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CE

DATA SHEET

Compact Genset Controller, CGC 400

- Generator control and protection
- Engine monitoring and protection
- Generator and mains breaker control
- RS485 Modbus

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1. Data sheet

1.1. Application....3
1.1.1. Setup....3
1.1.2. Language....3
1.1.3. Translation....3
1.2. Variants and accessories....3
1.3. Display folios....4
1.3.1. CGC 412 display folio....4
1.3.2. CGC 413 display folio....4
1.3.3. Terminal overview....5
1.3.4. Input/output table....6
1.4. Technical specification....7
1.4.1. Technical specifications....7
1.5. Unit dimensions and panel cutout....10
1.5.1. Unit dimensions and panel cutout....10
1.6. Order specification and disclaimer....11
1.6.1. Order specifications....11
1.6.2. Disclaimer....11

1. Data sheet

1.1 Application

The Compact Genset Controller, CGC 400, is a microprocessor-based control unit containing all necessary functions for protection and control of a diesel engine. Furthermore, it contains a three-phase AC voltage measuring circuit. The unit is equipped with an LCD display presenting all values and alarms. CGC 400 is a compact flexible unit designed for the following applications:

1. Automatic engine start/stop
2. Engine protection
3. Breaker control
4. Generator protection
5. Automatic Mains Failure (only CGC 413)

1.1.1 Setup

Setup is easily done via a PC Windows® based utility software (password-protected). The PC utility software offers additional features such as monitoring of all relevant information during commissioning, saving and downloading of settings and downloading of software updates. Furthermore, the settings can be accessed via the display push-buttons (password-protected).

1.1.2 Language

Master language is English and furthermore, there are selectable languages. These are listed in the order specifications.

1.1.3 Translation

This function makes it possible to change all texts used in the unit.

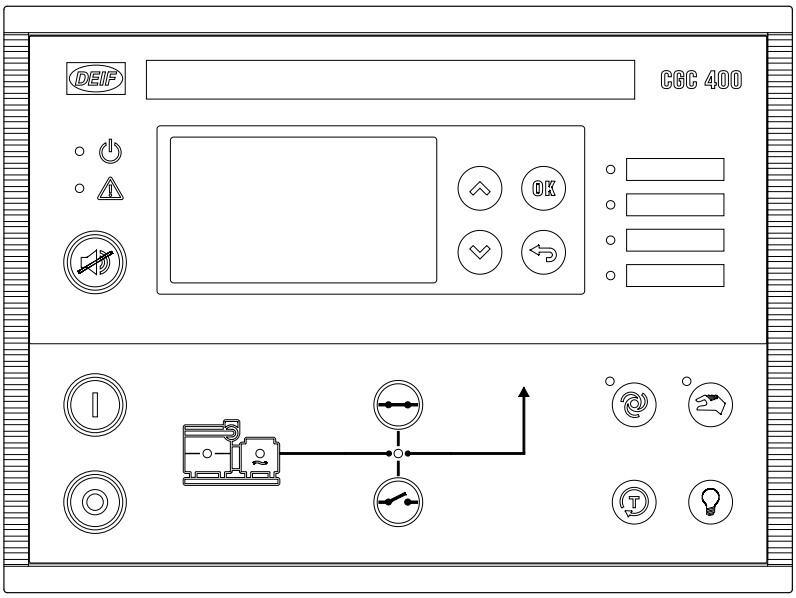
1.2 Variants and accessories

Main features	CGC 412	CGC 413
Engine protection	X	X
J1939 engine communication (H5)	X	X
Generator/busbar protection	X	X
Modbus RS-485 (H2)	X	X
Generator breaker control	X	X
Automatic Mains Failure, AMF Logic		X
Load takeover		X

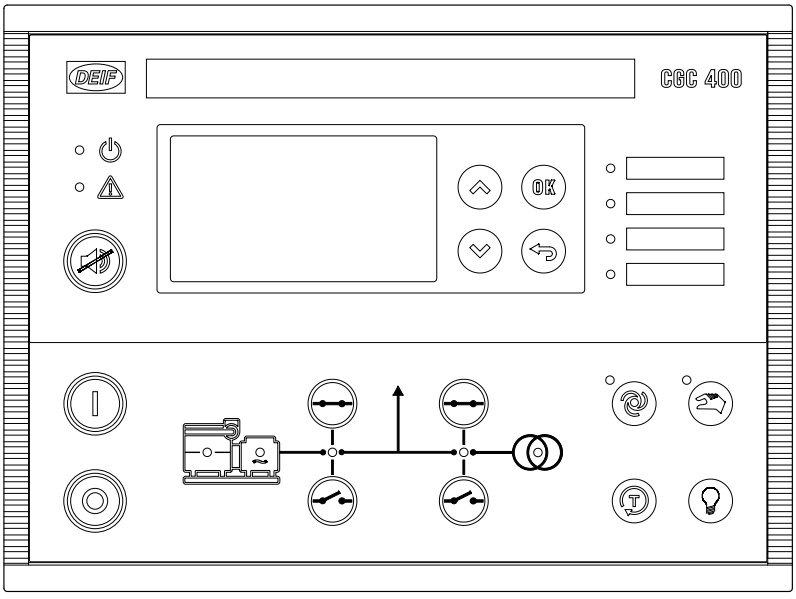
Accessories	Description	Item no.	Note
Cables			
USB cable, 3 m (J7)	For PC utility software	1022040065	

1.3 Display folios

1.3.1 CGC 412 display folio

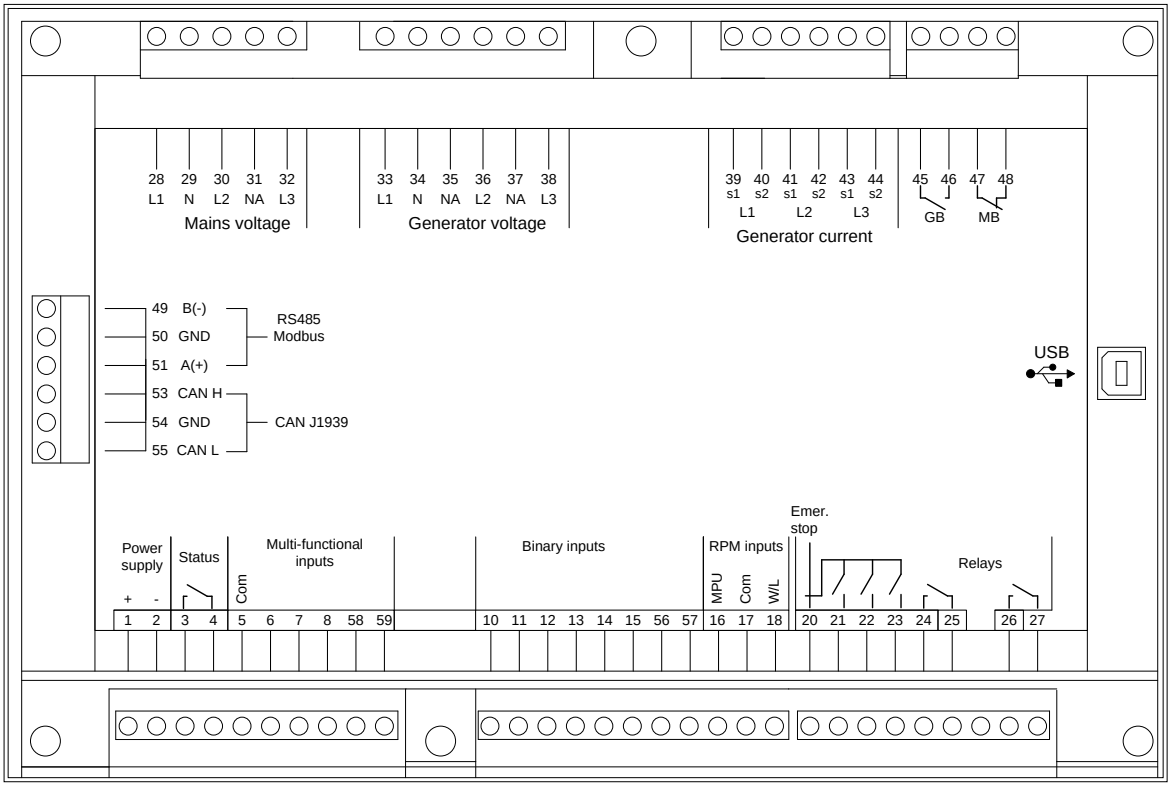


1.3.2 CGC 413 display folio



1.3.3 Terminal overview

CGC 400 unit rear view



Terminals 28-32, 56-57 and 58-59 are not available in CGC 412.

1.3.4 Input/output table

Input/output table		
Type	**CGC 412**	**CGC 413**
Digital input, configurable	6	8
Relay output, configurable	8	8
Multi-inputs, can be configured to either Pt100/1000, 4 to 20 mA, RMI* or binary input	3	5
RPM input (MPU/W)	1	1
Modbus RS-485	1	1
CAN bus port	1	1
3-phase AC voltage measurement	1	2
3-phase AC current measurement	1	1

*RMI is short for resistance measurement input.

For further information about terminals, please refer to the "Installation Instructions".

1.4 Technical specification

1.4.1 Technical specifications

Items	Contents
Aux. supply	8.0 V_{dc} to 35.0 V_{dc}, continuous power supply. Reverse protection -35 V_{dc} continuously
Dropout cranking	Able to survive 0 V for 50 ms, providing supply was at least 10 V before drop-out and supply recovers to 8 V. This is achieved without the need for internal batteries.
Power consumption	< 3 W
Protection response time	(Delay set to min.) generator: Reverse power < 400 ms Power/overload < 400 ms Over-current < 400 ms Over-/under-voltage < 400 ms Over-/under-frequency < 400 ms
Accuracy on AC voltage measurement	Class 1.0 to IEC/EN 60688 Class 2.0 on lower range (below 70 V_{ac})
Voltage input impedance	4 to 8 M ohm
Generator input range 3-phase 4 wire 3-phase 3 wire Single-phase 2 wire 2-phase 3 wire	15 V_{ac} - 277 V_{ac} (ph-N) +/-25 % 30 V_{ac} - 480 V_{ac} (ph-ph) +/-25 % 15 V_{ac} - 240 V_{ac} (ph-N) +/-25 % 15 V_{ac} - 240 V_{ac} (ph-N) +/-25 %
Voltage input frequency	50/60 Hz. Selectable range 30 to 70 Hz**. In the range: guarantied response times for alarm handling. During crank, lower frequencies will be detected for running feedback. Lowest frequency 18 Hz.
Magnetic input range	1.5 V to 24.0 V (RMS). Can resist up to 28 V_{dc} constantly
Magnetic input frequency	10 to 10000 Hz. Accuracy 1/10 [Hz] @ 10 to 99.9 [Hz], 1 [Hz] @ 100 to 10000 [Hz]
Passive binary input voltage	Switch to negative
Binary input detection level	Emergency stop input: Active from 0 to 3.4 V_{dc} Inactive from 3.5 to power supply voltage Other digital inputs: Active from 0 to 1.6 V_{dc} Inactive from 1.7 to power supply voltage

Items	Contents
Analogue input	Current input: 4 to 20 mA From active transmitter: 4 to 20 mA, +/-2 % Impedance: 100 Ω Binary input: dry contact inputs 3 V_{dc} internal supply, with cable supervision Max. resistance for ON detection: 100 Ω Pt100/Pt1000: -40 to 250 °C (-40 to 482 °F) +/-2 % To IEC/EN 60751 RMI: 0-2500 Ω, +/-2 % **Can resist power supply voltage constantly**
Status relay output (term. 3-4)	2 A @ 35 V_{dc}
Relay 21	3 A @ 35 V_{dc}
Relay 22	3 A @ 35 V_{dc}
Relay 23	3 A @ 35 V_{dc}
Relay 24	3 A @ 35 V_{dc}, voltage free output
Relay 26	8 A @ 250 V_{ac}/30 V_{dc}, voltage free output
Relay 45	8 A @ 250 V_{ac}/30 V_{dc}, voltage free output
Relay 47	8 A @ 250 V_{ac}/30 V_{dc}, voltage free output
Service port	Standard USB-B plug (standard USB A/B cable needed)
C.T. secondary	5 A/1 A (rated). Max. consumption: 0.3 VA/phase
Working conditions	Temperature: (-25 to +70) °C; humidity: (20 to 90) %
Storage condition	Temperature: (-40 to +70) °C
Protective level	IP65 Terminals: IP20 To IEC/EN 60529
Material	All plastic materials are self-extinguishing to UL94 (V1)
Plug connections Tightening torque	AC voltage/current inputs: 3.5 mm^2 (13 AWG) multi-stranded Other: 1.5 mm^2 (16 AWG) multi-stranded 0.5 Nm (5-7 lb-in)
CE/EMC marking	EMC/CE: to EN 61000-6-2, EN 61000-6-4 and IEC 60255-26
Load dump	ISO 7637-2 (24V DC system - test pulse 5) Power supply ports: 123 V/1 Ω/100 ms 174 V/8 Ω/350 ms
Climate	97 % RH, IEC 60068-2-30

Items	Contents
Vibration	5 to 8 Hz: ±7.5 mm 8 to 150 Hz: 2 g IEC 60068-2-6
Shock	50 g, 11 ms, half sine – IEC 60068-2-27, test Ea. Tested with 3 impacts in each direction in all 3 axes. In total 18 impacts per test.
Bump	25 g, 16 ms, half sine – IEC 60255-21-2 (Class 2)
Safety (insulation intensity)	To EN 61010-1. Installation category (over-voltage category) III, 300 V, pollution degree 2. IEC 60255-27
Altitude	3000 m
Weight	695 g

1.5 Unit dimensions and panel cutout

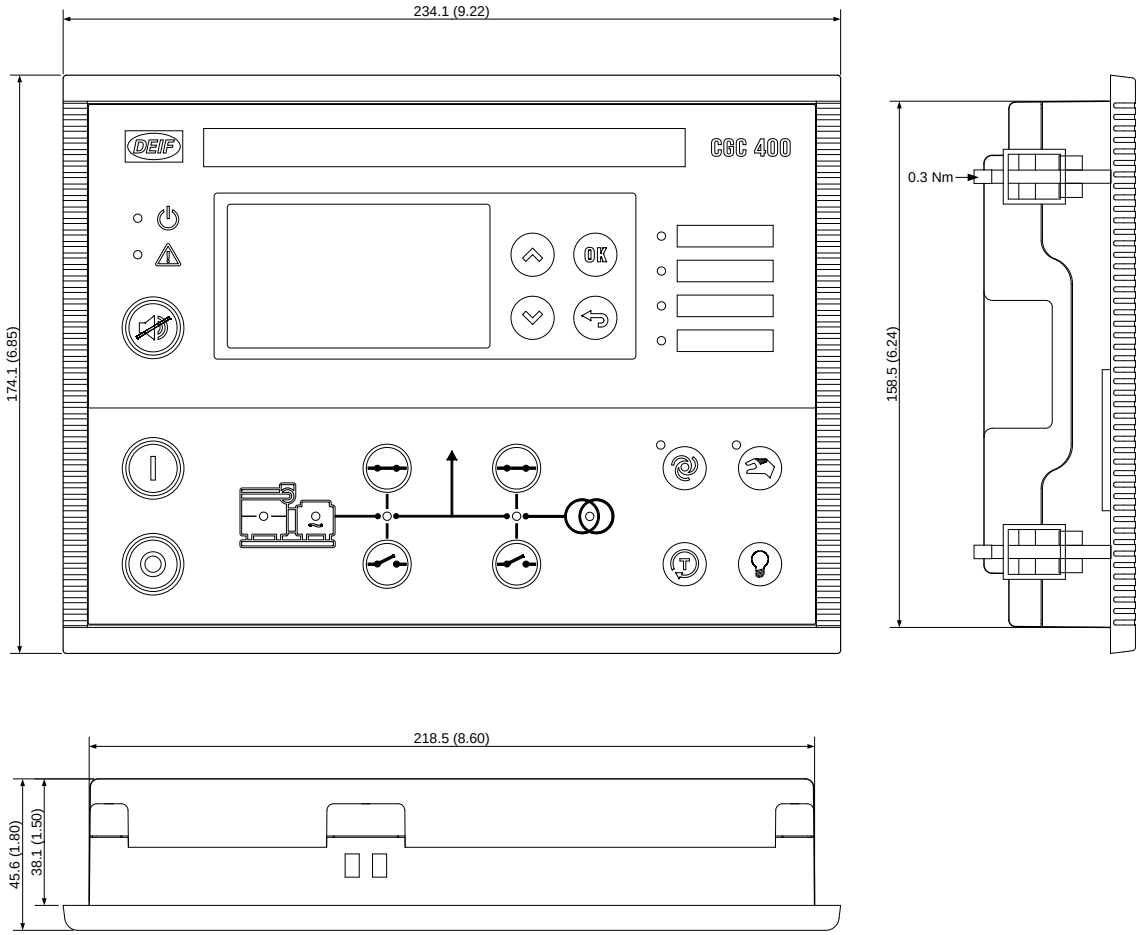
1.5.1 Unit dimensions and panel cutout

The unit is designed for mounting in the panel front.

In order to ensure optimum mounting, the panel door must be cut out according to the following measurements:

H × W (mm) = 160.0 × 220.0 (+0.4/-0.0)

H × W (inches) = 6.30" × 8.66" (+0.01575/-0.0)



1.6 Order specification and disclaimer

1.6.1 Order specifications

Variants

Mandatory information			Additional accessories to the standard variant				
Item no.	**Type**	**Variant no.**	**Accessory**	**Accessory**	**Accessory**	**Accessory**	**Accessory**

Example:

Mandatory information			Additional accessories to the standard variant				
Item no.	**Type**	**Variant no.**	**Accessory**	**Accessory**	**Accessory**	**Accessory**	**Accessory**
	CGC 400	CGC 412	J7				

Accessories

Mandatory information		
Item no.	**Type**	**Accessory**

Example:

Mandatory information		
Item no.	**Type**	**Accessory**
1022040065	Accessory for CGC 400	USB cable, 3 m (J7)

1.6.2 Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.

The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is a discrepancy, the English version prevails.