

# EGCP-3 MC

## Multi-unit Mains Controller Generator System Control Package

### Description

The EGCP-3 MC is a powerful microprocessor-based system control and management package designed for the most demanding power generation applications.

The EGCP-3 MC combines power system, switchgear, bus and utility monitoring, protection, and control functions in a single, compact, and cost-effective package.

Perfect for medium and large-sized generating systems, the EGCP-3 MC is designed for use in ATS, peaking, or utility paralleled systems.

The MC is a supervisory control system that works with EGCP-3 LS units to provide total system control, including multiple utility tie applications.



### Applications

#### Real kW Load Control

- True RMS power calculations
- Configurable load/unload ramp rates
- Load control of up to 15 EGCP-3 LS units using percentage based load sharing
- Utility Import/Export KW control
- Process control
- Externally adjustable load or process references (using Analog Inputs or Modbus)

#### Reactive kVAR Control

- Configurable load/unload ramp rates
- PF or VAR control using percentage based load sharing
- Utility Import/Export VAR or PF control
- Externally adjustable VAR or PF references (using Analog Inputs or Modbus)
- Manual voltage control capability

#### Automatic Transfer Switch (ATS)

- Open or Closed transition
- Configurable fast transfer time, LOM action delay, utility and bus stable delay
- Zero power transfer across breaker during closed transition
- Emergency Power Supply (EPS) supplying load alarm and discrete output
- LOM alarms and discrete output
- Load shed on overload

#### Peaking Control

- Automatic start/stop based on time of day or demand level
- Four time-of-day programs with two starts and durations per program
- Parallel to utility or perform open/closed transition for time-of-day starts
- Configurable time delayed start/stop and immediate start for demand levels
- Configurable time delay
- Automatic demand monitoring of multiple mains inputs

- Complete system control package
- Automatic load-demand sequencing of multiple units
- Synchronization of two breakers/contactors
- Comprehensive system protection—bus and utility
- Revenue-grade power and energy metering
- Digital display of bus, utility, and system data
- Real kW and reactive kVAR control
- Advanced network communications with Echelon<sup>®</sup> and Modbus<sup>®</sup> networks
- Built-in system diagnostics

**Synchronizing**

- Phase match or slip frequency synchronization with voltage matching
- Full three-phase sensing on both buses
- Adjustable phase window, voltage window, re-close attempts, re-close timing
- Dead bus closing logic internal to the control
- Synch check (25)
- Breakers or contactors

**Communications**

- Modbus® \* RTU via RS-232/-422/-485 serial ports
- ServLink, Watch Window via RS-232/-422/-485 serial ports
- Echelon® \*\* TP/XF-1250 network (LON)

**Diagnostic Features**

- Breaker/Contactor synchronization timeout and re-close alarms
- Breaker/Contactor feedback and shunt trip alarms
- Phase Rotation Mismatch
- Network communication error alarms
- Analog input out-of-range alarms
- Configuration check

**Bus Protective Features**

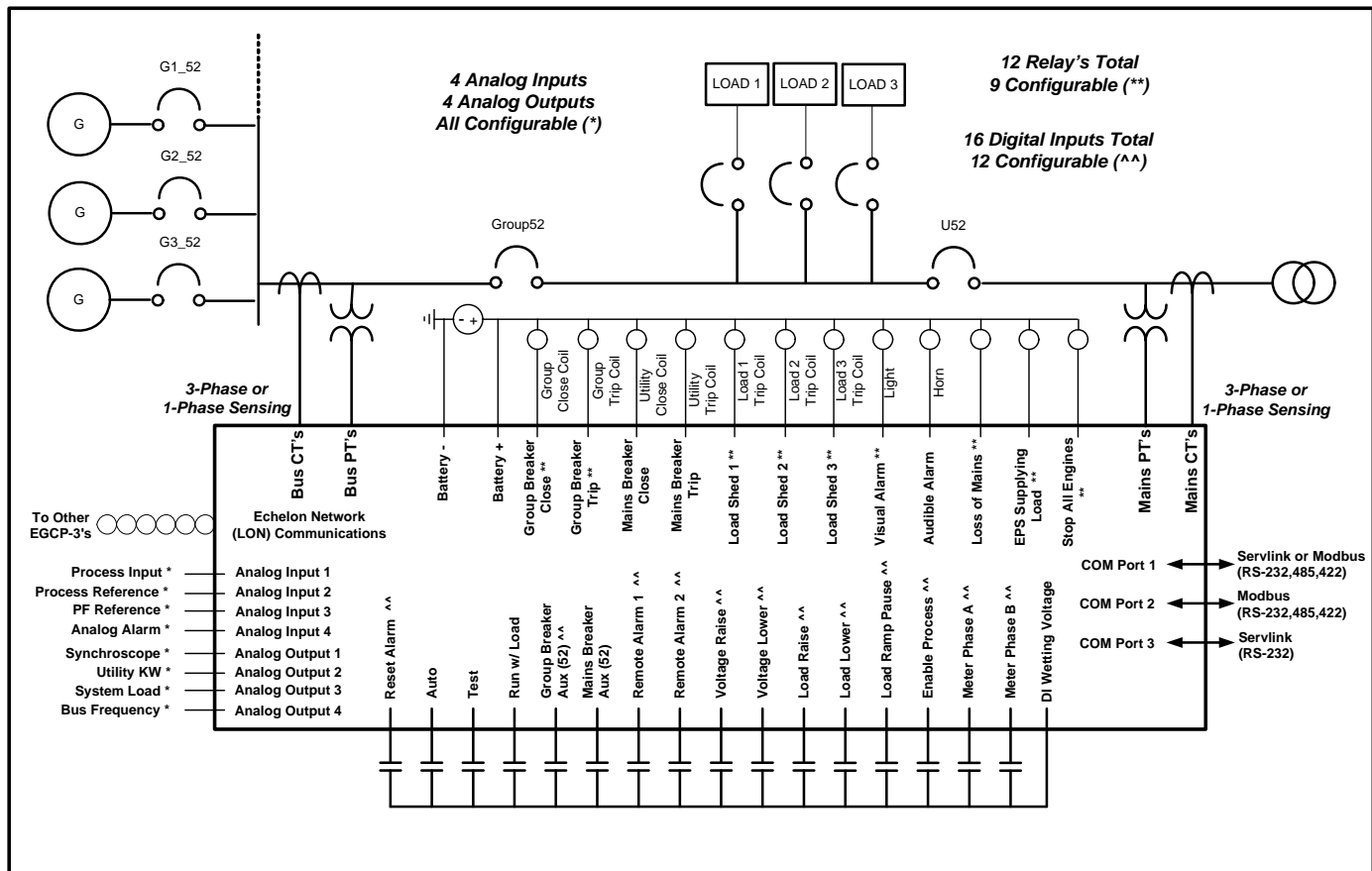
- Over/Under Voltage (59, 27)
- Over/Under Frequency (81O, 81U)
- Directional (Forward/Reverse) Power (32) \*
- Negative Sequence Phase Overcurrent (46)
- Negative Sequence Phase Overvoltage (47)
- Phase Overcurrent (51) \*
- Voltage Restrained Phase Overcurrent (51V)\*
- Directional VAR
- Phase Current Imbalance (46) \*

**Utility Protective Features**

- Over/Under Voltage (59, 27)
- Over/Under Frequency (81O, 81U)
- Directional (Import/Export) Power (32) \*
- Negative Sequence Phase Overcurrent (46)
- Negative Sequence Phase Overvoltage (47)
- Phase Overcurrent (51) \*
- Voltage Restrained Phase Overcurrent (51V) \*
- Directional VAR
- Phase Current Imbalance (46) \*
- Loss of Mains/Loss of Mains with Alarm
- Load Surge (islanding protection)

\*—Modbus® is a trademark of Schneider Automation Inc.  
 \*\*—Echelon® is a trademark of Echelon Corporation

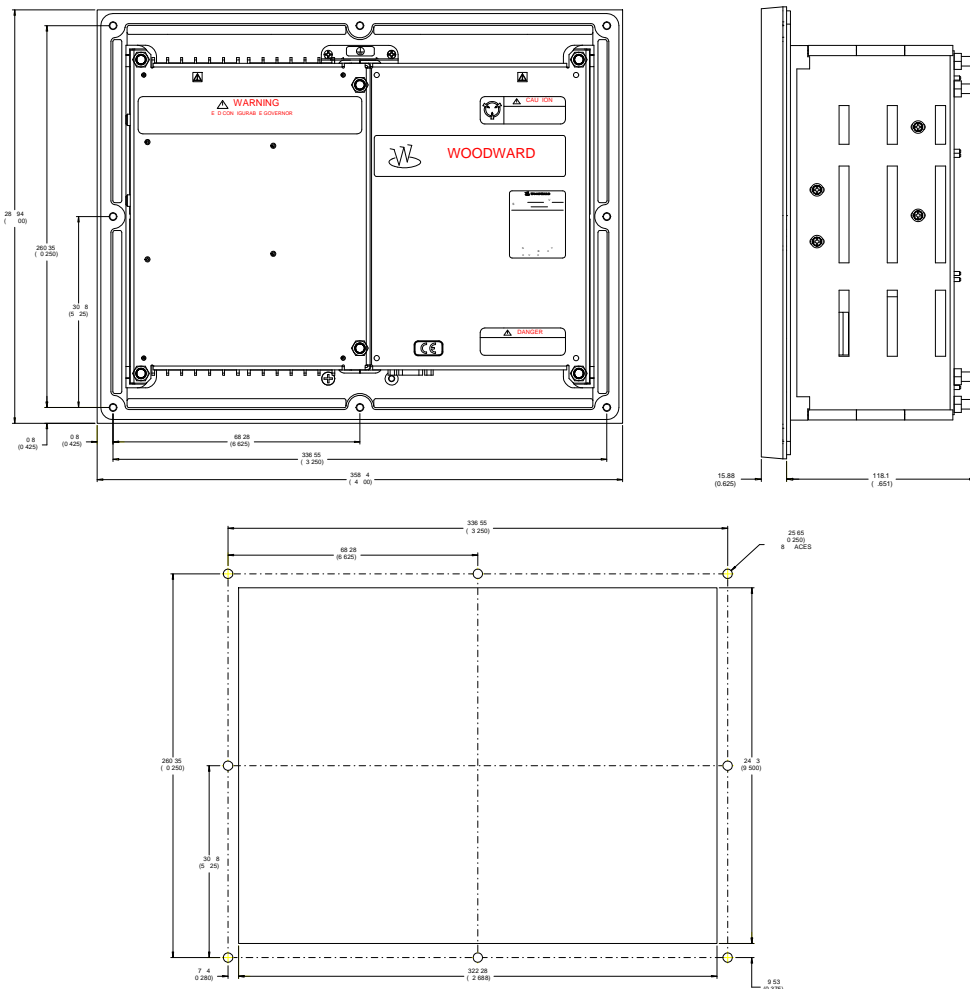
\*—Inverse Time Protections implemented are according to IEEE C37.112 "Very Inverse" curves



**EGCP-3 MC Interactions**

# Hardware Specifications

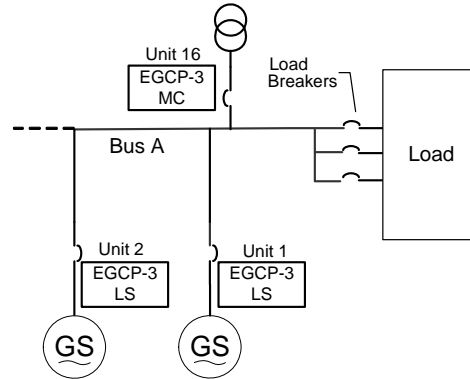
Size:	282 mm (11.1") high x 358 mm (14.1") wide x 134 mm (5.275") deep
Operator Interface Panel:	8 (20 character) lines plus membrane keypad
Power Supply Voltage:	24 Vdc system (18–32 Vdc nominal; 9–40 Vdc maximum)
Control Part Numbers:	MC: 8406-114
	Installation Manual: 26122
	Operation Manual: 26195
Connectors:	Terminal blocks are screwless CageClamp-style blocks. PT and CT inputs are fixed screw terminals.
Voltage Measuring Input Range:	70–300 Vac
Current Measuring Inputs:	5 Aac RMS nominal, 7 Aac RMS maximum
Rated short-time current (1 sec)	10 X (I) rated (8406-114 Rev D or later)
Temperature Range:	–20 to +70 °C (–4 to +158 °F) operating –30 to +80 °C (–22 to +176 °F) storage
Humidity:	95% at 60 °C non-condensing
Enclosure Rating:	Type 4 (NEMA) requirements from the front panel and properly installed in an equivalent enclosure
Vibration:	Suitable for engine skid or control cabinet Random Test: 10–2000 Hz at 0.04 G <sup>2</sup> /Hz and 8.2 Grms PSD
Mechanical Shock:	30 G peak, 11 ms duration, non-operating
Regulatory Compliance:	Class I, Division 2, Groups A, B, C, D for North America Zone 2, Group IIC for Europe Declared to the EMC; Low-Voltage, and ATEX Directives
Marine Type Approval:	American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, and Lloyds Register



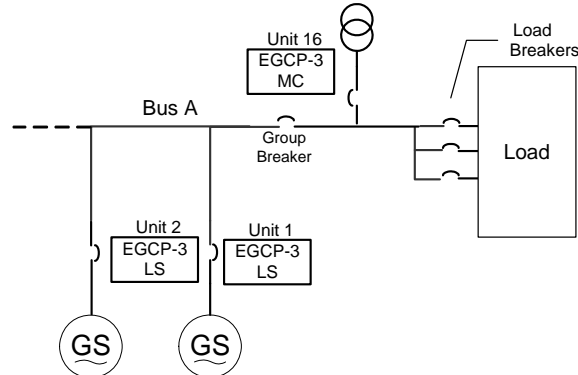
**EGCP-3 Outline Drawing and Panel Layout Template**  
(Do not use for construction)

## EGCP-3 MC Applications/Configurations

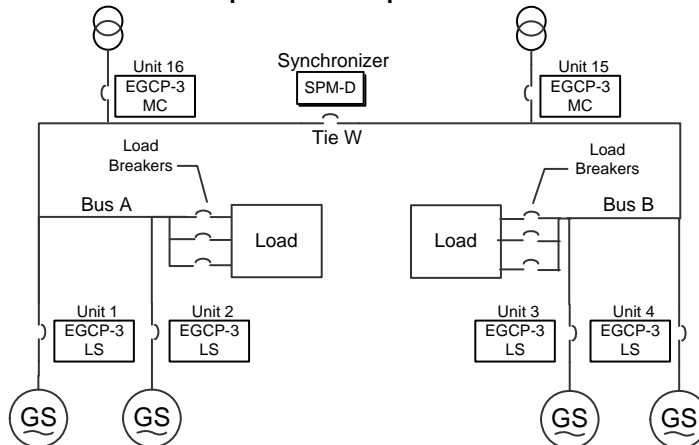
### Multiple Unit–Utility Parallel



### Multiple Unit–ATS



### Multiple Unit–Multiple Unit Parallel



### Other Configurations

- Single Utility–Multiple Bus
- Multiple Utility–Single/Multiple Bus

For a complete set of EGCP-3 Installation/Operation manuals or Application Notes on the above configurations, download from the Woodward website at: [www.woodward.com/publications](http://www.woodward.com/publications)



PO Box 1519, Fort Collins CO, USA 80522-1519  
 1000 East Drake Road, Fort Collins CO 80525  
 Tel.: +1 (970) 482-5811 • Fax: +1 (970) 498-3058  
[www.woodward.com](http://www.woodward.com)

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