

Product Details and Certifications

Cross Reference RA Part Number: PN-125795



Product: **1420-V2A-ENT**

Description: Power Monitor 500, 600V AC, 2 Analog Outputs,
EtherNet/IP Communications



Representative Photo Only (actual product may vary based on configuration sections)

POWER SUPPLY DATA

Bulletin Number	1420- Power Monitor 500 Unit
Input Voltage	600V AC
Output Type	2 Analog Outputs
Communications	EtherNet/IP
Start Up Current	5 mA
Control Power	Nominal: 120/240V AC (50/60 Hz) or 120/240V DC Range: 100...240V AC (48...62 Hz)
Voltage (by Direct Connection or VT/PT)	V1: 120/208V LL; V2: 400/600V LL

ACCESSORIES

Accessories	(1) PowerMonitor Protective Connection Kit
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CERTIFICATIONS AND APPROVALS

UL
CE
IEC/EN

For UL Certifications Directory:

<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

Bulletin 1420 - PowerMonitor 500 Unit

Overview

The PowerMonitor 500 unit is an AC power monitor with a built-in advanced configuration system and LCD data display. The unit is designed for measurement of electrical parameters in a variety of three-phase and single-phase circuits. The unit is enclosed in a modular housing for panel mounting, with IP65 degree of protection in front of the panel. The power monitor can be provided with analog or digital outputs. These outputs can be selected to output a pulse proportional to the real and reactive energy measured, or to annunciate alarms. The instrument can also be equipped with a serial RS-485/RS-232 port and an EtherNet/IP port.



Equipped with an optional communication port, the unit communicates power and energy parameters to applications, such as FactoryTalk EnergyMetrix software. The power monitor works with these software applications to address these key customer applications:

- **Load profiling** - log power parameters, such as real energy, 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

Features

PowerMonitor 500 Unit Features

Feature	Availability ⁽¹⁾
Electrical Parameters	
Voltage (V)	X
Current (A)	X
Frequency (Hz)	X
Energy Management	
Power	
Power (kW)	X
Reactive power (kVAR)	X
Apparent power (kVA)	X
True Power Factor	X
Consumption	
Real power consumption (kWh)	X
Reactive power consumption (kVARh)	X
Apparent power consumption (kVAh)	X


PowerMonitor 500 Unit Features

Feature	Availability ⁽¹⁾
Demand	
Demand (kW)	X
Demand (kVAR)	X
Demand (kVA)	X
Demand Power Factor	X
Communication	
EtherNet/IP and Modbus TCP/IP	0
RS-485 (Modbus RTU)	0
Input/Outputs	
Analog Output (0...20 mA)	0
Pulse (digital) Output	0
Other Features	
Configurable via software tool	X
Configurable Alarms	X
Voltage rotation (phase sequence)	X

(1) An '0' indicates that these features are optional.

Product Selection

Available Product

Cat. No.	Description
1420-V1	PowerMonitor 500 power meter indicator, 240V AC V-LL 120V AC V-LN/240V AC V-LL
1420-V1A	PowerMonitor 500 power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, analog output
1420-V1P	PowerMonitor 500 power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, pulse (digital) output
1420-V1-485	PowerMonitor 500 serial power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL
1420-V1A-485	PowerMonitor 500 serial power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, analog output
1420-V1P-485	PowerMonitor 500 serial power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, pulse (digital) output
1420-V1-ENT	PowerMonitor 500 EtherNet/IP power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL
1420-V1A-ENT	PowerMonitor 500 EtherNet/IP power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, analog output
1420-V1P-ENT	PowerMonitor 500 EtherNet/IP power meter, 240V AC V-LL 120V AC V-LN/240V AC V-LL, pulse (digital) output
1420-V2	PowerMonitor 500 power meter indicator, 400V AC V-LN and 600V AC V-LL
1420-V2A	PowerMonitor 500 power meter, 400V AC V-LN and 600V AC V-LL, analog output
1420-V2P	PowerMonitor 500 power meter, 400V AC V-LN and 600V AC V-LL, pulse (digital) output
1420-V2-485	PowerMonitor 500 serial power meter, 400V AC V-LN and 600V AC V-LL
1420-V2A-485	PowerMonitor 500 serial power meter, 400V AC V-LN and 600V AC V-LL, analog output
1420-V2P-485	PowerMonitor 500 Serial power meter, 400V AC V-LN and 600V AC V-LL, pulse (digital) output
1420-V2-ENT	PowerMonitor 500 EtherNet/IP power meter, 400V AC V-LN and 600V AC V-LL
1420-V2A-ENT	PowerMonitor 500 EtherNet/IP power meter, 400V AC V-LN and 600V AC V-LL, analog output
1420-V2P-ENT	PowerMonitor 500 EtherNet/IP power meter, 400V AC V-LN and 600V AC V-LL, pulse (digital) output

➔ Specifications

General Specifications - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Accuracy (Display and RS-485) (at 25 °C ±5 °C, R.H. ≤ 60%, 48...62 Hz)
V1 model	I _{nom} : 5 A, I _{max} : 6 A Line-neutral RMS: 40...144V AC Line-Line RMS: 70...250V AC
V2 model	I _{nom} : 5 A, I _{max} : 6 A Line-neutral RMS: 160...480V AC Line-line RMS: 277...830V AC
Current all models	From 0.01...0.25 A: ±(1.0% of reading (RDG) + 2 digits) From 0.25...6 A: ±(0.5% RDG +2 digits)
Line-neutral voltage	In the range V _{nom} : ±(0.5% RDG +1 digit)
Line-line voltage	In the range V _{nom} : ±(1.0% RDG +1 digit)
Frequency	±0.1 Hz (45...65 Hz)
Real and apparent power	From 0.05...0.25 A, PF 1: ±(2% RDG +1 digit) From 0.25...6 A, PF 0.5L, PF1, PF 0.8C: ±(1.0% RDG+1 digit)
Power factor (PF)	±[0.001+0.5% (1.000 -'PF RDG')]
Reactive power	From 0.5...6 A, sinφ 0.5L/C: ±(2.0% RDG +1 digit) From 0.25...0.5 A, sinφ 0.5L/C: ±(2.5% RDG +1 digit) From 0.25...6 A, sinφ 1.0: ±(2.0% RDG+1 digit) From 0.1...0.25 A, sinφ 1: ±(2.5% RDG+1 digit) TIP: sinφ = VAR/VA
Real energy	Class 1 according to EN62053-21, ANSI C12.1 Class B according to EN50470-3
Reactive energy	Class 2 according to EN62053-23, ANSI C12.1
Start up current	5 mA

Input/Output Specifications - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Value
Voltage Sensing	V1 model: Nominal: 120V AC LN, 208V AC LL Range: 40...144V AC LN RMS, 70...250V AC LL RMS V2 model: Nominal: 400V AC LN, 600V AC LL Range: 160...480V AC LN RMS, 277...830V AC LL RMS
Current Sensing	Nominal: 5 A Range: 0.01...6 A
Control Power	Nominal: 120/240V AC (50/60 Hz) or 120/240V DC Range: 100...240V AC (48...62 Hz)
Sampling Rate	3840 samples/second at 60 Hz, 3200 samples/second at 50 Hz
Rated inputs	System type: 1, 2, or 3-phase
Current range (by CT)	5 A nom (6 A max)
Voltage (by direct connection or VT/PT)	V1: 120/208V LL; V2: 400/600V LL
Crest factor	≤3 (15 A max peak)

Environmental Specifications - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Value
Temperature, operating	-25...+40 °C (-13...+104 °F) (R.H. from 0...90% noncondensing @ 40 °C) according to EN62053-21, EN50470-1 and EN62053- 23
Temperature, storage	-30...+70 °C (-22...+158 °F) (R.H. < 90% noncondensing @ 40 °C) according to EN62053-21, EN50470-1 and EN62053- 23
Installation category	Cat. III (IEC60664, EN60664)
Dielectric strength	4 kV AC rms for 1 minute
Noise rejection CMRR	100 dB, 48...62 Hz
EMC	According to EN62052-11
Electrostatic discharge	15 kV air discharge
Immunity to radiated electromagnetic fields	Test with current: 10V/m from 80...2000 MHz
	Test without any current: 30V/m from 80...2000 MHz
Burst	On current and voltage measuring inputs circuit: 4 kV
Immunity to conducted disturbances	10V/m from 150 KHz...80 MHz
Surge	On current and voltage measuring inputs circuit: 4 kV; on 'L' auxiliary power supply input: 1 kV
Radio frequency suppression	According to CISPR 22

Standard Compliance - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Value
Safety	IEC60664, IEC61010-1 EN60664, EN61010-1
Metrology	EN62052-11, EN62053-21, EN62053-23, EN50470-3
Pulse output	DIN43864, IEC62053-31
Approvals	CE, cULus (E56639)
Connections	Screw-type
Cable cross-section area	2.5 mm ² (14 AWG) max Screw tightening torque: 0.4 N•m min/0.8 N•m max Suggested screw tightening torque: 0.5 N•m

Housing DIN - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Value
Dimensions (WxHxD), approx	Module holder: 96 x 96 x 50 mm (3.78 x 3.78 x 1.97 in.) Digital and analog output type modules: 89.5 x 63 x 16 mm (3.52 x 2.48 x 0.63 in.) Serial and Ethernet Communication type modules: 89.5 x 63 x 20 mm (3.52 x 2.48 x 0.79 in.)
Depth behind panel, max	81.7 mm (3.2 in.)
Material	ABS, self-extinguishing: UL 94 V-0
Mounting	Panel mounting
Pollution degree	2
Front	IP65, NEMA4x, NEMA12
Screw terminals	IP20
Weight, approx	400 g (0.88 lb) (packing included)

Certifications - 1420-Vx, 1420-Vxx, 1420-Vxx-xxx

Attribute	Description
UL/CUL	cULus (E56639)
CE Certification	CE Certifications apply when product is marked. See our Product Certification site for Declarations of Conformity, certificates and other certification details.