POWERLOGIC® Selection Guide

Metering & monitoring devices for every application

SQUARE D
Schneider Electric
Building a new electric world

Fortune 100 companies use SQUARE D power management — shouldn't you?

Fortune 100 companies know how to protect their assets and drive productivity through smart, strategic decisions. More than 90% of those companies share at least one strategic decision— turning to Square D POWERLOGIC® products for their power management.

To improve the return from your operations, you need special protection against downtime. That's POWERLOGIC power management. It helps curb operating costs by maximizing uptime. It boosts equipment life, pre-empts capital outlays and trims energy consumption. Simply put, it gives you more control.

Reliable products, innovative systems and expert engineering services. Single source power management solutions. It's not just a concept to us, it's a legacy and a promise. It's for companies that seek an edge in productivity. That's why leaders turn to Schneider Electric.

	Energy Meter B/E	Enercept B/E	Power Meters			Circuit Monitors			
			PM600	PM620	PM650	CM3250	CM3350	XA4W	CM4000
Basic Instrumentation									
Current, per phase	■ / ■	/ ■	■	■	■	■	■	■	■
Current, neutral				■	■	■	■	■	■
Current, 3 phase average	■ / ■	/ ■				■	■	■	■
Current Demand, Max., per phase				■	■	■	■	■	■
Current Demand, Max., neutral				■	■	■	■	■	■
Voltage, per phase (L-L, L-N)	■ / ■	/ ■	■	■	■	■	■	■	■
Voltage, 3 phase average	■ / ■	/ ■				■	■	■	■
Real Power, 3 phase total (kW)	■ / ■	■ / ■	■	■	■	■	■	■	■
Reactive Power, 3 phase total (kVAR & kVA)	■ / ■	/ ■	■	■	■	■	■	■	■
Power Factor, 3 phase total	■ / ■	/ ■	■	■	■	■	■	■	■
Real Power Demand, Present	Opt	/ ■		■	■	■	■	■	■
Real Power Demand, Peak				■	■	■	■	■	■
Real Energy (kWh)	■ / ■	■ / ■	■	■	■	■	■	■	■
Reactive Energy (kVARh)			■	■	■	■	■	■	■
Apparent Energy (kVAh)			■	■	■	■	■	■	■
Frequency			■	■	■	■	■	■	■
Reactive Power Demand, Present				■	■	■	■	■	■
Reactive Power Demand, Peak				■	■	■	■	■	■
Apparent Power Demand, Present				■	■	■	■	■	■
Apparent Power Demand, Peak				■	■	■	■	■	■
Predicted Real/Reactive/Apparent Power Demand 3 phase total					■	■	■	■	■
Real Energy, IN & OUT (kWh)						■	■	■	■
Reactive Energy, IN & OUT (KVARh)						■	■	■	■
Min/Max Readings I, V, F, PF, THD, TOTAL KW KVAR	KW	KW			■	■	■	■	■
Real, Reactive, Apparent Power, per phase			■	■	■	■	■	■	■
Power Factor, per phase	■ / ■	/ ■	■	■	■	■	■	■	■
THD, Voltage and Current per phase				■	■	■	■	■	■
Advanced Instrumentation									
Voltage N-G								■	■
Current, Ground						■	■	■	■
Fund. Volt./Current Magnitudes & Ang, per phase				■	■	■	■	■	■
Fundamental Real & Reactive Power, 3 phase, per phase						■	■	■	■
Incremental Real/Reactive/Apparent Energy IN & OUT, 3 phase total						■	■	■	■
Harmonic Power Flows						■	■	■	■
Trending and Forecasting						■	■	■	■
Flicker IEC61000-4-15									Opt
ITIC / SEMI F47 / NEMA MG-1-1998						Opt	Opt	Opt	Opt
Logging									
Memory (std/optional)	/ Opt				1k	8MB	8MB	8MB	8M/32MB
Interval Min/Max/Avg Log						■	■	■	■
Alarm/Event Log					■	■	■	■	■
Maintenance Log						■	■	■	■
Min/Max Log					■	■	■	■	■
Time Synchronization									
Block Interval Demand				■	■	■	■	■	■
Clock Synchronized Demand						■	■	■	■
Comms. Clock Synchronization							■	■	■
Command Synchronized Demand					■	■	■	■	■
Input Synchronized Demand						■	■	■	■
GPS Clock Synchronization Capability						■	■	■	■

	Energy Meter B/E	Enercept B/E	Power Meters			Circuit Monitors			
			PM600	PM620	PM650	CM3250	CM3350	XA4W	CM4000
Alarming									
Setpoint-Driven Alarms V,KW,KVA,I,PF,KVAR						■	■	■	■
Boolean						■	■	■	■
Digital Inputs / Outputs						■	■	■	■
High Speed (100ms)						■	■	■	■
Disturbance (10msec)							■		■
Transient (1microsec)									CM4000T
Communications									
RS-485	Opt	■ / ■	■	■	■	■	■	■	■
RS-232								■	■
Onboard Ethernet						Opt	Opt	Opt	Opt
Infrared Port	■ / ■					Opt	Opt	Opt	Opt
I/O									
KYZ / KY Output	/ ■		■	■	■	■	■	■	■
Digital Inputs / Outputs, (Maximum)						(8)	(8)	(24)	(24)
Analog Inputs / Outputs, (Maximum)								(4)	(4)
Time Stamping Accuracy						1 ms	1 ms	1 ms	1 ms
Event Recording									
Steady State Waveform Capture						■	■	■	■
Disturbance WFC							■	■	■
Adaptive Waveform Capture									■
100ms Event Recordings							■		■
Metering Characteristics									
Sampling Rate, Samples/Cycle on 60Hz			64	64	64	128	128	128	512*
Voltage Input Range VAC	240 / 480	480 / 480	35-600	35-600	35-600	35-600	35-600	35-600	35-600
Current Input Range AC, STD (Maximum)			0-10	0-10	0-10	0-10	0-10	0-10	0-10 (100)
Accuracy of Voltage/Current reading	1%	1%	0.25%	0.25%	0.25%	0.075%	0.075%	0.04%	0.04%
Control Power (Voltage Range)									
VAC	120/120-277	120-480	90-600	90-600	90-600	90-305	90-305	90-305	90-305
VDC			100-300	100-300	100-300	100-300	100-300	100-300	100-300
Standards Compliance									
Accuracy IEC Class						0.5	0.5	0.2	0.2
Accuracy ANSI 12.20			■	■	■	■	■	■	■
Emissions FCC Part 15 Class A/CE			■	■	■	■	■	■	■
CE Marking			■	■	■	■	■	■	■
Other									
Onboard HTML Web Page server						Opt	Opt	Opt	Opt
Programmable Logic								■	■
Register Based Event Log						■	■	■	■
Downloadable Firmware			■	■	■	■	■	■	■
Math and Logic Functions								■	■
Panel Mounting			■	■	■	■	■	■	■
DIN Rail Mounting			■	■	■	■	■		

* CM4000T has a sampling rate of 83,333 samples/cycle

monitoring and control devices

At Square D/ Schneider Electric, we have the most complete, and the most advanced, line of power monitoring products, for any level of your operation. Products like the award-winning POWERLOGIC® CM4000T Circuit Monitor, and the unparalleled POWERLOGIC Power Server, help keep you at the forefront of power monitoring and control technology.

SERIES 4000 CIRCUIT MONITORS

- Features all basic and advanced metering functions while providing a 0.04% typical accuracy rate
- 14 data logs and up to 32MB of memory available
- Three types of waveform capture— steady state, disturbance and adaptive
- Sag/swell detection to less than 1/2 cycle
- Trending and forecasting functions
- Optional Web-enabled access directly to meter
- 15MHz sampling rate that allows detection of transients lasting only one microsecond (available with CM4000T)
- GPS time synchronization option

POWER METER

- Basic metering functions allow metering of current, volts, power, energy and demand readings
- Power quality readings include total harmonic
- Distortion for current and voltage readings
- Min/max values
- Alarm/relay functions
- Event and data logging on pre-configured values

ENERCEPT METER

- The meter is in the CT!
- Innovative design eliminates the need for a separate meter enclosure
- Reduces installation cost by as much as 70%

SERIES 3000 CIRCUIT MONITORS

- Advanced metering functions allow all the basic, as well as phase rotation, demand voltage, and ground current readings
- Data logging with 8MB of memory standard
- Sag/swell monitoring
- Trending and forecasting functions
- Optional Web-enabled access directly to meter
- Waveform capture with disturbance monitoring (available on the CM3350)

ENERGY METER

- Highly accurate industrial grade splitcore CTs
- Precision microprocessor-based metering electronics
- Exceptional metering accuracy and reduced installed cost

circuit monitor accessories

Extend the functionality of your POWERLOGIC System with I/O modules or our line of easy to add accessories, including current/voltage modules, Ethernet communication cards and network solutions.

ETHERNET COMMUNICATION CARD

The ECC is an optional Ethernet communication card and can be installed in either the CM3000 or CM4000. It has two main functions:
- Equip the circuit monitor with a fast Ethernet connection over a 10/100 Mbits/s copper link or a 100 Mbits/s fiber-optic link
- Serve as an Ethernet gateway for devices daisy-chained to its RS485 MODBUS® port

The ECC card also includes a server for six HTML pages that may be consulted by a standard web browser. The pages may be customized and will display information from the host circuit monitor and/or devices connected to its MODBUS port.

CURRENT / VOLTAGE MODULES

■ *CVM*

This is the CM4000 acquisition module for currents and voltages, supplied already installed on the CM4000. If the circuit monitor must be recalibrated, this is the only module requiring calibration. It may be installed and removed in the field. This module may also be replaced in the field by a CVMT module (below) to transform a CM4000 into a CM4000T.

■ *CVMT*

This is the CM4000T acquisition module for currents and voltages, suitable for the detection of transient phenomena with a 5 MHz voltage-sampling rate. The CVM may also be installed and removed in the field. Supplied already installed on the CM4000T.

■ *CVMXR*

The extended range current/voltage (CVMXR) has the same metering capability as the CVM, with the additional ability to detect and capture up to 100 amperes on directly connected loads for one second, or 20 amperes on directly connected loads continuously. The CVMXR is a class .5 module. Some applications for the CVMXR include motor starts, or other events, with large inrush current characteristics.

SATELLITE TIME SYSTEM

- The Satellite Time System can quickly and easily synchronize your circuit monitors, enabling full management of a critical power distribution system, assuring reliability.
  - Campus wide, circuit monitor time synchronization to ±1 millisecond
  - Time synchronization signal for up to 32 circuit monitors
  - Up to 15 sequence of event inputs per circuit monitor (CM4000)

INPUT / OUTPUT BLOCKS

■ *IOC44 Card*

This is an input/output card equipped with:
- 4 digital inputs 20-138 V AC/DC
- 4 digital outputs, including 3 relay outputs and a static output that may be programmed as a pulse output. It may be installed in the option-card slots of the circuit monitor

There are three possible configurations: 1) IOC44 card, (2) IOC44 cards, or (1) IOC44 card and (1) Ethernet ECC21 card.

■ *IOX I/O Extender*

The IOX input/output extender may be equipped with up to eight plug-in input or output modules. The entire unit connects to the side of the circuit monitor. The input/out modules may be digital or analog.

Three pre-equipped versions may be ordered directly, the IOX08, IOX0404 and IOX2411. Other versions may be user prepared by ordering an empty IOX extender and separate I/O modules. In this case, the IOX extender may be equipped with up to a maximum of four analog modules.

network solutions

Power Server

Heavy duty server improves energy data collection and features:
- Display for up to 64 POWERLOGIC and MODBUS devices
- 10 GB hard drive, 128 MB RAM
- Access to alarms, trends, reports, waveforms and diagrams, through standard Web browser, using PWRSRV750
- Energy and data consolidation including water, air, gas, steam and electric values, to a Web accessed interface.

Ethernet Gateway

This Web-enabled Ethernet gateway simplifies power monitoring and features:
- Fast 10 or 100 MB/sec communciations
- Communications to as many as 64 devices
- Either two RS-485 ports or one port models that can be configure to RS-232
- Fiber optic port (available on EGX400)
- 8 MB of memory (available on EGX400)
- Web access to any MODBUS serial device (available with EGX400)

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