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•	*/•
Modbus / DNP / MV-90 protocols	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•	*/•/•

■ Specifications represent maximum capabilities with all options installed. Some options are not available concurrently. This is not a complete feature list, please refer to detailed product specifications.

**ION8600/7550/7650 Power and Energy Meters**

The web-enabled PowerLogic ION8600 is used to monitor electric distribution networks, service entrances and substations. It enables businesses to manage complex energy supply contracts that include power quality guarantees. Low-range current accuracy makes it ideal for independent power producers and cogeneration applications that require the accurate bi-directional measurement of energy. It is well suited to load curtailment, equipment monitoring and control and energy pulsing and totalization applications. Integrate it with PowerLogic ION EEM enterprise energy management software, PowerLogic ION Enterprise operations software or other energy management and SCADA systems.

**PowerLogic ION8600 Power and Energy Meter Features**



**Feature set C includes:**

- 9S, 39S, 35S, 36S, 76S socket and switchboard cases
- True RMS 3-phase voltage, current, power and meets stringent ANSI revenue metering standards including ANSI C12.20 0.2 and Class 2, 10, & 20
- Power quality: sag/swell, individual, even, odd, total harmonics to the 31st and symmetrical components
- 2MB log/event memory, min/max for any parameter, historical logs up to 32 channels, timestamp resolution to 0.001 seconds and GPS time synchronization
- Transformer/line loss compensation and Instrument transformer correction
- Communications: Fiber, Ethernet, Serial, Modem, Internet and Ethernet to serial gateway and ION, DNP 3.0, Modbus RTU, Modbus TCP and MV-90 protocols
- Dial-out capability when memory is near full
- Multi-user, multi-level security with control and customized access to sensitive data for up to 16 users
- Data push capability through SMTP (email)
- 65 setpoints — math, logic, trig, log, linearization formulas

- Password protection and anti-tamper seal protection
- Built-in I/O: 4 KYZ digital outs and 3 form A digital ins, an optional external I/O expander provides additional I/O

**Feature set B adds the following to feature set C:**

- Harmonics - individual, total even, total odd up to the 63rd
- 4MB standard memory
- Historical logs up to 320 channels
- Modbus RTU Master on serial ports
- Cycle setpoint minimum response time

**Feature set A adds the following to feature sets C and B:**

- Waveform capture up to 256 samples/cycle, PQ compliance monitoring, flicker to EN50160, IEC 6100-4-7/4-15 (also configurable to IEEE 519-1992, IEEE159, SEMI) CBEMA/ITIC
- Transient detection to 65µs at 60Hz;
- Harmonics: magnitude, phase and inter-harmonics to the 40th
- 10MB standard memory
- Max 96 cycles of waveform logs and 800 channels of historical logs

Note: Please refer to powerlogic.com for the most complete and up-to-date list of feature availability. Some features are optional.

**Table 4.4: Typical PowerLogic ION8600 Power and Energy Meter Ordering Configurations**

Description	Catalog No.	\$ Price
ION8600, feature set A, 9S socket base, 5A nominal current inputs, auxiliary power pigtail: 65-120Vac/80-160Vdc, 60 Hz, communications card with: 10baseT Ethernet — RS-232/485 — Optical, RS-485	S8600A0C0H6E0A0A	6252.00
ION8600, feature set B, 9S socket base, 5A nominal current inputs, auxiliary power pigtail 65-120Vac/80-160Vdc, 60 Hz, communications card with: 10base T Ethernet — Optical, RS-485	S8600B0C0H6E0A0A	4700.00
ION8600, feature set B, 9S socket base, 5A nominal current inputs, auxiliary power pigtail 65-120Vdc/80-160Vac, 60 Hz, communications card with: RS-232/485, RS-485, Optical port, standard I/O	S8600C0C0H6A0A0A	2609.00

**PowerLogic ION7550 and ION7650 Power and Energy Meters**

Used at key distribution points and sensitive loads, the web-enabled PowerLogic ION7550 and PowerLogic ION7650 meters combine a wealth of advanced features from power quality analysis capabilities, revenue accuracy and multiple communications options, through web compatibility, and control capabilities. Both are compatible with PowerLogic ION EEM enterprise energy management software, PowerLogic ION Enterprise operations software can be integrated with other energy management or building control systems through multiple communication channels and protocols.

The meters are ideal for compliance monitoring, disturbance analysis, cost allocation and billing, demand and power factor control and equipment monitoring and control. The meters have a high visibility, adjustable front panel display that can depict TOU, harmonics, event logs, phasers, and instantaneous power parameters. They meet stringent ANSI C12.20 0.2, Class 10 & 20 revenue metering standards.

**PowerLogic ION7550 and ION7650 Power and Energy Meter Features**



**The PowerLogic ION7550 includes:**

- 3.5" x 4.5" (87 x 112 mm) backlit LCD display
- True RMS 3-phase voltage, current, and power that meets stringent ANSI C12.20 0.2, Class 2, 10, & 20
- Power quality: sag/swell, harmonics - individual, even, odd, total to the 63rd, waveform capture at 256 samples/cycle
- 5MB log/event memory (10MB optional), waveform logging up to 96 cycles, up to 800 channels historical, min/max, timestamp resolution to 0.001 seconds, GPS time synchronization and historical trends through front panel
- Communications: fiber, Ethernet, serial, internal modem, optical port, and a gateway functionality, ION, DNP 3.0, Modbus RTU - master & slave, Modbus TCP and MV-90
- Dial-out capability when memory is near full
- Data push capability through SMTP (email)

- Multi-user, multi-level security with control and customized access to sensitive data for up to 16 users
- 65 configurable \_ cycle setpoints for single, multi-condition and dial out on alarm and math, logic, trig, log, linearization formulas
- Password protection and anti-tamper seal protection enhance meter security
- Extensive standard I/O includes: 8 digital inputs, 4 digital outputs and 3 onboard relays

**The ION7650 has all the features of the ION7550 and adds:**

- Waveform capture up to 1024 samples/cycle
- Transient detection to 17µs at 60Hz
- Harmonics: magnitude, phase and inter-harmonics to the 40th
- Flicker to EN50160 and IEC 6100-4-7/4-15 (also configurable for IEEE 519-1992, IEEE159, SEMI), plus CBEMA/ITIC
- Symmetrical components

Note: Please refer to powerlogic.com for the most complete and up-to-date list of feature availability. Some features are optional.

**Table 4.5: Typical PowerLogic ION7550/7650 Power and Energy Meter Ordering Configurations**

Description	Catalog No.	\$ Price
<b>Typical PowerLogic ION7550 Power and Energy Meter Ordering Configurations</b>		
Integrated display, with 512 samples/cycle, 5 MB logging memory, 5A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O	S7550A0C0B6E0A0A	6318.00
Integrated display, with 512 samples/cycle, 5 MB logging memory, 5A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port), standard I/O	S7550A0C0B6A0A0A	5589.00
<b>Typical PowerLogic ION7650 Power and Energy Meter Ordering Configurations</b>		
Integrated display, with 1024 samples/cycle, 10 MB logging memory, 5A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O, EN50160 compliance monitoring	S7650B1C0B6E0A0E	9279.00
Integrated display, with 512 samples/cycle, 5 MB logging memory, 5A inputs, standard power supply, standard comms. (1 RS232/RS485 port, 1 RS485, 1 Type 2 optical port) plus Ethernet, standard I/O	S7650A0C0B6E0A0A	7869.00