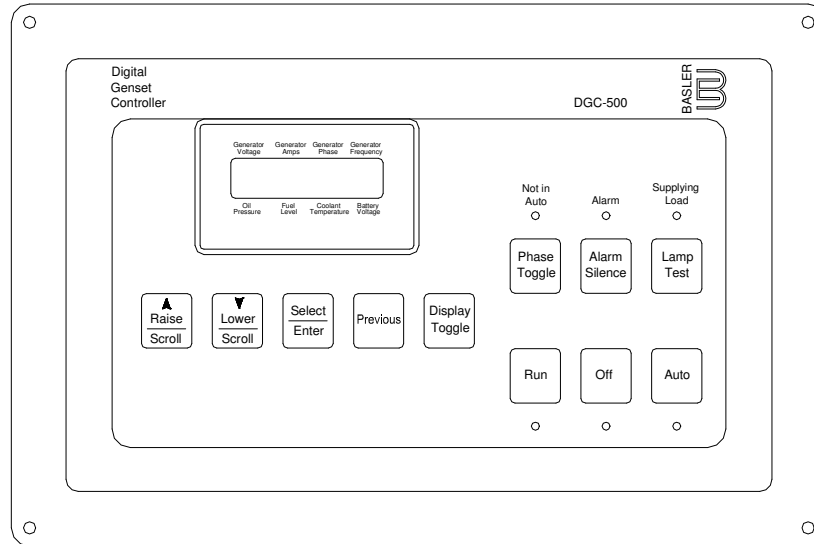


TAYLOR®

POWER SYSTEMS

DGC-500 DIGITAL GENSET CONTROLLER



The DGC-500 digital gen-set controller offers microprocessor based integrated control and monitoring. Control includes engine starting and shutdown as well as system monitoring and remote annunciation. It monitors and displays eight engine and generator parameters on the front panel and up to a total of 18 parameters via the front panel scrolling feature. The DGC-500 offers one of the most flexible designs possible. It has user-definable alarms, pre-alarms, timers, cranking, sender inputs, and programmable inputs and outputs.

FEATURES

- Microprocessor based
- Flash memory
- Event Recording
- Displays 18 engine/generator parameters
- Programmable analog sender inputs for oil pressure, coolant temperature and fuel level
- Controls engine starting and stopping
- PC-configurable with BESTCOMS PC software
- Programmable engine cranking
- Programmable alarms and pre-alarms
- NFPA-110 Level 1 compatible
- Programmable inputs (3)
- Programmable outputs (2)
- Remote annunciation via 2-wire communications to the optional RDP-110 Remote Annunciator
- UL recognized
- CSA certified

DESCRIPTION

DGC-500 Digital Gen-Set Controller utilizes microprocessor-based technology to provide a versatile system for gen-set control, protection and monitoring. This microprocessor design allows customization of the controller's functions to fit virtually every application's needs.

SPECIFICATIONS

INPUTS

DC power input (Battery):

- 12Vdc nominal systems (8-16Vdc)
- 24Vdc nominal systems (16-32Vdc)
- (Both Negative Ground Systems)
- Power dissipated is 16 Watts

Generator voltage input:

- 12-576Vac continuous, 50/60Hz @ <1 VA

Generator line current: 1 or 5 Amp input @ <1VA

(Two models)

Oil pressure sender: 0 to 150 PSI (33-240Ω)

Coolant temperature: 100°F to 300°F (37°C to 149°C)
(62.6-637.5Ω)

Speed input: Magnetic pickup 3V peak minimum

To 35V peak into a 10kΩ (32Hz-10kHz) impedance

Fuel level: 0-100% (240-33Ω)

Contact Sensing Inputs: Emergency Stop and
(3) Programmable

OUTPUTS

Contact ratings: 30A @28Vdc make, break, and carry:

- Crank, Fuel solenoid, pre-start
- 2A @24Vdc make, break, and carry:
- (2) Programmable

NFPA-110 output to RDP-110 (optional)

ENVIRONMENTAL SPECIFICATIONS

Vibration: 10 to 500Hz @ 2Gs

Shock: 15 Gs in each of three mutually perpendicular axes

Ambient operating temperature: -20°C to +60°C

Salt Fog Testing: Per ASTM 117B-1989 for 100 hours

MONITORING

GENERATOR

Generator Voltage:

- 0 to 576Vac
- Display range is 0 to 999V
- Accuracy is $\pm 0.5\%$ of indication or 1Vrms @25°C,
- Whichever is greater (with phase selection switch and panel indication)

Generator Frequency:

- Derived from voltage inputs
- Display range is 4 to 70Hz
- Accuracy is $\pm 0.25\%$ of indication or 0.1Hz @25°C,
- Whichever is greater

Line Current input (CT):

- 0 to 5 Aac or 0 to 1 Aac RMS
- Display range is 0 to 5000 A

Accuracy is $\pm 0.5\%$ of indication or 1Arms @25°C,
Whichever is greater (with phase selection switch and panel indication)

KVA: Calculated from voltage and current inputs
Display range is 0 to 9999kVA
Accuracy is $\pm 0.5\%$ of indication or ± 0.1 kVA,
Whichever is greater @25°C

ENGINE

Oil Pressure:

Input from sender
Display range is 3 to 150 PSI or 103-1035kPS
Accuracy is $\pm 0.5\%$ of indication or ± 1 PSI/1kPA,
Whichever is greater @25°C
Sender input is 33-240Ω

Coolant temperature:

Input from sender
Display range is 100°F to 300°F (37°C to 149°C)
Accuracy is $\pm 0.5\%$ or ± 1 °F/1°C,
Whichever is greater @25°C
Sender input is 62.6-637.5Ω

Battery voltage:

Input from battery is 8 to 36Vdc
Display range is 3 to 36Vdc
Accuracy is $\pm 0.5\%$ of indication or ± 0.1 volts,
Whichever is greater @25°C

Engine run-time:

Display range is 0 to 99,999 hours
Accuracy is $\pm 0.5\%$ of indication or ± 1 hour,
Whichever is greater @25°C

Fuel level:

Input from sender
Display range is 0-100%
Accuracy is $\pm 0.5\%$ of indication or 1% @25°C,
Whichever is greater
Sender input is 240-33Ω

RPM:

Input from magnetic pickup or generator output voltage
Display range: 750 to 3600 RPM
Accuracy: $\pm 0.5\%$ of indication or ± 2 RPM,
Whichever is greater @25°C

Note: Final engine parameter accuracy's are subject to sender accuracy.

TOTAL MONITORED PARAMETERS

GENERATOR

Voltage (three phases and three phases to neutral)
Current (three phases)
KVA total and per phase
Frequency

ENGINE

Oil Pressure	Hours to next service
Coolant Temperature	Total run time
Fuel level	Engine RPM
Battery voltage	

EVENT RECORDING:

The DGC has an event recorder that provides a record of alarms, pre-alarms, engine starts, engine stops, engine runtime loaded, engine runtime unloaded, last run date, and many other events that are all date and time stamped to help the user determine the cause and effect of issues related to the generator set.

GENERATOR SET PROTECTION

ALARMS:

- Low oil pressure
- Sender failure
- Overspeed
- Low coolant level
- Overcrank
- Low fuel level
- Emergency stop button input
- High coolant temperature

PRE ALARMS:

- Low oil pressure
- High battery voltage
- Low battery voltage
- Fuel leak
- Maintenance interval timer
- Weak battery
- High coolant temperature
- Low fuel level
- Low coolant temperature
- Battery charger failure

TIMERS:

- Engine cooldown: 0 to 60 minutes
- Engine maintenance: 0 to 5000 hours
- Pre-Alarm time delays:
 - Weak battery & low battery voltage: 1-10 seconds
- Alarm time delays:
 - Overspeed: 0 to 500ms
 - Sender failure: 0 to 10 seconds
- Arming delays after crank disconnect:
 - Low oil pressure: 5 to 15 seconds
 - High coolant temperature: 50 to 150 seconds
- Pre-crank delay: 0 to 30 seconds

OPTIONAL GENSET PROTECTION

Undervoltage (27)
Underfrequency (81U)
Overvoltage (59)
Overfrequency (81O)
Phase Imbalance (47)
Generator Overcurrent (51)

SERIAL COMMUNICATIONS

The DGC-500 is fully programmable via the RS-232 DB9 connector. The DGC-500 may be programmed via BESTCOMS software. This software permits individual parameter setting or complete file transfers from a personal computer to the DGC-500 for fast, accurate setup of the DGC-500.

The DGC-500 also has an optional RS-485 port for four-wire communications to the RDP-110 remote display unit. This unit may be placed 4000 feet from the DGC-500 and provides NFPA-110 compatible annunciation of 17 operating and alarm indications with only four wires.

DGC-500 FRONT PANEL DISPLAY

Figure 1 shows the front panel human-machine interface (HMI) for a DGC-500

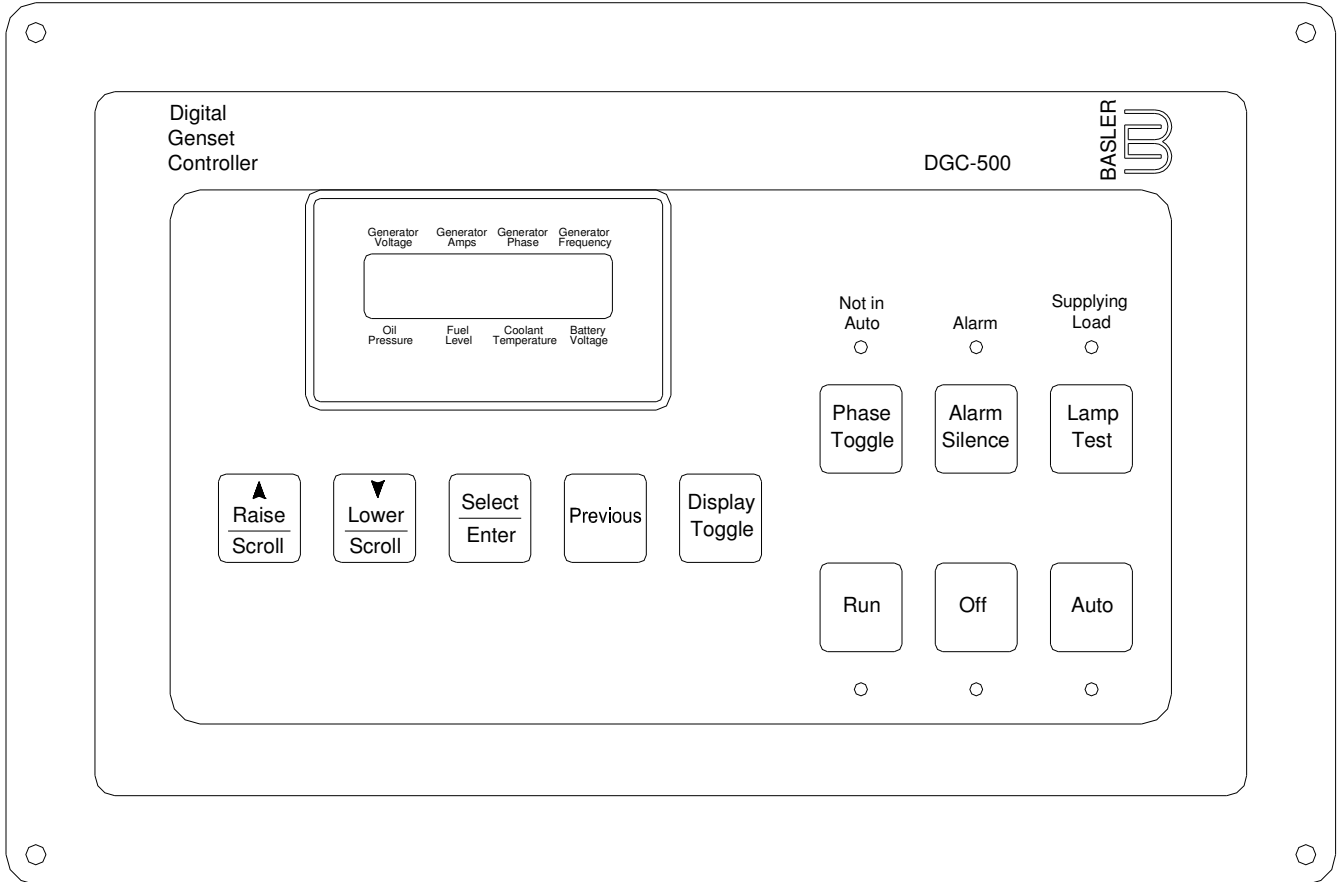


Figure 1 – Front Panel

FRONT PANEL LED INDICATORS

Run:	Indicates the engine is running (operating).
Off:	Indicates the engine is not running (shutdown).
Auto:	Indicates the unit is in the AUTO mode of operation.
Not-in-auto:	Indicates unit is not in the AUTO mode.
Alarm:	Indicates an alarm situation by continuous illumination. Indicates Pre-alarm by flashing.
Supplying Load:	Indicates the system is supplying power to a connected load.