

# Revenue metering for electric utilities

PowerLogic™ application brochure

The Schneider Electric logo is located in the bottom right corner of the page. It features the word "Schneider" in a bold, white, sans-serif font, with the word "Electric" in a smaller, white, sans-serif font directly below it. To the left of the word "Electric" is the company's logo symbol, a stylized white 'E' inside a circle.

**Schneider**  
Electric

# Take charge of grid metering quickly and accurately

Utilities need serious energy information technology to meet their challenges. Our systems help you:

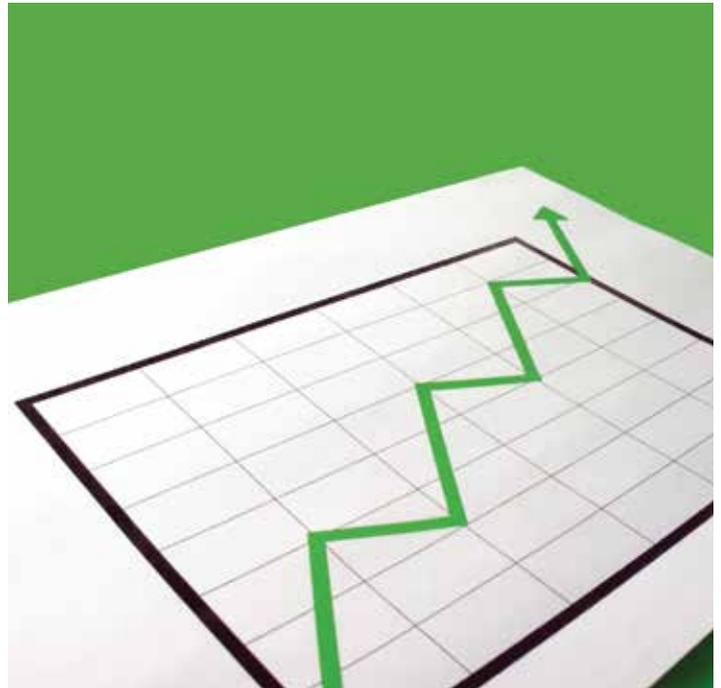
- Meet requirements for high-accuracy metering at key interchange points for generation, transmission, distribution and wholesale customers
- Improve metering accuracy at existing inter- or intra-ties
- Reduce communications costs
- Streamline billing and administration
- Utilize transformer and/or line loss compensation functionality for precise, cost-effective revenue metering

## Interchange points

These frequently define the exchange point for the transfer of electricity as a commodity. The challenge is to measure and manage all aspects of this commodity and control its effect on operations, customer satisfaction and profits.

## We have the ideal solution:

- Seamless data-sharing between high-accuracy meters and automated billing systems
- Managing wholesale energy transactions across wide geographical areas
- Accommodating real-time pricing, posted rates, and available capacity



## Metering for efficiency and profit

### Cost-effective, real-time energy information

Utilities need accurate metering data to manage transactions and billing, ensure reliability and streamline operations.

#### We offer:

- Open protocols
- Advanced communication options
- Gateways
- Customised solutions
- Integration into existing infrastructure
- Accommodation of third-party equipment

#### Communications include:

- Local mastering
- Gateway functionality
- Web-based presentment
- Email data transfers
- Ethernet support of metering, SCADA, and PQ protocols



Schneider Electric helps you succeed

We exceed the traditional boundaries of energy information management. PowerLogic power monitoring and control systems are designed to unite your entire enterprise, from end-to-end.

All systems work together to help reveal new energy opportunities.

# Exceed the most stringent accuracy standards

Today's utilities need sophisticated metering and power quality information, and PowerLogic meets the challenge every step of the way.

## **Feature checklist:**

To support precise billing transactions across the grid, PowerLogic metering technology exceeds the world's most demanding accuracy standards.

We offer individual and packaged features designed to enhance your billing system and guarantee full accountability.

- Energy usage
- Automated alarming & control
- Communication ports & I/O
- Power quality IEC 61000 4-30 Class A confidence
- Data management
- Automated reporting



## Intelligent metering

Local mastering, gateway functionality, web-based presentment, email data transfers and Ethernet support of SCADA protocols, help utilities provide integrated network control and monitoring.

Communications costs are drastically reduced while increasing the number of monitored points and improving network awareness.

These communication links provide billing data, operational data to SCADA systems, and regulatory-compliant power quality information so that a single device meets the needs of multiple departments.

Meters register active, reactive and apparent energy, Time-of-Use (TOU) bins track energy consumption at different tariff rates, and remote communications options (fixed network or wireless) enable grid level automated meter reading.

## Intelligent benefits

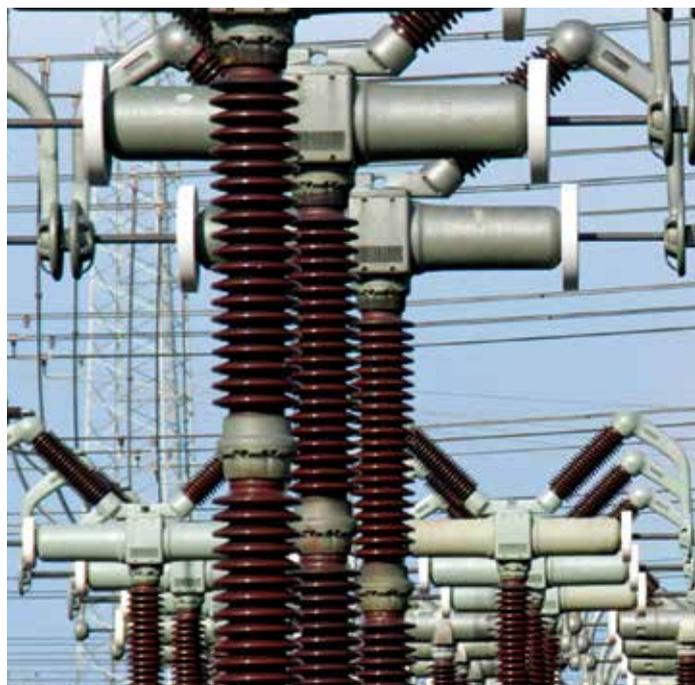
New communication technologies aid data acquisition and speed, but the benefits to utilities are only realised if information is presented in a ready-to-use format. Systems integration is vital.

Intelligent meters present information in the appropriate format over appropriate media, for any user, system or department. Industry-standard protocols, such as DNP or Modbus, are available over TCP/IP for high-speed direct SCADA integration.

Billing systems may require DLMS, IEC 60870-5-102 or MV-90. Again, the developers of the software masters for these protocols have supported data acquisition over TCP/IP.

Key account managers may customise their view of load profiles, power quality information or alarms, presenting them via pager alerts, emailed reports, or web-accessible graphical views.

Other utility departments may view intelligent meter information via secure web server on the device, so authorised personnel can access critical data in real-time from any computer, anywhere in the world.



## Certifications and approvals

CFE (LAPEM, Mexico)  
CAM (Chile)  
Inmetro (Brazil)  
INTI (Argentina)  
CIDET (Colombia)  
SENCAMER (Venezuela)  
KEMA Labs (Netherlands)  
KERI Labs (Korea)  
EPRI (China)  
MARIA (New Zealand)  
OFGEM (UK)  
EAC (Russia)  
IESO (Ontario, Canada)  
Measurement Canada  
Hydro Quebec (Canada)  
California ISO (USA)  
ERCOT (Texas ISO, USA)  
MET Labs (Independent Lab, USA)  
NY State PUC (USA)  
PJM (USA)

## Case study 1

A major electric utility faced two problems: for large customer sites they had to locally totalise energy values, and for inter-tie metering sites they had to provide advanced loss compensation data to the Independent System Operator (ISO).

Using flexible ION technology, Schneider Electric customised a billing algorithm where each meter acts as an RTU to poll other meters in the network, providing the necessary totalised energy values using both arithmetic and vector calculations.

To solve the ISO requirement, monthly resistance values are written into the meters from the master software, allowing Transformer Loss and Line Loss Compensation algorithms to accurately calculate losses even in extreme weather conditions. Meters ship with pre-programmed custom features and configuration software to let the utility select appropriate algorithms.

## Case study 2

A transmission and distribution utility required an innovative solution for three-breaker ring bus substations. With only three CTs in the ring there was no way to measure the current flowing into or out of the substation.

Using the advanced communication technology of PowerLogic meters, each of the three meters in the ring polls the others for high-speed current data and the incoming or outgoing current is easily calculated for each line. These values are then transmitted to the SCADA system via industry-standard DNP protocol. ION technology removed the need to install new high-voltage CTs in the substation and saved the utility money, while still providing the necessary operational data.

# The global specialist in intelligent energy management

## Recommended products for revenue metering

### Software:

StruxureWare™ Power Monitoring  
ExpertPowerLogic ION Setup

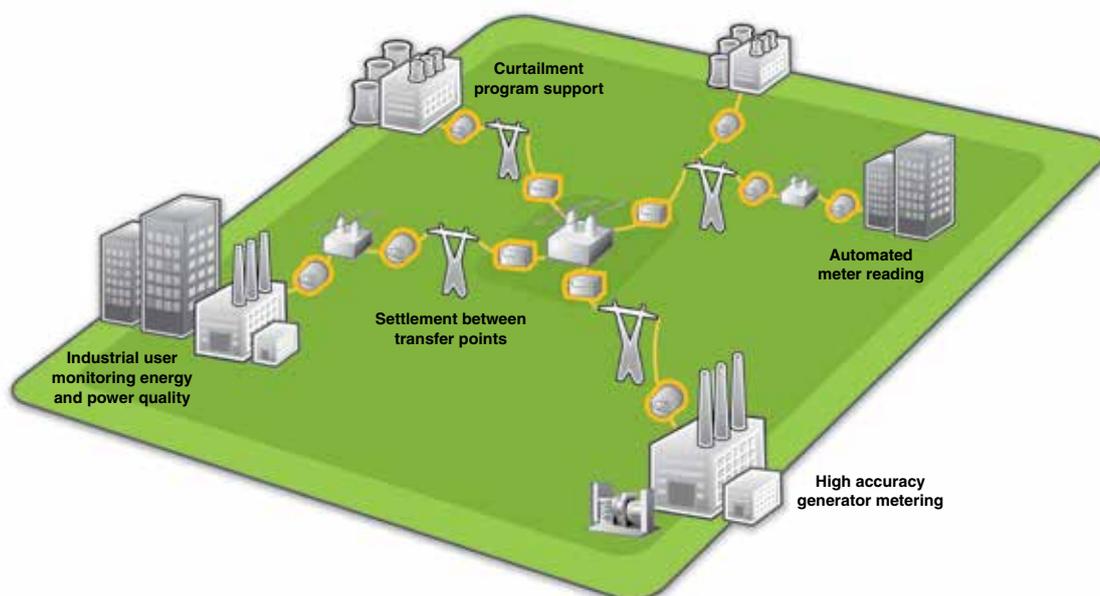
### Power and energy meters:

PowerLogic ION8800  
PowerLogic ION8650  
PowerLogic ION7650  
PowerLogic ION7550  
PowerLogic ION7400

Our systems support power quality, operations management, billing, distributed generation, value-added services, load curtailment, and more.



## Typical metering points



**Make the most of your energy<sup>SM</sup>**

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