DEIF

-power in control

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MULTI-LINE 2
DESCRIPTION OF OPTIONS

Option X4
Additional Operator Panel AOP-2

- Description of option
- Functional description

1. Delimitation

1.1 Scope of Option X4

This description of options covers the following products:

AGC 100 series	SW version 4.0x.x or later
AGC 200 series	SW version 3.5x.x or later
APU 200 series	SW version 3.53.x or later
GC-1F/2	SW version 1.2x.x and 2.0x.x or later
ECU/GCU 100 series	SW version 1.0x.x or later

2. General information

2.1 Warnings, legal information and responsibility

2.1.1 Warnings and notes
Throughout this document, a number of warnings and notes with helpful user information will be presented. To ensure that these are noticed, they will be highlighted as follows in order to separate them from the general text.

Warnings

⚠ **Warnings indicate a potentially dangerous situation, which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.**
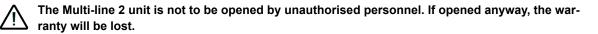
Notes

ⓘ **Notes provide general information, which will be helpful for the reader to bear in mind.**

2.1.2 Legal information and disclaimer
DEIF takes no responsibility for installation or operation of the generator set. If there is any doubt about how to install or operate the engine/generator controlled by the Multi-line 2 unit, the company responsible for the installation or the operation of the set must be contacted.

⚠ **The Multi-line 2 unit is not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.**

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.

2.1.3 Safety issues
Installing and operating the Multi-line 2 unit may imply work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.

⚠ **Be aware of the hazardous live currents and voltages. Do not touch any AC measurement inputs as this could lead to injury or death.**

2.1.4 Electrostatic discharge awareness
Sufficient care must be taken to protect the terminal against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.
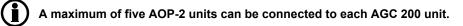
2.1.5 Factory settings

The Multi-line 2 unit is delivered from factory with certain factory settings. These are based on average values and are not necessarily the correct settings for matching the engine/generator set in question. Precautions must be taken to check the settings before running the engine/generator set.

3. Description of option

3.1 Option X4 – AGC 200

3.1.1 About the option - for AGC 200

This option includes an additional operator panel (AOP-2) which can be connected to the AGC 200 via a CAN bus communication port. The AOP-2 has 16 configurable LEDs and eight configurable buttons, which are programmed with the PC utility software. It can be used as an interface to the AGC 200 unit for indication of status and alarms together with buttons for, for example, alarm acknowledge and mode selection.

ⓘ **A maximum of five AOP-2 units can be connected to each AGC 200 unit.**

3.2 Option X4 – AGC 100, ECU 100, GCU 100, GC-1F/2

3.2.1 About the option - for AGC 100, ECU 100, GCU 100, GC-1F/2
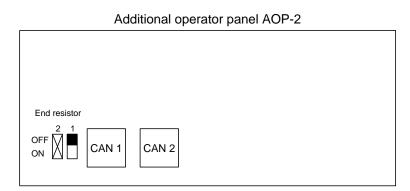
This option includes an additional operator panel (AOP-2) which can be connected to the GC-1F via the CAN bus 2 communication port and via CAN bus B on AGC 100, ECU 100 and GCU 100. The AOP-2 has 16 configurable LEDs and eight configurable buttons, which are programmed with the PC utility software. It can be used as an interface to the unit for indication of status and alarms together with buttons for, for example, alarm acknowledge and mode selection.

ⓘ **A maximum of two AOP-2 units can be connected to each GC-1F unit, and five AOP-2 units to each AGC 100, ECU 100 and GCU 100.**

3.3 Rear side view, connectors, wiring

3.3.1 Rear side view

Additional operator panel AOP-2
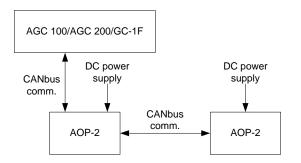
3.3.2 Connectors

CAN 1: DC supply and CAN bus communication to/from the controller.		
CAN 2: CAN bus communication to/from the controller or additional AOP-2 units and status relay output.		
End resistor	1 × AOP-2 unit connected:	Dip switch no. 1 on the unit should be set to ON.
	2 × AOP-2 units connected:	Dip switch no. 1 on AOP-2 no. 1 should be set to OFF. Dip switch no. 1 on AOP-2 no. 2 should be set to ON. on AOP-2 no. 2 should be set to ON.

4. Functional description

4.1 Principle diagram

4.1.1 Connection

Below is a principle diagram of the connection of the additional displays and operator panels.
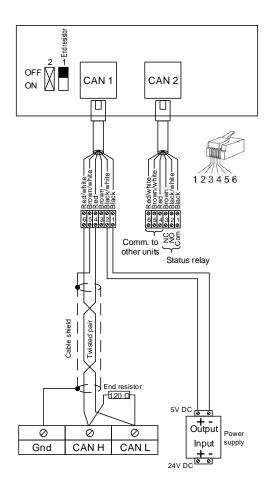

4.2 AOP-2

4.2.1 Front side view

As shown on the drawing, the configurable LEDs are named 1 to 16, and the buttons are named 1 to 8.

4.2.2 Wiring - cable type 1

> ℹ️ Be aware that two cables can be chosen, and that there is a difference in the colour codes of the wires. The diagrams below show how to wire up both cable types.

Terminals for CAN connection

		CAN L	CAN H
AGC 200/APU 200	CAN A	9	7
	CAN B	12	10
	CAN C	15	13
AGC 100/ECU 100/GCU 100	CAN B	59	57
GC-1F/2	CAN 2	59	57

4.2.3 Wiring - cable type 2

Terminals for CAN connections

		CAN L	CAN H
AGC 200/APU 200	CAN A	9	7
	CAN B	12	10
	CAN C	15	13
AGC 100/ECU 100/GCU 100	CAN B	59	57
GC-1F/2	CAN 2	59	57

(i) **It is recommended to keep a fair distance to power cables.**

(i) **The maximum length of the CAN bus line is 200 m.**

(i) **A DC/DC converter for the DC supply voltage and 2 × 1 m cable with an RJ12 plug in one end and stripped wires in the other end are included in the AOP-2 delivery.**

4.2.4 CAN Node ID configuration

The CAN Node ID for the AOP-2 can be set to 1-9, it is done by following this procedure:

1. Press buttons no. 7 and no. 8 at the same time to activate the CAN ID change menu, this will activate the LED for the present CAN ID number, and LED no. 16 will be flashing.
2. Use button no. 7 (increase) and button no. 8 (decrease) to change the CAN ID according to the table below.
3. Press button no. 6 to save the CAN ID and return to normal operation.

4.2.5 Selection of CAN ID

CAN ID	Indication of CAN ID selection
0	CAN bus OFF: LED 16 flashes
1	LED 1 light steady + LED 16 flashes (default value)
2	LED 2 light steady + LED 16 flashes
3	LED 3 light steady + LED 16 flashes
4	LED 4 light steady + LED 16 flashes
5	LED 5 light steady + LED 16 flashes

(i) **Node ID 1-9 for AOP-2s and Node ID 10-64 for external I/O modules (option H8).**

4.2.6 Status relay

The status relay is used for watchdog function. It will activate approximately two seconds after power up if the CAN bus communication is OK and no internal failures are present.

4.2.7 Programming

The programming of the AOP-2 is made with the PC utility software, which can be downloaded from www.deif.com. Refer to the Help function in the PC utility software for instructions regarding the programming.

5. Error handling

5.1 Duplicate CAN ID

5.1.1 AOP-2

If two units on the CAN bus have the same CAN ID, LED no. 1 to 4 will flash quickly. In this case, press button no. 6 to jump into the CAN ID change menu and select another CAN ID for the unit.