

Powermonitor II™



Allen-Bradley

Product Profile

The Allen-Bradley Powermonitor II is a microprocessor-based digital meter used for integrating the measured and calculated power parameters of industrial, commercial and utility power systems in automation systems. The Powermonitor II, which consists of a master module and an optional display module, has sophisticated features that are essential for power quality monitoring:

- **High speed oscillography:** The Powermonitor II provides simultaneous capture of oscillograms as a result of its fast sampling rate (180 samples/cycle at 60Hz under all operating conditions). Simultaneous Multi-channel Oscillograph Recordings 1 capture of 7 channels x 67 cycles or 2 captures of 7channels x 33 cycles.
- **Harmonic Analysis:** The Powermonitor II measures percent distortion, magnitude and relative phase angles up to the 41st harmonic. It likewise performs harmonic calculations, such as TIF, %THD, K-factor, Crest factor and compliance check to IEEE-519.
- **Communications:** The Powermonitor II boasts plug-in communication cards that cover a broad variety of different networks, including DF1 over RS-485 and RS-232, Remote I/O, DeviceNet™ and Ethernet™. The Ethernet communication card also includes a built-in HTML web page for Internet read access of all critical power and energy data.

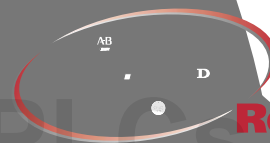
The Complete Power Metering Solution

Perhaps the most important feature of the Powermonitor II is its role as a high-end power quality meter in Rockwell Automations Power and Energy Management Solutions. These systems combine 1) Allen-Bradley power metering hardware, 2) Rockwell Software power management software, 3) a variety of communications protocols, such as Ethernet and DeviceNet, and 4) value-added system integration services. The net result — a complete energy management and automation solution backed by the strength and experience of Rockwell Automation.



Additional Valuable Features:

- Power monitoring with 28-90 ms selectable update rates
- Configurable snapshot data logs, 1800 records of 1 parameter (19 days), 800 records of 3 parameters (8days)
- Event logs that are 100 records deep
- Min-Max logs, values for 84 different parameters
- Time stamped data logging to nearest 0.01 second
- All logs stored internally in a non-volatile memory
- 20 configurable setpoints
- Projected demand
- Ability to do external demand interval sync via external contact closure or communications
- Wiring modes include Direct-Connect Delta
- Optional KWh & kVARh pulse output. Mimics traditional revenue metering output
- Support for addressing onboard I/O using RIO discrete data reads
- Support for optional floating-point data format for higher data resolution
- Code for support of DeviceNet communications card with a user configurable data tables
- IEEE 519 power quality pass/fail test
- ANSI C12.16 revenue accuracy, IEC1036, Class 1
- ANSI C37.90-1989 breaker trip ratings, transient and oscillatory
- UL, CSA, CE certified
- Designed to mount inside switchgear or MCCs



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Measurement Accuracy, Resolution and Range						
Parameter	Accuracy in Percent of Full Scale at 25°C 50/60 Hz		Range (Scale)	Nominal Value	Internal Resolution	
	1403-MM	1403-LM			1403-MM	1403-LM
Volts: V1, V2, V3	± 0.05%	± 0.1%	10 to 115% of nominal	120V _{L-N} /208V _{L-L} and 347V _{L-N} /600V _{L-L}	0.025%	± 0.05%
Current: I1, I2, I3, I4	± 0.05%	± 0.1%	1 to 140% nominal 0.2 to 140 % of nominal	1A 5A	0.025%	± 0.05%
Frequency:	± 0.005 Hz ± 0.05 Hz	± 0.005 Hz ± 0.05 Hz	20 – 75 Hz 75 – 120 Hz	— —	0.001 Hz	0.001Hz
Power Functions: kW, kVA, kVAR Demand Functions: kW, kVA Energy Functions: kWH, kVAH	± 0.1%	± 0.2%	V _{Range} x I _{Range}	V _{Nominal} x I _{Nominal}	0.025%	0.05%
Power Factor (PF)	± 0.1%	± 0.1%	0 to 100%	100%	0.1%	0.1%
Harmonic Data (through 41st)	± 5%	THD only	—	—	—	—
Analog Input	± 1.0%	± 1.0%	0 to 100% of nominal	±1.4V dc / 1.0V ac	0.4%	0.4%

Input and Output Ratings, General Specifications	
Control Power	1403-xMxxA 120V/240V ac 50/60 Hz or 125V/250V dc (0.2 Amp maximum loading)
	1403-xMxxB 24V ac 50/60 Hz or 24V/48V dc (1 Amp maximum loading)
	1403-DMA 120V/240V ac 50/60 Hz or 125V/250V dc (0.05 Amp maximum loading)
	1403-DMB 12V/24V ac 50/60 Hz or 12V/24V/48V dc (0.15 Amp maximum loading)
Voltage Inputs	Nominal Full Scale Input: 120V to 347V L-N (208V to 600V L-L) Input Impedance: 1M ohm minimum
Current Outputs	Nominal Full Scale Input: 0 to 1 Amp (1403-MM01x) 0 to 5 Amps (1403-MM05x) Overload Withstand: 15 Amps continuous 300 Amps for one second Burden: 0.05 VA Impedance: 0.002 Ohms
Status Inputs	Contact Closure (Internal 24V dc), four self-powered status inputs
Analog Inputs	Nominal Input: 1.0 ac/± 1.4V dc Overload Withstand: 120V for one minute
Operating Temperature	-40°C to +60°C (-40°F to +140°F) Cat. No. 1403-MM, -NSC, NENET, NDNET -20°C to +60°C (-4°F to +140°F) Cat. No. 1403-DM
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	5% to 95%, Non-condensing
Vibration	10 to 500 Hz: 1G Operational (±0.006 in.) and 2.5G Non-operational (±0.015 in.)
Shock	1/2 Sine Pulse, 11 ms duration: 15G Operational and 30G Non-operational

Communication Media		
1403-NSC	1403-NENET	1403-NDNET
Remote I/O up to 230.4kbps	Ethernet TCP/IP at 10Mbps	DeviceNet up to 500kbps
RS-232/485 up to 19.2 kbps	Onboard HTML web page	2 user-configurable assemblies