Electricity

Itron

Knowledge to Shape Your Future

Allowing Utilities to LEVERAGE -

- Time based rates
- Demand response
- Home networking

OpenWay®

CENTRON® Meter

Introduction

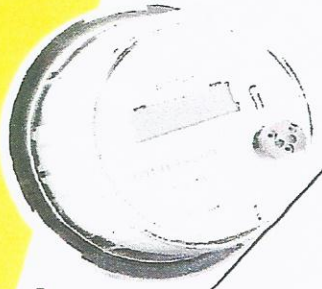
The OpenWay system delivers a truly smart meter for the residential mass market. Itron engineers have built upon our proven CENTRON solid-state platform to deliver an advanced meter that provides a cornerstone technology for the smart grid. Featuring open-standards architecture, modular design for flexibility in communications, and extensive features and functionality, the OpenWay CENTRON supports the most demanding smart grid business requirements today and well into the future.

A key component of any advanced metering or smart grid initiative, the OpenWay CENTRON meter is a truly smart device used to collect, process and transmit vital energy information to utility systems. Rather than simply inserting a network communication card into a standard meter, Itron developed an advanced meter where calculations and usage data are calculated within the meter itself, allowing utilities to leverage time-based rates, demand response, home networking and many other smart grid applications.

Fully compliant with the ANSI C12.19 and C12.22 standards for storage and transport of register data over a network the OpenWay CENTRON provides a secure and reliable open-standards approach to data collection and communications between the meter and network. In addition, each OpenWay CENTRON meter comes factory-equipped with a ZigBee® radio chip to provide a built-in communications pathway into the home for data presentation, load control and demand response. ZigBee also provides a communication channel with 2.4GZ OpenWay Gas Modules.

The OpenWay CENTRON also provides robust data storage capability to support time-of-use pricing, load profile data and other data-intensive applications, as well as the most advanced feature set available to support smart grid requirements. These features include full two-way communication, a load-limiting remote disconnect and reconnect switch, positive outage detection and restoration notification, voltage monitoring, automatic tamper and theft detection, as well as the ability to reprogram the meter remotely and upload new firmware via the network.

The OpenWay CENTRON meter is the smart meter for the smart grid.



- Pathway into home
- Data presentation
- Load control
- Demand response

- Supports time of use pricing
- Load profile data
- Load-limiting Disconnect
- Remote programming

Time of Use and and critical Peak pricing

Four channels of configurative load PROFILE DATA are available.

Two-way adoptive tree architecture With Self Healing capabilities!

Home Area Network – ZigBee radio interfaces HAN display and load control devices.

- Can store consumption from Openway gas modules.

Meter can be programmed as service limiting!

Features

Time-of-Use and Critical Peak Pricing
- The OpenWay CENTRON supports four TOU rates as well as CPP
- TOU registers may be displayed on the meter's display

Load Profile
- Four channels of configurable load profile data are available in the following default parameters: (1) single channel 30 minute data 753 days; (2) two channels 30 minute data 501 days
- Modified parameters are available via configuration download
- The OpenWay CENTRON module provides over one year of 15-minute load profile data storage

OpenWay RFLAN Module
- Two-way, unlicensed RF module
- Adaptive-tree RFLAN architecture provides easy installation and self-healing capabilities

Home Area Network (HAN)
- Every OpenWay CENTRON meter includes a ZigBee radio for interfacing with the HAN, in-home displays and load control devices
- The OpenWay CENTRON can store consumption from 2.4GZ OpenWay gas modules utilizing the ZigBee radio

Bi-Directional Metering
- The OpenWay CENTRON measures and displays active energy (kWh) delivered, received, uni-directional and/or net or apparent energy (kVAh) delivered and/or received

Disconnect/Reconnect with Load Limiting
- The OpenWay CENTRON forms 1S, 2S, 12S, and 25S is available with a 200 amp remote disconnect/reconnect switch as an optional feature. Utilizing this switch, the meter can be programmed as service limiting

Tamper Detection
- Tamper indications can be communicated regularly through the OpenWay system
- Tampers include: inversion, removal and reverse power flow
- SiteScan Diagnostics (advanced polyphase register only)

Non-Volatile Memory
- All programming, register, TOU and load profile data are stored in the EEPROM during a power outage. A battery maintains just the clock circuitry during a power outage

Voltage Monitoring
- Instantaneous voltage
- Voltage monitoring system

Standard Features
- Electronic LCD display
- Polycarbonate cover
- Optical tower
- Test LED

Register Capabilities
- 4 energies, 1 demand:
- Wh (delivered, received, net, uni-directional)
- VAh (delivered arithmetic, received arithmetic, Lag)
- W (max delivered, max received, max net, max uni-directional)
- Configurable event log
- All programming, register, TOU and load profile data are stored in the EEPROM during a power outage. Battery maintains the clock circuitry during a power outage

Option Availability
- Identification/accounting aids
- Remote disconnect/reconnect
- Multiple WAN options including GPRS and Ethernet
- Option slot for additional communications options

Technical Data

Meets applicable standards:
- ANSI C12.1 - 2001 (American National Standard for Electric Meters - Code for Electricity Metering)
- ANSI C12.18 - 1996 (American National Standard - Protocol Specification for ANSI Type 2 Optical Port)
- ANSI C12.19 - 1997 (American National Standard - Utility Industry End Device Data Tables)
- ANSI C12.20 - 2002 (American National Standard for Electricity Meters-0.2 and 0.5 Accuracy Classes)
- ANSI C12.22 - (consult ANSI electricity metering protocol standards, balloted version)
- ANSI/IEEE C62.45 - 1992 (Guide to Surge Testing on Low-Voltage AC Power Circuits)
- IEC 61000-4-2
- IEC 61000-4-4

Reference Information
- OpenWay CENTRON Technical Reference Guide
- Hardware Specification Form

Specifications

Product Availablity

Volts / Service	Meter Class	Test Amps	Kh (Pulse/Wh)	Meter Form	Register Description
120 V	200	30	1.0	1S	OpenWay RF with or without Disconnect
240 V	200	30	1.0	2S	OpenWay RF with or without Disconnect
240 V	320	50	1.0	2S	OpenWay RF
120 V	20	2.5	1.0	3S	OpenWay RF
240 V	20	2.5	1.0	3S	OpenWay RF
240 V	20	2.5	1.0	4S	OpenWay RF
120 V	200	30	1.0	12S/25S	OpenWay RF with or without Disconnect

Specifications

Power Requirements	Voltage Rating: 120 V, 240 V Operating Voltage: ± 20% (60Hz) Frequency: 60Hz Operating Range: ± 3 Hz Battery Voltage: 3.6V nominal Battery Operating Range: 3.6 V nominal; 3.4 V - 3.8 V Carryover: 12-year continuous usage or 20-year shelf life
Operating Environment	Temperature: -40° to +85°C Humidity: 0% to 95% non-condensing
Transient / Surge Suppression	IEC 61000-4-4-2004-07 ANSI C62.45-2002
Accuracy	ANSI C12.20 0.5 accuracy class
General	Demand interval lengths: Programmable: 5, 6, 10, 12, 15, 20, 30 and 60 min. Demand calculation: Peak Energy calculation: Basic: Wh and VAh
Time:	Line sync: Power line frequency Crystal sync: +0.01% @ 25°C; +0.025% over full temperature range Battery: +0.005%@25°C; +0.005% to -0.02% over full temperature range
Display	Nine-digit liquid crystal display Six-digit data height: 0.4" Annunciator height: 0.088" Display duration: 1-15 seconds Three-digit code number height: 0.24" 3-segment electronic load indicator
Characteristic Data	Starting Current: 20 mA (Class 200), 5 mA (Class 20)
Register Burden	0.66W
Burden Data (C2S0D)	Meter Form / Watts Loss / VA Loss / Test Voltage 1S 2.796 6.759 120 2S 3.773 12.357 240 3S 2.123 7.068 120 3S 2.350 14.255 240 4S 2.535 14.619 240 12S 2.861 6.751 120
Service Switch (Optional)	200A; can be programmed as service (load) limiting Service Switch is available in Forms 1S, 2S, and 12S/25S
Modules	Standard OpenWay Register
Additional Base Functionality	Cell Relay (available in Form 2S only)

Demand interval lengths up one hour!