

Connected Components Building Blocks

Energy Management



Connected Component Building Blocks provide the overhead so you can concentrate on making your machine the best in the market



Connected Components Building Blocks

Connected Components Building Blocks (CCBB) from Rockwell Automation® provide you with the information you need to quickly and easily implement common control tasks in your machine design.

Take advantage of best practice based examples with:

- Lists of compatible materials
- Panel and wiring drawings
- Status and diagnostic control programs and HMI screens
- Quick start guide
- All available on DVD, CC-QR001_-MU-C

Energy Management

Energy management is an important task to improve energy efficiencies not only at your facility level, but also on an individual machine level. Four Connected Component Building Blocks have been designed to assist with the following applications:

Base Powermonitor™ 1000 System: When a separate stand-alone display, PanelView™ Component C300, is needed, this building block provides a local display for the Powermonitor 1000 that can be mounted on the door panel, it will provide navigation to metering (Power, Energy, Voltage and Current) parameters using the touch screen.

Plant Power Metering System: Provides a single view of power meters in your plant over EtherNet/IP. Configure per your single line diagram, and view up to five Powermonitors from one color PanelView Component 600. The application also allows real time display of all power and energy parameters and trending of KW demand.

W.A.G.E.S. Energy Solution: Understand the energy consumption in your facility by monitoring W.A.G.E.S. (Water, Air, Gas, Electric, Steam). This building block provides up to 10 discrete and four analog inputs.

Capacitor Bank Controller: Take advantage of controls for turning on/off capacitor banks to maintain a good power factor. It allows you to configure and define control schemes for your capacitor banks.

Solution Specific Advantages

- Ability to improve energy management on low-end machines.
- Multiple Powermonitors metering on a single place at the plant floor.
- Understand power consumption at the machine level to lower demand (KW) charges and improve plant efficiency.
- Improve plant power factor to avoid additional utility penalties.
- Track plant W.A.G.E.S.

LISTEN.
THINK.
SOLVE.™

Connected Components Energy Management

SENSING

W.A.G.E.S. Transmitters (Flow sensors)

- Flow meters are used in numerous branches of industry to measure the volume flow of liquids, gases and steam
- Our partnership with Endress+Hauser broadens the variety of process instruments



CONNECTIVITY

Terminal Block (1492-J)

- Self-locking screw clamp allows tight connection
- Superior jumpering capability
- Four-sided funnel wire guides for easy wire installation
- Designed for DIN rail mounting with a full range of accessories and specialty blocks



We offer products suited for applications around the world. Below are some options:

IEC Miniature Circuit Breaker (1492-SP)

- Rated 0.5 A ... 63 A and 240/415 VAC and 48 VDC
- 1 pole, 2 pole, 3 pole, 1 pole + N and 3 pole + N versions
- Bus bars available, 1 phase, 2 phase, 3 phase, and 4 phase
- Auxiliary contact and shunt trip modules available
- VDE certification

UL489 Listed Miniature Circuit Breaker (1489)

- Rated 0.5 A ... 40 A and 480Y/277 VAC, 240 VAC, 48 VDC
- 1 pole, 2 pole, 3 pole versions
- Bus bars available, 1 phase, 2 phase, 3 phase
- Auxiliary contact and shunt trip modules available

Power Supply (1606-XL)

- 15W-960W output (@24V DC)
- 1, 2 or 3 phase voltage input
- Quick-connect spring clamp or screw terminals
- Built-in reserve power up of 150% of nominal current

POWER



We offer products suited for applications around the world. Below are some options:

Circuit Breakers (140U)

- Compact size, 30% reduction in panel
- Field installable accessories while maintaining UL 489
- Dual ratings – UL 489, IEC 60947-2

Disconnect (194R)

- Panel space savings – smaller footprint
- High fault withstanding rating – up to 200kA with UL Class J and CC fuses
- Superior short circuit protection – Type 2 coordination

Molded Case Circuit Breakers (140UE)

- Field installable accessories while maintaining IEC 60947-2
- KEMA-KEUR approval
- Multiple levels of interrupting capacity available

Load Switches (194E)

- 16...100A
- 3 or 6 pole switch configurations for OFF-ON or Change-over applications
- Front/Door or Base/DIN rail mounting
- Wide choice of actuators, all with IP66 protection degree

Power Distribution Blocks (1492-PDE)

- UL recognized, CSA certified, CE compliant
- IP20 from the front
- Multi-pole assembly possible with easily gangable units
- High fault SCCR up to 100 kA

PanelView Component (2711C)

- Monitor and setup equipment parameters
- Alarm, recipe and security improve diagnostics, reduce errors and protect against unauthorized changes
- Web-browser editor reduces number of software tools
- Displays ranging from 2" monochrome to 10" color
- Serial communication included, Ethernet 10/100 Mbps on 6" and 10"

**OPERATOR INTERFACE****Powermonitor 1000 (1408)**

- Cost effective energy monitoring and control solution
- Available in five models (two transducers, and three energy-monitors)
- Compact size
- Available EtherNet/IP, Serial DF1, Modbus RTU, Modbus TCP communications
- Integrated LCD screen
- Configuring/Monitoring with web interface

MicroLogix (1761, 1762, 1763, 1764, 1766)

- Five controller versions to choose from
- Available communication options include DeviceNet, Ethernet and Serial protocols
- High-speed embedded I/O with the flexibility of expansion I/O
- Online editing, embedded display and built-in 10/100 Mbps EtherNet/IP on 1100 and 1400

LOGIC CONTROL**Capacitor Bank Controller**

- Automatically switch capacitors in and out of the three phase electrical system in order to maintain a predetermined level of power factor.

Base Powermonitor 1000 System

The Powermonitor 1000 monitors energy and demands parameters for the power line to which it is connected. Powermonitor 1000 provides basic power and energy parameters such as realtime power and demands kW/kVAR, kVA, energy consumption kWh/kVARh/kVAh, power factor, voltage and current. These energy values are then displayed real-time on a PanelView Component HMI. All energy parameters can be logged, trended and have reports generated in the RSEnergyMetrix software package.

Plant Power Metering System

Install a Powermonitor 1000 to a power line to analyze the power consumption, voltage, current, or other energy parameters. Through a pre-developed screen designed for a PanelView Component HMI, you can view the real-time energy parameters of up to five Powermonitor 1000s from a single location on the plant floor. The HMI application is configurable. All energy parameters can be logged, trended, and have reports generated in the RSEnergyMetrix software package.

W.A.G.E.S. Energy Solution

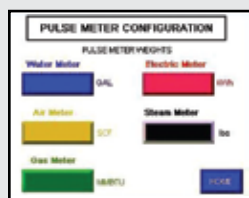
The W.A.G.E.S. (Water, Air, Gas, Electric, Steam) Energy Solution provides you with the tools needed to analyze a variety of different forms of energy consumption used on the plant floor. Connect a flow, pressure, temperature, etc. meter into the Analog/Discrete input card of the MicroLogix1100 to calculate your W.A.G.E.S. consumption data. The W.A.G.E.S. data can be displayed real-time on a PanelView Component HMI display. All W.A.G.E.S. data parameters can be logged, trended, and have reports generated in the RSEnergyMetrix software package.

Capacitor Bank Controller

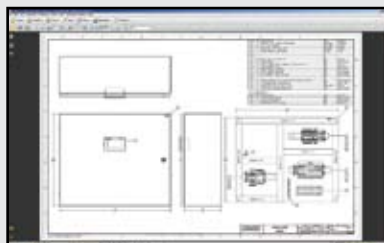
The Powermonitor 1000 calculates the power factor of the line to which it is connected. This information is communicated to a pre-written MicroLogix 1400 application. The MicroLogix1400 will then engage and disengage a series of capacitor banks onto the power line. The Capacitor Bank Controller solution will help improve power factor issues and helps avoid additional power factor penalties from your electrical utility provider that are caused by inductive loads (such as motors). Configuration and real-time data viewing are performed through a PanelView Component HMI.

Above is a typical representation of the components used in this system solution. Your requirements could vary based on your specific machine needs.

Building Block Components



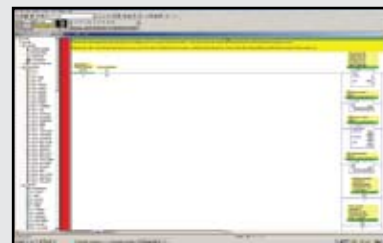
HMI Screen



CAD Drawing



Quick Start for CCB



Ladder Logic Code

Applications

- Machine Level Monitoring
- Demand Management
- Electrical Optimization
- Emergency Load Shed
- Electrical SCADA
- Energy Accountability

Connected Components Solution

The following sample bill of materials lists core products. For a complete solution bill of materials (includes power circuit components, control circuit components, sensors and pushbuttons) order the Connected Components Building Blocks DVD, CC-QR001_-MU -C.

CCBB Energy Management Basic Products		
Quantity	Catalog Number	Description
1	1766-L32BXX	MicroLogix™ 1400, 12 digital fast 24V DC inputs, 8 digital 24V DC inputs, 6 relay outputs, 3 fast 24V DC outputs, 3 normal 24V DC outputs, 24V DC power
1	1408-EM3A-ENT	Powermonitor 1000 Energy Monitor EM3 Ethernet
1	2711C-T6C	PanelView Component 6" color touchscreen terminal
1	2711P-CBL-EX04	Ethernet CAT5 crossover cable (industrial grade) 4.3 m (14 ft)
1	1606-XLP50E	Compact Power Supply, 24-28V DC, 50 W, 120/240V AC / 85-375V DC Input Voltage
CCBB Products for Programming		
Quantity	Catalog Number	Description
1	9324-RLM0100ENE	RSLogix™ Micro Starter (English) CD-ROM
CCBB Energy Management Software Package (Optional)		
Catalog Number		Description
9307-8MGDBPENE		RSEnergyMetrix® Manager (0-8 Meters), W/1 MSSQL Processor License (for more options see catalog)
9307-RSPPLXWENE		RSPower™Plus Works Bundled with Communication Drivers

For additional information, please visit www.rockwellautomation.com/go/connected

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