



EMCP II ELECTRONIC MODULAR CONTROL PANEL

The Electronic Modular Control Panel (EMCP II) combines the engine control and AC metering into one, user-friendly control. The displays, along with enhanced self-diagnostic capabilities, take the guesswork out of generator set monitoring. Representative graphics and LCD readouts make engine status and AC metering easy to understand, even for untrained personnel. The advanced microprocessor-based EMCP II combined with the Caterpillar Customer Communication Module (CCM) give you the flexibility to remotely monitor and control your Caterpillar packaged generator set.

FEATURES

UL 508A

- UL 508A Listed

RELIABLE, DURABLE, AND ACCURATE

- Environmentally sealed, die-cast aluminum housing isolates and protects electrical components against failure caused by moisture and dirt contamination.
- Rigorous vibration testing ensures panel dependability.
- Maintains metering accuracy from -40° C (-40° F) to 70° C (158° F)
- Electrical noise immunity of 100 volts/meter
- True RMS sensing ensures AC metering accuracy is 0.5% for AC volts and amps.
- The digital, microprocessor-based system eliminates the need for a number of switches, meters, and sensing units. That means less wiring and fewer opportunities for mechanical failures.

FULL-FEATURED, EASY-TO-READ METERING

- LCD digital readout for: engine oil pressure, coolant temperature, engine rpm, system DC volts, engine running hours, generator AC volts, generator AC amps, and generator frequency
- Eight LED alarms, two programmable to general fault shutdown or general fault alarm

ADVANCED CONTROLS

- Cycle cranking, with adjustable crank/rest period of 1 – 60 seconds
- Three spare inputs/one spare output activate at customer programmed setpoints
- Expanded remote communication module supported by an open RS-232C architecture — easily interfaced with existing plant systems and equipment

SIMPLIFIED SERVICING

- All high voltages have been removed from the generator set status control module for safer panel servicing.
- Self-diagnostic capability pinpoints operational problems in need of attention.
- Using an SAE format, the panel zeros in on the affected system and identifies the component responsible for the failure.
- Key-pad programmable setpoints

REGULATORY APPROVALS

- U.S. sourced control panels meet CSA requirements.
- Larne sourced control panels meet CE requirements.



STANDARD/OPTIONAL FEATURES

EMCP II	
STANDARD FEATURES	
Digital (LCD) Indication	AC voltage (L-L) AC amps System diagnostics Frequency DC voltage Coolant temperature Oil pressure rpm Hours run
Controls	Auto start/stop Purge cycle (gas packages only) Staged shutdown (gas packages only) Emergency stop Lamp test Cycle crank Voltage control Cooldown timer Phase selector switch
Enclosure	NEMA 1, IP22 Vandal door
Indicating Lights with Shutdown	Low oil pressure High coolant temperature Overspeed Overcrank Emergency stop High inlet air temp (gas TA engines only) Detonation sensitive timing (gas LE engines only) Fault shutdown* Fault alarm* *3 spare inputs — customer programmable *1 spare input — customer programmable (gas packages only)
OPTIONAL FEATURES	
Protective Devices	Low coolant level (standard on some packages) Fixed relays: Over/undervoltage (available on some packages)
Miscellaneous Controls	Electronic governor: Isochronous speed control Load share Alarm modules — local (with horn and silence switch) Frequency control Common alarm/shutdown volt free contact Generator running volt free contact Ether starting aid (not available on gas packages) Manual synchronizing modules Computer communications data link Panel lights Remote annunciator modules

SETPOINT PROGRAMMING PROVIDES CUSTOMER FLEXIBILITY

ENGINE/GENERATOR CONFIGURATION

- Setpoints affect proper operation and serviceability of the engine and accuracy of information shown on the display
- Factory set for optimum performance
- Twenty-four customer-programmable setpoints reflect changes in site condition — example: fuel solenoid type, ring gear teeth, crank termination speed, etc.

SPARE INPUT/OUTPUT

- Designed for meeting the requirements of the customer or application
- Three spare inputs/one spare output accessed on auxiliary terminal strip
- Customer Programmable
 - Input active state
 - Input time delay
 - Input response:
 - Output trigger condition
 - shutdown/alarm

EXPANDED SYSTEM FLEXIBILITY

ALARMS AND ANNUNCIATORS

EMCP II Control Panel includes two slots for optional alarm or synchronizing modules. Each alarm module contains a block of eight LEDs. Customers select from the following:

- NFPA99/110 alarm modules
- Custom alarm module
- Manual synchronizing module

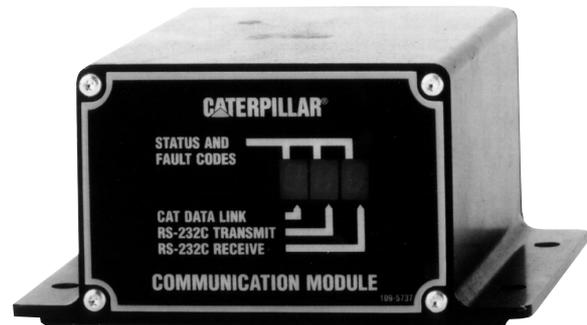


Customer Interface Module (CIM) is a relay board that provides nine contacts for custom remote annunciation.



REMOTE COMMUNICATION

The Caterpillar Customer Communication Module (CCM) provides a means to remotely monitor and control single or multiple packaged generator sets at a common site. By accessing the CCM from a personal computer or other RS-232C device, each unit can be remotely started and stopped, and all engine and generator parameters can be monitored on a 'real time' basis. Published, open architecture enables you to connect the CCM to an existing plant information system.



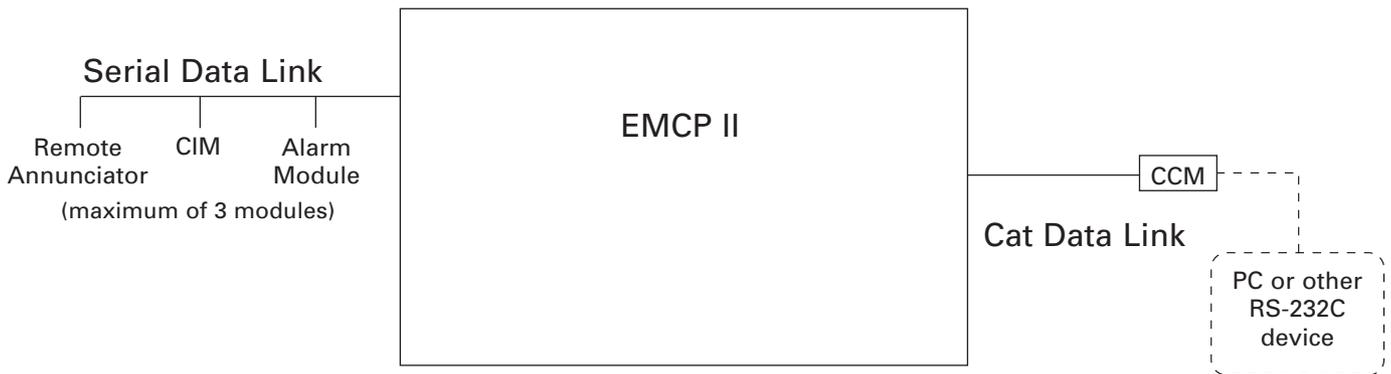
SYSTEM SOFTWARE

CCM PC is a user-friendly, IBM compatible, windows-based program. CCM PC interfaces with the CCM and the EMCP II. Remote control ability, parameter status display, diagnostic viewing/clearing options and parameter logging are among its standard tools. An on-line help system provides fingertip access to software questions and instructions. Integrated file management facility allows you to copy, move, delete, view, print, and rename documents and files from within CCM PC without the use of DOS file names or the Windows file manager.

EMCP II SPECIFICATIONS

- EMI Immunity
 - IEC 801-2, IEC 801-3, IEC 801-4, EN 5082-2
- Enclosure
 - NEMA 1, IP22
- Humidity
 - 0 to 100% relative humidity
- Impervious to:
 - salt spray, fuel, oil and oil additives, coolant, spray cleaners, chlorinated solvents, hydrogen sulfide and methane gas, and dust
- Input and output protection
 - all inputs and outputs are protected against short circuits to (+/-) battery
- Input voltage range (24 VDC nominal)
 - 14 to 45 VDC
- Power requirements
 - 10 watts (with generator set in standby mode — no alarms)
- Reverse polarity protected
- Shock, withstands 20 g
- Temperature range
 - Operating: -40° C to 70° C (-40° F to 158° F)
 - Storage: -55° C to 85° C (-67° F to 185° F)
- Vibration
 - withstands 2.0 g @ 18 to 500 Hz

EMCP II SYSTEM HIERARCHY DRAWING



www.CAT-ElectricPower.com

U.S./European sourced

LEHX9589-02 (06-01)
Supersedes LEHX9589-01

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The International System of Units (SI) is used in this publication.