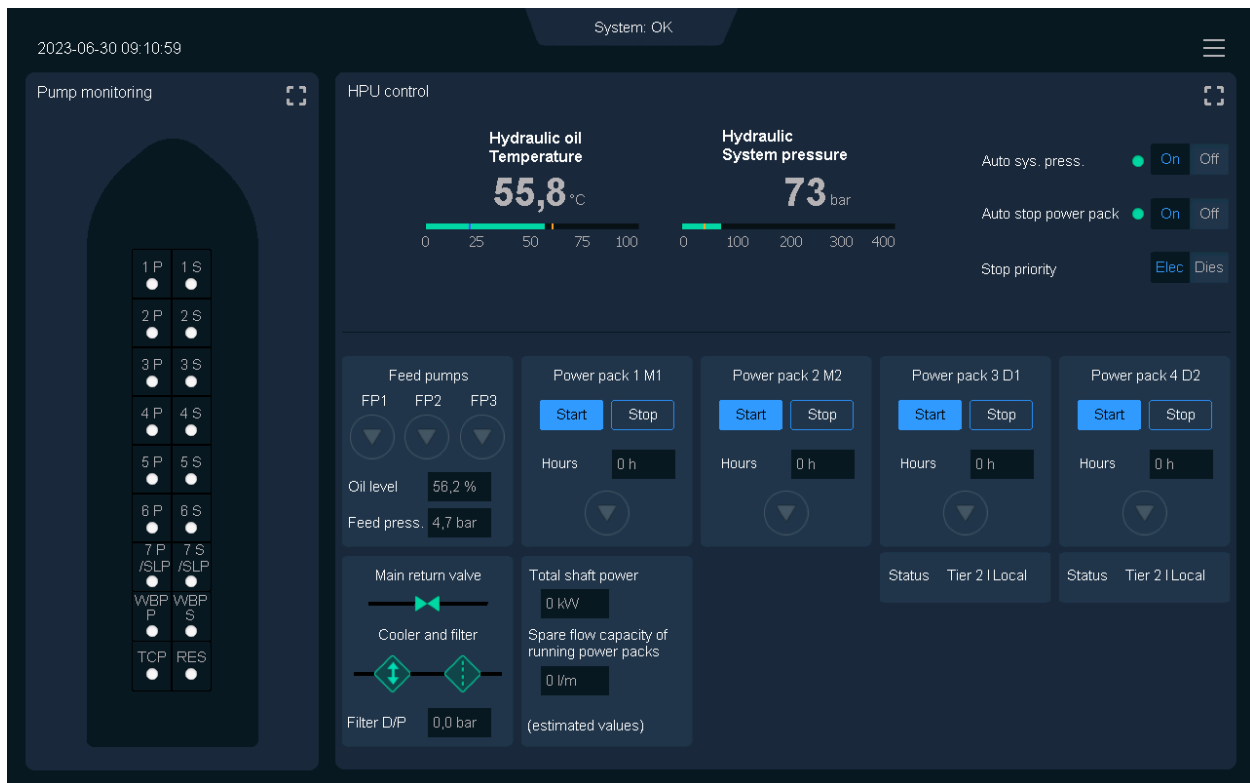


HMI Operation Manual



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1 Introduction

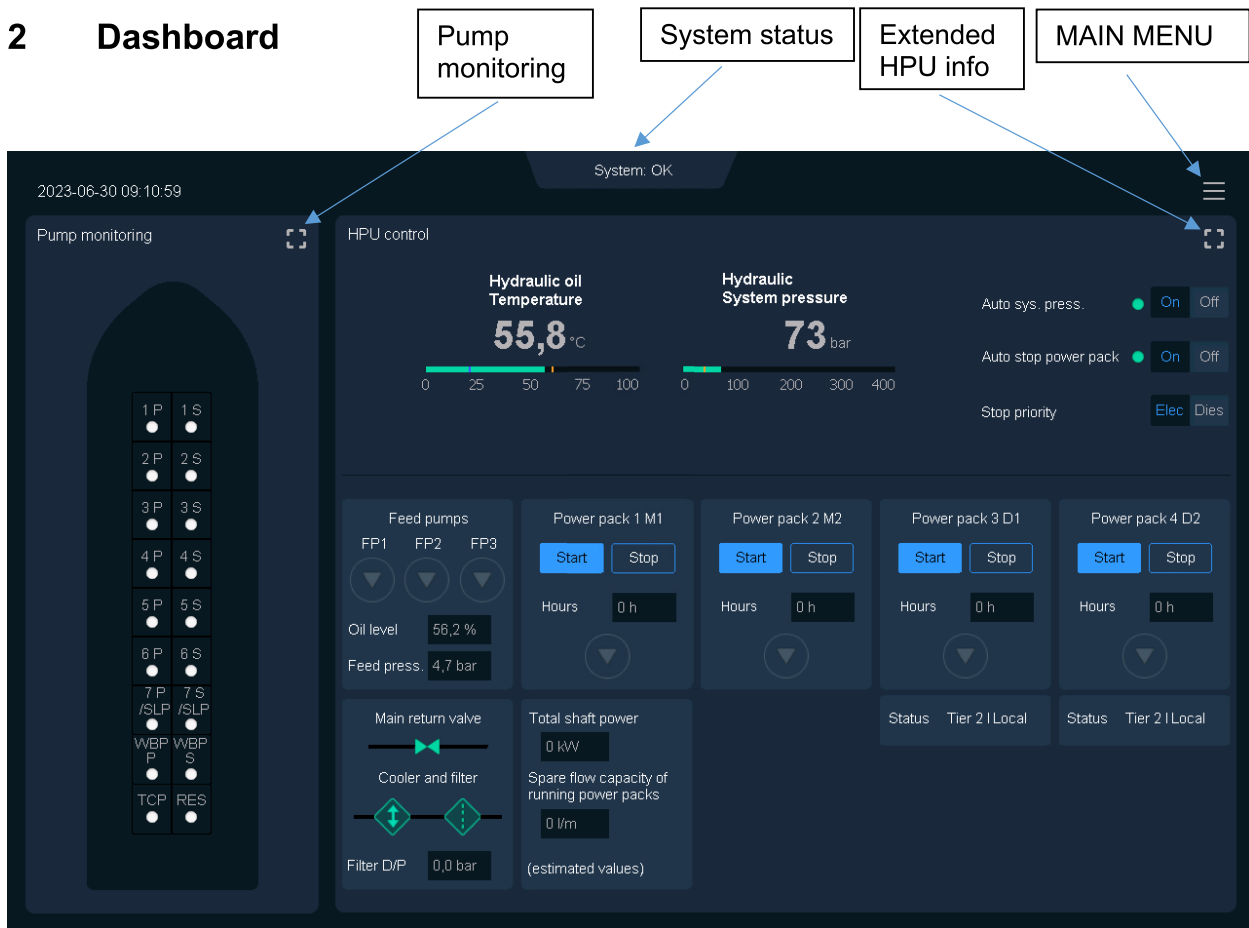
This document describes the functionality of the redundant HMI (Human Machine Interface) screens installed in The Framo Control Panel. The HMIs communicate with the PLC (Programmable Logic Controller) installed inside the control console on an Ethernet link. The redundant screens provide the same functionality and information. During operation of the system it is practical to monitor the submerged pumps on one screen and HPU on the other one.

For information on how the different functions work, e.g. “automatic system pressure” control and “auto stop power packs” refer to document “General description of the system” chapter 2.2 in the service manual.

This instruction with pictures/ screen shots are only for guidance.

For detail information of the system, dedicated system drawings and documentation must be read.

2 Dashboard



The screen is divided into two windows:

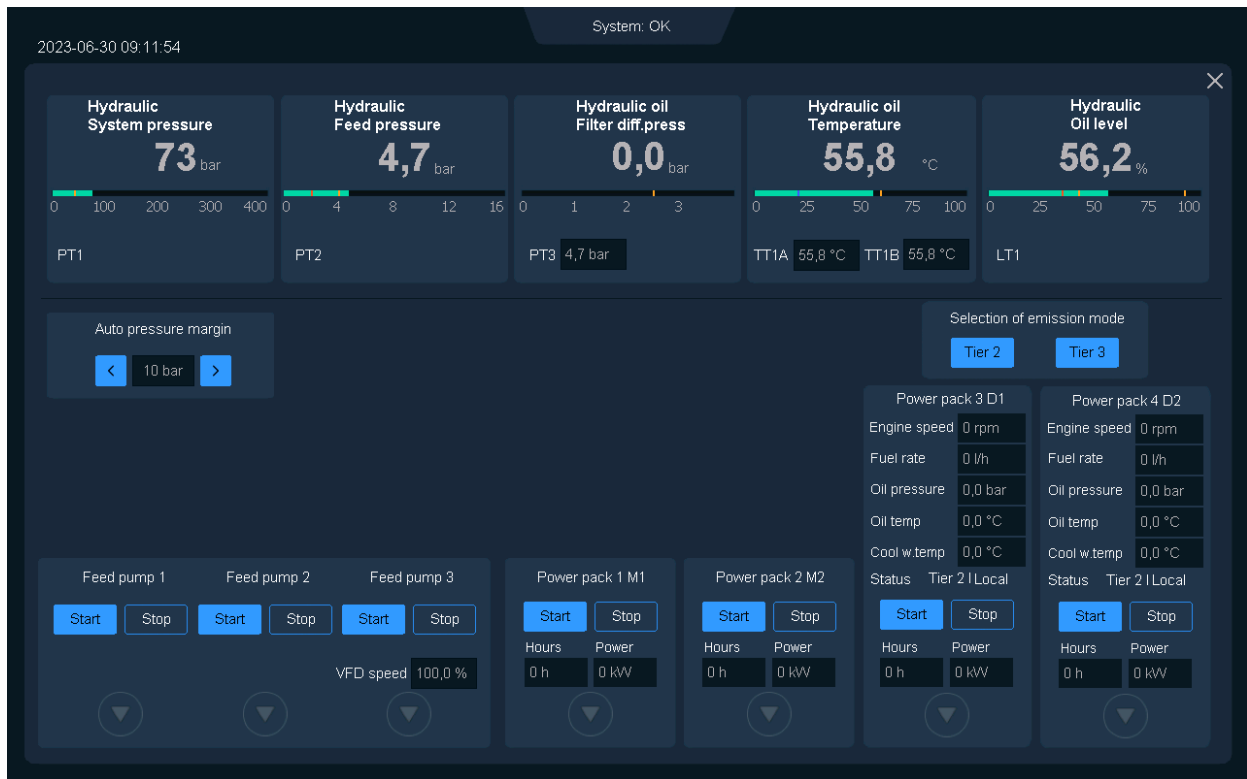
Pump monitoring: Pump running status

HPU Control: Hydraulic system information and operation of power packs.

In addition there are buttons for extended HPU control, pump monitoring, MAIN MENU button and system status flag.

Functions such as Auto system pressure, Auto stop power pack and Stop priority can be selected. Manual setting of system pressure is only possible when Auto system pressure is turned off. For further info about auto functions, please refer to general description chapter 2.2 in service manual

3 Extended HPU control



This screen gives the operator access to all instrumentation regarding the HPU system in addition to a selection of diesel parameter

Feed pumps start/ stop and diesel engine TIER (SCR) mode selection.


For system pressure control, the input fields are different when Auto syst. press status is on or off. When Auto syst. press is off, the 'System pressure setting' is shown. When on, the 'Auto pressure margin' input field is shown

For further info about auto functions, please refer to general description chapter 2.2 in service manual

4 Pump monitoring, hour meter and energy consumption

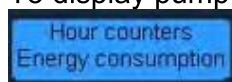


This screen provides the operator with a comprehensive overview of pump operating modes, hydraulic pressure of the pumps, and the status of heating and venting valves (open or closed).

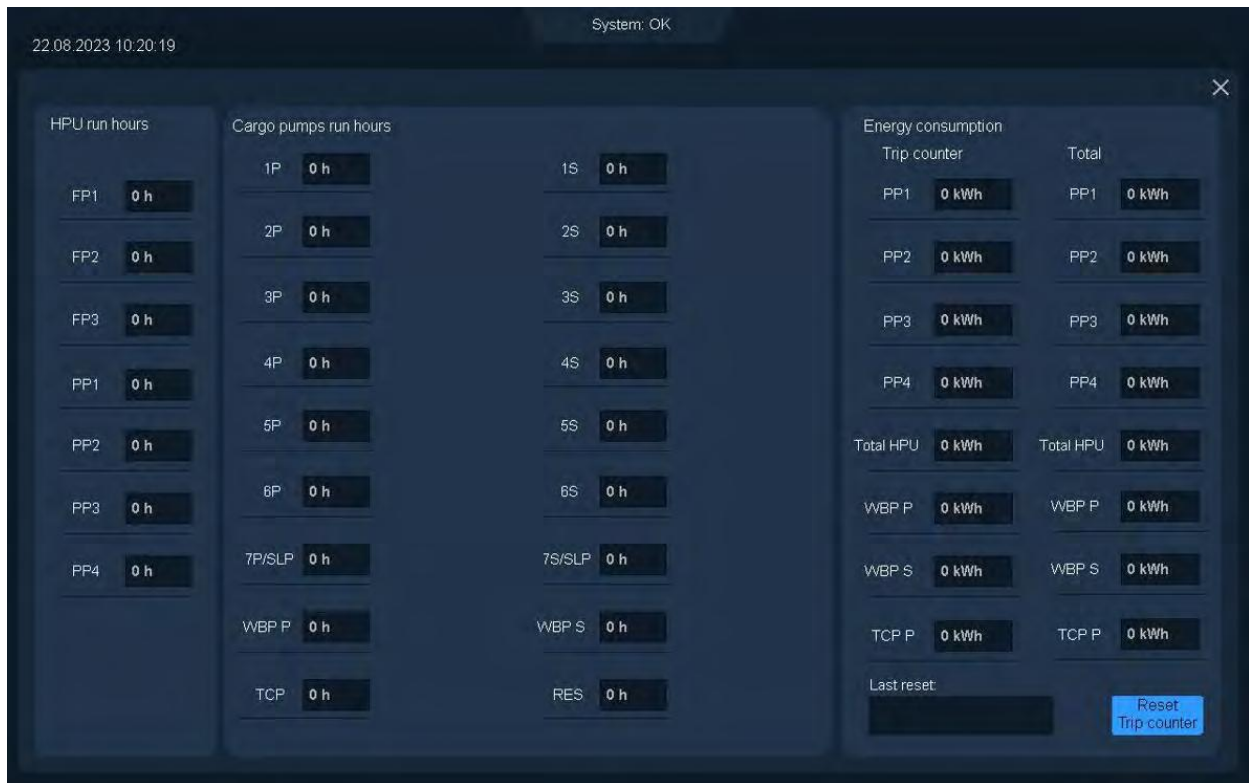
To activate the heating mode, the operator can press the valve symbol  and then select either ON. Same procedure to deactivate by selecting OFF.



To display pump running hours info and energy consumption press

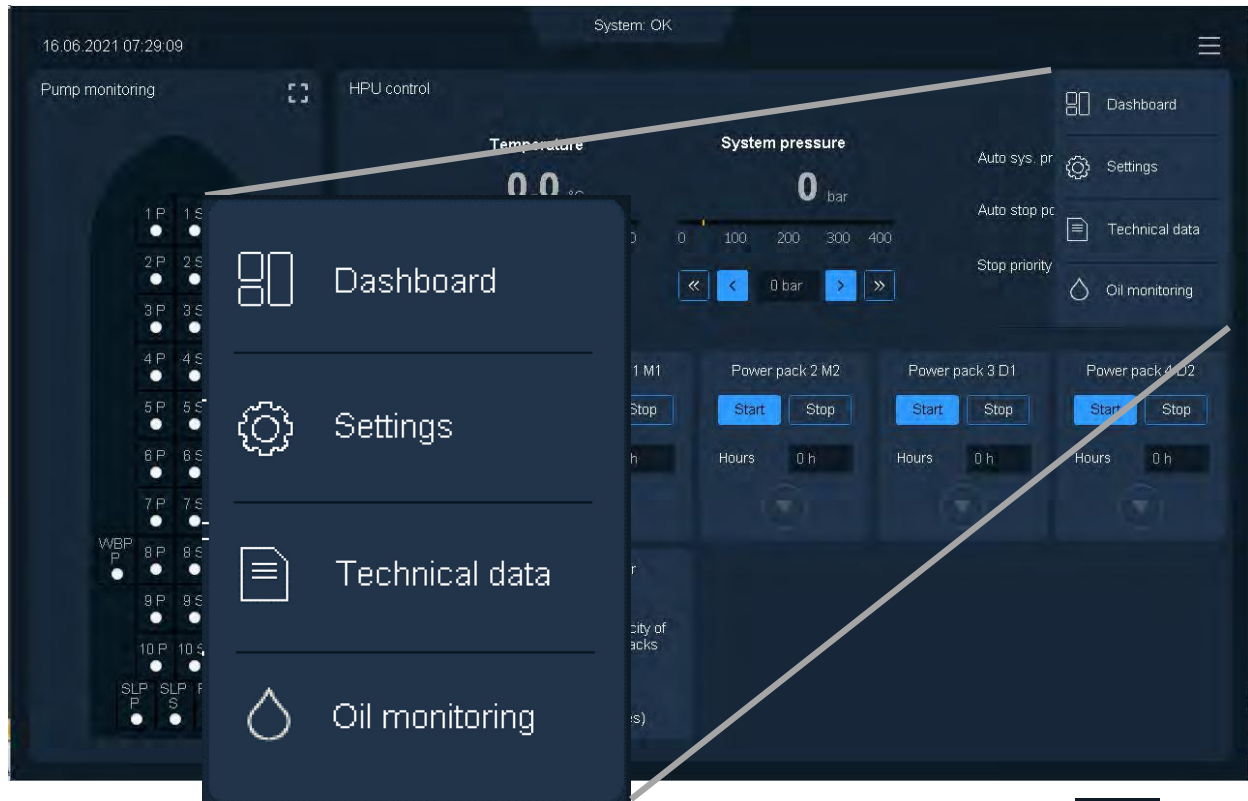



Hour meter and energy consumption



This screen presents detailed information regarding the running hours of the feed pumps, power packs and cargo pumps. It also provides data on energy consumption. The trip counter can be manually reset as needed, and the date and time of the last reset are displayed.

5 MENU



The MAIN MENU can be reached from most screens on the panel, by pushing  located in upper right corner on the screen.

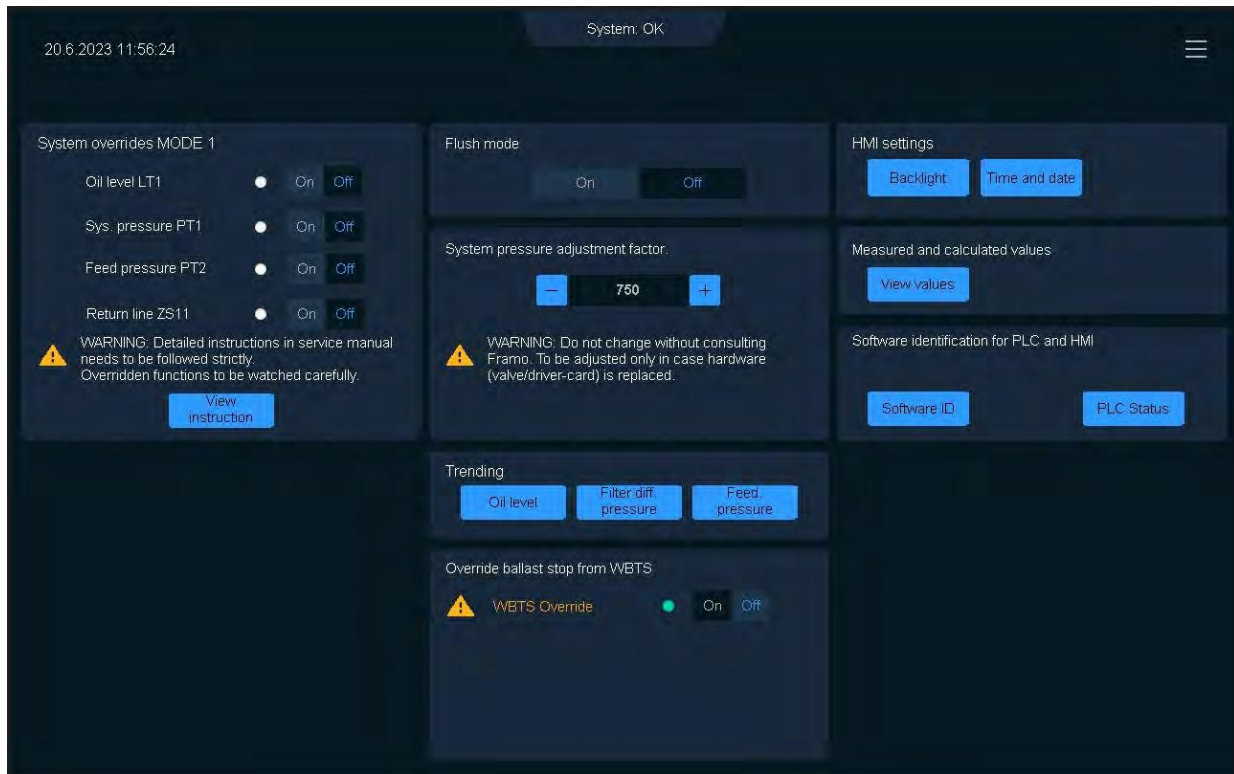
Dashboard – Main overview of the system

Settings – Override, adjustment factor, flushing mode

Technical data – Specifies HPU maximum hydraulic oil supply and centrifugal pumps maximum hydraulic oil consumption.

Oil monitoring – Readings from oil monitoring sensors and TREND curves.

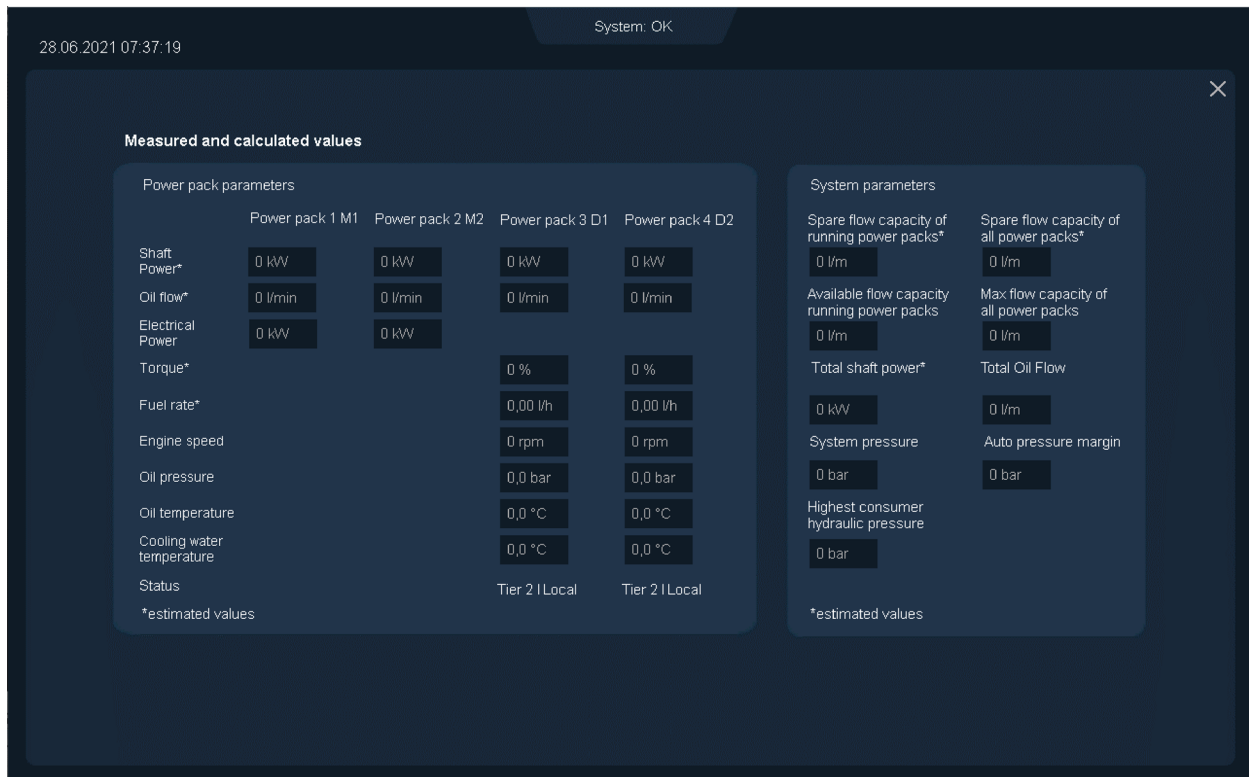
6 Settings



The SETTINGS screen gives the operator access to:

- System overrides MODE 1. Please be aware of the WARNING before activation.
- Flush mode. To be used during flushing of hydraulic pipes to increase oil temp.
- System pressure adjustment factor. Please be aware of the WARNING.
- HMI setting. Set time zone and adjust backlight on the screen.
- Trending. View trend curves for analog signals.
- Measured and calculated values.
- Override ballast stop from WBTS
- Software identification for PLC and HMI

7 Measured and calculated values



On this screen important measured and calculated (estimated) values are displayed. A photo of the screen is useful and may be requested by Framo if questionable readings are displayed and troubleshooting assistance is requested.

8 Technical data



Screen shot is an example. System specific values are shown on the installed HMI's and included in service manual.

9 Oil monitoring

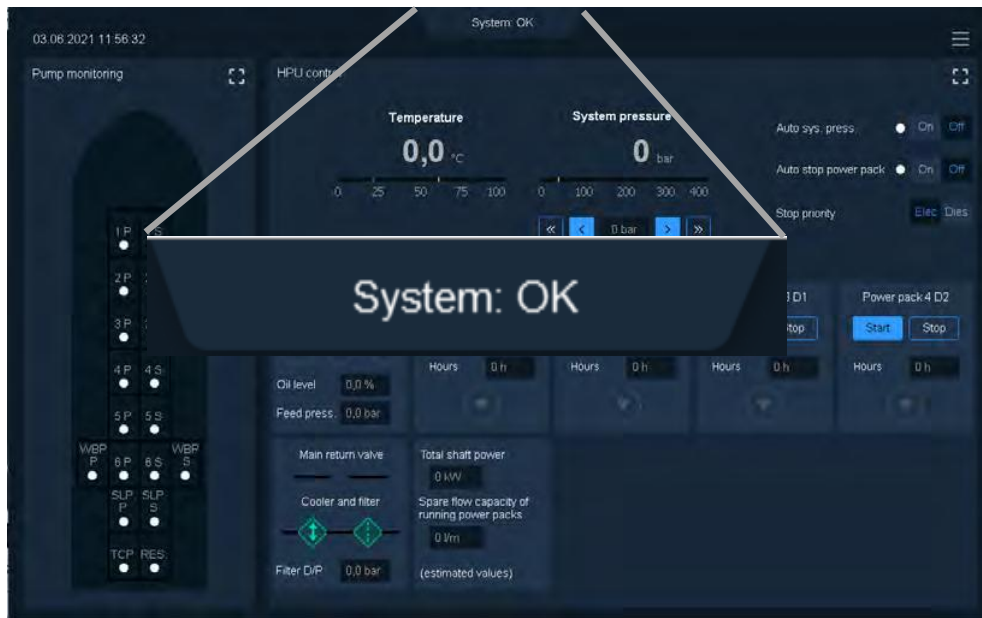


Real-time values for hydraulic oil condition are displayed.

Selection of 24 hours trend curves for hydraulic oil relative humidity/temperature and trend curves for particle content. The trend curves can also be reached from the alarm list.

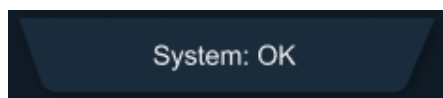

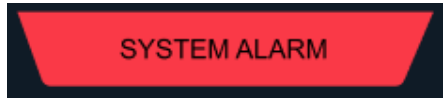
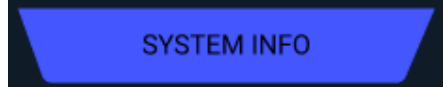
As water content is measured and displayed in % RH (Relative Humidity), the alarm set point varies with temperature. The current alarm set point calculated by the system is therefore displayed on the screen for reference.

10 Alarm list



The alarm list can be reached from any screen by pushing the status field in top of the screen.

The status field appears in 4 colours depending of alarm status.

	No alarm/info
	Alarms – warning
	Alarms – shutdown
	Events for information.

If several conditions are present simultaneously priority of colour indication is

- 1) Shutdown
- 2) Warning
- 3) Info/Events

Alarm list continue

04.06.2021 11:46:11
System: OK
✕

Group	State	Active Time	Text	Acknowledged Time	Normal Time
Info	Acknowledge	04.06.2021 11:45:53	High start frequency powerpack 1	04.06.2021 11:46:00	
Trip	Acknowledge	04.06.2021 11:45:53	Return line closed	04.06.2021 11:46:00	
Warning	Acknowledge	04.06.2021 11:45:53	Oil level low	04.06.2021 11:46:00	
Info	Normal	04.06.2021 11:45:35	High start frequency powerpack 1		04.06.2021 11:45:50
Trip	Normal	04.06.2021 11:45:35	Return line closed	04.06.2021 11:46:00	04.06.2021 11:46:00
Warning	Normal	04.06.2021 11:45:35	Oil level low	04.06.2021 11:46:00	04.06.2021 11:46:00

Active: 0 Inactive: 0 Ack: 3 Normal: 3 Disabled: 0 [6 / 6]

Ack
Reset
Clear
Info

Alarms are shown with the same colours as on the top status flag. The alarms are time stamped at time of activation, time of acknowledge and when alarm condition return to normal state.

This gives the operator insight in different events.

Use “Reset” button to reset trip alarm.

Use “Clear” button to delete alarms that have returned to normal state.

Trouble shooting guidance/corrective action is displayed when selecting a specific alarm and pushing the “Info” button, example:

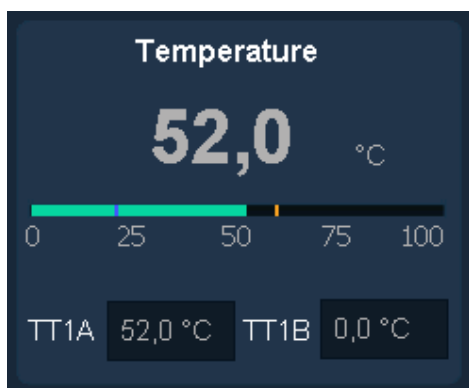
Oil level low
✕

1. Check oil level and verify correct output from Level Transmitter.
2. Top up system tank to NORMAL LEVEL (see sign on system tank) if required..
3. Trouble shoot Level Transmitter if required.
4. Observe TREND curve for oil level in System tank. If level drops at a high rate, trouble shoot oil leakage from system.

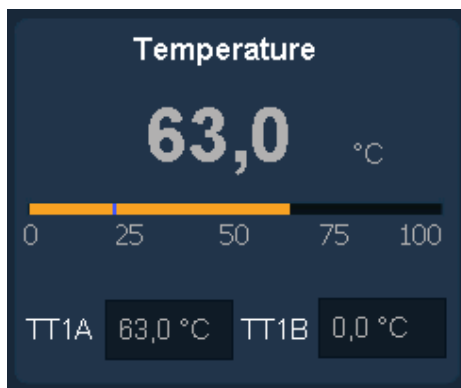
Trend

Trend curves are available for analogue signals.

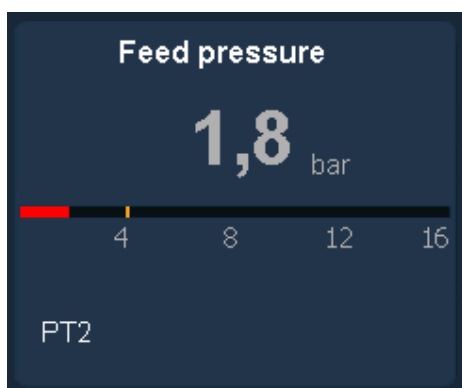
11 Operation and symbol details



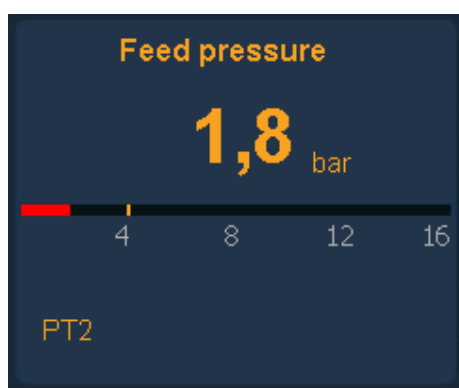
Normal state, green indicator



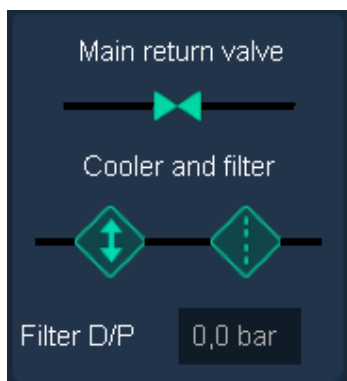
Alarm state, amber indicator



Shut down state, red indicator



Override state, text and digital numbers, amber color



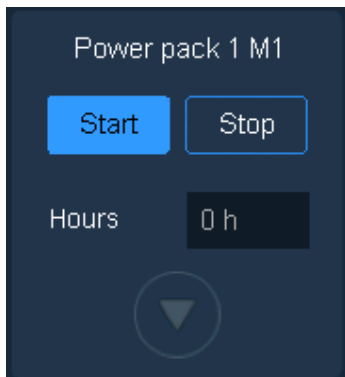
Normal state



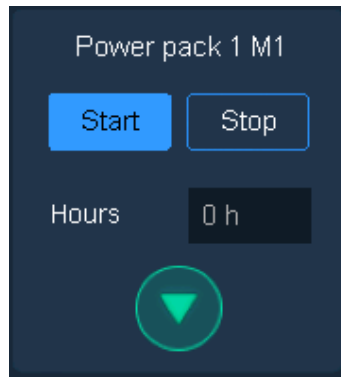
Alarm state



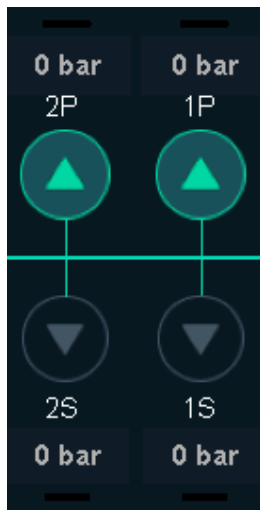
Override state on
Main return valve



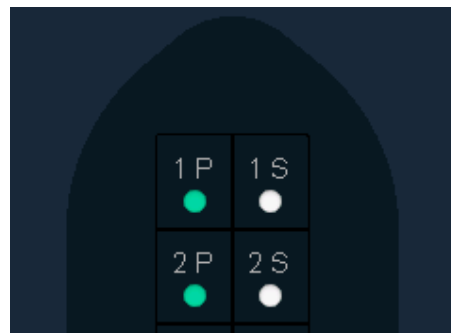
Power pack stopped



Power pack running



Cargo pump
running/stopped
status shown on
Pump monitoring
screen



Cargo pump
running/stopped
status on Dashboard.