Powermonitor™ Products

Our Powermonitor products meet the needs of producers and consumers of electric power. These products provide monitoring and control information for substation and distribution centers, electrical control panels, and many utility, commercial, and industrial applications including motor control centers.

The following power management application definitions help explain the advantages of using power monitoring products.

Demand management is a control system designed to minimize electrical demand penalties that can represent up to 30% of a typical industrial utility bill.

Activity-based cost accounting is a management system that allows a customer to allocate energy costs based on actual usage, which is based on sub-metering rather than other measurements such as square footage allocation.

Power control is a control system where electricity is the process output. There is usually on-site generation, emergency load shedding, or a system where a high-quality and stable electric power source is critical to the process.

Power quality is a management system that monitors power quality events or conditions that could cause a production shutdown like voltage sags, brownouts, transients, and high harmonic distortion.

Load profiling is a management system where electrical loads are monitored or profiled. These load profiles let the user prepare for utility deregulation and make fact-based decisions on future demand-side management control systems.

Power Monitoring Product and Features	See Page
Powermonitor™ 3000 (Bulletin 1404) • Compact size • Oscillography, harmonic analysis, and transient detection • Multiple communication options • Various update rates • Configurable logs up to 45000 parameters deep • Time stamp data logging of system measurements and events	8-71, 8-73, and 8-76
Powermonitor™ 1000 (Bulletin 1408) • Compact size • Multiple communication options • Integrated LCD display • Wiring diagnostics • Time of use (on-peak, off-peak) • Integral data logs • Integral web page	8-71, 8-73, and 8-77 8-71, 7-6, and 8-76
PowerPad Portable Powermonitor™ (Bulletin 1412) • Measures true RMS AC voltage, current, and power • Single phase, three phase, and DC • Capture and display harmonics to the 50th order • Capture transients down to 1/256th of a cycle • Waveform and phasor diagram display • Harmonic data including THD, crest factor, K-factor • Time-stamped record of alarms, surges, and sags • Optically isolated RS-232 communication port • Includes software for data storage, analysis, and reports	8-71, 8-74, and 8-77
Current Transformer (Bulletin 1411) • Low voltage (600 V AC) • Metering grade • Variety of types including round, rectangular, and split-core	8-71, 8-75, and 8-78
Power Monitoring Software (Bulletin 9307) • RSEnergyMetrix® • RSPower™	8-71, 8-75, and 8-80
Combination Generator Control Module (Bulletin 1407) • Generator protection • Excitation control • Synchronization control • Full featured metering • Integration with Allen-Bradley ControlLogix family	8-72, 8-75, and 8-80
Capacitor Bank Controller (Bulletin 1413) • PLC-based Capacitor bank control • Power factor correction • Auto or manual step size configuration • Selectable operating modes • Alarms	8-72, and 8-80

Powermonitor 3000 Products (Bulletin 1404)

The Powermonitor 3000 has four versions, the M4, M5, M6, and the M8. The M4 unit provides basic metering including frequency, voltage, current, and power. It also provides calculated information such as energy consumption, power factor, and total harmonic distortion. The unit also has onboard logging capability that can store data, record the min and max of each parameter, and keep an event log.

The M5 offers M4 functionality with flash upgrade capabilities to higher levels. The M6 unit contains all of this functionality in addition to power quality features such as, extensive waveform capture and storage and spectral analysis up to the 41st harmonic. The M8 adds more sophisticated power quality tools, greater speeds, accuracy and captures sub-cycle transients as well as harmonic analysis up to the 63rd harmonic.

For more information, see publication 1404-PP005.*

Powermonitor 1000 Products (Bulletin 1408)

Energy management and understanding energy costs are a major focus today in the manufacturing industry. The Powermonitor 1000 is a cost effective energy monitoring and control solution. The Powermonitor 1000 is perfect for your applications where load profiling, cost allocation, or energy control is required. It can also provide seamless integration to your existing energy monitoring systems where sub-metering is required. The Powermonitor 1000 is available in five models (two transducers, and three energy-monitors), with features and a price point to meet your application.

Transducer models feature the ability to measure voltage, current, and power related tags. Energy monitor models feature the ability to measure consumption related tags such as real, reactive, and apparent energy. The top-of-the-line energy monitor (EM3) provides all the features of both the transducer and energy monitor models.

The Powermonitor 1000 integrates into your existing energy monitoring systems featuring, RSView, RSPower, or RSEnergyMetrix to further enhance the view into energy costs. Your existing Allen-Bradley PLC's (PLC-5®, SLC™, ControlLogix® Family) can also easily communicate to the Powermonitor 1000 to allow energy data to be used in control systems.

For more information, see publication 1408-PP001.*

PowerPad Portable Powermonitor (Bulletin 1412)

Wouldn't it be nice if you could look inside your electrical system and see what's going on? Troubleshooting would be so much easier if you could see the volts, amps, and harmonic content in real time and take pictures to document and analyze. Now you can do just that and more. The full-color graphical display lets you see and analyze each signal clearly. Its high-speed sample rate, at 256 samples per cycle, provides excellent fidelity in reproducing waveforms and capturing transients that happen as fast as 62.5 µs.

4 MB of memory is conveniently partitioned to let you store four different types of data, synchronized or independent of each other. You can store up to 12 screen snapshots, up to 50 captured transients that contain four cycles for each active input, and 4096 alarm events. You can also record trend data for days, weeks, or even months.

Additional sets of three current probes are available, including 240 A, 1200 A, 6 A/120 A clamp-on probes, 24 and 36 in. "rope" 6500 A current probes, and a single 1000 A AC/1400 A DC clamp-on probe.

For more information, see publication 1412-PP001.*

Current Transformers (Bulletin 1411)

The 1411 series is a full line of low-voltage Current Transformers (CTs) for various power measurement devices and applications.

Power measurement devices include protective relays, analog devices, transducers, and power monitors. The purpose of CTs is to scale high currents to more manageable levels, while preserving a reasonable level of accuracy. CTs typically scale the currents flowing through their primaries to 5 amps (full scale) on their secondaries. The majority of power measurement devices are designed to accept this current level.

Bulletin 1411 Current Transformers are available in ratios from 50:5 to 3500:5 in a variety of solid core, split core, and window sizes.

For more information, see publication 1411-SG001.*

Power Monitoring Software

There are three types of power monitoring software:

- **RS**EnergyMetrix® software offers complete energy management for all utilities on a wide area network
- **RS**Power™ and **RS**Power™Plus software offers simple integration of power monitoring information into an existing human machine interface

RSEnergyMetrix (Bulletin 9307-EM)

RSEnergyMetrix is a sophisticated web-enabled, energy management software that puts critical energy information at your desktop.

The RSEnergyMetrix software suite combines data communication, client-server applications, and Microsoft's advanced .NET™ web technology to provide you with a complete energy-management solution.

With RSEnergyMetrix, you can capture, analyze, store, and share energy data across your entire enterprise via a LAN or WAN using a simple web browser. This makes it a snap to distribute the knowledge you need to optimize energy consumption, which can help improve productivity while lowering energy costs.

Features and Benefits:

Scalable — Has the scalability to add components while maintaining your original investments.

- RSEnergyMetrix Manager
- RSEnergyMetrix RT, real-time view and configure
- RSEnergyMetrix 3PX, 3rd-party OPC connectivity
- RSEnergyMetrix ReportsPlus
- RSEnergyMetrix ChartsPlus

Connectivity — Remote connectivity from PC to metering points.

- Connectivity through RSLinx: RS-232, RS-485, Ethernet, DeviceNet, RIO passthru, optical, and modem (RSLinx Lite is included with the manager package)
- Third part connectivity – with 3PX option via OPC

Configuration — RSEnergyMetrix provides easy and flexible configuration.

- Configure water, air, gas, electricity, and steam meters or any energy or production related inputs
- Configure Manual Meters as placeholders in the database for manual data entry
- Configure user defined data sources such as standard PLC-5 or SLC hardware types or Generic OPC
- Flexible configuration allows you to:
  - Create a model of your facility for utility accounting
  - Put meters in multiple groupings for cost allocation
  - Set and change meter configuration values remotely
  - Set multi-level password protection and privileges

Powermonitor 3000

Environmental		
Operating Temperature, Ambient	1404-MX05X-000, DNT, 1404-DM	–20…+60 °C (–4…+140 °F)
	1404-MX05X-RIO, RS232, ENT	0…55 °C (32…132 °F)
Storage Temperature		–40…+85 °C (–40…+185 °F)
Humidity		5…95% non-condensing
Vibration	10…500 Hz	**operational:** 2 g (±0.012 in.) **non-operational:** 2.5 g (±0.015 in.)
Shock	1/2 sine pulse, 11 ms duration	**operational:** 30 g **non-operational:** 30 g

Input and Output Ratings	
Control Power Input	120/240V AC 50/60Hz or 125/250V DC
Voltage Input Impedance	1 MΩ min., 399V AC max. V1, V2, and V3 to N
Current Sense Inputs	Overload withstand: 15 A continuous, 200 A for 1 s Burden: 0.05 VA Impedance: 0.002 Ω Maximum crest factor (at 5 A): 3.0
Status Inputs	Contact closure (internal 24V DC)
Control Relay Output	ANSI C37.90-1989
KYZ Output	Solid-state KYZ = 80 mA at 240…300V DC

Operational Data		
	Nominal	Range
Voltage	347V 600V	15…399V $_{L-N}$ rms 26…691V $_{L-L}$ rms
Current	5 A	50 mA…10.6 A rms
Frequency	50 or 60 Hz	40…75 Hz

Metering by model type				
	M4	M5	M6	M8
Accuracy				
Voltage	±0.2%	±0.05%	±0.05%	±0.05%
Current	±0.2%	±0.05%	±0.05%	±0.05%
Frequency	±0.05 Hz	±0.05 Hz	±0.05 Hz	±0.05 Hz
Power	±0.4%	±0.1%	±0.1%	±0.1%
Energy	Class 1.0 - ANSI C12.16	Class 0.5 - ANSI C12.20 / EN 60687, Class 0.2 also available		
Features				
Configurable Setpoints	10	10	20	20
Waveform Captures	—	—	8	2
Harmonic Analysis				
Order	—	—	41st	63rd
%THD	X	X	X	X
TIF	—	—	X	X
K-factor	X	X	X	X
Crest factor	—	—	X	X
IEEE 519 Compliance	—	—	X	X
Transient Detection	—	—	—	X

Powermonitor 1000

General Specifications		
Dielectric withstand	Control power	2500V
	Voltage inputs	2500V
	Current inputs	2500V
	Status inputs	2500V
	KYZ output	2500V
Terminal Blocks	0.34…2.5 mm² (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%, non-condensing	
Vibration	2.0 g 10…500 Hz	
Shock	30 g peak each axis (operating) 50 g peak each axis (non-operating)	

Input and Output Ratings	
Control Power	85…264V AC, 47…63 Hz, 2.5 VA max.
Voltage Sense Inputs: V1, V2, V3	Input impedance: 5 MΩ Min. input current: 2 mA max.
Current Sense Inputs: I1, I2, I3, I4	Overload withstand: 15 A continuous, 200 A for 1/2 s Burden: 0.05 VA Impedance: 0.002 Ω Max. crest factor (at 5 A): 3.0 Starting current: 5 mA
Status Inputs	Contact closure (internal 24V DC)
KYZ Output	30 mA at 240V AC/300V DC

Accuracy and Range							
	Accuracy in % of Full-Scale Reading at 25 °C (77 °F) 50/60 Hz Unity Power Factor						
		Applies to:					Nominal/ Range
Parameter		TR1	TR2	EM1	EM2	EM3	
Voltage Sense Inputs: V1, V2, V3	±0.5%	X	X			X	347V/ 15…399V $_{L-N}$ rms 600V/ 26…691V $_{L-L}$ rms
Current Sense Input: I1, I2, I3, I4	±0.5%	X	X			X	5 A/ 0.05…1.0 A rms
Frequency	±0.05 Hz	X	X			X	50 or 60 Hz/ 40…75 Hz
Power Functions: kW, kVA, kVAR	EN62053-21:2003 Accuracy Requirement Class 1		X			X	
Demand Functions: kW, kVA					X	X	
Energy Functions: kWH, kVAH				kWh only	X	X	
Metering Update Rates	100 ms: V, I, Hz 200 ms: Power	X	X	X	X	X	

Fast transient external influence tested at 2 kV.

Powermonitor 1000, Continued

Measured Parameters by model type					
Logged Parameters	TR1	TR2	EM1	EM2	EM3
Voltage	X	X			X
Current	X	X			X
Frequency	X	X			X
Voltage Unbalance	X	X			X
Current Unbalance	X	X			X
Real Power [kW]		X			X
Reactive Power [kVAR]		X			X
Apparent Power [kVA]		X			X
True Power Factor		X			X
Real Energy [kWh]			X	X	X
Reactive Energy [kVARh]				X	X
Apparent Energy [kVAHh]				X	X
Real Power Demand [kW]				X	X
Reactive Power Demand [kVAR]				X	X
Apparent Power Demand [kVA]				X	X
Projected Real Power [kW]				X	X
Projected Reactive Power [kVAR]				X	X
Projected Apparent Power [kVA]				X	X
Demand Power Factor				X	X
Logs	**TR1**	**TR2**	**EM1**	**EM2**	**EM3**
Energy Log			X	X	X
Minimum/Maximum Log	X	X		X	X
Load Factor Log				X	X
Status Log	X	X	X	X	X

Powermonitor 1000 (Bulletin 1408)

Description	Cat. No.
Transducer TR1 - Serial	1408-TR1A-485
Transducer TR1 - EtherNet	1408-TR1A-ENT
Transducer TR2 - Serial	1408-TR2A-485
Transducer TR2 - EtherNet	**1408-TR2A-ENT**
Energy Monitor EM1- Serial	1408-EM1A-485
Energy Monitor EM1- EtherNet	1408-EM1A-ENT
Energy Monitor EM2- Serial	1408-EM2A-485
Energy Monitor EM2- EtherNet	1408-EM2A-ENT
Energy Monitor EM3 - Serial	1408-EM3A-485
Energy Monitor EM3 - EtherNet	**1408-EM3A-ENT**

Powermonitor 1000 Field Upgrade Kits

Description	Cat. No.
PM 1000 485 to ENT Field Upgrade	1408-UP485-ENT
PM 1000 EM1 to EM3 Field Upgrade	1408-UPE1-E3
PM 1000 EM2 to EM3 Field Upgrade	1408-UPE2-E3
PM 1000 TR1 to EM3 Field Upgrade	1408-UPT1-E3
PM 1000 TR2 to EM3 Field Upgrade	1408-UPT2-E3

PowerPad Portable Power Monitor (Bulletin 1412)

Description	Cat. No.
PowerPad Portable Powermonitor w/ 240 A Probes	1412-PP2127-48
PowerPad Portable Powermonitor w/ 1200 A Probes	1412-PP2127-49
PowerPad Portable Powermonitor w/ 24 in., 6500 A Probes	1412-PP2127-50
PowerPad Portable Powermonitor w/ 36 in., 6500 A Probes	1412-PP2127-51

PowerPad Portable Power Monitor Accessories	
Description	**Cat. No.**
Set of three probes (240 A)	1412-PP2137-01
Set of three probes (1200 A)	1412-PP2137-02
Set of three 24 in. probes (6500 A)	1412-PP2137-03
Set of three 36 in. probes (6500 A)	1412-PP2137-04
One probe (1000 A AC/1400 A DC)	1412-PP2137-05
Set of three probes (6/120 A)	1412-PP2137-06

Current Transformers — Split Core (Bulletin 1411) for Energy Management Systems and Instrumentation

Current Ratio	Burden [VA]	ANSI Metering Class B0.1	B0.2	B0.5	Accuracy	Cat. No.
2.00 x 5.50 in. window size						
250:5	1.5	4.8	—	—	—	1411-600-251
300:5	2.0	2.4	—	—	—	1411-600-301
400:5	1.5	2.4	4.8	—	—	1411-600-401
500:5	2.0	2.4	4.8	—	—	1411-600-501
600:5	2.5	2.4	2.4	—	—	1411-600-601
800:5	5.0	1.2	1.2	2.4	—	1411-600-801
1000:5	7.5	1.2	1.2	2.4	—	1411-600-102
1200:5	15	0.6	1.2	1.2	—	1411-600-122
1500:5	20	0.6	0.6	1.2	—	1411-600-152
1600:5	20	0.6	0.6	1.2	—	1411-600-162
2000:5	30	0.6	0.6	0.6	—	1411-600-202
4.50 x 4.50 in. window size						
400:5	1.0	4.8	—	—	—	**1411-601-401**
500:5	1.5	4.8	4.8	—	—	1411-601-501
600:5	2.0	2.4	4.8	—	—	1411-601-601
800:5	2.5	1.2	2.4	4.8	—	1411-601-801
1000:5	5.0	1.2	1.2	4.8	—	1411-601-102
1200:5	10.0	1.2	1.2	2.4	—	**1411-601-122**
1500:5	15.0	1.2	1.2	1.2	—	1411-601-152
1600:5	15.0	1.2	1.2	1.2	—	1411-601-162
2000:5	20.0	0.6	0.6	1.2	—	**1411-601-202**
1.42 x 1.53 in. window size						
100:5	1.0	—	—	—	±5%	1411-604-101
150:5	1.0	—	—	—	±4%	1411-604-151
200:5	1.0	—	—	—	±2%	1411-604-201
250:5	2.0	—	—	—	±2%	1411-604-251
300:5	2.0	—	—	—	±1.5%	1411-604-301
400:5	2.5	—	—	—	±1.5%	1411-604-401
2.75 x 2.70 in. window size (weatherproof)						
200:5	2.5	—	—	—	2%	1411-606-201
250:5	3.0	—	—	—	1%	1411-606-251
300:5	3.5	—	—	—	1%	1411-606-301
350:5	4.0	—	—	—	1%	1411-606-351
400:5	5.0	—	—	—	1%	1411-606-401
500:5	6.0	—	—	—	1%	1411-606-501
600:5	8.0	—	—	—	1%	1411-606-601
750:5	10	—	—	—	1%	1411-606-751
800:5	12	—	—	—	1%	1411-606-801
1000:5	15	—	—	—	1%	1411-606-102
1200:5	20	—	—	—	1%	1411-606-122

Current Ratio	Burden [VA]	ANSI Metering Class B0.1	B0.2	B0.5	Accuracy	Cat. No.
2.60 x 6.25 in. window size (weatherproof)						
500:5	6.0	—	—	—	±1%	1411-608-501
600:5	8.0	—	—	—	±1%	1411-608-601
800:5	12	—	—	—	±1%	1411-608-801
1000:5	13	—	—	—	±1%	1411-608-102
1200:5	16	—	—	—	±1%	1411-608-122
1500:5	25	—	—	—	±1%	1411-608-152
1600:5	27	—	—	—	±1%	1411-608-162
2000:5	33	—	—	—	±1%	1411-608-202
2500:5	42	—	—	—	±1%	1411-608-252
3000:5	50	—	—	—	±1%	1411-608-302
3200:5	54	—	—	—	±1%	1411-608-322
0.75 x 0.75 in. window size (clamp-on)						
100:0.1	5 Ω	—	—	—	±1%	1411-614-101-01
200:0.1	5 Ω	—	—	—	±1%	1411-614-201-01
1.30 x 1.60 in. window size (clamp-on)						
100:5	1.0	—	—	—	±5%	1411-615-101
200:5	2.0	—	—	—	±3%	1411-615-201
300:5	3.5	—	—	—	±1%	1411-615-301
400:5	8.5	—	—	—	±1%	1411-615-401
200:1	1.5	—	—	—	±1%	1411-615-201-1
1.30 x 2.15 in. window size (clamp-on)						
200:5	2.0	—	—	—	±3%	1411-616-201
400:5	5.0	—	—	—	±1%	1411-616-401
800:5	5.0	—	—	—	±1%	1411-616-801
400:0.1	5 Ω	—	—	—	±1%	1411-616-401-01
2.00 x 3.50 in. window size						
400:5	1.0	2.4	4.8	—	—	1411-617-401
500:5	2.0	2.4	4.8	—	—	1411-617-501
600:5	2.5	2.4	2.4	—	—	1411-617-601
800:5	5.0	1.2	1.2	2.4	—	1411-617-801
1000:5	7.5	1.2	1.2	2.4	—	1411-617-102
1200:5	15.0	0.6	1.2	1.2	—	1411-617-122

Current Transformers — Solid Core (Bulletin 1411)

Current Ratio	Burden [VA]	ANSI Metering Class B0.1	B0.2	B0.5	B0.9	B1.8	Cat. No.
5.75 in. dia. window size (for relay and metering)							
600:5	—	0.3	0.3	0.3	0.6	0.6	1411-120-601
800:5	—	0.3	0.3	0.3	0.3	0.6	1411-120-801
1000:5	—	0.3	0.3	0.3	0.3	0.6	1411-120-102
1200:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-122
1500:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-152
1600:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-162
2000:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-202
2500:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-252
3000:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-302
4000:5	—	0.3	0.3	0.3	0.3	0.3	1411-120-402
6.31 in. dia. window size (for metering)							
1000:5	—	0.3	0.3	0.3	0.6	1.2	1411-125-102
1200:5	—	0.3	0.3	0.3	0.6	1.2	1411-125-122
1500:5	—	0.3	0.3	0.3	0.3	0.6	1411-125-152
1600:5	—	0.3	0.3	0.3	0.3	0.6	1411-125-162
2000:5	—	0.3	0.3	0.3	0.3	0.6	1411-125-202
2500:5	—	0.3	0.3	0.3	0.3	0.6	1411-125-252
3000:5	—	0.3	0.3	0.3	0.3	0.6	1411-125-302
3500:5	—	0.3	0.3	0.3	0.3	0.3	1411-125-352
4000:5	—	0.3	0.3	0.3	0.3	0.3	1411-125-402
0.25 in. dia. window size (for metering)							
400:5	4.0	0.6	1.2	2.4	2.4	4.8	1411-126-401
500:5	7.5	0.6	0.6	1.2	2.4	2.4	1411-126-501
600:5	10	0.6	0.6	1.2	2.4	2.4	1411-126-601
800:5	20	0.3	0.3	0.6	0.6	1.2	1411-126-801
1000:5	25	0.3	0.3	0.6	0.6	1.2	1411-126-102
1200:5	40	0.3	0.3	0.3	0.6	0.6	1411-126-122
1500:5	50	0.3	0.3	0.3	0.3	0.6	1411-126-152
1600:5	50	0.3	0.3	0.3	0.3	0.6	1411-126-162
2000:5	60	0.3	0.3	0.3	0.3	0.3	1411-126-202
2500:5	75	0.3	0.3	0.3	0.3	0.3	1411-126-252
3000:5	90	0.3	0.3	0.3	0.3	0.3	1411-126-302
3200:5	95	0.3	0.3	0.3	0.3	0.3	1411-126-322
3500:5	100	0.3	0.3	0.3	0.3	0.3	1411-126-352
4000:5	125	0.3	0.3	0.3	0.3	0.3	1411-126-402
5000:5	140	0.3	0.3	0.3	0.3	0.3	1411-126-502
6000:5	140	0.3	0.3	0.3	0.3	0.3	1411-126-602
2.50 in. dia. with round exterior (for relay and metering)							
50:5	1.5	2.4	—	—	—	—	1411-180RL-500
75:5	2.5	1.2	2.4	—	—	—	1411-180RL-750
100:5	2.5	1.2	2.4	4.8	—	—	1411-180RL-101
150:5	5.0	0.6	1.2	2.4	4.8	—	1411-180RL-151
200:5	12.5	0.6	0.6	1.2	2.4	—	1411-180RL-201
250:5	12.5	0.3	0.3	0.6	1.2	—	1411-180RL-251
300:5	25	0.3	0.3	0.6	1.2	2.4	1411-180RL-301
400:5	50	0.3	0.3	0.3	0.6	1.2	1411-180RL-401
500:5	50	0.3	0.3	0.3	0.6	1.2	1411-180RL-501
600:5	50	0.3	0.3	0.3	0.6	1.2	1411-180RL-601
750:5	50	0.3	0.3	0.3	0.6	1.2	1411-180RL-751
800:5	75	0.3	0.3	0.3	0.6	1.2	1411-180RL-801
1000:5	100	0.3	0.3	0.3	0.3	0.6	1411-180RL-102
1200:5	125	0.3	0.3	0.3	0.3	0.3	1411-180RL-122
1500:5	160	0.3	0.3	0.3	0.3	0.3	1411-180RL-152
1600:5	175	0.3	0.3	0.3	0.3	0.3	1411-180RL-162
2000:5	200	0.3	0.3	0.3	0.3	0.3	1411-180RL-202

Current Ratio	Burden [VA]	ANSI Metering Class B0.1	B0.2	B0.5	B0.9	B1.8	Cat. No.
2.50 in. dia. with square exterior (for relay and metering)							
50:5	1.5	2.4	—	—	—	—	1411-180SHT-500
75:5	2.5	1.2	2.4	—	—	—	1411-180SHT-750
100:5	2.5	1.2	2.4	4.8	—	—	1411-180SHT-101
150:5	5.0	0.6	1.2	2.4	4.8	—	1411-180SHT-151
200:5	12.5	0.6	0.6	1.2	2.4	—	1411-180SHT-201
250:5	12.5	0.3	0.3	0.6	1.2	—	1411-180SHT-251
300:5	25	0.3	0.3	0.6	1.2	2.4	1411-180SHT-301
400:5	50	0.3	0.3	0.3	0.6	1.2	1411-180SHT-401
500:5	50	0.3	0.3	0.3	0.6	1.2	1411-180SHT-501
600:5	50	0.3	0.3	0.3	0.6	1.2	1411-180SHT-601
750:5	50	0.3	0.3	0.3	0.6	1.2	1411-180SHT-751
800:5	75	0.3	0.3	0.3	0.6	1.2	1411-180SHT-801
1000:5	100	0.3	0.3	0.3	0.3	0.6	1411-180SHT-102
1200:5	125	0.3	0.3	0.3	0.3	0.3	1411-180SHT-122
1500:5	160	0.3	0.3	0.3	0.3	0.3	1411-180SHT-152
1600:5	175	0.3	0.3	0.3	0.3	0.3	1411-180SHT-162
2000:5	200	0.3	0.3	0.3	0.3	0.3	1411-180SHT-202

Current Ratio	Burden [VA]	Accuracy	Cat. No.
1.00 in. dia. with round exterior (for relay and metering)			
50:5	1.5	±2%	1411-2DRL-500
60:5	2.0	±2%	1411-2DRL-600
75:5	3.0	±2%	1411-2DRL-750
80:5	4.0	±2%	1411-2DRL-800
100:5	5.0	±1%	1411-2DRL-101
120:5	5.0	±1%	1411-2DRL-121
125:5	5.0	±1%	1411-2DRL-1250
150:5	8.0	±1%	1411-2DRL-151
200:5	10.0	±1%	1411-2DRL-201
250:5	12.5	±1%	1411-2DRL-251
300:5	15	±1%	1411-2DRL-301
1.13 in. dia. with square exterior and bracket (for relay and metering)			
50:5	1.5	±3%	1411-2SFT-500
60:5	2.0	±3%	1411-2SFT-600
75:5	2.0	±2%	1411-2SFT-750
80:5	2.0	±2%	1411-2SFT-800
100:5	2.0	±1%	1411-2SFT-101
120:5	2.5	±1%	1411-2SFT-121
125:5	2.5	±1%	1411-2SFT-1250
150:5	4.0	±1%	1411-2SFT-151
200:5	4.0	±1%	1411-2SFT-201
250:5	6.0	±1%	1411-2SFT-251
300:5	8.0	±1%	1411-2SFT-301
1.13 in. dia. with square exterior (for relay and metering)			
50:5	1.5	±3%	1411-2SHT-500
60:5	2.0	±3%	1411-2SHT-600
75:5	2.0	±2%	1411-2SHT-750
80:5	2.0	±2%	1411-2SHT-800
100:5	2.0	±1%	1411-2SHT-101
120:5	2.5	±1%	1411-2SHT-121
125:5	2.5	±1%	1411-2SHT-1250
150:5	4.0	±1%	1411-2SHT-151
200:5	4.0	±1%	1411-2SHT-201
250:5	6.0	±1%	1411-2SHT-251
300:5	8.0	±1%	1411-2SHT-301

Current Transformers — Solid Core (Bulletin 1411)

Current Ratio	Burden [VA]	ANSI Metering Class B0.1	B0.2	B0.5	B0.9	B1.8	Accuracy	Cat. No.
1.47 in. dia. window size (for energy mgmt. systems and instrumentation)								
200:5	12.5	0.6	0.6	1.2	2.4	4.8	—	1411-605-201
400:5	25	0.3	0.3	0.6	1.2	1.2	—	1411-605-401
600:5	30	0.3	0.3	0.3	0.6	1.2	—	1411-605-601
2.31 in. dia. window size (for energy mgmt. systems and instrumentation)								
150:5	2.5	0.6	1.2	4.8	4.8	—	—	1411-607-151
800:5	35	0.3	0.3	0.3	0.6	0.6	—	1411-607-801
3.25 in. dia. window size with round exterior (for metering)								
200:5	5.0	1.2	1.2	2.4	4.8	4.8	—	1411-8RL-201
250:5	7.5	0.6	0.6	1.2	2.4	4.8	—	1411-8RL-251
300:5	15	0.6	0.6	1.2	2.4	2.4	—	1411-8RL-301
400:5	25	0.3	0.3	0.6	1.2	2.4	—	1411-8RL-401
500:5	35	0.3	0.3	0.6	0.6	1.2	—	1411-8RL-501
600:5	50	0.3	0.3	0.6	0.6	1.2	—	1411-8RL-601
750:5	50	0.3	0.3	0.6	0.6	1.2	—	1411-8RL-751
800:5	60	0.3	0.3	0.3	0.6	0.6	—	1411-8RL-801
1000:5	75	0.3	0.3	0.3	0.6	0.6	—	1411-8RL-102
1200:5	75	0.3	0.3	0.3	0.3	0.6	—	1411-8RL-122
1500:5	90	0.3	0.3	0.3	0.3	0.6	—	1411-8RL-152
1600:5	100	0.3	0.3	0.3	0.3	0.6	—	1411-8RL-162
2000:5	120	0.3	0.3	0.3	0.3	—	—	1411-8RL-202
2500:5	50	0.3	0.3	0.3	0.3	—	—	1411-8RL-252
3000:5	60	0.3	0.3	0.3	0.3	—	—	1411-8RL-302
3200:5	70	0.3	0.3	0.3	0.3	—	—	1411-8RL-322
4000:5	80	0.3	0.3	0.3	0.3	—	—	1411-8RL-402
3.25 in. dia. window size with square exterior (for metering)								
200:5	5.0	1.2	1.2	2.4	4.8	4.8	—	1411-8SHT-201
250:5	7.5	0.6	0.6	1.2	2.4	4.8	—	1411-8SHT-251
300:5	15	0.6	0.6	1.2	2.4	2.4	—	1411-8SHT-301
400:5	25	0.3	0.3	0.6	1.2	2.4	—	1411-8SHT-401
500:5	35	0.3	0.3	0.6	0.6	1.2	—	1411-8SHT-501
600:5	50	0.3	0.3	0.6	0.6	1.2	—	1411-8SHT-601
750:5	50	0.3	0.3	0.6	0.6	1.2	—	1411-8SHT-751
800:5	60	0.3	0.3	0.3	0.6	0.6	—	1411-8SHT-801
1000:5	75	0.3	0.3	0.3	0.6	0.6	—	1411-8SHT-102
1200:5	75	0.3	0.3	0.3	0.3	0.6	—	1411-8SHT-122
1500:5	90	0.3	0.3	0.3	0.3	0.6	—	1411-8SHT-152
1600:5	100	0.3	0.3	0.3	0.3	0.6	—	1411-8SHT-162
2000:5	120	0.3	0.3	0.3	0.3	—	—	1411-8SHT-202
2500:5	50	0.3	0.3	0.3	0.3	—	—	1411-8SHT-252
3000:5	60	0.3	0.3	0.3	0.3	—	—	1411-8SHT-302
3200:5	70	0.3	0.3	0.3	0.3	—	—	1411-8SHT-322
4000:5	80	0.3	0.3	0.3	0.3	—	—	1411-8SHT-402
1.05 in. dia. window size (for ammeters, energy mgmt. sys., and instr.)								
50:5	1.5	—	—	—	—	—	±3%	1411-AL-500
60:5	2.0	—	—	—	—	—	±3%	1411-AL-600
75:5	2.0	—	—	—	—	—	±2%	1411-AL-750
80:5	2.0	—	—	—	—	—	±2%	1411-AL-800
100:5	2.0	—	—	—	—	—	±1%	1411-AL-101
120:5	2.5	—	—	—	—	—	±1%	1411-AL-121
125:5	2.5	—	—	—	—	—	±1%	1411-AL-1250
150:5	4.0	—	—	—	—	—	±1%	1411-AL-151
200:5	4.0	—	—	—	—	—	±1%	1411-AL-201
250:5	6.0	—	—	—	—	—	±1%	1411-AL-251
300:5	8.0	—	—	—	—	—	±1%	1411-AL-301
400:5	10	—	—	—	—	—	±1%	1411-AL-401

RSEnergyMetrix Power Management Software (Bulletin 9307)

Description	Cat. No.
RSEnergyMetrix Manager (0…8 meters)	**9307-EM8MGRENE**
RSEnergyMetrix Manager (9…64 meters)	**9307-EM64MGRENE**
RSEnergyMetrix Manager (65…10 000 meters)	**9307-EM10KMGRENE**
RSEnergyMetrix Real Time	**9307-EMRTENE**
RSEnergyMetrix 3rd Part OPC Client Connectivity (0…8 meters)	**9307-EM83PXENE**
RSEnergyMetrix 3rd Part OPC Client Connectivity (9…64 meters)	**9307-EM643PXENE**
RSEnergyMetrix 3rd Part OPC Client Connectivity (65…10 000 meters)	**9307-EM10K3PXENE**
RSEnergyMetrix ReportsPlus	**9307-EMRPTENE**
RSEnergyMetrix ChartsPlus	**9307-EMCHTENE**
RSEnergyMetrix Manager (0 - 8 meters) with MSSQL - 1, Processor Unlimited MSSQL Clients	9307-8MGDBPENE
RSEnergyMetrix Manager (9 - 64 meters) with MSSQL - 1, Processor Unlimited MSSQL Clients	9307-64MGDBPENE
RSEnergyMetrix Manager (65 - 10K meters) with MSSQL - 1, Processor Unlimited MSSQL Clients	9307-10KMGDBPENE
RSEnergyMetrix Manager (0 - 8 meters) with MSSQL - 1, MSSQL Client only	9307-8MGDBCENE
RSEnergyMetrix Manager (9 - 64 meters) with MSSQL - 1, MSSQL Client only	9307-64MGDBCENE
RSEnergyMetrix Manager (65 - 10K meters) with MSSQL - 1, MSSQL Client only	9307-10KMGDBCENE

RSPower and RSPowerPlus Power Management Software (Bulletin 9307)

Description	Cat. No.
RSPower Works without Comms Drivers	9307-RSP32WENE
RSPower Runtime without Comms Drivers	9307-RSP32RENE
RSPower Runtime bundled with Comms Drivers	9307-RSP32LXRENE
RSPower Works bundled with Comms Drivers	9307-RSP32LXWENE
RSPowerPlus Runtime bundled with Comms Drivers	9307-RSPPLXRENE
RSPowerPlus Works bundled with Comms Drivers	9307-RSPPLXWENE
RSPowerPlus Runtime without Comms Drivers	9307-RSPPRENE
RSPowerPlus Works without Comms Drivers	9307-RSPPWENE

Combination Generator Control Module (Bulletin 1407)

Description	Cat. No.
Combination Generator Control Module	1407-CGCM

Capacitor Bank Controllers (Bulletin 1413)

Description	Cat. No.
CapBank Controller without PanelView	1413-CAP-ME
CapBank Controller with PanelView	1413-CAP-ME-PE