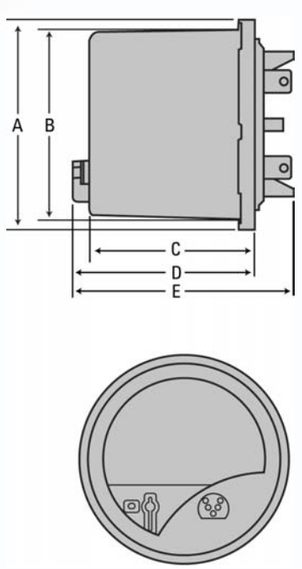
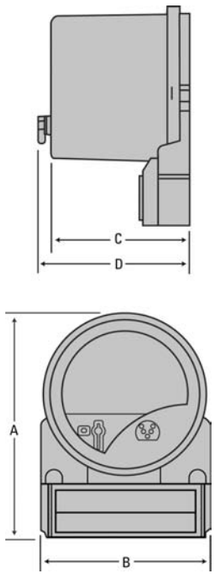
specifications

SENTINEL® Socket Meter



SENTINEL® A-Base Meter



Dimensions for Socket Meter

A	B	C	D	E
6.95"	6.31"	5.46"	6.00"	7.30"
17.65cm	16.03cm	13.87cm	15.24cm	18.54cm

Dimensions for A-Base

A	B	C	D
9.46"	7.28"	5.90"	6.44"
24.03cm	18.48cm	14.97cm	16.35cm

Shipping Wt.

Net Weight	Gross Weight (Meter & Carton)	Gross Weight 4 Pack
4 lbs (1.8 kg)	7.5 lbs (3.4 kg)	20.2 lbs (9.2kg)

Shipping Wt.

Net Weight	Gross Weight (Meter & Carton)
5.7 lbs (2.6 kg)	9.3 lbs (4.2 kg)

profile

Itron Inc.

Itron is a leading technology provider and critical source of knowledge to the global energy and water industries. More than 3,000 utilities worldwide rely on Itron technology to deliver the knowledge they require to optimize the delivery and use of energy and water. Itron delivers value to its clients by providing industry-leading solutions for electricity metering, meter data collection, energy information management, demand response, load forecasting, analysis and consulting services, distribution system design and optimization, web-based workforce automation; and enterprise and residential energy management.

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Itron
Knowledge to Shape Your Future

introduction

SENTINEL Electronic Multimeasurement Meter

The SENTINEL meter is a solid-state, electronic, multimeasurement, polyphase meter of exceptional accuracy. This self-contained or transformer-rated meter is designed for use in commercial and industrial locations, including large industrial sites and substations. An advanced analog-to-digital samplng technique samples each incoming current and voltage waveform 32 times per cycle (60Hz). Voltage and current values are calculated every two cycles using true Root Mean Square (RMS) calculation. Volt-amperes are calculated by multiplying the RMS voltage value with the RMS current value, thus providing an arithmetic calculation for VA. The SENTINEL meter also allows for a vectorial calculation of VA.

features

Flexible Platform

> Electronic circuit boards fit together to perform various functions
> Transformer input for current and resistive divider input for voltage
> Analog-to-digital conversion and measurement processing
> Register, load-profile, real-time clock, and communications processing
> Input and output board for pulse accumulation or event notification

Protocols

> The SENTINEL meter uses PSEM (ANSI C12.18-1996) protocol

Standard Features

> Class 0.2 accuracy
> 5 measurement levels
> Upgradable firmware
> Error and event logging
> SiteScan onsite monitoring system
> Flexible configuration for various metering applications
> Autoranging power supply

Multimeasurement Meter
SENTINEL®

features, cont.

Available Registers
> Register data and program information are retained in non-volatile memory in the event of a power failure.
> Selection from hundreds of items on a liquid crystal display (LCD) that is programmable by the user.
> Programmable by the user through Itron PC-PRO+® 98, a 32 bit Windows® based meter programming software.

Energy
> Wh: delivered, received, net
> VARh: delivered and received, net delivered, net received, and 4 quadrant
> VAh: vectorial and arithmetic, delivered, received, and lagging
> A^2h: aggregate
> V^2h: aggregate
> Ah: per phase and neutral
> Vh: per phase and average

Demand
> Instantaneous values updated every second.
> Maximum, present, previous, projected, cumulative, continuous cumulative, and coincident demand values are available.

Demand Register Types
> Block and rolling demand intervals with programmable interval and subinterval lengths
> Thermal demand calculations

Dependable Support
> Itron backs the SENTINEL meter with the reliable support you expect from the leading solutions provider to electric utilities. Our engineers work with you to implement the SENTINEL meter in the field and tailor its software to provide the intelligent, real-time information you need.

Self-Read and Snapshot Data
> Two sets of snapshot data, automatically read at demand reset
> Four sets of self-read data, user programmable schedule
> One set of self-read data, automatically read at season change (last season data)

Optional Features
> Pulse outputs and inputs
> MeterKey options: measurement level, TOU, load profile, power quality, bidirectional measurement, totalization
> Internal modem option board
> OEM development options
> Fixed network multifunction meter communication (MFMM) module
> PF (avg., min., inst.)
> R300S (energy only), R300SD (energy and demand), R300SD3 (3 quantities) option board
> RS-232/RS-485 option board
> BlueSpan SLB-Mod^3 Cellular Modem
> Phone line thru cover
> Three phase power supply
> Class 320 amp meter (socket only)
> NERTEC NCTR 801™ Telereader inbound phone line modem
> No potential links option

I/O Network
> The input and output options available are determined by the type of I/O board that is installed in the meter. The SENTINEL meter supports a maximum of 4 KYZ outputs, 1 (KY) low current/high current output, and 2 (KY) pulse or solid-state inputs.

Internal Modem
> The modem allows customers to remotely connect to the SENTINEL meter to program or read the meter.
> It operates at a speed of 300/1200/2400 baud rates and is available for stand-alone or phone line sharing applications.

Software
> PC-PRO+ ® 98, PC-PRO+® 98 Advanced
> HHF meter data file creation with PC-PRO+® 98 Advanced version 5.0 or greater
> EnergyAudit™ 3.0

Voltage Input Rating
> Automatic voltage sensing power supply, available in singlephase or three-phase.
> Power supply operates over a voltage input range of 120-480 V.
> Three-phase power supply operates over a voltage input range of 57.7-277V.

Technical Data
Conforms to:
> ANSI C12.1: 1995
> ANSI C12.19: 1997
> ANSI C12.20: 1997
> ANSI C12.21: 1999

Surge, Impulse, and RF Interference
> ANSI C37.90.1: 1989
> ANSI C62.41: 1991
> FCC Part 15 (Class B)

Product Availability

	Transformer-Rated	Self-Contained
Socket	Class 20 - Form 9S (8S)	Class 200 - Form 16S (14S, 15S, 17S)
	Class 20 - Form 45S (5S)	Class 200 - Form 12S
	Class 20 - Form 46S (6S)	Class 200 - Form 2S
	Class 20 - Form 66S (26S)	Class 320 - Form 16S (14S, 15S, 17S)
		Class 320 - Form 12S
		Class 320 - Form 2S
A-Base	Class 20 - Form 10A (9A)	Class 150 - Form 16A (14A, 15A, 17A)
	Class 20 - Form 45A	
	Class 20 - Form 46A	
	Class 20 - Form 48A	

specifications

Accuracy Tests

Measured Quantity	Phase Angle %	Error of Reading
Volts (0.75Vn-1.15Vn)	All Phase Angles	+/- 0.2%
Amps (0.1A-0.25A)	All Phase Angles	+/- 0.4%
Amps (0.25A-20A)	All Phase Angles	+/- 0.4%
Amps (2.5A-200A)	All Phase Angles	+/- 0.4%
Watts (0.05A-0.25A)	0˚, 180˚	+/- 0.4%
Watts (0.25A-20A)	0˚, 180˚	+/- 0.2%
Watts (2.5A- 200A)	0˚, 180˚	+/- 0.2%
Watts (0.05A-0.5A)	-60˚, +60˚, -120˚, +120˚	+/- 0.5%
Watts (0.05A-20A)	-60˚, +60˚, -120˚, +120˚	+/- 0.3%
Watts (5.0A-200A)	-60˚, +60˚, -120˚, +120˚	+/- 0.3%
Vars (0.05A-0.25A)	-90˚, +90˚	+/- 0.4%
Vars (0.25A-20A)	-90˚, +90˚	+/- 0.2%
Vars (2.5A-200A)	-90˚, +90˚	+/- 0.2%
Vars (0.05A-0.5A)	-30˚, +30˚, -150˚, +150˚	+/- 0.5%
Vars (0.5A-20A)	-30˚, +30˚, -150˚, +150˚	+/- 0.3%
Vars (5.0A-200A)	-30˚, +30˚, -150˚, +150˚	+/- 0.3%
VA Arith. (0.05A-0.25A)	All Phase Angles	+/- 0.8%
VA Arith. (0.25A-20A)	All Phase Angles	+/- 0.6%
VA Arith. (2.5A-200A)	All Phase Angles	+/- 0.6%
VA Vec (0.1A-0.5A	-60˚, +60˚, -120˚, +120, -30, +30, -150, +150˚	+/- 0.6%
VA Vec (0.5A-20A	-60˚, +60˚, -120˚, +120, -30, +30, -150, +150˚	+/- 0.4%
VA Vec (5.0A-200A	-60˚, +60˚, -120˚, +120, -30, +30, -150, +150˚	+/- 0.4%

In Conformance with the ANSI C12.20 standard for Class 0.2 meters.

Specifications

Power Requirements	Voltage Ranges: -20% to +10% of nominal voltage (1 or 3 phase)	
	Operating Voltage: ± 20%	
	Frequency: 50-60 Hz	Operating Range: 45 Hz to 65 Hz
Load Profile/TOU Battery	Voltage: 3.6 V nominal	Operating Range: 3.4 V- 3.8 V
	Carryover: 12 years minimum	Shelf Life: 25 years minimum
Time	Line Sync: Power line frequency	
	Crystal Sync: ±0.003% @25°C; ±0.02% over full temperature range	
Operating Environment	Temperature: -40° to +85°C	
	Humidity: 0% to 95% non-condensing	
	Transient / Surge Suppression:	ANSI C37.90.1-1989
		FCC Part 15, Class B
		ANSI C62.41-1991
Accuracy	ANSI C12.20:1997 for class 0.2 meters	
Characteristic Data	Starting Current:	0.005 amps (Class 20)
		0.050 amps (Class 200)
		0.080 amps (class 320)
Burden Data	Voltage 120	Watts: 1.3 VA 2.2
	Voltage 240	Watts: 1.6 VA 3.1
	Voltage 277	Watts: 1.7 VA 3.4
	Voltage 480	Watts: 2.4 VA 5.2

Accuracy Data
The SENTINEL meter is a +/-0.2 accuracy device capable of displaying a wide range of register information as well as complying with the requirements of ANSI C12.20: 1997 for Class 0.2 meters.

Reference Information
> SENTINEL® Meter Technical Reference Guide
> SENTINEL® Meter Overview Brochure
> SENTINEL® Meter Specification Sheet
> SENTINEL® Meter R300S, R300SD, R300SD3 Specification Sheet
> Order Specification Form