



# JEMSTAR High Accuracy Revenue Meter

FOR GENERATION, TRANSMISSION, AND INDUSTRIAL POWER MEASUREMENT



## REVENUE METER

High precision and ease of use best describe the JEMSTAR revenue meter. Quick intuitive setup using Windows based software makes configuration a breeze. For revenue and billing, the JEMSTAR's high accuracy guarantees that every measurement is properly accounted for. Our advanced communication options provide many choices and protocol platforms for easy access to our metering data including a Web browser to display measurements. For peace of mind, your site conditions are continuously monitored with our diagnostic tools that notify you quickly of any impending problem.

### Ease of Use

The JEMSTAR is the easiest meter to configure with its Windows based JEMWARE Configuration Wizard and on-line help system. The quick intuitive process eliminates the need for specialized training and gets you up and running with minimal effort. The JEMSTAR meter is user friendly with its built-in menu-driven display and site verification tools.

### High Accuracy

The JEMSTAR has a guaranteed accuracy of 0.07% on watt-hours with an unprecedented typical accuracy of 0.03%. When accounting for revenue, even a fraction of a percent can mean the difference of thousands of dollars. Accuracy is further enhanced with TLC, LLC and selectable gain adjustments on PTs and CTs.

### Power Quality

The JEMSTAR records voltage sag and swells based on configurable thresholds so you can determine the quantity, severity and location of your power quality disturbances. In addition, the JEMSTAR logs current/voltage THD, power factor, imbalance and frequency so you have the complete picture on power quality.

### Site Diagnostic Tools

You will be notified automatically of site and diagnostics problems from configured threshold settings and system status diagnostics including Phone Home on Power Failure.

### Advanced Communication

Many communication choices are available with RS-232, RS-485, Ethernet, and internal modems.



Ethernet supports 4 simultaneous users and 2 additional Web browser connections for measurement data.

Simultaneous communications are possible using industry standard protocols: DNP 3.0, Modbus RTU, ASCII and TCP/IP, ANSI Tables, JEM Binary and support for MV90.

## FEATURES AND BENEFITS

- Easy to Use
  - JEMWARE configuration wizard
  - Menu-driven graphical display
  - Site verification tools
  - Universal form connection
- High Accuracy
  - 0.07% of reading for watt-hours
  - Simultaneous uncompensated and compensated (TLC, LLC) measurements
  - Selectable PT/CT gain error correction
- Versatile
  - Power quality, totalization
  - Digital inputs/outputs, analog outputs
  - Wide, auto-ranging input (55-530 VAC)
  - Digital and Analog I/O (under the glass)
- Advanced Communication Options
  - Internal modem
  - Single, Dual RS-232/485 (selectable)
  - Modem and RS-232/485
  - Ethernet and RS-232/485
  - WEB Browser display of measurements and alarms
  - Built-in Web server



## SPECIFICATIONS

### METER FORMS

Meter Forms: 5, 6, 8, 9, Universal

### INPUTS

#### Voltage

- 55-530 VAC auto-ranging
- Burden\*: 0.5 VA @ 530V

\*Does not include auxiliary power requirements.

#### Current

- 1 Amp: ANSI Class 2
- 5 Amps: ANSI Class 10
- 10 Amps: ANSI Class 20
- Burden: 0.5 VA maximum
- Overload: 1.5x rated class current continuous, 20x rated class current for 0.50 sec
- Frequency range: 45-55 Hz, 55-65 Hz

### AUXILIARY POWER

55 – 530 VAC, 90 – 250 VDC

#### S-base and A-base

- Normally derived from A-phase voltage input

#### Switchboard

- Separate terminals, AC or DC

#### Auxiliary Power Burden

- 15 VA maximum

### ACCURACY

#### Watt-hour

- 0.07% Reading (0.03% Typ.)

#### Clock

- Synchronized to line or  $\pm 3$  minutes per month maximum error for internal reference.

#### Loss Compensation

- Transformer Loss Compensation (TLC) and Line Loss Compensation (LLC)
- PT and CT Error Gain Correction

### MEASUREMENTS

#### Energy PolyPhase Quantities

- Watthour, VARhour, VAhour, Amphour, Qhour

#### Energy Per Phase Quantities

- Watthour, VARhour, VAhour, Amphour, Qhour

#### Instantaneous Quantities

- Per phase:  $\pm$ Watts,  $\pm$ VARs, Quadrant VARs,  $\pm$ VA,  $\pm$ Q, PF, Volts, Volts THD, Amps, Neutral Current, Amps THD, Volts<sup>2</sup>, Amps<sup>2</sup>
- System:  $\pm$ Watts,  $\pm$ VARs, Quadrant VARs,  $\pm$ VA,  $\pm$ Q, PF, Volts, Amps, Amps<sup>2</sup>, average Volts, frequency

### REGISTERS

50 Normal, 50 Alternate, 50 Test Demand Registers

- Fixed or sliding window
- Interval length: 1-60 minutes

### LOAD PROFILE

4 channels of storage (standard)

12 channels of storage (optional)

Programmable Interval

- 1-60 minutes

45 days storage using four channels at 15-minute intervals

### TOTALIZATION (OPTIONAL)

Up to 2 contact inputs

Up to 12 totalization measurements displayed and recorded

### POWER QUALITY (OPTIONAL)

Configurable thresholds for voltage sags and swells per phase

Records start and duration in cycles

Records min/max/avg voltage and current per phase, avg power factor

Stores up to 100 events

Maximum event length of 600 cycles

### DIGITAL INPUTS/OUTPUTS (OPTIONAL)

DI/DO option: Two Form-A contact inputs and four Form-A solid-state outputs

5 KYZ option: Two Form-A contact inputs and five Form-C solid-state outputs (only one option available at a time)

#### Contact Inputs

- Maximum voltage 40 VDC
- User-configurable for: pulse counter, interval synchronization pulse, TOU rate override, status input, totalization

#### Solidstate Outputs

- Maximum open-circuit voltage: 200V DC or peak AC
- Maximum switching current: 50 mA
- User-configurable for: any consumption quantity, energy pulse (KYZ), site monitor alarm, threshold alarm, demand sync, voltage sag/swell alarm, system error alarm

### ANALOG OUTPUTS (OPTIONAL)

- Three independent outputs 0  $\pm$ 1 mA or 4-20 mA
- User-configurable for any instantaneous quantity

### COMMUNICATIONS

#### Optical Port (Standard)

- Type 2 – 19,200 Baud

One Comm option board per meter Serial Port Board

- Single or dual serial port
- RS-232 or RS-485
- User configurable: 300 to 38400 baud

#### Internal Modem Board

- 14,400 baud
- With optional serial port (RS-232 or 485)
- With optional phone home on power fail
- With optional RS-485 Communication Repeater

#### Ethernet Board

- 10 baseT, unshielded twisted pair
- Up to 4 simultaneous connections and 2 Web Browser sessions
- Up to 4 simultaneous connections
- With serial port (RS-232/485)

#### Optional Communication Protocols

- Modbus ASCII, RTU, TCP/IP
- DNP 3.0
- ANSI Tables
- JEM Binary (included)

### MECHANICAL

#### Case Styles

- Socket connected (S-base), small switchboard case, bottom connected (A-Base), meter retrofits (JEM-2 and others)

#### Size and Weight

- S base: 5.5 pounds
- A-base: 7.5 pounds
- Switchboard case: 11.5 pounds

### ENVIRONMENT

#### Operating Temperature

- -40° to 185°F (-40° to 85°C)

#### Storage Temperature

- -40° to 185°F (-40° to 85°C)

#### Humidity

- 5 to 95% relative humidity, non-condensing

#### Surge Withstand (SWC)

- ANSI Standard C37.90.1-1989, ANSI Standard C62.41

#### Fast Transient

- IEC Standard 687 Section 5.5.4

### STANDARDS

#### Agency Standards and Certifications:

- ANSI Standard C12.16-1991
- ANSI C12.20-1998 Accuracy 0.2%
- IEC Standard 687 Class 0.2
- FCC Part 68, FCC Part 15
- IEC 60687
- CE
- Measurement Canada, Ontario IESO
- California ISO, NY PSC
- Mexico LAPEM
- Venezuela Sencamer



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