

## EGCP-2

### Engine Generator Control Package

#### Applications

The EGCP-2 is a complete microprocessor-based engine-generator control and management package. It is designed for use with an automatic voltage regulator and a speed control to automate and protect diesel or gas engine based generator sets.

Designed for up to 30 000 kW generator sets, the EGCP-2 can be configured to operate stand-alone or utility paralleled.

A network of EGCP-2 controls is capable of controlling up to eight un-manned generator sets for base-load, peak shaving or backup power generation.



#### Description

The control's functions include:

##### Engine Control

- Engine Pre-glow Control
- Fuel Solenoid Control
- Engine Starter Control
- kVA Controlled Cool-down Timer
- Oil Pressure Monitoring
- Water Temperature Monitoring
- Battery Voltage Monitoring
- Speed Monitoring with Overspeed Protection

##### Synchronizing

- Digital signal processing to eliminate harmonic issues
- Adjustable phase window, voltage window, and dwell times
- Safe dead bus closing logic internal to the control
- Synchronization across generator and mains breakers
- Multiple shot re-closing with adjustable time delays
- Manual voltage and speed adjusts for manual synchronizing

##### Real kW Load Control

- True RMS power calculations
- Load Bias Signal to engine speed control, configurable for  $\pm 3$  Vdc, 0–5 Vdc, or 500 Hz PWM
- Configurable load/unload ramp rates
- Isochronous load-sharing of up to 8 units using percentage-based load sharing
- Base load control for optimum fuel efficiency
- Import/Export control using a watt transducer
- Soft Utility Transfer Function
- Externally adjustable Base Load or Process Reference levels with independent ramp rates
- kW droop provided for manual load control

- Engine Control
- Gen-Set Synchronizing
- Automatic Sequencing of Multiple Units
- Automatic Start/Stop Control
- Digital Display of Engine and Generator Data
- Real kW Load Control
- Reactive kVAR Control
- Gen-Set Protection
- Engine Protection
- Modbus<sup>®</sup> Communications

**Reactive kVAR Control**

- PF sharing on isolated bus
- Voltage Trim feature for single generator operation
- Voltage Bias signal to AVR configurable for  $\pm 1$ ,  $\pm 3$ , or  $\pm 9$  Vdc
- Power Factor or VAR control when base loaded
- Externally adjustable VAR or PF setpoint levels

**Automatic Generator Sequencing**

- Automatically starts and stops gen-sets based on system load demand
- Configurable system load demand start/stop levels and timers
- On-line engine priority sequence configurability from any EGCP-2 or a PLC to equalize run-time

**Engine Protective Features**

- High/Low Coolant Temperature
- High/Low Oil Pressure
- Overspeed
- Battery Voltage
- Start Failure

**Generator Protective Features**

- Over/Under Voltage
- Over/Under Frequency
- Reverse Power (Inverse time delay)
- Reverse VARs
- Overcurrent (Inverse time delay)
- Loss of Utility Power detection
- Speed/Frequency Mismatch
- Load Surge

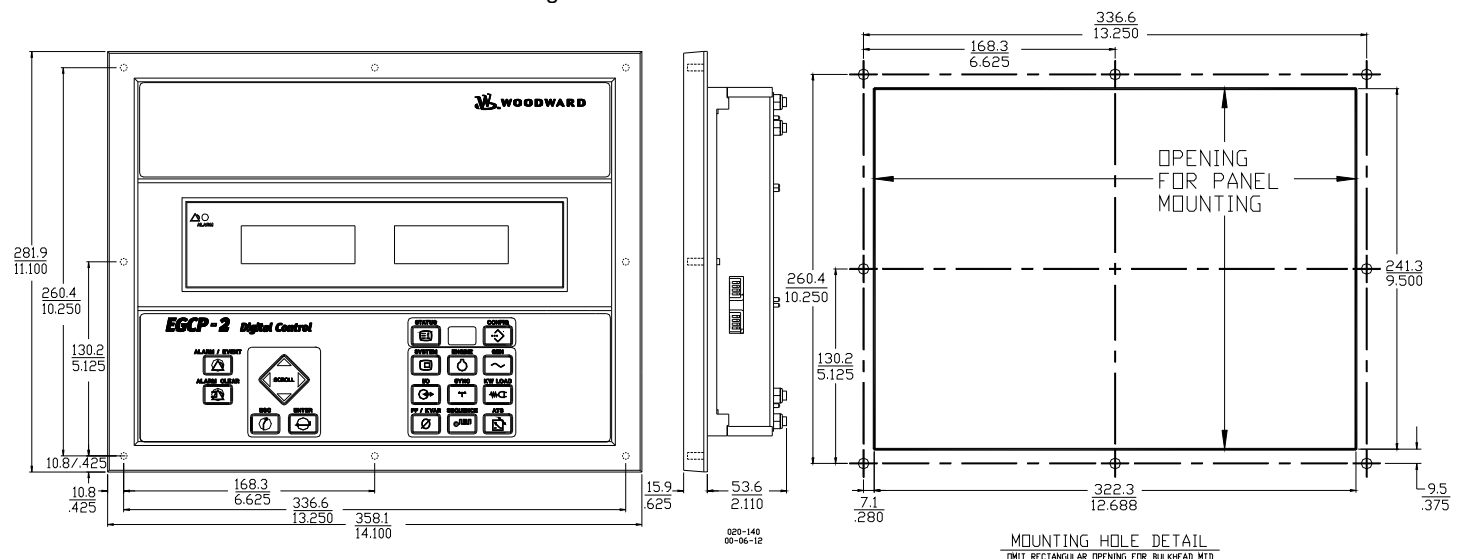
**Communications**

- Modbus® \* or DDE communications via RS-422 based serial port
- EGCP-2 Control View HMI for PC
- RS-485 EGCP-to-EGCP load-sharing communications network
- EGCP-2 Configuration file Upload/Download capability through a PC interface program

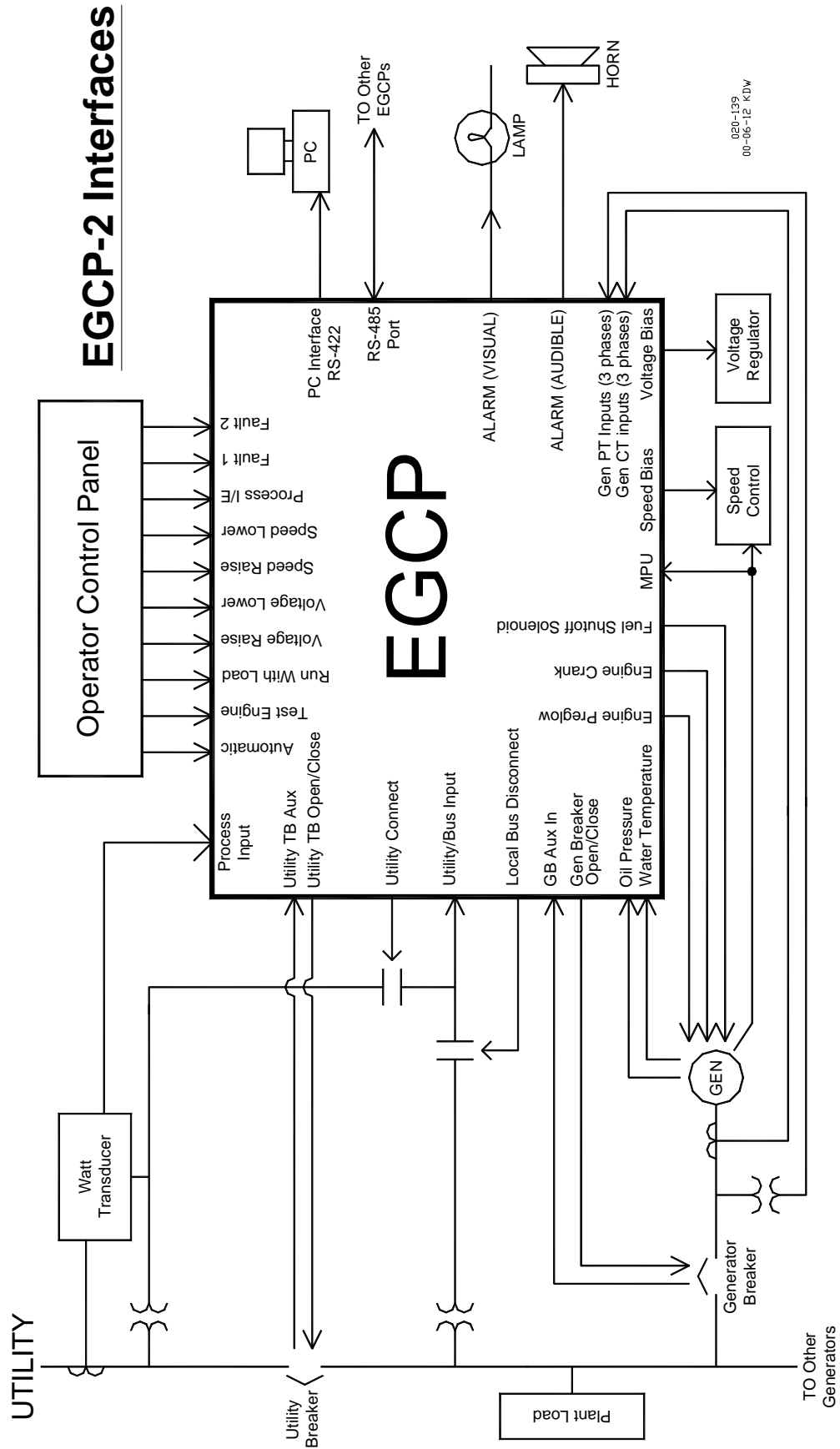
\*—Modbus is a trademark of Schneider Automation Inc.

**Hardware Specifications**

Size:	282 mm (11.1") high x 358 mm (14.1") wide x 69 mm (2.7") deep
Operator Control Panel:	8 (20-character) lines plus membrane keypad
Power Supply Voltage:	12 or 24 Vdc nominal (9–32 Vdc)
Control Part Numbers:	8406-120 (150–300 Vac PT sensing range) 8406-121 (50–150 Vac PT sensing range)
Connectors:	Terminal blocks are screwless CageClamp style blocks
Operating Temperature Range:	–20 to +70 °C (–4 to +158 °F), around outside of EGCP-2 chassis
Relative Humidity:	95% non-condensing, at 30 to 60 °C
Regulatory Compliance:	The EGCP-2 is marked in accordance with EMC and Low Voltage Directives and is UL/cUL and CSA listed for ordinary locations.
Vibration:	Suitable for engine skid or control cabinet.



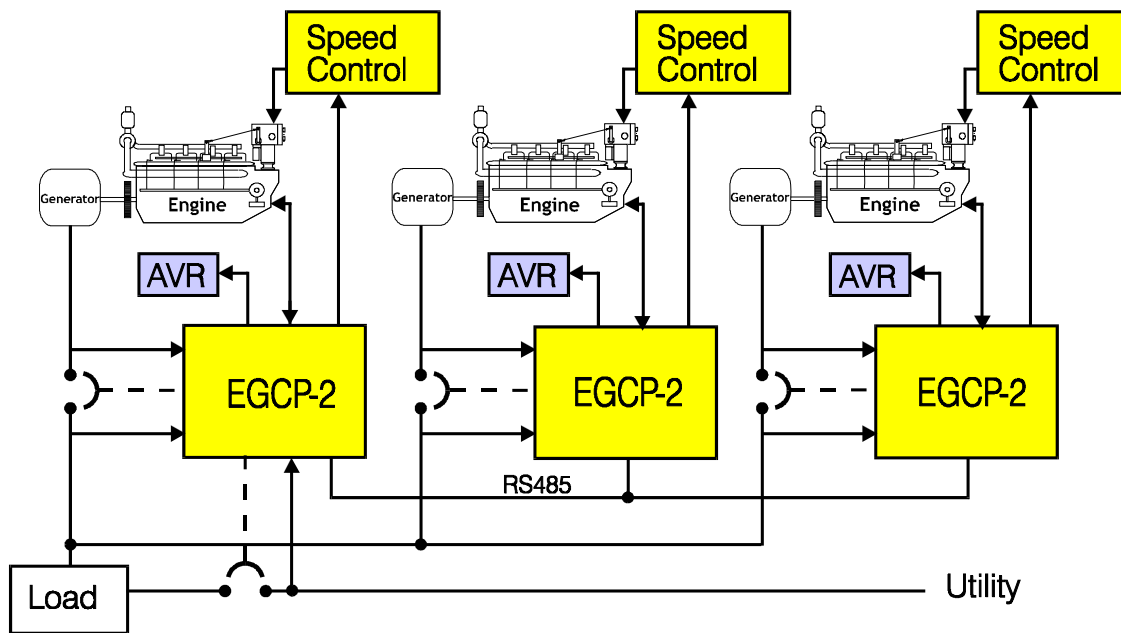
**EGCP-2 Outline Drawing (Do not use for construction)**



EGCP-2 Interactions

## EGCP-2 Applications

- Single Unit—No Utility Parallel
- Single Unit—Utility Parallel
- Multiple Unit—No Utility Parallel
- Multiple Unit—Utility Parallel



**Typical Multiple Unit Parallel Application**

For a complete set of EGCP-2 Installation/Operation or Application manuals, connect to the Woodward Internet website and download the desired manual(s):

<http://www.woodward.com/ic>

Installation & Operation	manual 26174
Application	manual 26175
Communication	manual 26181



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