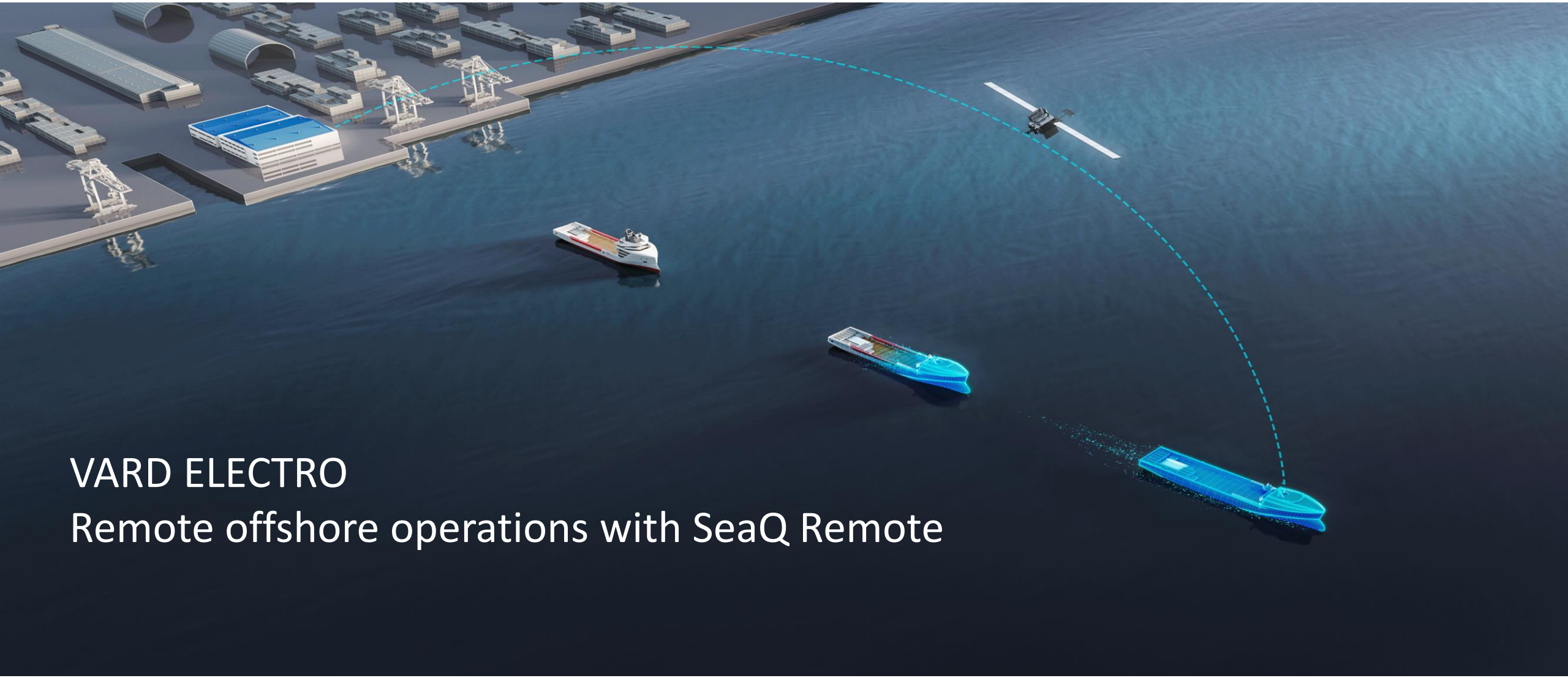
built on trust™

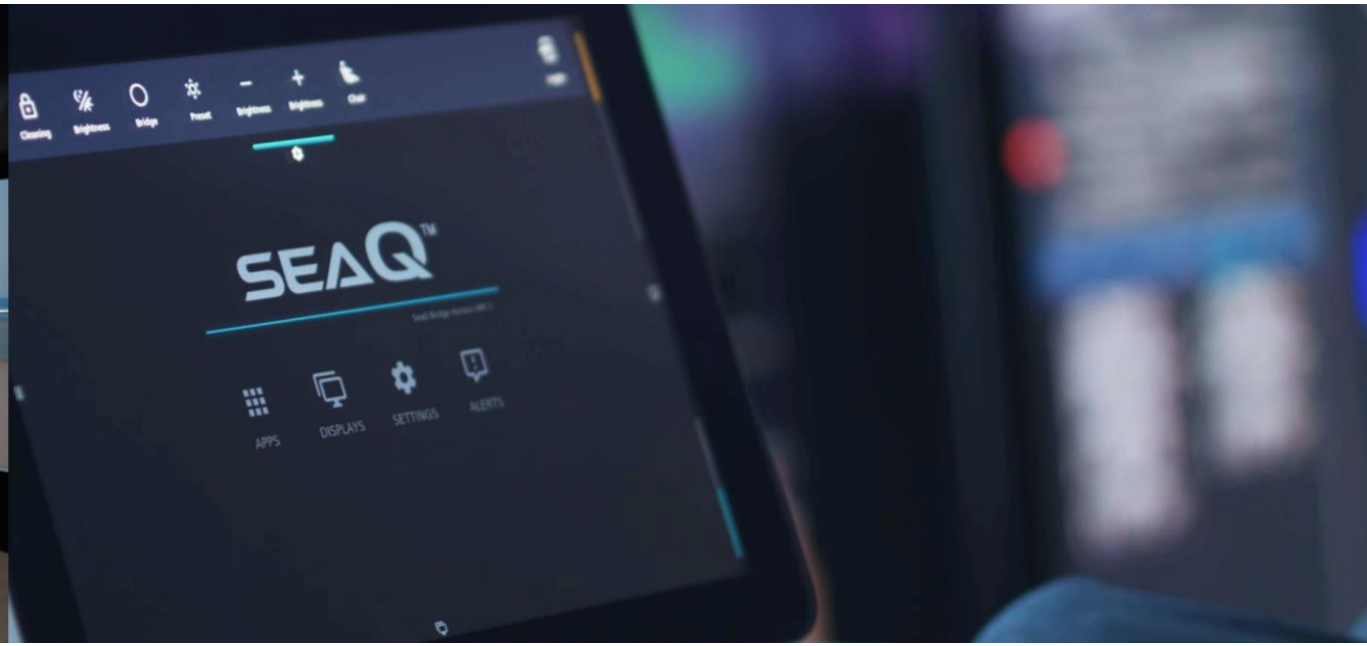


VARD ELECTRO
Remote offshore operations with SeaQ Remote

SEAQ®

VARD™
a Fincantieri company

Vard Electro



700+
employees

HQ
in Tennfjord, Norway

Owned by Fincantieri

10
countries

7
Strategic service hubs

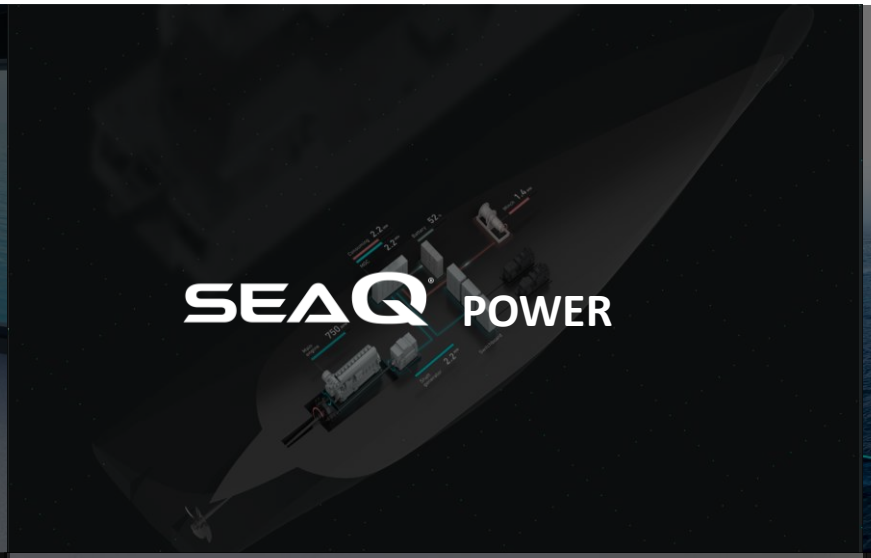
2013
Inhouse developed product portfolio

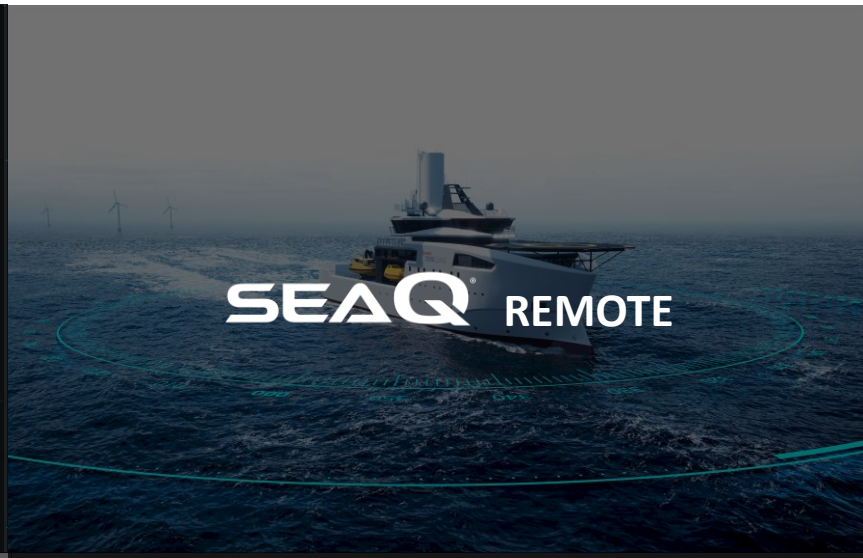
300+
Sailing vessels with solutions installed by Vard Electro

SEAQ®

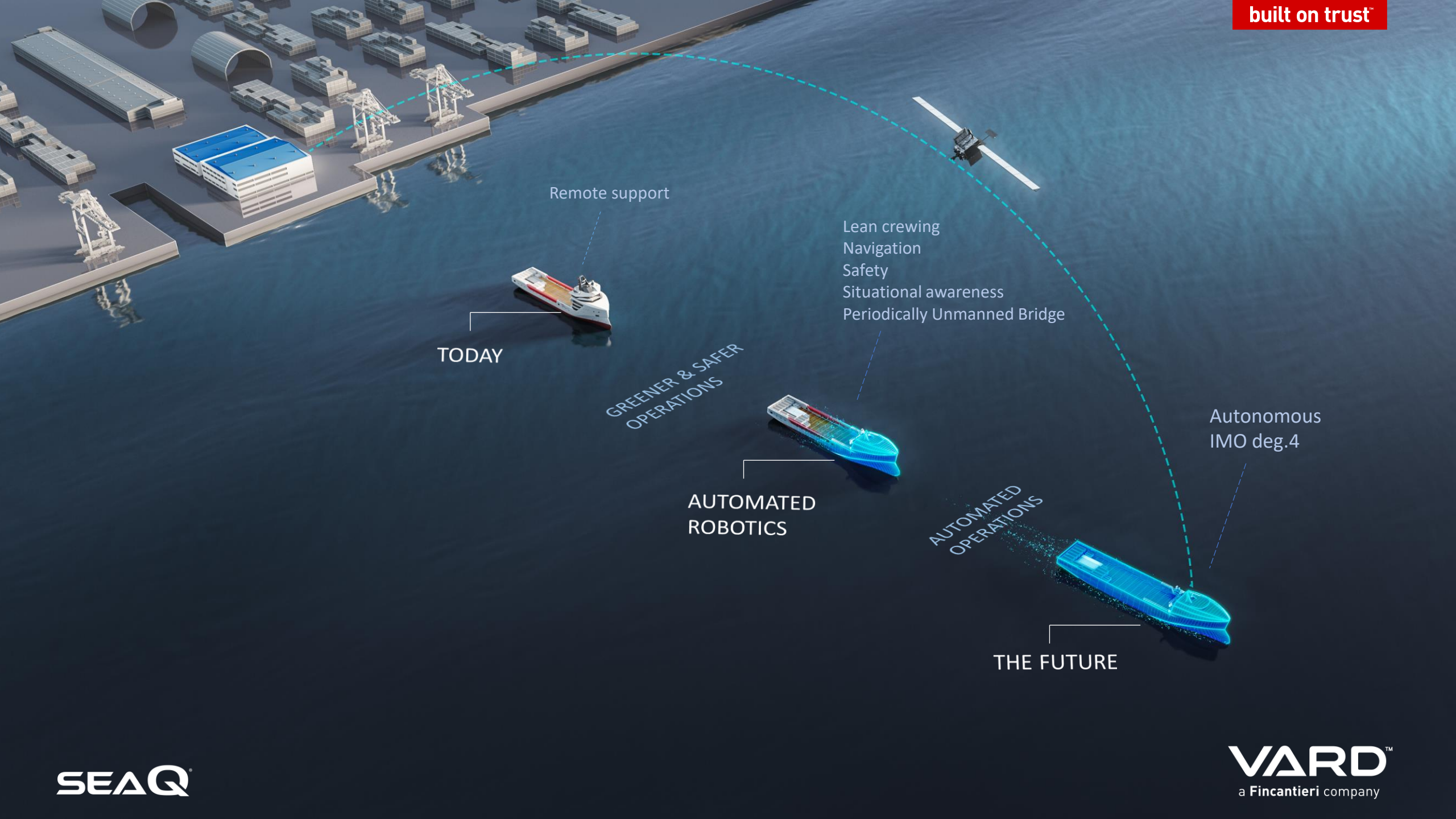
VARD™
a **Fincantieri** company

built on trust™





VARD™
a Fincantieri company


built on trust™
Remote support
Lean crewing
Navigation
Safety
Situational awareness
Periodically Unmanned Bridge
TODAY
GREENER & SAFER OPERATIONS
AUTOMATED ROBOTICS
AUTOMATED OPERATIONS
Autonomous IMO deg.4
THE FUTURE
SEAQ
VARD™
a Fincantieri company

built on trust™

Engineering

Awareness

Navigation

SEAQ

VARD™
a Fincantieri company

built on trust™

Topology

Remote Control System (Onboard)

Communication Systems

Vessel COM

Multiple redundant streams for NAV, Video/Sound, Control, Operational data

SeaQ® Cloud

SeaQ RMC

Navigation

Situational Awareness

DP2 Vessel

Integrated Ship Control

SeaQ IAS

SeaQ PMS

SeaQ EMS

SeaQ ESS

SeaQ Bridge

NAV

SAS

Payload Systems

SEAONICS™

Crane

Winch

LARS

ROV

Instrument Layer

Sensors

Actuators

Gyro

GPS

AIS

SPECS

FLIR

RADAR

SRS

Control Centre

Navigation Control

Engineering Control

Payload Control

On-Shore Control Center

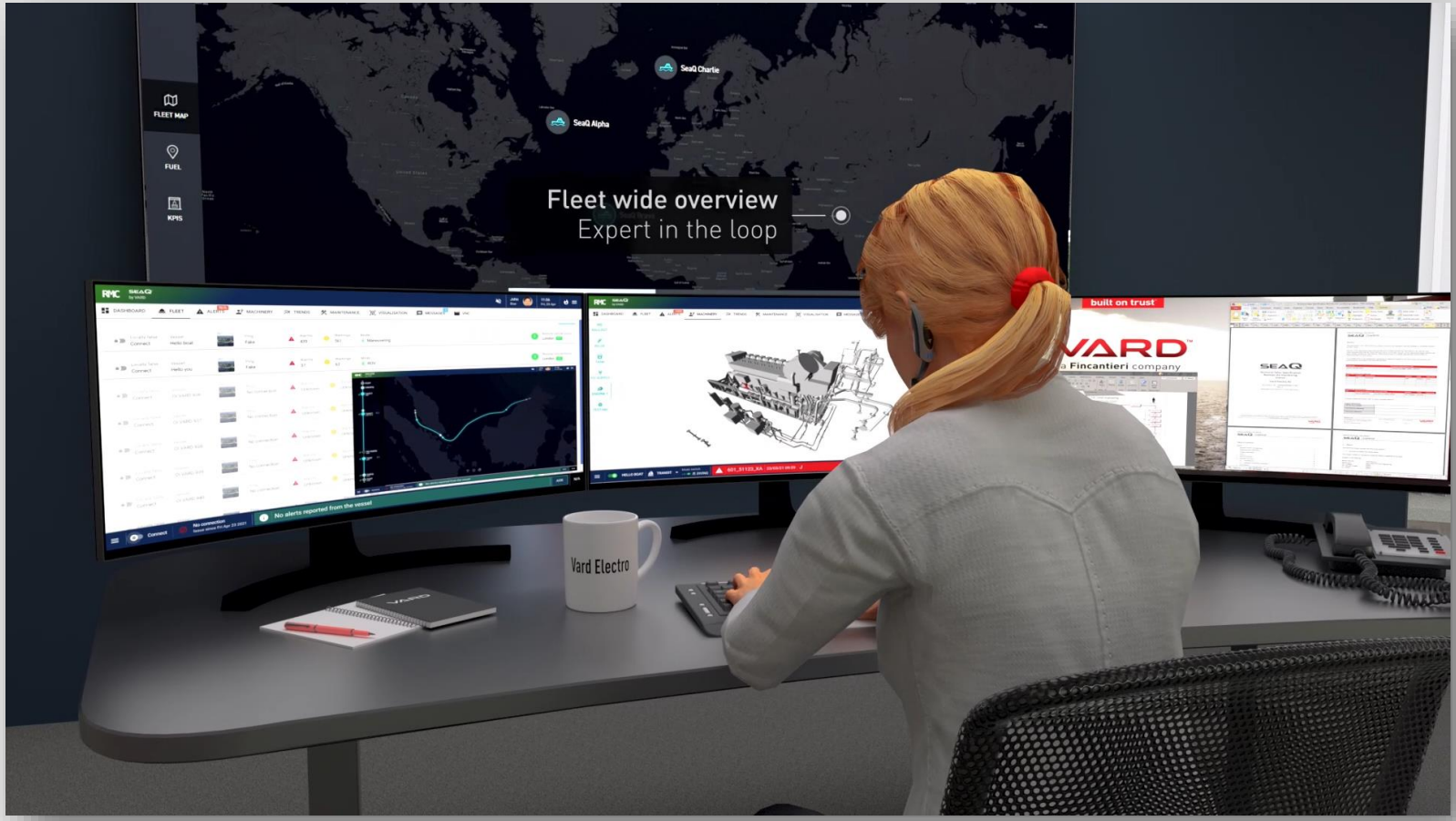
SEAQ

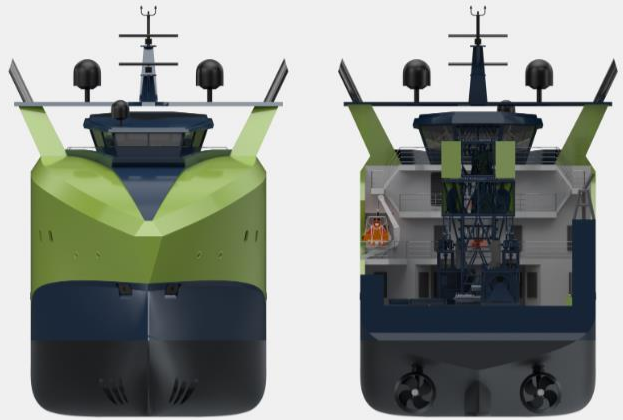
VARD™

a Fincantieri company

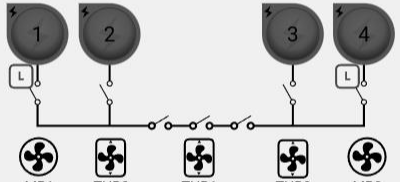
SeaQ Remote Machinery Control (RMC) - Engineering Station

- Machinery Control
- Alert handling
- Performance KPI, Green support
- Vessel mode and risk condition
- Safety & Expert in the loop
- My fleet
- 3D system view
- Administration and procedures





Power



Used power 0°C

0.00 kW

0.00 %

Consumption

DG1	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG2	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG3	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG4	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l

Displacement

PS SB

LIST 0°

AFT FWD

TRIM 0°

Navigation Data

Speed Log 0.00 kn

Pumps

SW Cooling Pump System 1	FW Cooling Pump System 1
SW Cooling Pump System 2	FW Cooling Pump System 2
SW Cooling Pump System 3	FW Cooling Pump System 3
SW Cooling Pump System 4	FW Cooling Pump System 4
SW Cooling Pump 1 System 5	FW Cooling Pump 1 System 5
SW Cooling Pump 2 System 5	FW Cooling Pump 2 System 5
SW Cooling Pump System 6	FW Cooling Pump 3 System 5
SW Cooling Pump System 7	FW Cooling Pump System 6
SW Cooling Pump System 8	FW Cooling Pump System 7
SW Cooling Pump 1 System 9	FW Cooling Pump System 8
SW Cooling Pump 2 System 9	Chilled Water Pump 1
SW Cooling Pump 1 System 10	Chilled Water Pump 2
SW Cooling Pump 2 System 10	Ballast Pump 1
FO Transfer Pump 1	Ballast Pump 2
FO Transfer Pump 2	Bilge Pump 1
FO Pump EmGen	Bilge Pump 2
LO Transfer Pump 1	Fire Pump 1
LO Transfer Pump 2	Fire Pump 2
LO Transfer Pump 3	Fire Pump 3

Tank Groups

Group 1	0.00 m³
Group 2	0.00 m³
Group 3	0.00 m³
Group 4	0.00 m³
Group 5	0.00 m³
Group 6	0.00 m³
Group 7	0.00 m³
Group 8	0.00 m³
Group 9	0.00 m³
Group 10	0.00 m³

Bilge
FO transfer
Ballast water
Machinery
PMS
Fire line
SW cooling
Lub oil 1
FW cooling 1
FW cooling 2
Network overview
Main propulsion PS

Navigation Overlay

Entry level
- Home
- Active alerts
- Alert history
- Running hours

Systems
- Ballast water
- Bilge
- FO transfer
- FO supply
- Lub oil system 1
- Lub oil system 2
- SW cooling
- FW cooling 1
- FW cooling 2
- Compressed air
- Potable water
- Fire line
- Watertight doors
- Quick closing
- Tank plan
- Chilled water
- Sanitary discharge
- Miscellaneous

Power
- PMS
- PMS distribution
- PMS overview
- Gen alerts
- ESS
- ESS alerts

Machinery
- Main engine 1
- Main engine 2
- Main engine 3
- Main engine 4
- Tunnel thruster 1
- Tunnel thruster 2
- Tunnel thruster 3
- Main propulsion PS
- Main Propulsion SB
- HVAC
- FO consumption

Network
- RMC network overview
- IAS network overview
- Config validation
- Connection status

Alert groups
- Shutdown
- Automatic load reduction
- Engines
- Generators
- Main propulsion
- Thruster
- Switchboard
- Cargo systems
- Cooling systems
- Bilge systems
- AUX (engine & propulsion)
- Miscellaneous
- PMS
- Manual load reduction
- System
- RMC internal

Health monitoring
- Health monitoring
- Health active alerts

Pumps

SW Cooling Pump System 1	FW Cooling Pump System 1
SW Cooling Pump System 2	FW Cooling Pump System 2
SW Cooling Pump System 3	FW Cooling Pump System 3
SW Cooling Pump System 4	FW Cooling Pump System 4
SW Cooling Pump 1 System 5	FW Cooling Pump 1 System 5
SW Cooling Pump 2 System 5	FW Cooling Pump 2 System 5
SW Cooling Pump System 6	FW Cooling Pump 3 System 5
SW Cooling Pump System 7	FW Cooling Pump System 6
SW Cooling Pump System 8	FW Cooling Pump System 7
SW Cooling Pump 1 System 9	FW Cooling Pump System 8
SW Cooling Pump 2 System 9	Chilled Water Pump 1
SW Cooling Pump 1 System 10	Chilled Water Pump 2
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FO Transfer Pump 1	Ballast Pump 2
FO Transfer Pump 2	Bilge Pump 1
FO Pump EmGen	Bilge Pump 2
LO Transfer Pump 1	Fire Pump 1
LO Transfer Pump 2	Fire Pump 2
LO Transfer Pump 3	Fire Pump 3

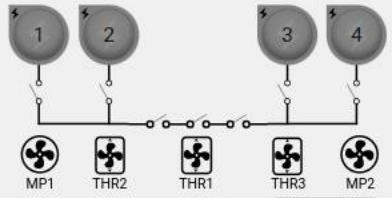
Bilge | FO transfer | Ballast water | Machinery
PMS | Fire line | SW cooling | Lub oil 1
FW cooling 1 | FW cooling 2 | Network overview | Main propulsion PS

Tank Groups

Group 1	0.00 m³
Group 2	0.00 m³
Group 3	0.00 m³
Group 4	0.00 m³
Group 5	0.00 m³
Group 6	0.00 m³
Group 7	0.00 m³
Group 8	0.00 m³
Group 9	0.00 m³
Group 10	0.00 m³



Power



0.00 kW
Used power 0°C
0.00 %

Consumption

DG1	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG2	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG3	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l
DG4	Instant Fuel Rate 0°C	TRIP	0.00 l	DAILY	0.00 l

Displacement

Navigation Data

Speed Log 0.00 kn

Tank Groups

Group 1	0.00 m³
Group 2	0.00 m³
Group 3	0.00 m³
Group 4	0.00 m³
Group 5	0.00 m³
Group 6	0.00 m³
Group 7	0.00 m³
Group 8	0.00 m³
Group 9	0.00 m³
Group 10	0.00 m³

Pumps

SW Cooling Pump System 1	FW Cooling Pump System 1
SW Cooling Pump System 2	FW Cooling Pump System 2
SW Cooling Pump System 3	FW Cooling Pump System 3
SW Cooling Pump System 4	FW Cooling Pump System 4
SW Cooling Pump 1 System 5	FW Cooling Pump 1 System 5
SW Cooling Pump 2 System 5	FW Cooling Pump 2 System 5
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LO Transfer Pump 2	Fire Pump 2
LO Transfer Pump 3	Fire Pump 3

Bilge | FO transfer | Ballast water | Machinery
PMS | Fire line | SW cooling | Lub oil 1
FW cooling 1 | FW cooling 2 | Network overview | Main propulsion PS

Value	State	Time

0 alerts | 0 unacknowledged alerts

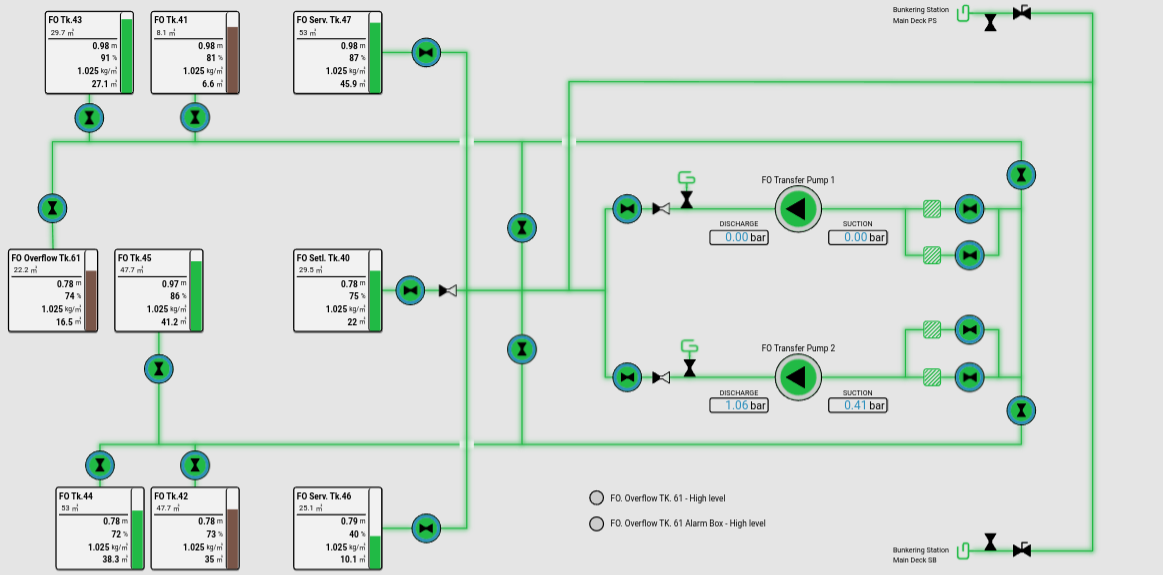
Active alerts

	Source	Text	SFI	Value	State	Time	Acknowledge
	IAS	On Bypass - Ship UPS 2	866_020123_XA	0	OK	14 days	
	IAS	Shutdown - Ship UPS 2 Overload. Safety	866_020124_XA	0	OK	14 days	
	IAS	Shutdown - Ship UPS 2 High Temp. Safety	866_020125_XA	0	OK	14 days	
	IAS	Earth Failure - Ship UPS 2	866_020126_XA	0	OK	14 days	
	IAS	Earth Failure - DC80 Start ME3 24V	866_00802_XA	0	OK	14 days	
	IAS	Common Alarm - DC90 Start ME4 Charger	866_00901_XA	0	OK	14 days	
	IAS	Earth Failure - DC90 Start ME4 24V	866_00902_XA	0	OK	14 days	
	IAS	Failure - Ship UPS 2 Hardware	866_020120_XA	0	OK	14 days	
	IAS	On Battery - Ship UPS 2 UPS	866_020121_XA	0	OK	14 days	
	IAS	Low Battery - Ship UPS 2	866_020122_XA	0	OK	14 days	
	IAS	Common Alarm - DC20 Sys.B Bridge Charger	866_01020_XA	0	OK	14 days	
	IAS	Earth Failure - DC20 Sys.B Bridge 24V	866_01021_XA	0	OK	14 days	
	IAS	Common Alarm - DC40 Sys.D Engine Room Charger	866_00401_XA	0	OK	14 days	
	IAS	Earth Failure - DC40 Sys.D Engine Room 24V	866_00402_XA	0	OK	14 days	
	IAS	Common Alarm - DC80 Start ME3 Charger	866_00801_XA	0	OK	14 days	
	IAS	Common Alarm - IAS UPS 2	792_021010_XA	0	OK	14 days	
	IAS	On Battery - IAS UPS 2	792_021011_XA	0	OK	14 days	
	IAS	Battery Alarm - IAS UPS 2	792_021012_XA	0	OK	14 days	
	IAS	On Bypass - IAS UPS 2 Battery	792_021016_XA	0	OK	14 days	
	IAS	Low Battery - IAS UPS 2	792_021013_XA	0	OK	14 days	
	IAS	On - IAS UPS 2 Manual Bypass	792_021014_XA	0	OK	14 days	
	IAS	Common Alarm - Windlass/Mooring Winch SB	432_020110_XA	0	OK	14 days	
	IAS	Common Alarm - Mooring Capstan 2	433_020110_XA	0	OK	14 days	
	IAS	High Level - Sludge Tank 50	803_05001_LAH	0	OK	14 days	
	IAS	High Level - Bilge Tank 52	803_05201_LAH	0	OK	14 days	
	IAS	High Level - Bilge Settling Tank 54	803_05401_LAH	0	OK	14 days	
	IAS	Common Alarm - Fire Watermist System	815_030110_XA	0	OK	14 days	
	IAS	High Level - FO. Overflow Tank 61	821_06101_LAH	0	OK	14 days	
	IAS	High Level - FO. Overflow TK. 61 Alarm Box	821_06102_LAHH	0	OK	14 days	

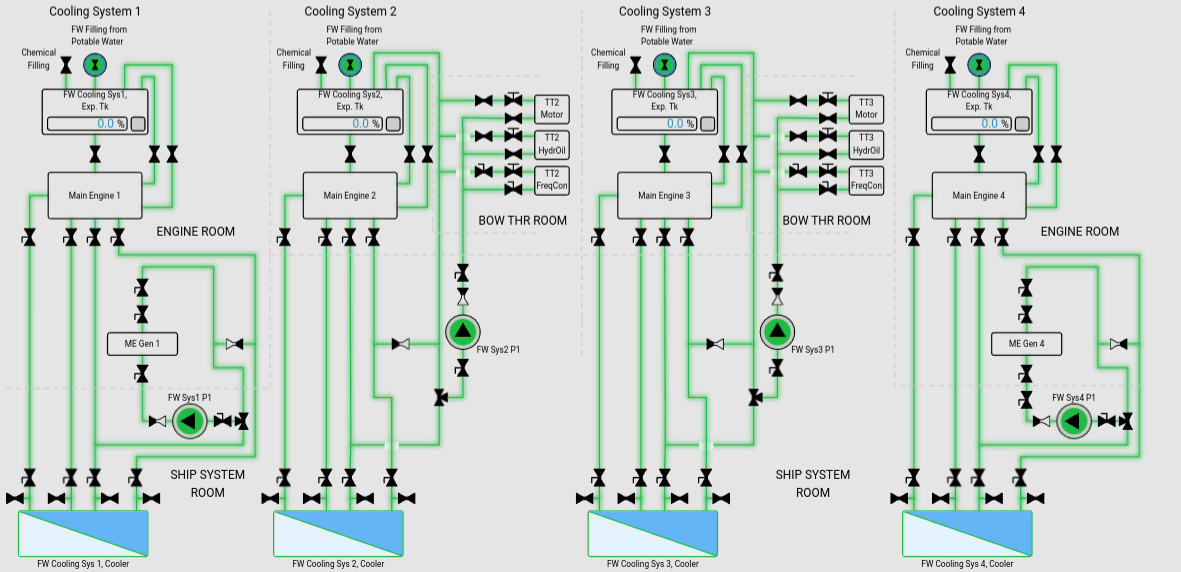
Lines per page: 40 1-40 of 408

408 alerts | 0 unacknowledged alerts

FO transfer



FW cooling 1



SeaQ RMC - Alert Handling

TECHNICAL AND REGULATORY NEWS No. 16/2021 - STATUTORY

DNV

NEW BRIDGE ALERT MANAGEMENT (BAM) REQUIREMENTS ARE NOW IN FORCE

Relevant for manufacturers of navigational equipment on European flagged vessels — September 2021

From 29 August 2021, navigation- and radio-communication equipment to be installed on board vessels is required to be compliant with Bridge Alert Management (BAM) according to IEC 62923-1 and 2 under the EU Marine Equipment Directive (MED). This statutory news summarizes the BAM regulations.

Bridge Alert Management (BAM) is required for navigation- and radio-communication equipment installed after 29 August 2021. BAM is applicable for navigation- and radio-communication equipment that can raise or present alerts on the bridge.

Navigation- and radio-communication equipment to be installed on EU (incl. EEA) ships after 29 August 2021 should include the IEC 62923-1 and -2 standards on BAM within the scope of the MED certificates.

The IEC 62923-1 and -2 standards on BAM were published in 2018 and added to the list of applicable testing standards for most navigation- and radio-communication equipment in the third Implementing Regulation (EU) 2019/1397, which was published in September 2019. The last date for installation of equipment on board an EU ship that has not been tested for compliance to the BAM standards was 29 August 2021. Manufacturers have hence had a period of approximately two years to update their products to comply with the requirements

Recommendations

From 29 August 2021, Module B certificates for navigation- and radio-communication equipment to be installed on EU (incl. EEA) ships should address the IEC 62923-1 (2018) and IEC 62923-2 (2018) testing standards within their scope.

Manufacturers need to have valid MED certification (Modules B+D, B+E, B+F or G certificates) to be permitted to place their products on the European market.

Note that the expiry date of the certificate may be overruled by changes introduced in Implementing Regulations published after the issuance of the certificate.

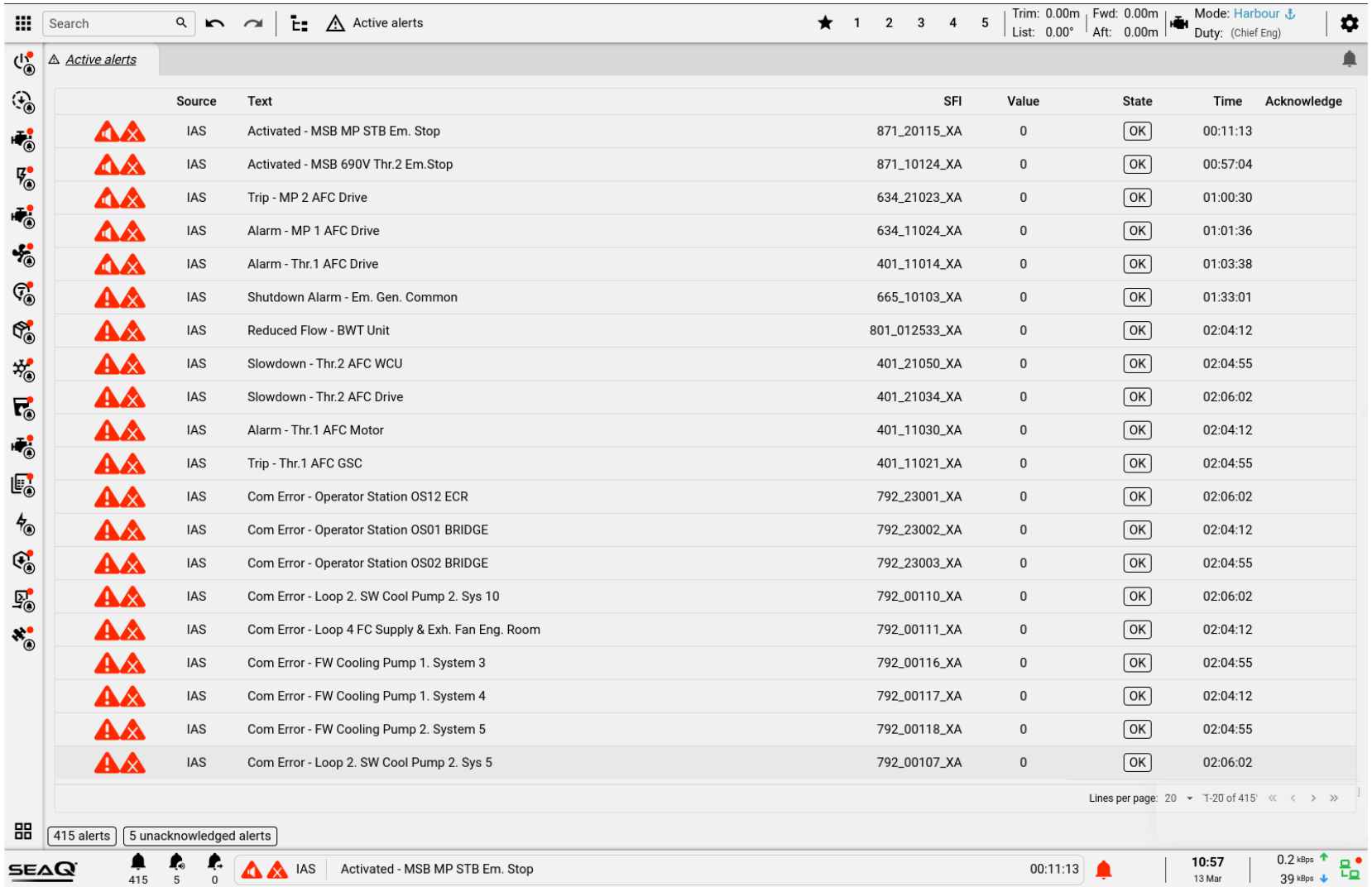
Please see the latest Implementing Regulation for the applicable requirements for the equipment when evaluating the validity of MED certificates. This is available on the DNV website at www.dnv.com/MED.

A re-assessment may be necessary. Please contact your local DNV office for initiation of the process of revising the certificate.

Contact

For customers:
DATE - Direct Access to Technical Experts via My Services on Veracity.

Otherwise:
Use our office locator to find the nearest office.



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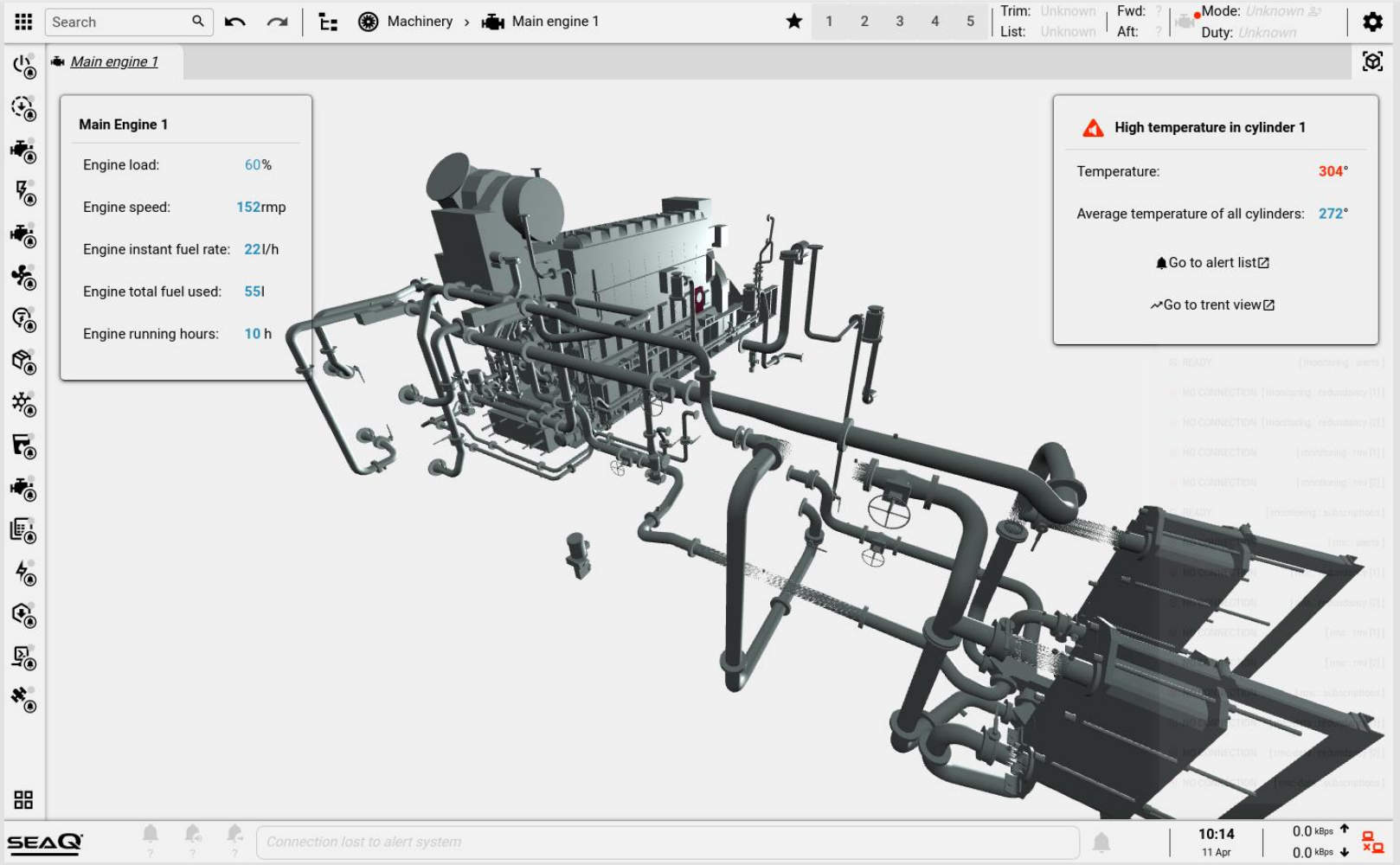
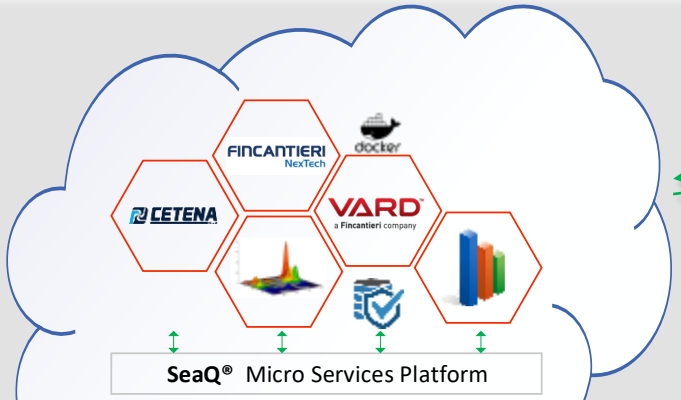
SeaQ RMC - 3D View

- Utilizing 3D design models
- Easy access to component information
- Easy system understanding
- Learning and training tool
- Interactive advisory
- Alert Indication



SeaQ RMC - Data Capture & Analytics

- Customers Data Driven Operations
- DNV REMC / Smart Class / eNotations
- Digital Twin, Machin Learning, Artificial Intelligence



CONTROL

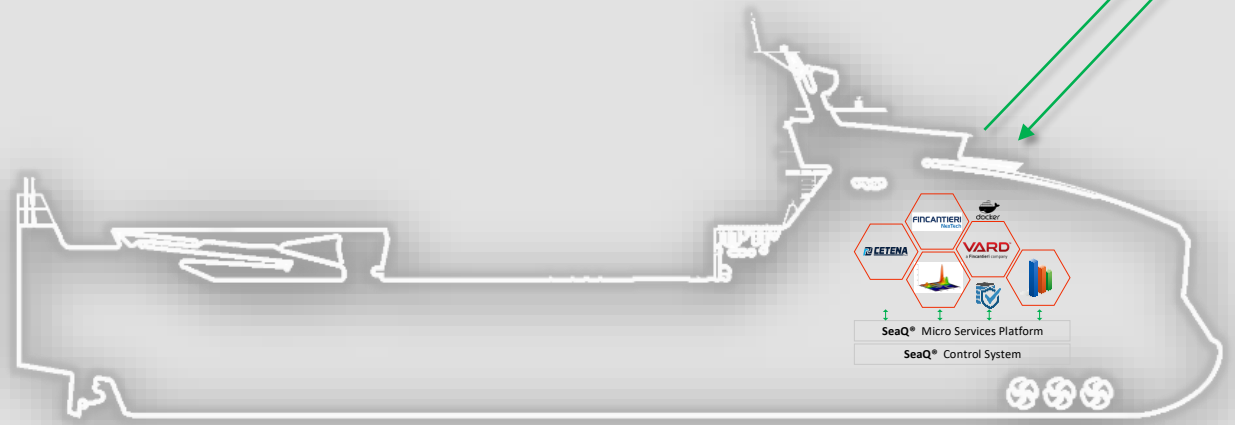
Remote Operation Center

DECISION SUPPORT

FC/Vard Special Analytics Team

VERACITY
INDUSTRY DATA PLATFORM

Class & third party vendors



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built on trust™

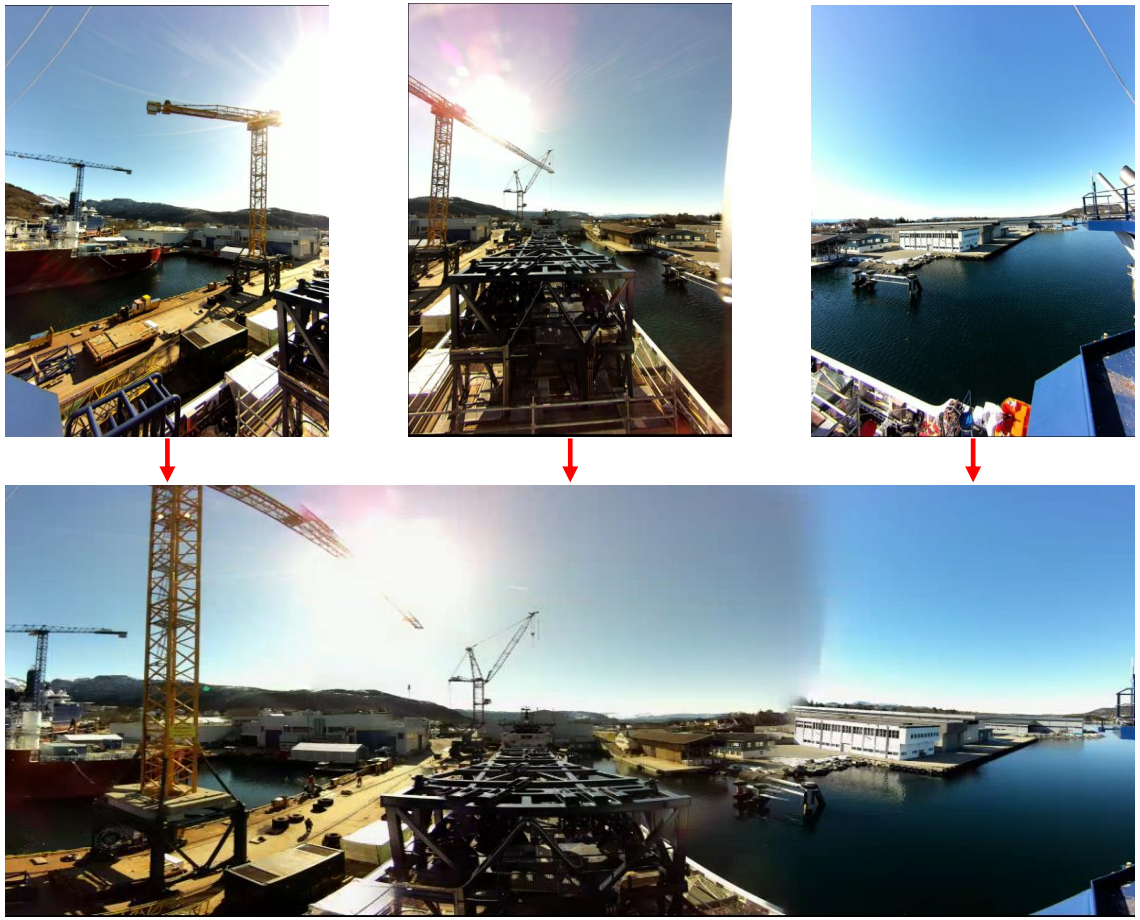
Situation Awareness

FINCANTIERI NexTech

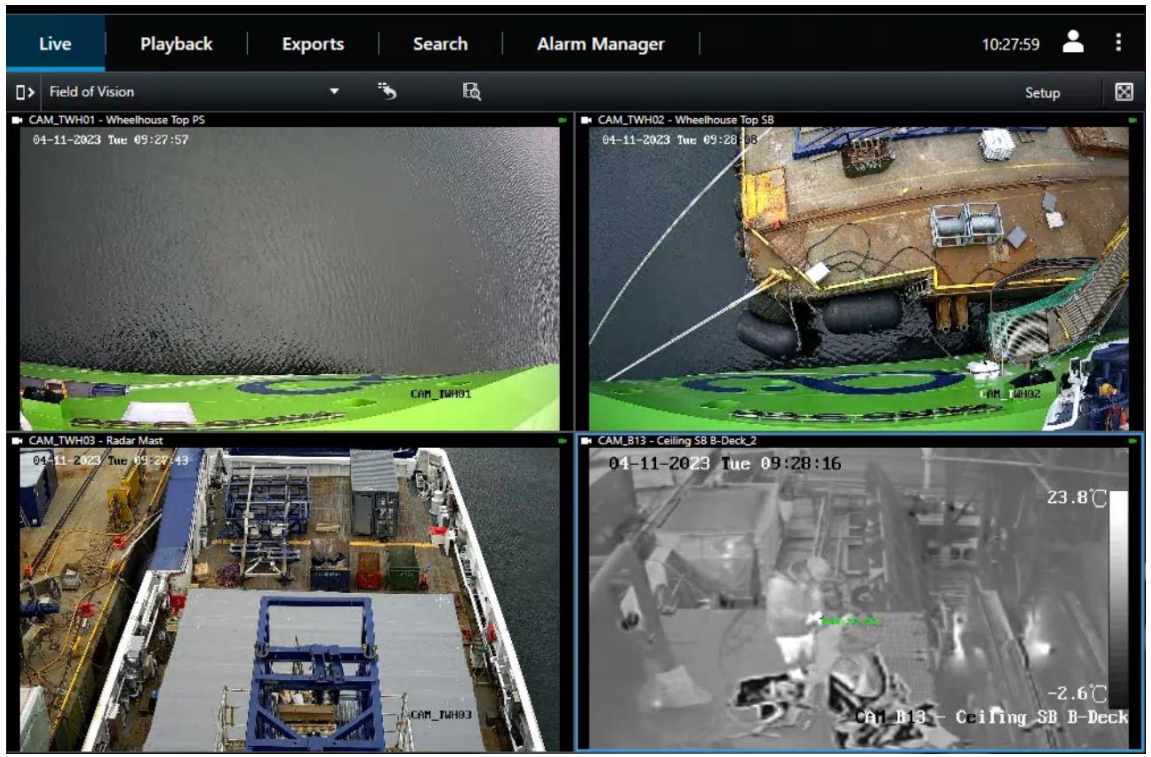
VARD™ a Fincantieri company

Image processing & Sensor fusion

Stitching

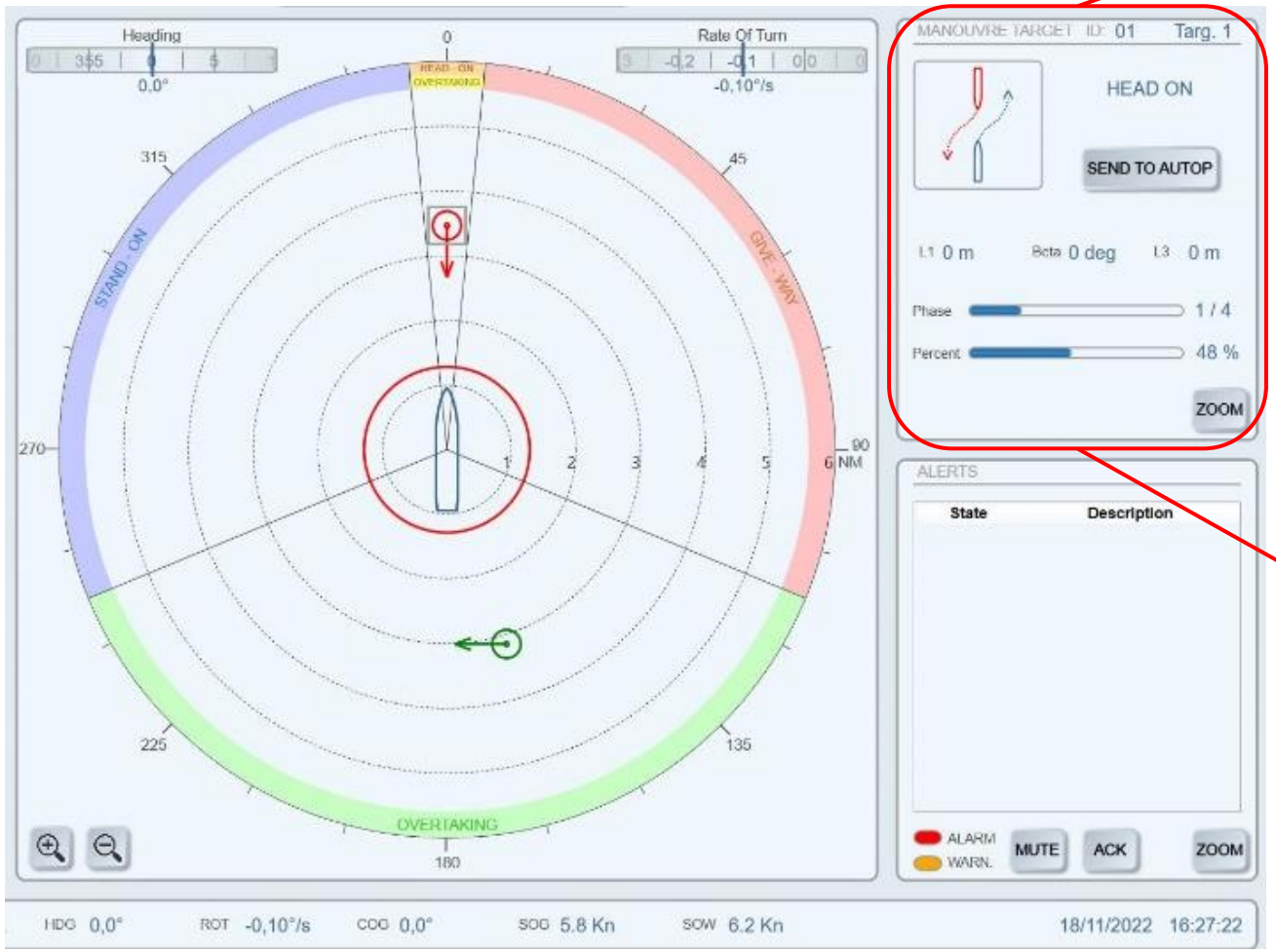


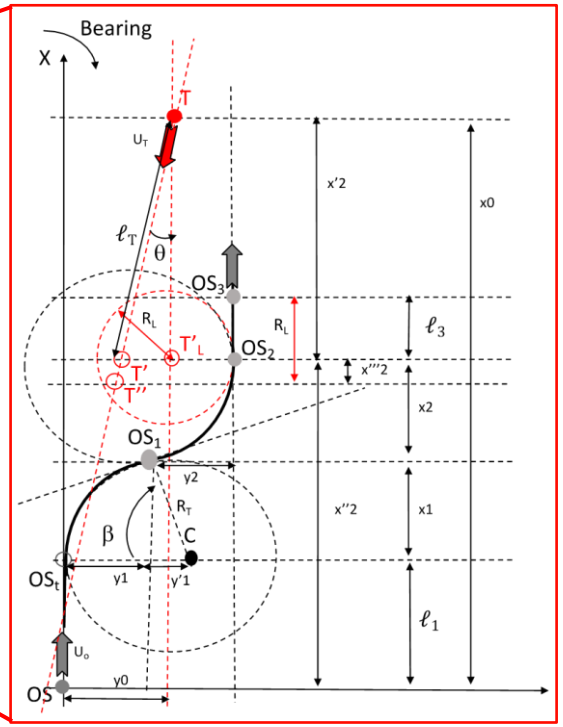
CCTV



Collision Avoidance

COLREGS based



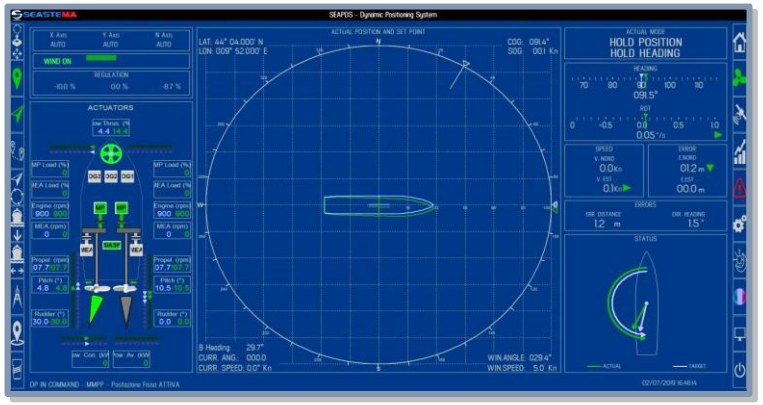


NAV

Track Pilot

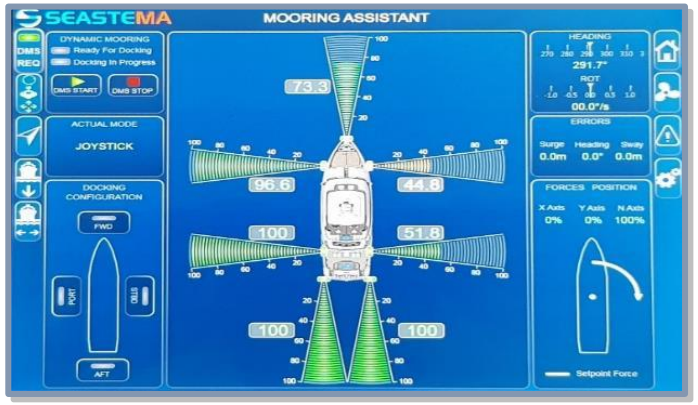
- Heading Keeping
- Heading Changing
- Track Control: automatic keeping a track defined in the ECDIS.

DP



- Compatible with DNV DPS1 and DPS2
- Auto/Joystick modes
- Wind feed-forward compensation
- Current feed-back compensation
- Best Heading
- Speed Pilot mode

Docking



- Dynamic Positioning technology
- Sensor arrays
- Short range, high sensitivity perimeter surveillance system
- Constantly surveyed safety perimeter.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ARMADA 78 01 - VARD BNR 934
SEAQ
VARD™
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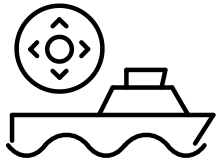
VARD™
a Fincantieri company


ARMADA 78 01

?



SeaQ® Remote

Just like being onboard!