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IMAGES AND FUNCTION MODULES

COMPANY SHARED

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Images and Function modules

References

- Kongsberg K-Chief 700 Integrated Control System Product Description, 304844/B
- Kongsberg K-Chief 700 Operator Manual, 332618/B
- Online User Guide
- Vessel specific KFDD Common/General system

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2



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Content

- Navigation in the K-Chief 700 system
- Function module concept
- Tag marks
- Operation menu
- Context menu
- Parameter view
- Terminal view
- Different Images types

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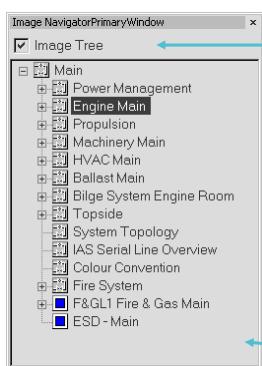
3



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How to Navigate in K-Chief 700 system (Choose Process Images)

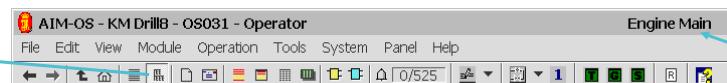
The Navigator shows Process Images in an Image Tree



Deselect Image Tree for all views in alphabetic order



BU-AUT:
Labelled buttons
for opening e.g.
Ballast view



The name of
the selected
view

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Icons on the toolbar concerning Navigation

-  **Navigator**
-  **Home Image or MAIN PAGE**
-  **History navigator:** Log of the most recent images displayed on the OS
-  **Parent image**
-  **Previous and Next arrows:** As listed in the history navigator

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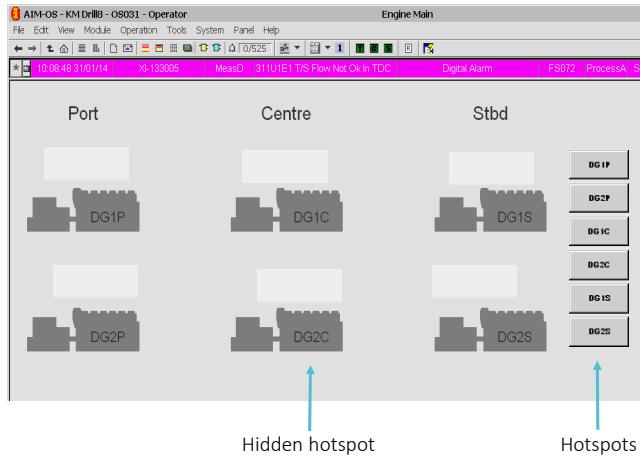
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Hotspots



- A Hotspot is a link to a related image

- Visible as a button or symbol

- When the mouse pointer is placed over a hotspot, it will change to a pointing hand



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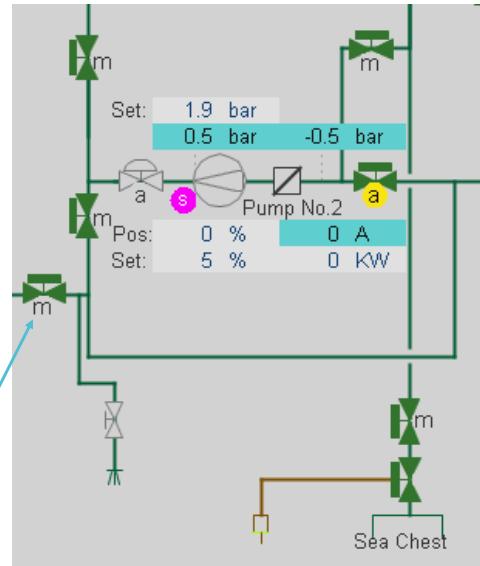
6



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Function module

- The function module represent a physical field device such as a valve, motor, sensor, switch etc.
- Function modules are represented by symbols
- The symbol may change colour according to situations as; opened, running etc.
- Tag mark indicates modes of operation; automatic, manual etc.



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Function module

- The module symbol may change appearance in addition to colour



The colour convention for dynamic function modules is normally:

●	Disable terminal
●	Disable Alarm
●	Missing Variables
●	Inhibit
●	Suppressed
●	IO Error
●	Passive

●	Magenta
●	Olive
●	Salmon Red
●	Cyan
●	Brown

Colour Alarms

ALARM EMERGENCY PRIORITY	Alarm	Alarm
ALARM HIGH PRIORITY	Alarm	Alarm
ALARM LOW PRIORITY	Alarm	Alarm
ALARM UNPRIORITY	Alarm	Alarm

See vessel specific KFDD

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Examples of Tag Marks

Tag Mark	Meaning	Used by (AIM SW Modules)	Colour
	Detached	PID, Motor, Valve, Circuit Breaker	
L	Local	Motor, Valve, Circuit Breaker	Cyan
!	Error	Motor, Valve, Circuit Breaker	Red
s	Shutdown	Motor, Valve, etc.	Magenta
o	Override	PID, Motor, Valve, etc.	Cyan
i	Inhibit	PID, Motor, Valve, etc.	Cyan
!	Override Interlock	PID, Motor, Valve, etc.	Cyan
I	Interlock	Motor, Valve, Circuit Breaker, etc.	Cyan
f	Follow & Freeze	PID	Cyan
e	External	PID	Green
m	Manual	PID, Motor, Valve, etc.	Cyan
a	Auto	Motor, Valve, etc.	Green
i	Internal	PID	Cyan

*See vessel
specific KFDD*

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9



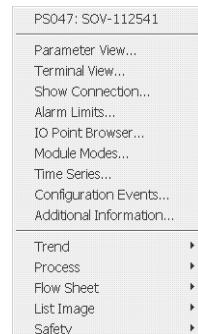
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Function Module menus

Operation Menu on the left click



Context Menu on the right click



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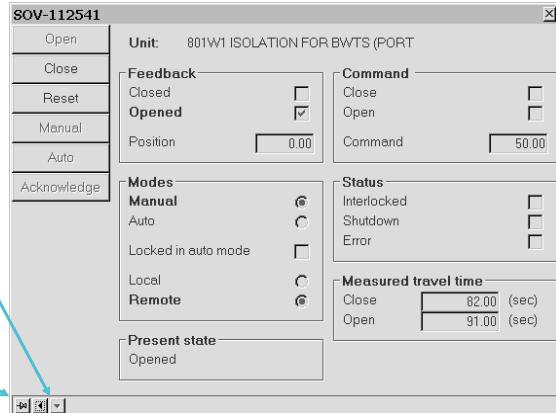
10



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Expanded operation menu

- The expanded operation menu gives further information about the module
- The expanded operation menu is opened/closed by using the arrowheads
- The Pin button is used to anchor the operation menu to the screen



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11

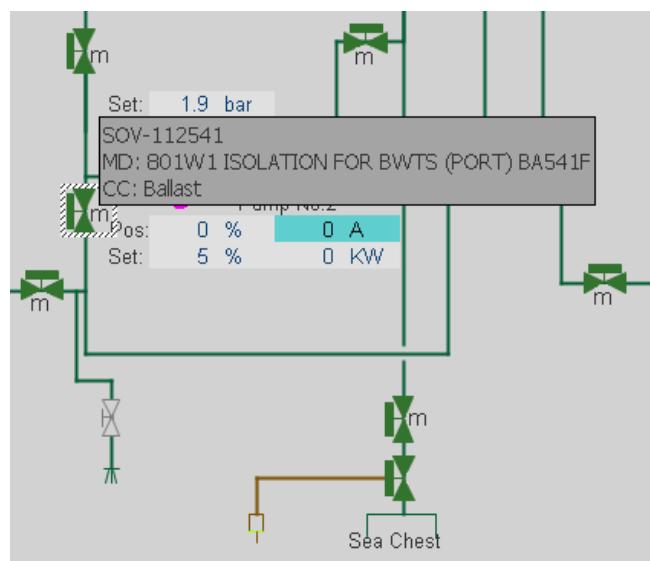


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Tag information

- When the cursor is held over a symbol, a tool tip with tag name, module description and command control group (if not in command) is shown

MD: Module description
CC: Command control



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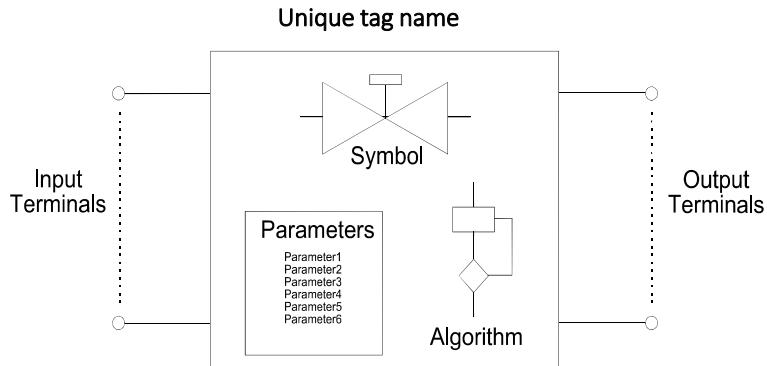
12



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Function Module main parts

A Function module consist of five main parts:



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Module's main parts description

Tag name

- The Tag name is a unique identification of the module and identifies the field device this module is representing

Symbol

- In general a symbol will represent a field device
- The type of symbol will indicate the function/algorithim
- Colour and appearance change according to field device status
- The K-Chief system also includes function modules NOT representing a field device, like modules for logic, calculations, settings etc.
- These modules are not always represented by symbols on process images

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14



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Module's main parts description continues

Terminals

- The main purpose of the terminals is to transfer values (data) between function modules and/or the I/O system (field values)

Parameters

- A set of variables used to define the characteristics and behaviour of the module
- There are 3 main types of parameters:
 - Operation parameters (by the "Operation Menu")
 - Status Parameters (readings from field and calculation)
 - Configuration parameters (tailor making the module to the field device)

Algorithm

- The algorithm describes the function module software
- For each function module type a "Module User Manual" is available; describing the functionality, parameters, terminals etc.

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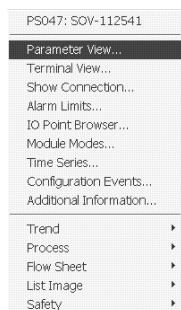
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15



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Parameter View – shows values & settings



PS047: SOV-112541

Module Parameters - PS047: SOV-112541

Module type: valved 6.16.1
Unit: 801W1 ISOLATION FOR BWTS (PORT)

FEEDBACK

Closed	0
Opened	1
Position	0.00

COMMAND TO VALVE

Close	0
Open	0

MODES

Manual/Auto mode	0
Local/Remote mode	1
Interlocked	0
Shutdown	0

ERROR

Error condition present	0
-------------------------	---

OTHER INFORMATION

Locked in auto mode	0
---------------------	---

PRESENT STATE

Present state	Opened
---------------	--------

MEASURED TRAVELTIME

Close	sec	82.0
Open	sec	91.0

Master C PSA C PSB Print Close Help

1 = True

0 = False

Manual/Auto (0/1)

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16



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Parameter View

- Changes to parameters can only be performed by users with extended access rights
- Command control of the tag/module is also required
- The Module User Manual (MUM) for the specific module type describes the parameters shown in the Parameter View

In general:

- Logic parameters; feedback, commands or calculation, value 1 implies that the text is true/fulfilled, value 0 implies that the text is not true/not fulfilled
 - Parameters like Manual/Auto (0/1)
Value 0 = Manual
Value 1 = Auto

Page 1:

- Monitored (measured) and/or calculated values/status,
e.g. Running feedback from a pump

Page 2 and 3:

- Configuration parameters for tailor making the software module to the field device,
e.g. Timeout for start/stop, conditions for interlock

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17



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Terminal View – shows terminals with current values

PS047: SOV-112541	
Parameter View...	
Terminal View...	
Show Connection...	
Alarm Limits...	
IO Point Browser ...	
Module Modes...	
Time Series...	
Configuration Events...	
Additional Information...	
Trend	
Process	▶
Flow Sheet	▶
List Image	▶
Safety	▶

Module Terminals - PS047: SOV-112541

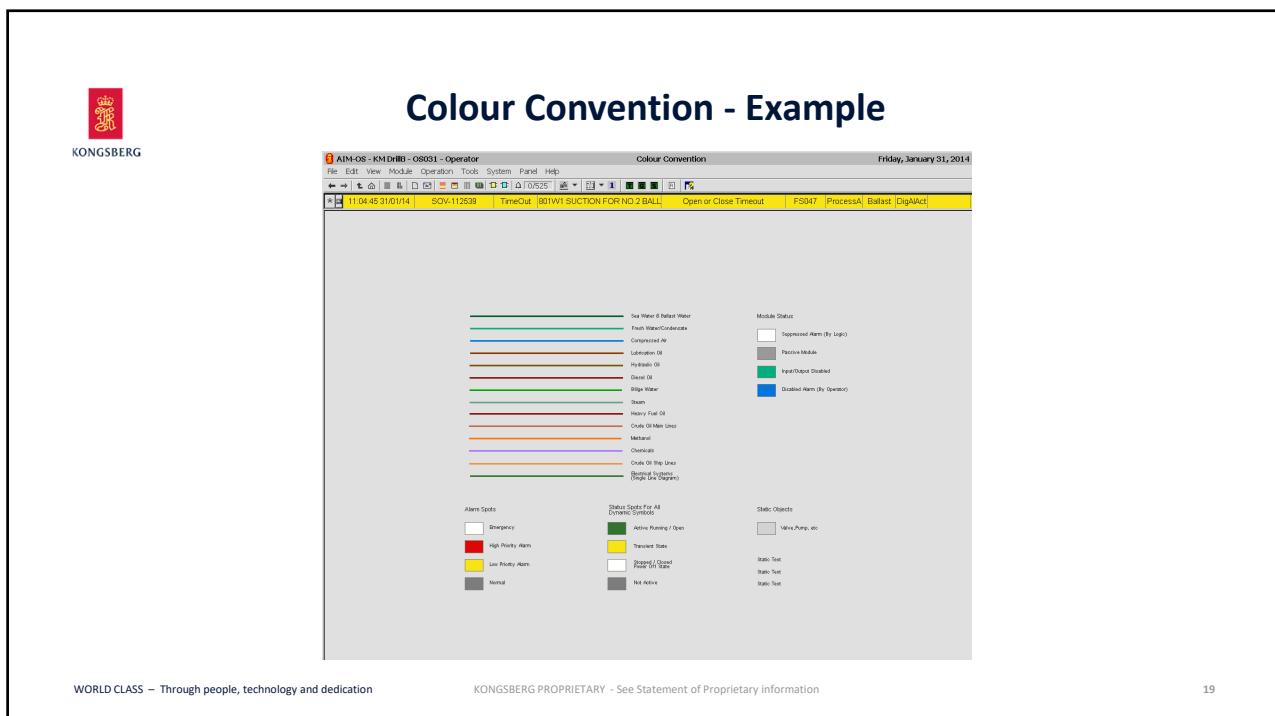
Input Terminals		Output Terminals	
InOpened	1	OutOpened	1
InClosed	0	OutClosed	0
Remote	0	OutRemote	1
Failure	0	OutCtrMode	0
Control	0	OutFailure	0
ControlMode	0	Incons	0
Shutdown	0	TimeOut	0
Interlock	0	Error	0
ActAlarm	0	Open	0
Flow	0	Close	0
Invisible	0	MaxOpTime	92.0000
ShutdownExt	0	MaxClTime	92.0000
AutoOn	0	OpenTime	91.0000
AutoOff	0	CloseTime	92.0000
ControlOpen	0	SD2Error	0
ControlClose	0	SD2InError	0
SD1statIn	0	OutTcp	0
SD2statIn	0	OutInterlock	0
DeEnergize	0	OpeningControl	50.0000
Position	0.0000	IOKerr	0
Ext1OKerr	0	AckOut	1
AckIn	0	RedevStat	0
InOpened2	0	OutReset	0
InClosed2	0		
InReset	0		

Master PSA PSB Close Help

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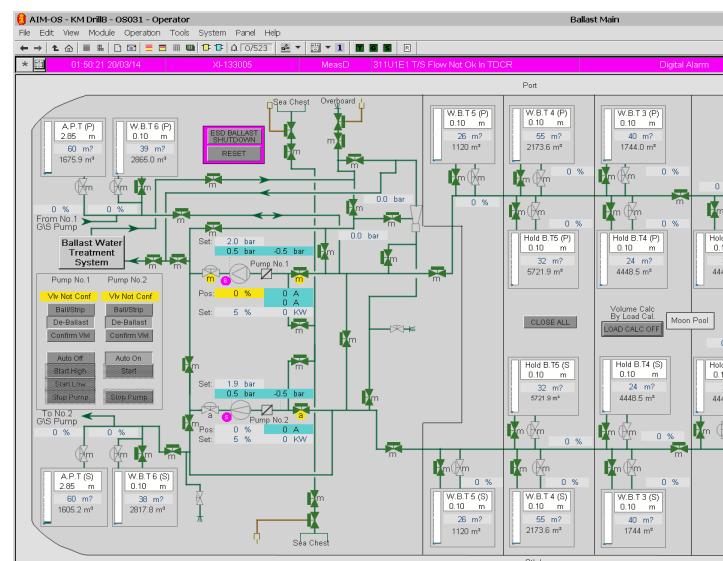
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18



Process Image

- Graphic presentation for the monitoring and operation of a system/process
- The graphic provides a real-life vision of the function modules and site arrangements



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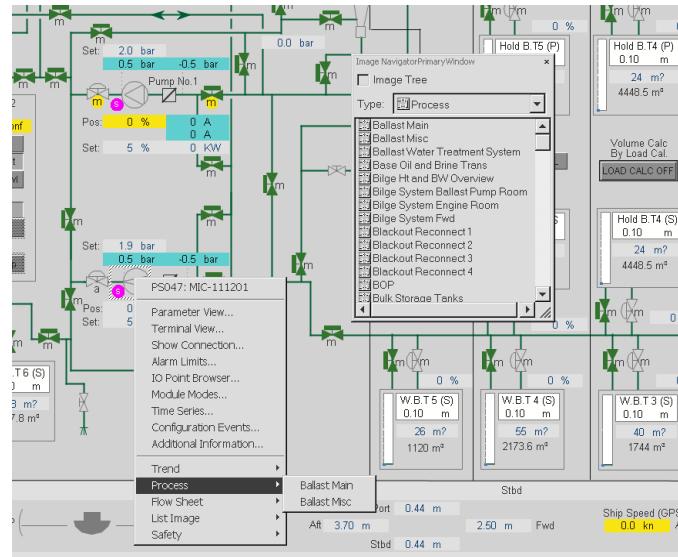
20



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Process Image orientation

- A module may be presented in several process images



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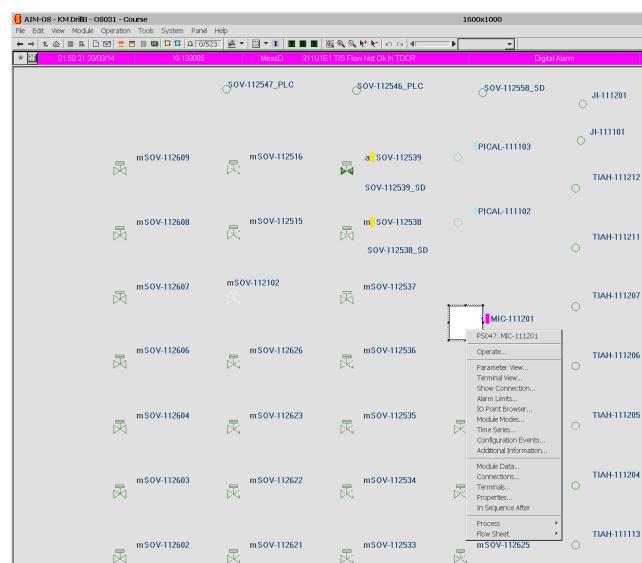
21



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Flow Sheet Image

- A graphical image displaying all modules
- Logic, connections and configuring is done on flow sheet image
- By using the context menu it is possible to move between related images e.g. Process or Flow Sheet
- Used as operation images in some applications



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List Image

A tabular presentation of data related to a selection of modules

RunHoursView										Friday, January 31, 2014 11:39:40			
		TimeOut		SOV11209		Open or Close Timeout		FS047		ProcessAlarm	Ballast	DigitalActive	A
Module	Tag	Description	Unit	Speed	Device	Unit	Hours	MS	RS Status	Alarm			
F0C 051951	711V103 PORT E/LO TRANSFER PUMP FL	STOPPED	MANUAL				0.001	0	OK	OK			
MIC-050631	576915 PORT E/LO COOLER FAN	STOPPED	MANUAL				419.33	100	OK	OK			
MIC-050632	576916 PORT E/LO COOLER FAN	STOPPED	MANUAL				55.00	100	OK	OK			
MIC-050296A	651M2 PORT E/NO 7 MISC CYL/L/PUMP	STOPPED	MANUAL				42.66	100	OK	OK			
MIC-012205A	651M2 PORT E/NO 2 MISC PRE LUBE PUM	STOPPED	MANUAL				378.59	100	OK	OK			
MIC-050296B	651M2 PORT E/NO 3 MISC PRE LUBE PUM	STOPPED	MANUAL				100.00	100	OK	OK			
MIC-032744A	875210 P 57H AUS PANEL TR DUTY COOL	STOPPED	MANUAL				0.00	LOCAL	OK	OK			
MIC-042745A	88532 AFT (P) AC 440V IR HEATIN COOLING STOPPED	MANUAL					0.00	LOCAL	OK	OK			
MIC-042746A	88532 AFT (P) AC 440V TR DUTY COOLING STOPPED	MANUAL					0.00	LOCAL	OK	OK			
MIC-011647B	88532 AFT (P) AC 440V TR DUTY COOLING STOPPED	MANUAL					0.00	LOCAL	OK	OK			
MIC-081225	889301201 PORT E/NO 1 DRAIN PUMP	STOPPED	MANUAL				189.99	100	OK	OK			
MIC-050296C	576917 PORT E/NO 1 MISC COOLER NO2	STOPPED	MANUAL				222.00	100	OK	OK			
MIC-052114	702V12 PORT E/NO 2 LO 2.0 PURI	STOPPED	MANUAL				1472.99	100	OK	OK			
MIC-052104	702V11 PORT E/NO 1 LO 2.0 PURI	STOPPED	MANUAL				295.44	100	OK	OK			
MIC-052113	702V11 PORT E/NO 2 LO 2.0 PURI	STOPPED	MANUAL				20.00	100	OK	OK			
MIC-0509102	702V11V1 PORT E/NO 1 LO 2.0 PURI/PER	STOPPED	MANUAL				567.89	100	OK	OK			
MIC-041201	701V1 PORT E/NO PVN GEN	STOPPED	MANUAL				1150.82	100	OK	OK			
MIC-041202	701V1 PORT E/NO PVN GEN	STOPPED	MANUAL				210.00	100	OK	OK			
MIC-050296D	88106 PORT E/NO 3 ST/OUT G/S PP	STOPPED	MANUAL				49.31	100	OK	OK			
MIC-050291	70104 TRS D/O NO 1 TRANSFER PUMP	STOPPED	MANUAL				83.50	100	OK	OK			
MIC-050292	70104 TRS D/O NO 2 TRANSFER PUMP	STOPPED	MANUAL				110.00	100	OK	OK			
MIC-063956	579697 AFT (P) HPR COMPARTMENT SUPPL	STOPPED	MANUAL				998.77	100	OK	OK			
MIC-063955	579697 AFT (P) SECOND ESCAPE WAY SU STOPPED	MANUAL					959.36	100	OK	OK			
MIC-063954	579697 AFT (P) SECOND ESCAPE WAY SU STOPPED	MANUAL					586.00	100	OK	OK			
MIC-081201	722W1 PORT E/NO 10 8 CNT AIR COM	STOPPED	AUTO				589.78	100	OK	OK			
MIC-060101	73161 PORT E/NO STARTING AIR COM	STOPPED	AUTO				245.95	100	OK	OK			
MIC-060102	73161 PORT E/NO 10 8 CNT AIR COM	STOPPED	AUTO				14.00	100	OK	OK			
MIC-091207	738U02 PORT E/NO 1 D/D SUPPLY PP NO STOPPED	MANUAL					2040.65	100	OK	OK			
MIC-062819	579622 BALAST FIT 1 RM D/HY/N 1.1	STOPPED	AUTO				593.33	100	OK	OK			
MIC-062820	579622 BALAST FIT 1 RM D/HY/N 1.1	STOPPED	AUTO				594.00	100	OK	OK			
MIC-081207	72104 PORT E/NO MAIN C/S V/P NO 2	STOPPED	MANUAL				2505.63	100	OK	OK			
MIC-060234	72268 PORT E/NO 1 C/T C/W/B/PUMP NO 2	STOPPED	MANUAL				2777.71	100	OK	OK			
MIC-060235	54401 P 57H RM SUPPLY FAN	STOPPED	AUTO				6.91	100	OK	OK			
MIC-060269B	576632 P 57H RM SUPPLY FAN	STOPPED	STOPPED				10.80	100	OK	OK			
MIC-060269A	576632 P 57H RM SUPPLY FAN	STOPPED	STOPPED				1334.14	100	OK	OK			
MIC-060269	576632 P 57H RM SUPPLY FAN	STOPPED	STOPPED				1384.94	100	OK	OK			
MIC-060271	576632 P 57H RM SUPPLY FAN	STOPPED	STOPPED				1447.60	100	OK	OK			

- The List image can be sorted (ascending or descending) by clicking on the column heading

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23



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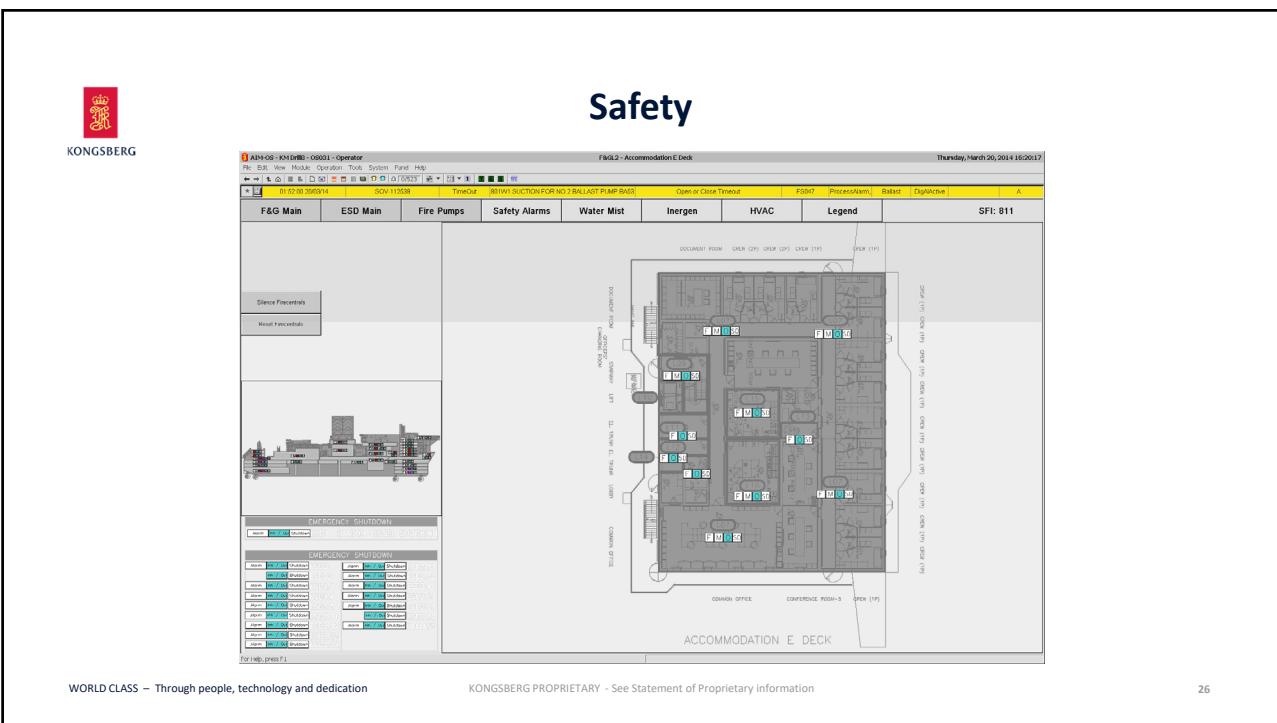
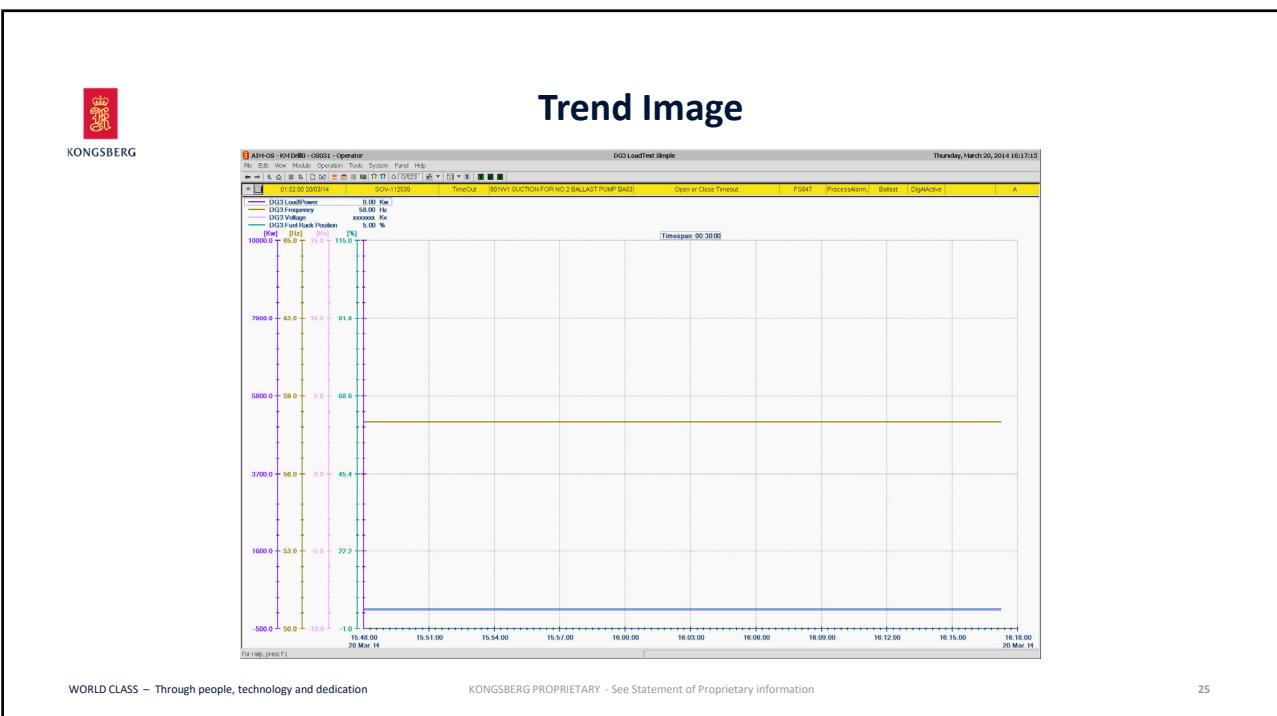
Event list Image

Event List										Thursday, March 20, 2014 16:14:34			
		TimeOut		SOV11259		Open or Close Timeout		FS047		ProcessAlarm	Ballast	DigitalActive	A
Time	Tag	Terminal	Description	Failure	Originator	Type	CmdGrp	State	Limit	Member			
*	13:49:00 2003/14	SONV11259	TimeOut	901W1 SUCTION FOR NO.2 BALLAST PUMP BAG3	Open or Close Timeout	FS047	ProcessAlarm	Ballast	DigitalActive	A			
*	13:49:00 2003/14	SONV11259	TimeOut	901W1 SUCTION FOR NO.2 BALLAST PUMP BAG3	Open or Close Timeout	FS047	ProcessAlarm	Ballast	DigitalActive	A			
*	13:49:00 2003/14	1613005	VarxD	9110E175 Flow Not On & TDCR	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:00 2003/14	1613004	VarxD	9110E175 Flow Not On & LER	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:00 2003/14	1613003	VarxD	9110E175 Flow Not On & DCR	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:42 2003/14	20455_CMD	Thruster command from US system	Telegram Instruct	FS206_P5200	SystemAlarm							
*	13:49:51 2003/14	1613002	VarxD	3110E175 Loss Of Room Pressure - TDR (P)	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:51 2003/14	1613001	VarxD	3110E175 Loss Of Room Pressure - LERTDCR	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:51 2003/14	1613002	VarxD	3110E175 Loss Of Room Pressure - DCPIP(4)	Digital Alarm	FS047	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:48 2003/14	20455_CMD	Thruster command from US system	Telegram Instruct	FS206_P5200	SystemAlarm							
*	13:49:48 2003/14	20455_CMD	Thruster command from US system	Telegram Instruct	FS206_P5200	SystemAlarm							
*	13:49:48 2003/14	32232_CMD	Thruster command from US system	Telegram Instruct	FS207_P5200	SystemAlarm							
*	13:49:49 2003/14	20455_CMD	Thruster command from US system	Telegram Instruct	FS207_P5200	SystemAlarm							
*	13:49:29 2003/14	YC_091004402	Conflict	Lora FF Re. Beam Light Cabinet	Activation conflict	FS071	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:39 2003/14	NCC-123501HM2	Conflict	Front Axis Mach Rm Fire Dampers Close	Activation conflict	FS071	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:39 2003/14	YC-133114HM2	Conflict	Front Axis Mach Rm Supply Fan2	Activation conflict	FS071	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:40 2003/14	YC-133112HM2	Conflict	Front Axis Mach Rm Supply Fan1	Activation conflict	FS071	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:48 2003/14	Redundancy		PS Degraded	FS073_P5170	SystemAlarm							
*	13:49:35 2003/14	FC_073		Communication fault	FS073_P5170	SystemAlarm							
*	13:49:35 2003/14	SWFirePP#C38	Conflict	Fwd Stbd Fire Pump Start(No.1)	Activation conflict	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	SWFirePP#C55	Conflict	Fwd Stbd Fire Pump Start(No.1)	Activation conflict	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	SWFirePP#C31	Conflict	Fwd Stbd Fire Pump Start(No.1)	Activation conflict	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NZD-391738A	VarxD	81012 Data Flows Delays V/Limit 5000 Closed	Digital Alarm	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NZD-391738A	VarxD	Deluge Manual Release Operated	Digital Alarm	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NZD-391738A	VarxD	Deluge Manual Release Operated	Digital Alarm	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NZD-391738A	VarxD	Deluge Manual Release Operated	Digital Alarm	FS072	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NSV-007131	OutOpened	819F1 DRILL FLOOR DELUGE VV	Alarm State	FS081	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NSV-007128	OutOpened	819F1 MONPOOL DELUGE VV	Alarm State	FS081	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:35 2003/14	NSV-007121	OutOpened	819F2 EWT STBD DELUGE VV	Alarm State	FS081	ProcessAlarm	Safety	DigitalActive	A			
*	13:49:34 2003/14	State 1		PS Degraded	FS072_P5170	SystemAlarm							
*	13:49:34 2003/14	CCTV Modbus Interface		Communication error	FS072_P5170	SystemAlarm							

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System Status Image

Shows operational information about the OS, PS, HS and the network

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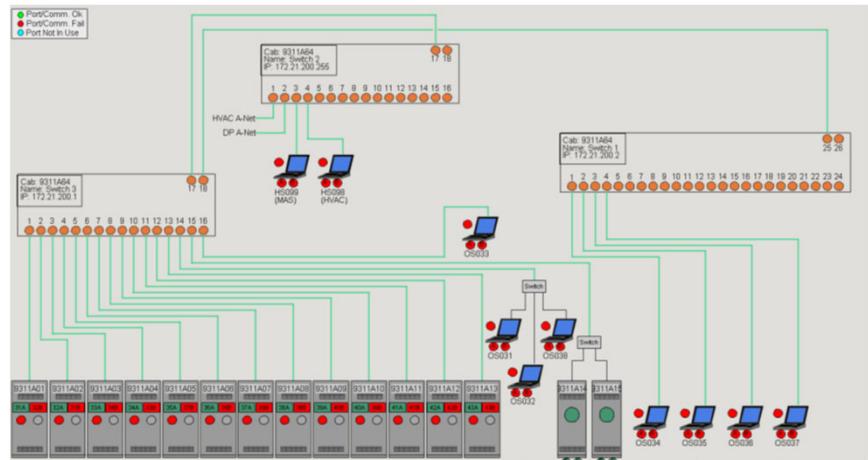
27



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System Status Image

Example of a graphical presentation of System Status



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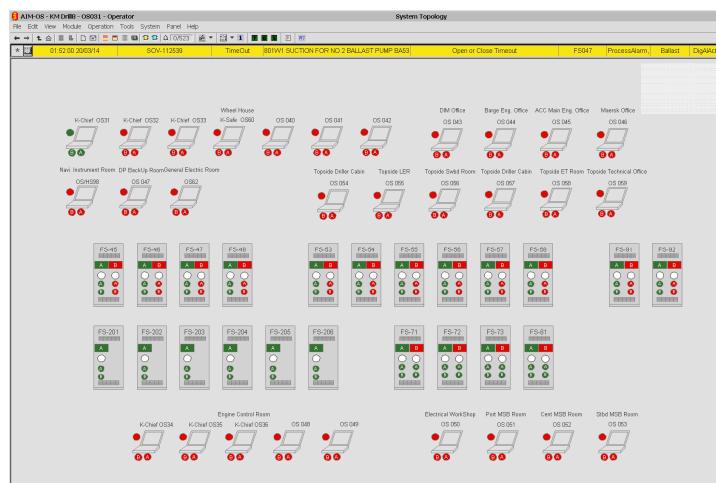
28



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System Status Image

Example of a graphical presentation of System Status



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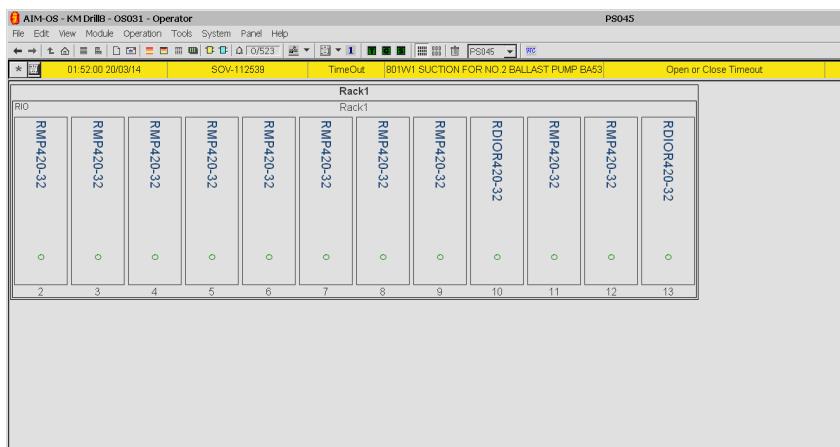
29



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I/O System Image

Shows information for the I/O units connected to the Controller.



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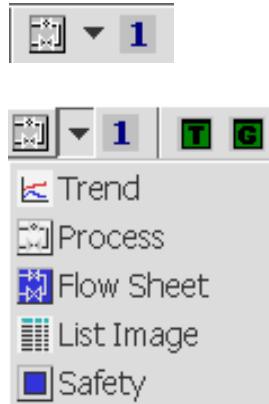
30



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TBIN

The Best Image Navigation tab



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Exercises:

- Module
- Image selection

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Learning Objectives

- Know the functionality of the navigator
- Recognise different types of images
- Recognise image icons in the toolbar
- Know the functionality of the BU-AUT panel
- Recognise and describe the functionality of hotspots and hidden hotspots.
- Explain navigation through TBIN (The Best Image Navigation tab)
- Explain navigation from the Context menu
- Carry out navigation in the K-Chief 700 system
- Interpret different Function module symbols
- Explain the information given by the Tooltip for a function module
- Explain the most common Tag marks
- Explain the Function module concept and main parts
- Explain the Operator menu properties
- Use the Function module operator menu to open/close and start/stop
- Use the extended operator menu to retrieve essential status and settings from the Function module
- Identify the Module context menu
- Identify and interpret the Parameter view

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33



End of the presentation

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