DEIF

-power in control

CE

OPERATOR'S MANUAL



Engine Control Unit, ECU 100

- Push-buttons
- LEDs
- Display and menu structure
- Display readings
- Alarm handling and log list

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1. General information

1.1 Warnings, legal information and safety

1.1.1 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.

1.1.2 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.

1.1.3 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.

1.1.4 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.

1.1.5 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.

1.2 About the operator's manual

1.2.1 General purpose

This Operator's Manual mainly includes general product information, display readings, push-button and LED functions, alarm handling descriptions and presentation of the log list.

The general purpose of this document is to give the operator important information to be used in the daily operation of the unit.

Please make sure to read this document before starting to work with the Multi-line 2 unit and the generator set to be controlled. Failure to do this could result in human injury or damage to the equipment.

1.2.2 Intended users

This Operator's Manual is mainly intended for the daily user. On the basis of this document, the operator will be able to carry out simple procedures such as start/stop and control of the generator set.

1.2.3 Contents and overall structure

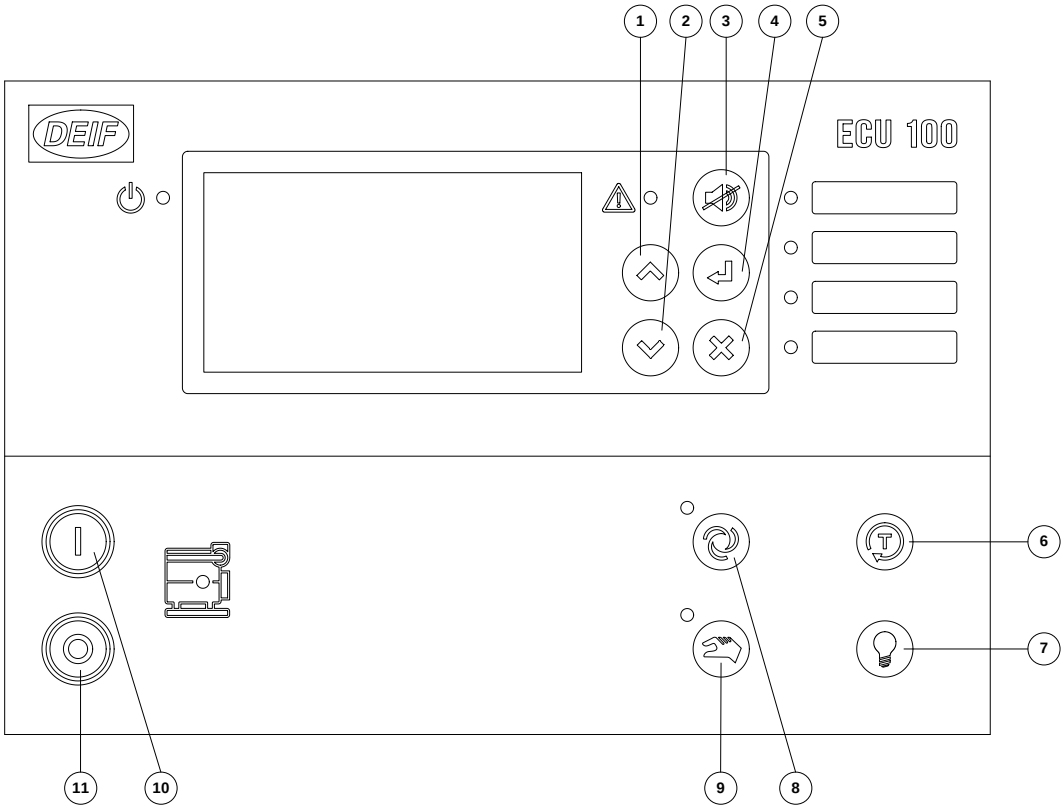
This document is divided into chapters, and in order to make the structure simple and easy to use, each chapter will begin from the top of a new page.

2. Push-buttons and LEDs

2.1 Unit

2.1.1 Push-button functions

The push-buttons on the unit have the following functions:

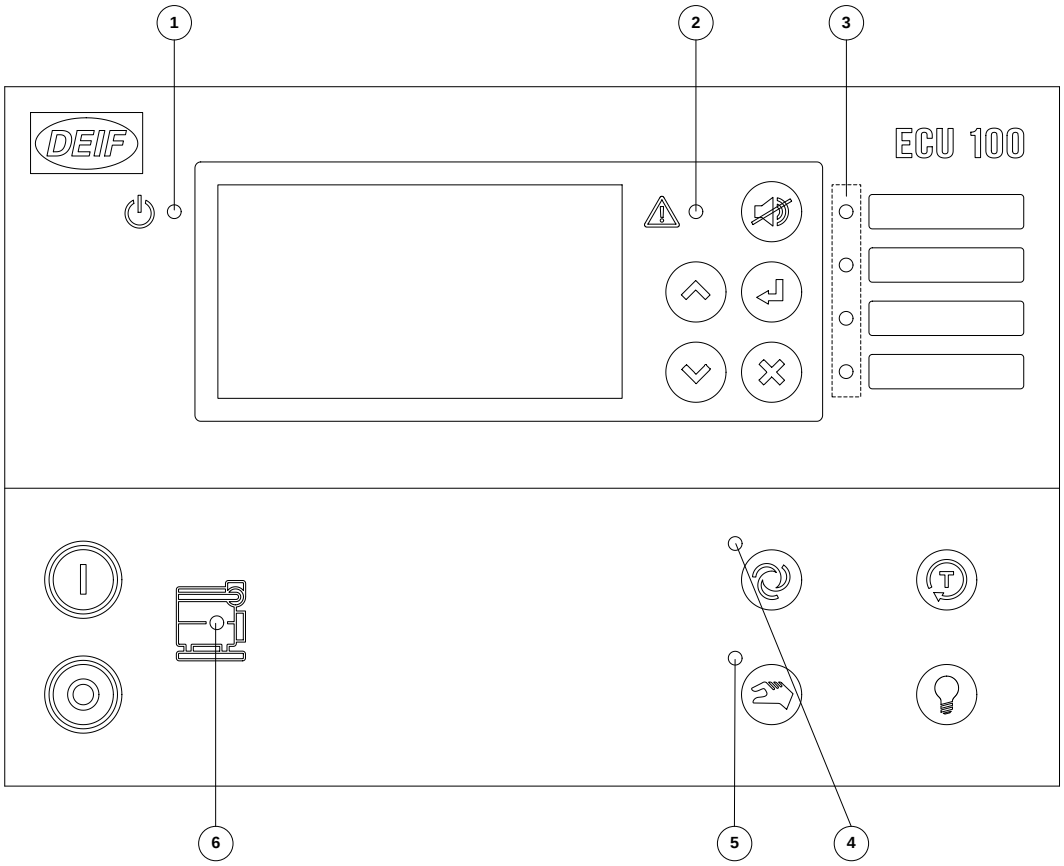


No.	Function
1:	Scroll the display down once
2:	Scroll the display up once
3:	Reset horn relay
4:	Enter menus/enter value/acknowledges alarm
5:	Return function
6:	Initiates the test sequence
7:	Lamp test/dimmer
8:	Remote running mode selector
9:	Local running mode selector
10:	Start engine
11:	Stop engine

No.	Secondary functionality
1:	Programming: Decrease setpoint value
2:	Programming: Increase setpoint value
3:	Press and hold for 2 seconds to see alarm list

2.1.2 LED functions

The display unit holds 10 LED functions. Dependent on the situation, the colour of the LEDs is green, red or a combination. The table below describes the functionality of the LEDs on the ECU 100:



LED no. **LED function**

1: Power LED indicates that the auxiliary supply is switched on. If it is green, the ECU 100 is operational. If it is red, the self-check has failed.

2 : Alarm LED steady light indicates that all alarms are acknowledged, but some are still present. LED flashing indicates that unacknowledged alarms are present.

3: 4 x LEDs with selectable indication function. Selection is made in M-Logic.

4: Indicates that Remote mode is active.

5: Steady light indicates that Local mode is active.

6: Indicates that Engine is running

3. Display and menu structure

3.1 Menu

3.1.1 Menu system

The display includes the menu systems listed below which can be used/viewed without password entry:

View menu system:
This is the commonly used menu system, which contains displaying of the measured values.

Log menu:
This menu contains event, alarm and battery logs.

Setup menu (not commonly used by the operator):
This menu is used for setting up the unit, and if the operator needs detailed information that is not available in the view menu system.
Changing of parameter settings is password-protected.

Alarm list:
This list shows active acknowledged and unacknowledged alarms. It is also in this list that alarms can be acknowledged by pressing 

Service menu:
This menu contains input-, output-, M-Logic status and data about the unit.

3.1.2 View menu

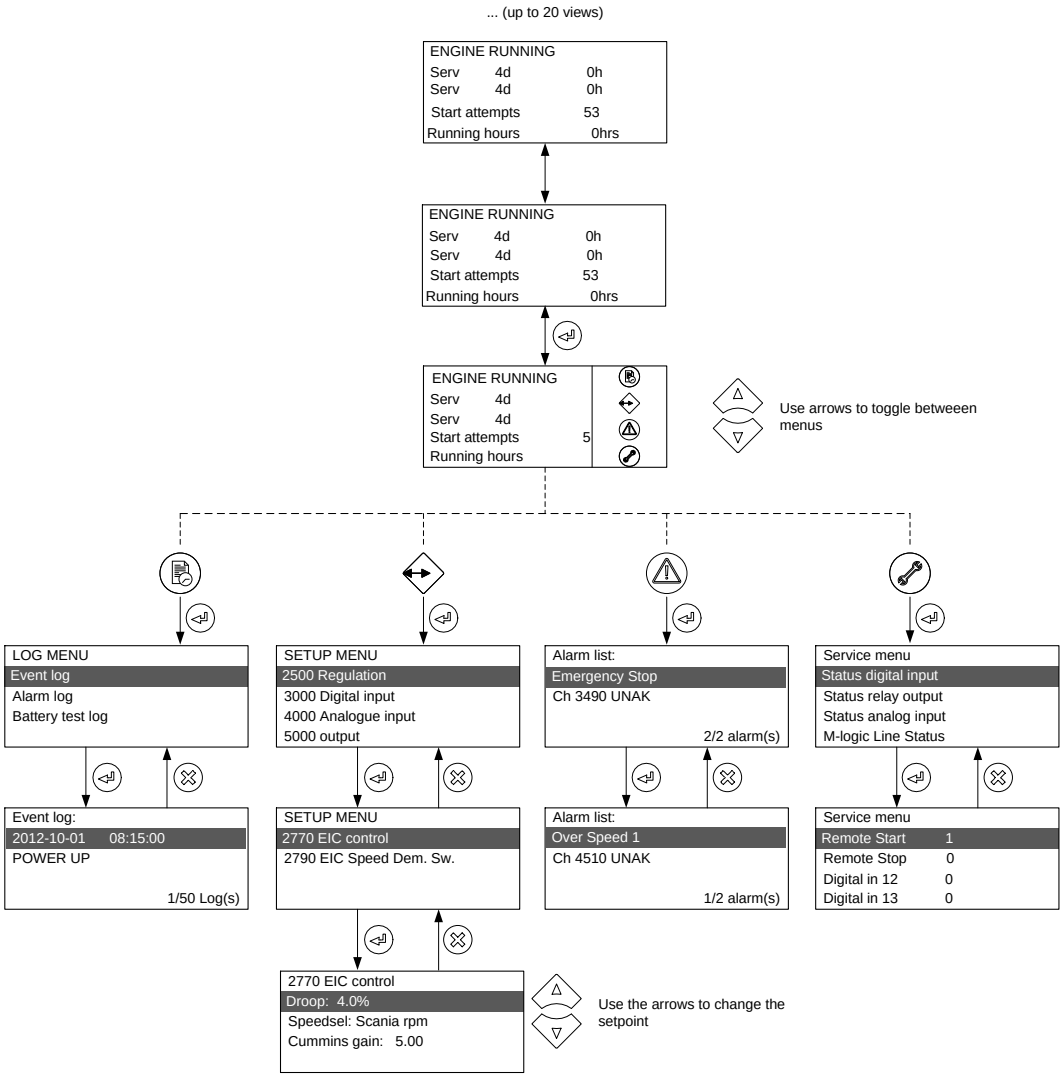
The view menus are the daily use menus for the operator. There are 20 configurable display views, with up to three configurable display lines in each view. View configuration is done through the PC utility software (USW).

In the view menus, various measured values are on the display.

Ready Serv 4d 0 h Serv 4d 0 h Start attempts 10 Running hours 0 hrs	First display line: status and information text.
	Second display line: information relating to operational status
	Third display line: information relating to operational status
	Fourth display line: information relating to operational status
	Fifth display line: running hours

3.1.3 Menu structure example

The figure below is an example of how the menu structure is arranged, and it also shows the meaning of the entry symbols.

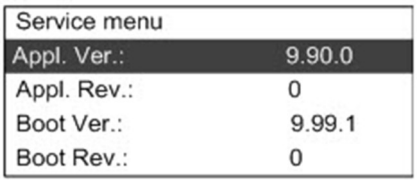


3.2 Display functions

3.2.1 Functional examples

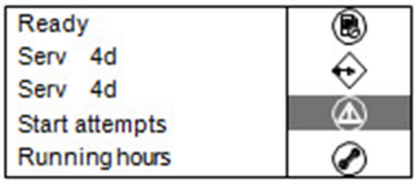
The display indicates both readings and alarms.
The examples below are with icons and English language.

View examples

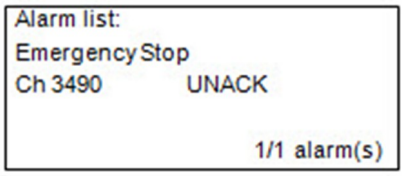


The software version can be found in the Service menu

Alarm acknowledge

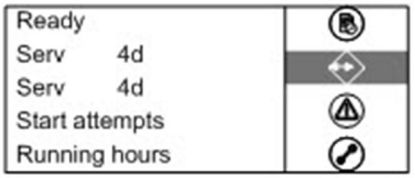


Press ⏎ or hold down to enter the list of active alarms.

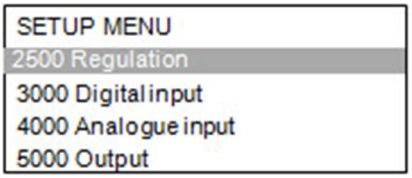


The alarm list shows the active alarms. Press ⏎ to ackowledge alarms

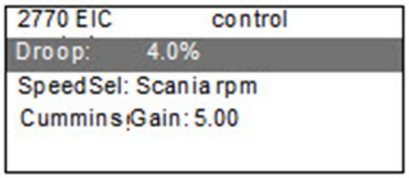
Parameter settings



Press ⏎ to enter the parameter setting.



Select menu group with ⏎ to edit.



Edit value with △ or ▽ arrows and save the value by pressing ⏎

All alarm explanations are found in the parameter list. The channel numbers are individual for all alarms.

The available parameters depend on the version of the ECU. Some parameters can only be changed using the PC utility software (USW). The parameter list will automatically be abandoned, if no button is pressed during a 30 sec. period.

For detailed information about functionality, parameters and setup, please see the Designer's Reference Handbook

4. Standard text

4.1 Status line text

4.1.1 Status texts

The following table explains the different status messages in the display. Status messages are automatically shown during and under operation without any interaction of the operator.

Condition	Comment
COOLING DOWN	Cooling-down period is activated
ENGINE STOPPING	Engine is stopping
EXT STOP TIMER	Trailing timer for external equipment
IDLE RUN	The timer in the "Idle run" function is active
SHUTDOWN OVERRIDE	The configurable input is active
SIMPLE TEST	Test mode is activated
START PREPARE	The start prepare relay is activated
START RELAY OFF	The start relay is deactivated during the start
ENGINE RUNNING	Engine is running

4.1.2 Information text

This table explains the different information text messages on the display. The information messages are active for three seconds after a push-button has been pressed.

Condition	Comment
ALREADY RUNNING	Engine is already running
NOT IN REMOTE	Auto mode not selected
NOT IN LOCAL	Manual mode not selected
NOT READY	Engine not ready
NOT RUNNING	Engien not running

5. Running modes

5.1 Running mode overview

5.1.1 Overview

The unit has three different running modes. The different running modes are selected by use of push-buttons, digital inputs on the display or the PC utility software. For detailed information, please see the Designer's Reference Handbook.

Remote

In remote mode, the unit will operate on external control input, and the operator cannot initiate any sequences manually on the display.

Local

Local means that the unit will not be able to be controlled from external signals, but only from display.

Test

The simple test sequence will start when the test mode is selected. Test mote can be selected by digital input, Modbus commands and display.

6. Alarm handling and log list

6.1 Alarm handling

When an alarm occurs, the unit will automatically go to the alarm list for display of the alarm.

If reading of the alarms is not desired, press  to exit the alarm list.

If you decide to enter the alarm list later, press the HORN push-button for 2 seconds to jump directly to the alarm list reading.

The alarm list contains both acknowledged and unacknowledged alarms provided that they are still active (i.e. the alarm condition is still present). Once an alarm is acknowledged and the condition has disappeared, the alarm will no longer be displayed in the alarm list.

This means that if there are no alarms, the alarm list will be empty.

This display example below indicates an unacknowledged alarm. The display can show only one alarm at a time. Therefore, all other alarms are hidden.

Alarm list:	
BB U>	1
Ch 1270	UNACK
	1/1 alarm(s)

To see the other alarms, use the ▲ and ▼ push-buttons to scroll in the display.

To acknowledge an alarm press  .

6.2 Log list

The log is divided into three different lists:

1. Event log
2. Alarm log
3. Battery test log

The log list contains up to 50 events, the alarm list contains up to 30 historical alarms, and the battery test list contains up to 52 historical battery tests.

An event is e.g. closing of breaker and starting of engine. An alarm is e.g. overcurrent or high cooling water temperature. A battery test is e.g. test OK or test failed.

To enter the log list:

1. Select  from the setup menu

For detailed information about the alarms, please see the parameter list.