



DATA SHEET

CGC 200

Compact Genset Controller



1. Compact Genset Controller, CGC 200

1.1 Data sheet.....3

1.1.1 Description.....3

1.1.2 Features and functions.....3

1.1.3 Layout and dimensions.....4

1.1.4 Wiring diagram.....5

1.1.5 List of terminal connections.....5

1.1.6 Technical specifications.....6

1.1.7 Ordering information.....7

1.1.8 Disclaimer.....7

1. Compact Genset Controller, CGC 200

- Auto start and parameter monitoring
- Warnings and shutdown protections
- Includes 5 digital inputs, 5 relay outputs
- Configurable for other applications
- Licence-free PC software

SW version: 1.xx or later

1.1 Data sheet

1.1.1 Description

The Compact Genset Controller 200 (CGC 200) is a microprocessor-based control unit. It contains all the functions needed for the protection and control of gensets, whether electronic or non-electronic. You can use the CGC 200 for manual or auto start. It can monitor engine speed, frequency, voltage and engine running hours. It also monitors alarms and the genset status. The CGC 200 has an LCD display, for viewing operating data and alarms.

The CGC 200 is highly versatile, as it includes both fixed and user-configurable inputs and outputs. The user-configurable inputs and outputs allow the CGC 200 to be used in a wide variety of applications.

The CGC 200 is a plug & play controller, which can be configured from the front panel and/or from PC Utility Software. The Utility Software can also be used to monitor the genset performance. The PC is connected to the controller using a standard A-B USB cable.

1.1.2 Features and functions

Overview

- Auto start
- Monitoring of operating data
- Warnings and shutdown protections
- Both fixed and user-configurable digital inputs and relay outputs
- Configurable for other applications
- Power saving mode
- Licence-free PC Utility Software
 - Design: select configurable inputs and outputs, set parameters
 - Commissioning: upload parameters to the controller
 - Operation: monitor operating data and alarms

Front panel

- 20 mm × 40 mm display with backlight
- Four push-buttons and two LEDs
- Display genset operating data
- Icons for alarms and the genset mode
- Configure timers and parameter settings using the push-buttons

Engine control

- Start preparation (pre-heating or pre-lubrication)
- Start and stop sequences, with a selectable number of start attempts
- Fuel solenoid control (coil type)

- Idle speed time control
- Manual (local) or remote start and stop
- Stop sequence with cooling down
- Running feedback detection (select one):
 - Generator frequency and voltage
 - Engine speed
 - Combination of engine speed, and generator frequency and voltage

Engine monitoring and protection

- Engine speed input (from an MPU)
- Configurable digital inputs (select up to four):
 - Remote start
 - High coolant temperature shutdown
 - Low lube oil pressure shutdown
 - Auxiliary alarm shutdown
 - Low fuel level warning
 - High coolant temperature warning
 - Low lube oil pressure warning
- Non-configurable Fuel and Start relay outputs

- Battery voltage

Configurable relay output functions (select up to three)

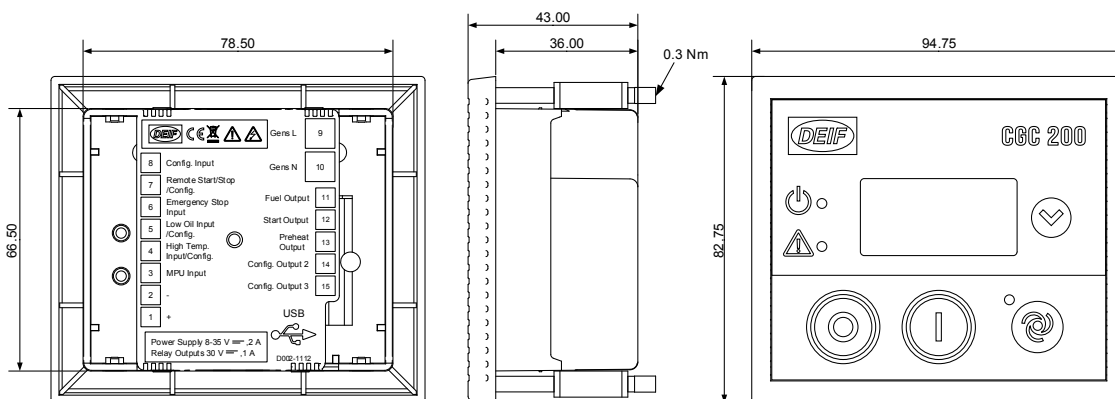
- Common alarm
- Stop coil
- Idle control
- Pre-heat
- Close generator breaker

Generator monitoring and protection

- Phase-to-neutral and phase-to-phase generator monitoring
- Voltage and frequency monitoring
- Over- and under-voltage
- Over- and under-frequency

1.1.3 Layout and dimensions

The drawings below show the back, side and front views of CGC 200. Dimensions are in mm.



1.1.4 Wiring diagram

A wiring diagram for a typical installation is given below. Your system's wiring diagram may be different to the diagram given below, since a different configuration may have been chosen.

Fuses

Fuses must be used to protect the controller. The auxiliary supply (DC) fuse rating must not be more than 2 A. The Genset L (AC) fuse rating must not be more than 1 A.

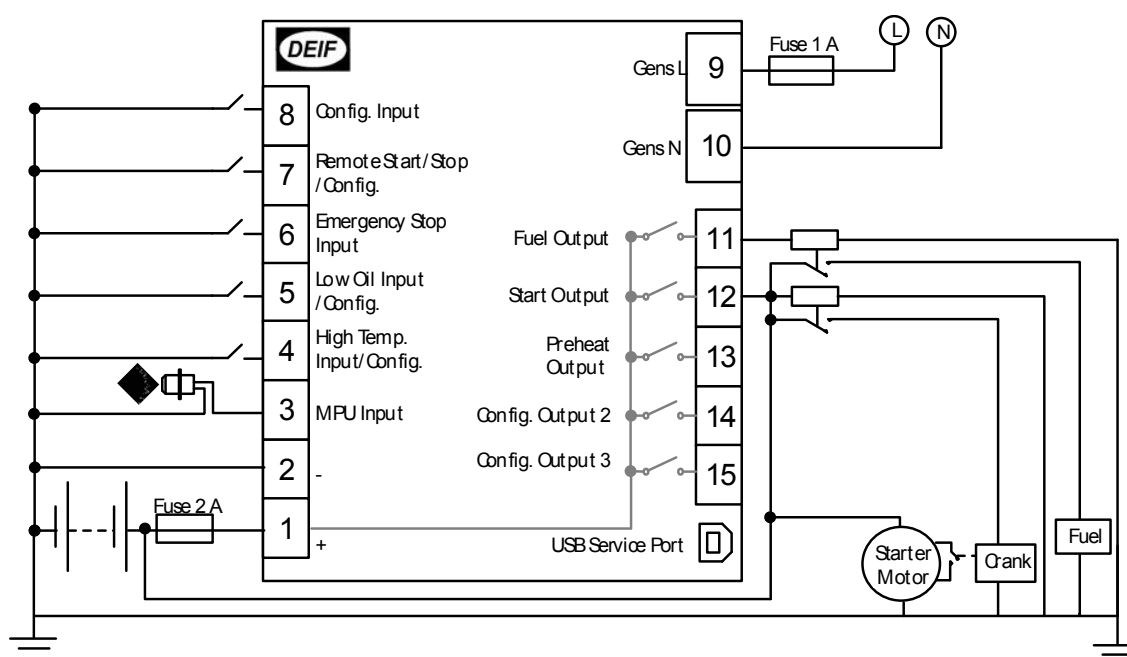
Grounding

The ground (Aux. supply -) is common for digital inputs. On the diagram below, the wiring drawn in the controller box is internal wiring (this wiring is part of controller, and therefore not connected externally).



DANGER!

Connect the wiring according to the designer's wiring diagram for your system.



1.1.5 List of terminal connections

The power supply, inputs and outputs are connected to the CGC 200 terminals. CGC 200 also has a USB B-socket for connecting to a PC. The terminal connections are listed in the following table.

No.	Name	Type	Details
1	+	Power supply +	8 to 35 V _{dc}
2	-	Power supply -	Ground
3	MPU Input	RPM input	Magnetic pickup, or tacho generator
4	High Temp Input/Config.	Digital input	Coolant temperature switch, or configurable
5	Low Oil Input/Config.	Digital input	Low oil pressure switch, or configurable
6	Emergency Stop Input	Digital input	Auxiliary alarm shutdown, or configurable*
7	Remote Start/Stop/Config.	Digital input	Remote start, or configurable
8	Config. Input	Digital input	Configurable

No.	Name	Type	Details
9	Gens L	Generator voltage L1	Generator voltage measurement
10	Gens N	Generator neutral	Generator voltage measurement
11	Fuel Output	Relay output (normally open)	Run coil
12	Start Output	Relay output (normally open)	Starter (crank)
13	Preheat Output	Relay output (normally open)	Configurable
14	Config. Output 2	Relay output (normally open)	Configurable
15	Config. Output 3	Relay output (normally open)	Configurable
USB	USB Service Port	USB B female connection	For connection to a PC

*Emergency stop function is normally de-energized, and do therefor not work as a emergency stop but only as a stop with hold function or as an alarm when Emergency stop is tripped externally.

1.1.6 Technical specifications

Accuracy	Class 2 IEC 60688
AC voltage	Measuring input: 25 to 277 V _{ac} (tolerance $\pm 20\%$) Input impedance: 4 to 8 M Ω Minimum frequency: 7 Hz at 20 V _{ac} Maximum frequency: 80 Hz Frequency resolution: 0.1 Hz
Power supply voltage	8 to 35 V _{dc} , continuous power supply. Reverse protection -35 V _{dc} continuously
Dropout cranking resistance	Able to survive 0 V for 0.050 s, providing supply was at least 10 V before dropout and supply recovers to 8 V. This is achieved without the need for internal batteries
Load dump	ISO 7637-2 (24 V _{dc} system, test pulse 5). Power supply ports: 123 V, 1 Ω and 0.1 s; or 174 V, 8 Ω and 0.35 s
Power consumption	<3 W, ≤ 2 W on standby
Power supply input display	Resolution 0.1 V, accuracy 2 % full scale
Magnetic input range	1.5 V to 24 V _{rms} (tolerance +15 %)
Magnetic input frequency	10 to 10,000 Hz (max.)
Digital input voltage	Switch to negative
Digital input detection level	Emergency stop input: Active from 0 to 3.4 V _{dc} . Inactive from 3.5 V _{dc} to power supply voltage Other digital inputs: Active from 0 to 1.6 V _{dc} . Inactive from 1.7 V _{dc} to power supply voltage
Relay output specification	1 A at 35 V _{dc}
Running hours counter	99999.9 hours
Working conditions	Temperature: -25 to 70 °C IEC 60068-2-1, IEC 60068-2-2
Climate	97 % Relative humidity, IEC 60068-2-30
Altitude	3,000 m
Storage conditions	Temperature: -40 to 70 °C
Protective level	Front: IP65 Terminals: IP20

	To IEC 529 and EN 60529
Material	All plastic materials are self-extinguishing according to UL94 (V1)
Plug connections	Max. 1.5 mm ² (16 AWG) multi-stranded
Tightening torque	0.5 Nm (5-7 lb-in)
CE/EMC marking	To EN 61000-6-2, EN 61000-6-4, IEC 60255-26 (no marine approval)
Approvals	CE, GOST-R
Vibration	5 to 8 Hz: ±7.5 mm 8 to 150 Hz: 2 g IEC 60068-2-6
Shock	50 g, 0.011 s, half sine using IEC 60068-2-27, test Ea. Tested with 3 impacts in each direction, in all 3 axes. In total, 18 impacts per test
Bump	20 g, 0.016 s, half sine using IEC 60255-21-2 (Class 2). Tested with 1000 impacts in each direction, in all 3 axes
Safety (insulation intensity)	To EN 61010-1. Installation category (over-voltage category) III, 300 V, pollution degree 2
Battery life	5 years under normal conditions
Reliability	Mean time to failure (MTTF) (mean time between failures (MTBF)): 200 years life at continuous operation/power on: <ul style="list-style-type: none"> • 10 years @ 40 °C surrounding temperature • 5 years @ 50 °C surrounding temperature • 2.5 years @ 60 °C surrounding temperature • 1.25 years @ 70 °C surrounding temperature
Service port	Standard USB-B plug. The connection to a PC is made using a standard USB A/B cable
Weight	125 g
Dimensions	Outer frame: L 94.75 mm × H 82.75 mm × D 43.0 mm Panel cut-out: L 78.5 mm × H 66.5 mm. Tolerance +0.5 mm and -0 mm

1.1.7 Ordering information

The CGC 200 can be ordered in the combinations listed in the table below.

Equipment	Item number(s)
CGC 200	1219000001
CGC 200, with 3 m USB cable	1219000001 and 1022040065

1.1.8 Disclaimer

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