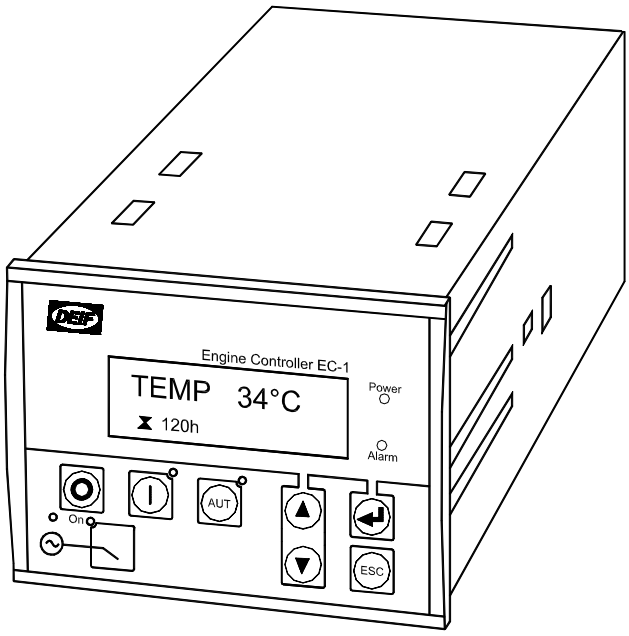
DEIF A/S

Description of options

Option G6,
Generator breaker control
Engine Controller EC-1

4189340399C
SW 1.4X.X



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1. Warnings and legal information

Legal information and responsibility

DEIF takes no responsibility for installation or operation of the engine set. If there is any doubt about how to install or operate the engine controlled by the unit, the company responsible for the installation or the operation of the set must be contacted.

The units are not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Electrostatic discharge awareness

Sufficient care must be taken to protect the terminals against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.

Safety issues

Installing the unit implies 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.

Factory settings

The unit is delivered with certain factory settings. Given the fact that these settings are based on average values, they are not necessarily the correct settings for matching the individual engine. Thus precautions must be taken to check the settings before running the engine.

Definitions

Throughout this document a number of notes and warnings will be presented. To ensure that these are noticed, they will be highlighted in order to separate them from the general text.

Notes

The notes provide general information, which will be helpful for the reader to bear in mind.

Warning

The warnings indicate a potentially dangerous situation, which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

2. Description of option

ANSI number

Function	ANSI no.
Generator breaker ON/OFF control	19

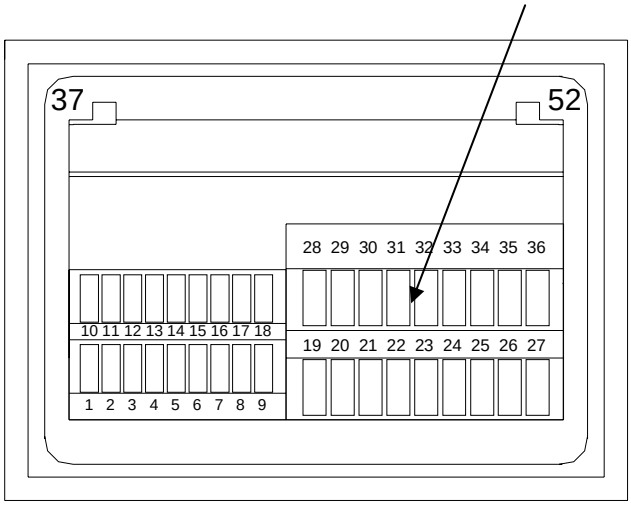
Option G6 can only be chosen, if option B2 is also chosen.

Option G6

Option G6 is a hardware and software option. The option includes a new front design, and the implementation has to be performed by DEIF Customer Service. Option G6 offers a relay output for generator breaker control. The control signal can come from an internal signal Hz/V Ok, option B2, or by means of the push-button on the unit front. A generator breaker trip signal can come from the option's under-/overvoltage and frequency protection.

Terminals

The generator breaker control is carried out using the existing relay outputs.



Unit rear view

One of the relay outputs below needs to be reconfigured to 'Limit' function by disabling the pre-configured relay function and setting the relay to 'Limit' (see later).

Terminal	Technical data	Description
23	Common	Common for terminals 24, 25 and 32 and emergency stop*
25	NO relay output 2, 2 A 30V DC/V AC	Alarm/configurable
32	NO relay output 3, 2 A 30V DC/V AC	Start prepare/configurable
33-34	NO relay output 4, 8 A 30V DC/V AC	Run coil/stop coil/configurable
35-36	NO relay output 5, 8 A 30V DC/V AC	Starter (crank)/configurable

* If used for emergency stop, the terminal 23 input must connect to + for ON. Also see the wiring diagram in the Installation Instructions and Reference Handbook.

3. Functional descriptions

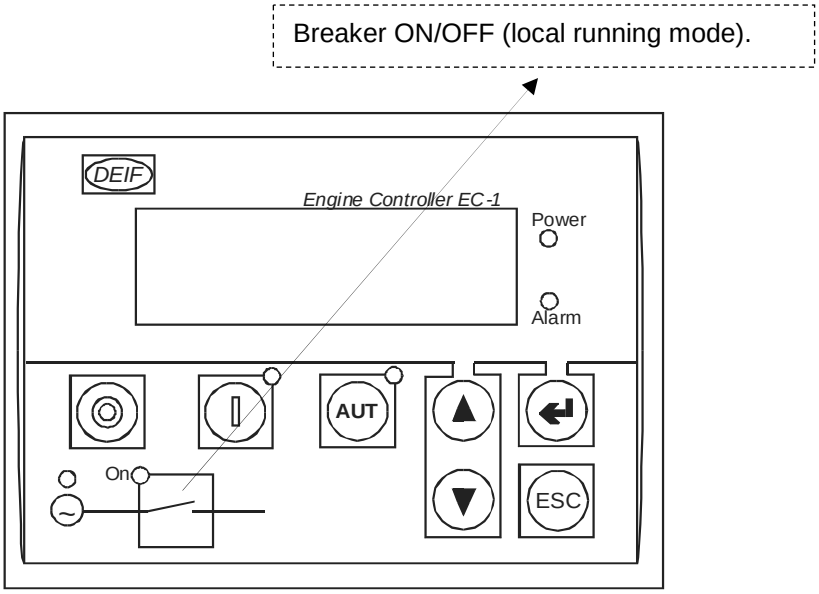
Unit with display

The G6 unit is intended for panel front mounting.

Front dimensions H x W	78 x 106 mm (3.07” x 4.17”)
Unit depth	150 mm (5.91”)

Push-button functions

Only one push-button function separates the G6 display from the standard display, namely breaker ON/OFF (local running mode).



Push-button functions

The unit’s 7 push-buttons have the following functions:

I: Start engine (local (not auto) running mode).

O: Stops the engine instantaneously. If the unit is in AUTO mode, the mode will change to LOCAL and the engine will stop.

 Breaker ON/OFF (local running mode).

AUT: AUTO/LOCAL running mode selector.

ESC: Jumps one step backwards in the menu (to previous display).

▲: Normal display: Scrolls the display up once. Programming: Increases set point value.

▼: Normal display: Scrolls the display down once. Programming: Decreases set point value.

↵: Enter value/acknowledge alarm.

LED functions

Power: Power OK indicator.

Alarm: Flashing: Active, unacknowledged alarm(s) present.
Steady: Active, acknowledged alarm(s) present.

Run (~): Generator frequency and voltage OK.

On: Generator breaker ON (LED ON).

Generator breaker control

Breaker closing

Since the generator is assumed to run alone (single generator island), the breaker will close immediately, when the f/U OK status is reached (AUTO), or if the breaker button is activated (LOCAL). In LOCAL mode the f/U OK is ignored, it is the task of the operator to monitor this.

Relay output control

The generator breaker is assumed to be a contactor, i.e. the relay output is steady ON when the breaker is closed, and steady OFF when the breaker is open. It is not possible to have 2 pulse outputs for a motorized breaker (ON and OFF).

Breaker trip control

Once the breaker control relay has been chosen, any alarm selected to have the fail class *Trip* or *Shutdown* will automatically open the breaker control relay. This is done automatically. If the breaker is closed, when the idle speed is activated, a breaker out signal will be transmitted.

Breaker ON/OFF feedback

As default there is no feedback for breaker ON or OFF. The breaker position LED is paralleled to the breaker control relay output. It is possible, however, to select a binary input to be breaker ON feedback. This is done via an extra selection in the input settings of the PC utility software. This extra input is called *Breaker ON feedback*.

This icon activates the inputs settings: 

If the input *Breaker ON feedback* is selected, then the input must be connected and activated, if the breaker is ON. The reason is that a *Breaker close failure* alarm will appear, if the breaker control relay is activated without the binary input. Also, if the breaker control relay is OFF and the binary input is ON, then a *Breaker open failure* alarm will appear.

These alarms are fixed with the status *Warning*.

Engine temperature controlled GB closing

This function can be used, if it is recommendable that the engine cooling water temperature must be over a certain temperature before the engine is loaded. In the parameter 4470 it is possible to set the temperature that the cooling water temperature must exceed, before the generator breaker is closed.

The function is also enabled/disabled in parameter 4470. An engine heating message is displayed, until the engine cooling water temperature has reached the set point in parameter 4470.

The engine cooling water temperature sensor must be selected to be a VDO sensor to make the function work. For this functionality to work, it requires that option M17 is enabled.

4. Relay output selection

Setting

No.	Setting		Min. setting	Max. setting	Factory setting
4451	GB pos. off delay	Delay	0.0 s	10.0 s	1.0 s
4451	GB pos. on delay	Delay	0.0 s	10.0 s	1.0 s
4451	GB control	Relay	R0 (relay 0)	R5 (relay 5)	R0 (relay 0)

The GB relay output can only be chosen in the PC utility software.

The generator breaker is assumed to be a contactor, i.e. the relay output is steady ON when the breaker is on, and steady OFF when the breaker is off.

DEIF A/S reserves the right to change any of the above