

## SPECIFICATIONS

### Certifications

ANSI C12.1-2008

Standard for Electric Meters—Code for Electricity Metering  
ANSI C12.10-2004

Standard for Physical Aspects of Watt-hour Meters  
—Safety Standard

ANSI C12.18-2006

Standard for Protocol Specification for ANSI Type 2  
Optical Port

ANSI C12.19-2008

Standard for Utility Industry End Device Data Tables

ANSI C12.20-2002

Standard for Electricity Meter—0.2 and 0.5 Accuracy Classes

ANSI C37.90-1989

Standard for Relay Systems Associated with Electric  
Power Apparatus

### Accuracy

ANSI C 12.20 Class 0.5

### Temperature, Specified Operating Range

-40° to +85° C

### Temperature, Limit Range for Storage and Transport

-40° to +85° C

### Humidity

<=95% non-condensing

### RTC

Real-time clock accurate to +/- 0.5 seconds per day

### Nominal Voltage

Form 1S, 110 VAC, range is 90% to 110% of VAC

Form 2S, 240 VAC, range is 100 to 265 VAC

### Frequency

60 Hz +/- 5%

### Current

CL200, TA 30A

### Optional Load Disconnect Switch

200A, Remote and local disconnect and enable, safe  
operation with load-side voltage sensing

### Meter Power Consumption

Voltage circuit: < 5VA

Current circuit: <1VA

### Starting Current

100 mA

### Units Measured

kWh forward, reverse, forward + reverse, forward - reverse;

kvar import, export; kvarh import, export;

RMS voltage; RMS current; power factor; frequency;

rolling and block demand for energy sources (optional);

kvarh per quadrant (with demand metering option).

### Power Quality Analysis

Sag; swell; number of over-current occurrences; number of

power outages with time stamps

max and min frequency; phase loss; total harmonic distortion.

### Time of Use

4 tariffs with up to 8 time of use modes

### Data Logging Intervals

User-selected at 5, 10, 15, 30, 60 minutes, 1 day or custom  
equal multiple value

### Verification Output

pulse-output LED representing active reactive energy

### Optical Port

complying to ANSI C12.18-2006

### Display

7-digit liquid crystal display with telltale for various indications

### Data Communications and data security

Zig Bee communication with 128bit AES encryption and

authentication with PKI infrastructure with digital certificates

### Data Storage

Non-volatile memory

### Enclosure

Form 1S meter, ANSI C12.10-2004

Form 2S meter, ANSI C12.10-2004

### Safety Rating

UL 61010-1 (2001)

*Specifications subject to change*

### DOCUMENTATION

*ANSI 2S Meter User's Guide 078-0384-01A*

# PERI®

## GRIDMAX Meters

**GridMax Meters** are single and poly phase electronic watt hour meters that are designed to offer high quality, reading, performance and two way communications at an affordable price.

**GridMax Meters** send power quality data such as voltage, current, averages, peaks, sags and other information that is needed for TOU, CPP and RTP pricing to GridMax backhaul or other data collection systems.

To insure system security and confidentiality of data **GridMax Meters** use strong PKI (Public Key Infrastructure) based security for identification and encryption of data that is sent over the network.

- Two-way, near real time communications network to support
- Advanced Metering Infrastructure (AMI), Demand Response (DR) and Distribution
- Automation (DA)
- Supports residential (single phase)
- Self-initiating and self-healing network
- Highly secure network (PKI) to safeguard against cyber attacks and physical tampering
- Security features built into key points within the network including end devices, communications system, gatekeepers and network server



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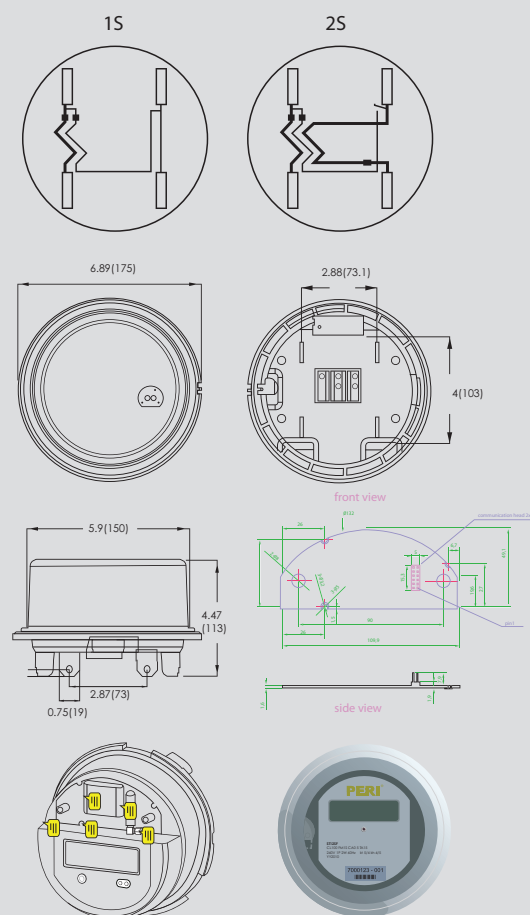
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**GridMax meters** provide the accuracy and reliability needed in different deployment environments. They are available in different form factors from the standard ANSI certified meters to custom indoor/outdoor meters.

**GridMax Meters** are built for the Smart Grid and feature communication protocol technology that can be configured to utility customer requirements. This includes RF, ZigBee, GPRS, Wifi, RS485 and PLC.

**GridMax Meters** provide network level security using state of the art encryption and latest digital certificate technology to ensure data communicated is both secure and tamper proof.



## PERI ANSI electric meters with optional disconnect relays

**PERI's ANSI** meters are secure, accurate, robust and reliable energy meters solution for advanced metering infrastructure solutions (AMI). PERI's highly secure wireless communication establishes a two way communication with the meter and the meters form a mesh topology. The meters can be accessed and controlled remotely. The mesh network formed by the gateway and meters are self-healing and discovery for network stability.

### FEATURES

#### Wireless Communication

Every meter comes with built-in PERI's ZigBee communication module which offers high security communication. Using digital certificates and industry standard encryption, each meter securely connects to the utility network by forming a self healing ZigBee mesh network.

#### Communication Configuration

- **RF Data Rate:** 250 Kbps
- **Indoor/Urban Range:** 300 ft (90 m)
- **Outdoor/RF Line-of-Sight Range:** 2 miles (3200 m)/Int'l 5000 ft (1500 m)
- **Transmit Power:** 63 mW (+18 dBm)
- **Receiver Sensitivity:** (1% PER):102 dBm
- **Interference Immunity:** DSSS (Direct Sequence Spread Spectrum)
- **Supply Voltage:** 2.7 - 3.6 VDC
- **Transmit Current:** 220 mA
- **Receive Current:** 62 mA
- **Power-Down Current:** 4 uA @ 25 C
- **Communication Regulatory Approvals:** FCC (USA), IC (Canada), ETSI (Europe), C-TICK (Australia), TELEC (Japan)

#### Flexible configurations

Local and remote configuring feature  
Up to 8 time-of-use metering  
Up to 4 tariffs  
Full scale calendar schedules  
Configurable block or rolling demand calculations, demand intervals and logging (load profile) to coincide parameters

#### Power quantity analysis

Power outages with time stamps for utility server to measure quality voltage SAG and SWELL detection and logging

#### Energy measurement

Forward and reverse energy active measurement and total. Four quadrant reactive energy measurement or forward and reverse reactive energy measurement

#### Tamper detections

Meter seal break detect  
Meter reprogram and reset events records  
Phase disconnect  
Reversal of phase or neutral  
Reversal of line and load terminals  
Load through local Earth or without earth  
Neutral disconnected from load, supply or both sides  
AC/DC magnetic field of 0.2T (Tesla) on all the sides of meter  
Meter working without effects by permanent magnet of up to 0.5 T  
Detection and restoration of the magnetic influence more than 0.2T with date & time stamping

#### Other Features

ANSI C12 .18 compliant optical port  
Optical Pulse outputs to read and test energy without affecting normal operation

#### Display

- Big 7 digit display for all configured parameters
- 3 digit resolution
- Back light for dark environment reading
- Tariff type indicator
- Energy direction indicator
- Relay(switch) status indicator
- Low meter backup battery indicator

#### Display Characteristics

**Big digits for easy read,  
Back-lit for dark environment  
reading (optional)**

	Energy digits, max 7 (also for volts/amps/kw/demand display)
	Display page code number
	Reverse energy (export) and import energy direction symbol indicated
	Symbol of programming and communication indicated
	Tariff running indicated. Telltale controllable from comm board
	Frequency, voltage, amps, kw, kwh, kva, kvarh Combined symbol of digits
	Low power alarm of back-up battery