



## EMCP 3.1 GENERATOR SET CONTROLLER

### GENERAL DESCRIPTION

The Cat® EMCP 3.1 combines engine and generator control and monitoring with a single, robust panel for quick key access to engine and generator controls, diagnostics, and operating information. Engine and generator controls, diagnostics, and operating information are accessible via the control panel keypads. The EMCP 3.1 features a graphical display with an adjustable backlight as well as an advanced engine monitoring system. These features add to the sense of value and dependability that comes with your purchase of Caterpillar products.

### OPERATOR INTERFACE

- Graphical display with positive image, transreflective LCD, adjustable backlight/contrast
- Two LED status indicators (1 red, 1 amber)
- Three Engine Control Keys and Status Indicators (Run/Auto/Stop)
- Lamp Test Key
- Alarm Acknowledgement Key
- Display Navigation Keys
- Two Shortcut Keys: Engine Operating Parameters and Generator Operating Parameters

### FEATURES/BENEFITS

- A 33 x 132 pixel, 24 mm x 95 mm, white backlit graphical display denotes text alarm/event descriptions and is visible in all lighting conditions.
- Textual display with multiple language capability, including character languages such as Arabic, Chinese, and Japanese.
- Simultaneous viewing of AC L-L voltages and AC line currents or AC L-N voltages and AC line currents.
- User-friendly, convenient, customer programmability directs the customer to logical parameter groups (Ex. AC metering, engine monitoring) for quick keypad access.
- Set points and software are stored in nonvolatile memory, preventing loss during a power outage.
- Compatibility with both mechanical and electronic engines makes it versatile.
- True RMS sensing ensures AC metering accuracy of  $\pm 2\%$  for AC voltage and current.
- Three levels of security allow for configurable operator privileges.
- Single, standard 70-pin connector

## COMMUNICATION

- J1939 (Primary Data Link)

## ENVIRONMENTAL SPECIFICATIONS

- Environmentally sealed front face rated for IP56. Resistant to chemical splash, including: diesel fuel, engine oil and machine oil.
- Protection level IP22 on rear of controller
- Resistant to salt spray
- Vibration: withstands 4.3G @ 24-1000 Hz
- Shock: withstands 15G
- Monitoring Functionality and Controls Operational from -40° C to 70° C (-40° F to 158° F)
- Display Operational from -20° C to 70° C (-4° F to 158° F)
- Storable from -40° C to 85° C (-40° F to 185° F)
- 0 to 95% Humidity, non-condensing from 30° C to 60° C (86° F to 140° F)

## STANDARDS

- UL 508 Listed
- CSA C22.2 No.100, 14, 94
- Complies with all necessary standards for CE Certification
  - 98/37/EC Machinery Directive
    - BS EN 60204-1 Safety of Machinery
  - 89/336/EEC EMC Directive
    - BS EN 50081-1 Emissions Standard
    - BS EN 50082-2 Immunity Standard
  - 73/23/EEC Low Voltage Directive
    - EN 50178 LVD Standard
- ISO3046, ISO8528
- IEC529, IEC60034-5, IEC61131-3
- MIL STND 461

## STANDARD FEATURES

### CONTROLS

- Auto/Start/Stop
- Engine Cool-Down Timer
- Emergency Stop
- Engine Cycle Cranking
- Lamp Test

### DIGITAL (LCD) INDICATION

- Generator AC Voltage – 3 phase (L-L and L-N)
- Generator AC Current (per phase and average)
- Generator Frequency
- Engine RPM
- Battery Voltage
- Engine Hours
- Engine Oil Pressure
- Engine Coolant Temperature
- Twenty (20) Event Fault Log

#### Notes:

1. Temperature indications are viewable in either °C or °F (operator selectable).
2. Pressure indications are viewable in psi, kPa, or bar.

## STANDARD FEATURES (CONT'D)

### WARNING/SHUTDOWN INDICATION

- Overcrank
- High Coolant Temperature Warning/Shutdown
- Low Oil Pressure Warning/Shutdown
- Overspeed
- High/Low Battery Voltage
- Emergency Stop Activated
- Control NOT in AUTO

#### Notes:

- Warning condition activates common alarm output signal and common flashing yellow indicating lamp.
- Shutdown condition activates common shutdown output signal and common flashing red indicating lamp.
- Warning/Shutdown conditions result in text message on EMCP 3 display.

### DIGITAL INPUTS (6 TOTAL)

- Emergency Stop
- Remote Start
- 4 Programmable

Digital inputs can be programmed for various alarm, shutdown, and status conditions including:

- Low Fuel Level
- High Fuel Level
- Fuel Leak Detected
- High Exhaust Temperature
- Air Damper Closed
- Circuit Breaker Open/Closed
- Low Engine Oil Level
- Low Coolant Level
- Low Starting Air Pressure
- Low/High Ambient Air Temperature
- Spare Fault #1-6

Inputs can be programmed for either high or low activation using programmable Normally Open or Normally Closed contacts.

Note: The number of programmable Digital Inputs may vary based on specific package configuration. Refer to Engine Installation Guide for specific engine application.

### RELAY OUTPUTS (6 TOTAL)

- Starter Motor
- Fuel Control
- 4 Programmable

Relay outputs can be programmed for various operating conditions including: Air Shut-off, or Pre-lube, Common Alarm, Common Shutdown, Common Warning, Engine Running, Crank Alert, and Idle/Rated.

Relays are rated for 2A @ 30 VDC and consist of 6 Form A (Normally Open) contacts. Two of the programmable outputs are Form C (Normally Open and Normally Closed) contacts.

*Note: These are only rated for DC.*

Note: The number of programmable Relay Outputs may vary based on specific package configuration. Refer to Engine Installation Guide for specific engine application.

### SENSOR INPUTS

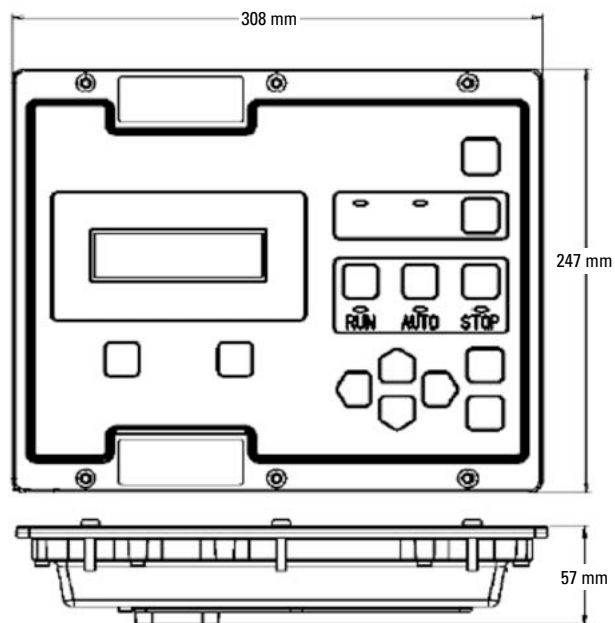
- Engine Speed (Magnetic Pick-up)
- Engine Oil Pressure (0-2 k  $\Omega$  resistive sender, 1 or 2-wire) – MUI Engines only
- Engine Coolant Temperature (0-2 k  $\Omega$  resistive sender, 1 or 2-wire) – MUI Engines only

## AVAILABLE LOCAL DISPLAY LANGUAGES

• Arabic	• Italian
• Czech	• Latvian
• Danish	• Lithuanian
• Dutch	• Norwegian
• Estonian	• Polish
• Finnish	• Portuguese
• French	• Russian
• German	• Slovak
• Greek	• Slovene
• Hungarian	• Spanish
• Icelandic	• Swedish
	• Turkish

*Note: Displays contain 2 languages  
(English and Local)*

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