



DynAmp

WM Watthour Meter



Description

The Watthour Meter Model WM displays voltage, current, watts and watt-hours on a fluorescent vacuum display. Model WM accepts a wide range of signal inputs proportional to the current and voltage levels of the process being measured. The unit provides accurate dc bus power measurements and automatically calculates energy consumption. Both power and energy consumption readings are available at all times and the display is factory-scaled to provide readouts in units specified by the user.

The Watthour Meter outputs include an analog voltage proportional to watts. This signal can be used to drive remote equipment such as a strip chart recorder for remote monitoring of power peaks, surges and dropoffs as a function of time.

A watthour pulse output is provided to drive an optional external electromechanical counter. The counter is driven by a microprocessor, which is programmed to the count rate per hour as specified by the user. The count rate limits are 100 per hour minimum to 10,000 per hour maximum. The external counter may be remotely mounted anywhere within 100 feet of the Watthour Meter. The WM is packaged in a standard 6" x 19" rack enclosure.

Application

The Model WM Watthour Meter is an instrument, which accurately measures the watt-hours, watts, voltage and current on the dc side of the power rectifiers. It is primarily intended for use with electrochemical cell lines. Model WM supplies accurate measurement of the most important electrical signals associated with electrochemical production. The measurements are used as management information for control purposes as well inputs into the reports of dc energy efficiency, power conversion efficiency, and current efficiency. While the panel display is continuously updated, the RS 232 output is even more powerful as it provides digital information. This can be easily integrated into the customer's process computer system.

Specifications*

| | |
|--|--|
| Inputs: | |
| Voltage (dc or ac peak) | 0 - 0.1 Volts to 0 - 200 V |
| Current (dc or ac peak) | 0 to 1 mA to 0 - 1.0 A or 4 to 20 mA |
| Input impedance | > 10 M ohms |
| .1 V to 9.5 V | 10.5k Ohm/Volt |
| 9.5 to 200 V | .2 V x Amps |
| 0.1 mA to 1 A | |
| Outputs: | |
| Display | Watthours, watts, volts, amperes |
| Watthour pulse rate | Factory programmed** |
| Display update time | 250 msec |
| External counter | 30 V peak, 100 msec duration, minimum load 70 ohms |
| RS232 data output | WH, W, V, A |
| Analog Output (proportional to watts) | 0 - 1 V to 0 - 10 V |
| Accuracy (Display) | ±0.3% WH, ±0.25% W, ±0.1% V, A |
| Linearity | ±0.04% |
| Repeatability | ±0.06% |
| Temperature sensitivity | ± 0.022% / °C |
| Line voltage sensitivity | ± 0.001% / Vac |
| Ambient operating temperature range | |
| | -4 to 131° F -20 to 55° C |
| Storage Temperature | -40 to 158° F -40 to 70° C |
| Storage Humidity | 85%, non-condensing |
| Power Requirements | |
| | 100/120/220/240 Vac +10 / - 13%, 47 to 63 Hz, 60 VA max. |
| Isolation | |
| Voltage to Current d.c. input | 300 Vac |
| Voltage & Current inputs to all | 300 Vac |
| Line to all | 500 Vac |
| Output to Chassis | 500 Vac |
| Dimensions | |
| | 6.96" H x 19" W x 14.68" D 177mm x 483mm x 373 mm |
| Weight | |
| | 15 lb / 6.6 kg |

Specifications subject to change without notice

Specifications continued on back



Ordering Information

Please specify

1. Model: WM Wattmeter
2. Input voltage signal:
milliampere or voltage
scale factor
3. Voltage display information:
significant digits (5 max + decimal point)
decimal point location
units of measure
4. Input Current signal:
milliampere or voltage_
state the scale factor
5. Current display information:
significant digits (5 max + decimal point)
decimal point location
units of measure
6. Watts display information:
significant digits (5 max + decimal point)
decimal point location
units of measure
7. Watts analog output signal:
full scale value of 1, 5 or 10 volts
8. Watthour counter output rate:
full scale count rate
specify what one count equals.
9. AC mains power to the Model WM
10. Line cord item number from the table below:

| LEM Item Number | Plug Pattern Type | Outlet where used | Country(s) where used (partial list)* |
|-----------------|-------------------|-------------------|---------------------------------------|
| 040225 | A, F | | Continental Europe |
| 040226 | C | | Australia, New Zealand |
| 040227 | D | | United Kingdom, Ireland |
| 040228 | E | | Denmark |
| 040229 | G | | India (old British BS-546) |
| 040230 | H | | Israel |
| 040231 | I | | Italy |
| 040232 | L | | Switzerland |
| 016564 | K | | North America (NEMA 5-15) |
| 040233 | M | | Japan |
| 040234 | N | | Central, South America |

* All general specification errors are expressed in percent of the full scale value.

** Includes documentation and software for field reprogramming.