TDU series

4189341218K

Touch display unit

Operator's manual

Improve Tomorrow



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1. About the Operator's manual

1.1 Symbols for notes

More information
This highlights where to find more information.

NOTE * This highlights a referenced note.

Example heading

This highlights an example.

How to ...
This shows a link to a video for help and guidance.


This highlights tapping or pressing the screen area.


This highlights pressing and holding the screen area for a number of seconds.


This highlights swiping the screen area, up or down.


This highlights swiping the screen area, left or right.

1.2 Symbols for hazard statements

DANGER!

This shows dangerous situations.

If the guidelines are not followed, these situations will result in death, serious personal injury, and equipment damage or destruction.

WARNING

This shows potentially dangerous situations.

If the guidelines are not followed, these situations could result in death, serious personal injury, and equipment damage or destruction.

CAUTION

This shows low level risk situation.

If the guidelines are not followed, these situations could result in minor or moderate injury.

NOTICE

This shows an important notice

Make sure to read this information.

1.3 Intended users of the Operator's manual

This is the **Operator's manual** for the Touch Display Unit, TDU.

The manual is for the operator who uses the TDU with compatible controllers. The manual includes an introduction to the display, basic operator tasks, alarms, logs, and more advanced operator tasks.

NOTE The manual does not describe self-explanatory functions that the operator can easily explore. For example, the *Service* menu and its *Live Data* and *Service Timers* pages.

1.4 Software versions

This information applies to TDU software version **1.4.1** or later.

Controller	Controller types	Software version	TDU Asset mode	TDU Supervision mode	Notes
AGC 150	Generator, Mains, BTB	1.11 or later	●	●	
ASC 150	Solar, Storage	1.18 or later	●	●	
AGC-4 Mk II	Generator, Mains, BTB	6.00 or later	●	●	
ASC-4	Solar, Battery	4.27 or later	●	●	
AGC-4	Generator, Mains, BTB	4.72 or later	●	●	AGC-4 requires the Ethernet option N for connection.
ALC-4	Automatic load controller	4.13 or later		●	Only supports showing a symbol for the ALC-4, with no operating data.

1.5 Warnings and safety

DANGER!

Hazardous live currents and voltages

Risk of electrical shock

Switchboard access must only be carried out by authorised personnel who understand the risks involved in working with electrical equipment. Do not touch any terminals, especially the controller AC measurement inputs and the relay terminals. Touching the terminals could lead to injury or death.

WARNING

Possible automatic genset starts

Risk of personal injury

The power management system automatically starts gensets when more power is needed. It can be difficult for an inexperienced operator to predict which gensets will start. In addition, gensets can be started remotely (for example, by using an Ethernet connection, or a digital input). To avoid personal injury, the genset design, the layout, and maintenance procedures must take this into account.

NOTICE

Manually overriding alarm actions

Risk of damage to genset or equipment

Manually overriding alarm actions could cause damage to the genset or equipment. Do not use manual control to override the alarm action of an active alarm.

NOTICE

Manual control

Limited automatic protection actions

Under Manual control, the operator controls and operates the equipment from the switchboard. The controller does not; respond to blackouts, provide any power management, accept operator commands, and/or prevent any manual operator actions. The switchboard design must therefore ensure that the system is sufficiently protected when the controller is under Manual control.

1.6 Legal information

Trademarks

DEIF is a trademark of DEIF A/S.

All trademarks are the properties of their respective owners.

Third party equipment

DEIF takes no responsibility for the installation or operation of any third party equipment, for example, a **genset**. Contact the **manufacturer** or third party equipment company if you have any doubt about how to install or operate the third party equipment.

Disclaimer

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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.

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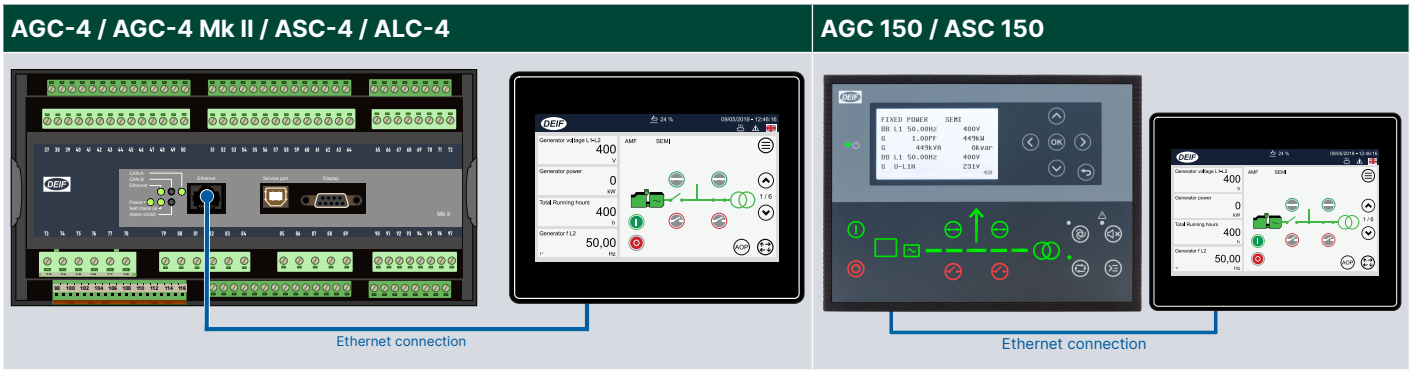
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2. Getting started

2.1 About the TDU

2.1.1 Description

The Touch Display Unit (TDU) is a touch screen solution for controlling AGC or ASC controllers using the Ethernet port. *



NOTE * AGC-4 Mk I requires the Ethernet option N for connection.

The display gives user-friendly touch screen control, visualisation, and graphic displays from the controller.

Simply operate the controller and access any feature by touching the screen.

This manual applies to the full range of TDU models. Not all of the features shown in the manual are available on every model. For example, the **Widgets** feature is only available on the TDU 110 or TDU 115.

2.1.2 Ethernet ports

TDU 107 Core has one Ethernet port.

TDU 107 Extended, TDU 110 Extended, and TDU 115 Extended have two Ethernet ports that are bridged (ETH0 and ETH1).

For dynamic host configuration protocol (DHCP) you must use TDU Extended and connect the controller to ETH2 on the TDU Extended.

2.1.3 Asset mode and Supervision mode

Asset

An asset is a single controller controlling e.g. a genset or a photovoltaic inverter.

Asset mode

In asset mode, the display shows the operation of the selected asset.

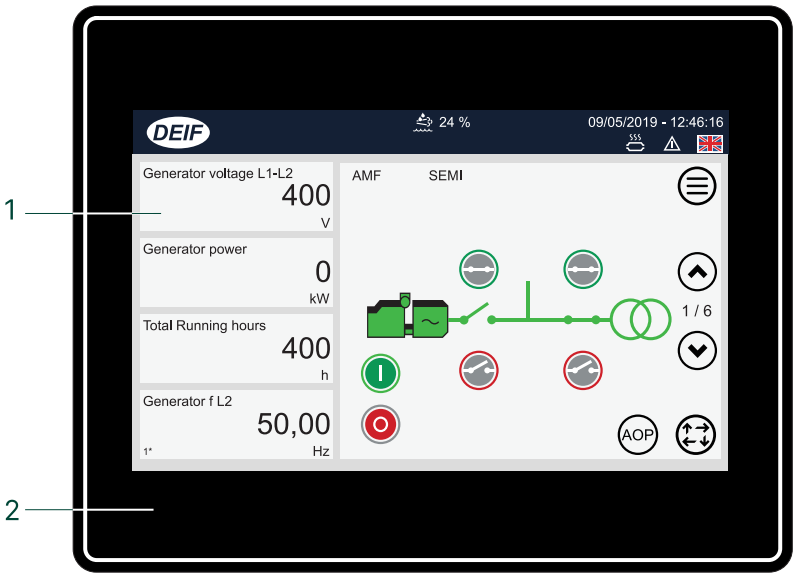
Supervision mode

When the display is set to supervision mode, it shows and monitors the entire plant. A single plant can have up to 40 assets. See the AGC-4 Mk II data sheet for the number of different assets possible in a single power management system.

The operator can tap any asset shown on the plant supervision page to open that asset's control panel (does not apply to the ALC-4).

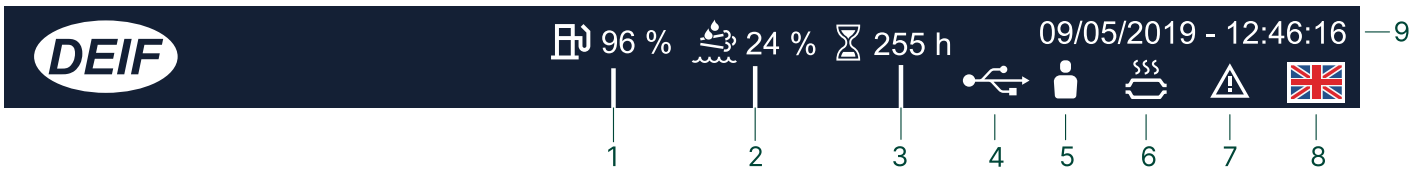
More information
See **Asset mode** and **Supervision mode** for how to operate the display in either mode.

2.1.4 Layout of unit



No.	Item	Notes
1	Touch screen area	Operate the controller by touching the screen.
2	Frame	

2.1.5 Top bar

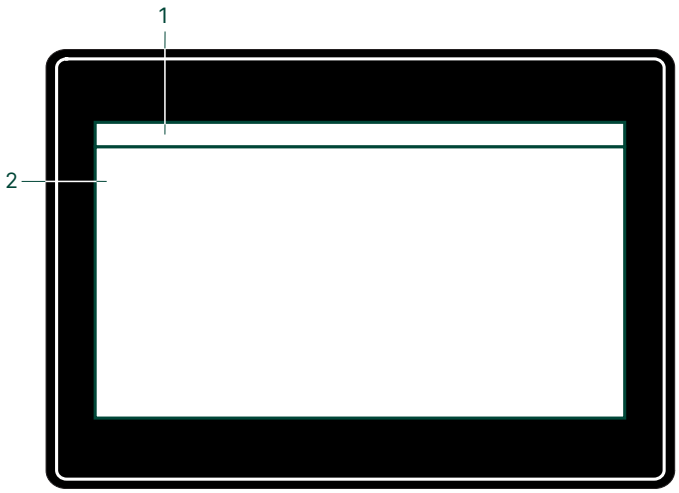


No.	Item	Use	Notes
1	Fuel level *	-	Shows the fuel level.
2	Diesel Exhaust Fluid (DEF) percentage **	-	Shows the DEF percentage.
3	Running hours ***	-	Shows the total of running hours.
4	USB drive	-	Shows a USB drive was detected.
			Prompts to remove the USB drive safely.
5	User logged on		Shows a user is logged on.
			Displays prompt to logout.
6	Exhaust After-Treatment Dashboard		Opens Exhaust After-Treatment Dashboard (Shortcut). **
7	Alarm(s)		Opens Alarms (Shortcut).
8	Language		Opens Language (Shortcut).
9	Date and Time	-	Shows the controller Date and Time.

NOTE *Only shown if the fuel level is configured with a multi-input. Use either multi-input 102 parameter 10980, multi-input 105 parameter 10990, or multi-input 108 parameter 11000 with **RMI fuel level**.
**Only shown if the Engine communication is configured.
***Only shown for genset controllers and not on mains controllers.

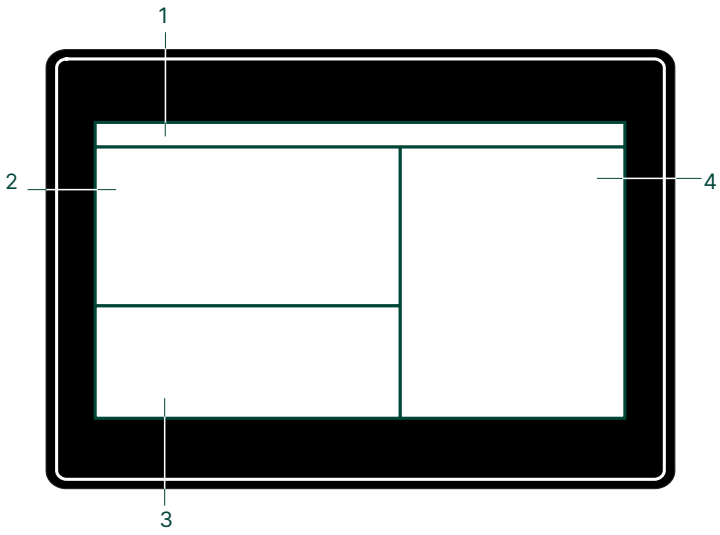
2.1.6 Touch screen areas

The **TDU 107** has two touch areas.



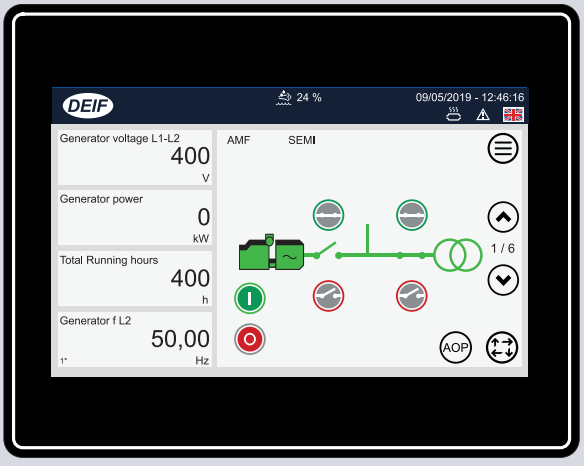
No.	Item	Notes
1	Top bar	Shows summary information and status icons.
2	Control panel / page	Shows control panel or page.

The **TDU 110** or **TDU 115** have four touch areas. The two additional areas can be configured.



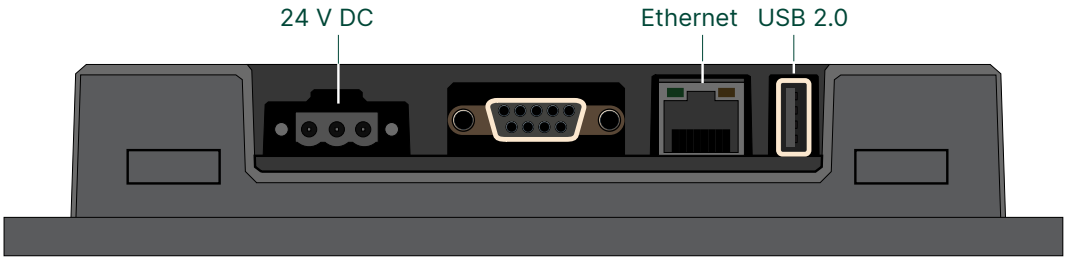
No.	Item	Notes
1	Top bar	Shows summary information and status icons.
2	Control panel / page	Shows control page area or page.
3	Operator panel	Shows programmed buttons and/or LEDs.
4	Read-out panel	Shows read-out displays from the controller/system.

Example TDU screens

TDU 107	TDU 110 or TDU 115
	

2.1.7 Connections

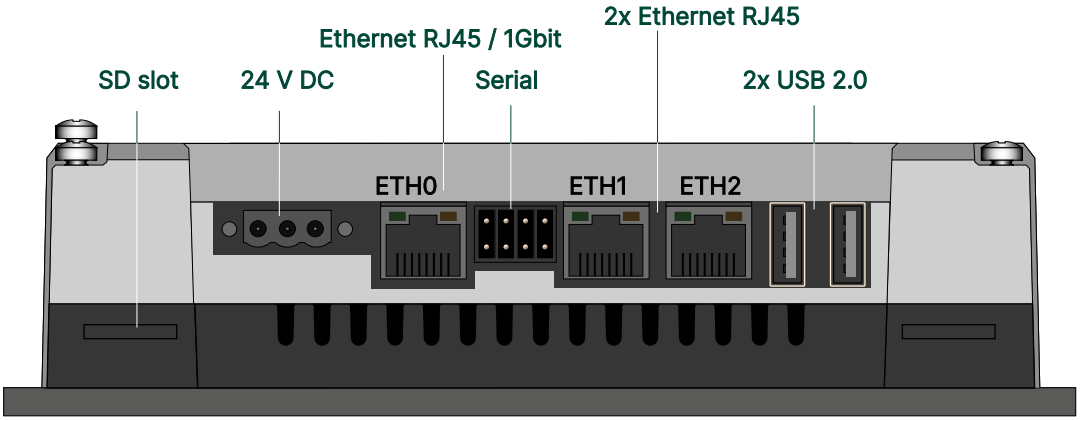
TDU 107 Core connections



The TDU can be connected to the controller directly or using a switch.

If the Ethernet port is used for the controller connection, you cannot use the port for a service connection. You can instead use the dedicated service port on the controller for a service connection (requires a USB type A-B cable).

TDU 107, TDU 110 or TDU 115 Extended connections



More information
See the **TDU series Connection guidelines** for how to connect multiple displays and controllers together.

2.2 Software update using USB

2.2.1 Before you begin

You update your TDU with the latest software version by using the USB port.

More information
See Connections for the location of the USB ports on the display.

To update your TDU, you need the following:

Required tools

- USB drive (FAT32)
  - To import/export the file(s) to your PC and TDU.
  - Must be formatted for FAT32 file system to be recognised by the TDU.
- PC
  - To download the software package file.
  - To copy the software package file to the USB drive.

2.2.2 Download and update software

1. Visit the DEIF home page https://www.deif.com/products/tdu-series/ to download the latest version.
   - Software is available for different TDU models.*
2. Select **Software** section at the right.
3. Select a download for your version of the TDU.
4. Follow the instructions in the DEIF email to complete the software download.
   - The software package is provided as a zipped archive (.zip) file. Do not unzip this file.
5. Copy the zip file to your USB drive.
6. Insert the USB drive in the USB port on your TDU.
   - The TDU detects the update package.
7. Select *Confirm* to start the update.
8. Select *Confirm* to restart the TDU.
9. After the TDU restarts, select *Startup sequence*.
10. Select *Install*.
11. Double tap the folder *Mnt*, then double tap the folder *usbmemory*.
12. Select the update package and select *OK*.
13. The TDU installs the update. Wait until the *Continue* button appears.
14. To complete the configuration, select *Continue*.
15. The TDU restarts.
    - The TDU will again detect there is an update package in the USB drive. Close the software update window.
16. Remove the USB drive from the TDU.

The TDU is now updated and ready to use.

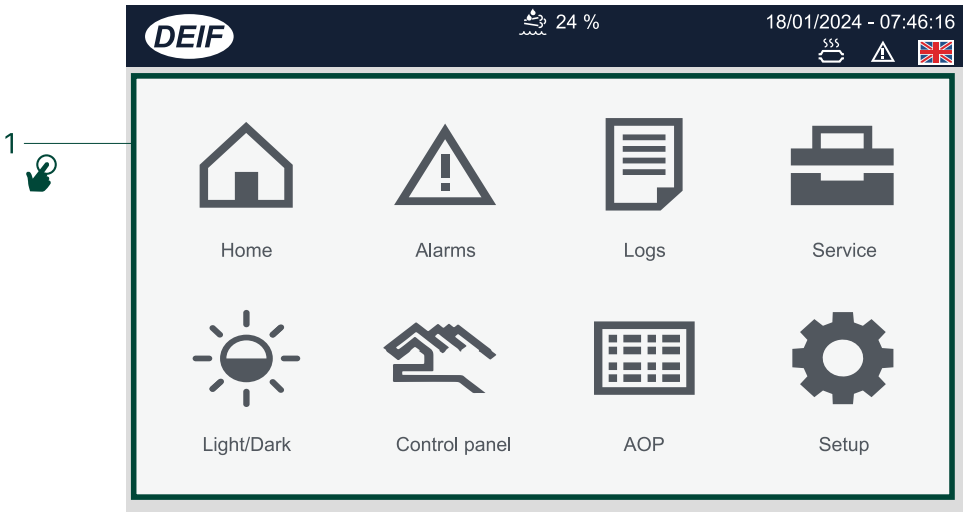
*Make sure you install the correct application software for your TDU model.

3. Operating the system

3.1 Menus

The menu pages give you access to features and other menus.

Asset mode



NOTE AOP and Service are not available in Supervision mode.

No.	Item	Use	Notes
1	Features		Shows available features or other menus.
			Selects feature or menu
	Return		Returns to previous display page. Not all display pages have this return button.

3.2 Keyboards

3.2.1 Text keyboard

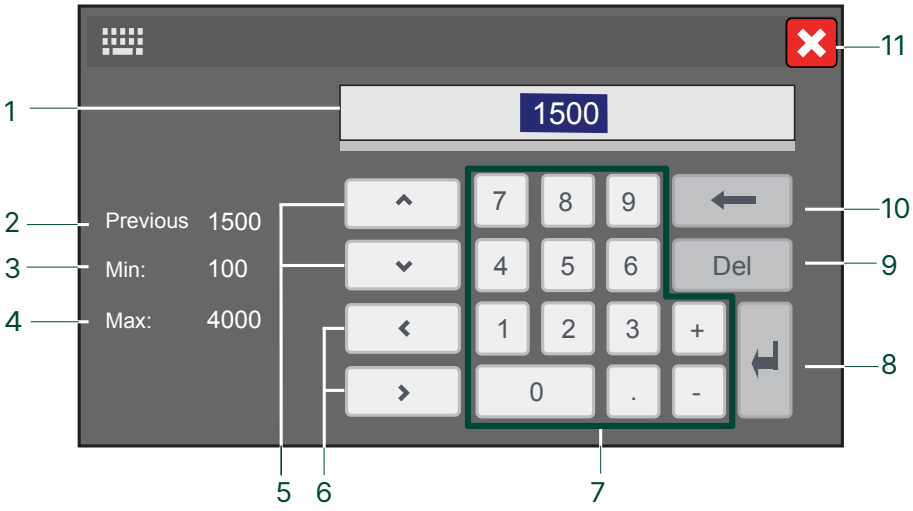
You enter text information on the display by using the virtual text keyboard.



No.	Item	Use	Notes
1	Text	-	Shows the text you are entering.
2	Keyboard		Selects letters, numbers, or symbols.
3	Cursor		Moves the cursor to the left. / Moves the cursor to the right.
4	Enter		Confirms the text entered.
5	Backspace		Deletes the last character.
6	Close		Closes the keyboard window. Any changes that were not confirmed will be lost.

3.2.2 Value keyboard

You enter number values on the display by using the virtual value keyboard.



No.	Item	Use	Notes	
1	Value	-	Shows the value you are entering.	
2	Previous value	-	Shows the value before any changes.	
3	Minimum value	-	Shows the minimum value you can enter.	
4	Maximum value	-	Shows the maximum value you can enter.	
5	Increase / Decrease		Allows you to increase or decrease the value.	
			Increase value.	Decrease value.
6	Cursor		Moves the cursor to the left.	Moves the cursor to the right.
7	Keypad		Selects number or symbol.	
8	Enter		Confirms the value entered.	
9	Forward delete		Deletes the next character.	
10	Backspace		Deletes the last character.	
11	Close		Closes the value keyboard window. Any changes that were not confirmed will be lost.	

3.3 Controller basic actions

3.3.1 Modes

Use the Control panel to change the mode of the controller.

Mode	Symbol	Notes
SEMI		The display buttons (START, STOP, GB ON, GB OFF) are active and can be used by the operator. The regulators are also active, that is, the speed control will bring the generator to nominal speed upon start. When pushing a breaker button for closing, the controller will synchronise (if allowed) the breaker. When the breaker closes, the controls stop.
AUTO		The controller will automatically carry out the control type selected (AMF, fixed power, and so on). The display control buttons (START, STOP, GB ON, GB OFF) are disabled. Mains controller in local (parameter 8021): If the selected running mode is fixed power, mains power export, load takeover or island, timer start/stop (week watch) or binary input, then start/stop can be used.
MANUAL		The display buttons (START, STOP) are active and can be used by the operator. The regulators are not active, that is, speed (and voltage) control has to take place using binary inputs for UP and DOWN control. The breakers will be able to open or close at any time. A synch check always runs to make sure a safe closing of the breakers.
TEST		The controller will start the generator, carry out the test sequence (pre-defined time period) and stop the generator. Subsequently, the generator will return to AUTO or SEMI-AUTO mode. The mains breaker will remain closed, and the generator breaker will remain open. The test running can be: **Simple test:** Starting the asset without closing the GB. **Load test:** Parallel to the mains and take load to a pre-defined value. **Full test:** Transfer the load to the asset and open the MB.
BLOCK		The controller will not be able to start the equipment. BLOCK mode can be selected during standstill and the password is needed to exit BLOCK mode. If BLOCK mode is selected while the asset is running, the mode will have no effect until the asset is stopped. To select another mode after BLOCK mode, the password must be entered.

3.3.2 Start the asset

Mode	Symbol	Procedure
SEMI		To start the asset: 1. Push  once. 2. The controller runs the start sequence. • If everything is OK, the asset starts. • If the asset does not start, the display shows an information message.
AUTO		When the controller is in AUTO mode, the start of an asset is controlled automatically.
MANUAL		To start the asset: 1. Push  once. 2. The controller runs the start sequence. • If everything is OK, the asset starts.

Mode	Symbol	Procedure
		• If the asset does not start, the display shows an information message.
TEST		Not available.
BLOCK		Not available.

3.3.3 Stop the asset

Mode	Symbol	Procedure
SEMI		The asset breaker must be open to stop the asset. If the asset breaker is not open, push to open the breaker before stopping the asset. To stop the asset: 1. Push once. 2. The controller activates the cooldown period. • If necessary, to override the cooldown period, push again. ◦ **Note:** An asset stop without cooldown time increases the mechanical wear of the asset. The asset may also have problems if it needs to restart immediately. The asset should only be stopped without cooldown time in emergencies. Contact the asset manufacturer for more information. 3. If the asset does not stop, the controller activates an alarm.
AUTO		When the controller is in AUTO mode, the stop of an asset is controlled automatically.
MANUAL		The asset breaker must be open to stop the asset. If the asset breaker is not open, push to open the breaker before stopping the asset. To stop the asset: 1. Push once. 2. The controller activates the cooldown period. • If necessary, to override the cooldown period, push again. ◦ **Note:** An asset stop without cooldown time increases the mechanical wear of the asset. The asset may also have problems if it needs to restart immediately. The asset should only be stopped without cooldown time in emergencies. Contact the asset manufacturer for more information. 3. If the asset does not stop, the controller activates an alarm.
TEST		Not available.
BLOCK		Not available.

3.3.4 Close the asset breaker

Mode	Symbol	Procedure
SEMI		The asset must be running to close the asset breaker. If the asset is not running, push to start the asset. To close the asset breaker: 1. Push to close the asset breaker. a. The power management synchronises the asset with the busbar.

Mode	Symbol	Procedure
		b. When the asset and busbar synchronise, the controller closes the breaker. • If the asset and busbar are not synchronised before the synchronisation timer expires, the breaker does not close. The synchronisation failure alarm is activated.
AUTO		When the controller is in AUTO mode, the asset breaker is controlled automatically and the display buttons are not available. If more power is required, the controller automatically starts the asset and closes the breakers, with the asset priority order.
MANUAL		To close the asset breaker: 1. Push to close the asset breaker. a. When the asset and busbar synchronise, the controller closes the breaker. • If the asset and busbar are not synchronised before the synchronisation timer expires, the breaker does not close. The synchronisation failure alarm is activated.
TEST		Not available.
BLOCK		Not available.

3.3.5 Open the asset breaker

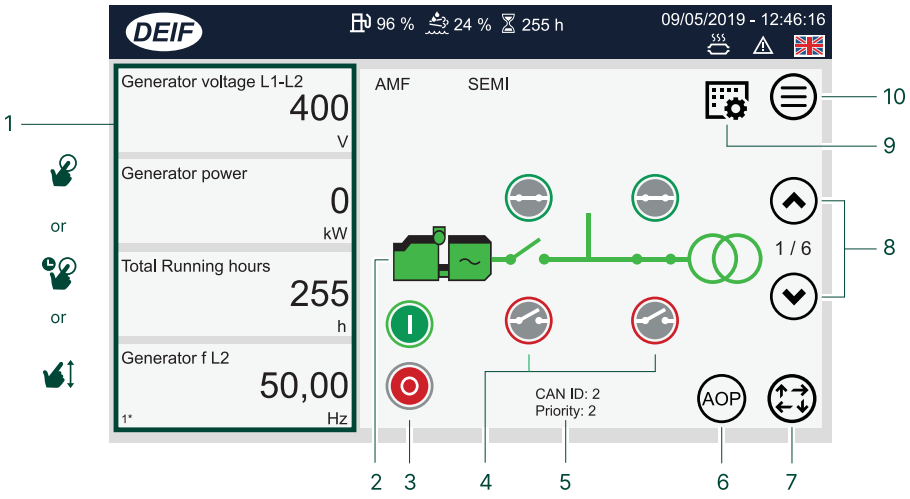
Mode	Symbol	Procedure
SEMI		To open the asset breaker: 1. Push to open the asset breaker. a. The power management calculates if the available power is sufficient after the breaker opens. If not, the power management prevents the breaker open, and the controller display shows an info message. b. The power management de-loads the breaker until the load is less than the de-load open point. c. The controller opens the breaker.
AUTO		When the controller is in AUTO mode, the asset breaker is controlled automatically and the display buttons are not available. If power is not required, the controller automatically opens the breaker as part of the stop sequence.
MANUAL		To open the asset breaker: 1. Push to open the asset breaker. a. The controller opens the asset breaker.
TEST		Not available.
BLOCK		Not available.

4. Asset mode

4.1 Control panel

In the following example, the asset is a genset.

Operation: Mode change, open/close breakers, and start/stop asset. Shows selected measurements

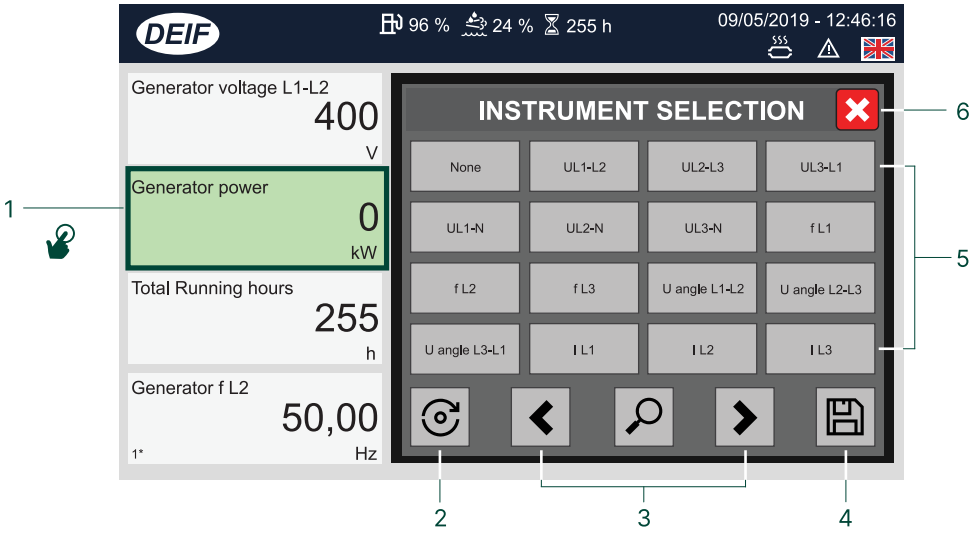


No.	Item	Use	Notes	
1	Instrument values		Change instrument shown.	Hold for > 3 seconds to Configure instrument.
			Scrolls up or down instrument pages.	
2	Engine information		Opens Engine information.	
3	Generator control		Starts generator.	Stops generator.
4	Breaker control		Closes breaker.	Opens breaker.
5	CAN ID / Priority	-	Shows the CAN ID and the priority number (only in power management applications).	
6	AOP *		Opens Additional Operator Panel (Shortcut *).	
7	Mode change		Manual mode.	SEMI mode.
			AUTO mode.	TEST mode.
			BLOCK mode.	
8	Scroll page		Scrolls up.	Scrolls down.
9	Controller settings *		Opens Controller settings (Shortcut *).	
10	Menu		Opens the menu page.	

More information
* See Display config for how to add shortcuts for Controller settings (Parameters) or AOP.

4.1.1 Change instrument

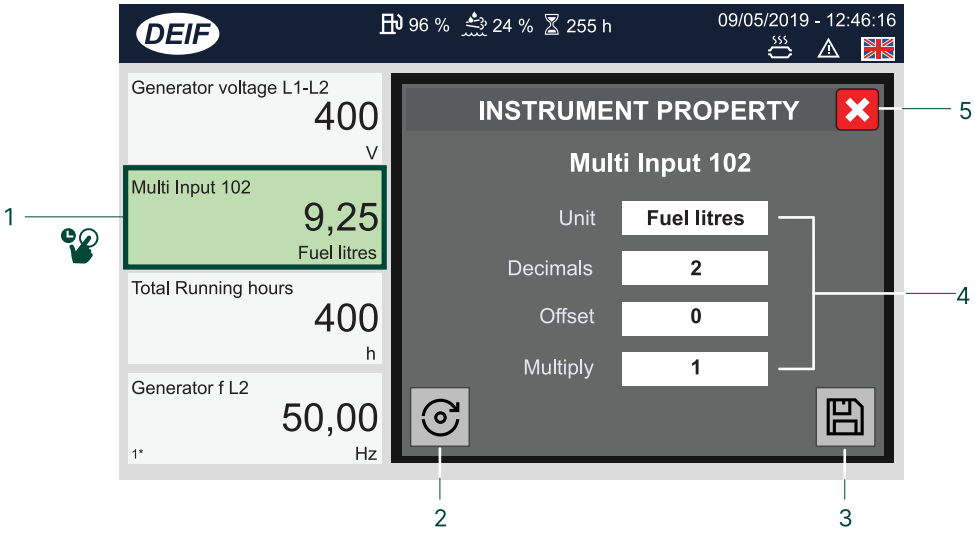
Changes the displayed instrument value shown on the Control panel page.



No.	Item	Use	Notes
1	Instrument value to change		Selects instrument to change.
2	Refresh		Refreshes the list of values.
3	Scroll and search		Scrolls page left. Scrolls page right. Searches for values.
4	Save		Saves the change.
5	Instrument values		Selects the value.
6	Close		Closes the instrument selection window. Any changes that were not saved will be lost.

4.1.2 Instrument property

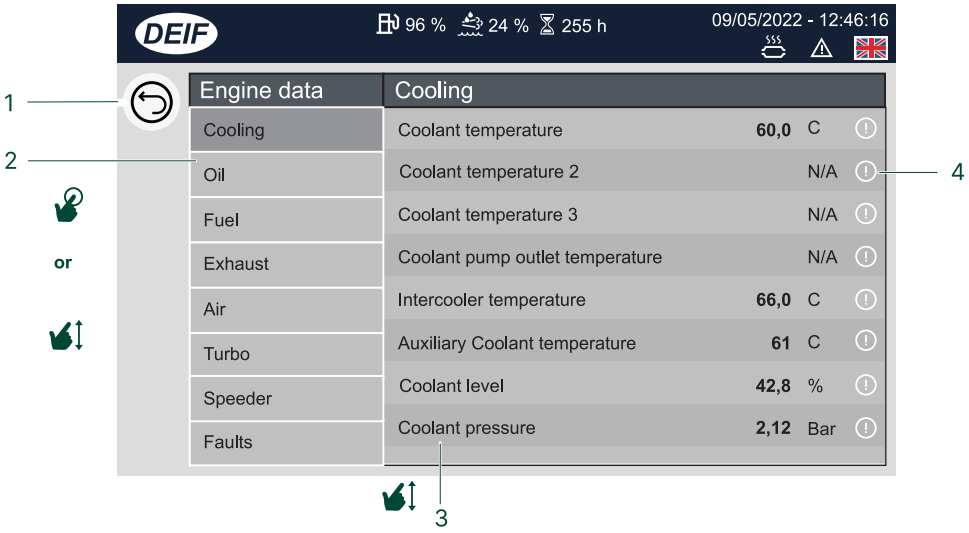
Configures the displayed instrument properties: unit, decimals, offset, and multiply.



No.	Item	Use	Notes
1	Instrument value to change		Selects instrument to change.
2	Factory setting		Returns the properties back to the factory default values.
3	Save		Saves the change.
4	Instrument properties		Configures the different instrument properties.
5	Close		Closes the instrument property window. Any changes that were not saved will be lost.

4.1.3 Engine information

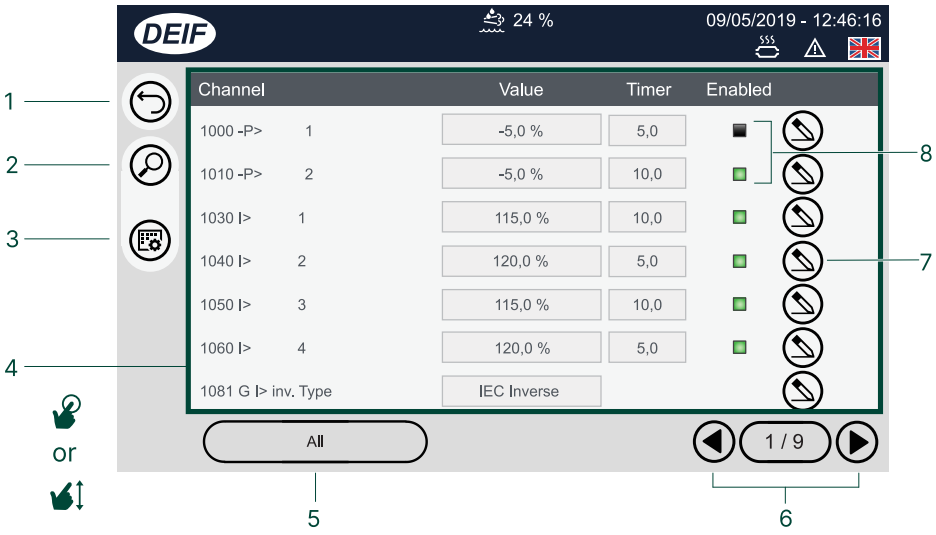
Views the engine information data.



No.	Item	Use	Notes
1	Return		Returns to previous page.
2	Engine data		Selects the engine data group.
			Scrolls the list of engine data groups up or down on this page.
3	Engine data group		Scrolls the information for the engine data group up or down on this page.
4	SPN number		Displays the suspect parameter number (SPN).

4.3 Controller settings

View or configure the controller parameter settings

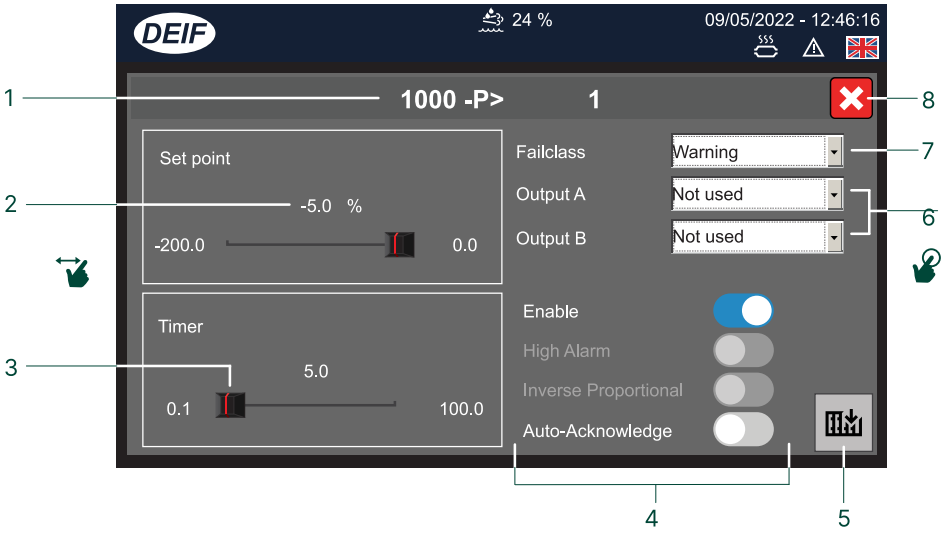


No.	Item	Use	Notes	
1	Return		Returns to previous display.	
2	Search		Opens search keyboard.	
3	Filter groups		Opens Filter groups.	
4	Controller Settings List		Scrolls settings up or down on this page.	
5	Clear filter group		Clears the filter group (if used).	
6	Scroll page		Scrolls the page left.	Scrolls the page right.
7	Edit settings		Opens Edit settings.	
8	Enabled status	-	Shows the status of the setting.	
			Not enabled.	Enabled.

More information
See Password levels for the different password levels.

4.3.1 Edit settings

Edits the controller setting that was selected. *

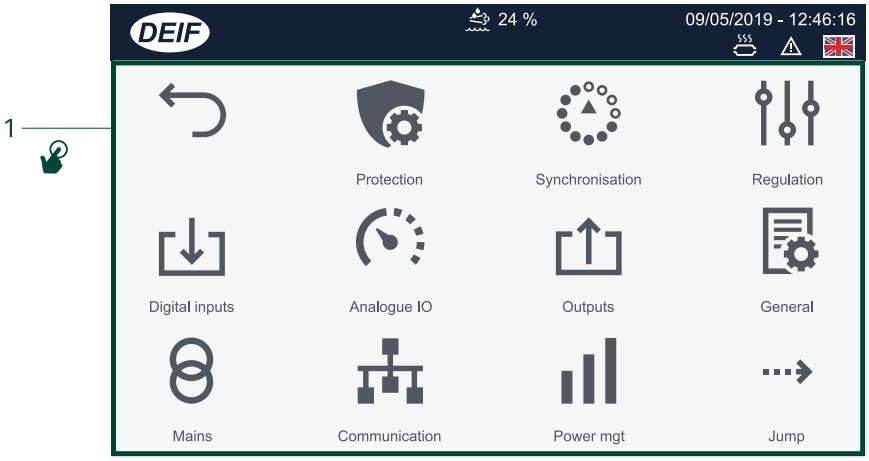


No.	Item	Use	Notes
1	Setting	-	Shows the name of the setting.
2	Value		Shows the value of the setting.
			Opens the Value keyboard to edit value. *
3	Value (Scroll)		Scrolls left or right to increase or decrease the value.
4	Settings		Toggles on or off additional settings.
			Setting enabled.
			Setting not enabled.
		-	or Setting cannot be changed.
5	Write		Writes the settings to the controller.
6	Output		Selects an output terminal.
7	Failclass		Selects a Failclass.
8	Close		Closes the settings window. Any changes that were not written to the controller will be lost.

NOTE * The actual controller settings shown depend upon the type of setting that you are configuring.

4.3.2 Filter groups

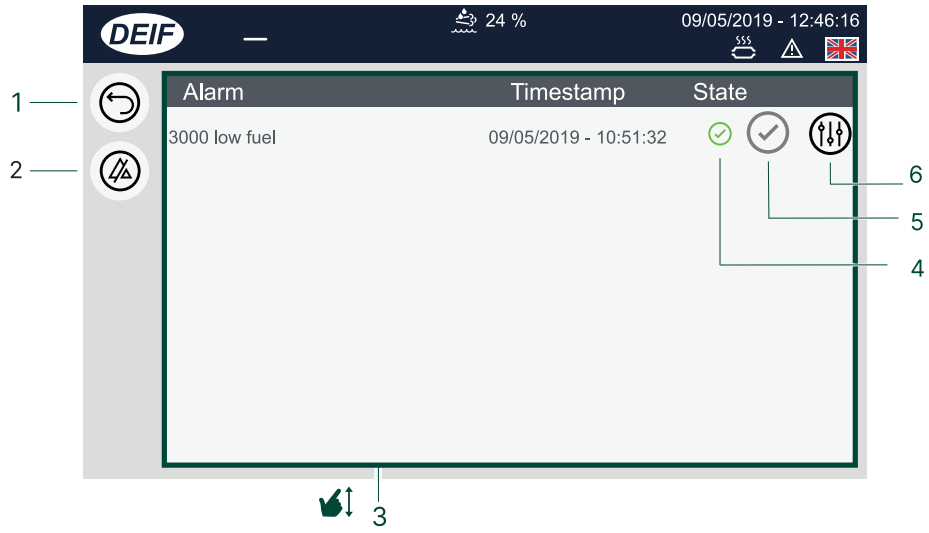
Lists the filter groups you can use to filter the controller settings page.



No.	Item	Use	Notes
1	Filter groups		Shows the list of filter groups.
			Selects a filter group.
			Returns to previous page.

4.4 Alarms

View or acknowledge alarms created in the system.



No.	Item	Use	Notes
1	Back		Returns to previous page.
2	Acknowledge all alarms		Acknowledges all unacknowledged alarms.
3	Alarms list		Scrolls the alarm list up or down.
4	Alarm state	-	Shows the state of the alarm. Acknowledged alarm. / Unacknowledged alarm.
5	Acknowledge		Acknowledges alarm.
6	Alarm settings		Opens the alarm configuration.

4.4.1 Alarm pop-up

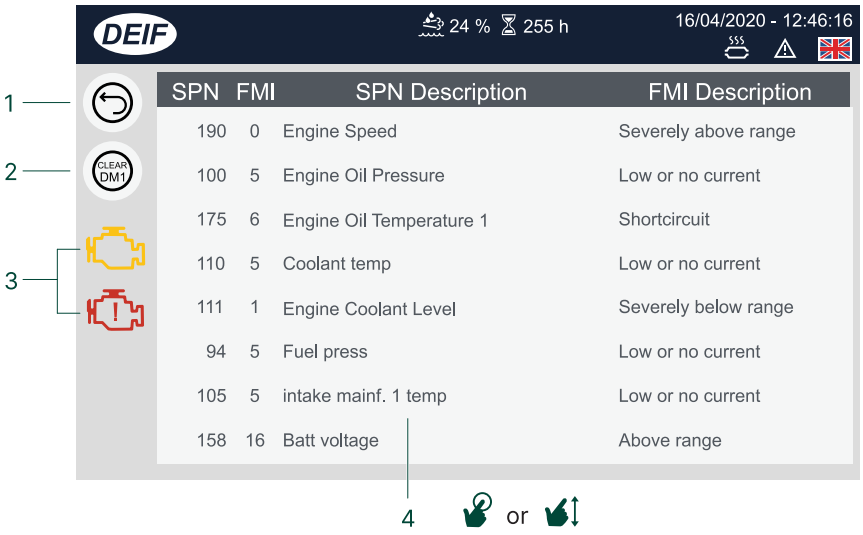
New alarms activated in the system are shown at the top of the display.



No.	Item	Use	Notes
1	Alarm	-	Shows the activated alarm.
2	Alarms list		Opens the Alarms list (Shortcut).
3	Alarm settings		Opens the Alarm settings (Shortcut).
4	Acknowledge		Acknowledges the alarm (Shortcut).
5	Cancel		Cancels the pop-up message.

4.5 DM1 Active alarms

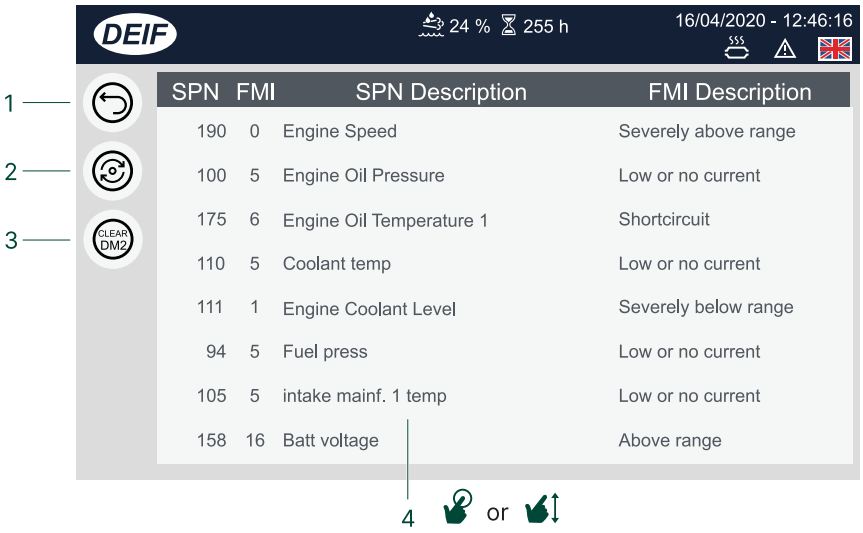
Views the DM1 active alarm list in the system.



No.	Item	Use	Notes
1	Back		Returns to previous display.
2	Clear DM1		Clears the list of active alarms then rechecks if any active alarms are still present.
3	Engine interface status	-	Shows an engine warning.
		-	Shows an engine shutdown.
4	DM1 Active alarms list		Shows more information on the alarm.
			Scrolls up or down the list of active alarms.

4.6 DM2 Inactive alarms

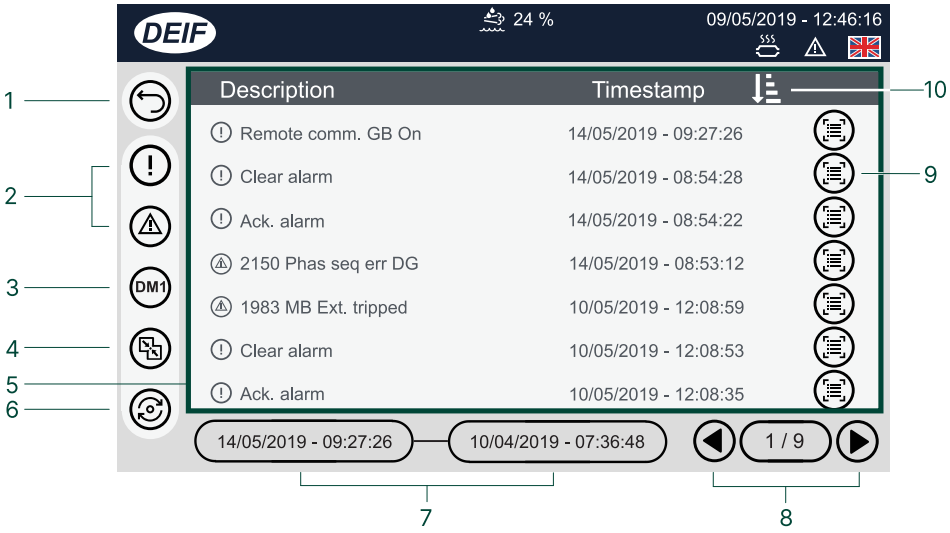
Views the DM2 inactive alarm list in the system.



No.	Item	Use	Notes
1	Back		Returns to previous display.
2	Refresh		Reloads the list of inactive alarms.
2	Clear DM2		Clears the list of inactive alarms.
4	DM2 Inactive alarms list		Shows more information on the alarm.
			Scrolls up or down the list of inactive alarms.

4.7 Logs

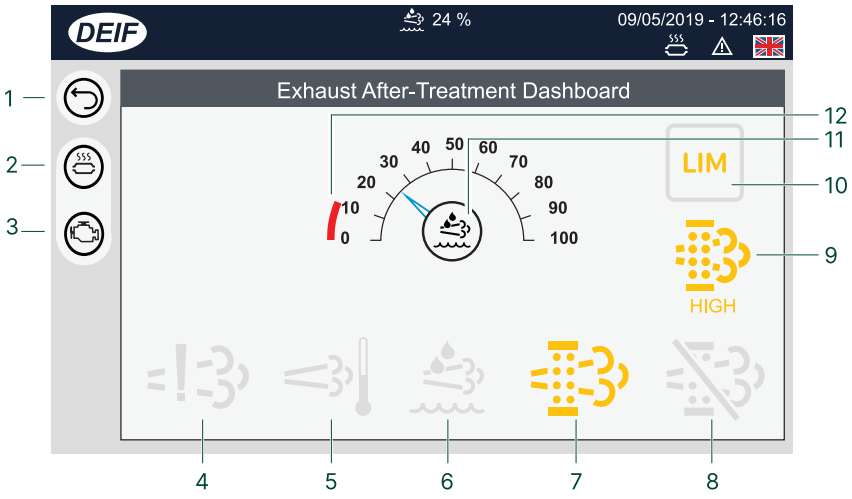
Shows the list of all recorded events or alarms created in the system. You can also filter, merge, or view further details on the events.



No.	Item	Use	Notes	
1	Return		Returns to previous page.	
2	Filter		Filters the list by either Alarms or Events only.	
			Shows only Alarms.	Shows only Events.
3	DM1 EIC alarm list		Shows the list of active alarms from the engine control unit.	
4	Merge list		Merges the list to show both Alarms and Events.	
5	Log list		Scrolls the log list up or down.	
6	Refresh		Refreshes the log list.	
7	Page range	-	Shows the date range of the list page shown.	
8	Scroll page		Scrolls the page left.	Scrolls the page right.
9	Event details		Shows the event details.	
10	Sort page		Sorts the page Ascending order.	Sorts the page Descending order.

4.8 Exhaust After-Treatment Dashboard (Tier4)

Shows the Exhaust After-Treatment system if engine communication is configured on the system.



No.	Item	Use	Notes
1	Return		Returns to previous page.
2	Exhaust after-treatment dashboard button		Shortcut to exhaust after-treatment dashboard
3	Engine lamp dashboard button		Shortcut to engine lamp dashboard
4	Engine emission system failure	-	Shows an emission failure or malfunction.
5	High temperature - Regeneration	-	Shows a high temperature and regeneration is in process.
6	Diesel Exhaust Fluid (DEF)	-	Shows the level is too low.
7	Diesel Particle Filter (DPF)	-	Shows that a regeneration is needed.
8	Diesel Particle Filter (DPF) Inhibit	-	Shows that regeneration is inhibited.
9	Engine emission system failure level	-	HIGH Shows **High** severity. V. HIGH Shows **Very high** severity.
		-	CRITICAL Shows **Critical** severity.
10	LIM *	-	LIMIT lamp
11	Diesel Exhaust Fluid (DEF) % level	-	Shows the level (%) of the Diesel Exhaust Fluid.
12	Minimum DEF % level		Shows the minimum low level for the Diesel Exhaust Fluid.

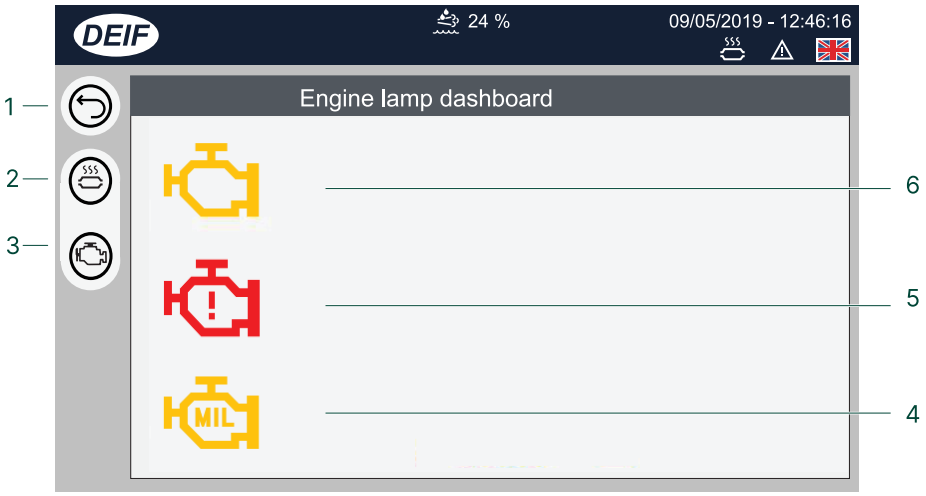
Grey symbols show that communication for the item is available. Not all types of engines support all items shown.

NOTE * Only for MTU engines.

More information
See Display Config > More Settings for how to automatically display this page if an alarm becomes active.

4.9 Engine lamp dashboard

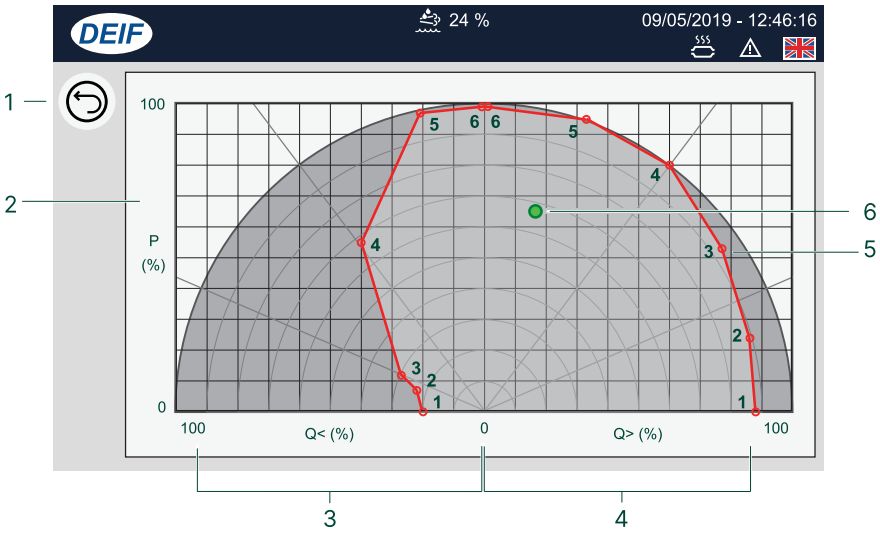
Shows engine lamp warning lights if engine communication is configured on the system.



No.	Item	Use	Notes
1	Return		Returns to previous page.
2	Exhaust after-treatment dashboard button		Shortcut to exhaust after-treatment dashboard.
3	Engine lamp dashboard button		Shortcut to engine lamp dashboard icon.
4	Malfunction indicator	-	Shows the engine has a malfunction and must be stopped and checked.
5	Engine warning	-	Shows the engine requires immediate action. The engine must be stopped and checked.
6	Check engine	-	Shows the engine must be checked.

4.10 Alternator curve

Views or configures the safe operation limits for the alternator. *

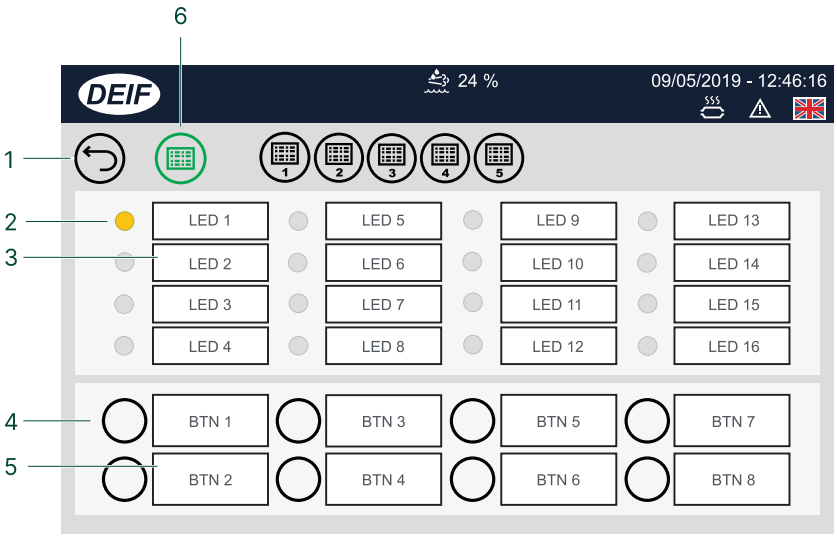


No.	Item	Use	Notes
1	Return		Returns to previous display.
2	Alternator curve	-	Shows the safe operation limits for the alternator.
3	Import (Leading)		Opens the capacitive Q< configuration.
4	Export (Lagging)		Opens the inductive Q> configuration.
5	Setting point	-	Shows the numbered setting points.
6	Actual working point	-	Shows the GENSETs actual working point.

NOTE * For AGC-4 Mk I, option C2 is required to see the operation limits.

4.11 Additional Operator Panel (AOP)

Additional Operator Panels (AOPs) provide you with LED indication and button actions. You can configure the LED or button labels directly on the display, but the functionality behind them must be configured in your M-Logic project on the utility software. *



No.	Item	Use	Notes	
1	Return		Return to previous page.	
2	LED status		Shows the LED status from the M-Logic project condition(s). *	
			Green.	Green + blink.
			Yellow.	Yellow + blink.
			Red.	Red + blink.
3	LED name		Edits the LED name. **	
4	Button		Operates the button (if configured).	
5	Button name		Edits the button name. **	
6	Panel selection		Tap to select the panel to display.	

NOTE * The logic condition(s) must be configured in your M-Logic project for the LED status and buttons to work.
** LED name and button name are saved locally on the TDU.

More information
See **Application notes M-Logic AGC-4 Mk II** for more information about how to create and configure M-Logic projects.

4.12 Language

Selects an active language for the display. *



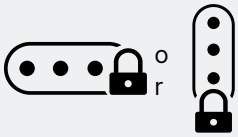
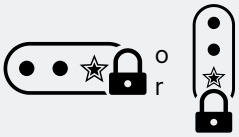
No.	Item	Use	Notes
1	Return		Returns to previous page.
2	Languages *	-	Shows the available active languages.
			Selects the display language.

NOTE * The actual languages shown must be both installed and active to be listed for selection.

More information
See Language Mgt for how to make languages active or hidden.

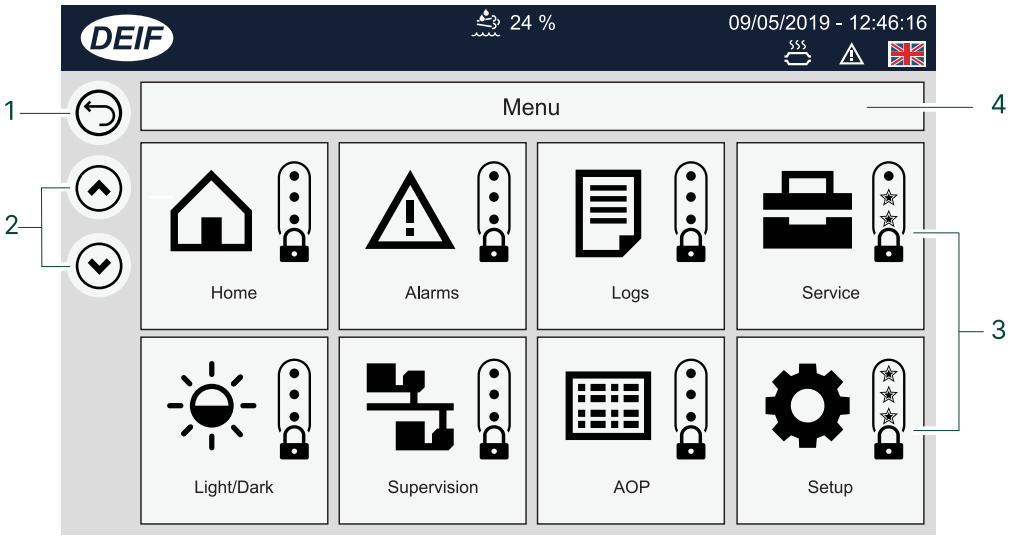
4.13 User permissions

4.13.1 Password levels

Symbol	Password level	Symbol	Password level
	No login required		Level 1 - Customer
	Level 2 - Service		Level 3 - Master

4.13.2 User permissions

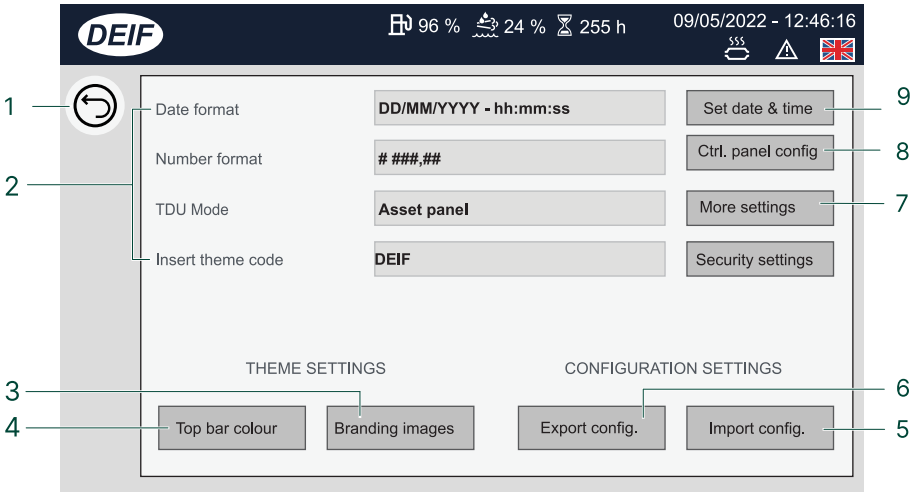
Features of the display can be restricted to the controller password levels.



No.	Item	Use	Notes
1	Return		Returns to previous display.
2	Scroll page		Scrolls page up. / Scrolls page down.
3	Feature permissions		Toggles through the password levels.
4	Page	-	Shows the page group name.

4.14 Display config

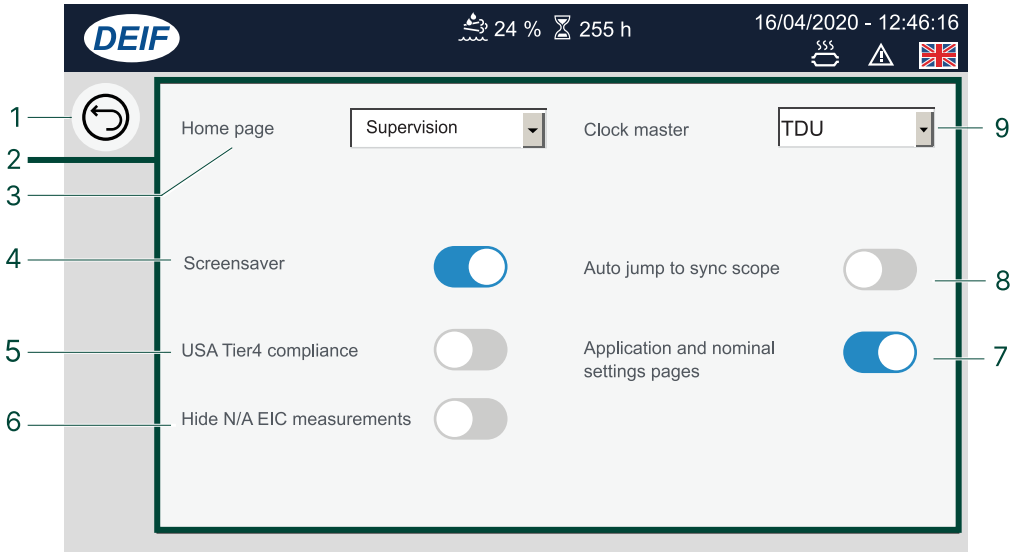
Views or configures the display settings.



No.	Item	Use	Notes
1	Return		Returns to previous display.
2	Display settings		Edits the display settings: • Data and time format • Number format • TDU mode - Asset or Supervision mode • Theme code name
			Edits the date and time format for the display.
3	Branding images		Imports images for Logo, Splash, About.
4	Top bar colour		Change the background colour of the top bar.
5	Import configuration		Imports a configuration from a USB drive.
6	Export configuration		Exports the configuration to a USB drive.
7	More settings		Opens the display additional settings configuration page.
8	Ctrl panel config		Opens control panel configuration page.
9	Set data and time		Sets the date and time from the entered value.

4.14.1 More settings

Views or configures the additional settings for the display.

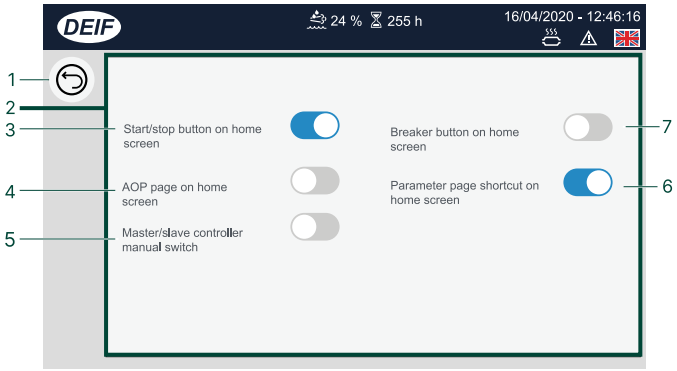


No.	Item	Use	Notes
1	Return		Returns to previous display.
2	Settings	or	Setting enabled.
		or	Setting not enabled.
3	Home page	or	Sets home page: * Supervision, Control Panel, AOP or Menu
4	Screensaver	or	Enables the screensaver.
5	Tier 4 compliance	or	Enables or disables the Tier 4 compliance. Enable this to automatically display the Exhaust After-treatment Dashboard if an alarm becomes active.
6	Hide N/A EIC measurements	or	Hides EIC measurements that are not available.
7	Application or Nominal settings	or	**Enabled**: Application and Nominal settings pages are not shown.
8	Auto jump to sync scope	or	**Enabled**: Automatic jump to the synchronisation scope when a breaker is synchronising. After synchronisation the page automatically returns to the control panel.
9	TDU clock master		Select the master clock for the system.

NOTE *Only selectable if TDU is set to Asset mode.

4.14.2 Control panel configuration settings

Views or configures the control panel configuration settings for the display.

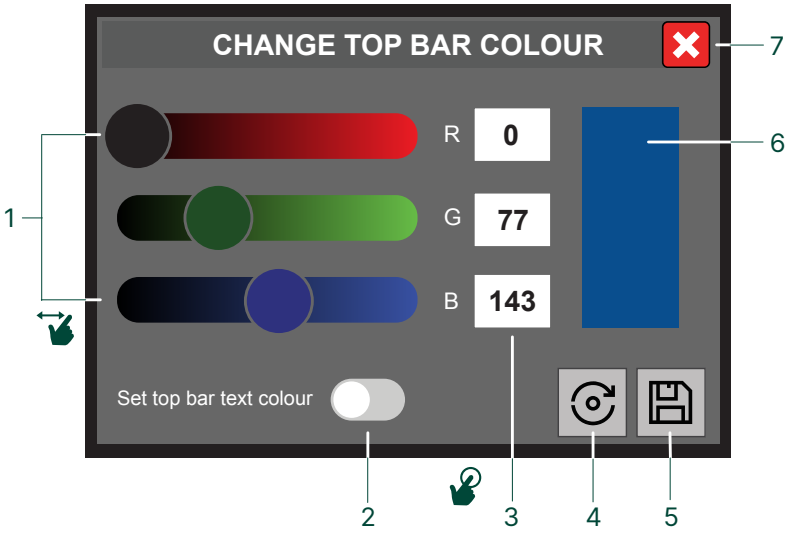


No.	Item	Use	Notes
1	Return		Returns to previous display.
2	Settings	or	Setting enabled.
		or	Setting not enabled.
3	Start/stop button on home screen	or	Shows or hides the start / stop buttons on the home screen.
4	AOP page on home screen	or	Shows or hides the AOP button on the home screen.
5	Master/slave controller manual switch		**Not enabled:** The TDU is the display for the master (first) controller. **Enabled:** Master/slave buttons are added to the home screen. These show the active controller. The user can use these buttons to change the active controller*.
6	Parameter page shortcut on home screen	or	Shows or hides the Parameter button on the home screen.
7	Breaker button on home screen	or	Shows or hides the breaker button on the home screen.

More information
See the **TDU series Connection guidelines** for how to connect the display.

4.14.3 Top bar colour

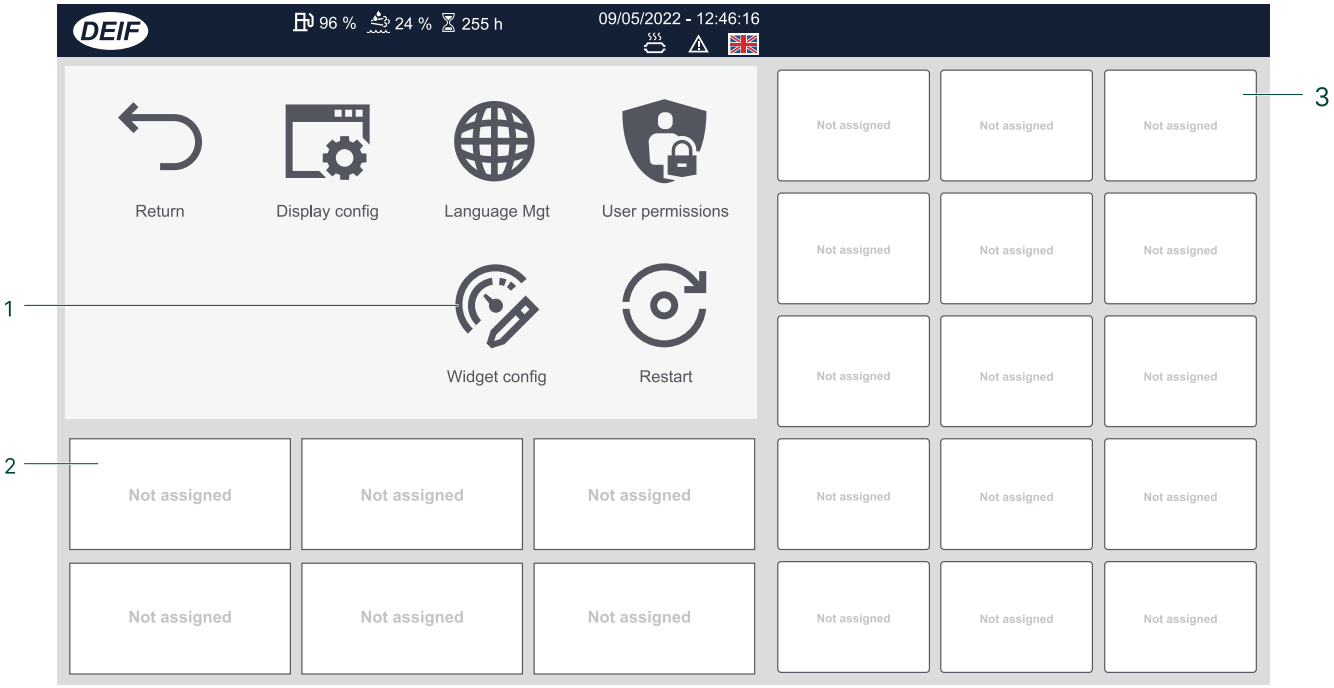
View or change the top bar colour setting.



No.	Item	Use	Notes
1	Colour sliders		Scrolls left or right to increase or decrease the colour value.
2	Top bar text colour	or	Uses WHITE text. Uses BLACK text.
3	RGB colour values		Edit the RGB value: • Red: 0 to 255 • Green: 0 to 255 • Blue: 0 to 255
4	Reset		Resets the colour settings to the factory default value.
5	Save		Saves the change.
6	Colour preview	-	Shows a preview of the colour.
7	Close		Closes the top bar colour setting window. Any changes that were not saved will be lost.

4.14.4 Widget config

This feature is only available on the **TDU 110** or **TDU 115**.

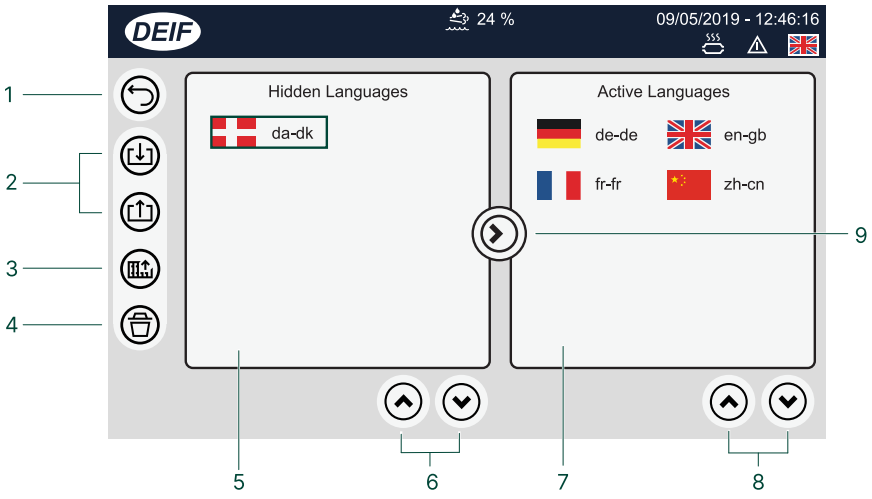


No.	Item	Use	Notes
1	Widget config		Toggles widget configuration **ON** or **OFF**.
2	Operator panel widgets		Select to configure widget.
3	Read-out panel widgets		Select to configure widget.

More information
See Widgets in Functions for how to create and edit widgets on the TDU.

4.15 Language Mgt

Manages the language translations available on the display. Only Active languages can be used on the display.



No.	Item	Use	Notes	
1	Return		Returns to previous page.	
2	Import		Imports all language files present on the USB device.	
	Export		Exports the selected language to the USB device.	
3	Create language		Creates a new language file to the USB device.	
4	Delete		Deletes the selected language file.	
5	Hidden language(s) list	-	Shows languages that are hidden from use.	
			Selects a language. **	
6	Hidden language(s) scroll page		Scrolls page up.	Scrolls page down.
7	Active language(s) list	-	Shows languages that are active for use.	
			Selects a language. **	
8	Active language(s) scroll page		Scrolls page up.	Scrolls page down.
9	Move selected language	-	Moves the selected language file.	
			Move to Hidden. ***	Move to Active

NOTE

* Grey symbols (Example:) shows an option is not possible. For example, you can only delete a language if you have selected a language first).

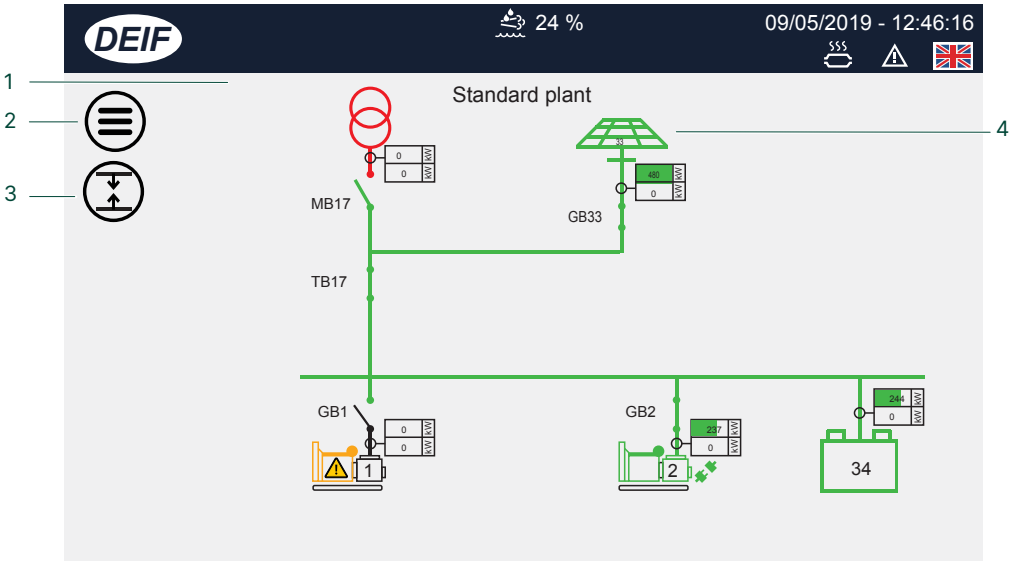
** Selected languages are marked with a green outline box.

*** It is not possible to hide the currently active language.

5. Supervision mode

5.1 Supervision page

The supervision page shows and monitors the entire plant. A single plant can have up to 40 assets.

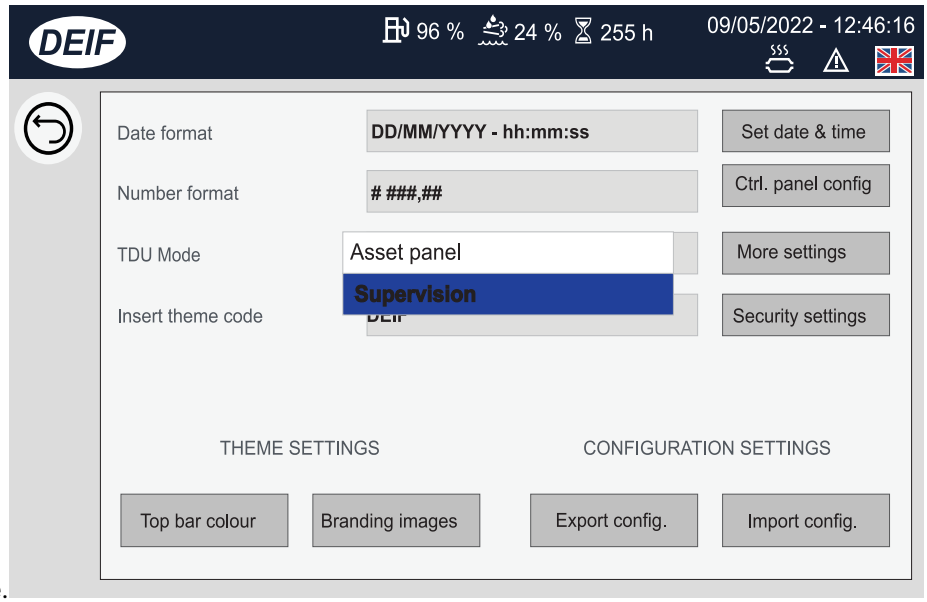


No.	Item	Use	Notes
1	Real time system overview	-	Automatically detects changes. The actual system shown depends upon your plant configuration.
2	Menu		Opens the menu page.
3	Full screen supervision		Expands to full screen. Collapses to original screen. Full screen version is only available on **TDU 110** or **TDU 115** models.
4	Asset		Opens asset control panel. Tap any asset shown in supervision to open its corresponding control panel (does not apply to ALC-4).

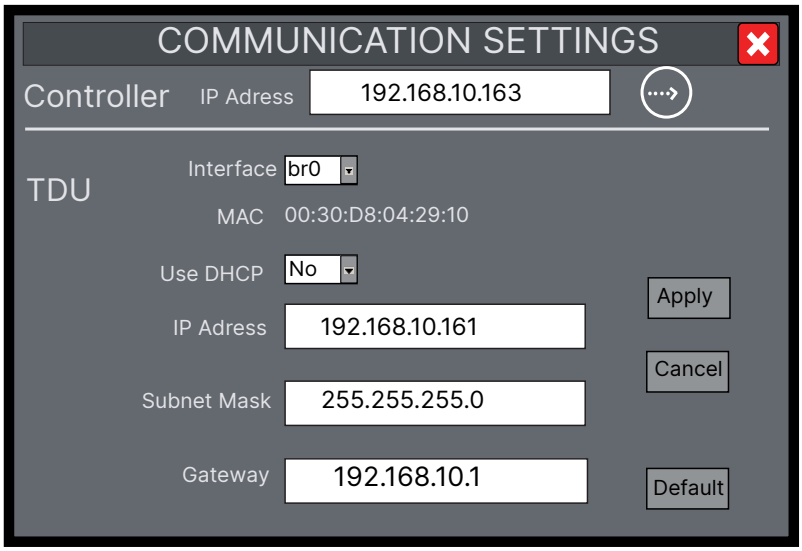
More information
See AGC-4 Mk II data sheet for the number of different assets possible in a single power management system.

5.2 Set up Supervision mode

1. Open **Display config.**
   - `Setup > Display settings > Display config`



2. Select **Supervision** mode.
3. Open **Connect to controller**
   - `Setup > Connect to controller`
4. Enter password to access the communication settings screen.
5. Connect to one controller IP address. All of the other controllers in your plant management system will be added automatically.



6. Other functions

6.1 Branding images

6.1.1 How it works

You can customise your TDU with your own branded logo and images.

Import your images from a USB drive for:

- Splash image
- Brand logo (top bar)
- About image

More information
See Top bar colour for how to configure the background colour on the top bar.

6.1.2 Before you begin

DEIF recommends that you read the following notes before attempting to import your image files.

Required tools

- USB drive (FAT32)
  - To export the file(s) from your PC.
  - To import the file(s) to your TDU.
  - Must be formatted for FAT32 file system to be recognised by the TDU.

Image requirements

- The image files must be in **PNG** format and have required names and size requirements.
- You can import one, two, or all image files to the TDU.
- The image files must be in the root of the USB drive.

The image files must be in **PNG** format and have required names and size requirements.

You can import one, two, or all image files to the TDU.

Logo image		
This image is used in the top bar.		
File name:	`logo.png`	
Image type:	PNG or Transparent PNG	
Image dimensions:	60 x 200 pixels	

Splash image		
This image is shown when the TDU is starting.		
File name:	`splash.png`	
Image type:	PNG	
Image dimensions: *	TDU 107	480 x 800 pixels
	TDU 110	800 x 1280 pixels
	TDU 115	768 x 1366 pixels

About image		
This image is shown when a user selects the logo image in the top bar.		
File name:	`about.png`	
Image type:	PNG	
Image dimensions: *	TDU 107	480 x 800 pixels
	TDU 110	800 x 1280 pixels
	TDU 115	768 x 1366 pixels

NOTE * If the image is smaller or larger than the recommended size, the TDU automatically resizes the image to fit.

6.1.3 Import branding images

1. Open **Display config.**
   - `Home > Setup > Display settings > Display config`
2. Select **Branding images**.
3. You are prompted to insert your USB drive in the USB port.
4. Insert your USB drive in the USB port:
   - It takes a few moments to recognise the USB drive.
   - When recognised a USB icon is displayed on the top bar.
5. Wait for the USB icon to be displayed on the top bar.
6. Select confirm to import the image files from the USB drive.
7. Once complete, you can remove the USB drive.

6.2 Language translations

6.2.1 How it works

You can create your own language translation files for use with your TDU and controller.

NOTE If you have already edited your own translated language(s) files on your controller, these are included in the create function. You will then only need to edit the TDU specific texts. All previously translated texts for your controller are included in the extracted language file.

How to do translations
See our tutorial on How to translate texts for help and guidance.

6.2.2 Before you begin

DEIF recommends that you read the following notes before attempting to create or edit language files.

Required tools

- USB drive (FAT32)
  - To import/export the file(s) to your PC.
  - Must be formatted for FAT32 file system to be recognised by the TDU.
- Notepad++
  - To edit the language file(s).

Language files

The language files have a required structure for them to work correctly with your TDU.

- Each language file is a comma-separated file (.csv) using the semi-colon (;) as the delimiter.
  - Make sure all entries keep the delimiter (;).
  - It is important that the format and structure of the file entries remain the same.
- TDU specific entries, that is to say, for the display screen, all start with a hash (#).
- The first set of texts are for TDU. The second set of texts are for the controller.
- The default master filename is **ma-ma.csv**.
  - You should rename this file to your required language name.
    - For example, for British English: **en-gb.csv**.
- The file is formatted using UTF-8, in UNIX format.
  - DEIF recommend using Notepad++ to edit your translation files.
  - Do not use a typical windows spreadsheet application, such as Excel, to edit or save the file. This will change the formatting in the file and it will no longer be recognised correctly by the TDU.
- The language and country are configured by using the standard ISO codes.
  - **Language:** ISO639-1
    - See: https://en.wikipedia.org/wiki/List_of_ISO_639-1_codes (Provided in English)
  - **Country:** ISO3166-1 (Alpha-2)
    - See: https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2 (Provided in English)

NOTE The TDU only reads the controller texts at start-up. If you edit the controller texts in the Utility software, while the TDU is already running, you must restart the TDU to read the new texts.

6.2.3 Create or edit language translation

1. Open **Language Mgt.**

- `Home > Setup > Display settings > Language Mgt`

2. Select **Create language**.
3. You are prompted to insert your USB drive in the USB port.
4. Insert your USB drive in the USB port:
   - It takes a few moments to recognise the USB drive.
   - When recognised a USB icon is displayed on the top bar.
5. Wait for the USB icon to be displayed on the top bar.
6. Select confirm to create the language file on the USB drive.
7. Once complete, you can remove the USB drive.
8. Insert your USB drive in your computer.
9. Copy the language file over to your local drive.
10. Rename your file to the language name you wish to create.
11. Open the file for editing with Notepad++.
12. Edit the texts that you wish to change.
13. Save the updated translation file to your USB memory device.
14. Safely remove your USB drive from your PC by using the **Eject** or similar option.
15. Insert the USB drive in your TDU.
    - When recognised the TDU displays the USB icon on the top bar.
16. Open **Language Mgt.**
    - `Home > Setup > Display settings > Language Mgt`
17. Select **Import**.
18. Follow the on-screen guide to import your language. Your language now appears in the active list as an active language.
19. Open the **Language** page.
    - `Home > Setup > Language`
    - or use the language flag directly shown on the top bar.
      - Example: Select
20. Your new language file is shown for selection.
21. Select your new language for your TDU display.
    - The TDU now reloads all the texts after confirmation.

More information
See Language Mgt. for information about the page and options.

6.3 Export or import settings

6.3.1 How it works

You can export or import your TDU configuration to a USB drive. This can be useful for backing up your configuration or transferring the configuration to another TDU.

The configuration includes:

- Instrument settings
- Password levels
- Addition Operator Panel (AOP) texts
- All TDU configuration settings

NOTE This is not an export or import of the controller configuration.

6.3.2 Before you begin

You will need a USB drive formatted with **FAT32** file system to be recognised by the TDU.

6.3.3 Export or import configuration file

Export configuration

1. Access the export feature from: `Home > Setup > Display settings > Display config`
2. Select **Export** option.
   - You are prompted to insert your USB drive into the USB port.
3. Insert your USB drive into the USB port.
   - It takes a few moments to recognise the USB drive.
   - When recognised the USB icon is displayed on the status bar.
4. Wait for the USB icon to be displayed on the status bar.
5. Select confirm to start exporting the configuration.
   - During the export a message is displayed.
6. When the export has completed a confirmation message is shown.
7. Select **Confirm** to complete the export.

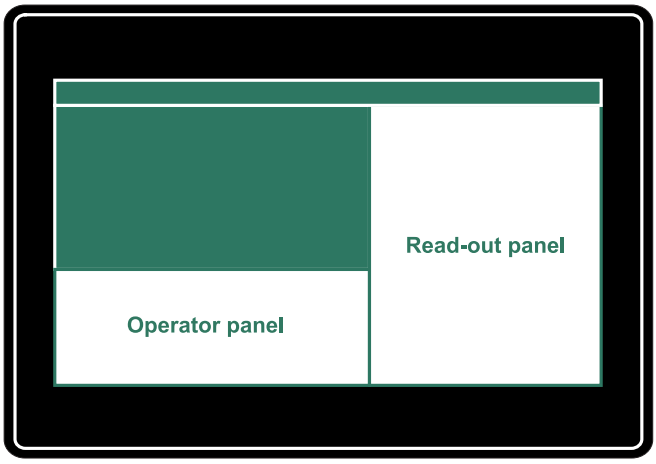
Import configuration

1. Access the import feature from: `Home > Setup > Display settings > Display config`
2. Select **Import** option.
   - You are prompted to insert your USB drive into the USB port.
3. Insert your USB drive into the USB port.
   - It takes a few moments to recognise the USB drive.
   - When recognised the USB icon is displayed on the status bar.
4. Wait for the USB icon to be displayed on the status bar.
5. Select confirm to start importing the configuration.
   - During the import a message displayed.
6. When the import has completed a confirmation message is shown.
   - The TDU must be restarted for the new configuration to be applied.
7. Select **Confirm** to restart.

6.4 Widgets

6.4.1 How it works

You can add and configure widgets to both the **Operator** panel and **Read-out** panel of the TDU.



Source of widget information

- **Operator widgets** use AOP LEDs and buttons.
- **Read-out widgets** use controller information.

NOTE This feature is only available on the **TDU 110** or **TDU 115**.

6.4.2 Before you begin

The **Operator widgets** use the AOP LEDs and button functions of the controller. These are configured with M-Logic and AOP settings in the Utility software for the controller.

More information
See **Application notes M-Logic AGC-4 Mk II** for how M-logic and AOP buttons work.

6.4.3 Add or configure widgets

Add or configure widgets with **Widget config.**
`Home > Setup > Display settings > Widget config`

Add a widget

1. Use **Widget config.** to enable configuration.
2. Select a **Not assigned** box.
   - 

3. A configuration window is shown.
4. Select and configure the widget settings.
5. Select **Save** to store the new widget.

Edit a widget

1. Use **Widget config.** to enable configuration.

2. Select the widget that you wish to edit.
   - The configuration window is shown.
3. Configure the widget settings.
4. Select  **Save** to store the changes.

Remove (clear) a widget

1. Use  **Widget config.** to enable configuration.
2. Select the widget to remove.
   - The configuration window is shown.
3. Select **None** from the configuration.
4. Select  **Save** to store the changes.
   - 

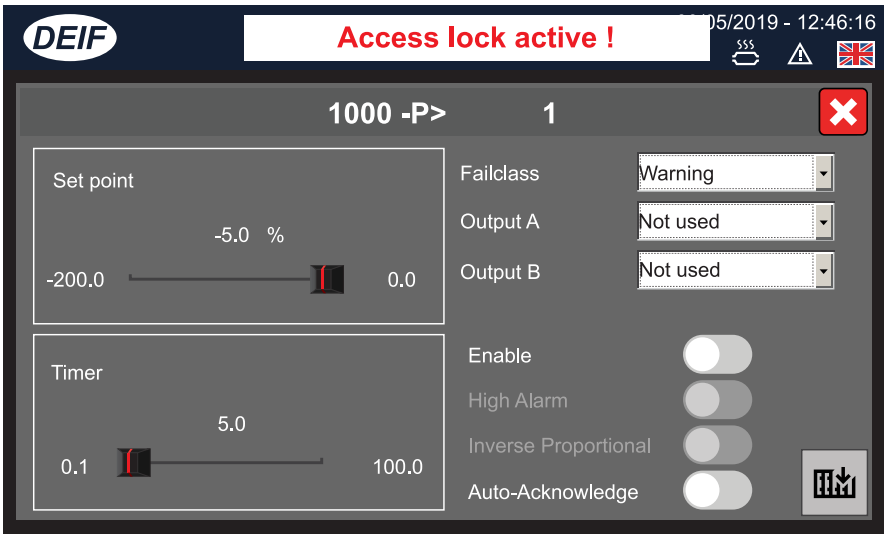
   - The widget becomes **Not assigned**.

6.5 Access lock

The TDU supports the **Access lock** function from the controller.

When a digital input is configured for this function and is active (high), attempting to operate the TDU displays the **Access lock** message in the status bar. Configuration and operation can no longer be saved or changed.

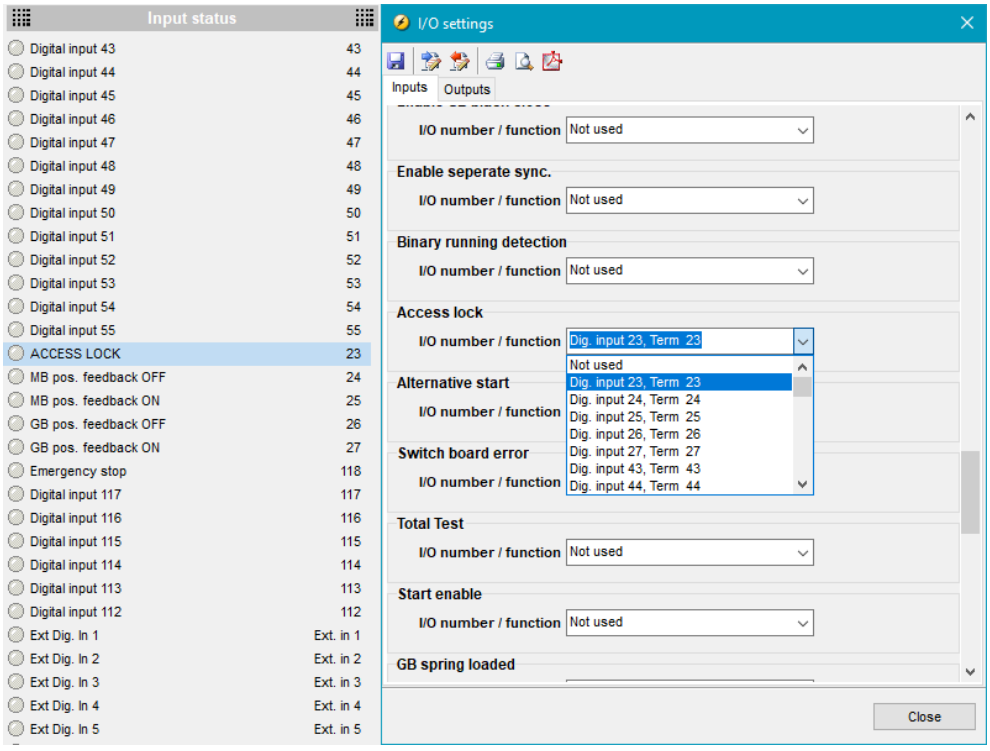
Example page with **Access lock** shown:



Controller Access lock

Access lock is configured with the controller utility software on any digital input.

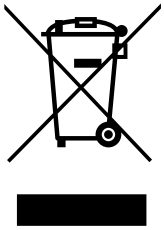
Example digital input configured with **Access lock**:



7. End-of-life

7.1 Disposal of waste electrical and electronic equipment

WEEE symbol



All products that are marked with the crossed-out wheeled bin (the WEEE symbol) are electrical and electronic equipment (EEE). EEE contains materials, components and substances that can be dangerous and harmful to people's health and to the environment. Waste electrical and electronic equipment (WEEE) must therefore be disposed of properly. In Europe, the disposal of WEEE is governed by the WEEE directive issued by the European Parliament. DEIF complies with this directive.

You must not dispose of WEEE as unsorted municipal waste. Instead, WEEE must be collected separately, to minimise the load on the environment, and to improve the opportunities to recycle, reuse and/or recover the WEEE. In Europe, local governments are responsible for facilities to receive WEEE. If you need more information on how to dispose of DEIF WEEE, please contact DEIF.