PowerMonitor 1000 Overview

Safety

Follow these advisories when using this product.

ATTENTION: Only qualified personnel, following accepted safety procedures, can install, wire, and service the power monitor and its associated components. Before beginning any work, disconnect all sources of power and verify that they are de-energized and locked out. Failure to follow these instructions can result in personal injury or death, property damage, or economic loss.

ATTENTION: Never open a current transformer (CT) secondary circuit with primary current applied. Include a shorting terminal block in the CT secondary circuit when wiring between the CT's and the power monitor. A shorting block, line fuses, and control power fuses are included in the power monitor accessory kit, catalog number 1400-PM-ACC. Shorting the secondary with primary current present allows other connections to be removed if needed. An open CT secondary with primary current applied produces a hazardous voltage, which can lead to personal injury, death, property damage, or economic loss.

IMPORTANT The power monitor is not designed for, or intended for, use as a circuit protective device. Do not use this equipment in place of a motor overload relay or circuit protective relay.

About the PowerMonitor 1000 Unit

The power monitor is a compact, cost-effective, electric power, and energy metering device intended for use in industrial control applications, such as distribution centers, industrial control panels, and motor control centers. It measures voltage and current in an electrical circuit, meeting revenue accuracy standards. It communicates power and energy parameters to applications such as FactoryTalk® EnergyMetrix™, SCADA systems, and programmable controllers, over Ethernet or serial networks. The power monitor works with these applications to address key customer applications.

- Load profiling – log power parameters such as real power, apparent power, and demand, for analysis of power usage by loads over time
- Cost allocation – reporting actual energy cost by department or process to integrate energy information into management decisions

- Billing and sub-billing – charging users of energy the actual usage cost rather than allocating by square footage or other arbitrary methods
- Power system monitoring and control – display and control power flow and energy utilization
- Capacitor bank control - provides real and reactive power values for use in a PLC-based control system

PowerMonitor 1000 Unit Features and Functions

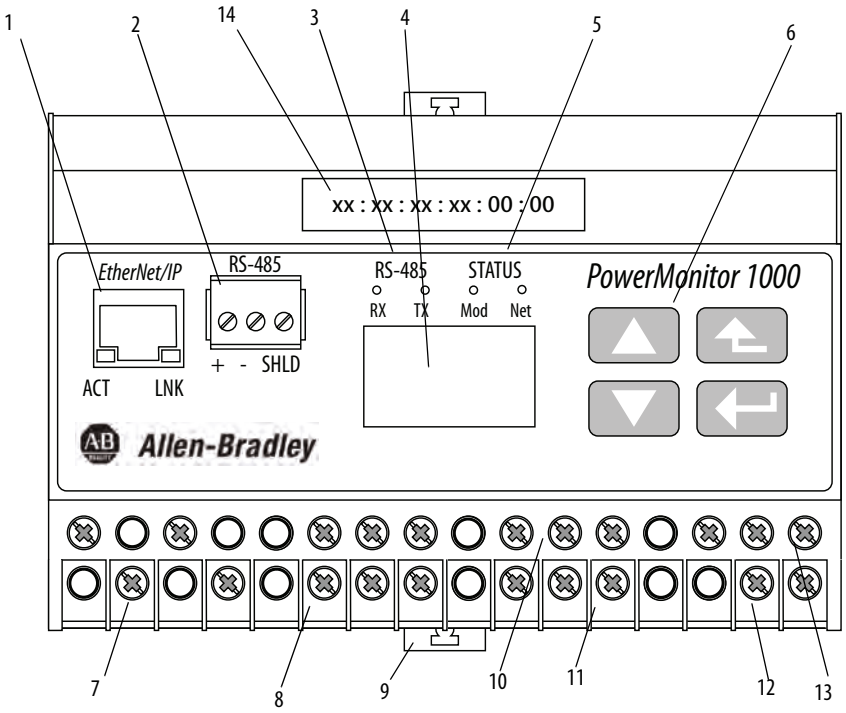
The power monitor connects to your three-phase or split-phase AC power system directly or through instrument transformers (PTs and CTs). The power monitor converts instantaneous voltage and current values to digital values, and uses the resulting digital values in calculations of voltage, current, power, and energy.

The power monitor family includes three models:

- BC3 - Basic consumption meter
- TS3 - Basic consumption and troubleshooting meter
- EM3 – Energy, demand, and power monitor

PowerMonitor™ 1000 unit models TR1, TR2, EM1, and EM2 have been discontinued.

Hardware Features



Specifications

Technical Specifications

Table 100 - Technical Specifications - 1408-BC3A-*xxx*, 1408-TS3A-*xxx*, 1408-EM3A-*xxx*

Attribute	Accuracy in % of Reading at 25 °C (77 °F) 50/60 Hz Unity Power Factor				Nominal / Range
		Applies to			
		BC3	TS3	EM3	
Voltage sense inputs: V1, V2, V3	±0.5%		X	X	Line-neutral rms: 347V / 15…399V Line-line rms: 600V / 26…691V
Current sense input: I1, I2, I3	±0.5%		X	X	5A / 0.05…10.0A rms
Frequency	±0.05 Hz		X	X	50 or 60 Hz / 40…75 Hz
Power functions: kW, kVA, kVAR	EN62053-21:2003 Accuracy Requirement Class 1(1)	X	X	X	
Demand functions: kW, kVA, kVAR				X	
Energy functions: kWH, kVAH, kVARH		X	X	X	
Metering update rates	100 mS V, I, Hz 200 mS Power	X	X	X	

(1) Fast transient external influence tested at 2 kV.

Table 101 - Input and Output Specifications - 1408-BC3A-*xxx*, 1408-TS3A-*xxx*, 1408-EM3A-*xxx*

Attribute	Value
Control power	85…264V AC 47…63 Hz 125…250V DC 4 VA max
Voltage sense inputs: V1, V2, V3	Input impedance: 5 M Ω min Input current: 2 mA max
Current sense inputs: I1, I2, I3	Overload withstand: 15 A continuous, 200 A for 1/2 s Burden: 0.05V A Impedance: 0.002 Ω Max crest factor at 5 A is 3.0 Starting current: 5 mA
Status inputs	Contact closure (internal 24V DC) (except BC3)
KYZ output	80 mA at 240V AC / 300V DC (except BC3)

Table 102 - Environmental Specifications - 1408-BC3A-*xxx*, 1408-TS3A-*xxx*, 1408-EM3A-*xxx*

Attribute	Value
Dielectric withstand	UL61010, EN61010 Pollution Degree 2
Terminal blocks	0.34…2.5 mm^2 (22…14 AWG), 75 °C (167 °F) min copper wire only Recommended torque 0.8 N•m (7 lb•in)
Operating temperature	-10…60 °C (14…140 °F)
Storage temperature	-40…85 °C (-40…185 °F)
Humidity	5…95%, noncondensing
Vibration	2.0 g 10…500 Hz
Shock	30 g peak each axis (operating) 50 g peak each axis (nonoperating)