



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.

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.

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.

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/MIEEE 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 Availability

Volts / Service	Meter Class	Test Amps	KWh (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 Frequency: 60Hz 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 Voltage: $\pm 20\%$ (60Hz) Operating Range: ± 3 Hz		
Operating Environment	Temperature: -40° to $+85^{\circ}\text{C}$ 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 Annunciator height: 0.088" Three-digit code number height: 0.24" 3-segment electronic load indicator	Six-digit data height: 0.4" Display duration: 1-15 seconds		
Characteristic Data	Starting Current: 20 mA (Class 200), 5 mA (Class 20)			
Register Burden	0.66W			
Burden Data (C2SOD)	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!