



Operator's manual

Scania 2.0 Instrumentation en-GB 2 495 120



Issue 2.0

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Introduction

This Operator's manual describes the operation of Scania instrumentation.

The information in this manual was correct at the time of going to press. Scania reserves the right to make alterations without prior notice.

Note:

Always use Scania spare parts for maintenance and repair.

The user of this Operator's manual is expected to have a basic understanding of marine electrical systems and to be able to carry out work on electrical systems.



REQUIREMENT!

Work on the low voltage circuit should only be carried out by qualified and experienced personnel.

Work on the high voltage circuit may only be carried out by an authorised electrician.

Responsibility

It is the responsibility of the installer to ensure that the installation of the electrical system is carried out in a professional manner. It is also the responsibility of the installer to ensure that the system is working satisfactorily and that all component parts meet legal requirements and regulations.

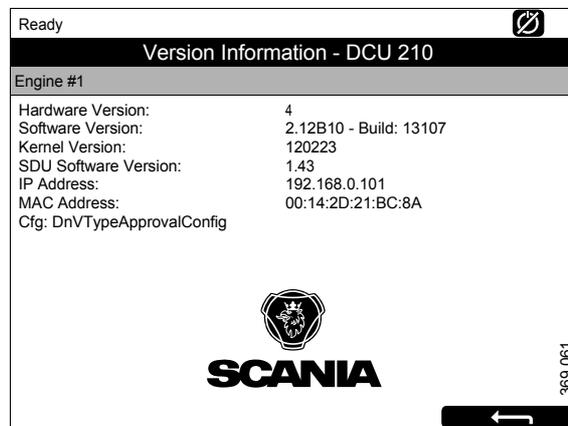
Display languages

In this Operator's manual the display interfaces are shown in English. It is however possible to set other languages.

Software versions

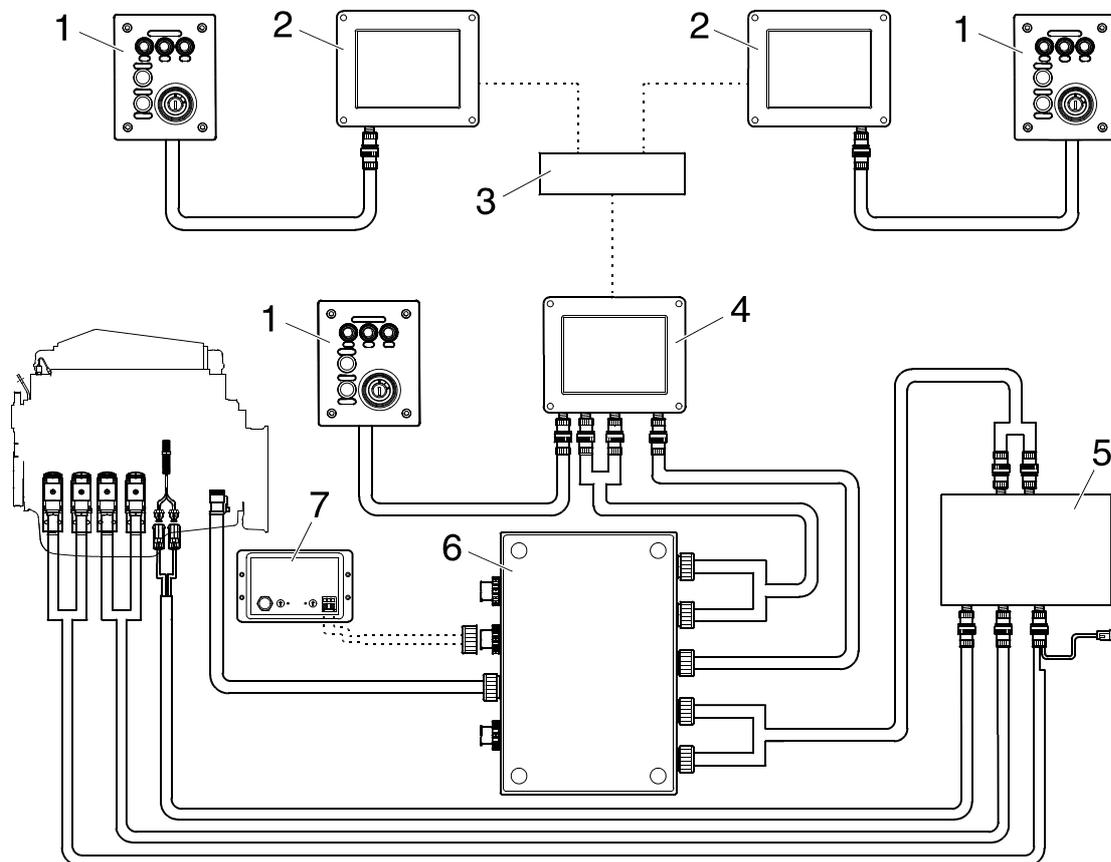
The main display interface differs depending on which software version is installed.

You can check the software version by going to *Menu > Help > Version Information*.



System overview

The illustration shows how a control system prepared for classification may be designed.



361 899

1. Control panel.
2. Auxiliary display.
3. Network switch.
4. Main display.
5. Safety device unit.
6. Junction box.
7. Gateway.

Main display

The main display is the main component in the control system. Values from the engine sensors are shown on the display. Commands and other user functions are also carried out on the main display.

Contact an authorised Scania workshop if the main display needs to be configured.

Auxiliary display

The auxiliary display, which is optional, shows the same things as the main display, with the same user interface.

The auxiliary display does not need to be configured as it reads the configuration from the main display. Therefore, it is easy to supplement the control system with an auxiliary display afterwards.

Network switch

A network switch is only required if more than 1 auxiliary display is connected to the control system. The displays can then be connected together via a network cable.

Scania recommends using a network switch, in order to make it simpler to expand the control system and connect a computer.

Safety device unit

The safety device unit is a requirement for classified control systems. The safety device unit has the same monitoring and shut-off functions as the main display.

Gateway

The gateway reads messages about position and speed via NMEA 2000, so that the control system can calculate fuel consumption per nautical mile.

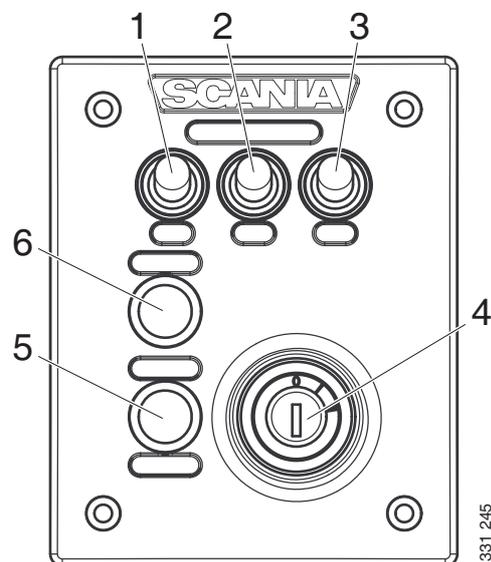
Control panel

The engine can be started and stopped through the control panel. It is also possible to activate engine speed setting 1 and 2 through it.

Starter lock

The control panel starter lock (4) is used to start and stop the engine. The starter lock has the following positions:

- Position 0: The engine electrical system is switched off and the engine is stopped.
- Position 1: The engine electrical system is activated.
- Position 2: The starter motor is activated.



Control panel

1. Control for activating engine speed setting 1.
2. Control for activating engine speed setting 2.
3. Control for deactivating engine speed setting 1 or 2.
4. Starter lock.
5. Not used.
6. Not used.

Main display

The function of the main display depends on how it is configured. Configuration of the main display is not described in this Operator's manual.

Password

If the control system is not equipped with a control panel, a 4-digit password is used instead of a starter key. The password is provided by the installer.

Navigation

The main display is a touch screen where you carry out every command by pressing directly on the display. The main display has 5 different view modes:

- Instrument pages
- *Select Page*
- *Shortcut Menu*
- *Alarm List*
- *Menu*

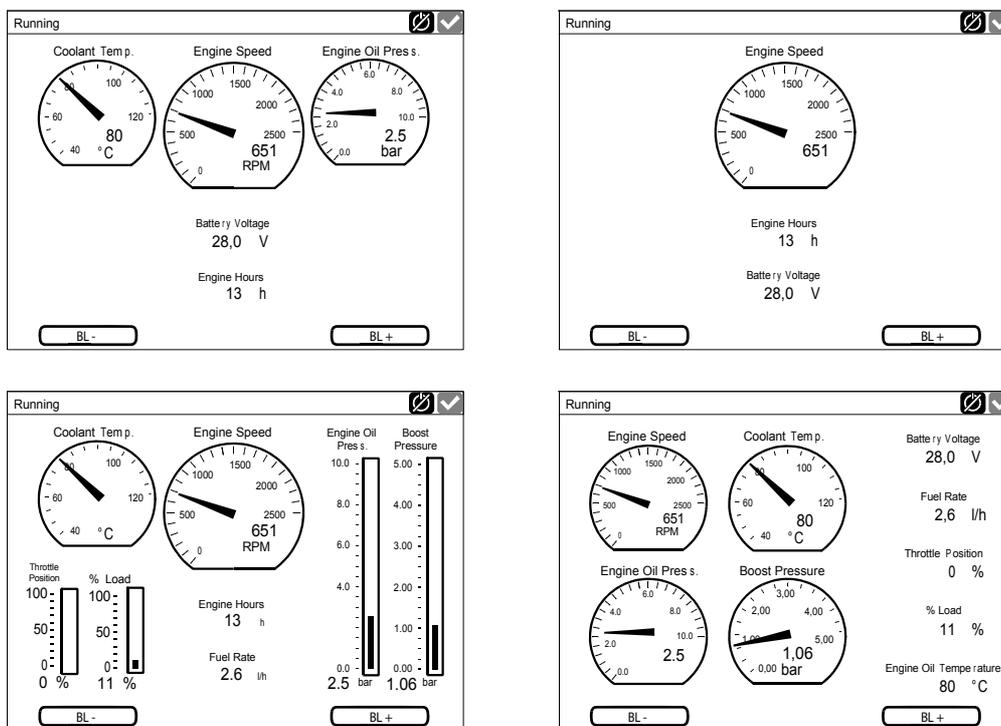
Different touch areas on the display have different functions. For example, if you touch the left-hand side of the display on an instrument page, you get to the previous instrument page.

How to navigate:

To get to	Pressure
<i>Select Page</i>	in the middle of the display
previous instrument page	on the left of the display
next instrument page	on the right of the display
<i>Shortcut Menu</i>	in the top left-hand corner
<i>Alarm List</i>	in the top right-hand corner
<i>Menu</i>	a long press (1 s) in the middle of the display

Instrument pages

There are 4 preset instrument pages. If another instrument page has been configured, there can be a total of 5 instrument pages.



363 210

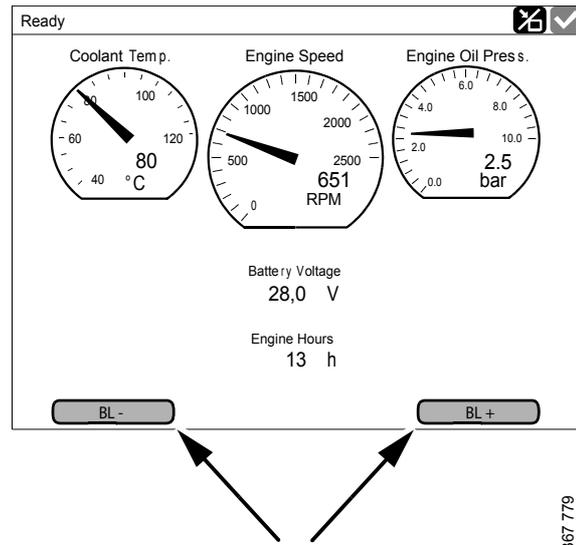
The 4 preset instrument pages.

You scroll between the instrument pages by pressing on the right- or left-hand side of the display.

Adjusting the brightness of the display

If the display has software version 2.12, you can increase and reduce the brightness of the display by pressing *BL-* and *BL+* on the instrument pages.

If the display has software version 2.11 or earlier, the brightness of the display is instead adjusted using the *Screen Backlight* button in *Menu*. See [Screen Backlight](#).



367 779

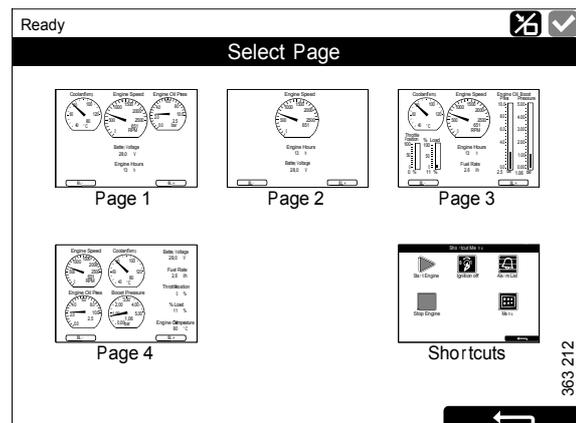
Increase and reduce the brightness of the display.

Select Page

In *Select Page* thumbnails of the instrument pages and the *Shortcuts* menu are shown.

You get to *Select Page* by pressing in the middle of the display.

Then select one of the instrument pages or the *Shortcuts* menu among the thumbnails.



363 212

Select Page, example with 4 instrument pages.

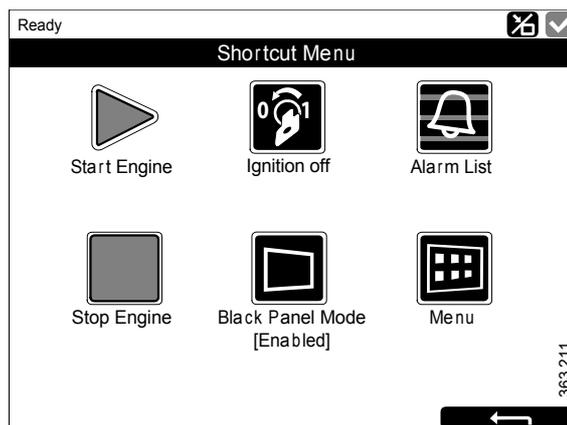
Shortcut Menu

In the *Shortcut Menu* window, there are the buttons *Start Engine*, *Stop Engine*, *Alarm List* and *Menu*. If the display has software version 2.12, there are also the *Ignition Off* and *Black Panel Mode* buttons.

There are 2 different ways to get to the *Shortcut Menu*:

- Press the upper left-hand corner of the display.
- Press the *Shortcuts* button in the *Select Page* window.

Then select one of the functions or go back to *Select Page* by pressing the return arrow.

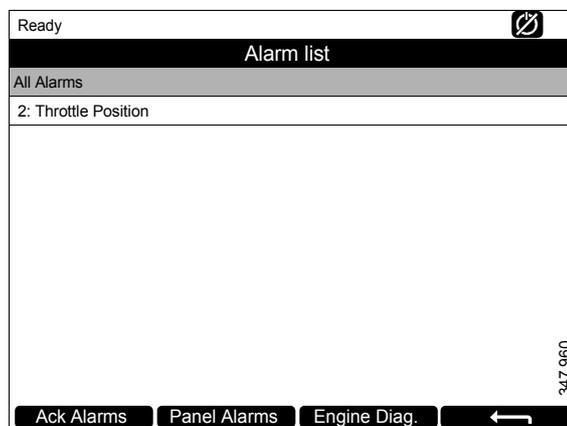


Alarm List

There are 2 different ways to get to the *Alarm List*:

- Press the upper right-hand corner of the display.
- Press the *Alarm List* button in the *Shortcut Menu* window.

The *Alarm List* is described in the [Alarm list](#) section.

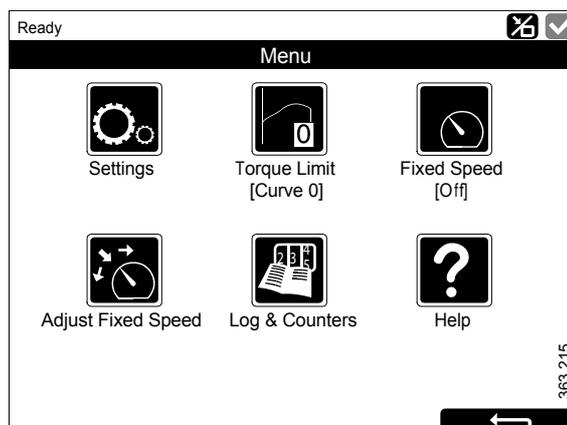


Menu

There are 2 different ways to get to the *Menu*:

- Press in the middle of the display for 1 s. on one of the instrument pages.
- Press the *Menu* button in the *Shortcut Menu* window.

When the main menu is opened the most recently used function is preselected. For further information on the functions, see the [Menu](#) section.



Menu, software version 2.12.

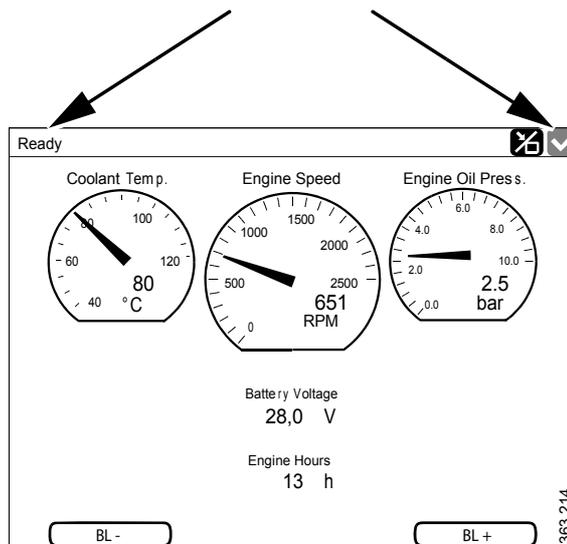
Main display layout

Status bar

On the upper part of the display there is a status bar. Engine status is displayed on the left-hand side of the status bar and the display status on the right-hand side.

Display status symbols in the status bar

The following display status symbols may be shown on the right-hand side of the status bar:



Status bar on an instrument page.

Symbol	Meaning	Explanation
 347 940	<i>Remote mode</i>	The engine can be started and stopped from both the main display and an auxiliary display.
 347 941	<i>Local mode</i>	The engine can only be started and stopped from the main display.
 347 942	Override of engine shutdown	If this function is activated, an alarm is only given for events which normally lead to engine shutdown. The exception is engine over-speed, which is always activated.
 347 943	Everything OK	There are no alarms in the alarm list.

Note:

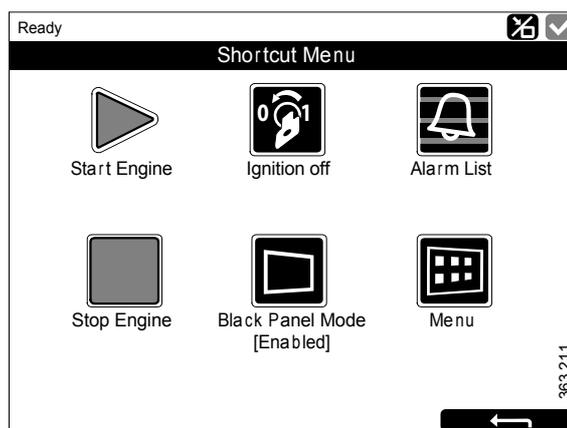
Several symbols can be shown simultaneously.

Starting the engine

Keep the *Start Engine* button in the *Shortcut Menu* window pressed until the engine has started. When the engine has started the status in the top left of the status bar changes from *Ready* to *Running*.

Stopping the engine

Keep the *Stop Engine* button in the *Shortcut Menu* window pressed until the engine has stopped. When the engine has stopped the status in the top left of the status bar changes from *Running* to *Ready*.



Switch off the voltage

Press the *Ignition Off* button in the *Shortcut Menu* window, or wait until the preset timer has counted down to zero.

Note:

If there are multiple displays in the system, any of these can keep the system running.

Note:

The button is only available if the display has software version 2.12.

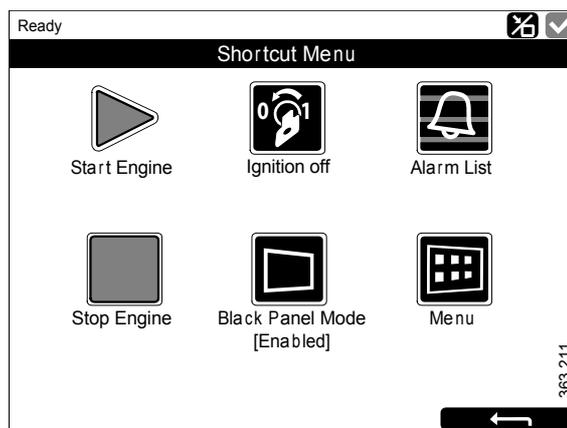
Switching off the display

The *Black Panel Mode* function in the *Shortcut Menu* window is used to switch off the display to improve visibility in the dark.

Press the button to switch off the display completely. If you touch the display when the function is activated, the display comes on at minimum brightness, and is switched off automatically again after a preset time. The standard setting is 5 seconds.

In the case of a serious faults, the display comes on even if *Black Panel Mode* is activated. However, with a less serious fault, only the buzzer sounds.

The function is deactivated by pressing the button again.



Alarm

Each time a new alarm is added to the alarm list, the following happens:

- The buzzer sounds.
- The status bar flashes either yellow or red.

The colour in the status bar has different meanings:

- Yellow means warning.
- Red means alarm or engine shutdown.

Note:

A red alarm always takes precedence over a yellow warning if both are generated simultaneously.

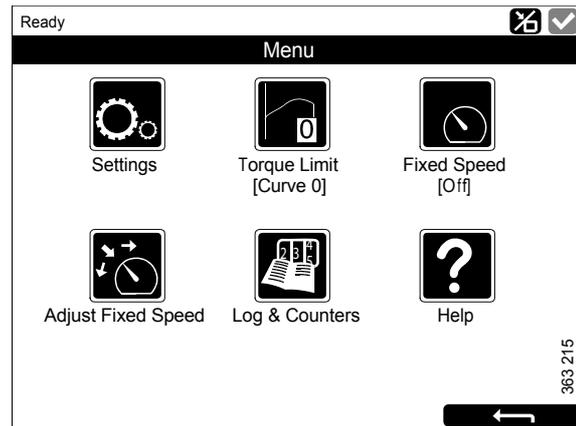
For further information on alarms, see the section [Alarm list](#).

Menu

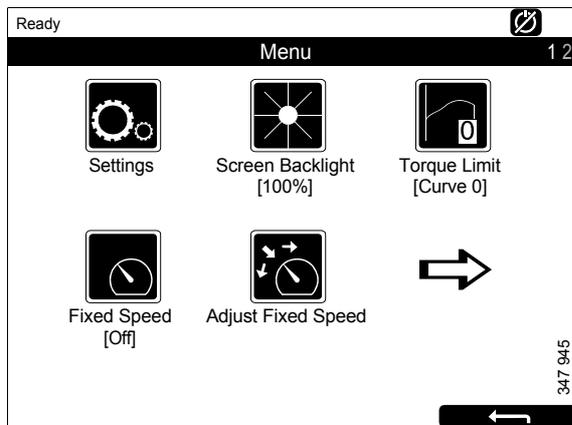
The main menu consists of 1 page if the display has software version 2.12, and 2 pages if the display has software version 2.11 or earlier. The buttons in *Menu* are described in the following pages.

Note:

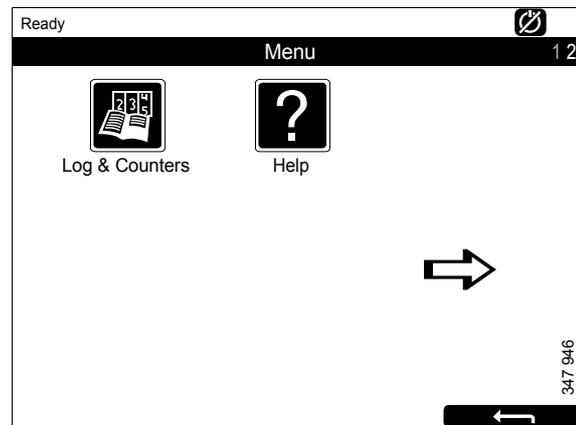
The *Screen Backlight* button is only available if the display has software version 2.11 or earlier.



Menu, software version 2.12.

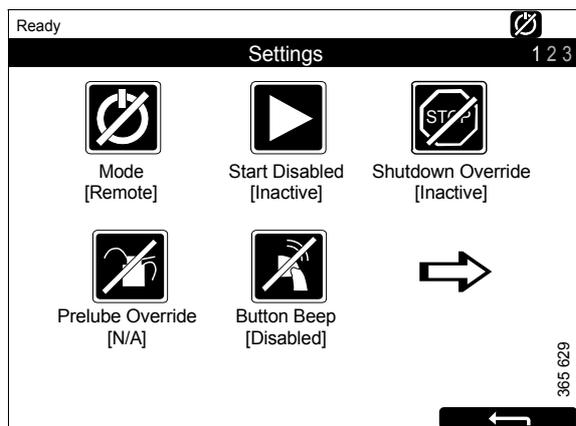


Menu, page 1, software version 2.11 or earlier.

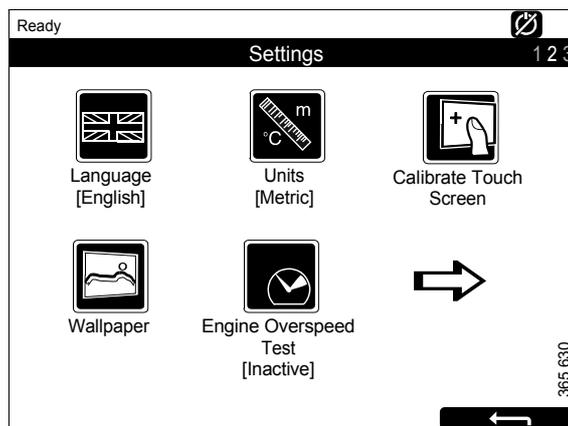


Menu, page 2, software version 2.11 or earlier.

Settings



Settings, page 1.



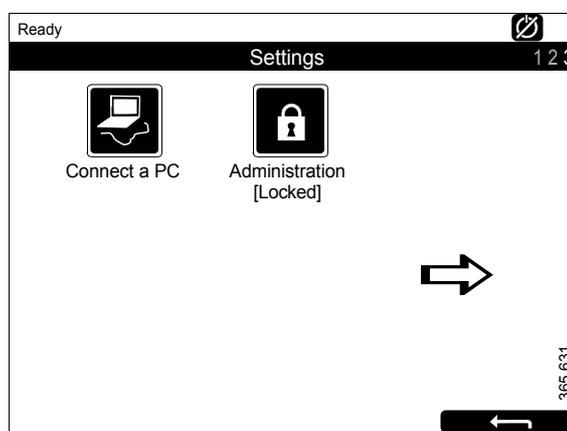
Settings, page 2.

The *Settings* button is the first button in the *Menu*. This is where you carry out all the display settings. *Settings* consists of 3 pages.

The settings in *Settings* are described in the following pages.

Note:

The position of the buttons on the screens differs depending on whether the display has software version 2.11 or earlier, or 2.12. *Shutdown Override* is only available if the display has software version 2.12.

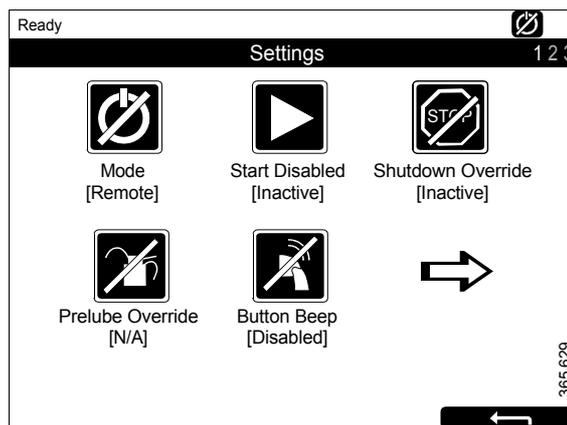


Settings, page 3.

Mode

Here you select the operating mode of the display. There are 2 modes to choose from:

Mode	Symbol	Explanation
<i>Remote</i>	 347 940	The engine can be started and stopped from both the main display and an auxiliary display.
<i>Local</i>	 347 941	The engine can only be started and stopped from the main display.



Start Disabled

Select *Active* to deactivate engine start.

Shutdown Override

Select *Active* to activate engine shutdown override control.

Note:

The button is only available if the display has software version 2.12.

Prelube Override

Not used.

Button Beep

Select *Enabled* if you want a sound to be made every time you press the display. Select *Disabled* if no sound should be made when you press the display.

Language

Select language.

The languages which can be selected depend on how the display is configured.

Units

Select unit of measurement: *Metric* or *U.S.*

Calibrate Touch Screen

Calibrate the main display if necessary.

Wallpaper

Here you choose between different backgrounds for instruments, menus and dialogue boxes.

Engine Overspeed Test

Select *Active* to activate the engine overspeed test. When the overspeed test is activated, the overspeed setting is temporarily reduced to a nominal engine speed. Start the engine to carry out the test.

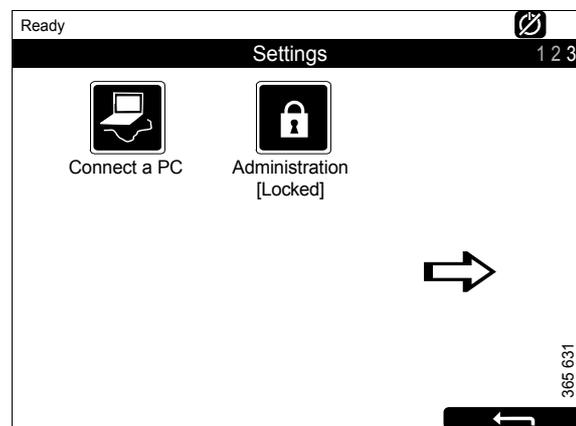
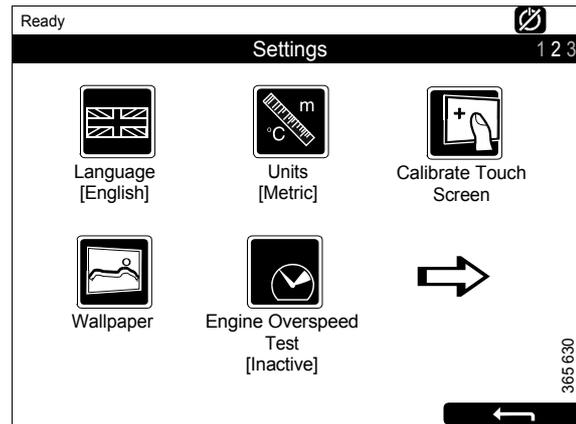
The engine overspeed test is deactivated automatically after a timeout or when actual engine overspeed is detected in the test.

Connect a PC

This function is used when configuring the main display and updating software. Contact an authorised Scania workshop if any of this needs to be carried out.

Administration

In the administration section the main display is configured, which can only be done by an authorised Scania workshop. It is therefore password-protected.



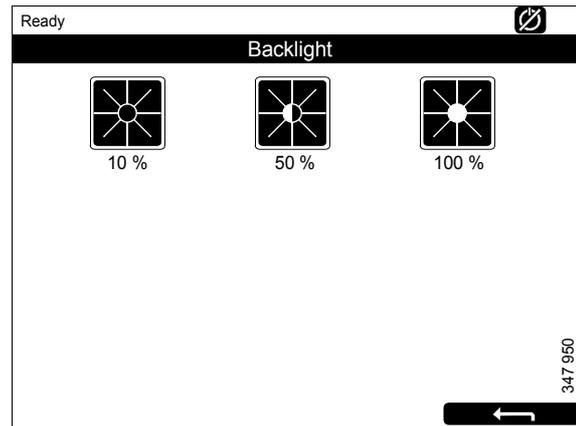
Screen Backlight

The *Screen Backlight* button is in the *Menu*.

Note:

The button is only available if the display has software version 2.11 or earlier.

When you press *Screen Backlight*, the *Backlight* window opens. This increases and reduces the brightness of the main display.



Torque Limit

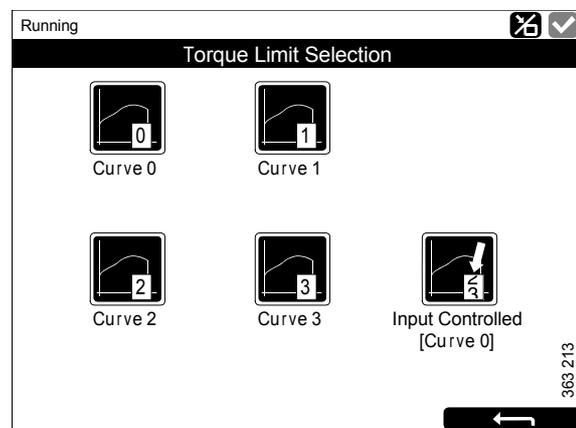
The *Torque Limit* button is in the *Menu*. When you press it the *Torque Limit Selection* window opens.

Torque limitation is different types of power curves which the engine should follow. The power curves are configured in SDP3.

Adjustment	Description
<i>Curve 0</i>	Maximum engine torque.
<i>Curve 1</i>	Maximum engine torque, another lower engine torque requested.
<i>Curve 2</i>	Customer defined engine torque.
<i>Curve 3</i>	Customer defined engine torque.
<i>Input Controlled</i>	Activation of curve 1-3 via inputs on the main display, if this has been configured. The button is only available if the display has software version 2.12.

Note:

Customer defined engine torques are always lower than the maximum engine torque.



Fixed Speed

The *Fixed Speed* button is in the *Menu*. When you press it the *Mode* window opens.

Here you activate and deactivate the engine speed setting. You can choose from the following options:

Adjustment	Description
<i>Fixed Speed Mode 1</i>	Activate engine speed setting 1.
<i>Fixed Speed Mode 2</i>	Activate engine speed setting 2.
<i>Fixed Speed Off</i>	Deactivate engine speed setting.

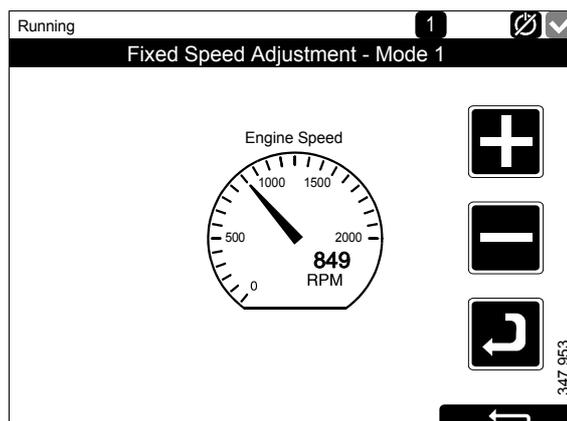
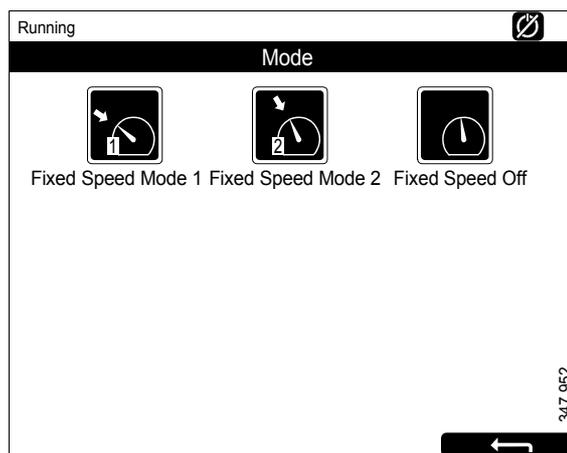
In order to activate engine speed setting 1 or 2, the engine must be running, the display must be active and the throttle must be at 0%.

Adjust Fixed Speed

The *Adjust Fixed Speed* button is in the *Menu*. When you press it the *Fixed Speed Adjustment* window opens. Here you adjust engine speed setting 1 and 2.

You can only adjust an engine speed setting if you have first activated it. This can be done in 2 different ways:

- Via *Menu* > *Fixed Speed* in the main display, see the previous section.
- Via the engine speed setting control in the control panel, see the [Control panel](#) section.



The following 2 engine speed settings are in *Adjust Fixed Speed*:

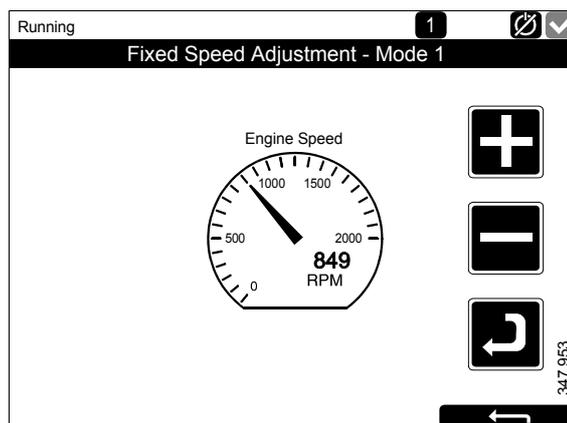
- *Fixed Speed Mode 1* is an engine speed which can be set between high and low idling. High and low idling vary depending on the type of engine.
- *Fixed Speed Mode 2* is an engine speed which can be set between 450 and 2,000 rpm.

Proceed as follows to adjust engine speed setting 1 or 2:

1. Select the engine speed setting to be adjusted.
2. Press the activate button, i.e. the arrow button underneath the minus button for 3 to 6 s to access the adjustment mode.
3. Step to the desired engine speed using the + and - buttons.
4. Save the desired engine speed by keeping the activate button pressed for 3 to 6 s. No confirmation is shown but the setting is saved.
5. Exit the menu by pressing the return arrow.

When either of the engine speed settings is activated, the engine speed goes up or down to the last saved engine speed setting.

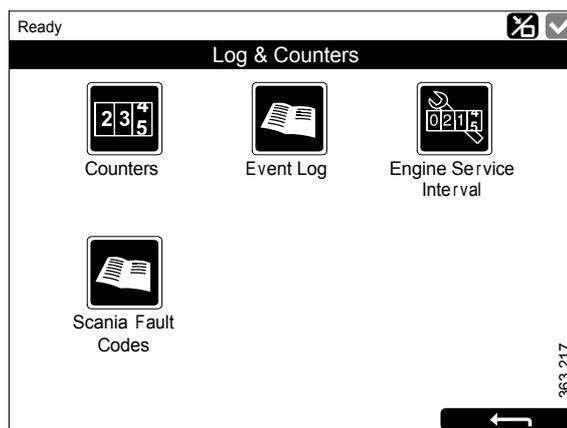
You can set torque limitation for both engine speed settings via SDP3. The engine speed settings are isochronous.



Log & Counters

The *Log & Counters* button is in the *Menu*.

Here, a log of engine operating hours and all warnings and alerts is shown. When you have pressed *Log & Counters*, the following buttons are shown:



Counters

This submenu contains counters for

- the engine's total operating hours and fuel consumption (*Total*).
- operating hours and fuel consumption since start (*Since Start*).
- operating hours and fuel consumption since reset (*Since Reset*).

The values for *Since Start* are reset automatically each time the engine is started.

The values for *Since Reset* are reset by pressing *Reset* at the bottom left of the *Counters* window.

Event Log

All events (warnings and alarms) are saved in the main display and can be shown in this menu.

Select an event to see information on when it first occurred, when it was acknowledged (if it is possible to acknowledge the event) and when it disappeared.

Engine Service Interval

Not used.

Scania Fault Codes

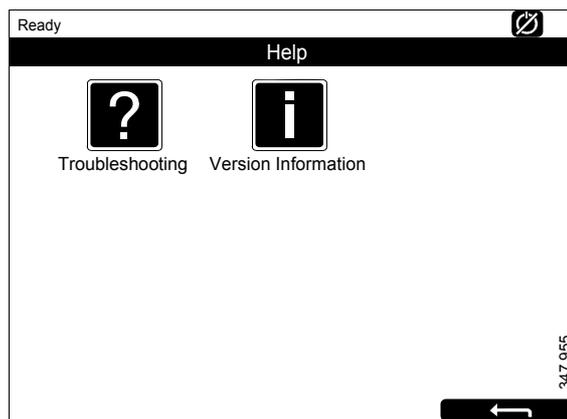
This shows Scania fault codes in DTC format. These can make things easier when contacting a Scania workshop.

Note:

The button is only available if the display has software version 2.12.

Help

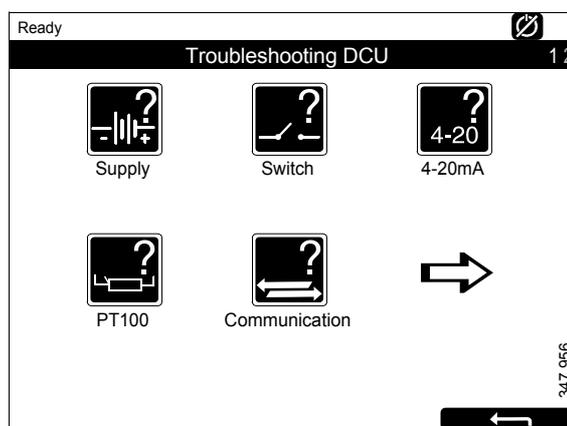
The *Help* button is in the *Menu*. In *Help* there are options for troubleshooting and for the main display software version and IP address.



Troubleshooting

There are options here to troubleshoot the main display.

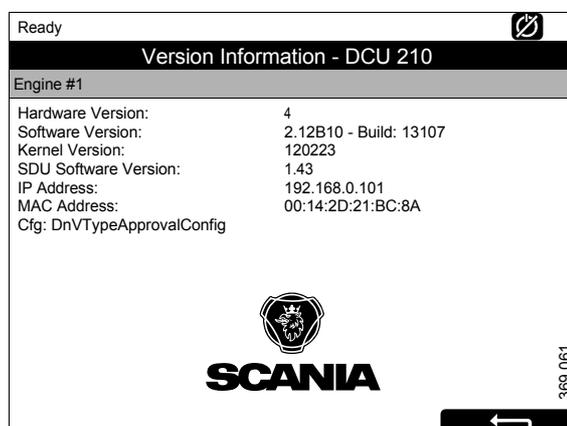
First, press *Troubleshooting DCU*. Then select using the buttons within the area in which the troubleshooting should be carried out. Note that there are 2 pages of options.



Version Information

Information about the main display hardware version, software version and operating system is shown here. When connecting via CAN, the software version of the engine control unit is shown.

The IP address of the display, which is needed if the main display is to be connected to a PC, is also shown here.



Auxiliary display

The auxiliary display largely works in the same way as the main display. Therefore, only aspects specific to the auxiliary display are described here.

The auxiliary display reads the configuration from the main display it is connected to. If the configuration of the main display has been changed, the auxiliary display adapts automatically to the new configuration.

The auxiliary display can only monitor and control a main display.

Symbols in the status bar

In addition to the symbols shown in the main display (see the [Main display layout](#) section), the active display symbol can also be shown in the auxiliary display status bar. See illustration.



347 958

Active display symbol in the auxiliary display

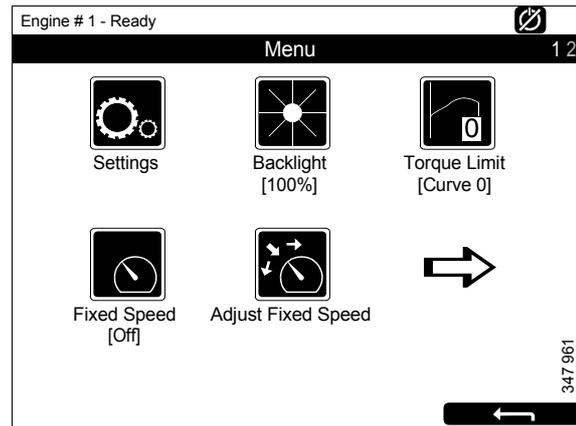
Menu

You get to the auxiliary display main menu in the same way as with the main display:

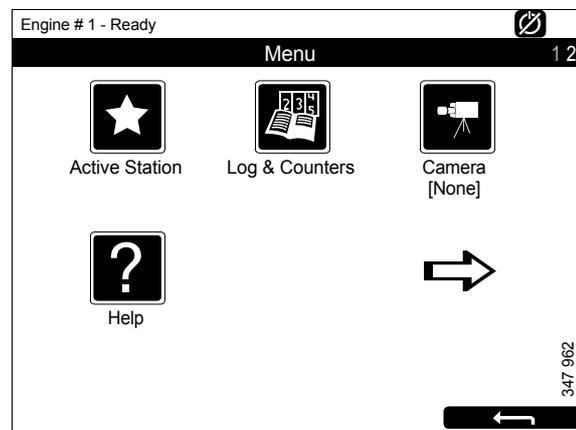
- Press in the middle of the display for 1 s. on one of the instrument pages, or
- press the *Menu* button in the *Shortcut Menu* window.

When the main menu is opened the most recently used function is preselected.

In the following section only the *Settings* and *Active Station* buttons are described, as all the other buttons work in the same way as with the main display.



Menu, page 1



Menu, page 2

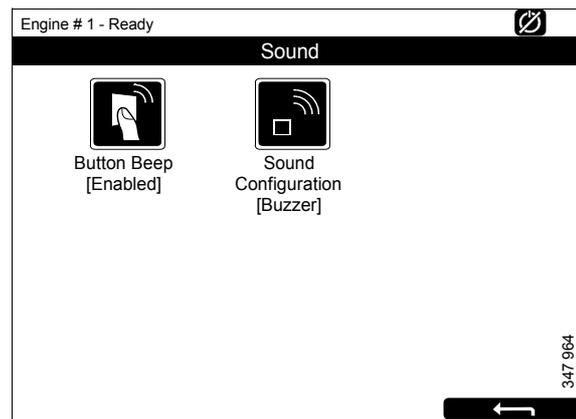
Settings

The *Settings* button is the first button on page 1 of the *Menu*. In this section only the *Sound* button is described, as all the other buttons in *Settings* have the same function as in the main display.

Sound

The auxiliary display has a 3.5 mm output for connection of external loudspeakers. The sound from external loudspeakers is different to the sound from the buzzer, and different sounds are connected to different events.

- With the *Sound Configuration* button, select either external loudspeaker or the inbuilt buzzer.



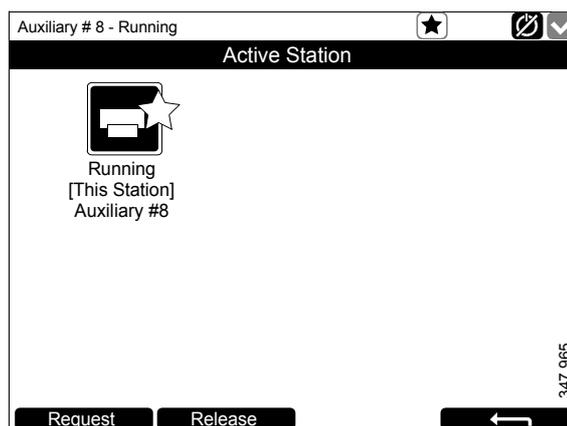
Settings > Sound

Active Station

The *Active Station* button is the first button on page 2 of the *Menu*.

Here, you activate and deactivate the option for the auxiliary display to have active display status, i.e. *Active Station*.

There may be several auxiliary displays in the system controlling the same engine, but only one auxiliary display can be active at any time.



Activating Active Station status

How to request that the auxiliary display become an active display:

- Select an engine and press *Request*.

A request is sent to the auxiliary display which currently has active display status.

If the engine icon has a yellow star in the status bar at the top of the window, as in the illustration, this means that the engine is currently being controlled by this auxiliary display.

Note:

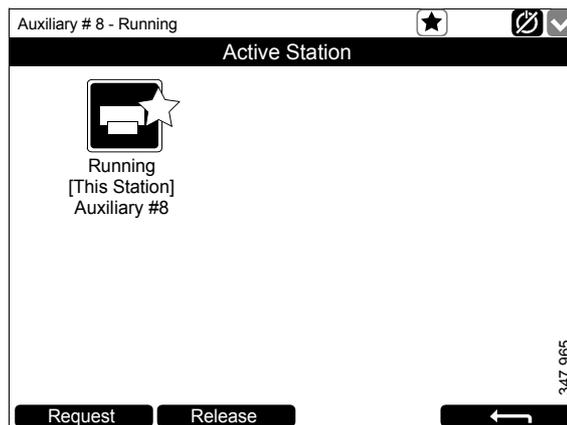
If there is only one auxiliary display in the system, it still may not be the active display.

When you have activated *Active Station* once, the setting is saved, even when the auxiliary display is restarted.

Deactivating Active Station status

You can also deactivate the auxiliary display *Active Station* status. Other auxiliary displays with lower priority can then control the engine. Proceed as follows:

- Select an engine and press *Release*.

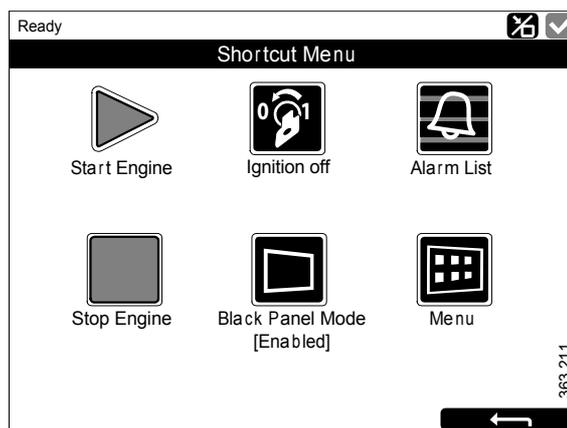


Alarm list

The alarm list is displayed and functions in the same way on the main display and the auxiliary display. In the alarm list warnings and diagnosis messages are also shown.

There are 2 different ways to get to the alarm list in the main display and auxiliary display:

- Press in the upper right-hand corner on one of the instrument pages.
- Press the *Alarm List* button in the *Shortcut Menu* window.



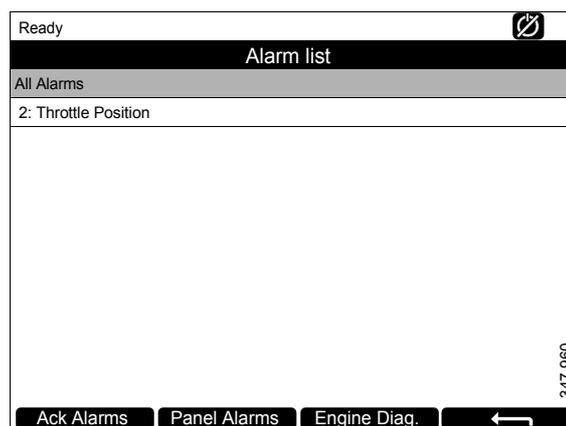
Typefaces and background colours

The following principles apply to how warnings and alarms are shown in the alarm list:

- An event which is not acknowledged is displayed using bold.
- An acknowledged event is displayed using normal text.
- An alarm and an engine shutdown are displayed using a red background. During engine shutdown, a stop signal is also displayed.
- A warning is displayed using a yellow background.
- A diagnosis message is displayed using a white background.
- An event which is not acknowledged and has turned inactive is displayed using a grey background.

Example: The coolant temperature has exceeded the limit value and then returned to a normal level before the operator has had time to acknowledge the event.

This table lists examples of how different events are shown in the alarm list.



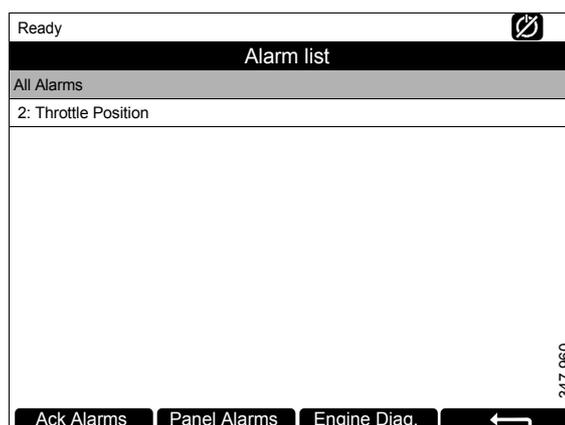
Alarm list	
Type of alarm	Display
New active alarm or engine shutdown.	Bold with red background.
Acknowledged active alarm or engine shutdown.	Red background.
Not acknowledged inactive alarm.	Red text with grey background.
New active warning.	Bold with yellow background.
Acknowledged active warning.	Yellow background.
Not acknowledged inactive warning.	Yellow text with grey background.
New active diagnostic message.	Bold with white background.
Acknowledged diagnostic message.	White background.
Not acknowledged inactive diagnostic message.	Black text with grey background.

Filtering alarms

In the alarm list, the alarms can be filtered in 3 different groups:

- All alarms
- Display alarms
- Diagnostics

You activate the different filters by pressing the respective section at the bottom of the display. On line 2 in the alarm list, the filter which is active is displayed.



Turning off the buzzer during an alarm

The buzzer is switched off when the alarm list is opened. If the buzzer begins to sound when the alarm list is open, you can switch it off by pressing *Ack Alarms*.

Acknowledging 1 alarm

In the alarm list:

- Select the alarm to be acknowledged. If there is more information to display the row will be extended.
- Press *Ack Alarms*.

Acknowledging all alarms

In the alarm list:

- Keep the *Ack Alarms* button depressed for 1 second.

Note:

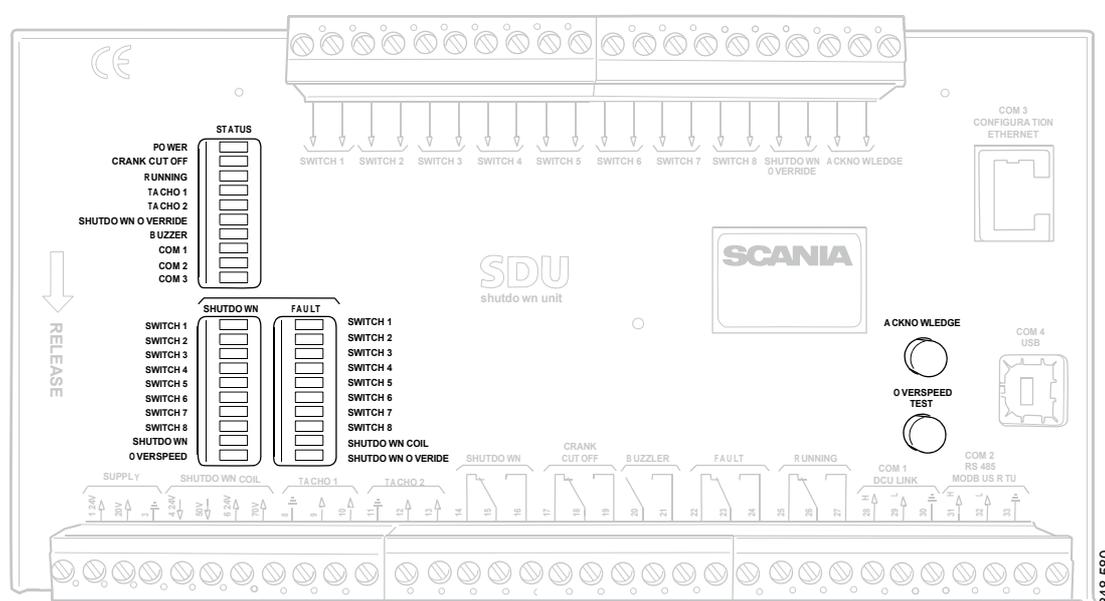
Active alarms will remain in the alarm list.

Alarms from safety device unit

If the alarm is generated via the safety device unit, it must be acknowledged in both the safety device unit and on the main display.

Safety device unit

The safety device unit has its own monitors and sensors. An alarm which has been generated via the safety device unit must also be acknowledged on the main display.



Safety device unit.

Buttons

Button	Description
<i>Acknowledge</i>	With the <i>Acknowledge</i> button all faults and engine shutdowns are acknowledged.
<i>Overspeed Test</i>	<p>How to carry out an overspeed test: When the engine is switched off, keep the <i>Overspeed Test</i> button depressed until the <i>Overspeed</i> LED starts flashing quickly. The safety device unit is now in test mode, and the limit value for engine overspeed is reduced to 95% of the set overspeed limit value. Then start the engine.</p> <p>The overspeed test can be deactivated in 3 different ways:</p> <ul style="list-style-type: none"> • The test is completed and is finished with an engine shutdown due to overspeed at 95% of the set overspeed limit value. • Press the <i>Overspeed Test</i> button. • Automatic deactivation after 5 minutes.

LEDs

The LEDs indicate status, engine shutdown or faults. When an LED is flashing, there is a new event which has not been acknowledged. When an LED is constantly on, there is an event which has been acknowledged but which is still active.

Status LEDs

LED	Description
<i>Power</i>	Lights when the safety device unit is supplied with a voltage above 21 V. Flashes if voltage is below 21 V. Alarm if voltage is below 21 V for more than 30 s. If voltage drops to below 18 V the safety device unit switches off all channels.
<i>Crank Cutoff</i>	Lights when the engine speed is above the set limit value.
<i>Running</i>	Lights when the safety device unit gets a signal that the engine speed is above the set limit value, which is normally 400 rpm.
<i>Tacho 1/Tacho 2</i>	Lights when the engine speed is above 5 rpm.
<i>Shutdown Override</i>	Lights when engine shutdown override control is activated.
<i>Buzzer</i>	Lights when the buzzer is activated.
<i>COM 1</i>	Flashes when the safety module communicates with the main display.
<i>COM 2</i>	Flashes when the safety module communicates via Modbus RTU interface.
<i>COM 3</i>	Flashes when the safety module communicates with the Ethernet interface.

LEDs for engine shutdown and faults

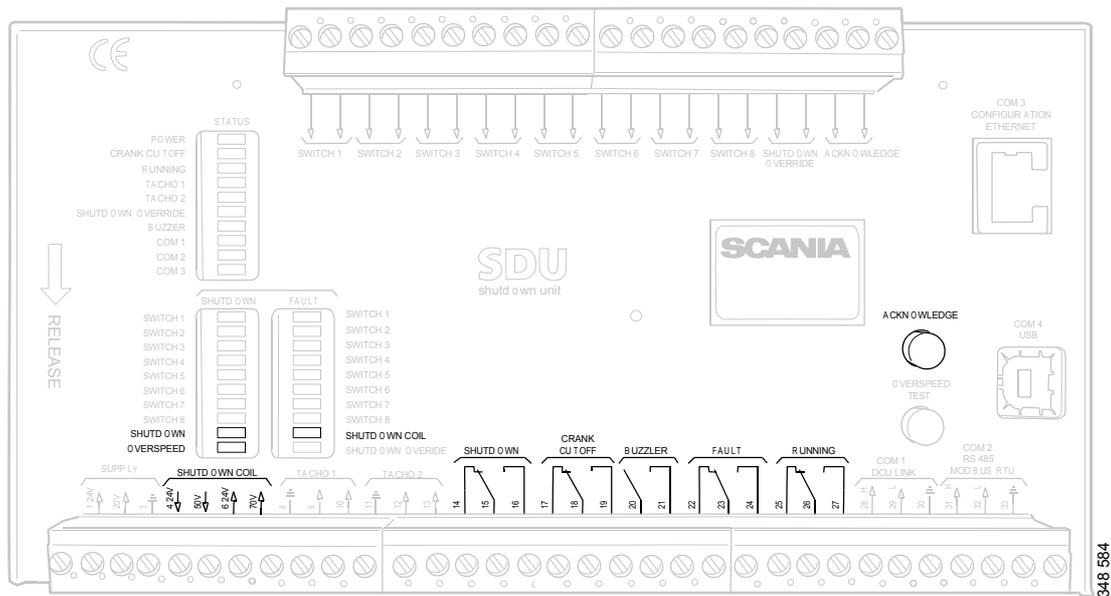
Shutdown

LED	Description
<i>Switch 1</i>	Lights at engine shutdown due to impermissible engine oil pressure.
<i>Switch 2</i>	Lights at engine shutdown due to high coolant temperature.
<i>Switch 3</i>	Lights at engine shutdown due to remote controlled emergency stop.
<i>Switch 4</i>	Lights at engine shutdown due to too high coolant pressure.
<i>Switch 5–8</i>	Lights at engine shutdown due to customer configured settings.
<i>Shutdown</i>	Lights at all engine shutdowns.
<i>Overspeed</i>	Lights at engine overspeed. Flashes rapidly at engine overspeed test.

Fault

LED	Description
<i>Switch 1–8</i>	Lights at open circuit for the respective sensor.
<i>Shutdown Coil</i>	Lights at open circuit for the <i>Shutdown Coil</i> output.
<i>Shutdown Override</i>	Lights at open circuit for the <i>Shutdown Override</i> input.

Engine shutdown at engine overspeed



Safety device unit.

If a signal is sent to one of the 2 engine speed inputs that the engine speed exceeds the limit value, the safety device unit shuts off the engine.

Override of engine shutdown

It is not possible to override engine shutdown at engine overspeed. The engine is always shut off in case of engine overspeed.

Indication

The red *Overspeed* LED lights. The red *Shutdown* LED lights.

Acknowledgement

When engine shutdown has occurred: Acknowledge the engine shutdown with the *Acknowledge* button on the safety device unit.

Engine shutdown due to signal from sensor

If any of the sensors indicates engine shutdown the safety device unit activates engine shutdown.

Override of engine shutdown

All sensor channels can be configured to disregard the engine shutdown override signal.

Indication

The red *Switch* LED for the corresponding sensor lights. The red *Shutdown* LED lights.

Acknowledgement

When engine shutdown has occurred: Acknowledge the engine shutdown with the *Acknowledge* button on the safety device unit.

Shutdown Coil

The *Shutdown Coil* output is activated at all engine shutdowns. The output is deactivated 8 seconds after the engine has stopped.

Detecting an open circuit

If there is an open circuit in the electrical cables connected to junction block 4 and 5, the red *Shutdown Coil* LED lights. The impedance should be in the region of 300-700 ohms.

Power supply

Shutdown Coil is supplied with power separately via junction block 6 and 7.

Relays

Relay	Description
<i>Shutdown</i>	Is activated at all engine shutdowns. Active until the engine has been stopped and the operator has acknowledged the event.
<i>Crank Cutoff</i>	Is activated at a set engine speed, which is normally 400 rpm. Is deactivated when the safety device unit has obtained a signal that the engine has stopped.
<i>Buzzer</i>	Is activated for all new engine shutdowns and faults. Is deactivated when the operator has acknowledged the event.
<i>Fault</i>	Fault indicator, i.e. is activated for all new faults. Is deactivated when the fault has been acknowledged and has disappeared.
<i>Running</i>	Is activated at a set engine speed, which is normally 400 rpm. Is deactivated when the safety device unit has obtained a signal that the engine has stopped.