



KONGSBERG

Kongsberg K-Chief 600 Alarm and Monitoring System

Operator Manual

338857/I

March 2014 © Kongsberg Maritime AS

Document history

Document number: 338857		
Rev. I	March 2014	Major update for OS software version 1.14

The reader

This Operator Manual describes how to use the K-Chief 600 Alarm and Monitoring System controls and display facilities. It is intended for system operators. He/she should be experienced in the operation of alarm and monitoring systems and have basic knowledge of personal computers or should have attended a Kongsberg Maritime training course.

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Warning

The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. The user must be familiar with the contents of the appropriate manuals before attempting to operate or work on the equipment.

Kongsberg Maritime disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.

Comments

To assist us in making improvements to the product and to this manual, we welcome comments and constructive criticism.

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Admonitions

The following admonitions found throughout this manual mark special messages to alert the user of specific information concerning of the personnel, the equipment or the process.

WARNING

Text set off in this manner provides a warning notice that failure to follow the directions in this WARNING can result in bodily harm or loss of life and/or extensive damage to equipment.

Caution

Text set off in this manner provides a warning notice that failure to follow the directions in this CAUTION can result in damage to equipment.

Note

Text set off in this manner presents clarifying information or specific instructions pertinent to the immediate instruction.

Glossary

ACK	Acknowledge
ALC	Alarm & Control Panel
BIST	Built In System Test
CAN	Controller Area Network
CCR	Cargo Control Room
CRP	Control Room Panel
DPU	Distributed Processing Unit
ECR	Engine Control Room
EMC	Electromagnetic Compatibility
EMD	European Union Maritime Directorate
IACS	International Association of Class Societies
IMO	International Maritime Organisation
INP	Input Panel
I/O	Input/Output
IP	Ingress Protection
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LOS	Local Operator Station
ME	Main Engine
OS	Operator Station
OS Lite	Operator Station Lite (touch operated)
PMS	Power Management System
PSO	Power Switch Over Module
PSS	Process Segment Starcoupler Module
RAi	Remote Analogue Input Device
RAi tc	Remote Analogue Input Device for Thermo Couple
RAo	Remote Analogue Output Device
RD_i	Remote Digital Input Device
RD_o	Remote Digital Output Device
RIO	Remote I/O
SCU	Segment Controller Unit
TCP	Touch Control Panel
TBP	Tracker Ball Panel

TPP	Touch Pad Panel
TCP/IP	Transmission Control Protocol/Internet Protocol
USB	Universal Serial Bus
UTC	Universal Time Coordinated
VCC	Voltage Converter Controller
VDR	Voyage Data Recorder
WCC 600	Watch Call panel, C600 platform

Alarm list terms

Analogue sensors

Grad	Gradient alarm. The input signal is changing rapidly.
High	High alarm. When the input signal is higher than a set limit.
Hi-Hi	High-High alarm. When the input signal is higher than a set limit.
IFH	Instrument failure high alarm. Used for example when a 4 to 20 mA current loop is giving more than 20 mA.
IFL	Instrument failure low alarm. Used for example when a 4 to 20 mA current loop is giving less than 4 mA.
Inhib	Inhibit. The input signal has been inhibited to avoid unnecessary alarms, such as when the main engine is stopped.
Low	Low alarm. When the input signal is lower than a set limit.
Lo-Lo	Low-Low alarm. When the input signal is lower than a set limit.
Offsc	Offscan alarm. Indicates that the input signal is not checked for alarm situations and is not measured any more.

Digital sensors

Broken	The wiring to the sensor has an open-circuit.
Closed	The switch is closed, such as “valve closed”.
Inhib	Inhibit. The input signal has been inhibited to avoid unnecessary alarms, such as when the main engine is stopped.
Offsc	Offscan alarm. Indicates that the input signal is not checked for alarm situations.
Open	The switch is open, such as “valve open”.
Short	The wiring to the sensor has a short-circuit.

Introduction

The purpose of this Operator Manual is to provide the descriptions and procedures required to allow for safe and efficient use of the Kongsberg K-Chief 600 Alarm and Monitoring System. Optimizing processes of the overall performance needs thorough understanding of the system functions and controls. It is highly recommendable to perform a careful study of the information in this manual, preferably while exploring the system's various functions. System operation is a dynamic activity requiring regular adjustments and fine tuning skills to achieve the best possible results under varying environmental conditions.

The manual includes the following main chapters:

Topics

- on page
 - This chapter presents a general introduction to the K-Chief 600 Alarm and Monitoring System.
- *User interface* on page 40
 - This chapter presents all the elements of the K-Chief 600 user interface.
- *Basic operational procedures* on page 159
 - This chapter contains step-by-step procedures for operation of the K-Chief 600.
- *Reference guide* on page 189
 - This chapter contains parameter-relation information accessible from the various operator locations.

Note

The K-Chief 600 is a modular system, consisting of standard main units such as Operator Stations, Operator Panels and processing and I/O units. For a specific project configuration, the choice and quantities of items may vary and may depend on ship and class.

Important

Windows NT, Windows 2000, Windows XP and Windows 7 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Related documents

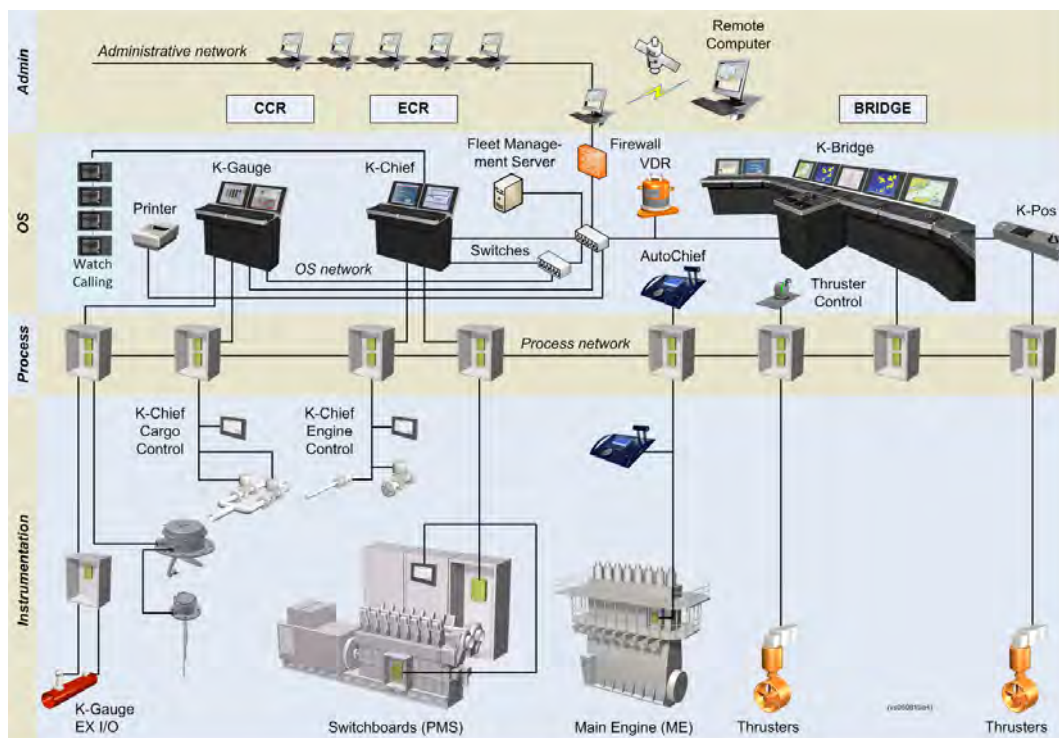
- [357625] Kongsberg K-Chief 600 Maintenance Manual
- [311956] Kongsberg K-Chief 600 Installation Manual
- [347693] Kongsberg K-Chief 600 Operator Manual for Auxiliary Control
- [347694] Kongsberg K-Chief 600 Operator Manual for Power Management
- [347181] Kongsberg K-Chief 600 Operator Manual for Vessel Performance
- [359796] Kongsberg K-Chief 600 Operator Manual for Ship@Web

System description

System architecture

The K-Chief 600 system architecture has a modular design, and builds on Operator Stations and I/O modules interconnecting with local data networks. This allows us to meet individual ship owner's requirements using standard modules. Different selections of these units are used to configure each individual system.

Figure 1 K-Chief 600 system architecture



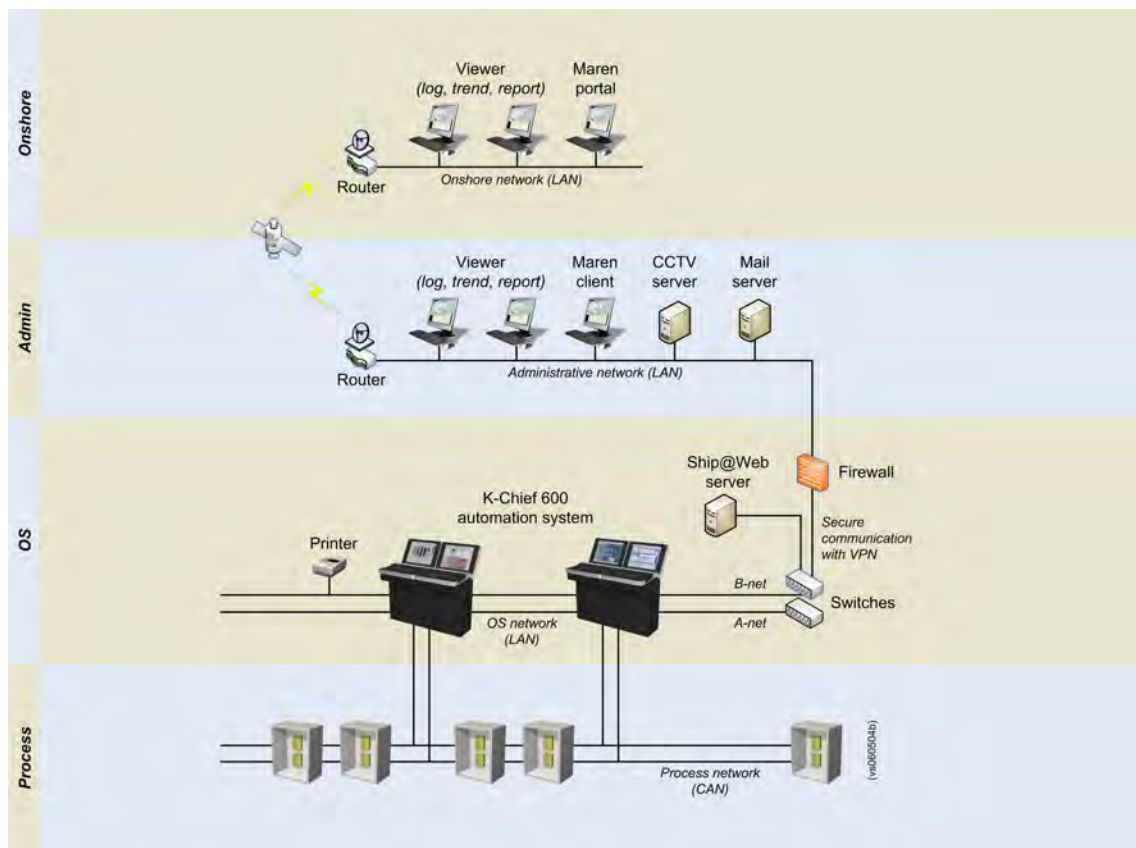
The K-Chief 600 is decentralised for safety and ease of installation, but operation is centralised using the Operator Stations. Each I/O module has configuring options, to match a specific role and the operational requirements of the specific process area. The flexible architecture, enables the K-Chief 600 system to connect more I/O modules in an expanding network to control additional process areas, or extending the functionality.

The Ship@Web system architecture is mainly a custom K-Chief 600 automation system under protection by a local server/firewall solution.

The main server role is to be the connection point with external networks requiring information from the K-Chief 600 system. The server will be the host for all thin clients, both on the administrative network and on the external shore ship owner LAN (Local Area Network).

External access to the K-Chief 600 system and process LAN needs authorization from a firewall/gateway connecting to a VPN (Virtual Private Network) solution. This provides the internal network with a high security access level for the K-Chief 600 system, protecting the process LAN from viruses, trojans and other threats from the administrative or external network.

Figure 2 Ship@Web system architecture



System functionality

Operator interaction



The Operator Stations provides the operator with a number of standard display pictures containing information of the engine and surrounding equipment. Control of any of the Distributed Processing Units is possible from the Operator Stations. The system provides full monitoring and alarm facilities in the machinery space and the Engine Control Room.

Detailed sensor information for any Distribution Processing Unit, such as alarm or normal status data, can be shown on the color graphics display, alternatively as a print-out on demand. Presentation of the sensor data can be a bar graph or a trend curve. Any selection of sensor data is available for automatic printing, scheduled as fixed intervals. The system can display the latest alarms for each alarm group individually or all active alarms.

Whenever a variable or state changes significantly, the relevant Distributed Processing Unit updates the database in each of the Operator Stations. This update process ensures any Operator Station data always is up-to-date. There is no need to request data each time the operator wish to inspect a variable and the main purpose is to reduce data traffic on the process bus and the Local Area Network at a minimum, increasing the effect of fast data access.

All changes in measuring points from the DPUs' are logged with a timestamp precision of up to 1 millisecond. Changes are stored redundantly in all Operator Stations for seven days, and is available for exploration in trend views. A change process record the activity each time a value oversteps the deadband limits set. The sampling rate for detection of changes in measuring points are maximum 10 milliseconds.

All digital process and alarm events are time-stamped with precision up to 1 millisecond. Data are stored redundantly in all Operator Stations for 5 years. They can be displayed in the event history view.

Extended logging of data is included in our Ship@Web fleet management system. The data (measuring points) in full resolution can be stored for one month (the Month log). Data older than one month are optimized for longer storage and can be stored for up to 5 years (the Year log). In the Year log mean values are calculated for groups of measuring points to optimize the data. In addition maximum and minimum values, and essential events in the data log are stored in full resolution.

Access and control transfer



Classification requirements states that equipment control must only be available from one location at any time. The K-Chief 600 access control transfer system allows organized control transfer from one location to another. By using the command buttons on the dedicated Operator Panel, access and control can be easily administrated.

Request control is used to gain control of an alarm group. The Operator Station having control of this group, now receives a message requesting either to accept or deny the request.

Another control function event is to override access. If an emergency situation occurs, it is possible to take control over an alarm group. In this case the process of accepting and denying is not needed. A password must however be given to get the required control. Operators must be logged on as Chief (Power user) to override access.

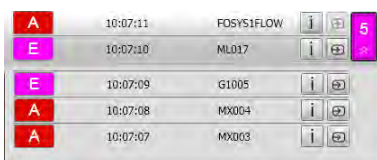
Watch call transfer

The Operator Station is also used when transferring machinery watch responsibility between the Bridge and Engine Control Room, and selecting the engineer for watch call duty.

All available engineers, whether on duty or not, may be called to the engine control room in case of an emergency.



Alarm and monitoring



The alarm and monitoring system constitute the basic functionality of the K-Chief 600 marine automation system. The main purpose of the system is to give ship officers all the basic alarm and status information they require to maintain safe and efficient operation of the machinery and other related equipment.

The logging printer and the colour graphics display records all status changes, such as alarm acknowledgements and alarm condition cleared. When all alarm conditions are cleared, the system returns to normal. Alarm limits and delays are adjustable by using the Operator Panel. A counter function keeps track of running hours for engines, pumps and related items. This function can also accumulate flow. Counter values are shown on the colour graphics display or may be printed.

Some of the alarms are conditional and will be blocked when a specified condition is present. For instance, when the main engine is stopped, the lubrication oil pressure falls and should normally have triggered an alarm condition. Since this is quite normal, this alarm is blocked. This function is started by defining a signal as an inhibit signal for a specified alarm or a specified group of alarms. An adjustable time delay for each signal is available to extend the blocking situation.

Network

OS network

The OS network is a redundant Local Area Network (LAN) employed for communication between the Operator Stations and the process area via Segment Controller Units (SCUs). Other PC based equipment (printers, switches) are also connected to the OS network.

The LAN is an open net employing international standard protocols (Ethernet, TCP/IP) that permits connection and data exchange using Kongsberg Maritime standard interface programs.

Process network

The process network is used for communication between the I/O units (Distributed Processing Units) in the process area. Segregation of the automation system is provided by setting up autonomous segments of local systems using a number of different Distributed Processing Units (DPUs). Such local systems can be valve control, pump control, power management, propulsion control, cargo control etc. The Segment Controller Unit (SCU) is used as the gateway to the OS for the various segments to which the DPUs are connected.

A redundant Controller Area Network (CAN) bus is employed for communication between the DPUs in the process area. The CAN segments are compliant with the CANopen framework for maritime electronics (CiA® 307). Communication between the SCUs is employed either using the CANopen standard or using Ethernet Powerlink (EPL). Powerlink is a communication profile for Real-Time Ethernet (RTE). It extends Ethernet according to the IEEE 802.3 standard with mechanisms to transfer data with predictable timing and precise synchronisation.

The Watch Calling system is controlled directly from Operator Stations through a separate CAN bus.

Serial lines

Serial lines are used for communication from DPUs to third party systems. The type of serial line to be used in the system depends on the application, but the RS-422 and RS-485 standards are all commonly used, with a large number of different protocols. The Modbus TCP/IP interface can also be used.

All network traffic is monitored from all Operator Stations. Statistics are displayed, and alarms are issued if network interfaces are not functioning.

Power

The K-Chief 600 system normally requires 230 VAC power supply for Operator Stations and 24 VDC power supply for Distributed Processing Units.

Uninterruptible Power Supplies (UPS) are used to protect Operator Stations and DPUs from problems associated with utility power, poor quality, or a complete loss of power. The UPS is then used to maintain a constant voltage, and if needed, isolate the output to the critical load. These actions help to keep power line problems from reaching the critical systems, where they can damage both hardware and software, causing the equipment to operate erratically.

In a situation where the incoming main power is completely cut off, the energy stored in the UPS continue to provide power. A 30 minutes back-up is normally sufficient to keep the system operational until power is restored. This is also normally a requirement from the classification societies.

All 24 VDC UPSes have earth fault detection, and any detected earth fault is given as a common alarm to the operator.

Integration and interfaces

Modular design allows flexibility in configuring the system to individual requirements, covering the whole range from low complexity alarm systems to highly integrated alarm and monitoring systems with advanced process control. Sub-systems can include all or any combination of the following:

- Alarm and monitoring system
- Auxiliary control system
- Power management system
- Cargo control system
- Propulsion control
- Ballast automation system
- Vessel performance system
- HVAC (air conditioning)
- Anti-heeling
- Reefer monitoring
- Fire system
- Main Engine monitoring system

Note

This manual only describes the K-Chief 600 when used as an alarm and monitoring system.

The K-Chief 600 system can be used as a stand-alone system, but it may also be interfaced with other systems. The following list shows examples of systems.

- K-Gauge – The K-Gauge is a cargo monitoring and control system which is a highly integrated system incorporating level gauging, temperature and pressure monitoring, valve and pump control.
- K-log – The K-Log Electronic Logbooks are designed to replace the traditional paper logbooks. K-Log supports event based recording of data related to navigation, engine watch, port calls and other operational activities.
- Auto Chief C20® – The Auto Chief C20 is a propulsion control system which can be adapted to various engines.
- Main Engine monitoring system – The ME monitoring system monitoring the conditions of Main Engine; Bearing Wear alarm handling, Cylinder Liner temperature and detections of scuffing of piston wall, main bearing temperature, cross-head bearing and crank bearing temperature, torque measurements, Water In Oil Detection. The Main Engine monitoring is under constant development to meet the modern requirements of such a system.
- Ship@Web – The Ship@Web system enables continuous access to primary vessel data both on board the vessel and from ashore.
- Voyage Data Recorder – The main purpose of our Voyage Data Recorder (VDR) the Maritime Black Box MBB® is to record and store relevant ship data and allow reconstruction of ship incidents at sea.
- External VDR
- Serial interface to external systems – for instance a fire system or a level gauging system.

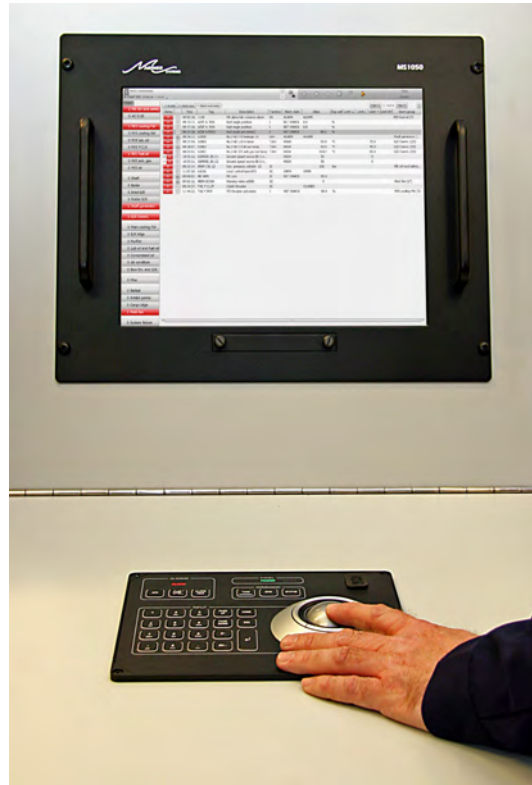
Main building blocks

Operator Stations

The K-Chief 600 system is operated through a number of Operator Stations. These are normally located in the Engine Control Room. Additional stations may be located in the Wheelhouse, Cargo Control Room, Damage Control Room, Ship's Office or in other parts of the vessel. Operator Stations can be installed in a number of different ways, for example in a standard Kongsberg Maritime console or as separate units for desktop operation.

The standard K-Chief 600 Operator Station environment consists of the following main units:

- A Windows™ based personal computer (PC)
- One or two colour monitors for presentation of information
- A Control Room Panel (CRP) - a K-Chief 600 specific operator panel
- An optional Touch Screen Panel (TCP)
- Other optional operator panels
- Optional printers



Computer (PC)

The K-Chief 600 computer is an industrial small form factor PC. Due to its space-saving design, the size of the chassis is only two-thirds the size of an average desktop PC.

The PC is type-approved by all major Classification Societies when it is installed in conjunction with our mariner kit for horizontal or vertical mounting.

Monitors

The colour monitor is used to display the operator images of the K-Chief 600 system. It uses thin film transistor (TFT) liquid crystal display (LCD) technology to ensure high image quality. The monitors are commercial off-the-shelf, but are all type-approved for maritime use. Monitors are available both in standard and in wide screen formats, with screen sizes ranging from 19" to 27". The monitors can be delivered with kits for installation into a console, on the wall or for desktop mounting.

Operator panels

The Operator Panels are used to interact with the images on the Operator Station's colour monitor, hence controlling the processes. Such a process could be to display a new image or to act upon an element within an image. The layout of the buttons, lamps and controls on the Operator Panel is dependent on the panel type. The panels are designed for various methods of installation, but are primarily intended for mounting into a console.

There are four different panels available:

Control Room Panel (CRP)

The CRP is a specially designed operator panel for easy access and operation of the K-Chief 600 system.

Operational processes are performed using the mechanical trackball and its associated buttons to point at and click symbols and menus on the colour monitor.

The CRP is used in well-lit environments, for example in the Engine Control Room, and therefore has no background lighting.



Touch Control Panel (TCP)

The TCP holds an 8 inch LCD touch panel. Interaction with process images displayed on the colour monitor is performed by activating thumbnails on the TCP.



Input Panel (INP)

This panel is the Input section of the CRP, and contains functional, numeric, alphanumeric and cursor control buttons.



Tracker ball panel (TBP)

Tracker ball mouse controller. It contains Acknowledge and sound off dedicated buttons and two USB ports in the front panel.



Touch pad panel (TPP)

Touch pad mouse controller. It contains Acknowledge and sound off dedicated buttons and two USB ports in the front panel.



Alarm & Control Panel (ALC)

This panel contains the Alarms, Command and Panel sections of the CRP, and contains status lamps and buttons for alarm handling and command control.



Local operator station (LOS)

Local operator panel is a multipurpose operator panel designed to control limited areas of the process. It provides control and may handle limited alarm handling.

Operator panel uses 8" or 13.3" colour graphical touch display. Typically used for thruster control systems and other project specific applications.



OS Lite

OS Lite touch panel is a multipurpose operator panel designed to be placed in various locations on the ship. It provides alarm handling, process control and power management.

Operation is performed on a high resolution 13.3" colour graphical touch display. For small segregated alarm systems it can be the only operator panel. The Touch panel may be configured to present the data in form of tabular views, mimics and trends. Logging functionality is limited compare to full Operator station. OS Lite stores all values used for trending for 24 hours, digital events and alarm events are stored for 30 days. Older data are automatically overridden

The OS Lite touch panel gives the operator the possibility to:

- Monitor the status of any object, from a single input signal to a controllable object
- Handle process and system alarms, through visual and audible signals
- Control processes using the touch screen and graphical feedback
- Handle command control transfer
- Control Watch calling and extended alarm system



Watch Calling Panels

The Watch Calling system is an extended alarm system for vessels. The system monitors the cargo and the engine machinery alarms. Through this system, it is possible to keep the engine control room unmanned during normal operation, in accordance with classification societies' requirements.

Dedicated alarm panels, which may be located in various places throughout the vessel, display the alarms and information about the alarm conditions. The Watch Calling system is made up from a number of self-contained wall-mounted watch call panels, installed at selected locations on the vessel.



All Distributed Processing Unit types have been qualified according to the latest revision of the IACS E10 test procedure, satisfying the requirements for placement in the most demanding locations. All Distributed Processing Units can be mounted directly on diesel engines or similar locations without shock absorbers. Only Ingress Protection (IP) may be needed.

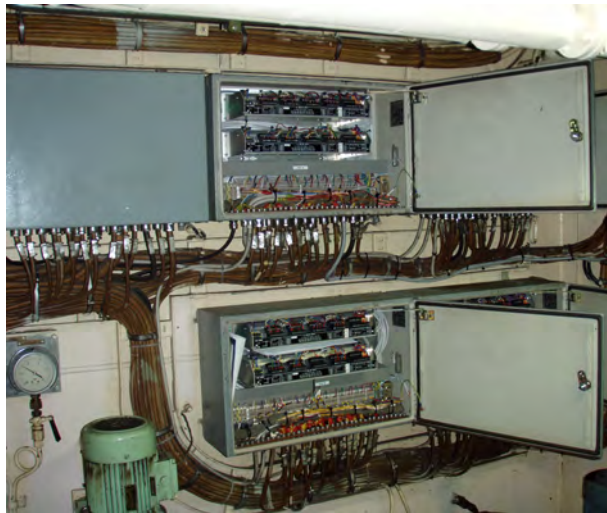
The Distributed Processing Units are CE marked as required for some European Union flagstate vessels. They also meet the requirements to use the “Wheel Mark” defined by the European Union Maritime Directive (EMD), satisfying all the new Electromagnetic Compatibility (EMC) requirements.

Cabinets

Kongsberg's DPU cabinets are designed to contain the I/O modules of the automation system. The cabinet is built up in a modular way so it may be extended at any time, making a flexible system. DPU cabinets are built to IP 44 enclosure protection.

A DPU cabinet may contain the following:

- I/O modules (from 2 to 16 DPUs)
- Power supplies
- Field cable entry
- Protective earth (PE) bar
- Ventilation
- Local Operator Station



Consoles

To create a professional and efficient work environment, Kongsberg has designed a set of standard consoles for operator equipment.

These consoles can be combined in a variety of ways to meet individual console requirements in the Engine Control Room, Cargo Control Room or on the Bridge.



HMI description

Overview

This chapter gives an overview of the K-Chief 600 HMI elements: colours, symbols, lines, fonts etc.

Topics

- *HMI design principles* on page 28
- *Palettes* on page 29
- *Alarms and warning colours* on page 30
- *Standard media colours* on page 30
- *Basic operational state colours* on page 31
- *Fonts* on page 31
- *Pipelines* on page 31
- *Controls* on page 32
- *Cursors* on page 33
- *Dynamic mimic symbols* on page 34
- *Static mimic symbols* on page 37

HMI design principles

The importance of the information is reflected in the use of visual effects such as colour, size, contrasts, etc. Important information should catch the eye compared to less important information, and elements that doesn't have critical importance have a toned down appearance.

Visual priority of the graphical elements has following priority

- 1 Alarms
- 2 Measurement values and other dynamical information including transition states
- 3 Abnormal situation information, e.g. equipment faults, alarm disabling, missing data
- 4 Process lines and equipment, and also system control elements
- 5 Static symbols such as vessel shapes

- 6 Control lines and information, general labels and text
- 7 General background graphics

Palettes

To accommodate for different light conditions in the operator's work space, the graphics on the screen can be viewed using one of the pre-defined colour palettes. The operator can select one of the following palettes:

- Day palette with light gray background colour (RGB: 239,239,239)
- Dusk palette with dark gray background colour (RGB: 34,34,34)
- Night palette with black background colour (RGB: 0,0,0)

The selected palette affects all elements on the screen, as operator dialogues, static and dynamic objects, buttons, cursors, etc.

Figure 3 Day palette

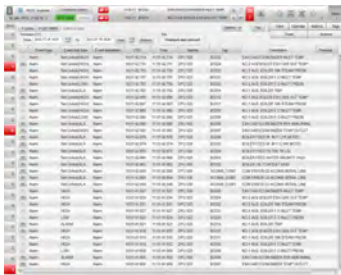


Figure 4 Dusk palette

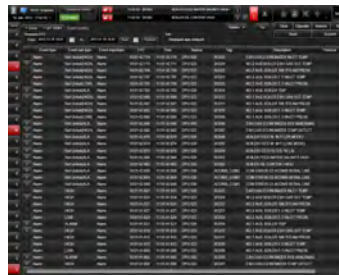
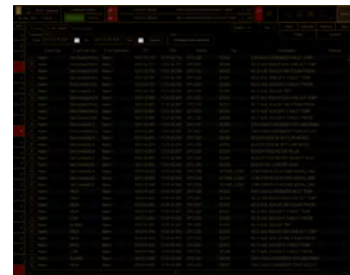


Figure 5 Night palette



The palette is set by selecting **Menu**→**View**.

This sub-menu also gives the operator the option to synchronize the current palette setting with palettes of other Operator Stations. It is also possible to adjust brightness and contrast for each palette.

Alarms and warning colours

Alarm colours are restricted and generally shall not be used for other purpose then indicating alarm states. Alarm colours cannot be customized. See symbol in invalid having pink background.

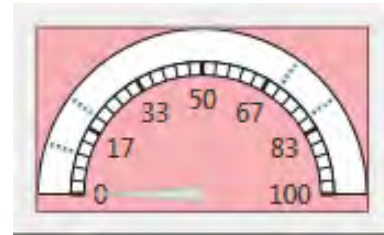












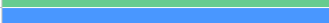
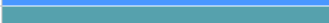





















Table 1 Standard alarm and warning colours

Description	Colour
Emergency Alarm	
Alarm	
Warning	
Value overridden	
Missing data, invalid data	

Standard media colours




Media colours are used to colour pipelines, bargraphs , gauges and other media related values and symbols. More colours may be used for Cargo applications (project specific).

Colour name	Colour
Compressed air (air1)	
Air2	
Air3	
Chemicals1	
Chemicals2	
Chemicals3	
Seawater	
Freshwater	
Treated water	
LT Freshwater	
HT Freshwater	
Sewage	
Grey water	
Bilge (water3)	
Steam (water4)	
ElectricalSystems11kV	
ElectricalSystems690V	
ElectricalSystems400_230V	
ElectricalSystems	
Inert gas (gas1)	
Gas 2	
Gas 3	
Thermal oil	
Crude oil.	
LubOil (oil1)	
Diesel oil (oil2)	
Heavy fuel oil (oil3).	
Fuel oil (oil4)	

Basic operational state colours

State colours are standardized for all symbols and objects in the K-Chief 600. State colours cannot be customized.

Table 2 Standard operational state colours

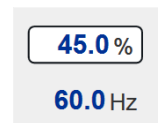
Description	Colour behaviour	Colour
Running / Opened / Active	Steady green	
Stopped / Closed / Inactive	Steady grey	
Intermediate / Starting, Stopping / Opening, Closing	Flashing green — grey	

Examples of using operational states

Fonts

K-chief 600 uses two font types:

- Arial Narrow — size 14 used in all tabular views
- Arial — sizes from 12 to 80 , default font size is 14



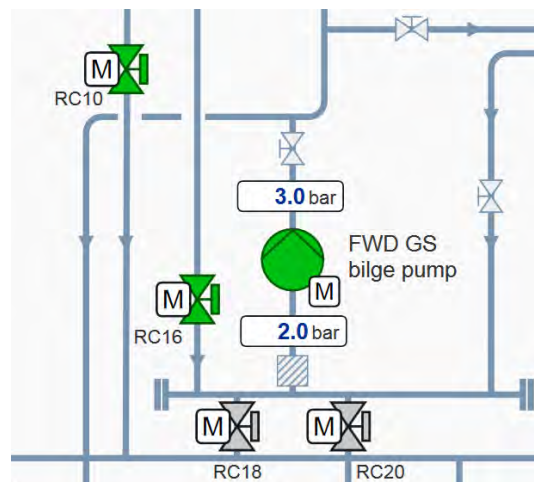
Static texts are drawn with black or grey font colours (in day palette) . All dynamic values are presented with dark blue font colour , corresponding units are drawn with dark grey font . Special texts may have other font colours.

Pipelines

Pipelines are drawn on the mimic by means of continuous lines. Pipelines are drawn with default thickness = 4. Corner rounding of 10 pixels is used for all pipelines. Colour of the pipelines represents media colour.

There are two basic types of pipelines.

- Static pipelines — drawn as static lines in specific colour
- Dynamic pipelines — line can change colour dynamically between two predefined colours. One passive colour (typically grey) and one active colour (typically media colour).

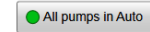


Controls

The K-Chief 600 system uses standard Windows™ control functionality to display and edit objects and commands. The most common controls employed are briefly described in the following section.

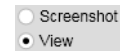
Command buttons

Command buttons are used to let the operator initiate an immediate action. They can be located in the top bar, operation dialogues (popups) assigned to every controlled object, or permanently visible on the mimic. Some buttons may have LED indicating feedback of command sent.



Radio buttons

Radio buttons are used to let the operator make a choice among a set of mutually exclusive, related choices. It is possible to select one and only one option.



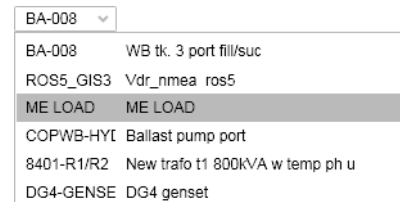
Check boxes

Check boxes are used to let the operator make a decision between two opposite choices, as to toggle an option on/off or to select/deselect an item. The check box label indicates the selected state.



Drop-down lists

Drop-down lists are used to let the operator make a choice among a list of mutually exclusive values. It is possible to select one and only one option.



Text boxes

Text boxes are used to let the operator enter or edit a text or numeric value.



Sliders














Sliders are used to let the operator choose from a continuous range of values. A slider has a bar that shows the range and an indicator that shows the current value.



Cursors

Cursors are used to show the current position of the computer mouse on the screen. The cursor icon changes shape depending on the position on the screen and the user input available. How and when to use the different cursor icons are defined by the following table. Note that this table only shows icons as they appear when using the day palette.

Table 3 Cursor icons

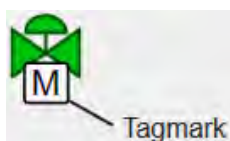
Screen position	Action	Icon
Used everywhere (if nothing else is specified).	Pointing, selecting or moving.	
Over objects where clickable action is unavailable.	None.	
Over any object or position (where nothing else is specified) The hands on the clock are animated.	Processing in the background (application loading), but the pointer is still active.	
Over any object or location. The hands on the clock are animated.	Processing an operation (when no other actions are available before processing is complete).	
Over any object in the view (indicating available clickable action). This is not used for the menu, the top bar and alarm handling.	Executing a command.	
Over any hot-spots in the view.	Executing a command.	
Over views that require precise operation.	Pointing, selecting or moving.	
Over any position in views where dropping an object is available.	Clicking a “drag-and-drop” object once attaches the object to the cursor (indicated by the + symbol).	
Over any object or position in views that require precise operation. The hands on the clock are animated.	Processing in the background (application loading), but the pointer is still active.	
Over any position where text can be selected and possibly edited.	Selecting text or positioning the cursor to where one wants to begin typing (if typing is allowed).	
Over bottom border of resizable elements.	Resizing elements vertically.	
Over side border of resizable elements.	Resizing elements horizontally.	
Over corners of resizable elements.	Resizing elements diagonally.	

Dynamic mimic symbols

Dynamic symbols are primary used for state indication and user interaction with process items.

Tagmarks

Dynamic symbols are distinguished by tag mark indicating current mode. Symbols without tagmark indicate feedback only and cannot be controlled.



Following modes can be indicated.

- A** Auto mode. Object controlled automatically by K-Chief 600.
- M** Manual mode. Object can be controlled by K-Chief 600 operator. Click the symbol to change operational state.
- L** Local mode. Object cannot be controlled by K-Chief 600.
- B** Blocked mode. Object has been blocked.
- S** Shutdown mode.
- T** Trip . Object has been tripped.

Dynamic symbols

Table 4 Dynamic mimic symbols

Name	Description	Symbol
Buttons	Various type of specialized buttons used to execute commands, operate timers, hotspots etc.	
Dynamic text	Symbol may indicate various process state as text changing colour dynamically.	
Value	Displays analogue value. May contain the bar graph with alarm limits indication.	
Spot	Spot indicates status of the process signals. It may also indicate alarm states. Spot may have circle or rectangle shape.	
Digital valve	Digital two way and three way valves	
Analogue valve	Analogue to way and three way valves	

Table 4 Dynamic mimic symbols (cont'd.)


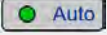






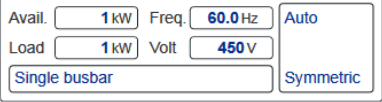


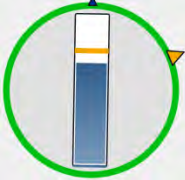
Name	Description	Symbol
Pump	One way and two way pumps. Symbol may indicate pump running in low speed “L” or high speed “H”.	
Standby handler	Used to control Master-Standby logic for multiple pump, compressor or fan systems.	
Fan or compressor	One way and two way fans/compressors. Symbol may indicate compressor running in low speed “L” or high speed “H”.	
Generator	Outer ring indicates diesel motor running. Inner ring indicates generator running. Symbol may have additional info label.	
Motor	Indicates running state of the motor	
Thruster	Indicates running state of the bow thruster	
Breaker	Symbol for synchronized and auxiliary breakers.	
Clutch	Clutch symbol indicates open and closed state of the clutch	
MSB controller	Main switchboard controller symbol indicate bus bar basic settings and measured values.	
Damper	Damper symbols indicates damper position.	
Tunnel Thruster	Feedback indicated by bargraph, setpoint value indicated by orange marker. Orange arrow indicate thrust. Running state shown by green border. Additional states may be indicated by text label across the symbol.	
Azimuth Thruster	Feedback and azimuth indicated by bargraph value and angle. Thrust setpoint indicated by orange marker, azimuth setpoint indicated by orange arrow. Running state shown by green border. Additional states may be indicated by text label across the symbol.	

Table 4 Dynamic mimic symbols (cont'd.)


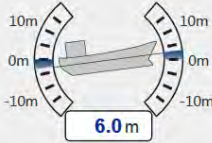






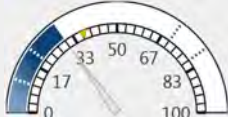
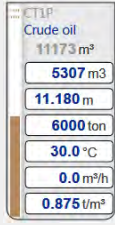



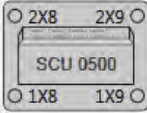
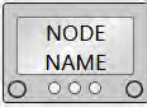


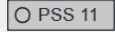
Name	Description	Symbol
Bargraph	Bargraph indicates graphically relative value. It may show alarm limits. The fill colour can be adopted to specific media colour.	
Trim	Symbol tilts to indicate trim value. Manual trim value may be adjusted on this symbol (project dependent).	
List	Symbol tilts based on list value in degrees. Tilted element may have a shape of ship or rig.	
Draft	Symbol can display from 1 to 4 draft measuring points.	
PID controller	PID controller indicates On/Off status and setpoint value.	
Wind	Wind symbol indicate wind speed and direction	
Heading and rate of turn	Symbol shows the heading from gyro and animated trails length show rate of turn direction	
Mini trend	Symbol used to indicate process values (typically feedback and setpoint). Single plot or two plots, adjustable scale up to 6 hours. Auto scale function. Symbol can be enlarged to provide higher resolution of the plots.	
Gauge	Gauge symbol displays value, setpoint and alarm limits.	

Table 4 Dynamic mimic symbols (cont'd.)

Name	Description	Symbol
Tank	Tank symbol displays basic tank parameters, detailed info can be displayed using popup extension.	
Rudder	Displays rudder angle	
Fire and gas symbols	Set of symbols used to indicate alarms on Fire and gas mimic: Smoke detector, smoke detector duct mounted, gas detector, gas detector H2S, heat detector, flame detector, manual call point, audible alarm unit, fire door and fire dampers.	
DPU	Symbol represents the DPU module. Shows DPU type and node id. Two spots show CAN communication alarms.	
SCU	Symbol represents segment controller SCU. Spots indicate alarms.	
LCP-8	Symbol for local control panel LCP-8	
GB200	Symbol indicates communication alarm for GB200 signal processing unit	
GN-14	Symbol indicates communication alarm for GN-14 interface unit	
PS11	Symbol indicates alarm for PS11 sensor	

Static mimic symbols

Static symbols do not change colour or shape based on process events. Colour can be customized by project. Symbol are static, visible at all time.

Table below contains a list of basic static symbols, special, project specific symbols are not listed here.

Static symbols

Table 5 Static mimic symbols












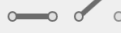



Name	Description	Symbol
Lines	Lines can have different colour, weight and style, line corner rounding can be customized from 0 to 20 pixels in radius	
Shapes	Basic shapes: rectangle, ellipse, arc. Shapes can have customized corner rounding. Fill and border colours can be customized by project.	
Manual valve	Valves can be two directional or non-return.	
3 way valve	3 way valve symbols.	
Angle hand valve	Valves can be two directional or non-return.	
Angle valve	Valves can be two directional or non-return.	
Quick closing valve	Quick closing valve symbol	
Quick closing angle valve	Valves can be two directional or non-return.	
Safety valve	Safety valve symbol	
Pump	Static pump symbol	
Hand pump	Static hand pump symbol	
Breaker	Static breakers in closed and opened state	
Ejector	Ejector symbol	

Table 5 Static mimic symbols (cont'd.)

Name	Description	Symbol
Flow meter	Flow meter symbol	
Viscosity meter	Viscosity meter symbol	

User interface

Overview

This chapter gives an overview of the K-Chief 600 system's graphical user interface, including its features, requirements and options.

Topics

- *Screen layout* on page 40
- *Top bar* on page 51
- *Alarm side bar functionality* on page 59
- *Tabular views* on page 63
- *Process views* on page 81
- *Trend views* on page 85
- *Custom views* on page 91
- *Operator dialogues, parameters* on page 95
- *Operator dialogues, Command Control system* on page 102
- *Operator dialogues, Watch Call system* on page 107
- *System tools* on page 112

Screen layout

Main sections

The human machine interface is an important feature. It enables efficient and safe operation of the system by helping the operator to make optimal operational decisions. During normal operation, this reduces the risk of human errors. Emphasis has been placed on logical operation, effective presentation of relevant information and user-friendliness.

The K-Chief 600 user interface is carefully designed to support the operator in his daily routine. At the same time the system provides efficiency for the advanced user, and it is easy to learn for the novice operator.

The screen is composed of the following main sections:

- Top bar
- Alarm side bar
- View area, displaying a combination of:
 - Process views
 - Tabular views
 - Custom views
 - Trend views
 - Favourites view
 - Home view
- Navigation line
- Operator dialogues

Figure 6 K-Chief 600 main sections



Alarm side bar

The main objective of the alarm side bar is to provide easy access to all active alarms in the system. Both acknowledged and unacknowledged alarms are included.


The alarm side bar is described in detail in a dedicated chapter; see *Alarm side bar functionality* on page 59.

Top bar and Active alarms view buttons

Different colours are used on alarms to visually indicate alarm importance. The use of colours is defined in the following sections.

Alarms


 High priority alarms are represented by magenta coloured buttons .

 Normal priority alarms are represented by red coloured buttons .

Warnings




 Normal priority warnings are represented by yellow coloured buttons .

 Low priority warnings (Info) are represented by light yellow coloured buttons.

 — Alarm responsibility in another location

Alarm and warning status

Additional information is added to the alarm and warning buttons to show alarm status as described here based on Normal alarm priority button. Same scheme apply for all Alarm and Warning buttons:

-  Flashing colour: Alarm or warning not acknowledged .
-  Steady colour with check mark: Alarm or warning acknowledged .
-  Flashing colour with return arrow: Alarm or warning returned .

Character information

Character information on buttons is also used to accommodate for colour blind operators, as follows:

- A = Alarm
- E = Emergency
- W = Warning
- I = Information message

Alarm group buttons

Different colours are used on alarms to visually distinguish between the alarm states. The use of colours are defined in the following section.

Alarms

High priority alarms

- Steady magenta colour: All alarms are acknowledged, but at least one alarm is an emergency alarm.
- Flashing magenta colour: At least one unacknowledged alarm is an emergency alarm.

Normal priority alarms

- Steady red colour: All active alarms are acknowledged.
- Flashing red colour: At least one active alarm is not acknowledged.

Warnings

Normal priority warnings

- Steady yellow colour: No active alarms in the group. All warnings in the group are acknowledged.
- Flashing yellow colour: No active alarms in the group. At least one active warning is not acknowledged.

Low priority warnings (Info)

- Steady light yellow colour: No active alarms or warnings in the group. All Infos in the group are acknowledged.
- Flashing light yellow colour: No active alarms or warnings in the group. At least one active Info is not acknowledged.

No alarms or warnings





No alarms or warnings at present location

- Steady grey colour: Alarm group with no alarms or warnings, or the responsibility for acknowledge alarms is at another location.

Priority order

The colour of the alarm group represents the highest priority or alarms and warnings in the group.

The priority of alarms and warnings with corresponding colours are as follows:

- 1  Emergency alarm
- 2  Alarm
- 3  Warning
- 4  Info

Navigation line

The K-Chief 600 system uses an interactive title line for view navigation. All views are available from this view navigator, and therefore constitutes the main navigation interface to the system's process and tabular views.

The view title will always be displayed preceded by a trail showing the location of the view in the view hierarchy.

Each element in the trail can be clicked to provide a pull-down menu for view navigation. This gives the operator easy access to all views in the system.

The main benefit of this view navigation concept is to give the operator quick access to all views at all levels. The navigation line will also help the operator to remember the system structure.

Figure 7 Navigation line with four levels



Figure 8 Navigation line with view navigation menu opened from 2nd level



Figure 9 Navigation line with view navigation menu opened from 3rd level



Tabular views

A tabular view is a list view which displays system values in a table format with multiple rows and columns. Tabular views are used for displaying and interacting with data. Each view consist of a defined group of data from system tags and modules, as for example alarm status and alarm limits.

The tabular views are described in detail in a dedicated chapter; see *Tabular views* on page 63.

Process views

A process view is the working area for a particular system application. It presents the signal flow between every unit being part of the system. System units and parameters can both be monitored and controlled from the process view.

Which process views are available is dependent on the system delivery. Typical processes are cargo control, ballast control and power management.

The process views are described in detail in a dedicated chapter; see *Process views* on page 81.

Custom views

A custom view allows the operator to customize a local working area with his personal preferred alarm parameters. Up to ten custom views can be populated by the operator.

The custom views are described in detail in a dedicated chapter; see *Custom views* on page 91.

Trend views

A trend view is used to display recorded and present data for selected alarm parameters. Trend data is logged for a 7 days period.

The trend views are described in detail in a dedicated chapter; see *Trend views* on page 85.

Favourites bar

Some process views are used over and over again. To increase operator efficiency, up to nine such views can be set as favourite views by the operator. Each favourite view is assigned a number from 1 to 9.

The **Favourites** bar is located at the bottom of the screen. This bar appears when the cursor hits the bottom of the screen or if the operator presses the **0** (zero) number button on the Control Room Panel.

Figure 10 Favourites bar



Home view

The **Home** view is used to give the operator direct access to the complete contents of the K-Chief 600 system. It is generated from the actual ship configuration and gives an overview of all integrated systems.

Direct access to the **Home** is possible in two ways:


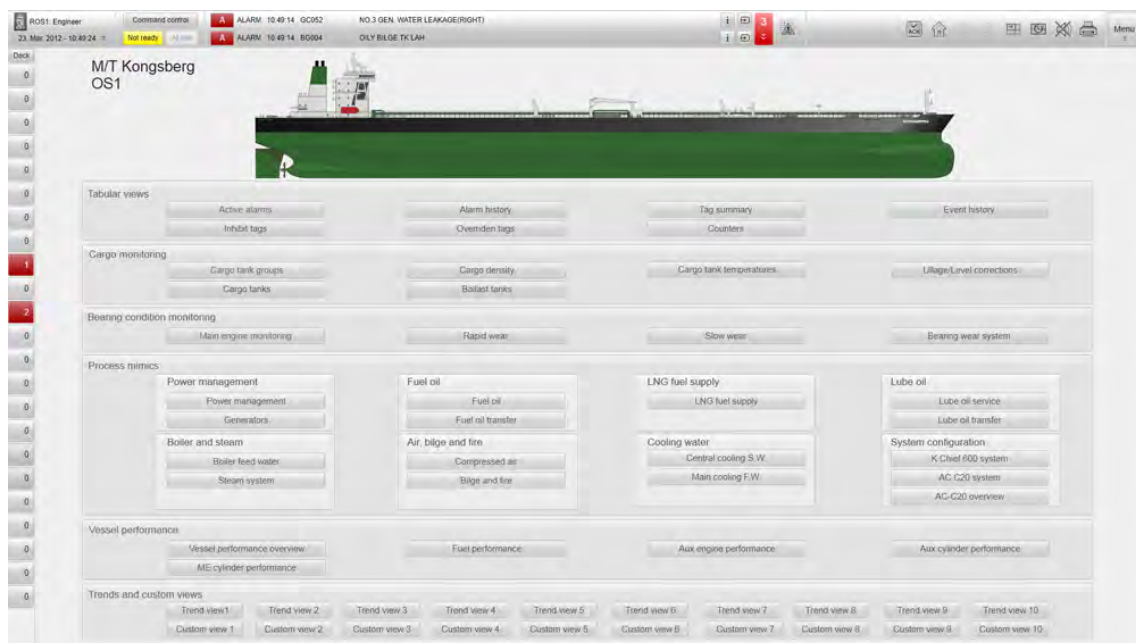
- By pressing the **Home** button on the Control Room Panel.
- By clicking the **Home** button on the top bar. 

Figure 11 Home view



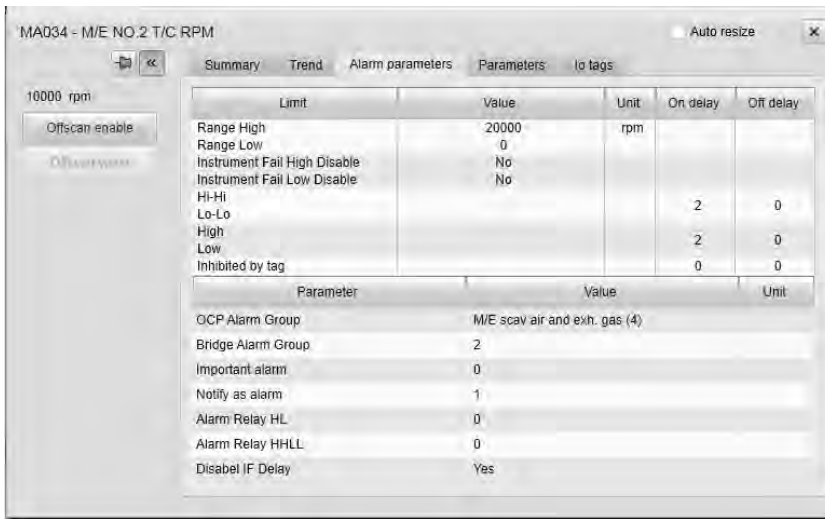
The **Home** view is dynamically resized depending on the amount of process views and alarm groups in the system, and also on whether the alarm side bar is pinned or not. The view will auto-adjust to the screen size.

Operator dialogues

Operator dialogues are displayed in secondary windows on the screen. They serve two main purposes:

- To display information to the operator
- To get operator response if needed

Figure 12 Operator dialogue



The operator dialogues are described in detail in a dedicated chapter; see *Operator dialogues, parameters* on page 95.

Zoom

To focus on details, it is possible to zoom in or out in the process views. The zoom control is activated by checking the **Zoom** check box below the **Menu** button.

Zoom



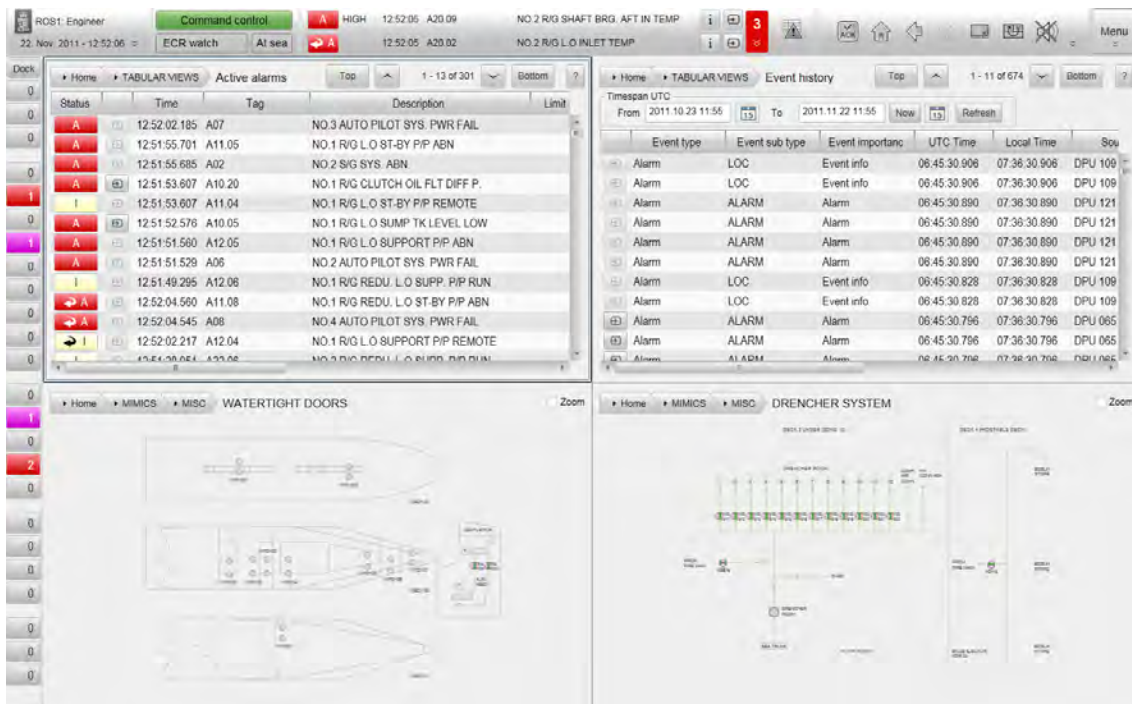
This opens the **Zoom control** slider where the operator can select the requested level of detail.

The view is reset to its original size by unchecking the **Zoom** check box.

Multiple views

Some users might find it useful to be able to split the screen into multiple views. The K-Chief 600 system therefore allows the operator to toggle between full screen and split screen. Using split screen allows for simultaneous presentation of four related process and tabular views. The operator can configure these views to give both overview and detailed views to support the operation being carried out.

Figure 13 K-Chief 600 split screen



The operator can toggle between full screen and split screen layout using the dedicated split screen button on the top bar. When in split screen mode, double-clicking on the header area (to the right of the navigation line) opens the selected view in full screen.

 Split screen button

 Full screen button:

When in split screen mode, the size of each view can be resized horizontally and vertically by using the mouse to drag the border lines on the view to the desired position. Adjacent views are resized accordingly. It is not possible to resize outside the view boundaries.

Appearance of views during resizing

- Turn to full view: Double clicking one of the views in split screen mode in the header area will turn the mode to full screen with the selected view in full size.

If the user clicks the full screen icon in the top bar, the active view will be displayed in full screen mode.


- Turn to split view: If the user clicks the split screen icon in the top bar, the current view is transferred to the active view in the split screen.

The three inactive views will keep the most recent views displayed in these views.


Swap views

When in split screen mode, clicking the **Swap view** button toggles between the active views.

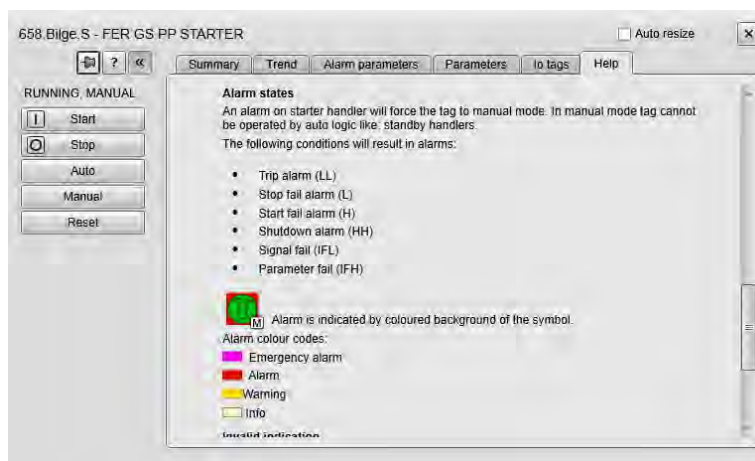
When in full screen mode, clicking **Swap view** button toggles between the four views predefined in split screen mode.

 Swap view button

Context-sensitive help

In the K-Chief 600 context based help file are available for following items. Help can be accessed by pressing help button 

- Tabular views
- Operator dialogues for control tags



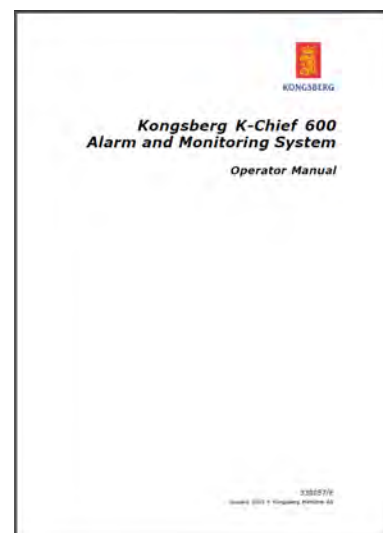
Operator manual online

In addition to the context-sensitive help, the operator has direct access to the K-Chief 600 Operator Manual.

This manual is accessed from the top bar by selecting **Menu**→**System**→**Document Viewer**.

The following view is opened, where it is possible to search for any topic.

Note that it is also possible to use the **Document Viewer** to access other manuals or reports.



Interface with the Control Room Panel

Every K-Chief 600 operational task can be performed using the Control Room Panel.

Every function can be accessed using the CRP trackball to control the cursor on the screen.

For efficient operation a number of short-cut functions are available using dedicated buttons on the CRP. These button actions are described in detail in a dedicated chapter.

See also *Control Room Panel (CRP)* on page 128.

Interface with the Touch Control Panel

The main functions of the Touch Control Panel are:

- Navigation to the process or tabular views
- Sound off and acknowledge (depending on hardware version of panel)
- Access to favourites
- On-screen keyboard

The principal layout of the TCP is built on tabular form on the top with a button section on the left hand side. All operator interaction is performed by touch control of the TCP screen elements. These elements are described in detail in a dedicated chapter.

See also *Touch Control Panel (TCP)* on page 132.

Interface with the Touch pad panel

Touch pad panel replaces tracker ball for mouse operations. Touch pad panel contains touch area and two buttons (left and right click). It has also dedicated sound off and acknowledge button and USB port.

See also: *Touch pad panel (TPP)* on page 136

Top bar

Top bar is the HMI component which is always visible. Cannot be hidden by any object, popup dialogue etc. The main objective of the top bar is to provide full control of the system at all time. From top bar the user has direct access to alarm messages, system status, interactive tools and other important system functions.

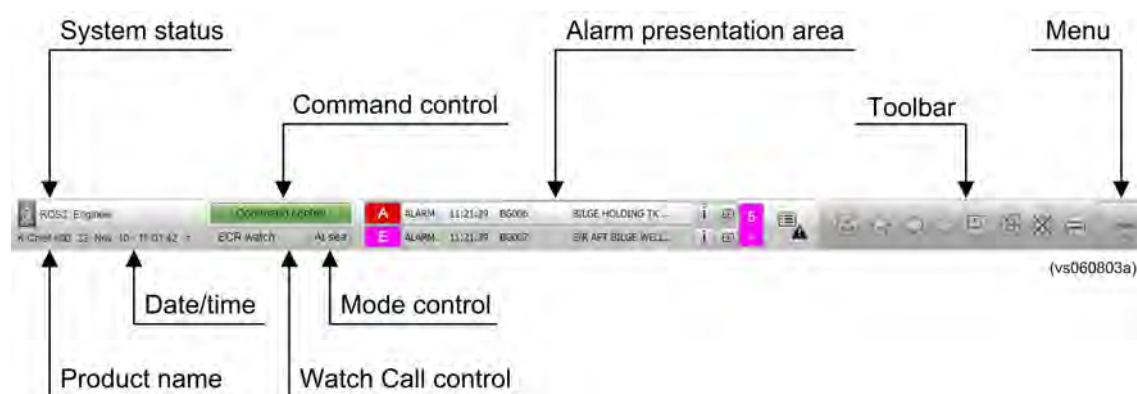
Topics

- *Top bar layout* on page 51
- *Alarm information and handling* on page 52
- *Toolbar compartment layout* on page 55
- *Menu button and menu structure* on page 56
- *Command Control button* on page 58
- *Watch Call control button* on page 58
- *Operational modes control button* on page 58

Top bar layout

The two most recent unacknowledged alarms are always shown in the top bar. A single click in the top bar provides an extended list of unacknowledged alarms in the system.

Figure 14 Top bar layout



The top bar and alarm lines are always visible.

The product name, date and time are displayed in the lower left corner of the top bar.

The system status area can be expanded by clicking the chevron button. 



The system status area will change background colour if system faults are detected.

- Yellow – OS in service mode. User logged on as Kongsberg or silent mode activated.
- Red – Critical software system fail in the OS.

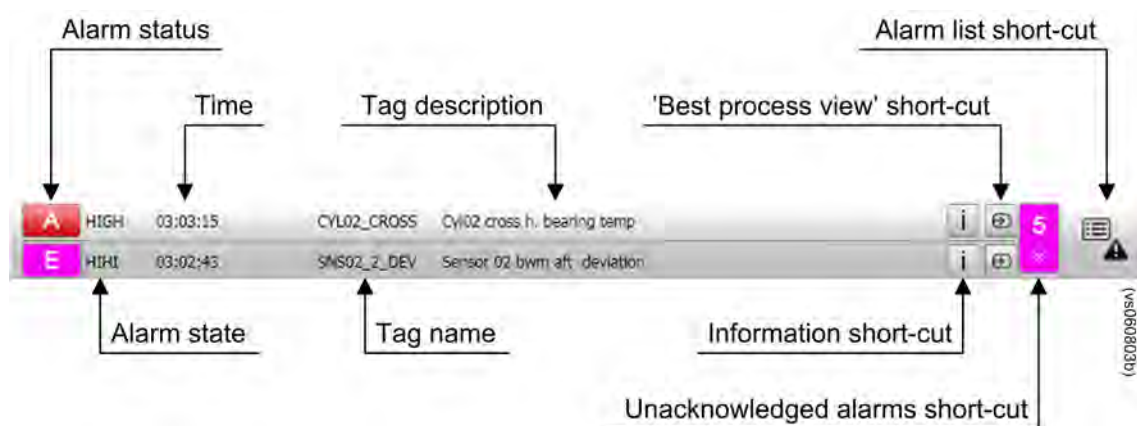
Alarm information and handling

Alarm handling compartment

The alarm handling compartment in the top bar contains the following:

- Two alarm lines for the newest alarms
- A short-cut icon for unacknowledged alarms – showing the number of active unacknowledged alarms in a list
- An alarm summary icon – showing the expanded alarm summary list view

Figure 15 Top bar alarm handling compartment



Alarm status

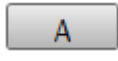
The **Alarm status** button shows the importance of the alarm. This is indicated by the colour of the button. Note that the button will always be flashing, as only unacknowledged alarms are presented.

 Emergency alarm,

 Alarm,

 Warning,

 Info,

 Alarm responsibility in another location

The alarm state is also displayed (high/low etc.). The alarms in the top bar are time-stamped, but date is not given, as these are running alarms.

Information short-cut function

Alarm information is presented in a pop-up window by clicking the **Information short-cut** button.



This may contain the following information:

- Description of alarm (field, software, system alarm, system failure)
- Tag name
- Tag description
- Other information

Figure 16 Alarm information pop-up window



Process view short-cut function

The alarm presentation includes a short-cut for direct access to the process view containing the tag (if tag value is shown on process view).



Unacknowledged alarms short-cut function

If there are more than two unacknowledged alarms in the list, the latest alarm is shown in an extension view. The alarms are sorted by time with the newest alarm on top of the list.


The number on the alarm button indicates the total number of unacknowledged alarms in the system.



The colour of the button is the colour of the most important unacknowledged alarm in the system at the present time.

Expanded unacknowledged alarms list view

The expanded **Unacknowledged alarms** view is displayed when clicking on the

Alarm short-cut button. . The colour of the button represents most important unacknowledged alarm in the system at the present time.

Dropdown list displays 10 last unacknowledged alarms . Scroll bar to be used to view older unacknowledged alarms.

Figure 17 Expanded unacknowledged alarms list view



Alarm acknowledge

Every alarm in the system must be manually acknowledge by the operator. All alarm related events are logged in the event system and available for viewing in Alarm History . K-Chief 600 OS logs all events for 5 years. OS Lite on touch devices logs all events for 30 days.

There is protection against acknowledging alarm which appears shortly before user press ack button. In such scenario user might not notice alarm before pressing ACK button. To protect against this , only alarms present in the system for more than 1 second can be acknowledged.

Alarms can be acknowledged in several ways. The most common methods are:

- Pressing the **ACK** button on the CRP. This acknowledges all alarms visible in the alarm compartment or in the **Active Alarms** view if Active alarms are currently displayed .



- Pressing the **ACK** button on the TCP.



- Clicking the **ACK** short-cut button in the top bar. This acknowledges all alarms visible in the alarm compartment and in the **Active Alarms** view.



- Clicking on the visible **alarm status** button in the top bar. This acknowledges the single alarm selected.
- Using the **Menu** button by selecting **Menu**→**Alarms**→**Acknowledge**.

Alarm sound off

The alarm buzzer is silenced using the mouse on the dedicated short-cut button in the top bar or dedicated buttons on control panels (CRP or TCP).



It is also possible to silence the buzzer from Menu **Menu**→**Alarms**→**Sound off** .
 This stops the sound on the CRP and on related DPU relays.

Top bar alarm buttons tooltip

Tooltip information is available for all buttons in the top bar area.



Toolbar compartment layout

Figure 18 *Toolbar*

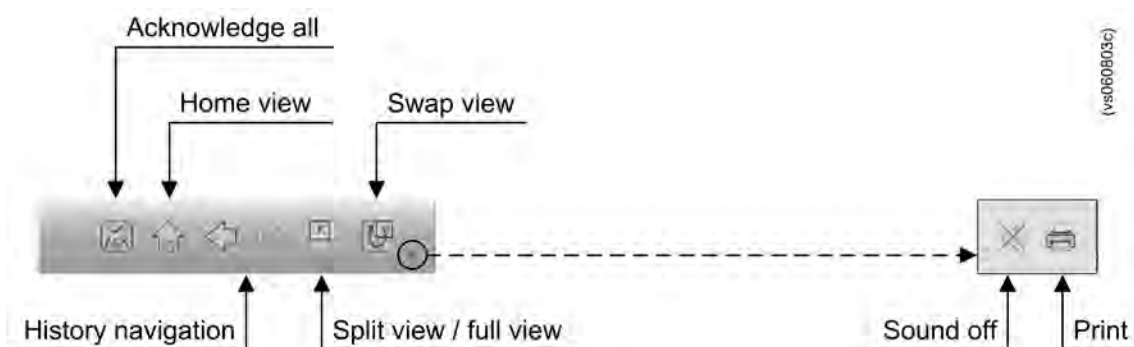









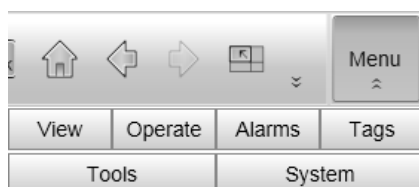
Table 6 *Toolbar short-cuts*

Name	Description	Icon
Acknowledge all	Acknowledge all alarms visible in top bar or Active alarms list. Only alarms present for at least 1 second in the system can be acknowledged.	
Home view	Go to the Home view.	
History navigation	Navigate to previous/next view. Maximum 20 steps are available for Previous/Next buttons.	
Split view / full view	Toggle between split view mode and full screen mode (not available for OS on touch devices)	
Swap view	In split screen mode, select the active view (not available for OS on touch devices).	
Sound off	Silence the audible alarm.	
Print	Open the Print dialogue. On touch devices this function is available from Menu.	

Menu button and menu structure

Top bar menu compartment functionality

The menu system is designed so that the operator effectively can navigate to actions necessary for the daily use of the system. The **Menu** button is positioned at the right hand side in the top bar.



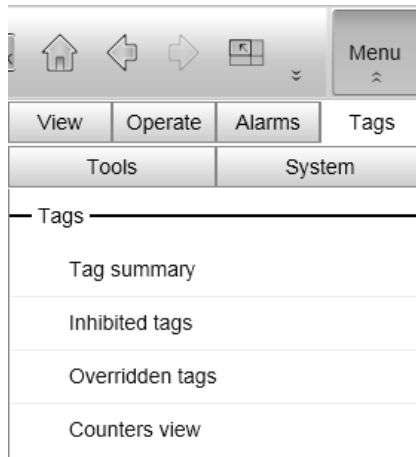
The menu categories may by default hidden, but clicking the **Menu** button will expose the menu categories just below the top bar. The menu categories are distributed in two even rows.

Note

For wide screen displays with 1920x1080 resolution, the menu categories will be shown on the screen all the time.



When one of the menu categories is selected, its complete sub-menu appears.

**Top bar menu structure**

The following list shows the common K-Chief 600 menu categories:

- 1 View: This category contains all commands affecting viewing properties (display mode, palette synchronization, brightness and contrast settings).
- 2 Operate: This category contains operational modes (mode select, command control, watch call).
- 3 Alarms: This category contains all alarm related functionality (that is the most important commands for alarm handling with supplementary short-cut access).
- 4 Tags: This category contains all commands related to the sensors, tags and I/O modules (find tag, tag summary, tag details and so on).
- 5 Tools: This category contains commands for measuring, collecting or monitoring data in a way to better interpret the situation.
- 6 System: This category contains commands related to the general administration of the system and general support functions (for example access to print, system status, help, change user, tooltip on/off).

Menu operation

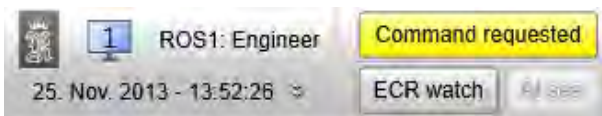
There is a clear visual indication of which menu category is open at any time. When the menu is open, all menu categories are visible at all times. Consequently, menu selection in the top row will not cover the lower row.

If the operator by a user context has temporarily deactivated a menu category or command, these are visibly disabled, but not removed.

Some Menu items are user logon dependent . When logged on as Power user there are more options available.

Command Control button

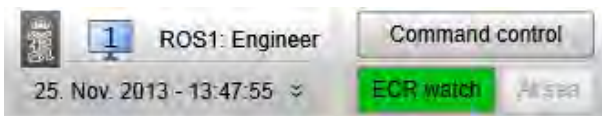
K-Chief 600 uses the Command Control system to select which operators and operator locations are in control of the system at any given point in time. The system state is indicated by the **Command Control** button's label and colour. Depending on the state, the button changes colour, blinks and changes label.



The system state is changed using the **Command Control** pop-up dialogue. For details on the dialogue, see *Operator dialogues, Command Control system* on page 102.

Watch Call control button

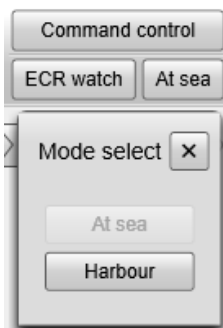
K-Chief 600 uses the Watch Call system to select which location is currently on watch. The system state is indicated by the **Watch Call** button's label and colour. Depending on the state, the button changes colour, blinks and changes label.



The Watch Call system state is changed using the **Watch Call** pop-up dialogue. For details on the dialogue, see *Operator dialogues, Watch Call system* on page 107.

Operational modes control button

The **Operational modes** control button is used to control Sea / Harbour mode which triggers alarm inhibit on pre-configured tags , typically cargo tanks alarms.



Note

User must log on as Poweruser (typically Chief) to operate Mode select dialogue.

Alarm side bar functionality

The main objective of the alarm side bar is to provide easy access to all active alarms in the system. Both acknowledged and unacknowledged alarms and warnings are visible on side bar. Alarms and warning are grouped according to Alarm group configuration

Alarm presentation

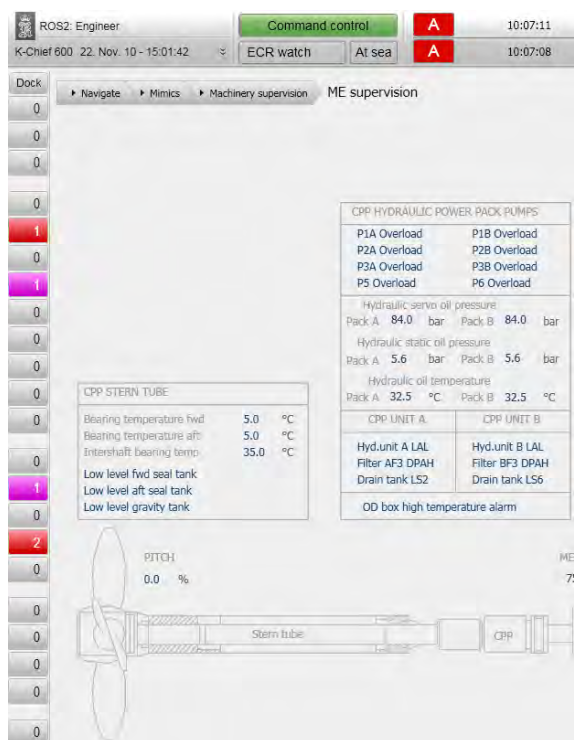
Side bar layout

The alarm group buttons are represented as a column along the left edge of the display.

Side bar expands when moving mouse pointer over to the left edge of the screen.

The number of active alarms in each alarm group is indicated on the alarm group buttons. Alarm priority is represented by button colour.

Figure 19 Alarm side bar layout




The alarm group button is coloured red or magenta when there are one or more active alarms in the group.

The alarm group button is coloured yellow or light yellow in case of warnings or if only local acknowledge is possible. Actual acknowledge must be done at the default location.

The alarm group button is coloured grey if there are no active alarms in the group or if responsibility for alarms is on another location (for example cargo alarms in the ECR).

Docking the expanded alarm group view to the sidebar

The expanded alarm group menu can be docked permanently by means of Dock button or right click in the side bar area.

 Dock button when side bar is collapsed:

 Undock button when side bar is expanded:

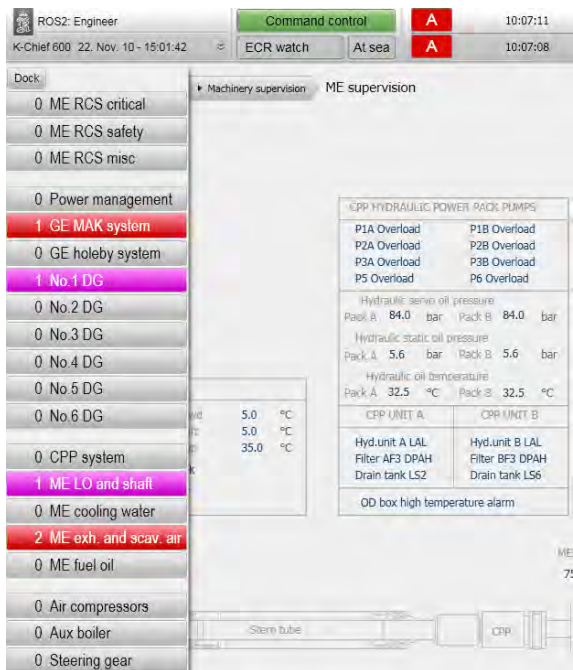
Number of alarm groups

All alarm groups are displayed on one page, as this gives the operator direct access and overview of the alarms. The maximum number of alarm group buttons in one column is 36.

Expandable alarm group information

The alarm group information is shown as an expandable menu on the left side of the screen. An extended menu will appear when moving the cursor to the left side of the alarm group bar. This menu contains buttons with the name of the alarm groups together with the number of active alarms.

Figure 20 Expandable alarm group information



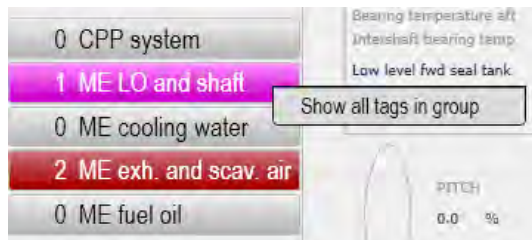
When clicking an alarm group, the list of active alarms will pop-up in a dedicated secondary window.

Figure 21 Alarm group pop-up window



Context menu for side bar alarm list

The context menu is accessible by right-clicking on an alarm group in the expanded alarm view.



Selecting **Show all tags in group** will open the **Tag summary** view for the alarms in this group.

Alarm handling

Alarm acknowledge

Unacknowledged alarms are indicated by blinking sidebar buttons.

Acknowledged alarms are indicated by steady sidebar buttons

Colour of the button indicates highest priority alarm in the group:

- Magenta button: Emergency alarm
- Red button: Alarm

- Yellow button: Warning
- Light yellow button: Info

Click the button to open Side bar popup alarm with list of active alarms. Click on blinking status button to acknowledge single alarm. Alarm priority depends on colour and symbol:

Emergency alarm,

Alarm,

Warning,

Info,

Alternatively it is possible to acknowledge all visible alarms in the alarm group, by means of dedicated button.

Status	Time	Tag	Description	Funct	Alarm sta	Value	Eng u	Limit 1	Limit 2	Limit 3	Alarm group
	2013 11 26 10:48:21.772	P.SLD 03	P-JACKET CFW OUTLET HIGH TEMP	SLD	NOR						M/E SLOWDOWN
	2013 11 26 10:48:21.770	P.SLD 02	P-P.C.O. OUTLET HIGH TEMP	SLD	NOR						M/E SLOWDOWN
	2013 11 26 10:48:21.768	P.SLD 01	P-SCAV AIR FIRE DET. HIGH TEM	SLD	NOR						M/E SLOWDOWN

Tabular views

Topics

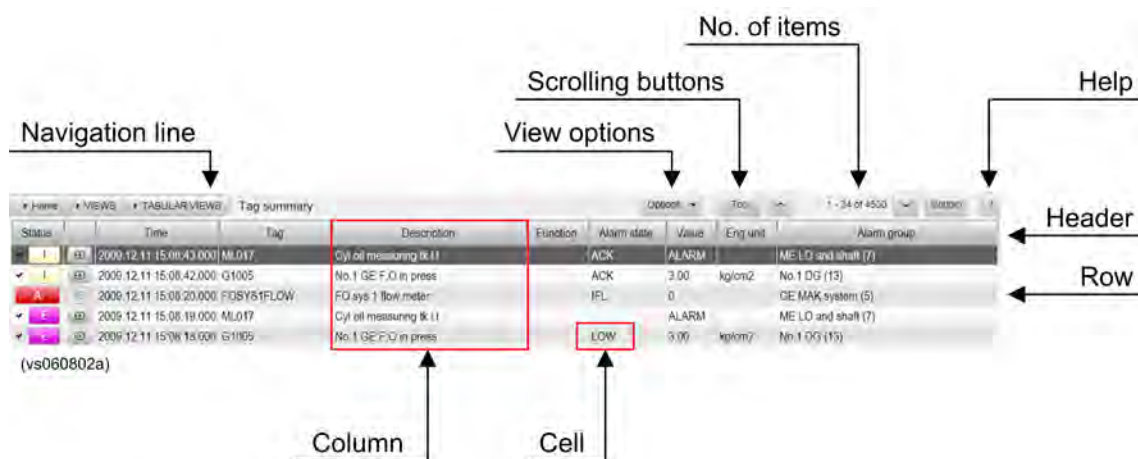
- *Common functionality* on page 63
- *Active alarms view* on page 67
- *Alarm history view* on page 69
- *Tag summary view* on page 71
- *Event history view* on page 73
- *Inhibit tags view* on page 75
- *Overridden tags view* on page 77
- *Counters list* on page 79

Common functionality

Tabular view layout

The tabular view is built up as a typical spreadsheet application. It displays multiple cells that together make up a grid consisting of rows and columns. Each cell in the grid contains either alphanumeric text or numeric values. Some of the cells are editable. This is clearly marked using square brackets []. Static texts or values are coloured black, dynamic texts or values are coloured blue.

Figure 22 Tabular view layout



The operator can set the columns to “best fit” by double-clicking on the header right edge of the column heading.

Selected rows in the tabular view are displayed with maximum contrast and visibility. Rows not selected are shaded.

Scrolling buttons

The total number of alarm items listed in the view is displayed on the view header.

If more than one page is necessary to display all items, use the ▲ (up) or ▼ (down) buttons to go backwards or forwards in the list. The **PAGE UP** and **PAGE DOWN** buttons on the Control Room Panel can also be used for this purpose.

Use the **Top** or **Bottom** buttons to go to the very first or last item on the list.

Note

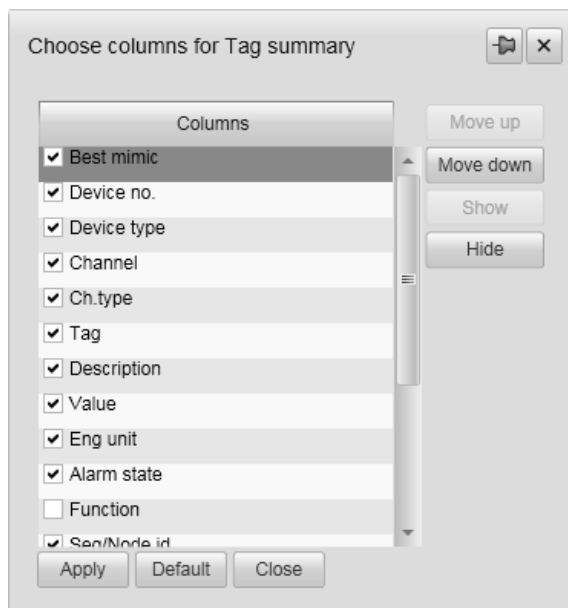
On touch devices view can be scrolled horizontally and vertically by finger slide

View options

The **Options** button is used to customize which optional columns to be displayed or hidden. Two options are available:

- Optional columns: Select or deselect singular columns using the check boxes (actual columns selectable being dependent on the active view)
- Restore default layout: Restore to factory settings

The following example shows selectable columns for the **Tag summary** view.



Columns adjustments

Columns can be relocated by “drag and drop”

The column width can be adjusted by moving the border line between the column headers.

If the text in the cell is not fully visible, tooltip provides full text when mouse pointer is over the cell.

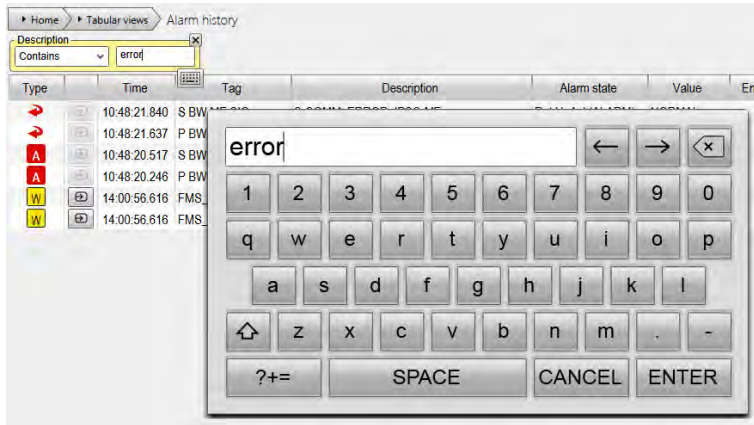
Note

*The **Status** column cannot be relocated. It is always in the utmost left position.*

Data filtering

Operator can filter the data to limit the number of rows in the view.

Filtering is enabled by right-clicking on the requested column header and selecting filter. On screen keyboard may be used to type the filter values. Some columns do not contain filters.



Note

If the Operator station is equipped with TCP (touch control panel), the on screen keyboard appears on TCP instead of main display.

Data sorting

The tabular view can be sorted in all columns. This is done by clicking on the requested column header. Sorted column is highlighted in light yellow colour.

The screenshot shows the 'Active alarms' tabular view. The 'Tag' column header is highlighted in light yellow, indicating it is the current sort order. The table contains several rows of alarm data.

Status	Time	Tag	Description
✓ A	11:13:24.081	P ACPBR DP21	P-COMM ERR BETW. ACP-BR & ESU
✓ A	11:13:24.842	P ACPBR DP22	P-COMM ERR BETW. ACP-BR & RPMU 1
✓ A	11:13:25.671	P ACPBR DP23	P-COMM ERR BETW. ACP-BR & RPMU 2
✓ A	11:13:26.702	P ACPBR DP24	P-COMM ERR BETW. ACP-BR & RAI
✓ A	10:48:21.609	P ACPBR DP25	P-COMM ERR BETW. ACP-BR & dPSC

Context menu

Context menu is may be different for each tabular view. It depends on functionality of each view.

The screenshot shows a context menu over a tabular view. The menu options are: View history, Send to trend, Send to custom view, and Select all. The 'Send to trend' option is expanded to show five trend view options: Trend view 1, Trend view 2, Trend view 3, Trend view 4, and Trend view 5.

Tag	Description
S-CPP LOCAL CONTROL	
S-CPP EMERGENCY CONT	
S-CPP ABNORMAL	
S-SINGLE CAN LOOP FAIL	
S-BOTH CAN LOOP FAIL	XA
S-COMM. ERROR dPSC-ME	

Typical context menu functions:

- View history — view alarm history for single tag (selected one)
- Send to trend — single or multiple tags can be sent to trend. Multi select can be done by mouse drag over the multiple rows.

- Send to custom views— single or multiple tags can be sent to custom view. Multi select can be done by mouse drag over the multiple rows.
- Select all — select all tags in the view.

Note

On touch devices use “touch and hold” to activate context menu.

Command control status view

To check which command control group contains the selected tag, select the tag (single row) and click the **Command Control** button on the top bar. The relevant command group will be selected in command control dialogue.

Context sensitive help

Context sensitive help and for the tabular view is accessible by clicking the ? (**Help**) button located in the top right corner of the view.

Printing and saving

The tabular view can both be printed to paper or saved as a log to disk. These options are available from **Print** button or the **Menu** →**System**→**Report manager** in the top bar.

Active alarms view

Purpose

The **Active alarms** view is used to display the following alarms:

- Active acknowledged alarms
- Active unacknowledged alarms
- Unacknowledged alarms returned to normal

This is the main view for evaluation and acknowledging of incoming alarms. As soon as a new alarm is generated, the information in this view is updated.

The list of alarms will always be synchronized with alarm information displayed on other Operator Stations. If an Operator Station has been shut down for a while, it will immediately show the same data as running Operator Stations after restart.

Figure 23 Active alarms view

Status	Time	Tag	Description	Function	Alarm state	Value	Eng unit	Limit LL	Limit L	Limit H	Limit HH	Alarm group
1	14:29:07	MF019	NO 2 H F O PURIFIER INLET TEMP	TI4HL	LOW	88.0	°C	88.0	108.0			ME FUEL OIL (5)
1	14:28:54	MF004	ME F O TEMP BEFORE SUPPLY UNIT	TI4HL		133.1	°C	120.0	150.0			ME FUEL OIL (5)
1	14:28:54	MF016	NO 1 H F O PURIFIER INLET TEMP	TI4HL		91.2	°C	88.0	108.0			ME FUEL OIL (5)
1	14:28:54	MF022	NO 3 H F O PURIFIER INLET TEMP	TI4HL		91.2	°C	88.0	108.0			ME FUEL OIL (5)
1	14:28:41	MS108	C O P T VACUUM COND LAH	LAH	ALARM							MISC SYSTEM (14)
1	14:28:41	SD015	STEERING CONTROL SYS COMM ALARM	XA	ALARM							STEERING GEAR (12)
1	14:28:40	MO046	ME WATER IN OIL WATER ACTIVITY	XIA	H-H	0.00	µw	0.00	0.00			ME CONTROL (1)
1	14:28:40	MO005	ME STARTING AIR INLET PRESSURE	PIAL	LOW	9.50	kg/cm2	12.00				ME CONTROL (1)
1	14:28:39	MW022	ME JACKET C F W EXP TK LAL	LAL	ALARM							ME COOLING WATER (3)
1	14:28:39	ML044	NO 2 L O PURIFIER ABNORMAL	XA	ALARM							ME LUBE OIL (2)
1	14:28:39	MO007	ME OIL M8T DETECTOR HIGH	XA	ALARM							ME CONTROL (1)
1	14:28:38	CYL01_BWS-1	CYL01 FILT SENSOR VAL FORE	XA	H-H	0.700	mm	-0.70	-0.50	0.50	0.70	BEARING WEAR (20)
1	14:28:38	FA002	ADCOM FIRE	XA	ALARM							FIRE SYSTEM (13)
1	14:27:22	EG005	OILY BILGE TK TEMP WARNING	TI4H	HIGH	82.0	°C		50.0			ER BILGE (11)
1	14:28:38	MO004	COLD CHAMBER(DAIRY) TEMP WARNING	TI4H	HIGH	12.8	°C		10.0			MISC SYSTEM (14)
1	14:28:38	MO001	ME AIR SPRING AIR PRESSURE	PI4HL	IFH	21.00	kg/cm2	5.00	5.50	7.50		ME CONTROL (1)
1	14:28:38	ML003	ME L O FILTER OFF P.H	DP4H	ALARM							ME LUBE OIL (2)
1	14:28:38	BO005	BOILER FEED W IN P (LBM MODE)	PAL	ALARM							AUX BOILER (10)
1	14:28:38	MR022	C O P T C S W P P DISCH P.L	PAL	ALARM							MISC SYSTEM (14)
1	14:28:38	MF014	ME F O FILTER OFF P.H	DP4H	ALARM							ME FUEL OIL (5)

Alarms state and priority

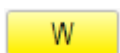
Alarm priority is represented by button colour and corresponding label character



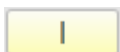
— Emergency alarm,



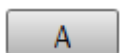
— Alarm,



— Warning,



— Info,



— Alarm responsibility in another location

Alarm state is represented by status button symbol.

- Flashing colour: Alarm or warning not acknowledged .
- Steady colour with check mark: Alarm or warning acknowledged .
- Flashing colour with return arrow: Alarm or warning returned, not acknowledged.

View columns

The **Active alarms** view holds the following columns:

- 1 Status: The importance of the alarm is indicated using a dedicated colour and a letter on the button.
- 2 Short-cut button to relevant process view.
This button is greyed if no such view is available.
- 3 Time: The time stamp of the alarm (local time).
Tip _____
Extend the column width to see both time and date.

- 4 UTC time: The time stamp in Coordinated Universal Time (UTC).
By default, UTC time is not displayed, but it can be enabled by clicking **Option** in the top left area of the view, and selecting it from the **Optional** column dialogue.
- 5 Tag: A unique tag identifier.
- 6 Description: Detailed description of the alarm tag.
- 7 Function: Short code describing the function of the tag.
- 8 Alarm state: Description of alarm condition (system alarm, field alarm etc.).
- 9 Value: Measured value scaled to Engineering unit.
The value is at any time updated with the real time value.
- 10 Engineering unit: Unit of measurement.
- 11 Limit LL: Signal limit for low-low alarm.
- 12 Limit L: Signal limit for low alarm.
- 13 Limit H: Signal limit for high alarm.
- 14 Limit HH: Signal limit for high-high alarm.
- 15 Alarm group: The alarm group to which the alarm is connected.

If data is not defined for a tag, the corresponding field is left blank.

Note _____

Depending on project, more columns may be used.

Alarm history view

Purpose

The **Alarm history** view is used to display the following alarms:

- Active acknowledged alarms
- Active unacknowledged alarms
- Acknowledged alarms returned to normal
- Unacknowledged alarms returned to normal
- Local time change events

This is the main view for investigation of the history of all alarm events in the system. The view is event based, so every event has a time stamp in both local and UTC time.

Alarm history view holds the last 30 days alarm entries (software version 12.14 or newer). In older OS software versions Alarm history shows up to 2000 last entries.

The list of alarms is synchronized between stations.

Figure 24 Alarm history view






Type	Time	Tag	Description	Alarm state	Value	Eng unit	Function	Alarm group
0	11:30:16.518	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	Ret UnAck(ALARM)	NORMAL	LAH	No.3 G/E (9)	
0	11:30:16.516	BQ004	OILY BILGE TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:30:16.513	BQ008	BOSUN STORE BILGE(P) LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:30:05.027	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	ALARM	ALARM	LAH	No.3 G/E (9)	
0	11:30:05.913	BQ004	OILY BILGE TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:30:05.899	BQ006	BILGE HOLDING TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:30:05.887	BQ007	ER AFT BILGE WELL LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:30:05.867	BQ008	BOSUN STORE BILGE(P) LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:55.444	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	Ret UnAck(ALARM)	NORMAL	LAH	No.3 G/E (9)	
0	11:29:55.439	BQ004	OILY BILGE TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:55.437	BQ008	BOSUN STORE BILGE(P) LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
1	11:29:45.096	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	ALARM	ALARM	LAH	No.3 G/E (9)	
1	11:29:45.095	BQ004	OILY BILGE TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
1	11:29:45.095	BQ007	ER AFT BILGE WELL LAH	ALARM	ALARM	LAH	ER bilge (11)	
1	11:29:45.081	BQ008	BOSUN STORE BILGE(P) LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:34.512	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	Ret UnAck(ALARM)	NORMAL	LAH	No.3 G/E (9)	
0	11:29:34.509	BQ004	OILY BILGE TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:34.507	BQ006	BILGE HOLDING TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:34.505	BQ008	BOSUN STORE BILGE(P) LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:24.024	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	ALARM	ALARM	LAH	No.3 G/E (9)	
0	11:29:24.022	BQ004	OILY BILGE TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:24.021	BQ007	ER AFT BILGE WELL LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:24.019	BQ008	BOSUN STORE BILGE(P) LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:13.583	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	Ret UnAck(ALARM)	NORMAL	LAH	No.3 G/E (9)	
0	11:29:13.582	BQ004	OILY BILGE TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:13.521	BQ008	BOSUN STORE BILGE(P) LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:29:03.119	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	ALARM	ALARM	LAH	No.3 G/E (9)	
0	11:29:03.117	BQ004	OILY BILGE TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:03.117	BQ006	BILGE HOLDING TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:03.116	BQ007	ER AFT BILGE WELL LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:29:03.115	BQ008	BOSUN STORE BILGE(P) LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:28:52.485	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	Ret UnAck(ALARM)	NORMAL	LAH	No.3 G/E (9)	
0	11:28:52.482	BQ004	OILY BILGE TK LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:28:52.480	BQ008	BOSUN STORE BILGE(P) LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	
0	11:28:42.045	GC052	NO.3 GEN. WATER LEAKAGE(RIGHT)	ALARM	ALARM	LAH	No.3 G/E (9)	
0	11:28:42.044	BQ004	OILY BILGE TK LAH	ALARM	ALARM	LAH	ER bilge (11)	
0	11:28:42.043	BQ007	ER AFT BILGE WELL LAH	Ret UnAck(ALARM)	NORMAL	LAH	ER bilge (11)	


Alarm history is event based. Every entry represents one time-stamped event.

Symbols used in the Alarm history view:

Note

Symbol colour depends on alarm importance level.

-  Alarm triggered event.
-  Acknowledge of non-returned alarm
-  Acknowledge of returned alarm
-  Return of non-acknowledged alarm
-  Return of acknowledged alarm

-  Link to process view mimic

View columns

The **Alarm history** view holds the following columns:

- 1 Short-cut button to relevant process view. Button is grayed out when view is not available
- 2 Time: The time stamp of the alarm (local time).

Tip _____
Extend the column width to see the date.

- 3 UTC time: The time stamp in Coordinated Universal Time (UTC).
By default, UTC time is not displayed, but it can be enabled by clicking **Option** in the top left area of the view, and selecting it from the **Optional** column dialogue.
- 4 Tag: A unique tag identifier.
- 5 Description: Detailed description of the alarm tag.
- 6 Alarm state: Description of alarm condition (system alarm, field alarm etc.).
- 7 Value: Measured value scaled to Engineering unit.
The value is at any time updated with the real time value.
- 8 Function: Short code describing the function of the tag.
- 9 Alarm group: The alarm group to which the alarm is connected.

If data is not defined for a tag, the corresponding field is left blank.

Note _____
Depending on project, more columns may be used.

Tag summary view

Purpose

The **Tag summary** view is used to display all system tags. The following information is given for each tag:

Tag summary is not meant for alarm handling, therefore there are no alarm buttons.

Figure 25 Tag summary view

Dev ID	Device type	Channel	Ch.type	Tag	Description	Value	Eng unit	Alarm state	Signal type	Alarm group
DPU 001	SCU	100	Soft	SYS DPU001	SCU NODE 100				SYSTEM TAG HAN	System alarms (26)
DPU 002	LTU	6	Soft	AZPF A CLUT	ME RUNNING			CLOSED	DOT HANDLER	ME control (1)
DPU 002	LTU	7	Soft	AZPF T DIR	Clutch angle			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	8	Soft	AZPF T RESE	Dir thruster			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	9	Soft	AZPF T ENAB	Reset thruster			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	10	Soft	AZPF T CLUT	Enable thruster			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	11	Soft	AZPF A RESE	Clutch thruster			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	12	Soft	AZPF A ENAB	Reset angle			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	13	Soft	AZPF A DIR	Enable angle			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	33	Soft	AZPF A POT1	Dir angle			CLOSED	DOT HANDLER	00 --
DPU 002	LTU	34	Soft	AZPF A POT2	Azpl angle pot.meter1	90.0	%		POT 1K	AC-C20 (27)
DPU 002	LTU	35	Soft	AZPF T POT	Azpl angle pot.meter2	90.0	%		POT 1K	00 --
DPU 002	LTU	36	Soft	AZPF A POS	Azpl thruster pot.meter	0.0	%		POT 5K	AC-C20 (27)
DPU 002	LTU	40	Soft	AZPF T PWM	Azpl angle position	0.1	%		Azimuth lever	37 00 --
DPU 002	LTU	41	Soft	AZPF T PWM	Pwm output angle	50.0			VOLT PM 10 AO	00 --
DPU 002	LTU	41	Soft	AZPF T PWM	Pwm output thrust	0.0			VOLT PM 10 AO	00 --
DPU 002	LTU	44	Soft	AZPF SERVO A	Azpl positioning logic angle	1			LTU SERVO functio	00 --
DPU 002	LTU	45	Soft	AZPF SERVO T	Azpl positioning logic thruster	1			LTU SERVO functio	00 --
DPU 002	LTU	46	Soft	AZPF A SRV F	Azpl angle servo failure			NORMAL	RDI DIGITAL	AC-C20 (27)
DPU 002	LTU	47	Soft	AZPF T SRV F	Azpl thrust servo failure			NORMAL	RDI DIGITAL	AC-C20 (27)
DPU 002	LTU	48	Soft	SYS DPU002	LTU (SPSC 1) NODE 500				SYSTEM TAG HAN	System alarms (26)
DPU 003	LTU	6	Soft	AZSF A CLUT	Clutch angle			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	7	Soft	AZSF T DIR	Dir thruster			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	8	Soft	AZSF T RESE	Reset thruster			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	9	Soft	AZSF T ENAB	Enable thruster			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	10	Soft	AZSF T CLUT	Clutch thruster			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	11	Soft	AZSF A RESE	Reset angle			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	12	Soft	AZSF A ENAB	Enable angle			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	13	Soft	AZSF A DIR	Dir angle			CLOSED	DOT HANDLER	00 --
DPU 003	LTU	33	Soft	AZSF A POT1	Azpl angle pot.meter1	90.0	%		POT 1K	AC-C20 (27)
DPU 003	LTU	34	Soft	AZSF A POT2	Azpl angle pot.meter2	90.0	%		POT 1K	00 --
DPU 003	LTU	35	Soft	AZSF T POT	Azpl thruster pot.meter	0.0	%		POT 5K	AC-C20 (27)
DPU 003	LTU	36	Soft	AZSF A POS	Azpl angle position	0.1	%		Azimuth lever	37 00 --
DPU 003	LTU	40	Soft	AZSF T PWM	Pwm output angle	50.0			VOLT PM 10 AO	00 --
DPU 003	LTU	41	Soft	AZSF T PWM	Pwm output thrust	0.0			VOLT PM 10 AO	00 --
DPU 003	LTU	44	Soft	AZSF SERVO A	Azpl positioning logic angle	1			LTU SERVO functio	00 --
DPU 003	LTU	45	Soft	AZSF SERVO T	Azpl positioning logic thruster	1			LTU SERVO functio	00 --

View columns

The **Tag summary** view holds set of default and optional columns. The optional columns are shown (or hidden) on demand by clicking the **Option** button in the top right corner of the view and then selecting the **Optional column** dialogue to enable (or disable) additional columns.

The columns are by default shown in following order:

- 1 Short-cut button to relevant process view.
This button is greyed if no such view is available.
- 2 Device no: Numbered identification of the device.
- 3 Device type: Identification of the device type.
- 4 Channel: Internal DPU or SYS channel number.
- 5 Channel type: Channel type (field, software or system).
- 6 Tag: A unique tag identifier.
- 7 Description: Detailed description of the alarm tag.
- 8 Value: Measured value scaled to Engineering unit.
The value is at any time updated with the real time value.

- 9 Engineering unit: Unit of measurement.
- 10 Alarm state: Description of alarm condition (system alarm, field alarm).
- 11 Function (optional): Short code describing the function of the tag.
- 12 Seg/Node: Segment number and node id (network identifier).
- 13 Signal type (optional): Displays the type of channel as text (for example 'digital input, 4-20 mA', 'Positioner on/off steady' and so on).
- 14 Inhibit source (optional): Displays the tag inhibiting alarm.
- 15 Raw value (optional): Measured in mA, V, Hz etc.
- 16 Alarm group: The alarm group to which the alarm is connected.
- 17 Control group (optional): The control position group to which the alarm is connected.
- 18 WCall group (optional): The Watch Call group to which the alarm is connected.

Horizontal scrolling may be necessary if the number of columns is too large for all of them to be shown on the screen simultaneously.

If data is not defined for a tag, the corresponding field is left blank.

Note

Depending on project, more columns may be used.

Event history view

Purpose

The **Event history** view presents all digital events logged in the system. Such events as:

- Alarm events: triggered, acknowledged, returned
- Process events: start, stop, open, closed, connect, disconnect etc.
- Time change events
- Tag parameter change events
- User logon events

Figure 26 Event history view

Event type	Event sub-type	Event importance	UTC	Time	Source	Tag	Description	Previous	New value
Alarm	Rot UnAck/ALA.	Alarm	11:12:50.045	12:12:50.045	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:50.044	12:12:50.044	DPU 047	BG004	OILY BILGE TK LAH		NORMAL
Alarm	ALARMS	Alarm	11:12:50.044	12:12:50.044	DPU 047	BG007	ER AFT BILGE WELL LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:12:50.044	12:12:50.044	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		NORMAL
Alarm	ALARMS	Alarm	11:12:39.582	12:12:39.582	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		ALARM
Alarm	ALARMS	Alarm	11:12:39.580	12:12:39.580	DPU 047	BG004	OILY BILGE TK LAH		ALARM
Alarm	ALARMS	Alarm	11:12:39.580	12:12:39.580	DPU 047	BG006	BILGE HOLDING TK LAH		ALARM
Alarm	ALARMS	Alarm	11:12:39.579	12:12:39.579	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:12:29.100	12:12:29.100	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:29.097	12:12:29.097	DPU 047	BG004	OILY BILGE TK LAH		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:29.095	12:12:29.095	DPU 047	BG007	ER AFT BILGE WELL LAH		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:29.094	12:12:29.094	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		NORMAL
Alarm	ALARMS	Alarm	11:12:18.672	12:12:18.672	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		ALARM
Alarm	ALARMS	Alarm	11:12:18.672	12:12:18.672	DPU 047	BG004	OILY BILGE TK LAH		ALARM
Alarm	ALARMS	Alarm	11:12:18.671	12:12:18.671	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:12:08.213	12:12:08.213	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:08.210	12:12:08.210	DPU 047	BG004	OILY BILGE TK LAH		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:12:08.209	12:12:08.209	DPU 047	BG006	BILGE HOLDING TK LAH		NORMAL
Alarm	ALARMS	Alarm	11:12:08.207	12:12:08.207	DPU 047	BG007	ER AFT BILGE WELL LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:12:08.205	12:12:08.205	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		NORMAL
Alarm	ALARMS	Alarm	11:11:57.743	12:11:57.743	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		ALARM
Alarm	ALARMS	Alarm	11:11:57.740	12:11:57.740	DPU 047	BG004	OILY BILGE TK LAH		ALARM
Alarm	ALARMS	Alarm	11:11:57.738	12:11:57.738	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:11:47.275	12:11:47.275	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:11:47.259	12:11:47.259	DPU 047	BG004	OILY BILGE TK LAH		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:11:47.255	12:11:47.255	DPU 047	BG007	ER AFT BILGE WELL LAH		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:11:47.253	12:11:47.253	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		NORMAL
Alarm	ALARMS	Alarm	11:11:36.793	12:11:36.793	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		ALARM
Alarm	ALARMS	Alarm	11:11:36.790	12:11:36.790	DPU 047	BG004	OILY BILGE TK LAH		ALARM
Alarm	ALARMS	Alarm	11:11:36.788	12:11:36.788	DPU 047	BG006	BILGE HOLDING TK LAH		ALARM
Alarm	ALARMS	Alarm	11:11:36.786	12:11:36.786	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:11:26.340	12:11:26.340	DPU 048	OC052	NO 3 GEN. WATER LEAKAGE(RIGHT)		NORMAL
Alarm	Rot UnAck/ALA.	Alarm	11:11:26.339	12:11:26.339	DPU 047	BG004	OILY BILGE TK LAH		NORMAL
Alarm	ALARMS	Alarm	11:11:26.335	12:11:26.335	DPU 047	BG007	ER AFT BILGE WELL LAH		ALARM
Alarm	Rot UnAck/ALA.	Alarm	11:11:26.333	12:11:26.333	DPU 023	BG008	BOSUN STORE BILGE(P) LAH		NORMAL

View columns

The **Event history** view has following columns:

- 1 Short-cut button to relevant process view.
- 2 Event type: Description of what type of event is recorded.
- 3 Event sub-type: Next level description of event type.
- 4 UTC time: The time stamp in Coordinated Universal Time (UTC).
- 5 Local time: The time stamp of the alarm (local time).

Tip

Extend the column width to see the date.

- 6 Source: Description of what is the source of the event (for example Operator Station, DPU, SYS).

- 7 Tag: A unique tag identifier.
- 8 Description: Detailed description of the alarm tag.
- 9 Previous value: Displays previous value or previous state.
- 10 New value: Displays new value or new state.

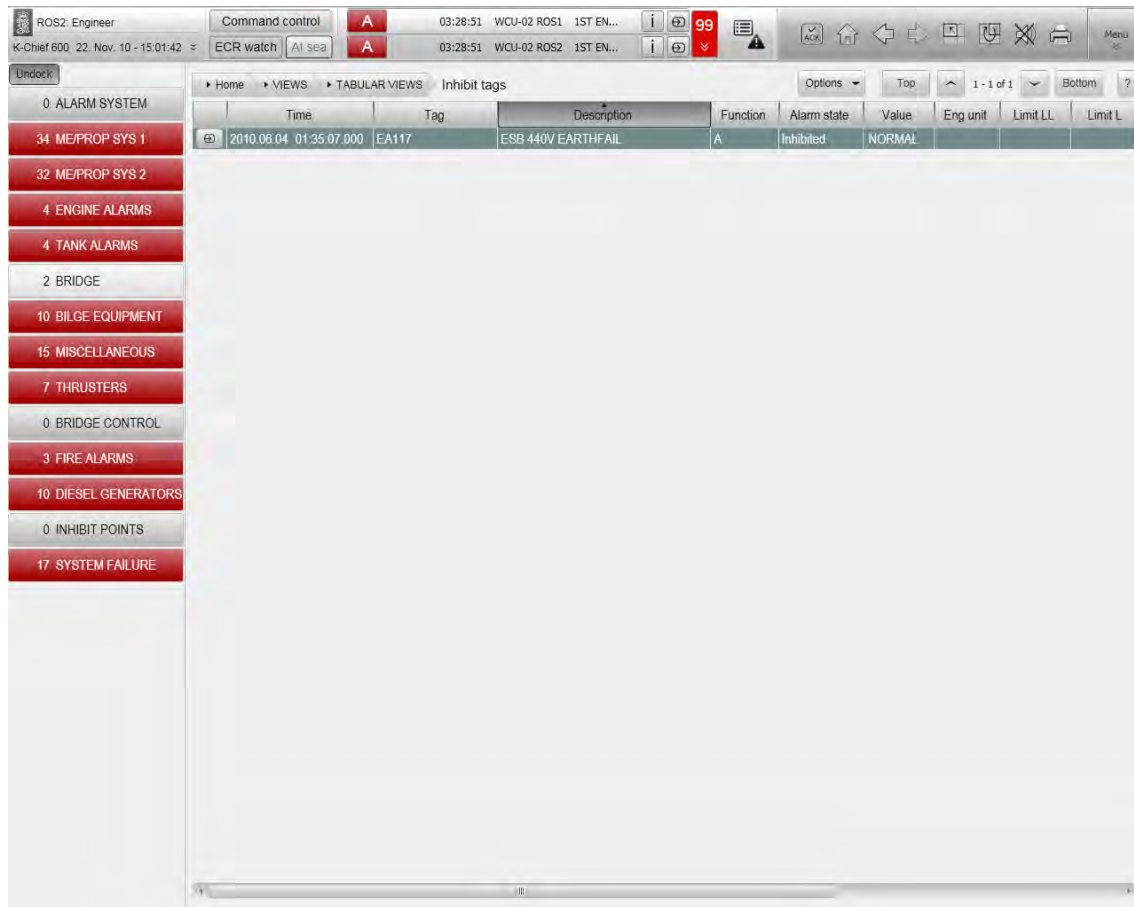
Some columns may be shown on demand. Click **Option** in the top right corner of the view and select the **Optional column** dialogue to enable or disable additional columns.

Inhibit tags view

Purpose

To avoid unnecessary alarms, some alarms are conditional and will be inhibited when a specified condition is present. The **Inhibit tags** view is used to display these alarms.

Figure 27 *Inhibit tags view*



View columns

The **Inhibit tags** view holds the following columns:

- 1 Short-cut button to relevant process view.
- 2 Time: The time stamp of the alarm (local time).
- 3 UTC time: The time stamp in Coordinated Universal Time (UTC).
- 4 Tag: A unique tag identifier.
- 5 Description: Detailed description of the alarm tag.
- 6 Function: Short code describing the function of the tag.
- 7 Alarm state: Description of alarm condition (system alarm, field alarm etc.).
- 8 Value: Measured value scaled to Engineering unit.

- 9** Engineering unit: Unit of measurement.
- 10** Limit LL: Signal limit for low-low alarm.
- 11** Limit L: Signal limit for low alarm.
- 12** Limit H: Signal limit for high alarm.
- 13** Limit HH: Signal limit for high-high alarm.
- 14** Alarm group: The alarm group to which the alarm is connected.
- 15** Inhibit source: The signal defined as inhibit source for the specified alarm or group of alarms.

If data is not defined for a tag, the corresponding field is left blank.

Overridden tags view

Purpose

To avoid unnecessary alarms, some alarms are not checked for alarm situations (offscan alarms). The **Overridden tags** view is used to display these alarms.

Note that overridden alarms are visually highlighted by a light blue background colour. This applies only when the alarm tag is represented in a tabular view.

Figure 28 Overridden tags view

Tag	Description	Functi	Alarm state	Value	Eng unit	Limit LL	Limit L	Limit H	Limit HH
BE106	BILGE STAB. COMP SB HIGH LEVEL	LAH	Offscan	ALARM					
EA100	STABILIZER SYSTEM COMMON FAIL	A	Offscan	NORMAL					
EA107	HOSPITAL CALL	A	Offscan	NORMAL					

View columns

The **Overridden tags** view holds the following columns:

- 1 Short-cut button to relevant process view.
- 2 Tag: A unique tag identifier.
- 3 Description: Detailed description of the alarm tag.
- 4 Function: Short code describing the function of the tag.
- 5 Alarm state: Description of alarm condition (system alarm, field alarm etc.).
- 6 Value: Measured value scaled to Engineering unit.

- 7** Engineering unit: Unit of measurement.
 - 8** Limit LL: Signal limit for low-low alarm.
 - 9** Limit L: Signal limit for low alarm.
 - 10** Limit H: Signal limit for high alarm.
 - 11** Limit HH: Signal limit for high-high alarm.
 - 12** Alarm group: The alarm group to which the alarm is connected.
- If data is not defined for a tag, the corresponding field is left blank.

Counters list

Purpose

The following separate counter functions are available through the **Counters** list:

- Total count
- Lap count

This view is used to display active running hours for pumps, main engine and accumulated values for analogue sensors. The counter values are shown as 'hours : minutes'. In addition it is possible to show accumulated flow and average values in this view.

Figure 29 Counters list

The screenshot shows a software interface with a table titled 'Counters list'. The table has columns for Tag, System, Description, State, Total count, Lap count, and Type. A dialog box titled 'Lap counter' is open, showing a 'Set preset time (HH:MM)' field with '0' and '0' and 'OK' and 'Cancel' buttons. The table data is as follows:

Tag	System	Description	State	Total count	Lap count	Type
MF017	KC600	NO.1 H.F.O PURIFIER	Counting	04:54	04:54	Running hours
MF020	KC600	NO.2 H.F.O PURIFIER	Counting	04:54	04:54	Running hours
MF1023	KC300	NO.3 H.F.O PURIFIER	Counting	04:54	00:00	Running hours
MLD40	KC600	NO.1 L.O PURIFIER	Counting			
MLD43	KC600	NO.2 L.O PURIFIER	Counting			
MS013.1	KC600	NO.1 CONTROL AIR DRYER	Counting			
MS014.1	KC600	NO.2 CONTROL AIR DRYER	Counting			
MS070	KC600	NO.1 A/C PLANT COMP.	Counting			
MS074	KC600	NO.2 A/C PLANT COMP.	Counting			
MS080	KC600	NO.3 A/C PLANT COMP.	Counting	04:54	04:54	Running hours
MS089	KC600	NO.1 MAIN AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS091	KC600	NO.2 MAIN AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS093	KC600	EMCOY AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS094	KC600	TOPPING UP AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS096	KC600	SERVICE AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS098	KC600	CONTROL AIR COMPRESSOR	Counting	04:54	04:54	Running hours
MS100	KC600	NO.1 PROV REF COMPRESSOR	Counting	04:54	04:54	Running hours
MS104	KC600	NO.2 PROV REF COMPRESSOR	Counting	04:54	04:54	Running hours
MS118	KC600	EMCOY GENERATOR	Counting	04:54	04:54	Running hours
PP002	KC600	NO.1 MAIN C.S.W PIP	Counting	04:54	04:54	Running hours
PP004	KC600	NO.2 MAIN C.S.W PIP	Counting	04:54	04:54	Running hours
PP006	KC600	NO.3 MAIN C.S.W PIP	Counting	04:54	04:54	Running hours
PP008	KC600	NO.1 CENTRAL C.F.W PIP	Counting	04:54	04:54	Running hours
PP010	KC600	NO.2 CENTRAL C.F.W PIP	Counting	04:54	04:54	Running hours
PP012	KC600	NO.3 CENTRAL C.F.W PIP	Counting	04:54	04:54	Running hours
PP014	KC600	NO.1 ME J.C.F.W PIP	Counting	04:54	04:54	Running hours
PP016	KC600	NO.2 ME J.C.F.W PIP	Counting	04:54	04:54	Running hours
PP018	KC600	NO.1 STRN TURF I PIP	Counting	04:54	04:54	Running hours

View columns

The **Counters** list holds the following columns:

- Short-cut button to relevant process view.
- Tag: A unique code describing an alarm tag.
- System: Displays system name.
- Description: Detailed description of the alarm tag.
- State: Displays running state (Running/Stopped or Flow/No flow).
- Total count: Displays amount of total counting.
- Lap count: Displays amount of lap hours.
- Type: Hours counter, volume counter, RPM counter and so on.

Counters list dialogues

The **Lap count** field can be edited or reset. Operator must log on as Poweruser (typically as Chief) Editable cells are marked in the **Counters** view using square brackets [].

The **Total count** can be set or reset by Master user only.

Process views

Topics

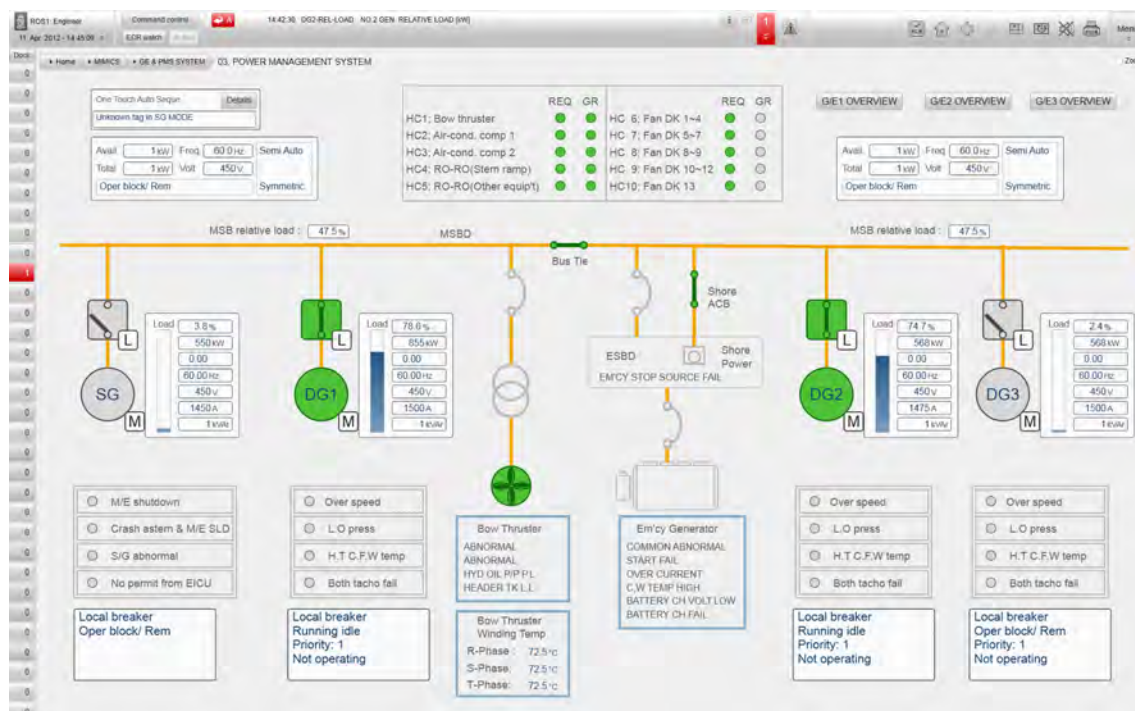
- *Process view layout* on page 81
- *Accessing process views* on page 82
- *Static symbols* on page 82
- *Dynamic symbols* on page 83

Process view layout

The graphical process views are custom made images giving the operator easy-to-read information about each sub-system and their surrounding equipment. This allows for control of different process plants and machinery directly from any K-Chief 600 Operator Station.

The process view shows the interconnection of units and instrumentation used to control the process in question. A standard set of static and dynamic symbols are used to present the process.

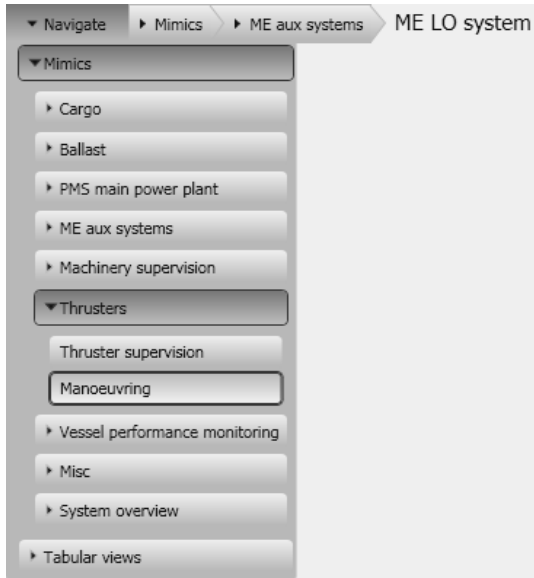
Figure 30 *Process view, typical example*



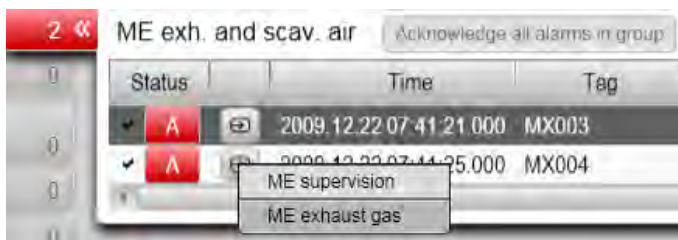
Accessing process views

There are several ways of accessing a process view;

- Using the interactive navigation line below the top bar.



- From an alarm list, using the process view short-cut button.



- Using the history navigation buttons in the toolbar. A maximum of 20 steps are available.



- Using the Home view.
- Using Favourites (if the view was previously added).

Static symbols

The process views use static symbols to present process information that is not dependent on the system state. Typical examples of static symbols are:

- Background (ship structure, main engine)
- Piping and flow between dynamic objects
- Text information (for example for unit identification).

Static symbols do not change shape or colour dynamically.

Dynamic symbols

See the list of dynamic symbol in following chapter: *Dynamic mimic symbols* on page 34

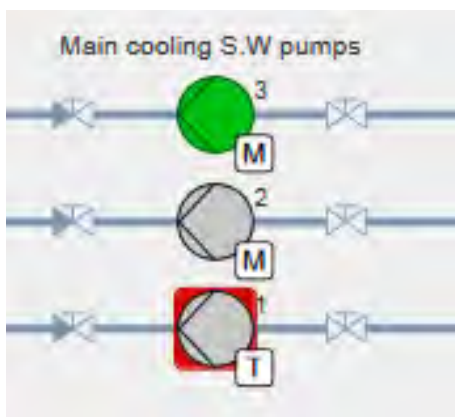
The process views use dynamic symbols to present real-time process information.

A dynamic symbols changes colour/shape depending on specific process conditions defined in database.

Alarm indication

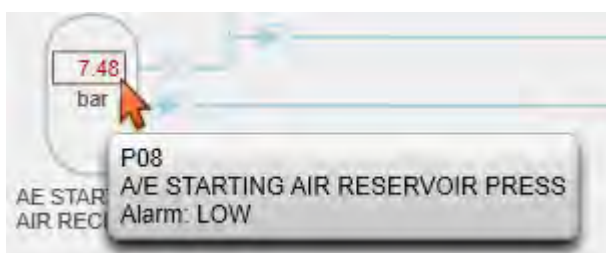
As soon as an alarm state occurs, this will be indicated on the relevant dynamic symbol in the process view.

Alarms are visualized both on graphic and text objects. See example below of pump being in alarm state



Tooltip

Tooltip information is available for all icons and relevant graphical display symbols.



The image shows the name and description for an alarm tag given at the tooltip and if the tag has an active alarm the state will be shown.

Context sensitive operator dialogues

Clicking on the dynamic symbol opens the context sensitive operator dialogue assigned to the object. This dialogue is used by the operator to perform commands, to get additional information and to do parameter changes.

The operator dialogues are described in detail in a dedicated chapter; see *Operator dialogues, parameters* on page 95.

Protected commands

Some dynamic symbols can be protected for unauthorized use by a popup menu with Yes/No answer or a password has to be typed in. User logon password has to be used to access the control. Some operations can also only be allowed on specific user levels.

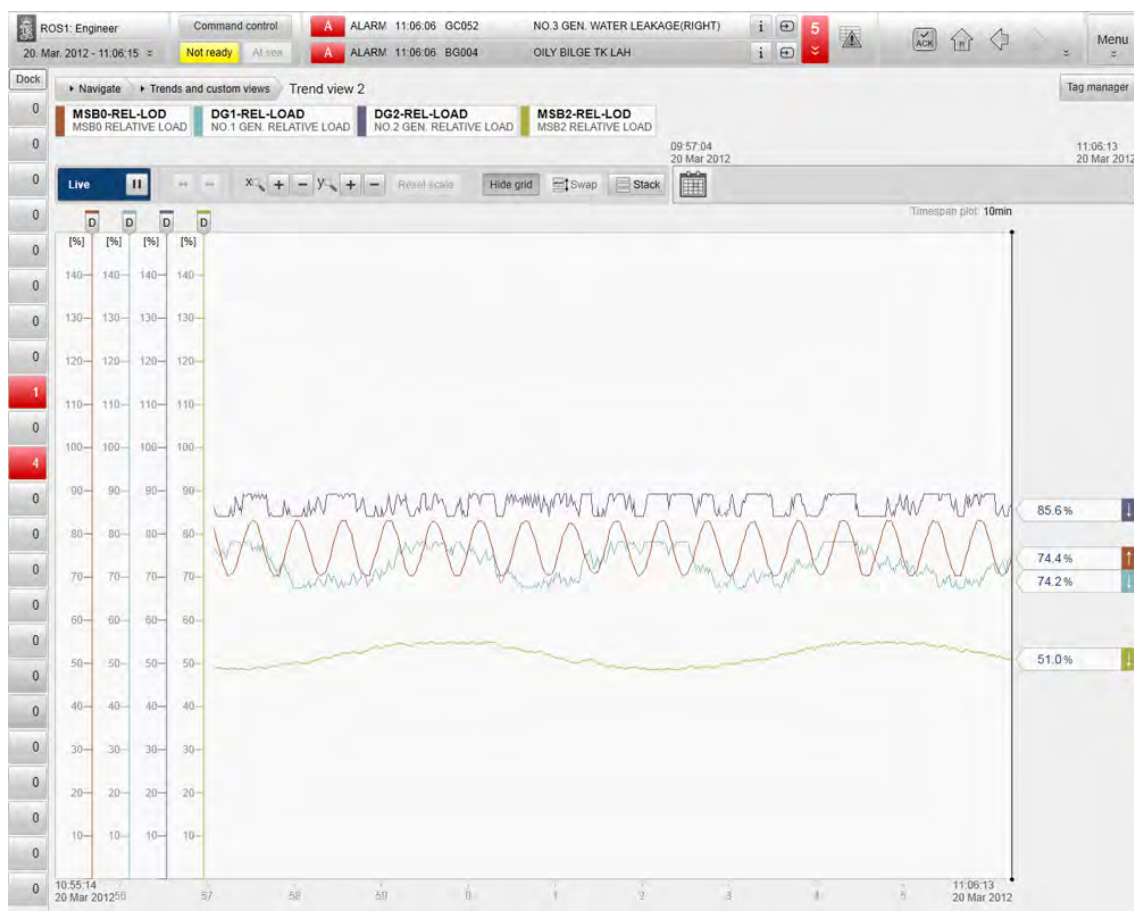
Trend views

Purpose

The system automatically maintains a log of all changes to all tags for the last 7 days, and stores them for use in the trend monitoring system. To display the data you can use the trend display. The trend views are used to present trend data for selected tags.

Similar to the permanent system views, the trend views are accessible both from the **Navigation line** and from the **Home page**.

Figure 31 Trend view



Trend view layout

The trend view is divided into two areas:

- **Tools and options area** (upper part of view)
- **View area** (lower part of view)

Tools and options area

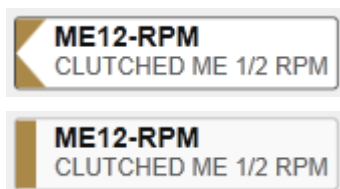


Active tags

Each tag logged in the view is represented by an information field above the trend plots, showing tag name and colour representation.

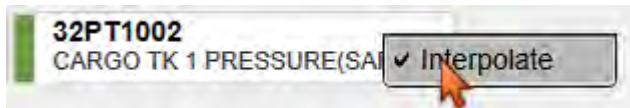
For a given tag, clicking on the colour symbol will highlight its trend plot in the display by using a bolder line. In addition alarm limits for the tag is shown, if relevant.

Which tag is highlighted is easily seen by its rectangular colour symbol changing form.



Interpolation

All plots are interpolated by default. User can turn off interpolation by right click on the tag or from tag manager in the trend view.



Tag manager

The **Tag manager** is used to select which data to be shown by the current **Trend view**. The **Tag manager** dialogue is opened by clicking the **Tag manager** button in the upper right corner of the display.

Visible	Color	Scale	Name	Description	Value	Unit
<input checked="" type="checkbox"/>		Default	MA027	ME NO.1 T/C EXH GAS OUTLET TEM	240	°C
<input checked="" type="checkbox"/>		Default	MA028	ME NO.2 T/C EXH GAS OUTLET TEM	240	°C
<input checked="" type="checkbox"/>		Default	MA017	ME EXH GAS MEAN TEMP	250	°C
<input checked="" type="checkbox"/>		Default	MA008	ME SCAV. AIR TEMP AFTER COOL.1	30	°C
<input checked="" type="checkbox"/>		Default	MA009	ME SCAV. AIR TEMP AFTER COOL.2	30	°C

The **Tag manager** holds the following functionality:

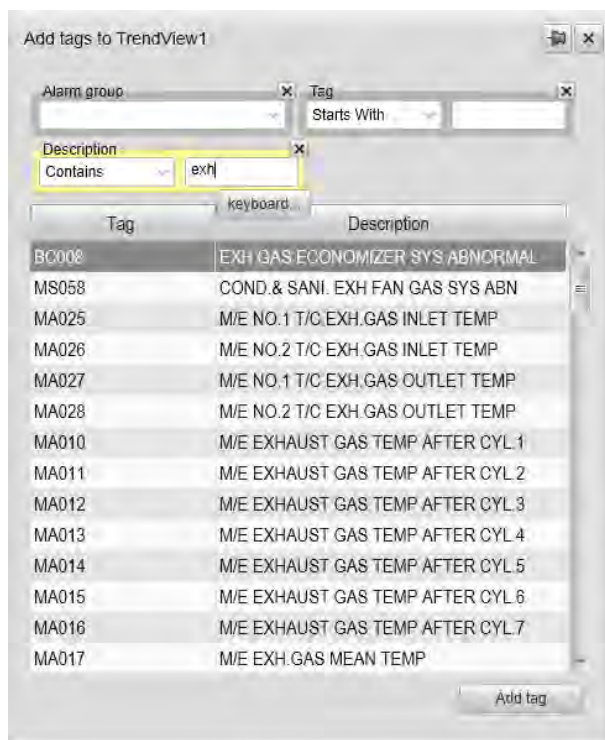
- 1 Visible: Tag becomes invisible in plot area when unchecked.
- 2 Interpolation: Check this box to switch interpolation On/Off
- 3 Colour: The colour representing each tag.
- 4 Scale: Default, manual or auto scale.
- 5 Go to process view: The tags having an alarm will have this button enabled. It will send you to the process view relevant to the alarm.
- 6 Name: The short name of the tag.

- 7 Description: Detailed description of the alarm tag.
- 8 Value: Measured value scaled to Engineering unit.
- 9 Unit: Engineering unit on the tag.

Add tag

A new tag can be added to a **Trend** view using the **Add tags** button inside the **Tag manager** view.

This opens the **Add tag to Trend view** dialogue.

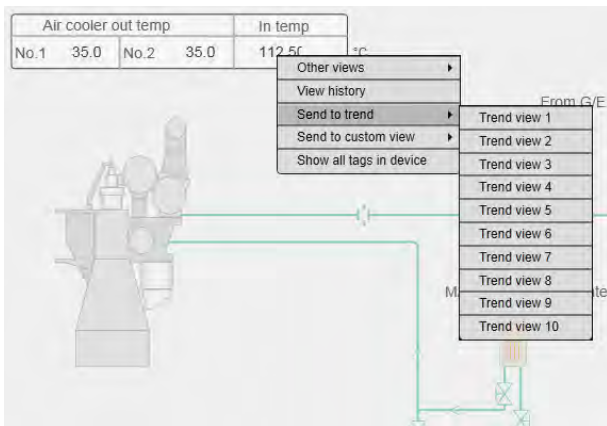


The list of available tags may contain thousand of items. Search functionality is therefore implemented to help the operator to restrict the number of items listed.

- Alarm group: Search for tags belonging to a specific alarm group.
- Tag: Search by tag name (phrase 'contains', 'starts with', 'ends with', 'equals')
- Description: Search by tag description (phrase 'contains', 'starts with', 'ends with', 'equals')

After selecting the requested tag from the list, the **Add tag** button or just double clicking the tag, places the new tag on the view. The new tag is automatically placed at the bottom of the list.

It is also possible to add tags directly from the process view. Right clicking on the tag you want to add will give you the option to add it to a trend view.



Remove tag

Still inside the **Tag manager** view you mark the tag to be removed and click the **Remove tag** button.

Tools and options area – lower part



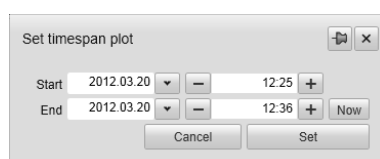
The lower part of the **Tools and options** area holds the following functionality:

- Live/Static view: Select live view or a time span in the past.
- Forward/backward buttons: Move forward and backward in time in the static view.
- Zoom buttons: x button zooms the time, y button zooms the engineering unit span. **Reset scale** gets you back to default scale.

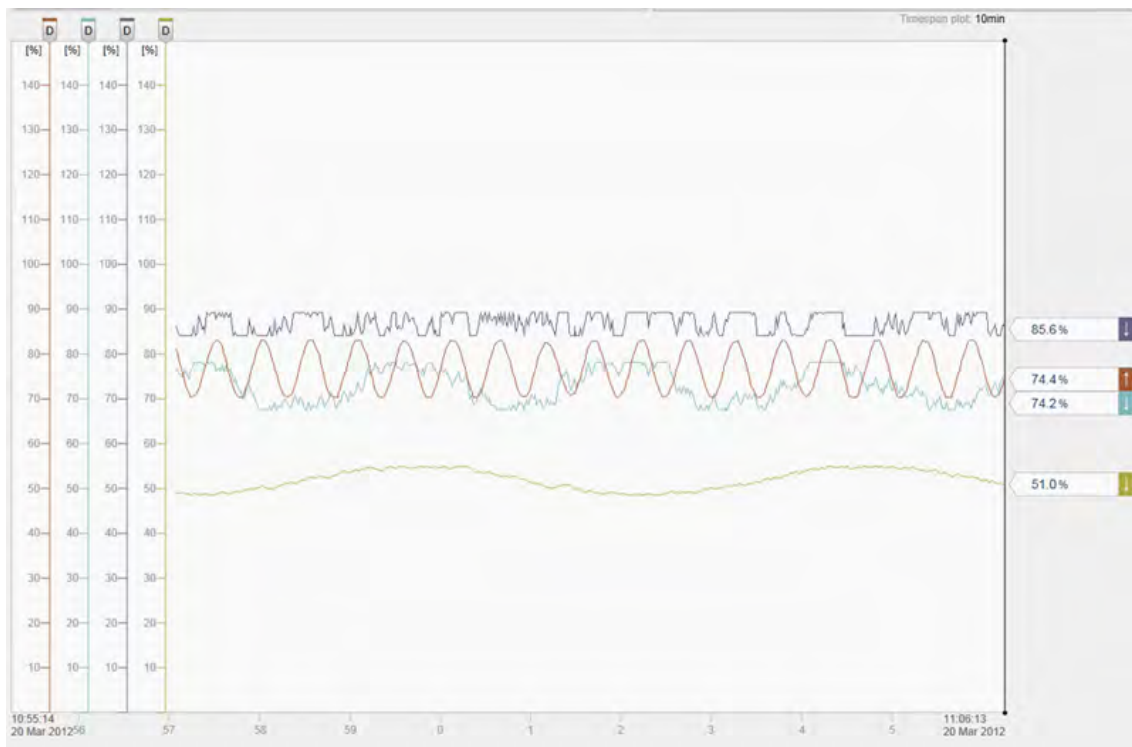
Note

It is also possible to zoom by pressing and holding the centre trackball button while moving the trackball. The cursor must be situated on the relevant axis.

- Hide grid: Hide or show the grid in your plot.
- Swap: Analogue and digital tags will be presented in different windows, here you can swap which window is above the other.
- Stack: All tag values are plotted in separate windows.
- Select date/time: In static view the time span can be selected from this calendar.



View area



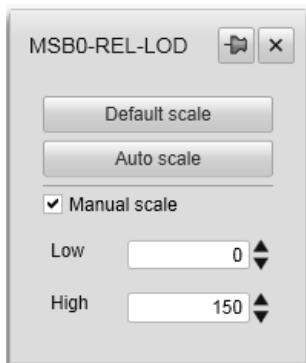
This area is used to display the trend plots. Up to eight plots can be monitored simultaneously. The plots are recognizable by each one being assigned a unique colour. The colour scheme is also shown in the **Tag details** area.

One vertical **value** scale is displayed for each alarm tag. The colour of the scale is identical with the colour of the plot belonging to it. The button at the top of the scale indicates the scale mode.

There are three different modes available for the **value** scale:

- Default scale **D** : In this mode, range high and range low tag values are used for the **value** scale.
- Auto mode **A** : In this mode, the **value** scale is automatically adjusted for the plot to fit the maximum scale range.
- Manual mode **M** : In this mode, the **value** scale can be adjusted manually by the operator. Values can even be set to exceed engineering high and engineering low values.

The mode for a particular scale can be edited by clicking on the relevant button. This opens the following dialogue:



Note

*Scale can be also adjusted by trackball drag and drop .
Hold the mouse over the scale and push the centre button
on the trackball, move the trackball in the relevant direction
to get the scale wanted.*

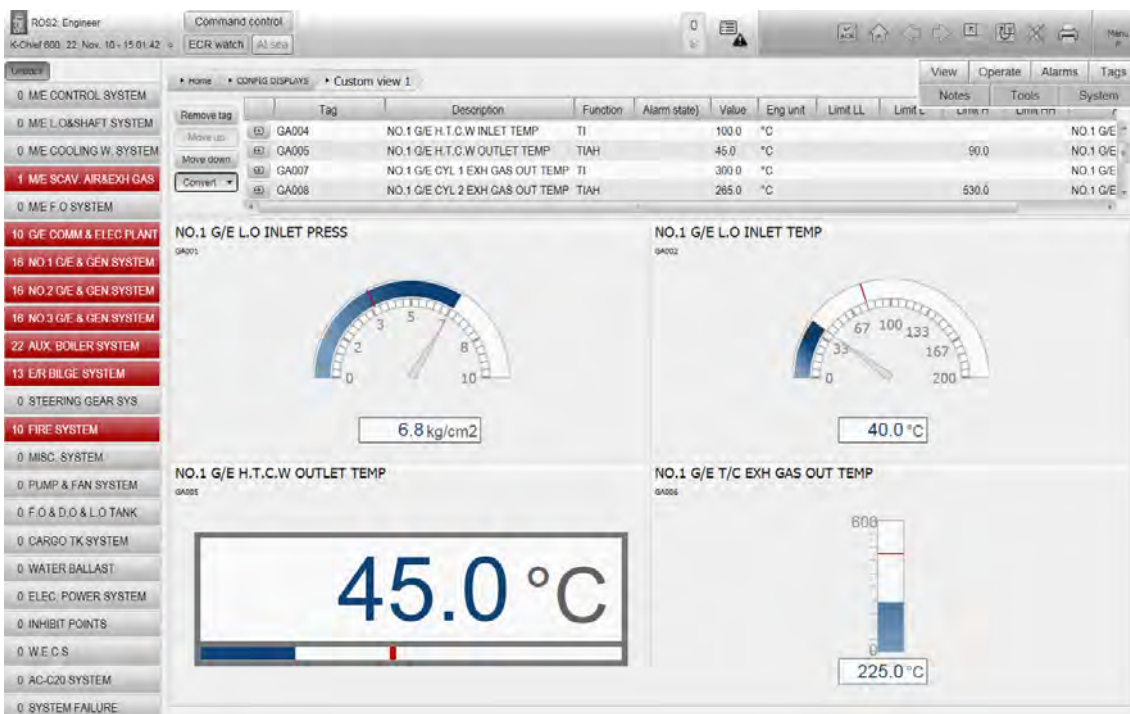
Custom views

Purpose

The **Custom** views are used for the operator to create local, personalized groupings of selected tags. Up to ten different custom views can be configured on each Operator Station. There is no limitation on the number of tags that can be added to each **Custom** view. All tags are operational in the same way as when accessing them from one of the permanent views.

Similar to the permanent system views, the **Custom** views are accessible both from the **Navigation line** and from the **Home page**.

Figure 32 Custom view



Custom view layout

The **Custom** view is divided into two areas:

- **Tabular** area (upper part of view)
- **Pane** area (lower part of view)

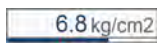
Each tag selected for a specific **Custom** view may be displayed in four different ways:

- **Tabular entry**

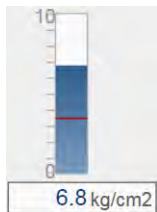
GA001	NO.1 G/E L.O INLET PRESS	PIAL	6.75	kg/cm ²	3.50
-------	--------------------------	------	------	--------------------	------

Note that double-clicking on a tabular entry opens the corresponding operation dialogue.

- Symbol



- Bar graph

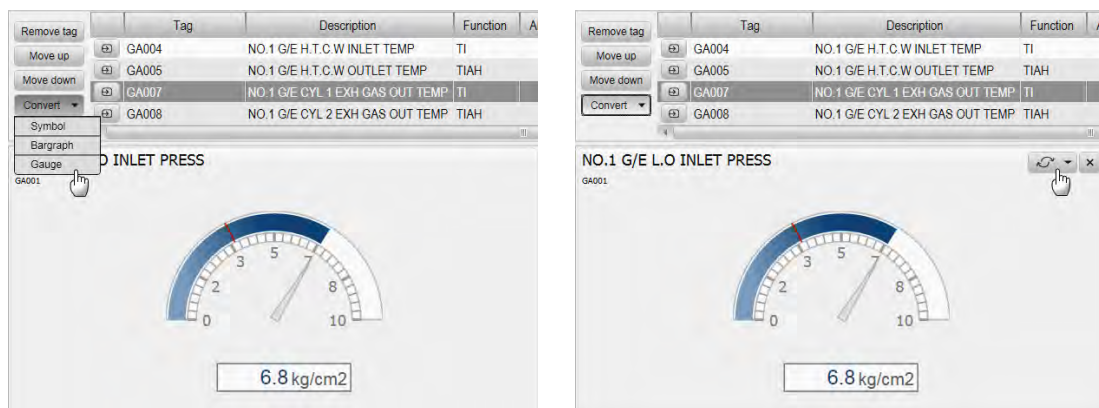


- Gauge



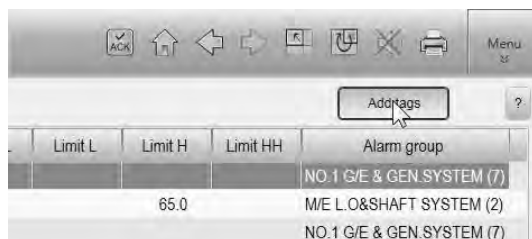
Symbols, bar graphs and gauges are displayed in the **Pane** area. If no pane entries are defined by the operator, the **Tabular** area covers the complete screen.

Every object can at any time be converted from one viewing option to another, as in the following illustration.

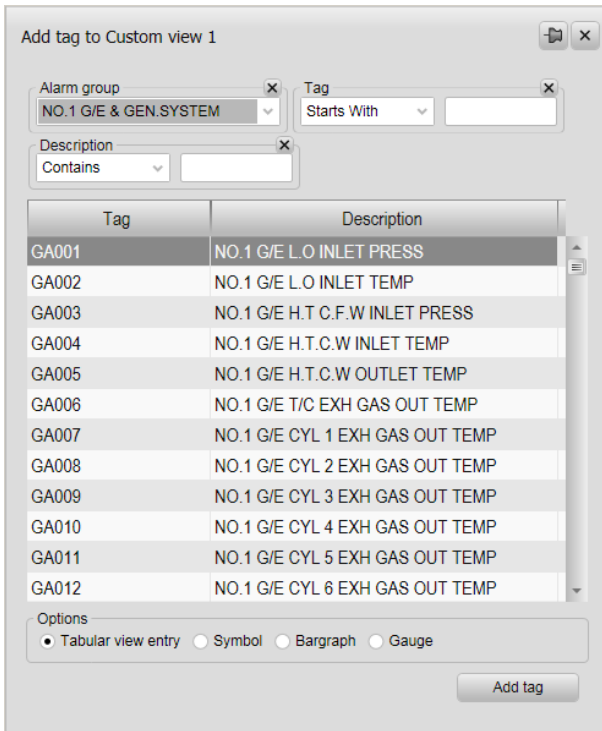


Add tags

A new tag can be added to a **Custom** view using the **Add tags** button available at the top right side of the view.



This opens the **Add tag to Custom view** dialogue.



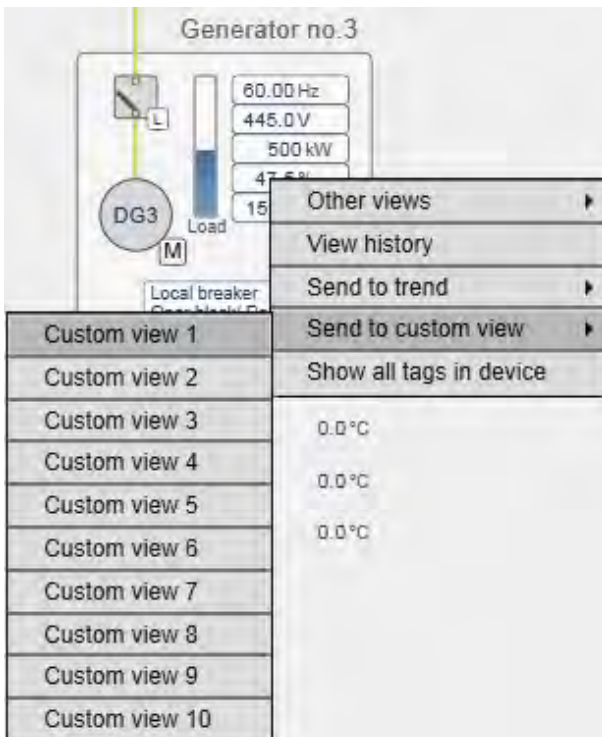
- Alarm group: Search for tags belonging to a specific alarm group.
- Tag: Search by tag name (phrase 'contains', 'starts with', 'ends with', 'equals')
- Description: Search by tag description (phrase 'contains', 'starts with', 'ends with', 'equals')

After selecting the requested tag from the list, the **Add tag** button places the new tag on the view. The new tag is automatically placed at the bottom of the list.

How the new tag should be represented in the view is set by the **Options** radio buttons.

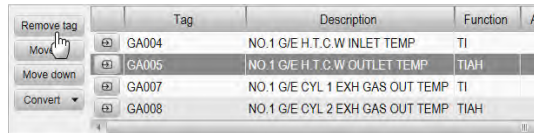
It is also possible to add tags directly from the process view. Right clicking

on the tag wanted will give you the option to add it to a custom view.



Remove tags

All tags can be removed from the **Custom** view. A tag is removed by the **Tabular** area by selecting the relevant line and then clicking the **Remove tag** button. A tag is removed from the **Pane** area by clicking the **Delete** button. See the following illustrations.



	Tag	Description	Function	A
Remove tag	GA004	NO.1 G/E H.T.C.W INLET TEMP	TI	
Move up	GA005	NO.1 G/E H.T.C.W OUTLET TEMP	TIAH	
Move down	GA007	NO.1 G/E CYL 1 EXH GAS OUT TEMP	TI	
Convert	GA008	NO.1 G/E CYL 2 EXH GAS OUT TEMP	TIAH	



Move up / move down

In the **Tabular** area, tags can be moved up or down the list using the **Move up** and **Move down** buttons.

Operator dialogues, parameters

Topics

- *Operator dialogue functionality* on page 95
- *Summary tab* on page 98
- *Trend tab* on page 99
- *Help tab* on page 101
- *Alarm parameters tab* on page 99
- *Parameters tab* on page 100
- *I/O tags tab* on page 100

Operator dialogue functionality

Purpose

The operator dialogue is a secondary window which groups all commands and parameters specific to the symbol selected or tabular list view.

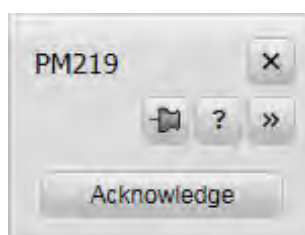
A title bar identifies both the basic and the detail view. The title will typically contain the process station node name, function module name and module description. As the basic view has a maximum width defined, if necessary the title information will be shown in full by the mouse tooltip.

Basic view

The basic view consists of two main compartments:

- The toolbar pane
- The operational controls

Figure 33 Basic view



Toolbar pane

The toolbar pane is located directly below the title bar of the operation dialogue. The toolbar pane consists of three buttons:

- Pin
Use this button to pin the operation dialogue to the screen. When pinned, the dialogue will stay on the screen even if the process view is changed or other operation dialogues are opened.



- Help

Use this button to navigate to the help tab (in the detail view).



- Extend (toggle)

Use this button to extend the operation dialogue to its detail view. One more click will return to the basic view.



Message icons

To the left of the buttons, there is space available for an icon presenting error and warning information. This icon only appears when necessary. There are three icon types:

- Information: This icon informs the operator that useful information is presented.



The following situations will generate a message:

- No access control

If an operation is not available due to lack of access control, this will be shown by the information icon in the toolbar pane and a balloon.

- No command control

If an operation is not available due to lack of command control, this will be shown by the information icon in the toolbar pane and a balloon.

- Warning: This icon alerts the operator of a condition that might cause a problem in the future.



- Error: This icon alerts the operator of a problem that has already occurred.



Operational controls

The compartment for operational controls is located below the toolbar pane. Normally a description of each operation control will be shown as tooltip information.

If one or more alarms are configured for the module, an **Acknowledge** button will always be available at the bottom of the basic view. Additional control functionality to be present in this compartment is dependent on the module. Typically this will include control buttons for **Start**, **Stop**, **Set-point**, **Reset** etc. Such control functionality is described in detail in the procedural chapters of this manual.

Closing the operational dialogue

Assuming an operation dialogue is not pinned, it will stay open until the operator performs one of the following:

- Closes it manually
- Clicks somewhere else in the process view
- Clicks on another module to open another operation dialogue
- Navigates to another process view

A change of user will also close dialogue boxes (log off/log in).

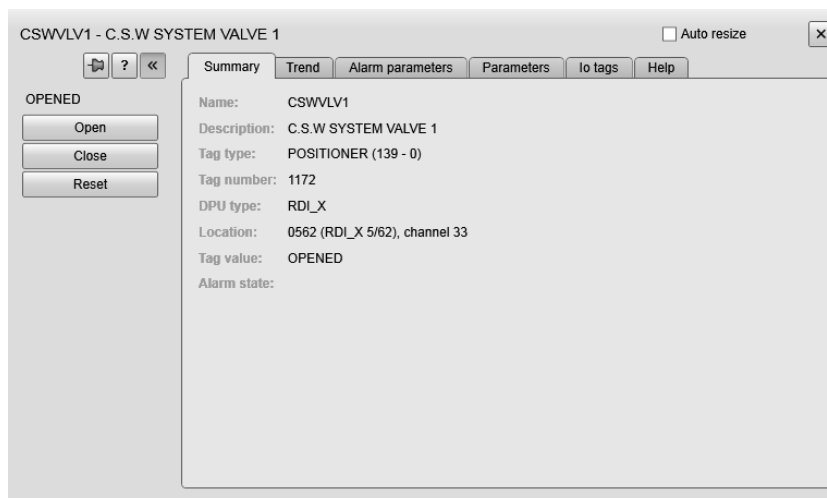
Note

Some commands button may be grayed out or hidden depending on specific project configuration.

Detail view

The detail view consists of the basic view plus additional tabular views.

Figure 34 Detail view

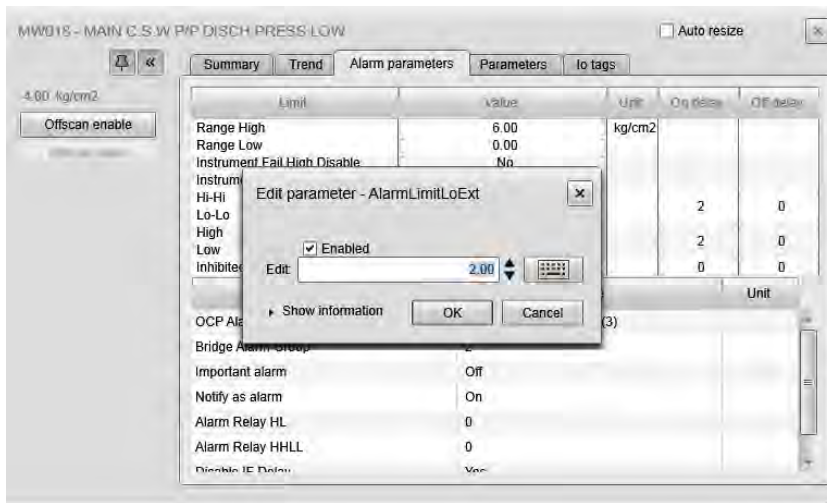


The detail view will consist of a combination of the following tabs, depending on the availability of the different functions, the current user privileges and system mode:

- Summary
- Trend
- Alarm parameters
- Parameters
- IO tags
- Help (apply for control tags only)

Values in square brackets [] can be edited by the user. Log on as Poweruser (typically Chief) is required to edit parameters.

Figure 35 Editing cells

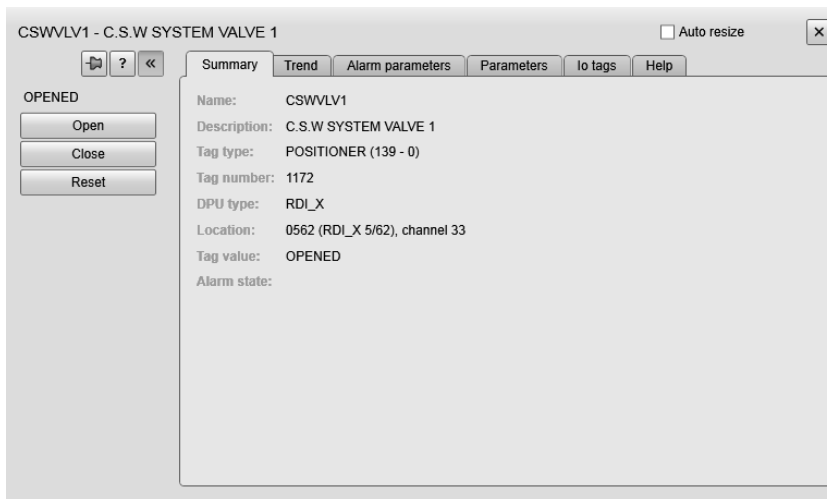


Text and values can be inserted using the on-screen keyboard.

Summary tab

This tab is used to give a quick overview of the most important object parameters, as the following example.

Figure 36 Summary tab



Trend tab

This tab is used to show context sensitive trend for the selected object. In case there are both analogue and digital signals, these will be drawn as separate graphs.

Trends are scalable so it is possible to adjust the graphs to the available space on the tab, as in the following example.

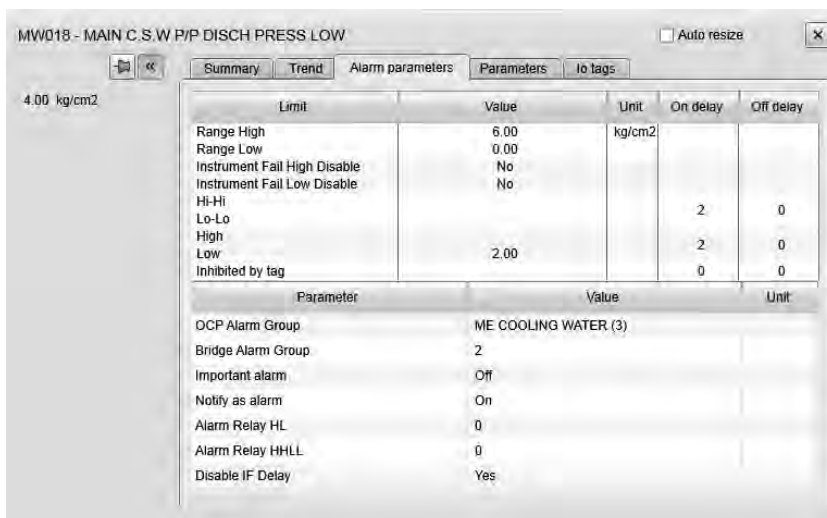
Figure 37 Trend tab



Alarm parameters tab

This tab is used to show alarm parameter settings for the selected object, as in the following example.

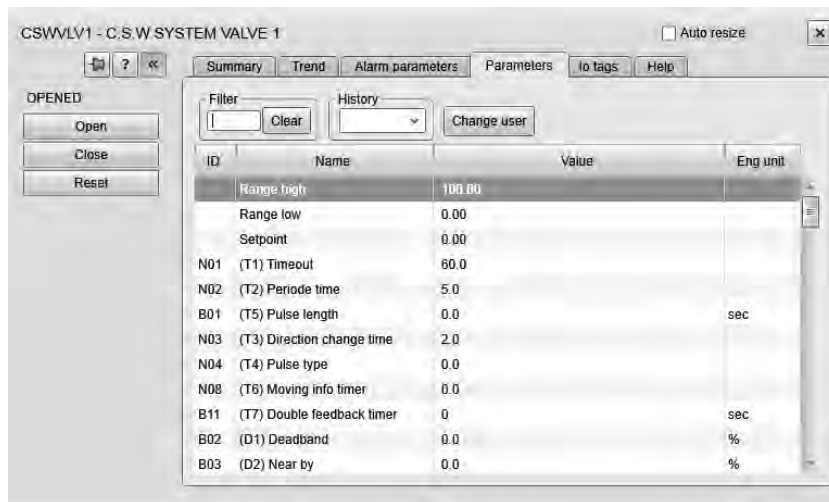
Figure 38 Alarms tab



Parameters tab

This tab is used to show tag parameter settings for the selected object, as in the following example.

Figure 39 Parameters tab

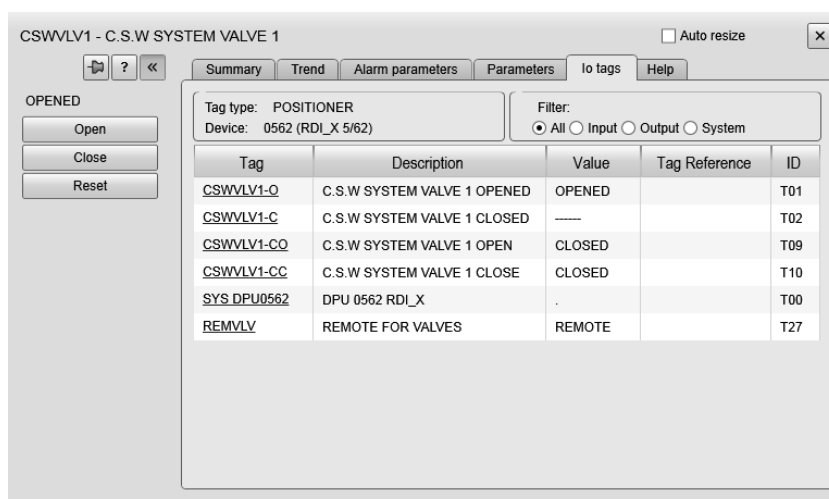


I/O tags tab

This tab is used to show all I/O tags connected to the selected object.

It is possible to filter tags by type (input tags, output tags or system tags), as in the following example.

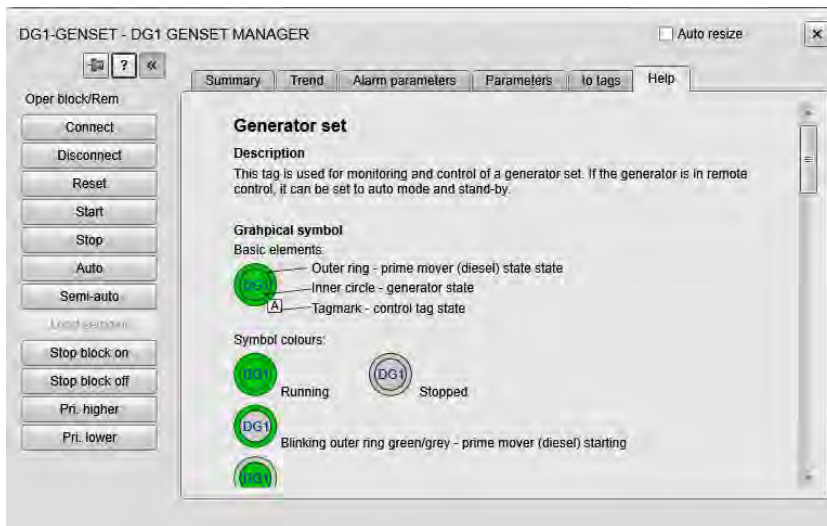
Figure 40 I/O tags tab



Help tab

This tab is used to show context sensitive help for the selected object, as in the following example.

Figure 41 Help tab

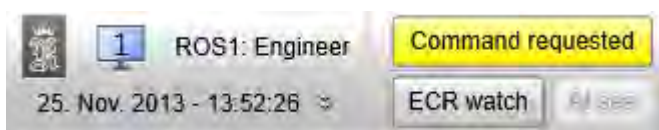


Operator dialogues, Command Control system

See also operational procedures for Command control *Command Control procedures* on page 178

Command Control dialogue

The **Command Control** dialogue is used to show all available control groups, and also which locations are in the control of the different groups at the moment. This dialogue is activated using the **Command Control** button located on the top bar.

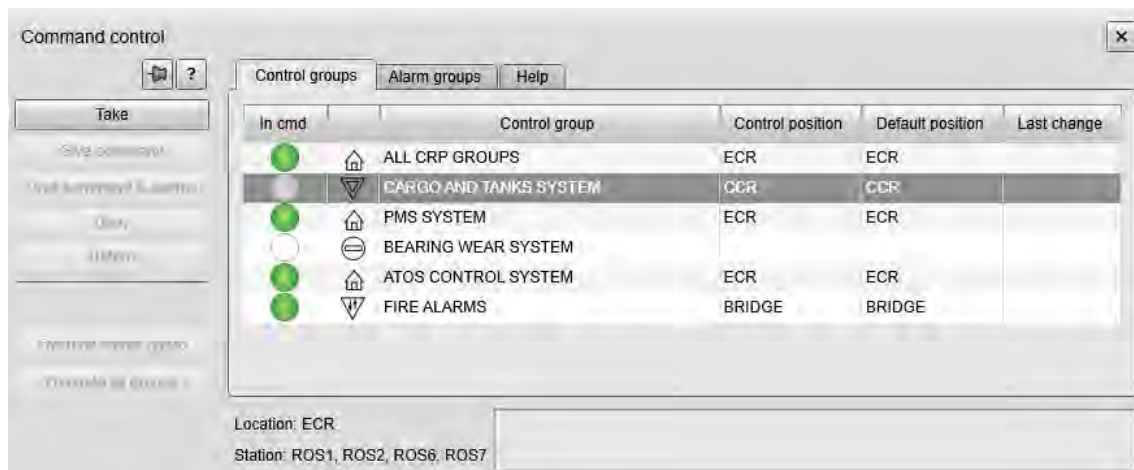


The following command buttons are available in the dialogue:

- Take: take or request command control over selected command group
- Give command: accept command transfer. Only command is transferred. Alarm acknowledge remains in default location.
- Give command & alarms: accept transfer of command and alarm acknowledge to remote location.
- Deny: Denies request for Command Control.
- Return: Returns Command Control back to the default location.
- Override single group: Overrides single group access .
- Override all groups: Overrides all groups access. May be used to take over control required by “safe return to port”









If an operation is not possible, the relevant command button is greyed.

Figure 42 Command Control dialogue – Control groups tab



Command groups have specific properties depending on location. This is identified by symbol in the dialogue. These properties are pre-defined by project and cannot be changed by operator onboard. See table below:

Table 7 Control group status

Symbol	Command group property	Description
	Default group	Default group for current location. User has access to commands and alarm acknowledge for this Command group
	Requestable	Command for this group can be requested from default location. Command transfer must be confirmed by default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Requestable with alarms	Command and alarm handling for this group can be requested from default location. Command transfer must be confirmed by default location. Default location can give command only access or command with alarm acknowledge responsibility.
	Shared	Command of this group is shared between two or more locations. All items within this group can be operated simultaneously by two locations. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Shared with alarms	Command and alarm acknowledge for this group is shared between two or more locations. All items within this group can be operated simultaneously by two locations.
	Takeable	Command of this group can be taken without confirmation from default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Takeable with alarms	Command of this group can be taken without confirmation from default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Transfer not allowed.	Command transfer of this group is not allowed. Only emergency override may be used.

Current state of the command group is indicated by coloured spot indicator. The indication is dynamic and changes according to command group current state.

Table 8 Control group status








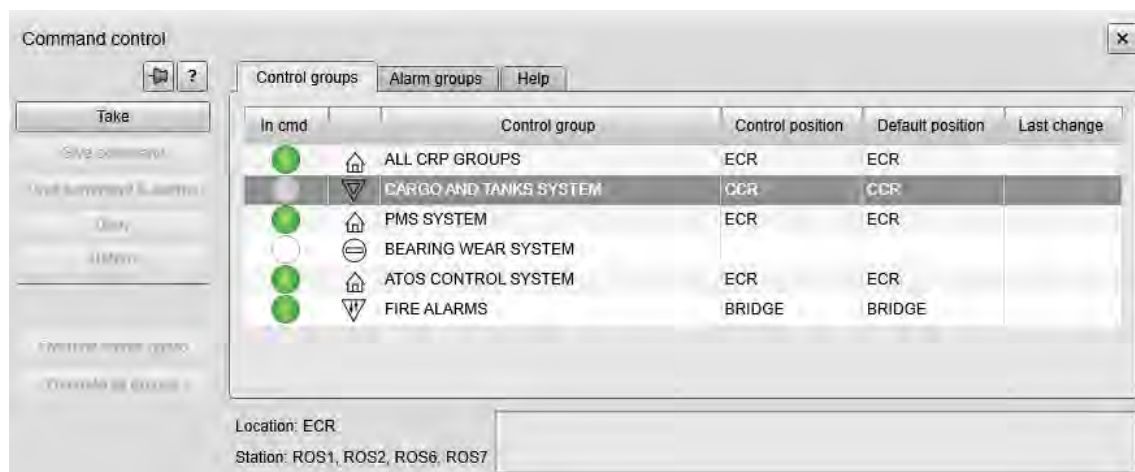
Command group state	Indication at default location	Indication as non-default location
Group responsibility at default location	 Default location holds full access to the command group.	 This group can be requested or taken from default location.
		Alternatively:  This group cannot be requested or taken.

Table 8 Control group status (cont'd.)

Command group state	Indication at default location	Indication as non-default location
Group responsibility transfer in progress.	 (blinking) Group access has been requested and awaiting confirmation from default location.	 (blinking) Group access has been requested and awaiting confirmation from default location.
Group responsibility at remote location.	 Group responsibility has been transferred and belongs to remote location.	 Group responsibility has been transferred and belongs to remote location.

Control groups tab

Figure 43 Command Control dialogue – Control group tab



The **Control groups** tab gives the following information:

- Colour spot: Indicates current state of the command group at current location. Indication is dynamic and can change depending on group transfer state. See table “Control group status” above.
- Group property symbol: Indicates property of each group. This property is pre configured and static.
- Control group : name of the control group.
- Control position: Location having currently command rights of the group.
- Default position: Location having default command and alarm acknowledge rights of the group. The system remembers the last command change for every control group.
- Last change: in format MONTH DAY HOURS:MINUTES

The **Control groups** tab holds two status lines, for current location and Operator Station at the current location.

Last status change for selected group is visible in the status area at the bottom of the dialogue.

Alarm groups tab

The **Alarm groups** tab displays all alarm groups associated with each **Command control** group.

The **Alarm groups** tab can be selected either by manual selection of a control group and then selecting the **Alarm groups** tab, or by double-clicking a control group row.

Command group can be filtered using drop-down selection.

Figure 44 Command Control dialogue – Alarm groups tab

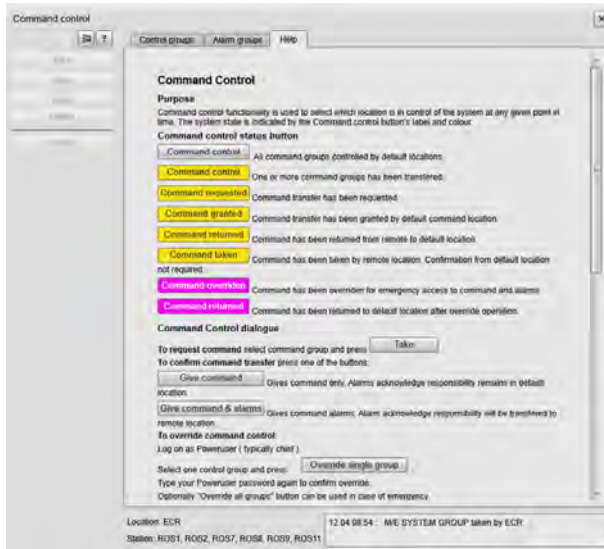


The **Alarm groups** tab gives the following information:

- Group number: Number of alarm groups configured in selected command group
- Name: Alarm group name
- Show all tags in the group shortcut
- Alarms: indicate number of active alarms in the group

Help

Context based help is available in the last tab in the command control dialogue.



Operator dialogues, Watch Call system

See also cabin panels description on page

Watch Call dialogue basic view

The **Watch Call** dialogue displays all duty engineers and all available commands within the current Operator Station.

Figure 45 Watch Call dialogue, basic view, ECR only



Figure 46 Watch Call dialogue, basic view, ECR and CCR



Communication failure with the cabin unit is indicated in the top left corner. Tooltip gives more details about the failure. To see all detailed information open the extended view and select the Network tab.

Watch Call dialogue extended view

The extended view of the **Watch Call** dialogue gives the operator additional information on groups and alarms. The following examples are Engine related (in ECR), but corresponding Cargo related tabs and dialogues are available in K-Chief 600 systems with Cargo watch functionality (in CCR).

The extended view contains the following tabs:

- 1 Alarm groups (for Engine and/or Cargo)
- 2 Alarm view (for Engine and/or Cargo)
- 3 Configuration

4 Network

Two status lines, for Engine and for Cargo, are placed at the bottom of the dialogue. Note that the Cargo status line is hidden in K-Chief 600 systems without Cargo watch functionality.

Alarm groups tab

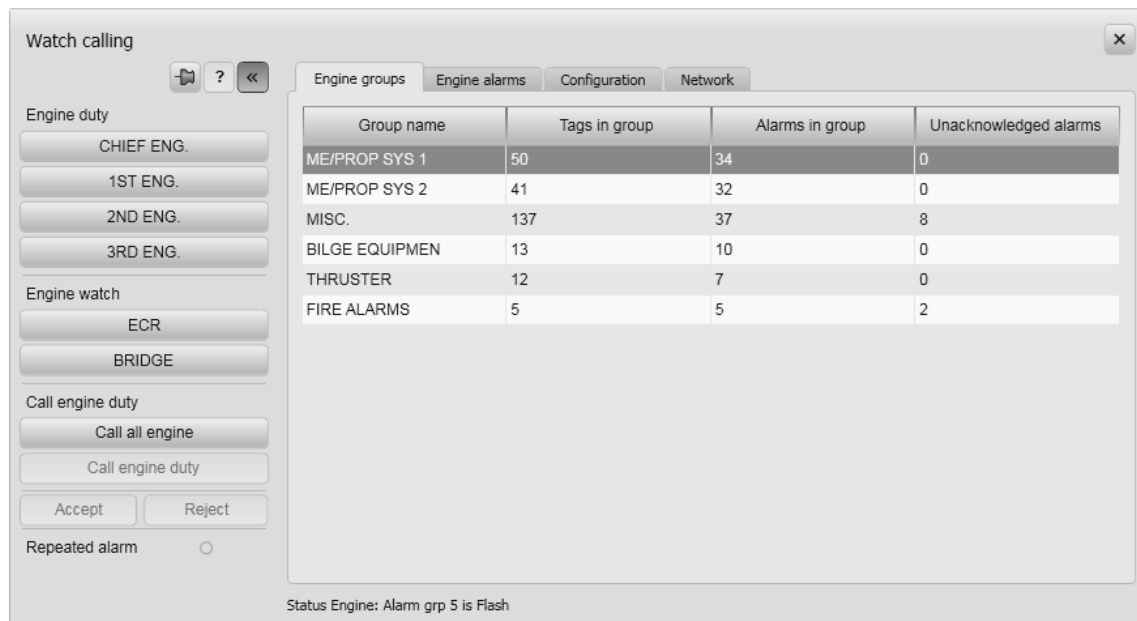
This tab displays alarm groups.

Selecting and double-clicking a row will open the **Alarm view** tab showing all active alarms in the selected group.

The tab gives the following information:

- Name of alarm group
- Number of alarm tags in each group
- Number of alarms in each group
- Number of unacknowledged alarms in each group

Figure 47 Alarm groups tab



Alarm view tab

This tab lists all alarms.

The functionality of the tab is as follows:

- All columns can be sorted (time, tag, description, value)
- Alarms are by default sorted by time, with the last alarm on top
- Short-cut to the process view is available. This is similar to other tabular views.

The combo box on the top of the tab is used for quick filtering by selected group.

Figure 48 Alarm view tab

Status	Time	Tag	Description	Value
✓ A	10:15:58.091	BE105	BILGE AFT M/C SPACE HIGH LEVEL	ALARM
✓ A	06:53:31.308	BE106	BILGE STAB. COMP SB HIGH LEVEL	ALARM
✓ A	10:16:12.599	BE107	BILGE STERN THR COMP HIGH LEVEL	ALARM
✓ A	10:15:54.600	BE108	BILGE STEERING GEAR PS HIGH LVL	OPEN
✓ A	10:15:54.600	BE109	BILGE STEERING GEAR SB HIGH LVL	OPEN
✓ A	10:15:54.600	BE110	BILGE ENG. ROOM PS HIGH LEVEL	ALARM
✓ A	10:15:54.600	BE111	BILGE ENG. ROOM SB HIGH LEVEL	ALARM
✓ A	10:15:54.600	BE112	BILGE STAB. COMP PS HIGH LEVEL	ALARM
✓ A	10:15:40.091	DG100	DG 1 COMMON ALARM	ALARM
✓ A	10:15:54.600	DG102	24V CHARGER DG 1 FAILURE	ALARM
✓ A	09:15:40.091	DG200	DG 2 COMMON ALARM	ALARM
✓ A	09:15:54.600	DG202	24V CHARGER DG 2 FAILURE	ALARM
✓ A	09:15:40.091	DG300	DG 3 COMMON ALARM	ALARM

Status Engine: Alarm grp 5 is Flash

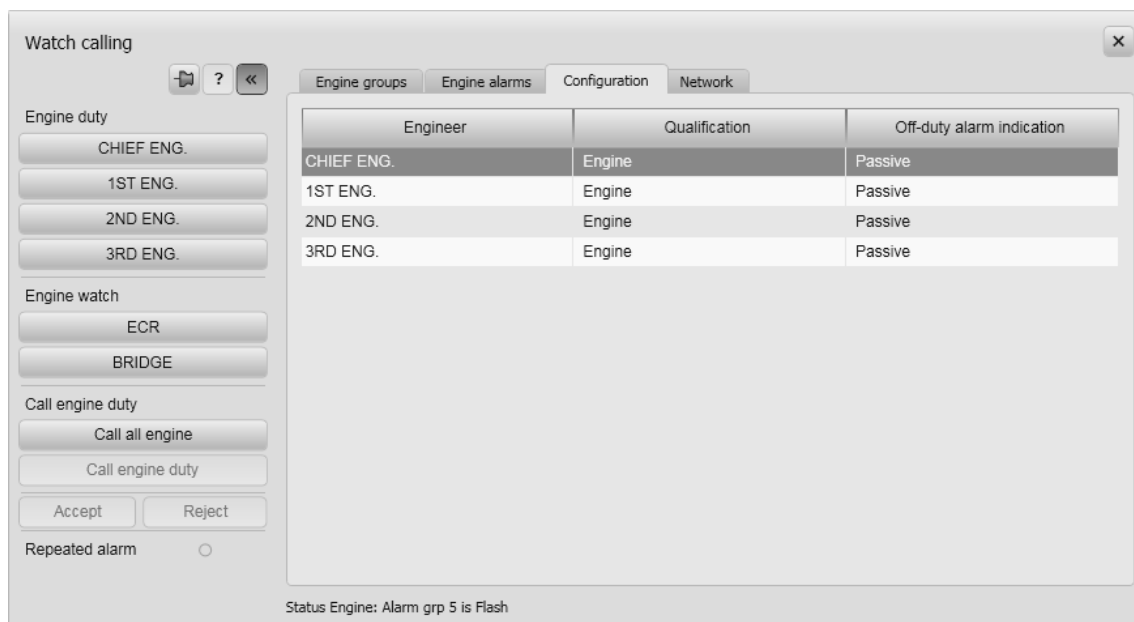
Configuration tab

This tab displays 'Qualification' and 'Off duty alarm indication' for each duty engineer.

The tab gives the following information:

- Engineer: duty engineer rank
- Qualification : engineer qualifications. This setting can be changed by operator.
 Engine — engineer is qualified for engine watch only.
 Cargo — engineer is qualified for cargo watch only
 Multipurpose — engineer is qualified for both engine and cargo watch
- Off duty alarm indication. This setting can be changed by operator.
 Active — alarm panel will show alarms (with no sound) even if engineer is off-duty
 Pasive — alarm panel will not show any alarms

Figure 49 Configuration tab



Note

User qualifications and Off-duty alarm indication can be changed online by operator. Log on as Poweruser (typically chief) to have access to these settings.

Network tab

This tab displays the operational status of all Watch Call panels.

The tab gives the following information:

- Serial number: Shows the serial number of the panel.
Note that leading zeros, if any, are not shown.
- Connection status: Shows the connection status of the panel.
If the connection status is considered abnormal, the text is coloured red.
- Last change: Indicates date and time (hours and minutes only) of last panel activity.

Figure 50 Network tab

Serial no.	Connection status	Last change	User
063944	OPERATIONAL	04.04.2012 13:22:11	
063357	OPERATIONAL	04.04.2012 13:22:11	Chief engineer
063353	DISCONNECTED	04.04.2012 13:22:11	2nd engineer
063332	OPERATIONAL	04.04.2012 13:22:11	3rd engineer
063358	OPERATIONAL	04.04.2012 13:22:11	4th engineer
063344	OPERATIONAL	04.04.2012 13:22:11	
063362	OPERATIONAL	04.04.2012 13:22:11	
063366	OPERATIONAL	04.04.2012 13:22:11	
063360	OPERATIONAL	04.04.2012 13:22:11	

Status Engine: Server is running

Note

Serial numbers can be modified by operator . This is required when replacing defected cabin panel. Log on as Poweruser (typically chief) to have access to these settings.

System tools

This section describes various system tools. They can be accessed from the **System** button in the top bar.

Topics

- *Print* on page 113
- *Report Manager* on page 115
- *Deviation alarm parameters* on page 118
- *Date and time adjustment* on page 120
- *User access* on page 122
- *Database backup* on page 125
- *Software versions log* on page 126

Print

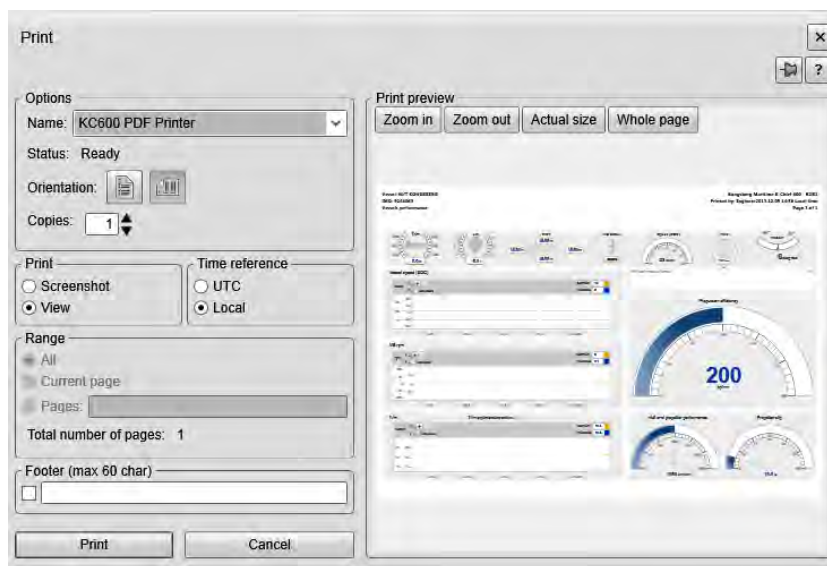
Purpose

The purpose of the **Print** dialogue is to print or save selected system data. It is possible to print both process views and list views.

The printing function is activated by clicking the **Print** button  in the top bar.

This opens the basic print dialogue.

Figure 51 Print dialogue



The print header is automatically generated, and includes information on ship, operator, report type, time and date, as following.

Vessel: M/S Explorer
 IMO: 12355474556
 UTC
 Active alarms report

Kongsberg Maritime K-Chief 600
 Printed by: Chief 12 dec. 2009 08:12
 Page 1 of 23

Options

- **Name:** Select a printer from the list of printers available.
 Network printers can be selected from the list.
 Depending on project configuration it may also be possible to print to K-Chief 600 PDF printer
- **Status:** Displays status information for the selected the printer.
- **Orientation:** Select page orientation.
- **Copies:** Select the number of copies to be printed.

Print

- **Screenshot:** Select print of process view.

- View: Select print of list view.

Time reference

- UTC: Tabular view data and header will use UTC time reference
- View: Tabular view data and header will use Local time reference

Page range

- All: Print all pages.
- Current page: Print only the current page.
- Page: Print range of pages in format “1st page— last page” , for exmple: 5–20

Footer

Customized footer text may be printed at the bottom of the printout.

Print preview

Print preview enables the operator to see the page before it is printed.

Report Manager

Purpose

The **Report Manager** dialogue serves three main tasks:

- Open and view reports through the **Report explorer** tab.
- Export documents through the **Report explorer** tab.
- Print selected views through the **Print scheduler** tab.

The dialogue is opened by selecting **Menu**→**System**→**Report Manager**.

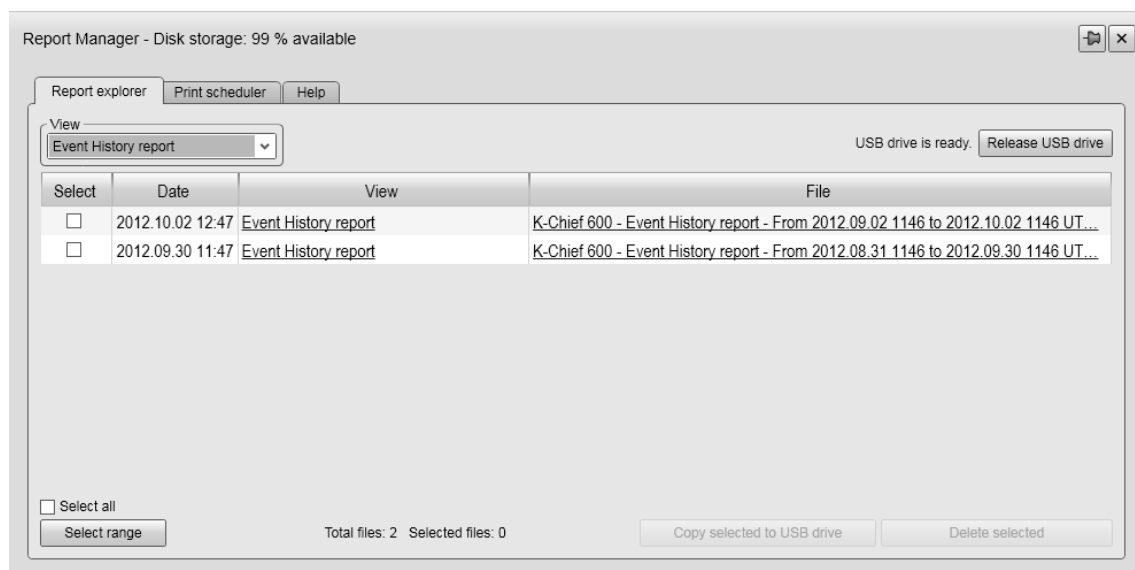
Report explorer tab

The **Report explorer** allows to open documents, delete them and export to external USB drive. Reports are typically documents printed by K-Chief 600 PDF printer on local drive.

Note

Only documents saved in PDF format are selectable.

Figure 52 Report explorer tab



After inserting a USB memory stick, the requested document can be exported by selecting it from the list and then clicking the **Send to USB** button.

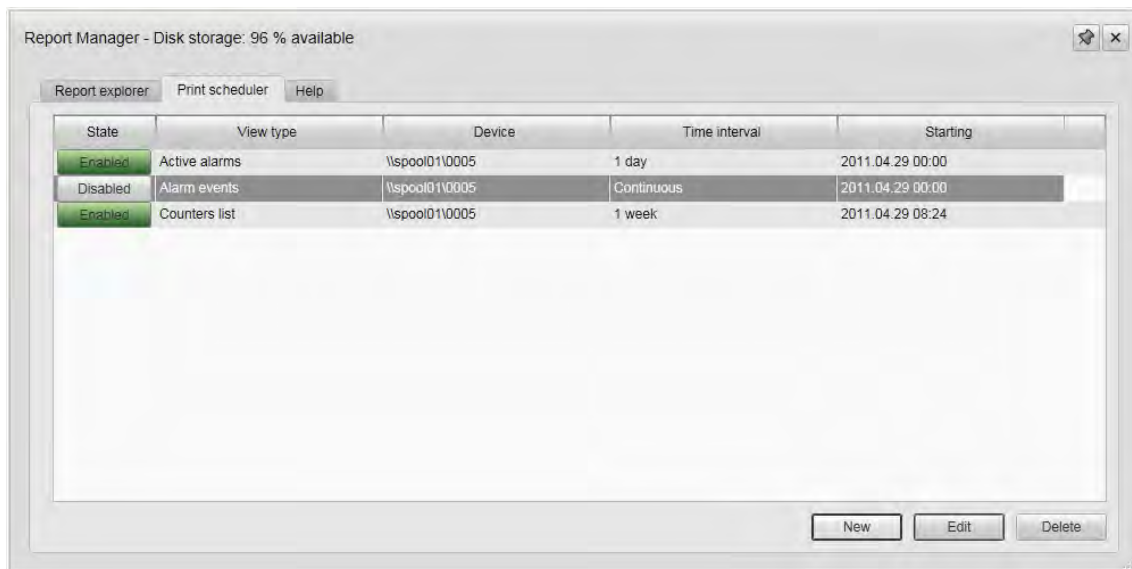
It is recommended to click the **Release USB drive** button before removing the USB memory stick.

Print scheduler tab

The **Print scheduler** allows to schedule printouts of the live data (typically Alarm history logs). Scheduled task can be enabled, disabled on demand. User can also delete unnecessary schedules.

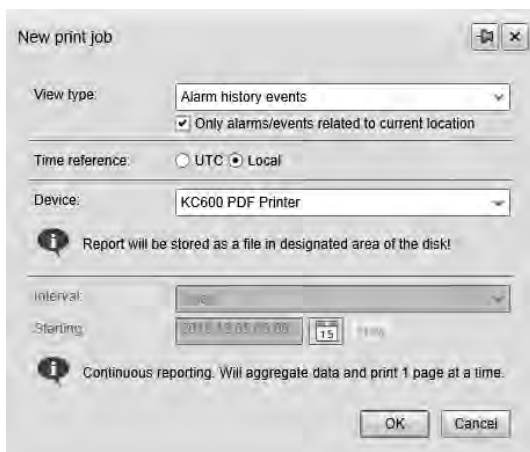
- State: This button is used to **Enable** or **Disable** the task.
- View type: This field displays what type of view is selected.
- Device: This field displays which printer is selected.
- Time interval: This field displays the print interval selected.
- Starting: This field displays the start date and time for the print job.

Figure 53 Print scheduler tab



Print jobs are managed using the **New**

Figure 54 New print job dialogue



Set following data in the dialogue to set up new scheduled task:

- View type: Select tabular view from the drop-down list.
Select check box below dropdown menu if only alarms related to the current location should be printed (for example only machinery alarms in the ECR, or cargo alarms in the CCR).

- Time reference
Select UTC or Local time.
- Device: Select printer from the drop-down list.
The built-in K-Chief 600 PDF printer or any external printer connected to the OS network can be selected.
- Interval: Select predefined print interval from the drop-down list.
Selectable print intervals are: 1 hour, 3 hours, 6 hours, 12 hours, 1 day, 1 week, 1 month.
Alarm events are printed continuously by aggregating data and printing full pages
- Starting: Select start date and time for the print job

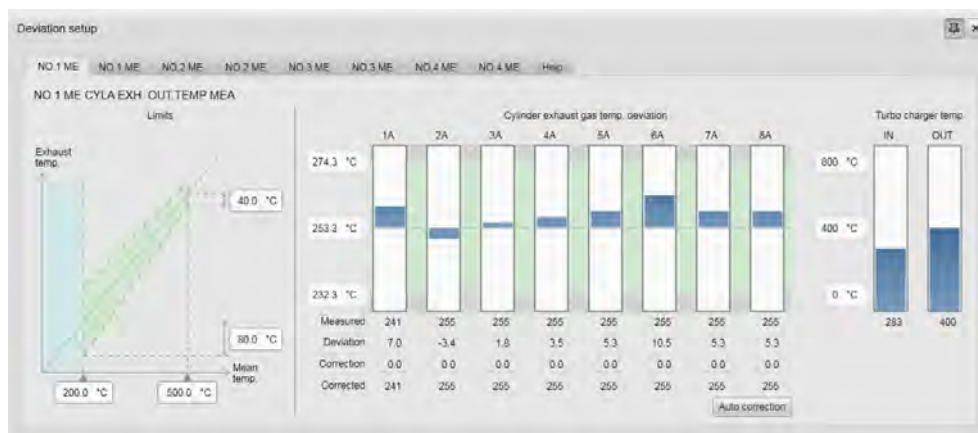
Deviation alarm parameters

Purpose

The purpose of the **Deviation alarm parameters** dialogue is to adjust parameters related to exhaust deviation and limits.

The dialogue is opened by selecting **Menu**→**Tools**→**Deviation alarm parameters**.

Figure 55 Deviation alarm parameters dialogue



The dialogue is divided into the following two sections:

- Limits (left part of dialogue)
- Deviations and temperatures (right part of dialogue)

Limits

This part of the dialogue displays a static illustration. The curved graph shows how cylinder exhaust temperature deviation at high and low alarm limits relates to the engine's mean temperature.

Deviations and temperatures

This part of the dialogue is used to adjust exhaust gas deviation corrections.

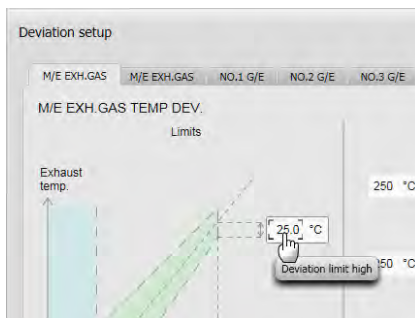
The dialogue displays a set of bar graphs reflecting the actual number of cylinders on the engine. The bar graphs show measured cylinder temperature relative to mean temperature and the allowed deviation. The mean temperature points at the centre of the bar graph. The maximum and minimum deviation points at 10 % and 90 % of the bar graph respectively.

If there are more than one engine controlled by the system, each engine is represented by its own tab on the dialogue.

The dialogue also displays bar graphs for turbo charging, reflecting the inlet and outlet temperatures respectively.

Parameter adjustments

All parameters displayed by the dialogue have tooltip information.



Some of the parameters may be manually adjusted. This is indicated by square brackets. Clicking on the requested parameter opens a pop-up dialogue where the new value can be set.

The **Auto correction** button is used to automatically set corrections, that is aligning all corrected values to the mean temperature. The button **Reset corrections** allows to reset all corrections.

Note

User must log on as Power user to edit parameters.

Related topics

- *Exhaust mean value tag items* on page 198
- *Exhaust deviation tag items* on page 201

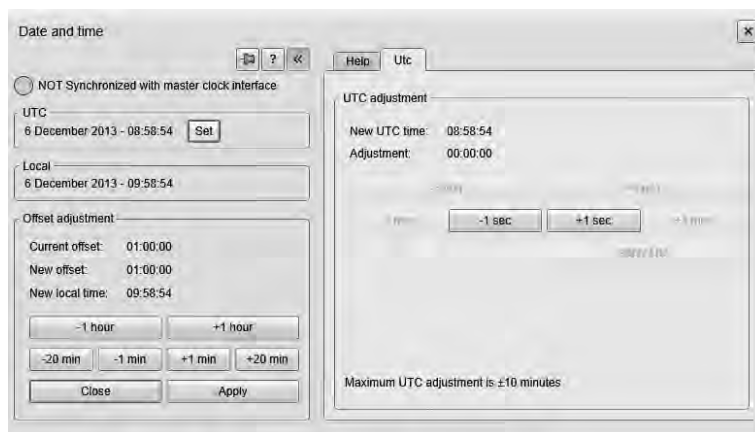
Date and time adjustment

Purpose

The purpose of the **Date and time adjustment** dialogue is to be able to adjust date and time settings.

The dialogue is opened by selecting **Menu**→**System**→**Date and time**.

Figure 56 Date and time adjustment dialogue



Master clock status

LED indicates synchronization with a master clock interface:

- Grey: Synchronization with master clock is disabled.
- Green: Synchronization with master clock is enabled.
- Red: No synchronization with master clock. Possible communication failure.

UTC

This field displays UTC date and time.

To compensate computer time drift. UTC time may also be adjusted if necessary. This can be adjusted with 1 second steps.

Note

Log on as Master user to change UTC time

Local

This field displays local date and time.

Offset adjustment

Local time can be adjusted only if the system is not synchronized with master clock.

This field holds the following information and buttons:

If the master clock only provides UTC date, local time settings are still available for adjustments.

Seconds are always synchronized with UTC time.

User access

Purpose

The purpose of the **User access** dialogue is to manage K-Chief 600 users and user properties. Typical tasks are set default user, add/remove users, manage user passwords and so on.

The following table presents the user groups defined in the K-Chief 600 system. If defining a new user, he must be set as member of one of the predefined user groups.

Table 9 User group definitions

Task description	User groups				
	Guest	User	Power user	Administrator Master	Administrator Kongsberg
View all tabular and process views, and dialogues	Yes	Yes	Yes	Yes	Yes
Access KM Help	Yes	Yes	Yes	Yes	Yes
Add tags to Trend and Custom views	No	Yes	Yes	Yes	Yes
Print	No	Yes	Yes	Yes	Yes
Acknowledge alarms	No	Yes	Yes	Yes	Yes
Report Manager operations	No	No	Yes	Yes	Yes
Restart or shutdown Operator Station	No	No	Yes	Yes	Yes
Override tag values	No	No	Yes	Yes	Yes
Lap counter reset	No	No	Yes	Yes	Yes
Change tag parameters	No	No	Yes	Yes	Yes
Add and delete users	No	No	No	Yes	Yes
Set UTC time	No	No	No	Yes	Yes
Total counter reset	No	No	No	Yes	Yes
Full system access	No	No	No	No	Yes

Basic operator dialogue

The basic operator dialogue is opened by selecting **Menu**→**System**→**Change user**. When the dialogue opens, the latest user name is displayed.

Figure 57 User access dialogue (basic)



The dialogue offers two methods for changing the user:

- Pressing the **Change user** button: This may change to any user defined by the system. The user is selected from the drop-down list in the combo box and the corresponding password must be entered.
- Pressing the **Change to default user** button: This will change to the default user, as defined in the extended operator dialogue.

Note

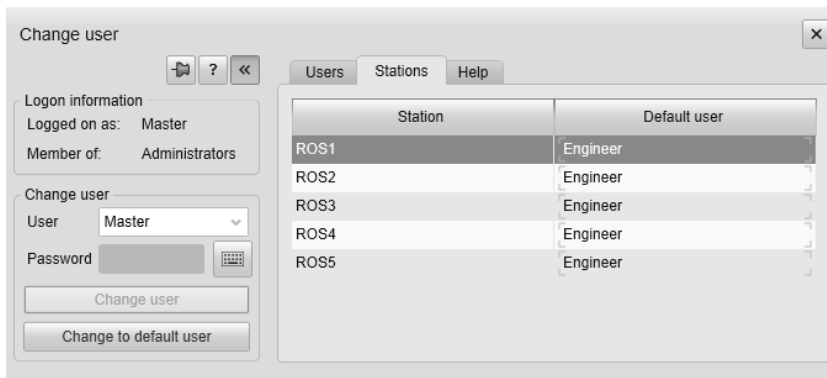
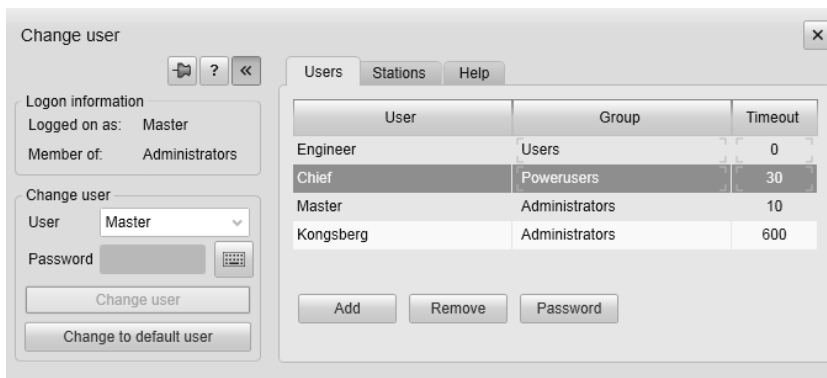
By default the password is always equal to the user name (not case sensitive). Each user can change its own password.

Extended operator dialogue

Note

Log on as Master user in order to add, remove user, or reset user password.

Figure 58 User access dialogue (extended)



The extended operator dialogue is used to manage users and user properties. This dialogue holds two tabs:

- Users, with the following functions:
 - Add user: creates new user. By default user will belong to “Users” group and have same password as its user name (password is not case sensitive)
 - Remove user: deletes selected user
 - Remove user: deletes selected user
 - Password: each user can change its own password, Master logged on user can reset any password.
 - Group: assign group for each user name. Group determines privileges of the user.
 - Timeout: in case of user inactivity, the system will automatically change to default user. Time in minutes. 0 = timeout disabled. All users can change their own password. Master user can change passwords without knowing the old one.
- Stations, with the following function:
 - Master user can set default user for each Operator Station. Operator station will log on automatically to this user upon reboot. This is user account used by **Change to default user** button

Note

'Kongsberg' user is for internal Kongsberg Maritime use only.

Database backup

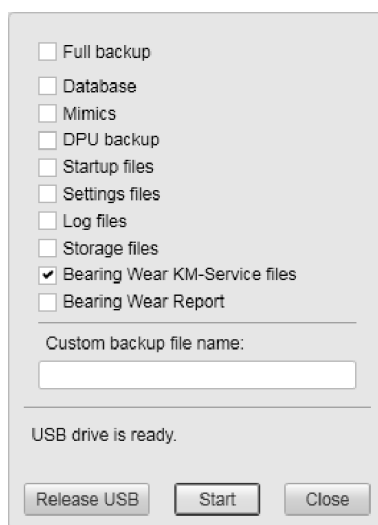
Purpose

The purpose of the **Database backup** dialogue is to make it possible to take backup configuration database, settings and log files.

This operation is only available for **Power users** or higher.

The dialogue is opened by selecting **Menu**→**System**→**Maintenance**→**Backup**.

Figure 59 Data backup dialogue



Using the dialogue

Insert USB memory device into USB port of the Operator station.

Select **Full backup** if a backup of a complete configuration is required.

Select or deselect individual items if only part of the configuration to be copied

When clicking **Start** the backup file is created and automatically zipped. The naming convention of the zip file is as follows:

ProductName_Backup_Date_Yard_Hull_ShipName_OSNumber_IMO_Full.zip

or

ProductName_Backup_Date_Yard_Hull_ShipName_OSNumber_IMO_Partial.zip

Press **Start** to create backup file and copy it USB device.

Press **Release USB** to release USB device.

Software versions log

Purpose

The purpose:

- Give an overview or current software versions of all hardware and software components.
- Track software changes and upgrades.
- Track hardware changes by serial number tracking

The view is opened by selecting **Menu**→**System**→**Software versions log**.

Figure 60 Software versions log view

Device	Name	Version	Serial No	Updated
RDS1				
Programs				
Application	CS00 OS.exe	1.8.8.23725		2012.03.19 10:12:37
Application	DBMerge.exe	1.0.0.0		2012.03.19 10:12:37
Application	DIM.exe	1.0.0.0		2012.03.19 10:12:37
Application	Dis.exe	1.0.23.1		2012.03.19 10:12:37
Application	WinCs.exe	0.9		2012.03.19 10:12:37

Using the view

When opening the view, all entries are displayed as collapsed.

Entries may be manually expanded or collapsed using the ► or ▼ buttons on the left side of the view.

Buttons functions:

- **Expand current versions** expands all entries with current software version only.
- **Expand all** expands all entries with current software version and update history.
- **Collapse all** collapses all rows

The view may be printed. The report will be printed as presented on the screen.

Operator panels

Overview

This chapter explains how to use the control functions and displays of the K-Chief 600 Operator Panels.

Topics

- *Control Room Panel (CRP)* on page 128
- *Touch Control Panel (TCP)* on page 132
- *Touch pad panel (TPP)* on page 136
- *Tracker ball panel (TBP)* on page 137
- *Alarm & Control Panel (ALC)* on page 138
- *Input Panel (INP)* on page 141
- on page

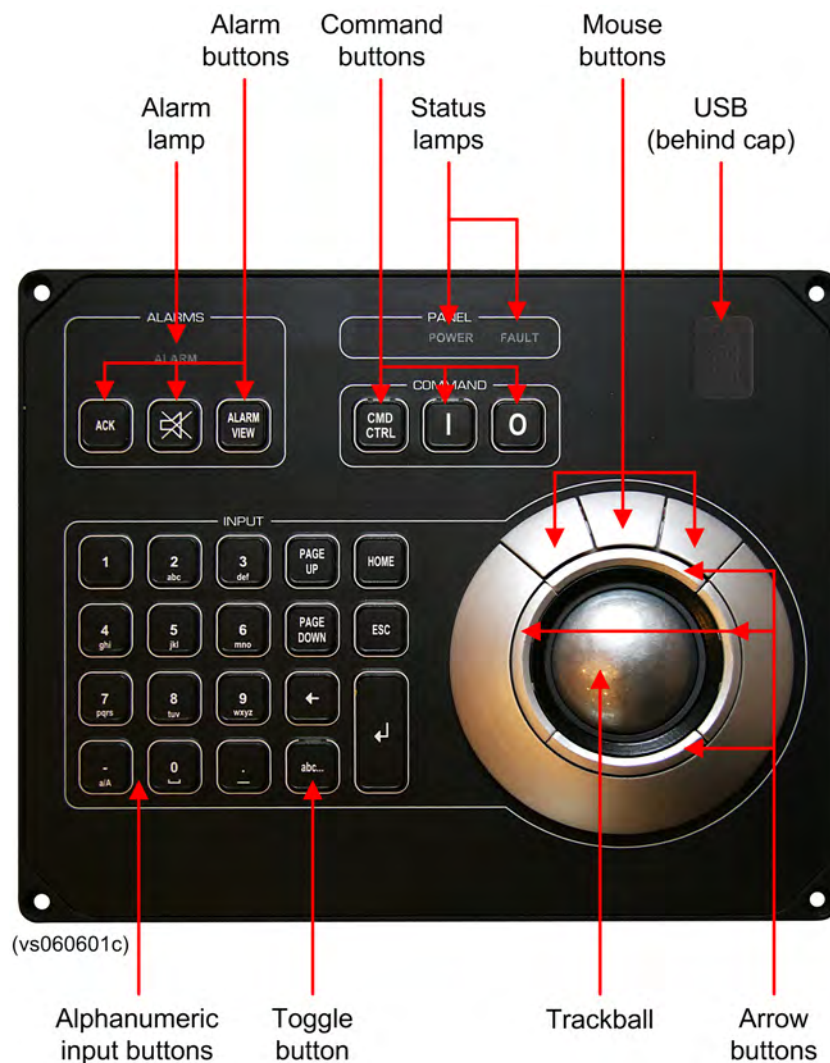
Control Room Panel (CRP)

Understanding the CRP

The CRP is a specially designed keyboard which provides easy access to the operator functions. It is divided into separate function areas.

The following illustration shows the layout of the CRP. The different buttons found on the panel can be divided into groups. The button groups are explained in the following section.

Figure 61 Control Room Panel (CRP) layout



ALARM group buttons and lamp

The ALARM group comprises one lamp and three buttons.

ALARM LAMP

The lamp is blinking red when an alarm has been detected. The lamp is steadily lit when the **ACK** button has been pressed and the alarm is still active.

**ACK**

When the **ACK** button is pushed, the alarm will be acknowledged. Two things will happen simultaneously. The alarm buzzer will be silent, and the alarm text will change colour to indicate the acknowledgement.

**SOUND OFF**

When the **Sound off** button is pushed, the alarm sound will be silent.

**ALARM VIEW**

The **Alarm view** button opens the **Active alarms** view when it is pushed.

PANEL group lamps

The PANEL group comprises two lamps.

POWER

The lamp is lit green when the panel is on, and the power is OK.

FAULT

The lamp is lit red when the panel has lost contact with the computer, or the computer is turned off.

COMMAND group buttons and lamps

The COMMAND group comprises two buttons with lamps and one button without a lamp. They are used to transfer access and control.

**CMD CTRL**

When this button is pushed, the **Command Control** operator dialogue will be opened. The window contains information of for example who has control/access.

**1**

Push this button to activate the first default operation defined for an object selected on a process view. Example: Open valve.

**0**

Push this button to activate the second default operation defined for an object selected on a process view. Example: Close valve.

INPUT group buttons and lamp(s)

The INPUT group comprises 19 buttons.



HOME

This button is used to return to the **Home** view.



abc...

This button toggles between numeric and alphanumeric mode. Numeric mode is default. Press the button for one second to toggle. A short beep will confirm the change. The lamp is lit green when the panel is in alphanumeric mode (letters), and not lit when it is in numeric mode (numbers).



2 / abc

The result of pushing this button depends on which mode the panel is in, numeric or alphanumeric mode. (The same applies for the following buttons: 3/def, 4/ghi, 5/jkl, 6/mno, 7/pqr, 8/tuv, 9/wxyz.)

The number **2** is entered if the button is pushed when the numeric mode is chosen. When alphanumeric mode is selected, the letter **a** will be entered by pushing one time at the button. Pushing two times, the letter **b** is entered. Three pushes enters the letter **c**.

If the **Favourite** views are enabled, selecting **0** will show the **Favourite** bar without making a selecting, whilst selecting any other number will open the **Favourite** view assigned to that key.



PAGE UP

This button is used to scroll up in list view pictures (for instance in the **Alarm history** view).



PAGE DOWN

This button is used to scroll down in list view pictures (for instance in the **Alarm history** view).



ESCAPE

This button is used the same way as an **ESC** button on a standard keyboard. Its most common use is to exit, cancel or stop. For example, when having navigated to a specific view, pressing the **ESC** button will return to the previous view.



BACKSPACE

This button moves the cursor one position backward and deletes this preceding character. (This is the same function as on a standard keyboard.)



ENTER

This button is used the same way as the **Enter** button on a standard keyboard. For example, pressing the **Enter** button will confirm a parameter value entered.

Trackball

There are a total of seven buttons around the trackball.

Trackball

The trackball is used for navigation on the screen.

Mouse buttons

The three mouse buttons located on the outer ring have the same function as the buttons on an ordinary computer mouse.

Arrow buttons

The four arrow buttons located on the inner ring have the same function as the arrow buttons on a standard alphanumeric keyboard.

Buzzer

There are three buzzers. All are controlled by the local controller. One of them is, in addition, controlled directly by power. If power is lost, an alarm sounds for at least 60 seconds. The sound intensity is controlled by the number of buzzers activated.. The sounder can be silenced both when power is lost and by the local controller.

Temperature sensor

A temperature sensor is provided within the module to monitor the operational temperature. If the temperature rises above a specified and configured limit, a system alarm is given.

Touch Control Panel (TCP)

Understanding the TCP

The TCP is a panel which provides easy access to all views in the Operator station.

The following tabs are available:

- Navigation to all views available in the OS
- Active monitor selection
- Favourites
- On screen keyboard with input box
- Acknowledge and silencing alarms

Buttons

The **Back** and **Forward** buttons are used to scroll through views previously opened on main screen

The **Monitor Selection** toggle button is used to select the active monitor controlled by the TCP. Note that this button applies for multi monitor Operator Stations only.



The **ITL** navigation buttons represents all views in tree structure.



The side bar **Favourites** button opens the favourites side bar pop-up.



TCP on-screen keyboard

When the Touch Control Panel is connected to the Operator Station, an on-screen keyboard is presented on the TCP panel whenever text or numeric data must be entered.

Figure 62 TCP layout – On screen keyboard



Navigation to views

All views are accessible through to the interactive title line representing tree structure of all views.

Figure 63 TCP layout – Process views groups



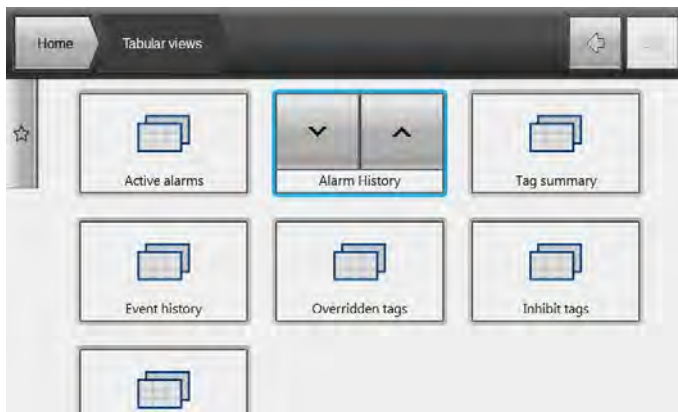
Groups of the views are presented as buttons with icons. The singular view buttons only have a text label.

The TCP view can be scrolled up and down if the number of views exceeds the space available on the screen.

Tabular views

The **Tabular views** tab gives access to standard tabular views. The active view can be scrolled using the **up/down** buttons.

Figure 64 TCP layout – Tabular views tab



Favourites

The **Favourites** button on the sidebar is used to access favourites assigned. The maximum number of favourites is nine.

Figure 65 TCP layout – Favourites



To assign new view to a favourite button, press the **Add favourite** button. Current view will be assigned. To remove an assignment, press and hold the already assigned button, and then push the **Remove** button.

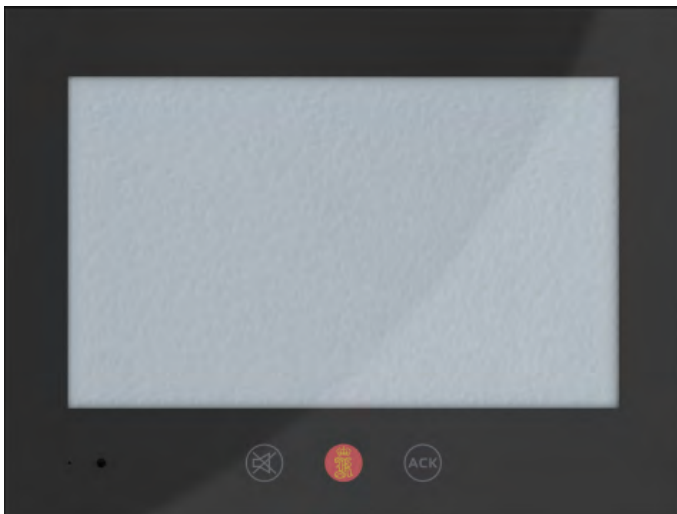
Figure 66 TCP layout – Removing assigned views



Alarms handling

Alarms presented on the main Operator Station monitor can be acknowledged or silenced by means of dedicated buttons below the screen area on the TCP.

Figure 67 The TCP monitor



Buttons functions

- Sound off (left button): Silence the alarm buzzer.
- Home (middle button): Display the home page. Press and hold home button to revert change from night palette to dusk palette.
- Acknowledge (right button): Acknowledge all alarms visible on the main screen (or the selected screen for a multi monitor version).

Touch pad panel (TPP)

TPP layout

The TPP is an alternative computer mouse controller. TPP uses touch technology , it has dedicated buttons for acknowledge and sound off and USB port for convenient extraction of data from Operator station.

Figure 68 TPP layout



Buttons

Buttons functions

- Sound off to silence alarms
- Acknowledge used to acknowledge all visible alarms on the active view.
- Left and right click mouse buttons

At the bottom right corner there are two USB ports behind a rubber covers with Kongsberg logo. They can be used to extract data from Operator station or to connect external hardware: mouse / keyboard.

Tracker ball panel (TBP)

TBP layout

The TBP is an alternative computer mouse controller. TBP uses tracker ball technology, it has dedicated buttons for acknowledge and sound off and USB port for convenient extraction of data from Operator station.

Figure 69 TPP layout



Buttons

Buttons functions

- Sound off to silence alarms
- Acknowledge used to acknowledge all visible alarms on the active view.
- Left and right click mouse buttons
- Mouse scroller
- Tracker ball

At the bottom right corner there are two USB ports behind a rubber covers with Kongsberg logo. They can be used to extract data from Operator station or to connect external hardware: mouse / keyboard.

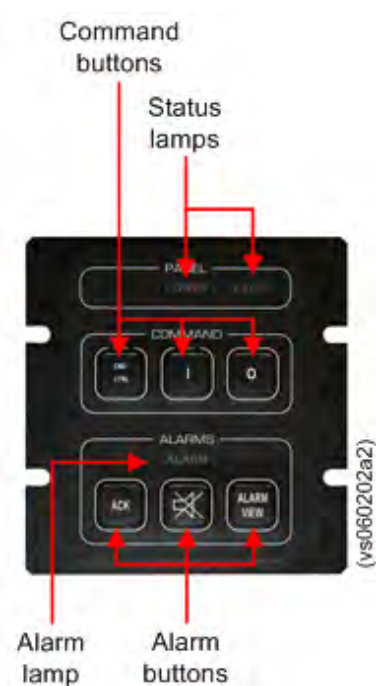
Alarm & Control Panel (ALC)

Understanding the ALC

The ALC is a specially designed keyboard which provides easy access to the operator functions.

The following illustration shows the layout of the ALC. The different buttons found on the panel are explained in the following section.

Figure 70 Alarm & Control Panel (ALC) layout



ALARM group buttons and lamps

The ALARM group comprises one lamp, three buttons without lamp.

ALARM LAMP

The lamp is blinking red when an alarm has been detected. The lamp is steadily lit when the **ACK** button has been pressed and the alarm is still active.

**ACK**

When the **ACK** button is pushed, the alarm will be acknowledged. Two things will happen simultaneously. The alarm buzzer will be silent, and the alarm text will change colour to indicate the acknowledgement.

**SOUND OFF**

When the **Sound off** button is pushed, the alarm sound will be silent.

**ALARM VIEW**

The **Alarm view** button opens the **Active alarms** view when it is pushed.

PANEL group lamps

The PANEL group comprises two lamps.

POWER

The lamp is lit green when the panel is on, and the power is OK.

FAULT

The lamp is lit red when the panel has lost contact with the computer, or the computer is turned off.

COMMAND group buttons and lamps

The COMMAND group comprises two buttons with lamps and one button without a lamp. They are used to transfer access and control.

**CMD CTRL**

When this button is pushed, the **Command Control** operator dialogue will be opened. The window contains information of for example who has control/access.

**1**

Push this button to activate the first default operation defined for an object selected on a process view. Example: Open valve.

**0**

Push this button to activate the second default operation defined for an object selected on a process view. Example: Close valve.

Background light

The background light is integrated in the panel film and has yellow colour. The background light intensity can be adjusted from the computer.

Buzzer

There are three buzzers. All are controlled by the local controller. One of them is, in addition, controlled directly by power. If power is lost, an alarm sounds for at least 60 seconds. The sound intensity is controlled by the number of buzzers activated, and the intensity setting can be configured. The sounder can be silenced both when power is lost and by the local controller.

Temperature sensor

A temperature sensor is provided within the module to monitor the operational temperature. If the temperature rises above a specified and configured limit, a system alarm is given.

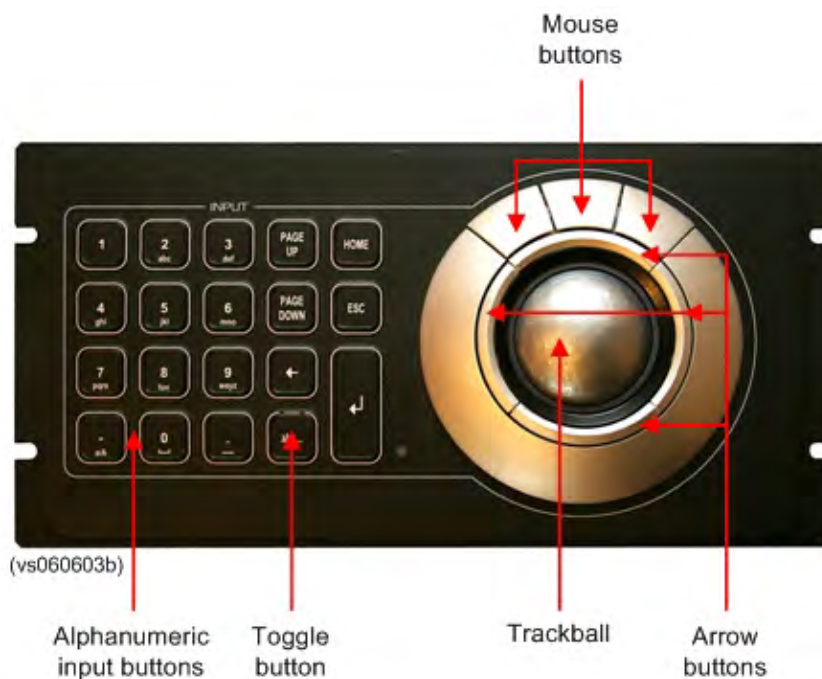
Input Panel (INP)

Understanding the INP

The INP is an input panel allowing user interaction with the operator station.

The following illustration shows the layout of the INP. The different buttons found on the panel are explained in the following section.

Figure 71 Input Panel (INP) layout



INPUT group buttons and lamp(s)

The INPUT group comprises 19 buttons.



HOME

This button is used to return to the **Home** view.



abc...

This button toggles between numeric and alphanumeric mode. Numeric mode is default. Press the button for one second to toggle. A short beep will confirm the change. The lamp is lit green when the panel is in alphanumeric mode (letters), and not lit when it is in numeric mode (numbers).

The lamp intensity can be adjusted from the computer.



2 / abc

The result of pushing this button depends on which mode the panel is in, numeric or alphanumeric mode. (The same applies for the following buttons: 3/def, 4/ghi, 5/jkl, 6/mno, 7/pqr, 8/tuv, 9/wxyz.)

The number **2** is entered if the button is pushed when the numeric mode is chosen. When alphanumeric mode is selected, the letter **a** will be entered by pushing one time at the button. Pushing two times, the letter **b** is entered. Three pushes enters the letter **c**.

If the **Favourite** views are enabled, selecting **0** will show the **Favourite** bar without making a selecting, whilst selecting any other number will open the Favourite view assigned to that key.



PAGE UP

This button is used to scroll up in list view pictures (for instance in the **Alarm history** view).



PAGE DOWN

This button is used to scroll down in list view pictures (for instance in the **Alarm history** view).



ESCAPE

This button is used the same way as an **ESC** button on a standard keyboard. Its most common use is to exit, cancel or stop. For example, when having navigated to a specific view, pressing the **ESC** button will return to the previous view.



BACKSPACE

This button moves the cursor one position backward and deletes this preceding character. (This is the same function as on a standard keyboard.)



ENTER

This button is used the same way as the **Enter** button on a standard keyboard. For example, pressing the **Enter** button will confirm a parameter value entered.

Trackball

There are a total of seven buttons around the trackball.

Trackball

The trackball is used for navigation on the screen.

Mouse buttons

The three mouse buttons located on the outer ring have the same function as the buttons on an ordinary computer mouse.

Arrow buttons

The four arrow buttons located on the inner ring have the same function as the arrow buttons on a standard alphanumeric keyboard.

Background light

The background light is integrated in the panel film and has yellow colour. The background light intensity can be adjusted from the computer.

Temperature sensor

A temperature sensor is provided within the module to monitor the operational temperature. If the temperature rises above a specified and configured limit, a system alarm is given.

Watch Call touch panel

Other references:

Top bar watch call button *Watch Call control button* on page 58

Watch calling dialogue *Operator dialogues, Watch Call system* on page 107

Operational procedures *Watch Calling procedures* on page 185

There is one standard touch-screen watch call control unit available, configurable as either WBU (Watch Bridge Unit) or WCU (Watch Cabin Unit). The following describe the panel menus and their functions.

Homepage

Cabin unit homepage features:

- Indicators for duty engineers.

In addition, the top bar and the triangle for alarm group view on the bottom part of the screen is present. These are equally displayed on both bridge- and cabin units.

Bridge unit homepage features:

- Control buttons for duty call functionality
- Indicators for duty engineers
- Control buttons and indicators for watch responsibility transfer and status



Cabin Unit home page



Bridge Unit home page

If there are up to six alarm groups configured, the alarm group names will be displayed in the bottom bar.

If there are more than six watch call alarm groups, there will be unnamed smaller fields on the bottom bar. The alarm group name will be displayed in the extended alarm group view.

An alarm group will flash while there are unacknowledged alarms in the group. It will turn to steady red colour when all alarms in the group are acknowledged.



When an alarm condition occurs the buzzer will sound and the alarm is indicated on the Watch Cabin Unit.



A flashing indicator will appear in the bridge unit top bar when there is a repeated alarm.

Call duty engineer / -officer functionality is available by dedicated buttons on Bridge unit.

Alarm group view:



Pressing triangle (or bar when there is an active alarm) on bottom part of screen opens alarm group view.

Alarm Menu:



Pressing Alarms button in top bar opens alarm summary view. Within this view you may navigate within alarm summary and view more detailed information of selected alarms.

Settings Menu:



The **Settings** button opens a view with these options:

- Dimming
- System Test
- Configuration
- About

Common for the settings menu and sub-menus is that the panel exits to display the panel homepage after 1 minute of no action in the menu.

The “Dimming” menu:



Cabin Unit dimming menu



Bridge Unit dimming menu



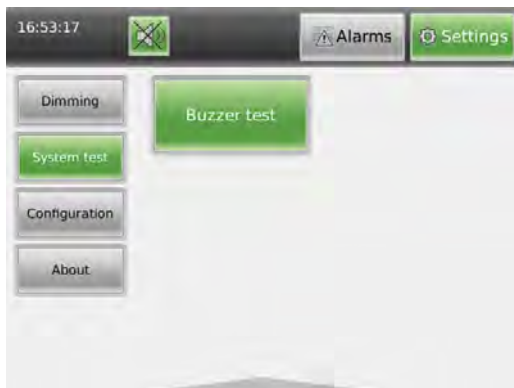
Example of a bridge unit using night palette.

This menu selection enables backlight settings change. A ‘Glider’ button can easily adjust the light, or the user can select one of two Optional buttons: **Day** or **Night**.

The night screensaver turns off the screen when the panel is not in use or there is no alarm, to reduce light at night time in the cabin. If the panel is touched while the screensaver is on, or there is an alarm condition, the screen will be turned on. The night screensaver functionality is only implemented and permitted in panels configured as cabin units.

To increase the backlight without using slider button, touch upper left and right side of panel screen simultaneously and hold down for a few seconds while the panel gets brighter. This can be done in any of the panel views.

The “System Test” menu:



Pressing the **System Test** button displays a test window. A **Buzzer test** button lets the user test the alarm sound. Pressing the button again turns the test off. The user also has the option to use the “Sound Off” soft-button appearing in the top bar :



to turn off buzzer.

The “Configuration” Menu:



The “Configuration” menu allows the user to do temporary changes to the indicators without loading new configuration to the panel, and is therefore password protected. When pressing “Configuration”, a password screen appears to enter the correct password before proceeding into the menu.

This menu enables several actions where the user can adjust the system. The actions are:

Labels sub-menu:



The **Labels** sub-menu displays the “Override WCall.ini” sliderbutton used to override the panel indicator settings read from the configuration file “WCall.ini”. When the slider is set to ‘Override’, another sliderbutton appears, which is used to decide the location of the panel. Power users can adjust text on buttons, labels and indicators for alarms and duty by using the buttons on the right side of the screen. The power user can also import preconfigured labels for panels on another location. Imported or

manually adjusted indicators are used only when the panel is set in override mode. When slider is set to ‘No’ in the “Override WCall.ini”, the panel goes back to using the preconfigured labels.



Common for all manual label editing is an on-screen keyboard appearing when a label is chosen for editing, eliminating the need to connect an external keyboard.

The Labels sub-menu enables several selections where the user can adjust the system. The functionality for each selection:



- Alarm Indicators. Display all alarms/groups-



- Duty Indicators. Display persons available for watch duty. Indicator labels may be changed.



- Other Indicators. The user may change button names.



- Button Labels. The user may change button labels.

- Import Labels.



If the user wants to import labels from another panel, press the wanted label configuration from the list. When this is done, a button named ‘Import from ...’ appears in the same view. When the appearing button is pressed, the panel starts using the imported labels.

Screen sub-menu:



The **Screen** button displays a sliderbutton used to determine the minimum backlight for the panel in night mode. The minimum level on the ‘Backlight’ slider in “Dimming” menu will be adjusted according to the level set by the ‘Lower limit night palette’ slider.

The “About” menu:



Three alternatives appear when pressing the **About** button.

- Version Info. Display software and hardware versions.
- Legal Info. Display legal considerations related to the panel.
- Unit Status. Display the current Watch Call Panel condition.

Common functionality:



The Top Field of the panel contains additional information. A digital clock is localized in the upper left field. A warning signal and a failure warning button appear if the system has an error condition.



While one or more panels are connected to “WCC600Load”, the tool used for uploading software and configuration to the panels, “MAINTENANCE!” will be displayed on the panel screen



If a panel loses communication to the k-chief OS system, the panel will give a notification after 3 minutes. The buzzer will sound, and the screen shows unit fail as illustrated. The user will be able to use the panel menus while it is disconnected. The homepage and warning triangle will remain as shown until the panel re-establish communication with the OS.

- The **Alarm** and **Settings** buttons are available in all menus. Pressing one of the buttons will return to the main or previous view.
- Re- pressing a button returns to previous state or view.
- Acceptance of persons in duty etc. will initiate a need to accept the setting in the OS menu.

Configuration menu is password protected by two user-levels, chief and administrator level. At chief level, the configuration menu contains "Labels" and "Screen" sub-menu. At administrator level, there is a sub folder named "maintenance" visible. Passwords are obtained from project documentation.

Common functionality for all Configuration menus are

- Press one field to change settings.
- Press the **X** button to return to previous menu.

Additional buttons are **Done** and **Next**. Pressing **Done** will return the view to the previous menu. The **Next** button makes the user navigate through the alarms, settings etc.

How to respond to alarms



situation returns to normal.

An alarm condition triggers the buzzer and alarm indication on the Watch Cabin Unit. Do the following:

- 1 Push **SOUND OFF** .
- 2 Read the alarm information on the display or the text next to the indicator.
- 3 Take appropriate action.
- 4 Check that the alarm disappears when the

How to test the panel



- 1 Press **Settings** — **About** to check the Watch Call panel functionality and status. The **Unit status** button shows the network working status.
- 2 Press **Settings** — **System Test** to test the alarm buzzer. If the buzzer is silent, replace the panel. There are no field-serviceable parts inside the panel. Otherwise, press the buzzer button again to turn the sound off.

Watch Call panels (WBU and WCU)

Other references:

Top bar watch call button *Watch Call control button* on page 58

Watch calling dialogue *Operator dialogues, Watch Call system* on page 107

Operational procedures *Watch Calling procedures* on page 185

Older projects may use old type of Watch Call panels (WBU and WCU described below).

Watch Bridge Unit (WBU)

The Watch Bridge Unit panel is located on the ship's bridge and is used to relay alarm information and communication from the remote operator station to personnel on the bridge. The Watch Bridge Unit interacts with the watch calling server in the Operator station and its main functions are to:

- Indicate who has watch responsibility.
- Indicate who is on duty.
- Indicate the current alarm status.
- Sound an audible alarm whenever a new alarm condition occurs and someone is on duty.
- Allow the bridge watch to contact (call) duty personnel.

Used to SELECT alarm summary, selected points summary or time display

Used to display TAG DETAILS

Indicates the officer having on-duty status

These alarms are divided into groups for handling and defining priority

Indicates if the engineer's safety system is active

Used to call on-duty officers

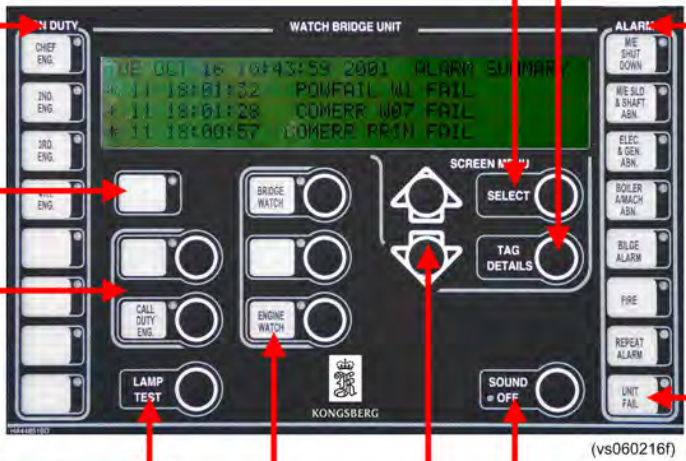
LAMP TEST
Push to check that all indicators are OK

Indicates the location having watch responsibility

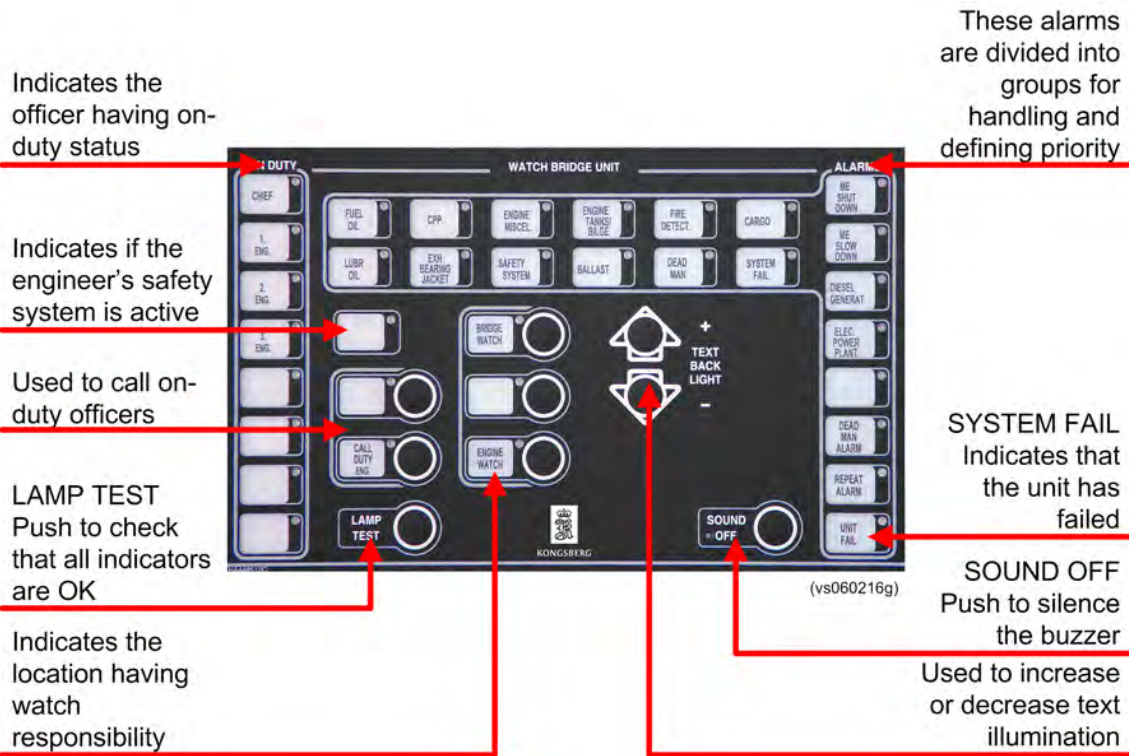
SYSTEM FAIL
Indicates that the unit has failed

SOUND OFF
Push to silence the buzzer

Used to scroll alarms on the display



WBU panel with LCD display



WBU panel with LED indicators

Watch Cabin Unit (WCU)

The Watch Cabin Unit panels are placed at various locations throughout the ship, e.g. the cabins and in public areas such as the Mess Room, TV room etc. The Watch Cabin Unit interacts with the WCS and its main functions are to:

- Indicate who is on duty.
- Indicate when the ON DUTY officers are being called and who is calling.
- Indicate the current alarm status.
- Sound an audible alarm whenever a new alarm condition occurs.

Pressing triangle (or bar when there is an active alarm) on bottom part of screen opens alarm group view.

Used to SELECT alarm summary, selected points summary or time display

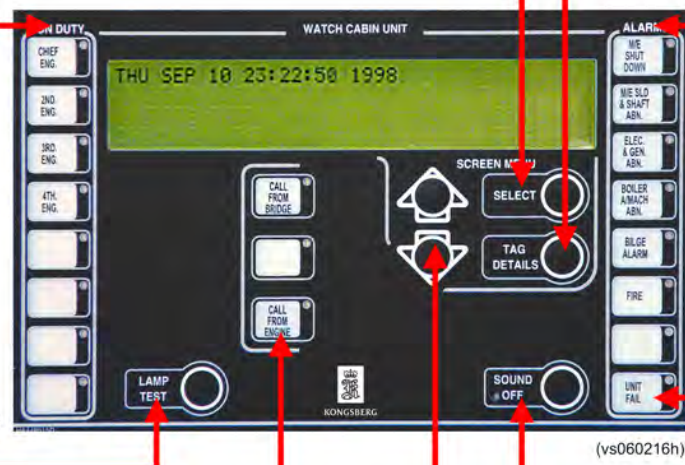
Used to display TAG DETAILS

Indicates the officer having on-duty status

These alarms are divided into groups for handling and defining priority

LAMP TEST
Push to check that all indicators are OK

Indicates the location having watch responsibility

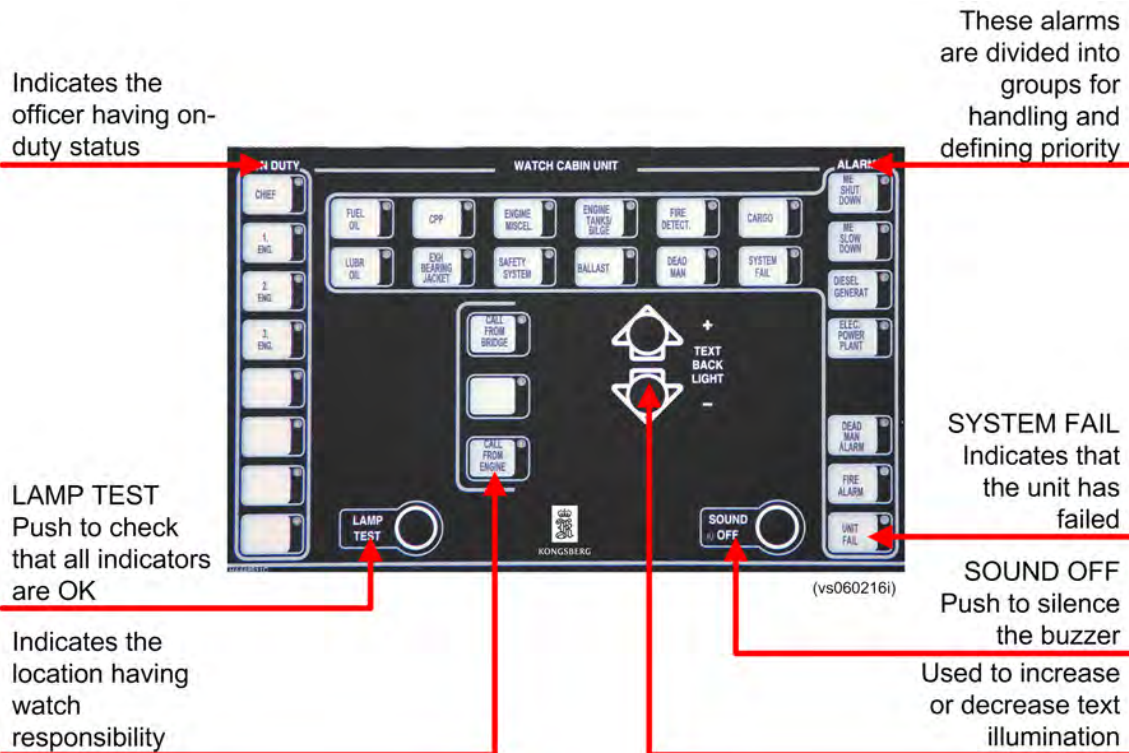


SYSTEM FAIL
Indicates that the unit has failed

SOUND OFF
Push to silence the buzzer

Used to scroll alarms on the display

WBU panel with LCD display



WBU panel with LED indicators

Basic operational procedures

Using this chapter

This chapter presents detailed operational procedures for the K-Chief 600 system.

Topics

- *Alarm types* on page 160
- *Alarm handling and monitoring procedures* on page 161
- *Command Control procedures* on page 178
- *Watch Calling procedures* on page 185

Open the Home view

The home page can be accessed in following ways: view of the K-Chief 600 system gives the operator a good overview of the all the process and tabular views in the system. The view can be opened using one of the following methods:



Home button on K-Chief top bar.



Home button on CRP (control room panel)



Home button on TCP (touch control panel)

Home page may look as below:



Alarm types

Alarm detection for analogue signals

The following alarm functions are included for analogue signals:

- Instrument failure alarms
- Low-low process alarms with or without action (slow-down)
- Low process alarms
- High process alarms
- High-high process alarms with or without action (slow-down)
- Return to normal detection with dead-band to avoid alarm fluctuations
- Adjustable filters to remove fluctuations in the incoming signals
- Time delay of alarm triggering and return to normal state

Alarm detection for on/off (two state) signals

The following alarm functions are included:

- High process alarms (open or closed)
- Return to normal detection
- Time delay of alarm triggering and return to normal state

Alarm detection for on/off signals with line check

The following alarm functions are included:

- High process alarms (open or closed)
- Line broken alarm
- Line short alarm
- Return to normal detection
- Time delay of alarm triggering and return to normal messages

Inhibit alarm

Some alarms are conditional and will be inhibited when a specified condition is present. This function is accomplished by defining a signal as an inhibit source for a specified alarm or a specified group of alarms. An adjustable time delay is available to extend the inhibit situation for each signal.

Alarm state indication

The alarm state is displayed in each view presenting current alarm status and alarm history.

- On/off signal open contact alarm: OPEN
- On/off signal closed contact alarm: CLOSED
- On/off signal broken alarm: BROKEN
- On/off signal short alarm: SHORT
- Analogue signal instrument failure, signal value outside low range: IFL (Instrument Failure Low)
- Analogue signal instrument failure, signal value outside high range: IFH (Instrument Failure High)
- Analogue signal high alarm: HIGH
- Analogue signal low alarm: LOW
- Analogue signal high-high alarm: HI-HI
- Analogue signal low-low alarm: LO-LO
- On/off or analogue sensor taken out of scanning: OFFSC
- On/off or analogue signal return from alarm: RETURN
- On/off or analogue signal return from alarm: INHIBIT

Alarm handling and monitoring procedures

Basic alarm handling

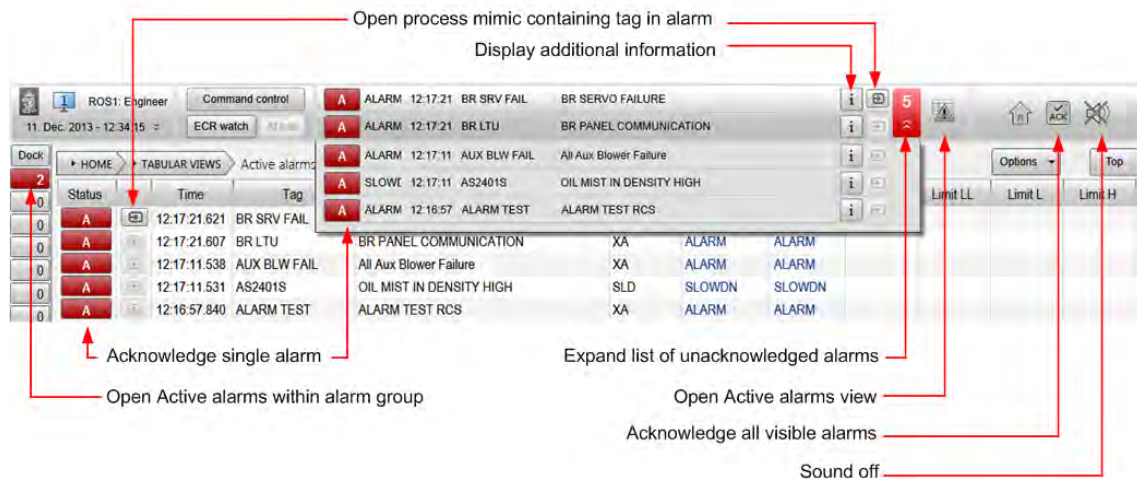
Alarms is indicated in following ways:

- The alarm text with time, date presented on the K-Chief 600 operator station display.
- Local operator panel sound is triggered.
- External alarm devices, such as horn and rotating light, are activated.
- The alarm text with time and date stored in Event history log in every K-Chief 600 operator station
- The alarm text with time and date is printed on printer (if installed and configured accordingly).
- The alarm is indicated on the Watch Call Panels (if watch mode enabled).

Do the following to handle an alarm:

- 1 Push the **SOUND OFF** button on the operator panel or on K-Chief 600 top bar.
- 2 Read the alarm text and press **ACK** on operator panel or in the K-Chief view.
- 3 Rectify the problem.

Figure 72 Elements involved in basic alarm handling.



Display Active alarms

The **Active alarms** view displays all active alarms. There are few ways of opening this view:

CRP button:



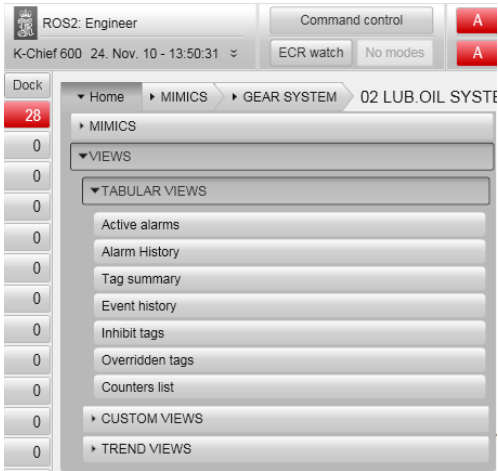
Push the CRP button

Home page:

Select **Active alarm** button on Home page.

ITL:

Use the **Navigation line**. Home → Tabular views → Active alarms



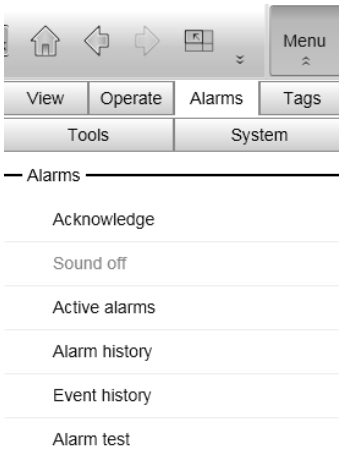
Top bar button:

- 1 Click Active alarms button in the top bar.

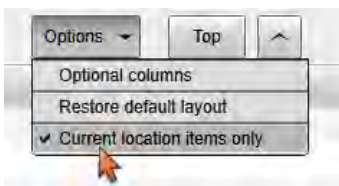


Menu:

Click Menu → Alarms → Active alarms



The Alarm list can be pre-filtered by current location from Options menu , so that ECR can view only machinery related alarms, CCR can view only Cargo alarms



Display Alarm history

The **Alarm history** view displays last 2000 alarm events (or 30 days of alarm history for OS software 1.14 and newer). Older items are listed in Event history view.

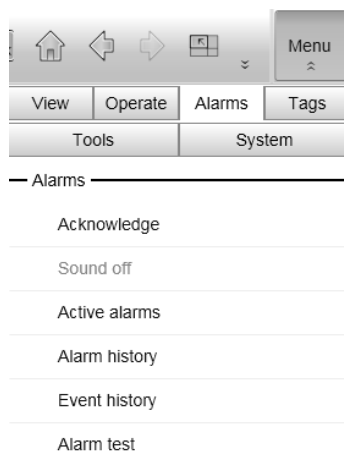
The methods of opening the **Alarm history** view are listed below:

Home page:

Select **Active history** button on Home page.

Menu:

Click the **Menu** → **Alarms**→ **Alarm history** button in the top bar.

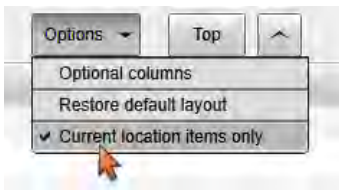


ITL :

Click **Home** → **Tabular views** → **Alarm history**



The list can be pre-filtered by current location from Options menu , so that ECR can view only machinery related alarms, CCR can view only Cargo alarms



Display alarm group information

This function is used to view the tags in an alarm group. Information such as value and alarm limits for each tag is displayed.

The alarm groups are listed on the left side of the screen. Use the **Dock** button to see the names of the groups.

A screenshot of a software interface showing a list of active alarms. The list is titled 'S/G&R/G HYD OIL' and contains the following data:

Status	Time	Tag	Description	Func	Alarm sts	Value	Eng u	Limit 1	Limit 2	Limit 3	Limit 4
A	2010 11 23 14:44:03.000	A20 01	NO 2 S/G L O INLET PRESS LOW	FVAL	5.40	Agrom2		0.00			
A	2010 11 23 14:44:03.000	A20 05	NO 2 R/G L O SUMP TK LEVEL LOW	LAL	NOR						
A	2010 11 23 14:44:03.000	A20 20	NO 2 R/G CLUTCH OIL FLT PRESS H	DPAH	NOR						
A	2010 11 23 14:44:03.000	A10 01	NO 1 R/G L O INLET TEMP	TIAH	2.5	°C			55.0		
A	2010 11 23 14:44:03.000	A10 02	NO 1 R/G L O INLET TEMP	TIAH	2.5	°C			56.0		
A	2010 11 23 14:44:03.000	A10 06	NO 1 R/G THRUST BEARG TEMP(P)	TIAH	10.0	°C			70.0		
A	2010 11 23 14:44:03.000	A10 07	NO 1 R/G THRUST BEARG TEMP(S)	TIAH	10.0	°C			70.0		
A	2010 11 23 14:44:03.000	A10 08	NO 1 R/G SHAFT BRG FWD IN TEMP	TIAH	7.5	°C			65.0		
A	2010 11 23 14:44:03.000	A10 09	NO 1 R/G SHAFT BRG AFT IN TEMP	TIAH	7.5	°C			65.0		
A	2010 11 23 14:44:03.000	A10 10	NO 1 R/G CLUT BRG AFT TEMP 1 E	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 12	NO 1 R/G CLUT BRG FWD TEMP 1 H	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 14	NO 1 R/G CLUT BRG MD TEMP 2 E	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 15	NO 1 R/G CLUT BRG FWD TEMP 2	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 16	NO 1 R/G PTO SHAFT BRG AFT TE	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 17	NO 1 R/G PTO SHAFT BRG FWD T	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A10 18	NO 1 R/G DISC CLUTCH OIL PRESS	FVAL	31.00	kg/cm2			22.00		
A	2010 11 23 14:44:03.000	A10 21	NO 1 R/G THRERG OIL TEMPASTE	TIAH	12.5	°C			75.0		
A	2010 11 23 14:44:03.000	A05	NO 1 AUTO PILOT SYS PWR FAL	XA	NOR						
A	2010 11 23 14:44:03.000	A06	NO 2 AUTO PILOT SYS PWR FAL	XA	NOR						
A	2010 11 23 14:44:03.000	A07	NO 3 AUTO PILOT SYS PWR FAL	XA	NOR						
A	2010 11 23 14:44:03.000	A08	NO 4 AUTO PILOT SYS PWR FAL	XA	NOR						
A	2010 11 23 14:44:03.000	A10 05	NO 1 R/G L O SUMP TK LEVEL LOW	LAL	NOR						
A	2010 11 23 14:44:03.000	A10 20	NO 1 R/G CLUTCH OIL FLT DIFF P	DPAH	NOR						
A	2010 11 23 14:44:03.000	A01	NO 1 S/G SYS ABN	XA	NOR						
A	2010 11 23 14:44:03.000	A02	NO 2 S/G SYS ABN	XA	NOR						
A	2010 11 23 14:44:03.000	A03	NO 3 S/G SYS ABN	XA	NOR						
A	2010 11 23 14:44:03.000	A04	NO 4 S/G SYS ABN	XA	NOR						

Note

Only active alarms are displayed in the alarm group list which opens from the left side of the display.

Display Event history

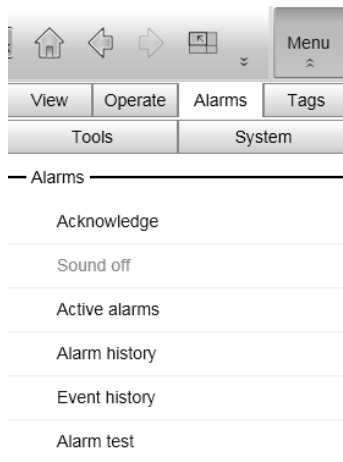
This view shows all the actions that has been made in the system.

Home page:

Select **Event history** button on Home page.

Menu

Click the **Menu** → **Alarms** → **Event history** button.



ITL :

Click Home → Tabular views → Event history



The Event history view may look similar to picture below:

Event type	Event subtype	UTC Time	Local Time	Source	Alarm	Flag	Description	Previous	New value
Alarm	ACK	14:22:25.000	14:22:25.000	DPU 098	AA071		NO 1 ME MAIN BRG2 AUTO SHD	Previous	NORMAL
Alarm	ACK	14:22:20.000	14:22:20.000	DPU 098	AA081		NO 1 ME MAIN BRG2 TEMP SENSOR		NORMAL
Alarm	ACK	14:22:16.000	14:22:16.000	DPU 096	AA090		NO 1 ME MAIN BRG1 AUTO SHD		NORMAL
Alarm	ACK	14:22:11.000	14:22:11.000	DPU 098	AA089		NO 1 ME FLANGE BRG1 AUTO SHD		NORMAL
Alarm	ACK	14:22:10.000	14:22:10.000	DPU 096	AA079		NO 1 ME FLANGE BRG TEMP SENSOR		NORMAL
Alarm	ACK	14:21:48.000	14:21:48.000	DPU 099	AA045		NO 1 ME CYL1-B EXH GAS SENSOR		NORMAL
Alarm	ACK	14:21:38.000	14:21:38.000	DPU 098	AA088		NO 1 ME CYL8-A EXH GAS DEV HI		NORMAL
Alarm	ACK	14:21:37.000	14:21:37.000	DPU 099	AA034		NO 1 ME CYL8-A EXH GAS DEV HI		NORMAL
Alarm	ACK	14:21:35.000	14:21:35.000	DPU 099	AA026		NO 1 ME CYL8-A EXH GAS DEV HI HI		NORMAL
Alarm	ACK	14:21:28.000	14:21:28.000	DPU 098	AA052		NO 1 ME CYL8-B EXH GAS SENSOR		NORMAL
Alarm	ACK	14:21:16.000	14:21:16.000	DPU 099	AA051		NO 1 ME CYL8-B EXH GAS SENSOR		NORMAL
Alarm	ACK	14:20:48.000	14:20:48.000	DPU 071	A10 11		NO 1 RG CLUT BRG MD TEMP(1-ENG)		12.5
Alarm	ACK	12:45:21.000	12:45:21.000	DPU 071	A10 03		NO 1 RG L/O INLET PRESS		3.40
Alarm	ACK	12:45:10.000	12:45:10.000	DPU 071	A10 13		NO 1 RG CLUT BRG APT TEMP(2-ENG)		12.5
Alarm	ACK	12:44:55.000	12:44:55.000	DPU 058	A20 02		NO 2 RG L/O INLET TEMP		2.5
Alarm	ACK	14:44:48.000	14:44:48.000	DPU 099	AA071		NO 2 RG L/O INLET TEMP		2.5
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA028		NO 1 ME CYL2-A EXH GAS DEV HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA027		NO 1 ME CYL1-A EXH GAS DEV HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 098	AA026		NO 1 ME CYL8-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA025		NO 1 ME CYL7-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA024		NO 1 ME CYL6-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA023		NO 1 ME CYL5-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA022		NO 1 ME CYL4-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA021		NO 1 ME CYL3-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA020		NO 1 ME CYL2-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA019		NO 1 ME CYL1-A EXH GAS DEV HI HI		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA018		NO 1 ME CYL6-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA017		NO 1 ME CYL7-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA016		NO 1 ME CYL8-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA015		NO 1 ME CYL5-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA014		NO 1 ME CYL4-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA013		NO 1 ME CYL3-A EXH GAS SENSOR		NORMAL
Alarm	Ret UnAck/ALA	14:44:03.000	14:44:03.000	DPU 099	AA012		NO 1 ME CYL2-A EXH GAS SENSOR		NORMAL

Display and use the Favourites line

The **Favourites** line is a group of nine buttons which are short-cuts to optional images. They can be customised to suit the operators needs.

Display the Favourites

- 1 Use the trackball and lead the cursor down to the bottom of the view. The Favourites line will then pop up.
- 2 Press the 0 (zero) button on the CRP.
 - The following illustration shows how the **Favourites** may look like when they appear on the lower part of the Operator Station screen.



Use the Favourites

- 1 When the **Favourite** line is displayed, click on selected number to display assigned view.

The Favourites may also be selected using the numeric keys on the CRP, as each **Favourite** view has a corresponding number displaying the wanted image.

Note

When TCP (touch control panel) is connected to the operator station , favorites can only be operated from TCP.

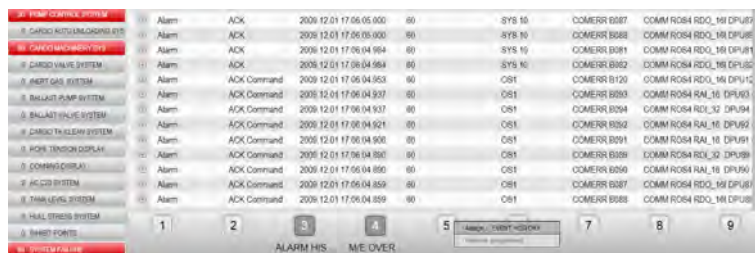
For more info see *Touch Control Panel (TCP)* on page 132

Customize Favourites

The nine **Favourites** buttons can be customised to suit the operators needs. Follow the following procedure.

Assigning favourite

- 1 Open the image you want to assign as a Favourite.
- 2 Use the trackball and lead the cursor down to the bottom of the view. The Favourites line will then pop up.
- 3 Right click on the number you want the image to be assigned to.
 - Two options are shown. See the following illustration.



- Click the **Assign: (name of your image)** text.
- The chosen image is now assigned to the selected **Favourite** button. The name of the image will appear under the button.

Removing an assignment

- 1 Use the trackball and lead the cursor down to the bottom of the view. The Favourites line will then pop up.
- 2 Right click on the number where you want to remove the assignment.
 - Two options are shown. See the following illustration.



- 3 Click **Remove assignment** .
 - The **Favourite** button is no longer assigned to this image.

Note

When TCP (touch control panel) is connected to the operator station , favorites can only be edited on TCP.

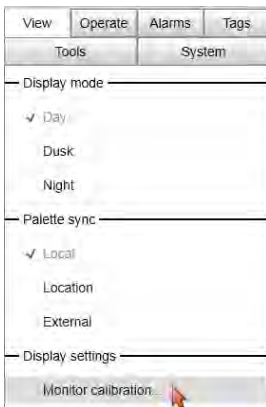
For more info see *Touch Control Panel (TCP)* on page 132

Palette change and monitor adjustments

K-Chief 600 interface can use three palettes: Day, Dusk , Night

Palette change

Click the **Menu** → **View** button in the top bar to select required palette



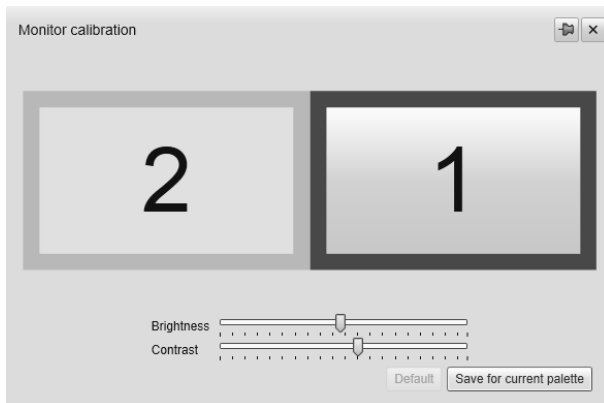
Palette synchronization.

Palette can be synchronized with other operator stations. There are three options available.

- Local: All palette changes are executed only on the local Operator Station.
- Location: The palette change is synchronized between all Operator Stations having this option selected and being within the same location (for example all Operator Stations in the ECR).
- External: This option is used to synchronize the palette with an external system (typically the Operator Station on the Bridge can be synchronized with navigation bridge equipment). This function is project specific and may be used only for selected stations.

Monitor calibration

To adjust brightness and contrast select **Menu** → **View** and click Monitor Calibration.



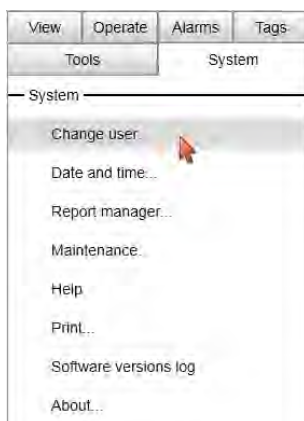
Repeat these adjustments for all palettes and save it for for each palette individually (Day, Dusk, Night)

Note

Press and hold “Home” button for 2 seconds on control panel(CRP) or touch panel (TCP) to change palette from night to dusk in case of on-screen controls not visible in day light. This will change palette to Dusk.

Change user

1 Click the **Menu** → **System** → **Change user** button.



- A dialogue is opened. It may look similar to the following:



- 2 Select the wanted user in the drop-down list.
- 3 Fill inn the password, and click **Change user**.

Find overridden tags

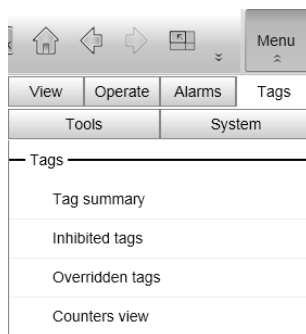
This function is used to view tags which are overridden. The value and alarm limit for each tag are displayed.

Home page:

Select **Event history** button on Home page.

Menu:

- 1 Click the **Menu** button in the top bar.



- 2 Click **Tags**.
- 3 Select **Overridden tags** to open the image.
 - The view is opened.

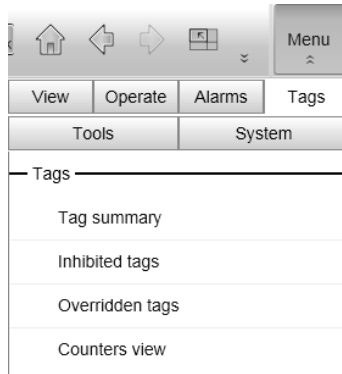
Find inhibited tags

Home page:

Select **Event history** button on Home page.

Menu

Click the **Menu** → **Tags** → **Inhibited tags** button in the top bar.



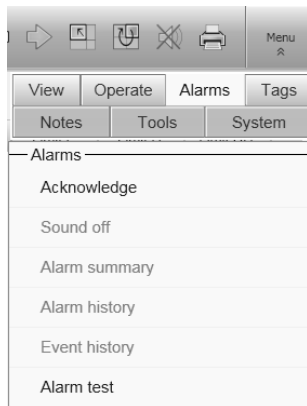
It may look similar to the following illustration:

Time	Tag	Description	Function	Alarm state	Value	Eng unit	Limit LL	Limit L	Limit H	Limit HI	Alarm group
2010.06.11 15:06:47.542	1101	ME F.O.INLET (AFT) FILTER PRESS	PIAL	Inhibited	7.76	bar		6.20			ME MANEU. SYSTEM
2010.06.11 15:06:47.542	1201	ME F.O.INLET PRESS	PIAL	Inhibited	3.01	bar		1.20			ME MANEU. SYSTEM
2010.06.11 15:06:47.542	1205	ME L.O.INLET PRESS	PIAL	Inhibited	2.04	bar	1.40	1.60			ME MANEU. SYSTEM
2010.06.11 15:06:47.542	1207	ME L.O.INLET TEMP	TIHL	Inhibit	89.8	°C		25.0	55.0	80.0	ME MANEU. SYSTEM
2010.06.11 15:06:47.542	1401	ME JACKET CO.INLET PRESS	PIAL	Inhibited	2.53	bar	1.50	2.00			ME MANEU. SYSTEM
2010.06.11 15:06:47.533	1701	ME EXHAUST GAS REF.CORE TIC TEMP	TIHL	Inhibit	401.1	°C			530.0		ME MANEU. SYSTEM
2010.06.11 15:06:47.533	1706	ME EXHAUST GAS AFT TIC TEMP	TIHL	Inhibited	265.3	°C			300.0		ME MANEU. SYSTEM
2010.06.11 15:06:47.542	FO_001	FUEL OIL TEMPERATURE (1102)	TIHL	Inhibited	187.6	°C		38.0			FUEL OIL SYSTEM (2)
2010.06.11 15:06:47.542	FO_002	FUEL OIL PRESSURE (1101)	PIAL	Inhibited	7.4	bar		3.00			FUEL OIL SYSTEM (2)
2010.06.11 15:06:47.533	MISC_3HRP	MAN SWITCH BOARD SHORTCIRCUIT XS		Inhibited	NORMAL						MISCELLANEOUS (2)

Perform an alarm test

The alarm test function is used for testing of the Operator Stations and their ability to give alarms according to the requirements. The following procedure explains how to do an alarm test.

- 1 Click the **Menu** button in the top bar.
- 2 Click **Alarms**.
 - A drop-down list is shown. See the following illustration.

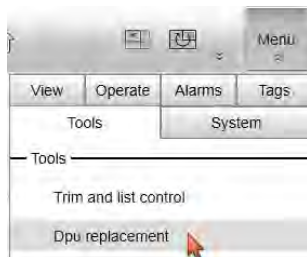


- 3 Click **Alarm test**.
 - The system is now starting the alarm test function.
- 4 Click **Acknowledge** to acknowledge the test alarms.

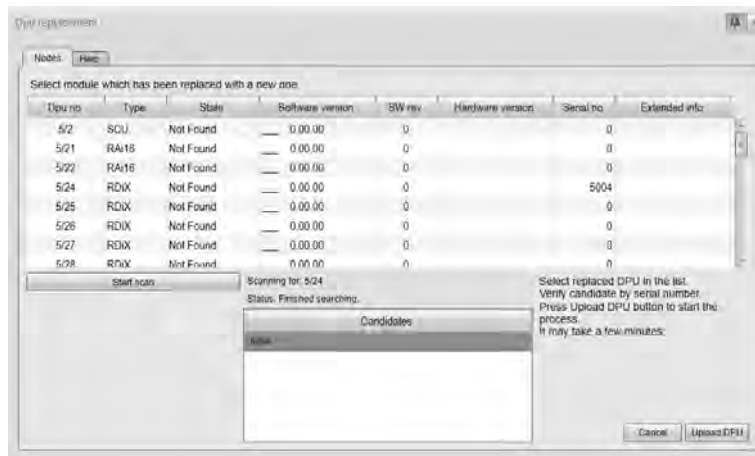
Replace a DPU (software)

This procedure explains how to replace a DPU in the software system. For replacement of the physical unit please refer to the [357625] Kongsberg K-Chief 600 Maintenance Manual.

- 1 Click the **Menu** button in the top bar.
- 2 Click **Tools**.
 - A drop-down list is shown. See the following illustration.



- 3 Click **DPU Replacement**.
 - A dialogue is opened. It shows only DPUs that are defect or not configured. It may look similar to the following dialogue:

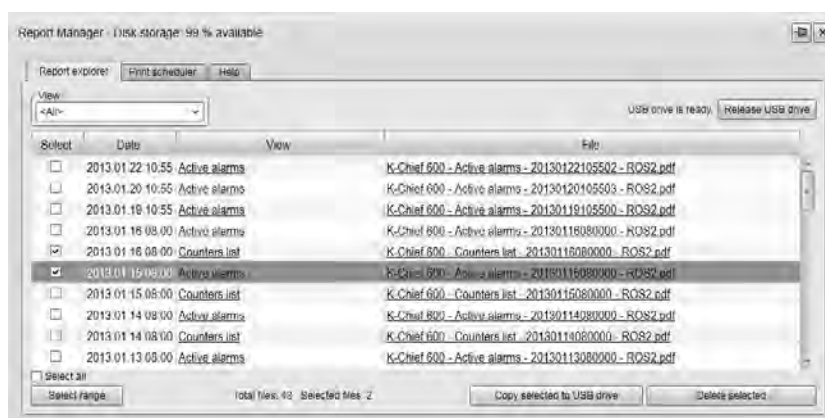


- 4 Replace the hardware (defected DPU) with new one of the same type. Please note the serial number of the new DPU.
- 5 Open DPU replacement dialogue from **Menu**→ **Tools** → **DPU replacement**, select DPU which just have been replaced and press **Start scan** button.
- 6 At the bottom part of the dialogue newly replaced DPU . DPU is identified by serial number . Select your candidate , compare the serial number in the dialogue with actual serial number of the DPU with has just been replaced.
- 7 Press **Upload DPU** button.
 - The DPU will be loaded with the relevant node address software and automatically configured. The process may take a few minutes.

Export reports to an external USB drive

This procedure explains how to export reports and documents from the Operator Station to an external USB drive.

- 1 Insert your USB flash drive into a USB port on the K-Chief 600 computer.
- 2 Open the **Report Manager** by selecting **Menu**→**System**→**Report manager**.
- 3 Select the **Report explorer** tab.
- 4 Select the requested reports from the document list.



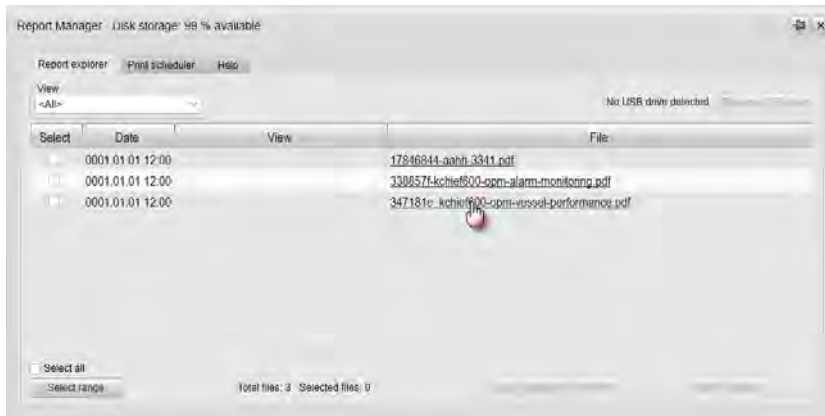
- 5 Click the **Copy selected to USB drive** button.

- 6 Release your USB flash drive, and close the **Report Manager**.

View reports and documents

This procedure explains how to view reports and documents located on hard drive on the Operator Station computer.

- 1 Open the **Report Manager** by selecting **Menu**→**System**→**Report manager**.
- 2 Select the **Report explorer** tab.
- 3 Click on the hyperlink for the requested report/document.



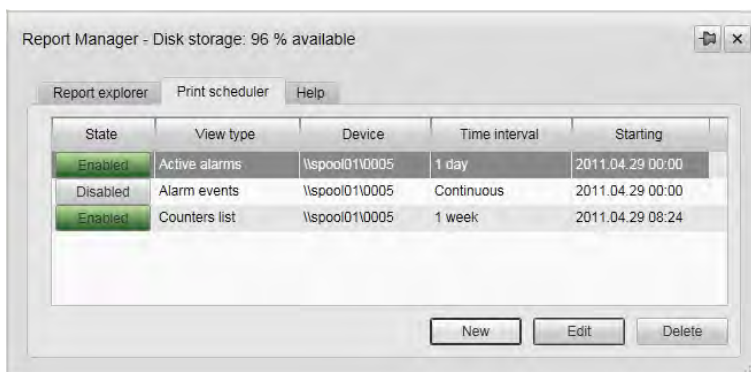
- 4 Close the **Report explorer** to view and read the report/document.

Manage scheduled print jobs

The **Print scheduler** is used to set up documents to be printed regularly without any user interaction. The following procedures lets the operator to manage these print jobs.

View current print jobs

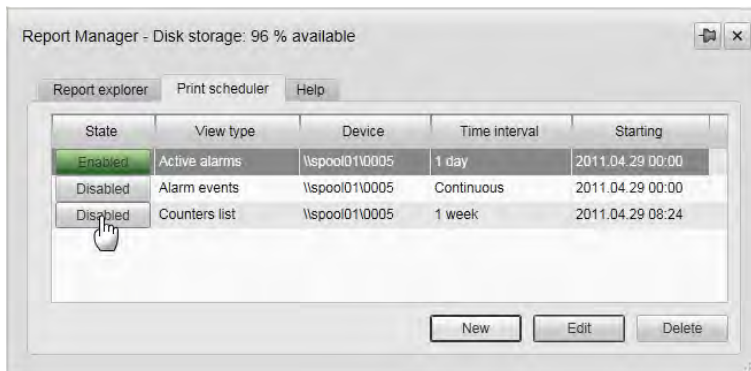
- 1 Open the **Report Manager** by selecting **Menu**→**System**→**Report manager**.
- 2 Select the **Print scheduler** tab. This tab displays all tasks currently running.



Enable or disable a print job

- 1 Open the **Print scheduler**.
- 2 Enabling or disabling a print job is set using the **State** button.

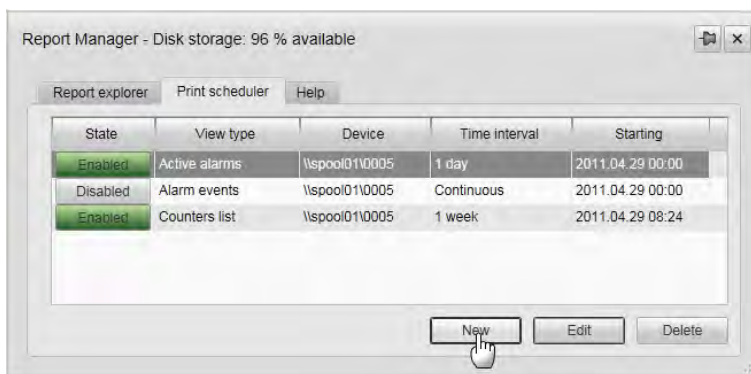
Clicking this button toggles between enabling or disabling the requested print job.



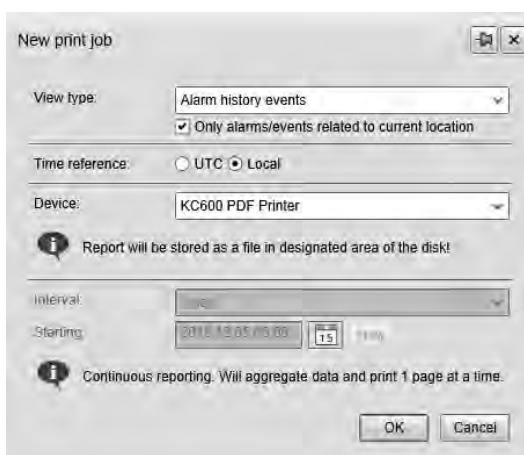
- 3 Close the **Print scheduler** when finished.

Create a new print job

- 1 Open the **Print scheduler**.
- 2 Click **New**.



This opens the **New print job** dialogue.



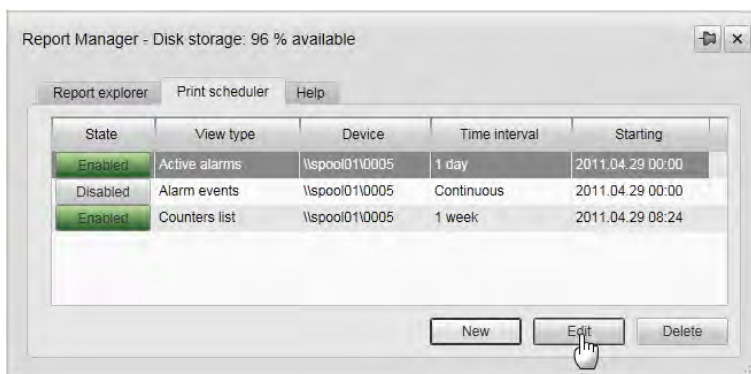
- 3 Set task information as required.
 - View type: Select view from the drop-down list.

Tick off if only alarms related to the current location should be printed (for example only machinery alarms in the ECR, or cargo alarms in the CCR).

- Select time reference: UTC or Local time
 - Device: Select printer from the drop-down list.
The built-in K-Chief 600 PDF printer or any external printer connected to the OS network can be selected.
 - Interval: Select predefined print interval from the drop-down list.
Selectable print intervals are: 1 hour, 3 hours, 6 hours, 12 hours, 1 day, 1 week, 1 month.
Alarm events are printed continuously by aggregating data and printing full pages
 - Starting: Select start date and time for the print job
- 4 Click **OK** and close the **Print scheduler** when finished.

Edit a print job

- 1 Open the **Print scheduler**.
- 2 Select the requested print job from the task list and click **Edit**.

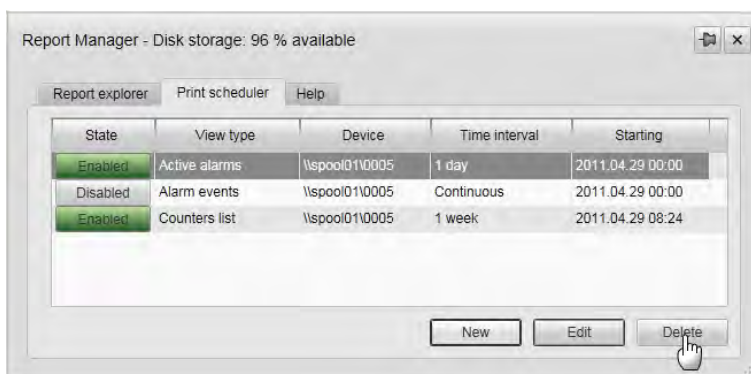


This allows all task information to be modified as required. Refer to the preceding section for details.

- 3 Close the **Print scheduler** when finished.

Delete a print job

- 1 Open the **Print scheduler**.
- 2 Select the requested print job from the task list and click **Delete**.



- 3 Close the **Print scheduler** when finished.

Command Control procedures

See also *Operator dialogues, Command Control system* on page 102

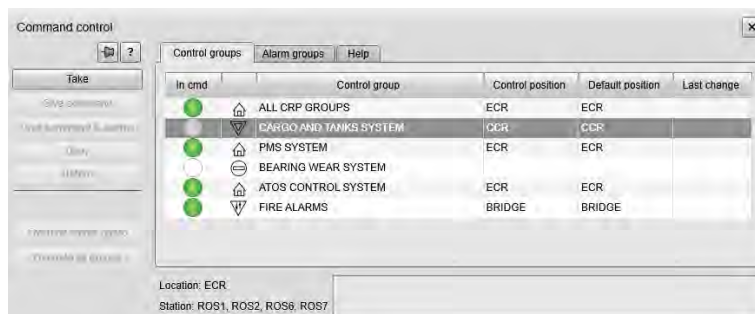
Command control

Classification requirements states that equipment control must only be available from one location at any time. The K-Chief 600 access control transfer system allows organized control transfer from one location to another. The following terms are used:

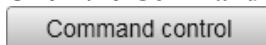
- **Default control position:** The Operator Station where the control is normally done (for example: the control position where the power management is normally controlled).
- **Control position:** One or more Operator Stations installed within sight of each other, allowing operators to talk to each other. The Bridge, Engine Control Room and Cargo Control Room are normally regarded as control positions.
- **Control group:** A process or part of a process normally represented by one or several process views. Power management and boiler system are examples of such views.

Open the Command control dialogue

The Command control dialogue can be opened using few different methods. It may look similar to the following illustration:



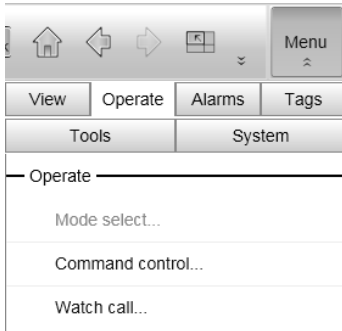
- 1 Click the **Command Control** button in the top bar.



- 2 Push the **Cmd Ctrl** button on the top bar.



- 3 Click the **Menu → Operate → Command control** button in the top bar.





Request control

These procedures are used to request and transfer Command control from one location to another. Depending on project configuration requested command can be given with or without alarm acknowledge responsibility. Default location decides whether to transfer alarm acknowledge right along with command rights.

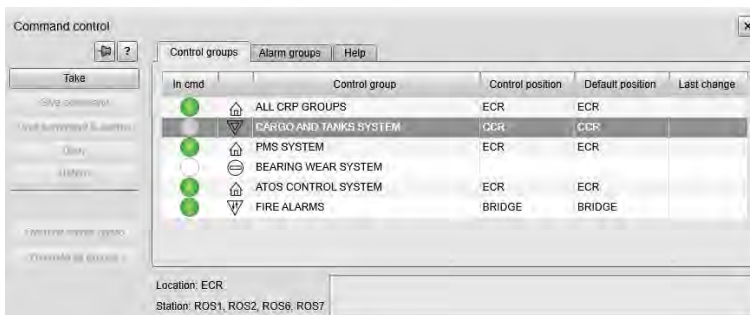
Groups with following property indicated by icon can be requested:

Table 10

Symbol	Command group property	Description
	Requestable	Command for this group can be requested from default location. Command transfer must be confirmed by default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Requestable with alarms	Command and alarm handling for this group can be requested from default location. Command transfer must be confirmed by default location. Default location can give command only access or command with alarm acknowledge responsibility.

At the remote command position

- 1 Open the Command control dialogue. Click the line holding the group you want to take control over. It may look like the following illustration:



- This will activate some of the buttons on the left side in the dialogue.

Note

*If you select a process view object or a tabular view row, and then click the **Command Control** button, the group containing the selected tag will be highlighted.*

2 Click **Take**.

- The CRP on the Operator Station which receives the request starts to sound.
- The **Command Control** button in the top bar start to flicker in yellow until it is accepted or denied. The button label indicates current status.

Command requested

- The spot symbol on this particular line starts to flicker in yellow until it is accepted. The symbol then goes steady yellow.



At the default command position

1 Open the Command control dialogue. Click the line holding the group your colleague wants control over.

- This will activate some of the buttons on the left side.

2 Click **Give command** or **Give command & alarms** button.

- The request is now granted.
- The window text below the alarm groups is altered to granted.
- The **Command Control** button in the top bar is still yellow, but will not flicker any more.

Command granted

- The spot symbol on this particular line is still yellow, but will not flicker any more.



Return control

Command can be returned by remote location back to default location by means of Return function..

At the remote command position

1 Open the Command control dialogue. Click the line with group you have received by command control transferred.

2 Click **Return**.

- The CRP on the Operator Station which receives the request starts to sound.
- The **Command Control** button in the top bar start to flicker in yellow until it is accepted or denied. The button label indicates current status.

Command return requested

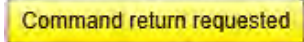
- The spot symbol on this particular line starts to flicker in yellow until it is accepted. The symbol then goes steady yellow.



At the default command position

1 Open the Command control dialogue. Group you have given is highlighted

- The **Command Control** indicates current status




2 Click **Take** button in the operation dialogue

Take control of default group

This procedure is used to take back the Command control of the alarm group which is your default alarm group in your location. This group is identified by following symbol :

Table 11

Symbol	Command group property	Description
	Default group	Default group for current location. User has access to commands and alarm acknowledge for this Command group

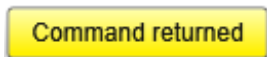
At the default control position

1 Open the Command control dialogue. Click the line holding the group you want to take back control over.

- This will activate some of the buttons on the left side in the dialogue.

2 Click **Take**.

- The CRP on the Operator Station which receives the request starts to sound.
- This operation will automatically transfer the control to you. It is not required that the present location accepts, since this is your default alarm group.



Deny command request

It is possible to Deny command request by pressing **Deny** button on Command control dialogue.

1 Mark the alarm group by clicking on the line for the group.

2 Click **Deny**.



Status indicated by label on top bar button.



Take control

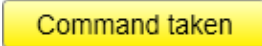
This procedure is used to take control from remote location without confirmation from default location. Specific command group which can be taken without confirmation is marked with one of following icons. Group can be taken with or without alarm acknowledge rights.

Table 12

Symbol	Command group property	Description
	Takeable	Command of this group can be taken without confirmation from default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Takeable with alarms	Command of this group can be taken without confirmation from default location. Alarm acknowledge remains in default location. Remote location receives local warnings only.

At remote command location

- 1 Open the Command control dialogue. Click the line holding the group you want to take back control over.
- 2 Click **Take**.
Top bar button will indicate current status.



At default command location

The top bar button indicates that Command has been taken.



- 1 Open the Command control dialogue. Click the line holding the group you want to take back control over.
- 2 Click **Take**.
Top bar button will indicate current status.



Shared control

In some cases (typically: fire pumps) the command rights can be shared between two or more locations. This is indicated by icons for each shared group:

Table 13

Symbol	Command group property	Description
	Shared	Command of this group is shared between two or more locations. All items within this group can be operated simultaneously by two locations. Alarm acknowledge remains in default location. Remote location receives local warnings only.
	Shared with alarms	Command and alarm acknowledge for this group is shared between two or more locations. All items within this group can be operated simultaneously by two locations.

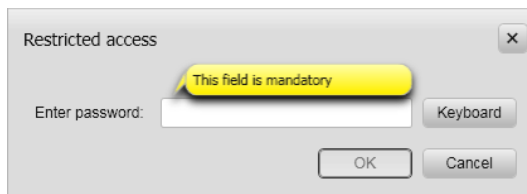
Groups have equal control rights.

Take emergency control (override)

In emergency situations it is possible to take control of single group or all command groups. Both command and alarms are transferred in such scenario.

At the remote control position

- 1 Log on as a member of the Power users group (**Menu**→**System**→**Change User**).
- 2 Open the Command control dialogue. Select the group you want to override.
- 3 Click **Override single group** or **Override all groups**
 - A dialogue box appears with a request for a password. It may look similar to the following illustration:



- 4 Type in your Power user password again , and click **OK**.

Note

Only passwords for Power users or Administrators can be accepted to execute this operation.

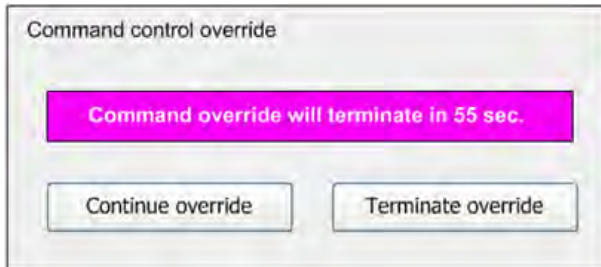
- The CRP on the Operator Station which former had Command control starts to sound, the ball symbol starts to flicker in yellow, and the **Command Control** button in the top-bar starts to flicker.

Command overridden

- The control is now transferred to your location.
- The **Return** to be used to return command to default location.

Automatic command return

In case of user inactivity (no mouse or keyboard activity) for more than 1 minute, the popup is displayed. User must confirm whether he wants to continue with override or not.



If not confirmed within one minute the command will auto-return to default location. This will be indicated on the top bar button:



Note _____

If all Operator stations at default location are not responding, the override will not auto-terminate. As soon as any Operation station at default location is up and running again, the timer starts counting, popup will be displayed and auto-terminate triggered.

At the default control position

Top bar command control button starts to flicker, CRP or TCP sound is triggered. No further action is required.



Note _____

Overridden command group can be taken back to default location at any time, as default location has always priority over its own command groups.

Command can be taken back on demand by default location by pressing **Take** button.

Watch Calling procedures

References:

Watch Call panels (WBU and WCU) on page 154

Watch Call touch panel on page 144

Open the Watch Calling dialogue box

- 1 Click the **ECR watch** button in the top bar.



- The dialogue box is displayed. It may look similar to the following illustrations:

Figure 73 ECR-Bridge Watch



Figure 74 ECR-CCR-Bridge Watch



Set engineer "on duty" or "off duty"

- 1 Open the Watch Calling dialogue box.
- 2 Click one of the Engineer button to set engineer "on duty" or "off duty". Current location (ECR or CCR) is automatically selected as watch location when one or more engineers are "on duty".

Cabin panels and Watch bridge panels indicates engineer selected as "on duty". Active alarms (if present) are also indicated on Cabin panels and Bridge watch panels.

Change watch responsible location

Use the following procedure to change the watch responsibility to Bridge:

- 1 Open the Watch Calling dialogue box.
- 2 Set one or more engineers “on duty”
 - Cabin panels and Watch bridge panels indicates engineer selected as “on duty. Active alarms (if present) are also indicated on Cabin panels and Bridge watch panels.
- 3 Press the **BRIDGE** button.
 - Bridge watch panel buzzer is activated. Blinking LED / Button indicates responsibility change on Bridge watch panel. Watch transfer must be confirmed by bridge by pressing blinking “Bridge” button.

The

Return watch responsible location

Use the following procedure to change the watch responsibility back to default location (ECR/CCR):

- 1 On the bridge WBU watch calling panel press **ECR** button.
- 2 In the default location on K-Chief 600 buzzer is triggered, top bar “Bridge watch” button flickers.
- 3 To confirm the transfer press Accept button in the watch calling dialogue in K-Chief 600 operator station.

Call engineer/engineers on duty

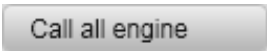
This procedure is used to call a specific engineer on duty.

- 1 Open the Watch Calling dialogue box.
- 2 Click **Call engine duty** for ECR , or **Call cargo duty** for Cargo.
 - The duty engineers buttons starts to flicker while call is active. Button becomes steady when duty engineer press **Sound off** button on Watch cabin unit.
 - To stop the call, click **Call engine duty** or **Call cargo duty** button once more.

Call all engineers on duty

This procedure is used to call all the engineers on duty

- 1 Open the Watch Calling dialogue box.
- 2 Click **Call all engine** button for ECR, or **Call all cargo** button for Cargo.



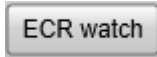
Call all engine

- The colour of all button to the different engineers changes to green, and flickers until being accepted.
- To stop the call, click **Call all engine** or **Call all cargo** button once more.

Watch calling configuration

Do the following procedure to get access to the Watch Calling configuration:

- 1 Click the **ECR watch** or **CCR watch** button in the top bar.



- The dialogue box is displayed.

- 2 Click the **Expand** button.



- The dialogue box expands so it looks similar to the following illustration:



- 3 Click the **Configuration** tab.

Define watch calling off-duty mode

When an engineer/officer (or a group of engineers/officers) is on duty, the Watch Call panels are set to On Duty mode.

When an engineer is Off Duty his panel(s) can be defined as either active or passive.

What means “off duty alarm indication” active?

Visual indication of alarms is enabled , audible indication is disabled for engineer being off duty. Unacknowledged alarms will have an asterisk (*) in front (for panels with LCD display)

What means “off duty alarm indication” passive?

Visual and audible alarm indication is disabled for engineer being off duty.

Procedure

- 1 Log on as a Power user (Typically Chief). See *Change user* on page 170.
- 2 Open the **Watch Calling** dialogue box and extend it.
- 3 Click the **Configuration** tab.

- 4 Under the **Off-duty alarm indication** text, an overview is given of who is active and who is passive.
To change the status, click on the text in the brackets [Active].
 - A dialogue box is then opened.
- 5 Select the wanted mode from the drop-down menu (Passive or Active).
- 6 Click **OK**.

Change engineer qualifications

When a new engineer reports aboard with qualifications different from the engineer being replaced, the qualifications table needs to be updated. The following example shows a qualification change for the Chief Engineer.

- 1 Log on as a Power user (Typically Chief). See *Change user* on page 170.
- 2 Open the Watch Calling dialogue box.
- 3 Click the **Configuration** tab.
- 4 Under the **Qualification** text an overview of the qualifications of personnel on board is given.
To change a specific qualification, click the text in the brackets.
- 5 Select the wanted qualification from the drop-down menu: None, Engine, Cargo, Multipurpose.
- 6 Click **OK**.

Reference guide

Overview

This chapter gives an overview of parameters that can be inspected and adjusted from an Operator Station. Where applicable other parameter details are included.

Topics

- *Tag types* on page 189
- Alarm and monitoring parameters
 - *Analogue input tag items* on page 192
 - *Counter input tag items* on page 195
 - *Digital input tag items* on page 197
 - *Exhaust mean value tag items* on page 198
 - *Exhaust deviation tag items* on page 201
 - *Common sub-menu items* on page 202
 - *Alarm sub-menu items* on page 202
- *Engineer's safety* on page 203

Tag types

The following is a list of available tag types in the K-Chief 600 system.

Note

This is a general list of tags. Your system may therefore not have all the mentioned tags.

A tag type defines the software used to read a channel on a Distributed Processing Unit. A channel is where a signal is physically connected to a Distributed Processing Unit. The tag type defines which application to run on the signal.

Example: If channel no. 2 in a Remote Analogue Input module (RAi-16) is tag type 20, the input signal is 4-20 mA.

Basic tag types

Tag type number	Channel type
0	Undefined type
1	Voltage ± 0.1
2	Voltage ± 1
3	Voltage ± 5
4	Voltage ± 10
6	Voltage 0 - 1
7	Voltage 0 - 1
8	Voltage 0 - 5
9	Voltage 0 - 10
11	Milliamps ± 1
12	Milliamps ± 5
13	Milliamps ± 10
14	Milliamps ± 20
16	Milliamps 0 - 1
17	Milliamps 0 - 5
18	Milliamps 0 - 10
19	Milliamps 0 - 20
20	Milliamps 4 - 20
22	PT 50
23	PT 100
24	PT 1000
26	Potmeter 1 K
27	Potmeter 5 K
29	On-off without check (RAi-16)
30	On-off single check (RAi-16)
31	On-off double check (RAi-16)
32	RD _i -32 digital input
34	Counter event
35	Counter frequency
36	Counter time
38	TC element
40	AC voltage 10 bit
41	AC current 10 bit
43	Generator frequency
44	Bus frequency
45	Phase difference

Tag type number	Channel type
46	Cosine phi
47	Phase velocity
49	Pick up
128	Exhaust mean
129	Exhaust deviation
130	Rio PLC type
131	DO (digital out) 401 client
132	DOT (digital out) handler
133	AO (analogue out) 401 client
134	AO (analogue out) handler
135	Exhaust deviation limit
136	Alarm relay
137	Local alarm system
141	Rotating light handler
142	ASCII IO handler
143	SSC IO handler
144	DS 401 handler
150	Dead man handler
200	Serial AI
201	Serial DI
255	System tag handler

Analogue output tags

Tag type and Distributed Processing Unit type defines the analogue output channel type. If the Distributed Processing Unit type is a Remote Analogue Output module, the following analogue output channel types are available:

Channel type number	Channel type
0	0 - 10.0 Volt
1	±10.0 Volt
2	0 - 5.0 Volt
3	±5.0 Volt
4	0 - 20.0 mA
5	4 - 20.0 mA

Relays

Binary out is defined as a channel in a Remote Digital Output module. All channels in a Remote Digital Output module are automatically an output channel type.

Analogue input tag items

Parameter name	Type	Adjustable	Function
Enable Gradient Alarm	Yes/no	Yes	Enable/disable alarm
Enable Alarm Low	Yes/no	Yes	Enable/disable alarm
Enable Alarm Low Low	Yes/no	Yes	Enable/disable alarm
Enable Alarm High	Yes/no	Yes	Enable/disable alarm
Enable Alarm High High	Yes/no	Yes	Enable/disable alarm
Enable Event Low	Yes/no	Yes	Enable/disable event
Enable Event Low Low	Yes/no	Yes	Enable/disable event
Enable Event High	Yes/no	Yes	Enable/disable event
Enable Event High High	Yes/no	Yes	Enable/disable event
Gradient Block Limit	Number	Yes	Block if measured value is < block limit
Gradient Limit	Number	Yes	Gradient alarm limit
Limit Alarm Low Low	Number	Yes	Alarm limit
Limit Alarm Low	Number	Yes	Alarm limit
Limit Alarm High	Number	Yes	Alarm limit
Limit Alarm High High	Number	Yes	Alarm limit
Limit Event Low Low	Number	Yes	Event limit
Limit Event Low	Number	Yes	Event limit
Limit Event High	Number	Yes	Event limit
Limit Event High High	Number	Yes	Event limit
Filter Time	Number	Yes	Time in 100 milliseconds
Dynamic Dead Band	Number	Yes	Report value dead band limit
Counts Low	Number	Yes	A/D minimum value
Counts High	Number	Yes	A/D maximum value
Eng. Units Low	Number	Yes	Instrument minimum value
Eng. Units High	Number	Yes	Instrument maximum value
Raw Value	Number	No	Measured raw value directly from ADC
Raw Percent Value	Number	No	Measured raw value in % of range
Scaled Value	Number	No	Measured value scaled to technical value
Filtered Value	Number	No	Filtered scaled value

Some of the parameters are further explained below:

Enable alarms and events

Alarms may be enabled or disabled by altering the value of the enable parameters. Select YES for enable, NO for disable.

Gradient parameters

The gradient calculation uses the filtered value as input. In order to make the gradient more robust against noise, it is calculated based on a moving average over the three last samples of the filtered value. When the process value falls below the block limit, the gradient alarm will be blocked. Above this process value, the gradient alarm is activated if the calculated gradient value exceeds the gradient limit.

- **Block limit:** A process value below this limit inhibits the gradient alarm.
- **Gradient limit:** The gradient alarm is activated if the gradient value (in units/sec) exceeds this limit.

Alarm and event limits

Alarm and event limits are entered in technical units. Each alarm and event limit has its own enable flag. If the enable flag is set, the alarm/event status will be updated. If the enable flag is not set, the corresponding status is cleared.

The filtered process value is compared with four alarm and four event limits. The alarm and event status is updated as following (if the enable flag is set):

- 1 LL = on, if Filtered_value < alarm_LL limit
- 2 L = on, if Filtered_value < alarm_L limit
- 3 H = on, if Filtered_value > alarm_H limit
- 4 HH = on, if Filtered_value > alarm_HH limit
- 5 Ev_1 = on, if Filtered_value > event_1 limit
- 6 Ev_2 = on, if Filtered_value > event_2 limit
- 7 Ev_3 = on, if Filtered_value > event_3 limit
- 8 Ev_4 = on, if Filtered_value > event_4 limit

The LL, L, H and HH alarms are activated as soon as the alarm delay has expired.

Filter time

The filter function is a 2nd order Butterworth filter. The scaled process value is filtered with a user defined filter time constant, which defines the cut-off frequency for the filter. The time constant resolution is 0.1 seconds. A time constant = 0 disables the filter, hence the lowest cut-off frequency is 10 Hz with the time constant set to 0.1 seconds.

Dynamic dead band

The dynamic dead band is entered in engineering units with the same number of decimals as specified for the process value. The dynamic dead band parameter is only in use if the external tag parameter is set to **YES**. This parameter is used for dynamic update of the process value for external tag users. When the process value becomes greater/less than the last sent value with more than the dynamic dead-band, a new value is sent.

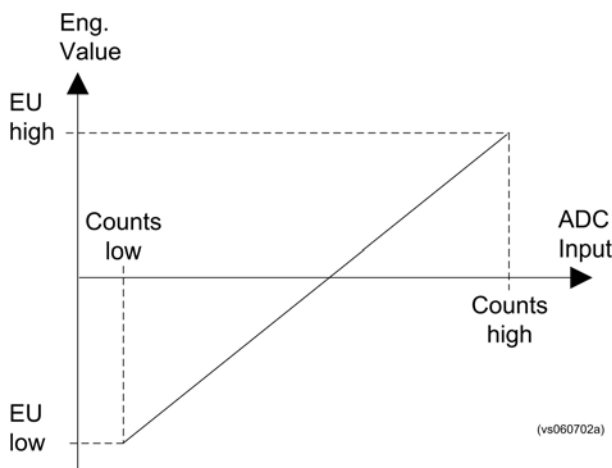
Scaling parameters

The scaling parameters are given in corresponding pairs of technical values and measured values read from the analogue to digital converter.

The technical sensor range is: Eng. Units High – Eng. Units Low

The instrument range is: Counts High – Counts Low

Figure 75 Scaling parameters



Measured values

Each channel is sampled from a 16 bit analogue to digital converter every 10 milliseconds. The result of this sampling is a value in the range 0 to 65535 counts. Depending on the type of signal connected, the legal count range may be less. The following table shows the count range for the different signal types available:

Code	Short Text	Counts High	Counts Low
1	VOLT_PM_01	45874	19660
2	VOLT_PM_1	45874	19660
3	VOLT_PM_5	45874	19660
4	VOLT_PM_10	58981	6553
6	VOLT_0_01	45874	32767
7	VOLT_0_1	45874	32767
8	VOLT_0_5	45874	32767
9	VOLT_0_10	58981	32767
11	MA_PM_1	58981	6553
12	MA_PM_5	39321	26214
13	MA_PM_10	45874	19660
14	MA_PM_20	58981	6553
16	MA_0_1	58981	32767
17	MA_0_5	39321	32767
18	MA_0_10	45874	32767
19	MA_0_20	58981	32767
20	MA_4_20	58981	38010

Code	Short Text	Counts High	Counts Low
22	PT_50	See 1)	See 1)
23	PT_100	See 1)	See 1)
24	PT_1000	See 1)	See 1)
26	POT_1K	See 2)	See 2)
27	POT_5K	See 2)	See 2)

- 1 The RTD elements are automatically calculated based on interpolation with values fetched from a predefined table. The scaling parameters are therefore not adjustable.
- 2 The potentiometer signal types are automatically calculated based on a conversion algorithm. The count scaling parameters are therefore not adjustable.

The **Raw Value** for a channel is the result of the sampling of the analogue to digital converter. By using the scaling parameters the **Scaled Value** is calculated, and from this value the raw percent value is calculated (± 100.00). The **Scaled Value** is used as input to the 2nd order Butterworth filter to produce the **Filtered Value**.

Counter input tag items

Parameter name	Type	Adjustable	Function
Enable Alarm Low	Yes/no	Yes	Enable/disable alarm
Enable Alarm Low Low	Yes/no	Yes	Enable/disable alarm
Enable Alarm High	Yes/no	Yes	Enable/disable alarm
Enable Alarm High High	Yes/no	Yes	Enable/disable alarm
Enable Event Low	Yes/no	Yes	Enable/disable event
Enable Event Low Low	Yes/no	Yes	Enable/disable event
Enable Event High	Yes/no	Yes	Enable/disable event
Enable Event High High	Yes/no	Yes	Enable/disable event
Limit Alarm Low Low	Number	Yes	Alarm limit
Limit Alarm Low	Number	Yes	Alarm limit
Limit Alarm High	Number	Yes	Alarm limit
Limit Alarm High High	Number	Yes	Alarm limit
Limit Event Low Low	Number	Yes	Event limit
Limit Event Low	Number	Yes	Event limit
Limit Event High	Number	Yes	Event limit
Limit Event High High	Number	Yes	Event limit
Filter Time	Number	Yes	Time in 100 milliseconds
Filter Index	Number	Yes	Counter input pin filter
Time Base	Number	Yes	Counting time code: ms=0:s=1:min=2:hr=3

Parameter name	Type	Adjustable	Function
Pulses Per Eng. Units	Number	Yes	Pulses per engineering unit
Raw Value	Number	No	Measured raw value directly from counter
Scaled Value	Number	No	Measured value scaled to technical value
Filtered Value	Number	No	Filtered scaled value
Dynamic Dead Band	Number	No	Report value dead band limit

Parameters specific to counter inputs are described below:

Counter input parameters

- Filter index
- Time base
- Pulses per Eng. Unit

Filter index

When using the counter as an event counter, it is possible to filter the counter input signal with a digital filter in order to avoid contact noise to be counted. The **Filter index** parameter specifies the digital filter cut-off frequency according to the following table.

Filter index	Cut-off frequency
0	1 Hz
1	5 Hz
2	10 Hz
3	50 Hz
4	100 Hz
5	500 Hz
6	Disabled

Time base

When using the counter for frequency or time measurements, the **Time base** parameter specifies in which time unit the measurement shall be calculated. The following values are available:

Time base	Time unit
0	Milliseconds
1	Seconds
2	Minutes
3	Hours

Note

Time base = 0 is not available when using the counter in frequency mode.

Pulses per Eng. Unit

When using the counter in frequency measurement mode, the scaling algorithm needs to know the number of pulses generated by the counting sensor per engineering unit. This is specified by the **Pulses per Eng Unit parameter**.

Pulses per engineering unit is for instance:

- 10 pulses per litre (flow rate)
- 120 pulses per revolution (engine RPM)
- 100 of pulses per knot (ship speed)

Counter input measured values

- Raw value
- Scaled value
- Filtered value

Raw value

This value is read directly from the counter. In the event counting mode, this value is the same as the scaled value.

Scaled value

In the event counting mode, the **Scaled value** is the same as the raw value. In the frequency counting mode, the Scaled value is calculated from the raw value using the **Pulses per Eng Units** and the **Time base** parameters. In time mode, only the Time base parameter is used to calculate the Scaled value.

Filtered value

The Scaled value is used as input to the 2nd order Butterworth filter to produce the **Filtered value**.

Digital input tag items

Parameter name	Type	Adjustable	Function
On delay	Number	Yes	Delay in 100 milliseconds
Off delay	Number	Yes	Delay in 100 milliseconds
Enable Alarm Low	Yes/no	Yes	Enable/disable alarm
Enable Alarm High	Yes/no	Yes	Enable/disable alarm
Enable Event Low	Yes/no	Yes	Enable/disable event

Parameter name	Type	Adjustable	Function
Enable Event High	Yes/no	Yes	Enable/disable event
Invert	Yes/no	Yes	Invert input status
Input value	Number	No	Input status before time delay
Delayed input	Number	No	Input status after time delay

Only the parameters specific to digital inputs are described here.

Digital input parameters

- Delays
- Invert
- Input values

Delays

Digital input status is delayed to remove rapid irrelevant transitions. The delay time specifies how long time the signal must be stable before the new input value is accepted. The delay time is specified in units of 100 milliseconds. The value 20 means a delay of 2 seconds.

Invert

The input value can be used directly or inverted before use. Specify **YES** to invert the input signal.

Input values

Input status both before and after time delay is available.

Exhaust mean value tag items

Parameter name	Type	Adjustable	Function
Mean Temperature High High	Number	Yes	Alarm limit
Enable Alarm High	Yes/no	Yes	Alarm enable/disable
Enable Alarm High High	Yes/no	Yes	Alarm enable/disable
Mean Temperature High	Number	Yes	Alarm limit
Mean Temperature Block	Number	Yes	Alarm blocking limit
Deviation Temperature High	Number	Yes	Alarm limit
Deviation Temperature Low	Number	Yes	Alarm limit
Cylinder 1 Temperature	Number	Yes	Temperature tag number reference
Cylinder 2 Temperature	Number	Yes	Temperature tag number reference
Cylinder 3 Temperature	Number	Yes	Temperature tag number reference
Cylinder 4 Temperature	Number	Yes	Temperature tag number reference

Parameter name	Type	Adjustable	Function
Cylinder 5 Temperature	Number	Yes	Temperature tag number reference
Cylinder 6 Temperature	Number	Yes	Temperature tag number reference
Cylinder 7 Temperature	Number	Yes	Temperature tag number reference
Cylinder 8 Temperature	Number	Yes	Temperature tag number reference
Cylinder 9 Temperature	Number	Yes	Temperature tag number reference
Cylinder 10 Temperature	Number	Yes	Temperature tag number reference
Cylinder 11 Temperature	Number	Yes	Temperature tag number reference
Cylinder 12 Temperature	Number	Yes	Temperature tag number reference
Cylinder 13 Temperature	Number	Yes	Temperature tag number reference
Cylinder 14 Temperature	Number	Yes	Temperature tag number reference
Cylinder 15 Temperature	Number	Yes	Temperature tag number reference
Cylinder 16 Temperature	Number	Yes	Temperature tag number reference
Dynamic Alarm Limit	Number	No	Deviation alarm limit
Mean Temperature	Number	No	Calculated mean temperature

Exhaust mean value parameters

- Mean temperature high high/Enable alarm high high
- Mean temperature high
- Dynamic deviation alarm limit
- Mean temperature block/Deviation temperature high/Deviation temperature low
- Cylinder 1 – 16 temperature
- Mean temperature

Mean temperature high high/Enable alarm high high

If the mean temperature high high enable is set to **YES**, the mean temperature high high alarm is activated if the calculated mean temperature increases above the mean temperature high high limit.

Mean temperature high

The mean temperature high alarm is activated if the calculated mean temperature increases above the mean temperature high limit.

Dynamic deviation alarm limit

Alarm limit at current mean temperature.

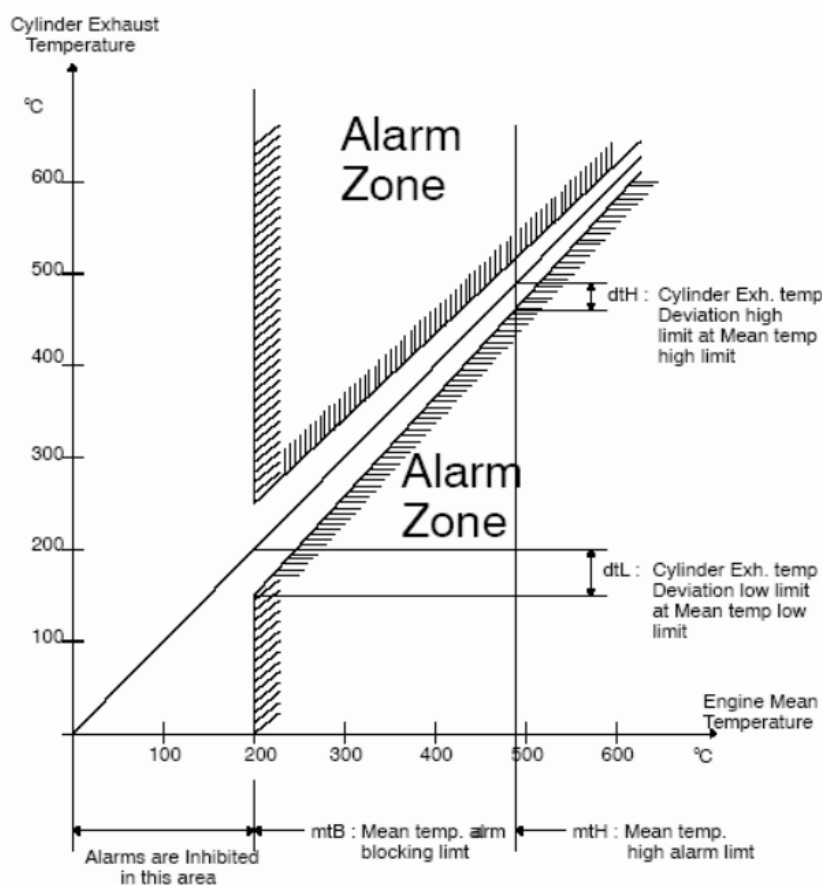
Mean temperature block/Deviation temperature high/Deviation temperature low

If the mean temperature falls below the mean temperature block limit, all deviation alarms are inhibited. The Deviation temperature low limit defines the maximum allowed deviation from the mean temperature for each cylinder, when the mean temperature is equal to the mean temperature block limit.

The Deviation temperature high limit defines the maximum allowed deviation from the mean temperature for each cylinder, when the mean temperature is equal to the mean temperature high alarm limit.

The actual deviation alarm limit is a dynamic calculated alarm limit that each cylinder uses for deviation alarm detection. The following figure gives a graphical illustration of the different parameters.

Figure 76 Exhaust mean value parameters



Cylinder 1 – 16 temperature

The Cylinder (1–16) temperature parameters are tag number references for each cylinder’s temperature measurement. Only the cylinder references that are in use, are used for calculating the mean temperature.

Mean temperature

The Mean temperature is calculated as an average of all the cylinders specified in the cylinder temperature reference parameters. Cylinder temperatures that are in instrument fail are not used in the calculation.

Exhaust deviation tag items

Parameter name	Type	Adjustable	Function
Correction Temperature	Number	Yes	Correction temperature
Cylinder Temperature Reference	Number	Yes	This temperature tag number
Normalized Temperature	Number	No	Measured temperature + temperature correction

There has to be one exhaust deviation tag item for each cylinder. This tag item checks the normalised cylinder temperature against the deviation alarm limit calculated by the exhaust mean temperature tag item, and activates the exhaust deviation alarm if the normalised temperature is outside the legal deviation range.

Exhaust deviation parameters

- Correction temperature
- Cylinder temperature reference
- Normalised temperature

Correction temperature

Each cylinder's Correction temperature is calculated only on request from the operator. This is normally done when the engine is running in steady state at 100 % load.

The reason for using a correction temperature is that all cylinders have their own normal operating temperatures, which mostly are not equal to the engine mean temperature. By adding the correction temperature to the real cylinder temperature, the cylinder temperature is normalised, so that the deviation alarm limits are valid for all cylinders.

The correction temperature is calculated in the following way:

$$\text{Correction_temperature} = \text{Meantemp} - \text{RealCylindertemp}$$

Cylinder temperature reference

The Cylinder temperature reference parameter is a tag number reference to the each cylinder's temperature.

Normalised temperature

The Normalised temperature is calculated in the following way:

$$\text{Cylinder_normalised_temp} = \text{RealCylindertemp} + \text{Correction_temp}$$

This normalised cylinder temperature is again used for checking against the deviation limits to generate the deviation alarm.

Common sub-menu items

Parameter name	Type	Adjustable	Function
Tag type	Number	Yes	RIO channel type
Decimal point	Number	Yes	Fixed point location for tag analogue value
External tag	Yes/no	No	Yes if tag is used by some other tag
Tag name	Text	No	Tag's global name

Common sub-menu parameters

- Tag type
- Decimal point
- Tag name

Tag type

The channel type is a code specifying how the input signal is handled and scaled. There are 255 different codes available.

Decimal point

Technical process values are represented as a fixed-point value. The number 234.23 is internally represented with a value of 23423 and a decimal point of 2. Note that control applications mostly have decimal point 1.

Tag name

The External tag parameter = **YES** means that this tag is used by another module. Most control applications are external. The tag's value will be automatically transmitted for external use. The Tag name parameter is the global tag name.

Alarm sub-menu items

Parameter name	Type	Adjustable	Function
Alarm On Delay1	Number	Yes	High/low delay off (1 second)
Alarm Off Delay1	Number	Yes	High/low delay off (1 second)
Alarm On Delay2	Number	Yes	High high/low low delay off (1 second)
Alarm Off Delay2	Number	Yes	High high/low low delay off (1 second)
Inhibit On Delay	Number	Yes	Inhibit delay on (1 second)
Inhibit Off Delay	Number	Yes	Inhibit delay off (1 second)
Inhibit Tag	Number	Yes	Tag number to inhibit this channel

Alarm and inhibit delays

There are separate parameters for alarm delay On and Off, as well as delay of inhibit On and Off. When the condition for alarm or inhibit is changed, a timer is started. The new condition must be stable for the time specified by the delay parameter before the new alarm condition is accepted, and an event is issued. Delays are specified in seconds.

Inhibit parameters: tag number

Specifies the tag number to check status for. The specified tag number's external parameter must be set to activate the Process Data Object (PDO) transmission on changes.

Engineer's safety

Purpose

The Engineer's safety system (dead man system) is a system for engineer fitness. When activated, the reset button must be pressed by the engineer within a pre-defined time period. If not, the system will indicate "Engineer fitness alarm".

Functions

- Start, stop and reset from push-buttons
- Control from the Operator Station
- Warning light activated by relay
- Alarm horn activated by relay
- Range check of timers according to IMO rules

When active, the system will activate a rotating light after expired time delay. The engineer must now reset the system. If the system is not reset within a new time period, the system will activate an alarm. Reset can be pressed at any time.

The system will typically be activated from the Operator Station by selected alarms when running an unattended engine room.

Local control

The system is activated and deactivated manually by a key-switch. The system can also be activated automatically from the alarm system when an engine room alarm occurs during unattended engine room. A number of reset push-buttons are located around the ship.

Operator Station control

When an alarm occurs in bridge watch, the engineer safety handler is activated. The timers are reset every time activated. The timers are not reset by the command from the Operator Station, if already running.

Parameters

Parameter name	Type	Adjustable	Function	Initial value	Parameter reference
Tag1: Start	Number	Yes	Start/on digital input Tag reference	N/A	Tag 1
Tag2: Stop	Number	Yes	Stop/off digital input Tag reference	N/A	Tag 2
Tag3: Reset	Number	Yes	Reset digital input Tag reference	N/A	Tag 3
Tag4: On Watch	Number	Yes	Remote Operator Station Tag for telling the Dead man system that someone is set on Watch	N/A	Tag 4
Tag5: New Alarm	Number	Yes	Remote Operator Station Tag for telling the Dead man system that a new alarm is activated	N/A	Tag 5
T1: Warning time	Number	Yes	Time from reset or start until warning is activated	20 min	P1
T2: Alarm time	Number	Yes	Time from warning is activated until alarm	150 s	P2
S1: IMO Compliant	Yes/no	Yes	Enable check timers according to IMO rules for machinery dead man system	Yes	B1

Tags 4 and 5 are used when the dead man handler is part of the Watch Calling System at the Operator Station. The tag then pointed to by tag 4 is active when the Watch Calling System is set to bridge watch. When an alarm occurs in bridge watch, the tag pointed to by tag 5 will be activated, and this will activate the dead man handler in the same way as if tag 1 was activated. The decimal point is 0.

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