# Manufacturer's Training

## *Concepts about Vessel Monitoring Systems – from small to large boats*

2021 NMEA Marine Electronics Conference & Expo

Luiz Barbarini – 09/23/2021

BÖNING

# Agenda

1. Introduction about Böning
2. Our customers
3. What is a vessel monitoring system?
4. Other systems integrated to the ship vessel monitoring
5. Stand-alone devices
6. Why vessel monitoring and automation is important for marine electronics companies?
7. Integrated bridge systems
8. Solutions for NMEA dealers
9. Böning Dealership Program
10. Q&A

# 1. Introduction about Böning

BÖNING

# Head office/ factory
[Germany]

- Founded in 1977
- More than 100 employees (20% developing engineers)
- More than 20 000 devices produced per year
- Approx. 700 ships with Böning technology are put in operation every year

NMEA® MEMBER

BÖNING

# National Marine Electronics Association

Acknowledges that

## Böning Automationstechnologie GmbH & Co.

Has met the qualifications established by the National Marine Electronics Association as a

## 2021 Member in Good Standing

01/01/2021
Original Date Issued

Issuing Officer, Steve Katz
Board of Directors Chairman

12/31/2021
Expiration Date

Mark Reedenauer
NMEA President

BÖNING

# In-House Production

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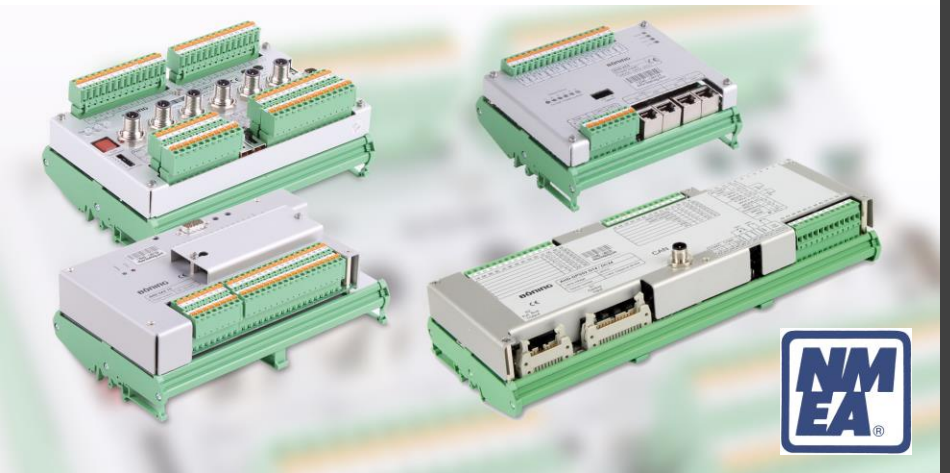


# Products

- Alarm Systems
  - Bilge Monitoring
  - Tank Monitoring
  - Doors / Hatches Monitoring
  - Battery / Power monitoring
- Marine Monitors and Panel PCs
- Engine Monitoring Displays
- Helm Panels
- NMEA 2000 / J1939 Gateways

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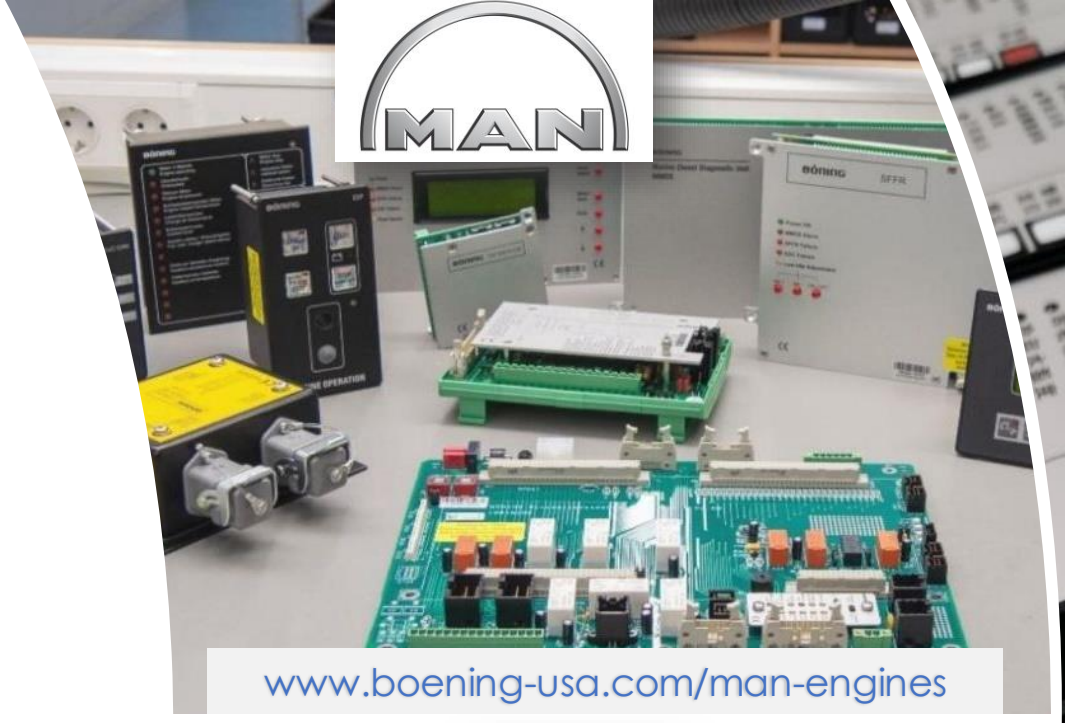
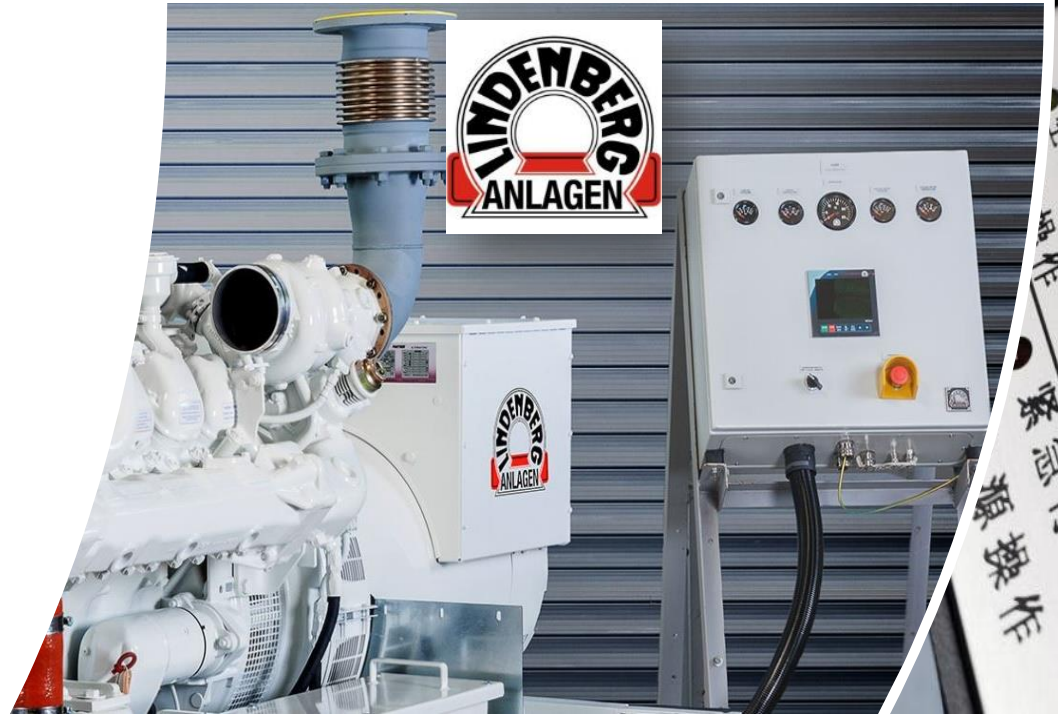
# OEM Examples



www.boening-usa.com/man-engines



GARMIN
Home
MAN
BÖNING
Service
°C 78
bar 4,8
1/min 1200
l/h 120
Alarms
Reset
Info
Power
Fault
MMDS-CLC 6.5

Upgrades, interfaces, parts: www.boening-usa.com/man-engines

# Sales & Service Locations

Boening USA, Inc.
4281 NW 1st Avenue
Boca Raton FL 33431 - United States
Phone/ Fax: +1 (561) 372-9894
info@boening-usa.com

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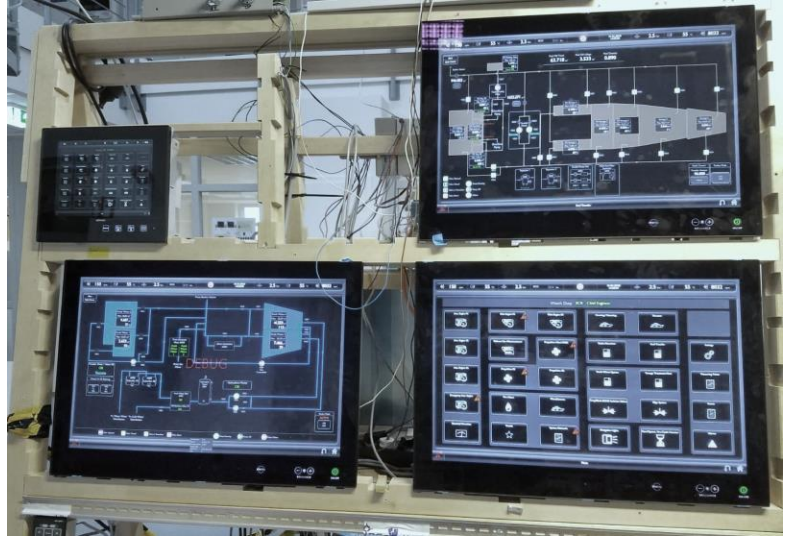
Show Room



Stock of parts

# Boca Raton-FL

Technical Support and Training Center for Integrators

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# 2. Our customers

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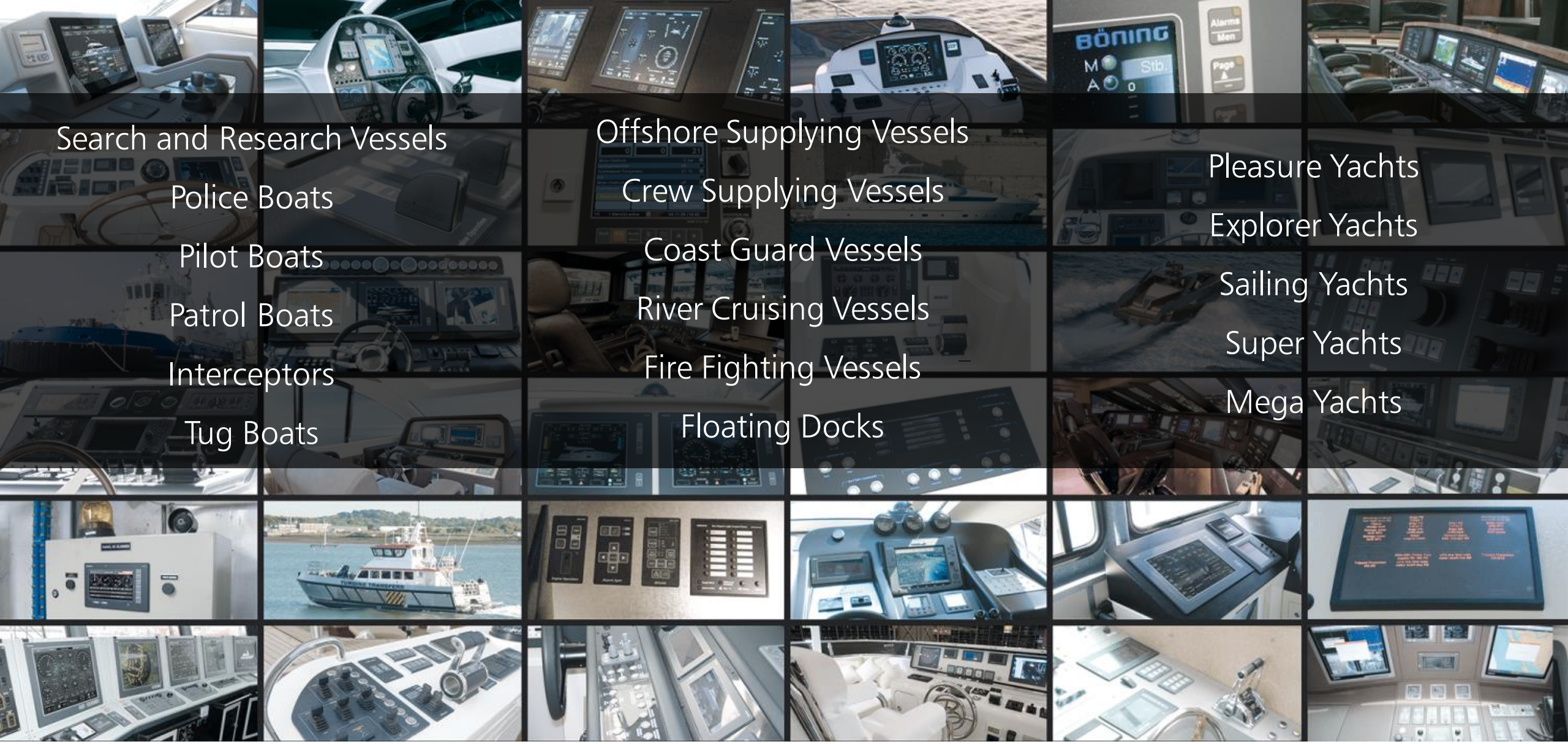


# Wide portfolio that fits all types of vessels.

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# Customer References

Hatteras
AZIMUT YACHTS
FERRETTI YACHTS
VIKING RIVER CRUISES
OCEAN ALEXANDER
FLEMING
ABSOLUTE
CCN CERRI CANTIERI NAVALI
HORIZON Define Your Horizon™
BAYLISS BOATWORKS
PRINCESS
rossinavi The Luxury of Experience
BAGLIETTO 1854
MONTECARLO YACHTS
FILIPPETTI YACHT
DRETTMANN A CLASS OF ITS OWN
ABEKING & RASMUSSEN
SANLORENZO
Benetti ITALIAN EXCELLENCE SINCE 1873
ADLER SUPREMA
PENDENNIS WORLDCLASS SUPERYACHTS
NORDHAVN EUROPE LIMITED THE ULTIMATE TRAWLER YACHT
HeySea
Riva

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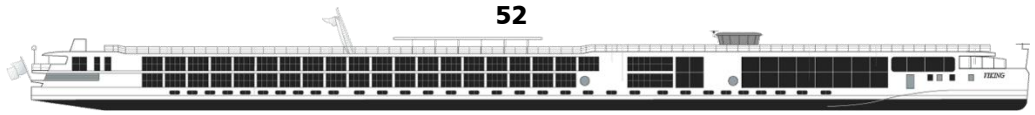
# Customer References

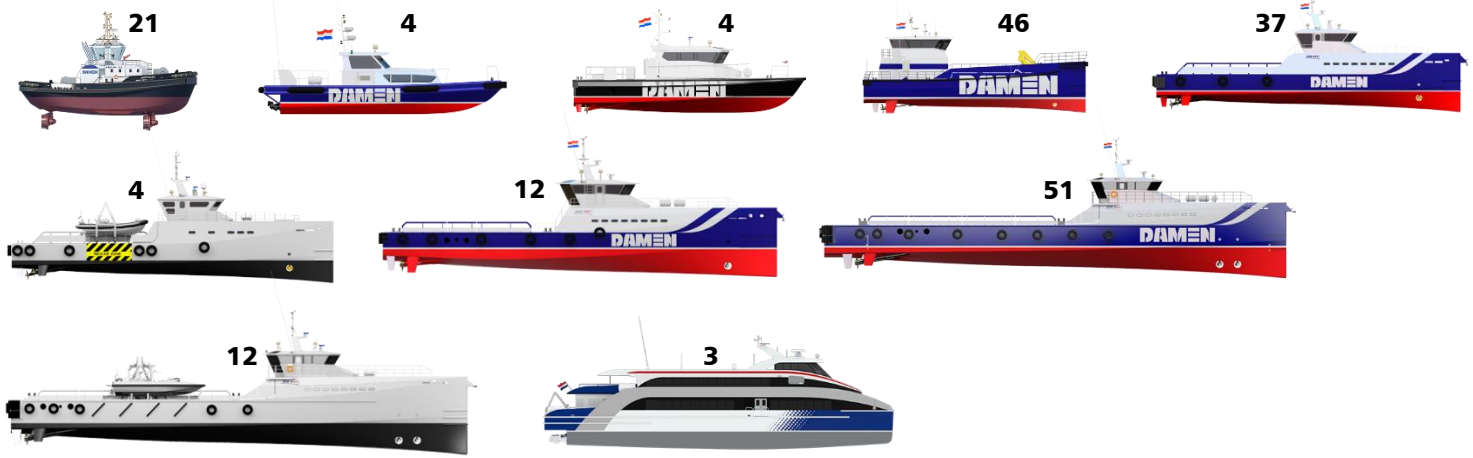
Viking River Cruises

52




Damen

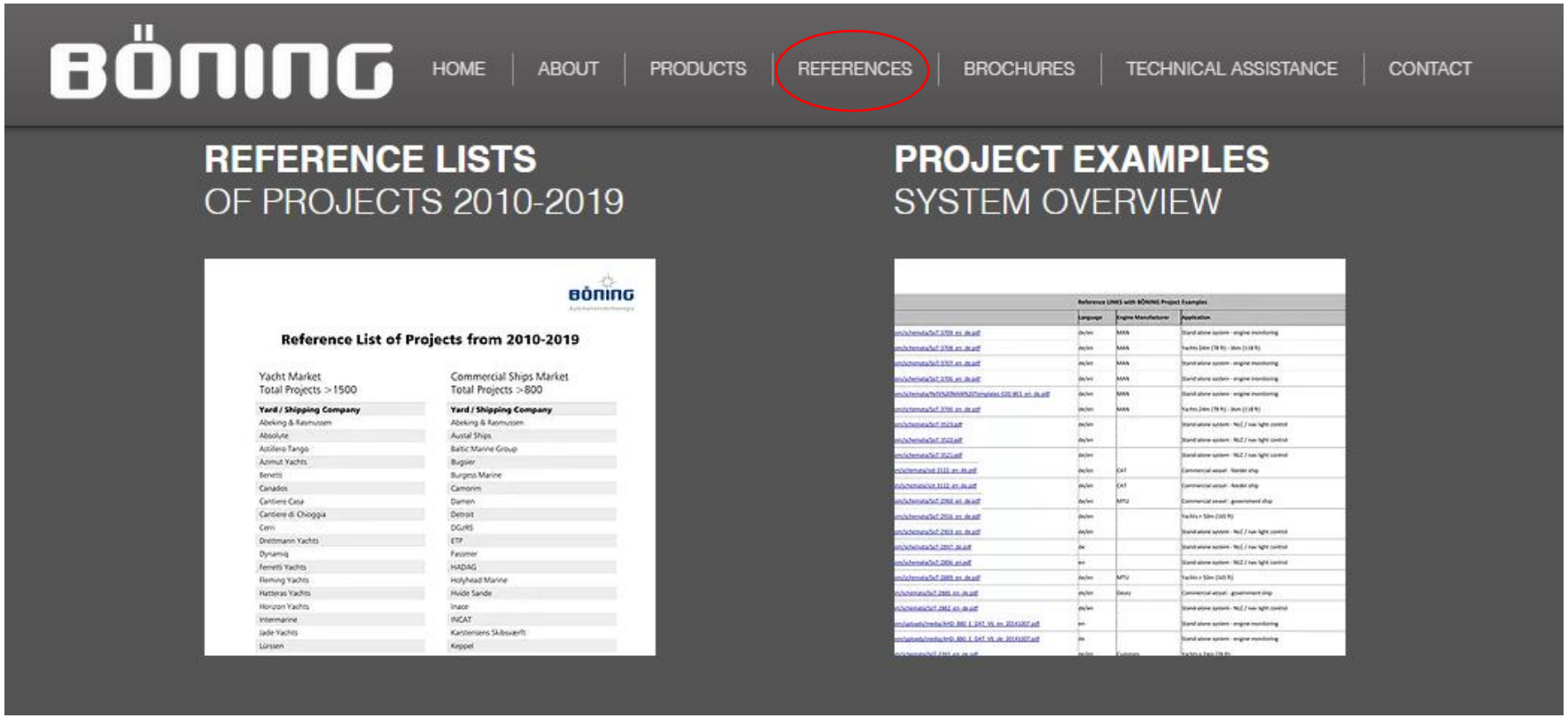
192




Pelindo III

South Boats

# https://www.boening-usa.com/projects



# 3. What is a vessel monitoring system?

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# Vessel Monitoring Systems

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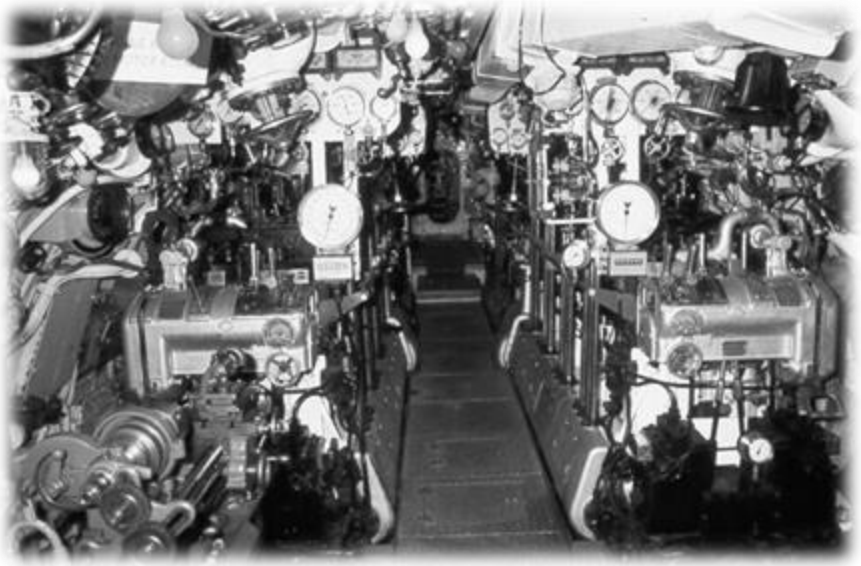
# Vessel Monitoring Systems



In the past, large vessels operated under 24-hour monitoring by men in the engine room for cleaning, checking water, oil, firefighters, and engineers.

The crew was forced to split into shifts in order to keep the machines running smoothly.

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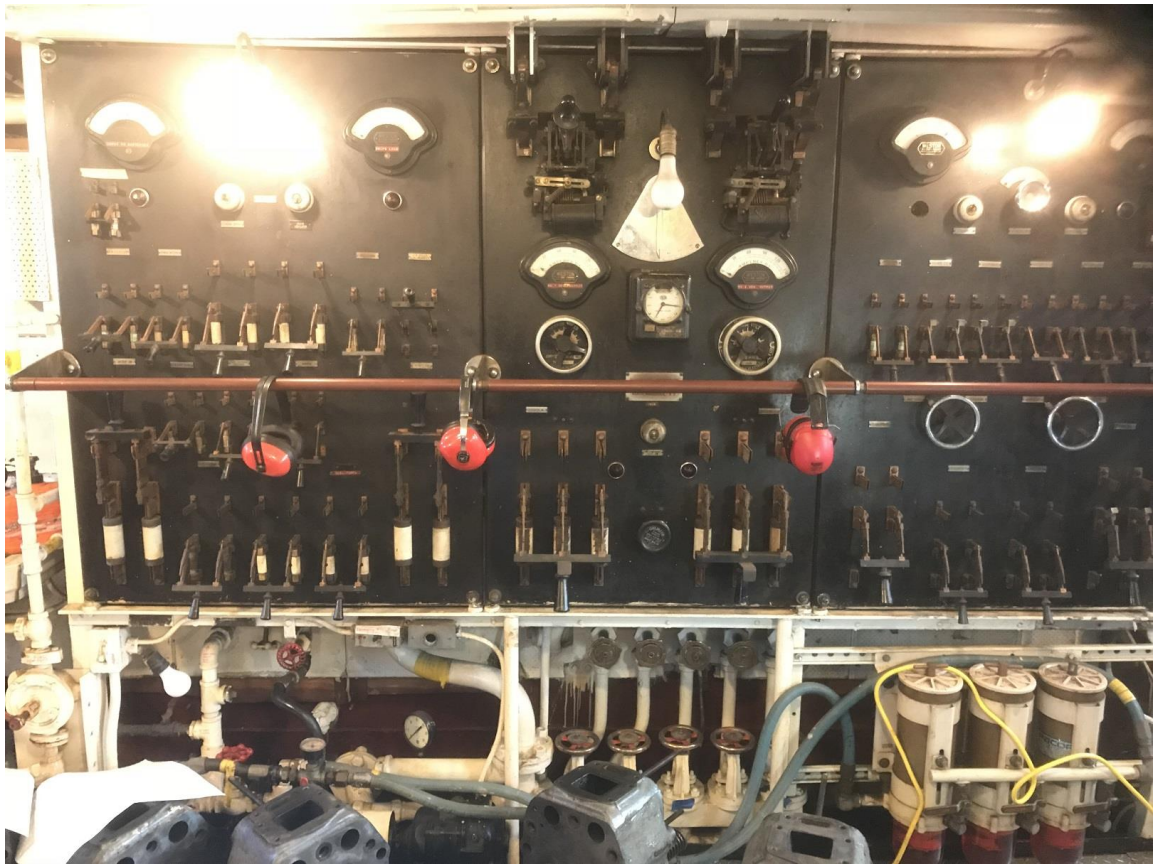
# Vessel Monitoring Systems

Navigation Lights Panel



Switchboard

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# Vessel Monitoring Systems

M/Y Calixe (1993)
Feadship 193ft

Bridge

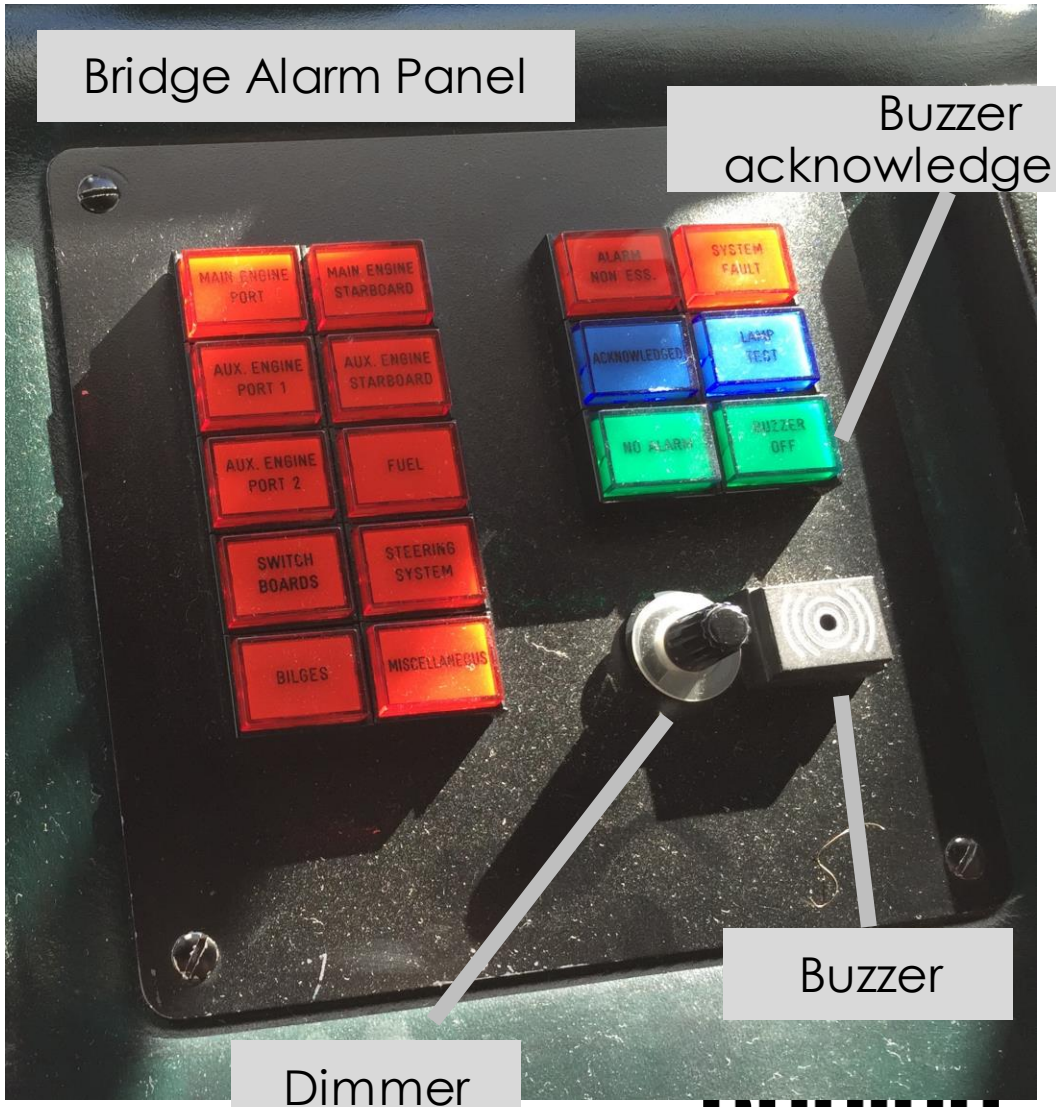
ECR

Alarm Panel

BÖNING

# Vessel Monitoring Systems

ECR



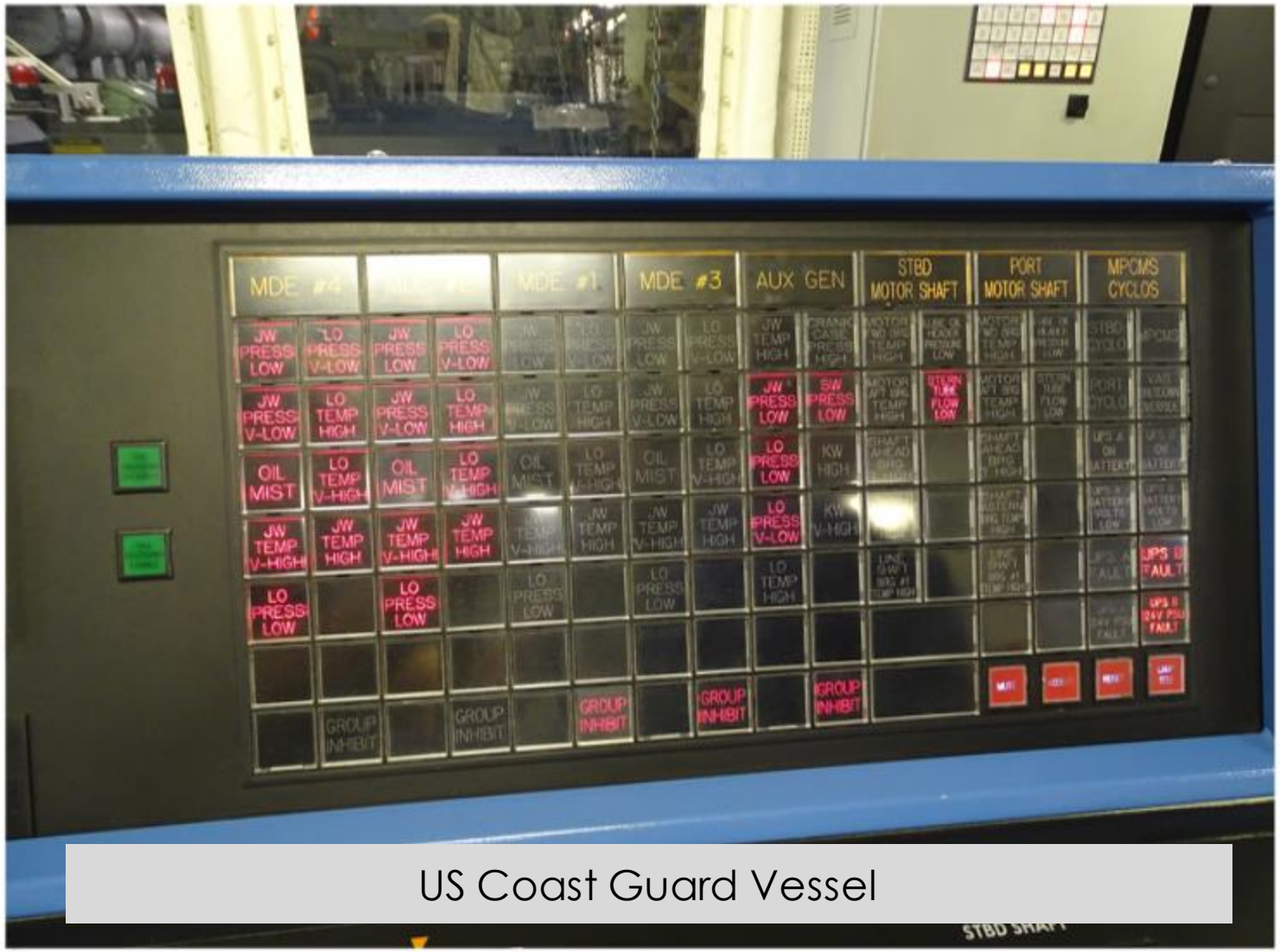

Bridge Alarm Panel

Buzzer acknowledgement

Buzzer

Dimmer

# Vessel Monitoring Systems




US Coast Guard Vessel

Böning Compact EDA 47

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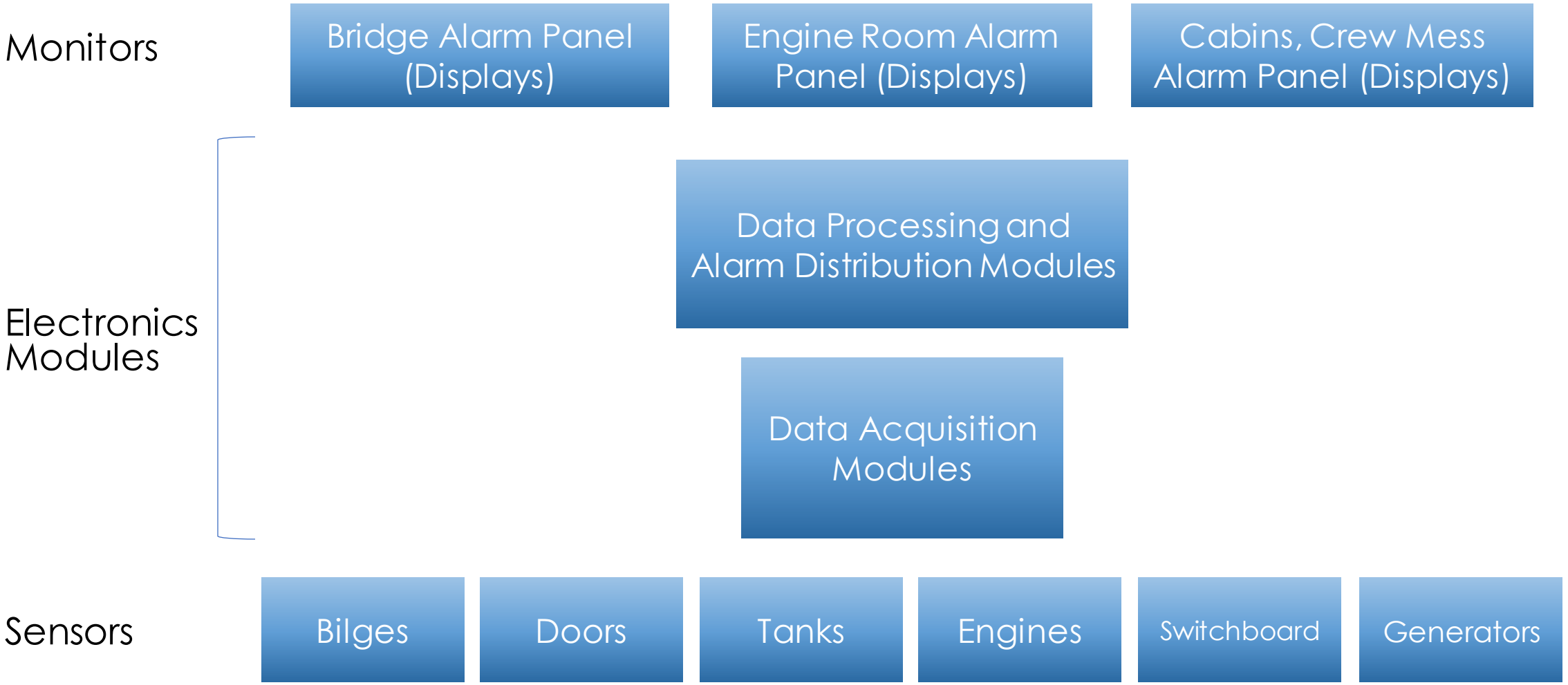
# Vessel Monitoring Systems Classic Architecture

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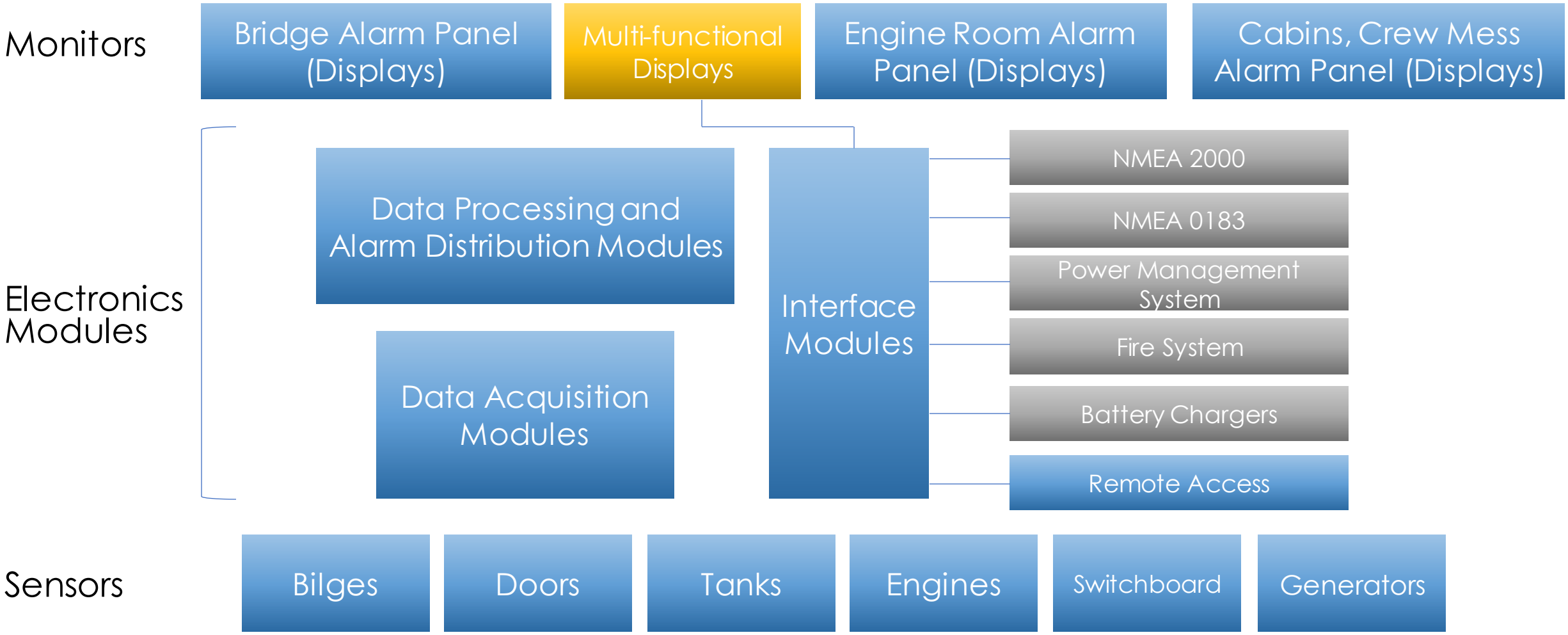
# Vessel Monitoring Systems

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# Vessel Monitoring Systems

Main Station

Engine Control Room

Repeaters

Bridge

Crew Mess

Engineer's Cabin

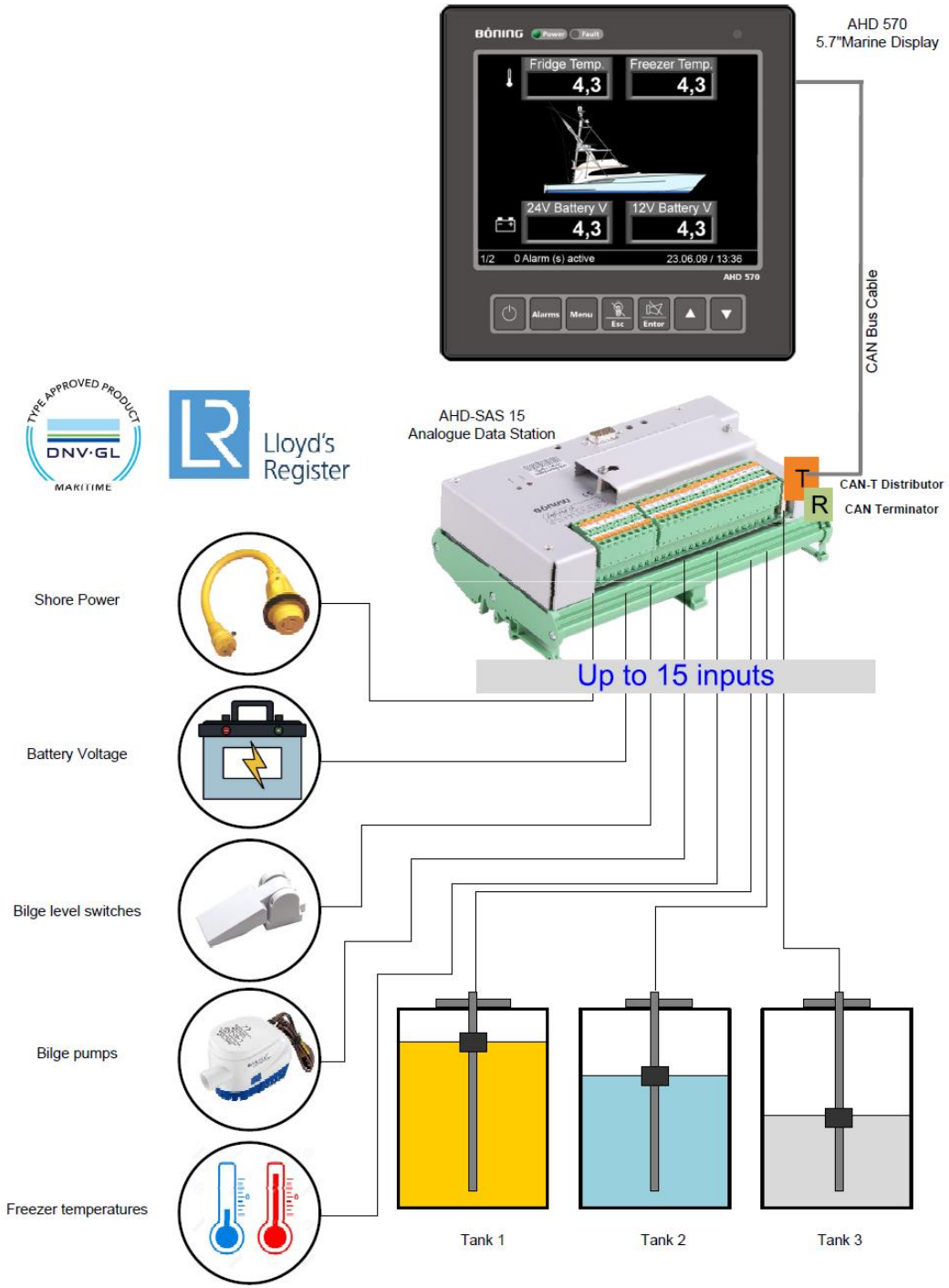
1st Mate's Cabin

Main Station

Bridge

as an extension of the Engine Room

# System Example




- Tank levels indication
- Battery monitoring
- AC power monitoring
- Bilge levels and bilge pumps
- Refrigeration (freezer temp.)
- Smoke alarms
- Exhaust gas temperature alarms
- Etc.

# Vessel Monitoring Systems
# Yachts 40-70ft / Tugs, Pilot boats

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# Vessel Monitoring Systems
# Yachts 40-70ft / Tugs, Pilot boats

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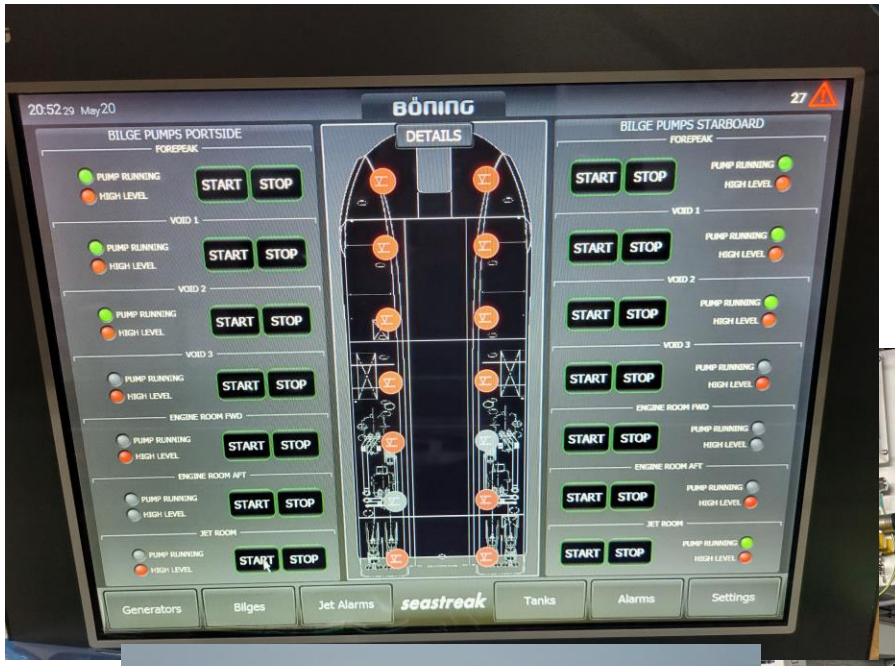
# Vessel Monitoring Systems
# Yachts 75-100 ft / Barges, Ferry boats

Galley /
Engine Room

# Vessel Monitoring Systems
# Yachts 75-100 ft / WFSV, Ferry boats



# Vessel Monitoring Systems
# Yachts 100+ ft / Offshore Supply Vessels

# Vessel Monitoring Systems
# Yachts 100+ ft / Offshore Supply Vessels

# 4. Other systems integrated to the ship vessel monitoring

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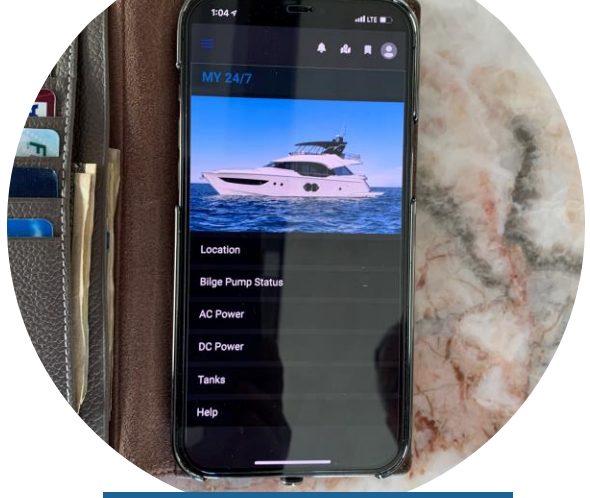
# Systems

- CCTV System
- Remote Monitoring
  - B:Connect
- Custom Dash Panels
- Cabin Control Systems
  - Lighting
  - HVAC
  - Audio
- Integrated Bridge Systems
  - Navigation + Automation




Remote Monitoring

Cabin Control

CCTV

Integrated Bridges

Custom Dash Panels

# 5. Stand-alone devices

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# Navigation Lights Panel

Modular Control Panel for up to 42 lights (LED or buld) – with customizable mimic panel

The modular-designed AHD-DPS02 controls and monitors navigation and signal lights on vessels.

Features:

- Modular design (from 14 to 42 lights)

- Control panel with custom layout

- Maintenance-free: no need to replace fuses after a short circuit

- Record operating hours and the number of switching cycles

- Collective alarm and ModBus interface to integrate with third-party alarm systems

- Compatible with AC or DC lights, bulbs or LEDs.

Certificates:

DNV·GL CRS Lloyd's Register

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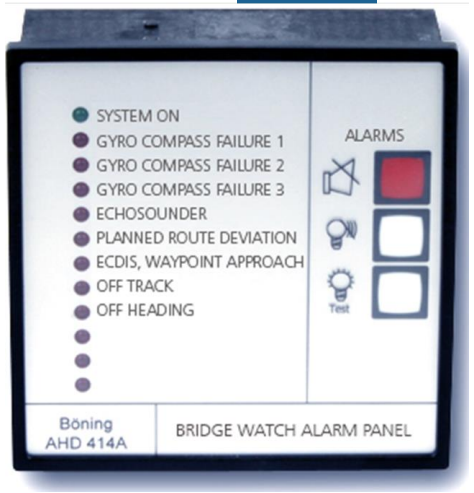
# Stand alone devices

- Alarm Panel AHD 414A
- Whistle Operation Panel AHD-WOP
- General Alarm Panel AHD-GAP

Whistle Operation Panel




Alarm Panel

General Alarm Panel

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# 6. Why vessel monitoring and automation is important for marine electronics companies?

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# Evolution of technology

Paper Charts

Tube

LCDs

MFDs

Garmin OneHelm
Raymarine Lighthouse
Furuno TZ
Böning SmartBridge

OneNet
N2K
HTML 5

Gauges

LEDs

LCDs

MFDs

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# B:MACS Plotter Edition

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# B:MACS Plotter Edition

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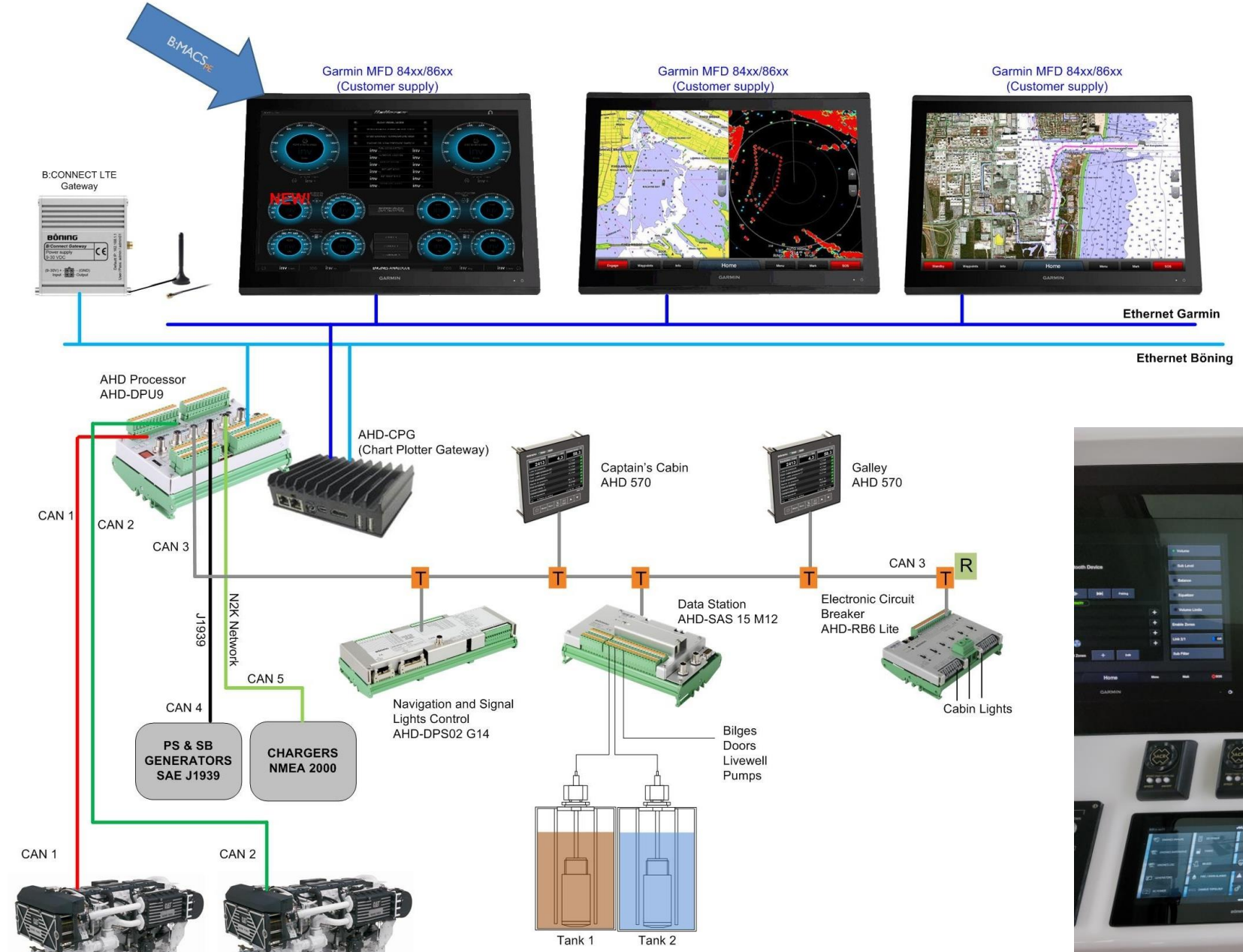
B:MACS
Garmin MFD 84xx/86xx
(Customer supply)
Garmin MFD 84xx/86xx
(Customer supply)
Garmin MFD 84xx/86xx
(Customer supply)
B:CONNECT LTE
Gateway
Ethernet Garmin
Ethernet Böning
AHD Processor
AHD-DPU9
AHD-CPG
(Chart Plotter Gateway)
Captain's Cabin
AHD 570
Galley
AHD 570
CAN 1
CAN 2
CAN 3
CAN 3
J1939
N2K Network
CAN 5
CAN 4
Data Station
AHD-SAS 15 M12
Electronic Circuit
Breaker
AHD-RB6 Lite
Navigation and Signal
Lights Control
AHD-DPS02 G14
Cabin Lights
PS & SB
GENERATORS
SAE J1939
CHARGERS
NMEA 2000
Bilges
Doors
Livewell
Pumps
CAN 1
CAN 2
Tank 1
Tank 2

GARMIN
SIMRAD

# 7. Integrated Bridge Systems

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OCEAN ALEXANDER
NAVIGATION
STATUS
CONNING
VHF
ENGINES
GENERATORS
CAMERAS
CONTROLS
LIGHTS
VENTILATION
AC POWER
DC POWER
WATER CONTROL
TANKS
WIPERS & WINDLASS
BILGES & SUMPS
DOORS
ALARMS
SETTINGS
MENU
SOG
COG
CAMERAS
START / STOP ENGINES
UNLOCK
AUTOPILOT

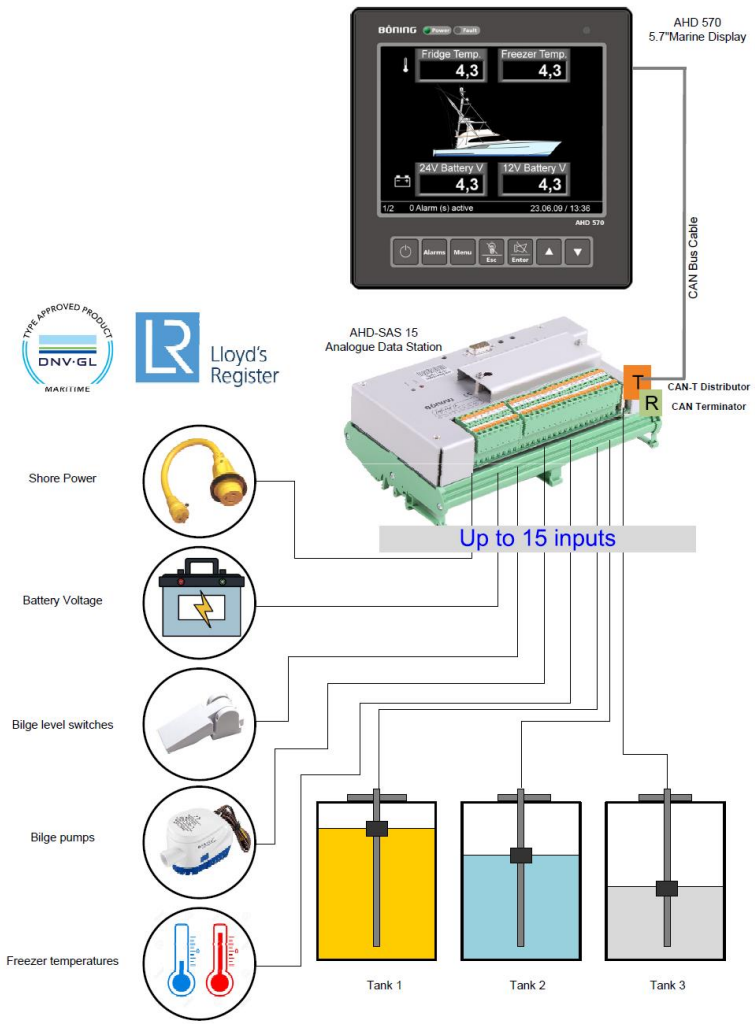
Hatteras
CAT

ADLER
Propulsion
Engine Details
Navigation
Cameras
Navlights
Tanks
Bilges
Hybrid System
Lights
Doors & Portholes
Cabin Comfort
Misc
Power
Display Control
Alarms
Measuring Points
Events
Help
Settings
PORT
STBD
System ON
Battery Switches
Service 24V
FURUNO

PORT ENGINE
DETAILS
67,2
23,37
121,5
0,0
1,9
11,3
11,3
5,191 NM

Hall CON
GARMIN
Back
Engage
Waypoints
Info
Menu
Mark
DIESEL FUEL
AFT KEEL TANK
CENTER TANK
FWD KEEL TANK
FRESH WATER
GREY WATER
HOLDING
WM SELECTION
XZ WTRMKR/SPTZRO
AUTO FILL MODE
GREY WATER DISCHARGE
HOLDING TANK DISCHARGE
DOCKSIDE
AUTO DISCHARGE
TANKS
ENGINES ANALOG
ENGINES BARGRAPHS
Hatteras
UNLOCK
START / STOP ENGINES
SCREENS
AUTOPILOT
THRUSTERS
TRAC LINK
HVAC CONTROLS
STATION SELECT
CLASSIC SYNC
PRECISION SYNC
PRECISION TROLL
DANGER

# Integrated Bridge Systems for small yachts

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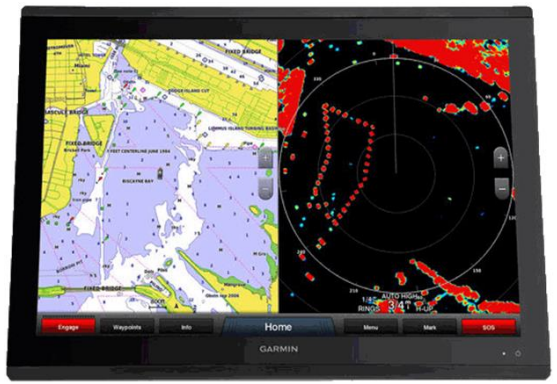

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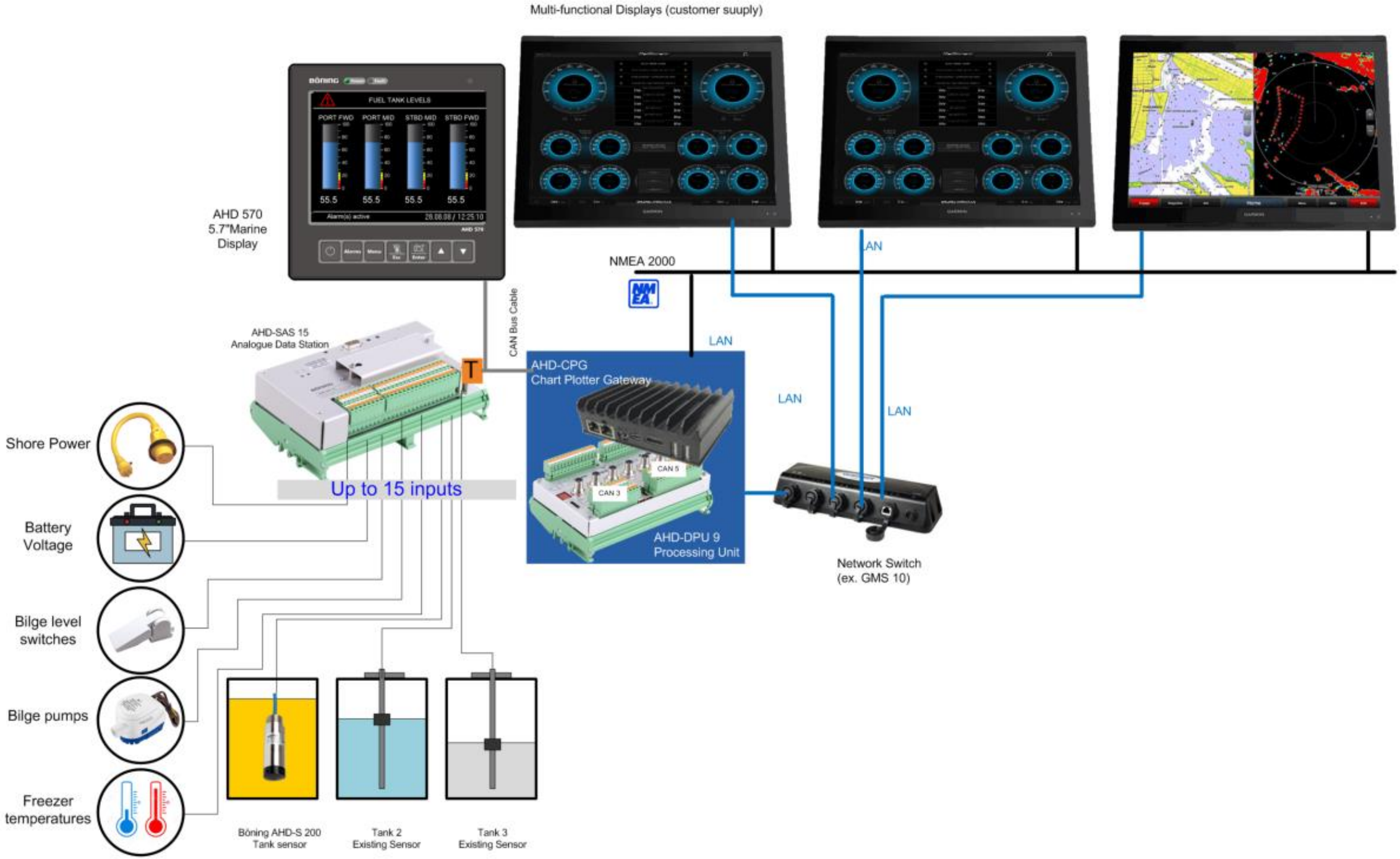
Multi-functional Displays (customer suuply)
AHD 570
5.7"Marine
Display
FUEL TANK LEVELS
PORT FWD
PORT MID
STBD MID
STBD FWD
55.5
55.5
55.5
55.5
LAN
NMEA 2000
CAN Bus Cable
AHD-SAS 15
Analogue Data Station
T
LAN
AHD-CPG
Chart Plotter Gateway
LAN
LAN
CAN 5
CAN 3
AHD-DPU 9
Processing Unit
Network Switch
(ex. GMS 10)
Up to 15 inputs
Shore Power
Battery
Voltage
Bilge level
switches
Bilge pumps
Freezer
temperatures
Böning AHD-S 200
Tank sensor
Tank 2
Existing Sensor
Tank 3
Existing Sensor

# 8. Solutions for NMEA dealers

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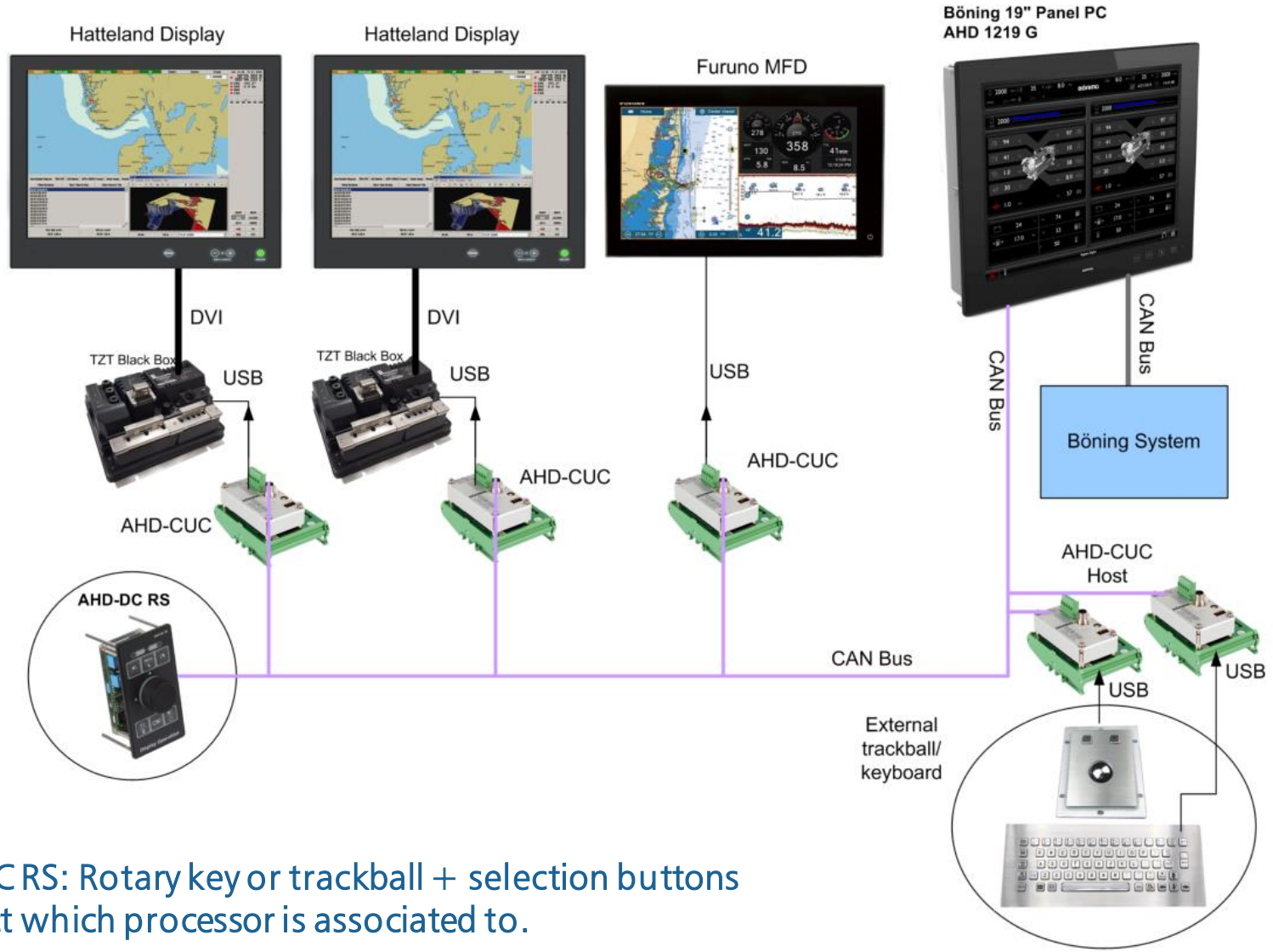
# Multi-screen trackball

Solution: Böning AHD-CUC (CAN USB CONVERTER) and Böning AHD-DC RS control panel



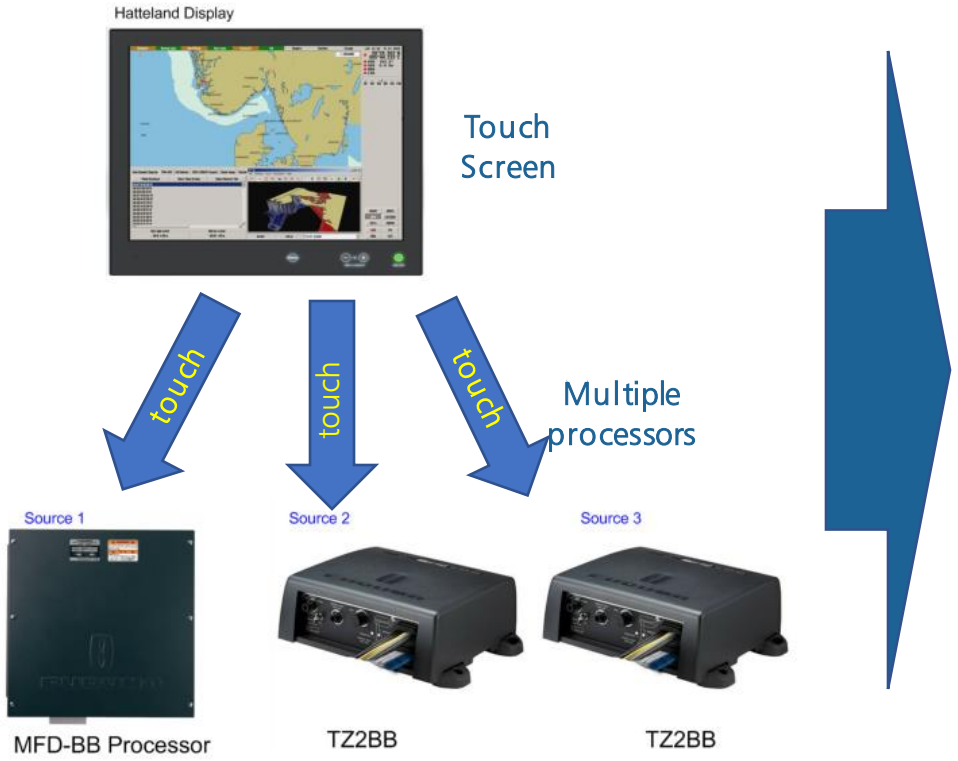

AHD-CUC: converts CAN bus information into USB Mouse signal for the MFDs and black boxes

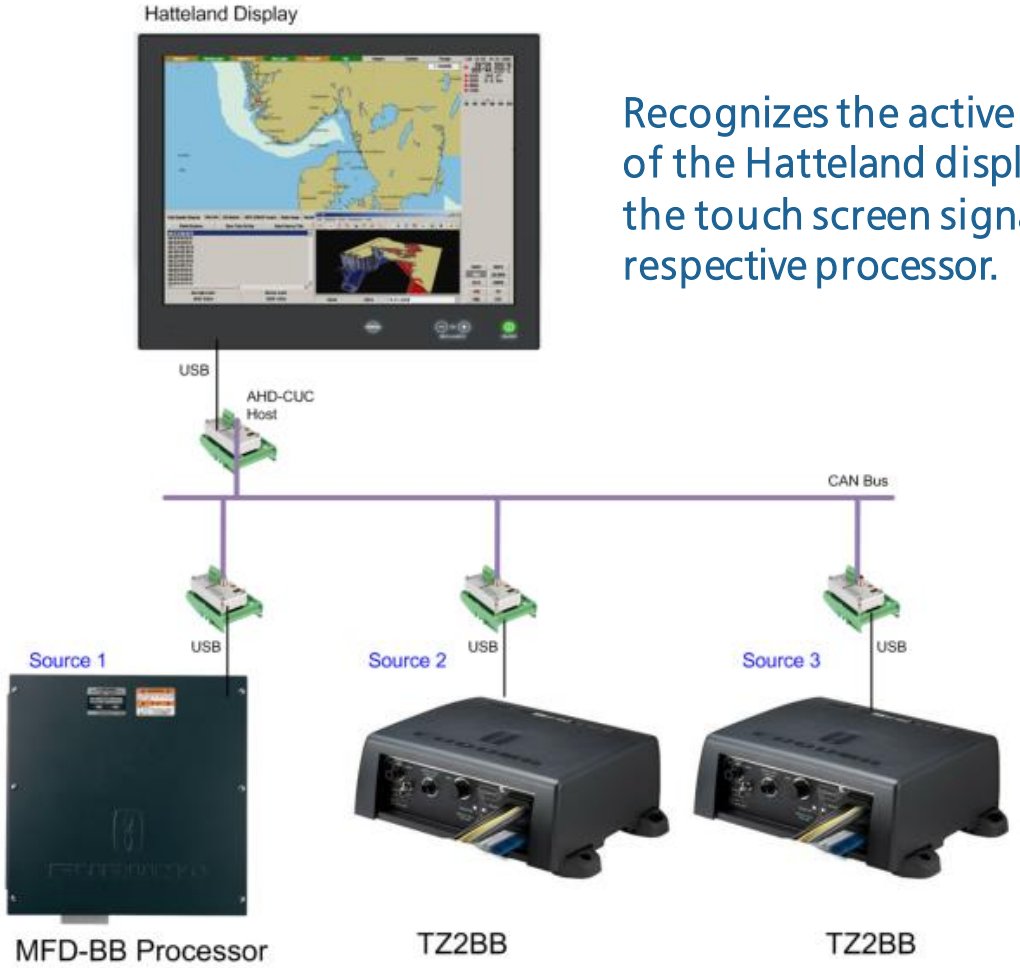
AHD-CUC Host: converts third-party mouse/keyboards to CAN Bus for a multi-screen operation.

AHD-DC RS: Rotary key or trackball + selection buttons to select which processor is associated to.

# One screen multiple processors solution

Solves the problem of connecting one touch screen display to multiple sources




Recognizes the active source input of the Hatteland display and sends the touch screen signal to the respective processor.

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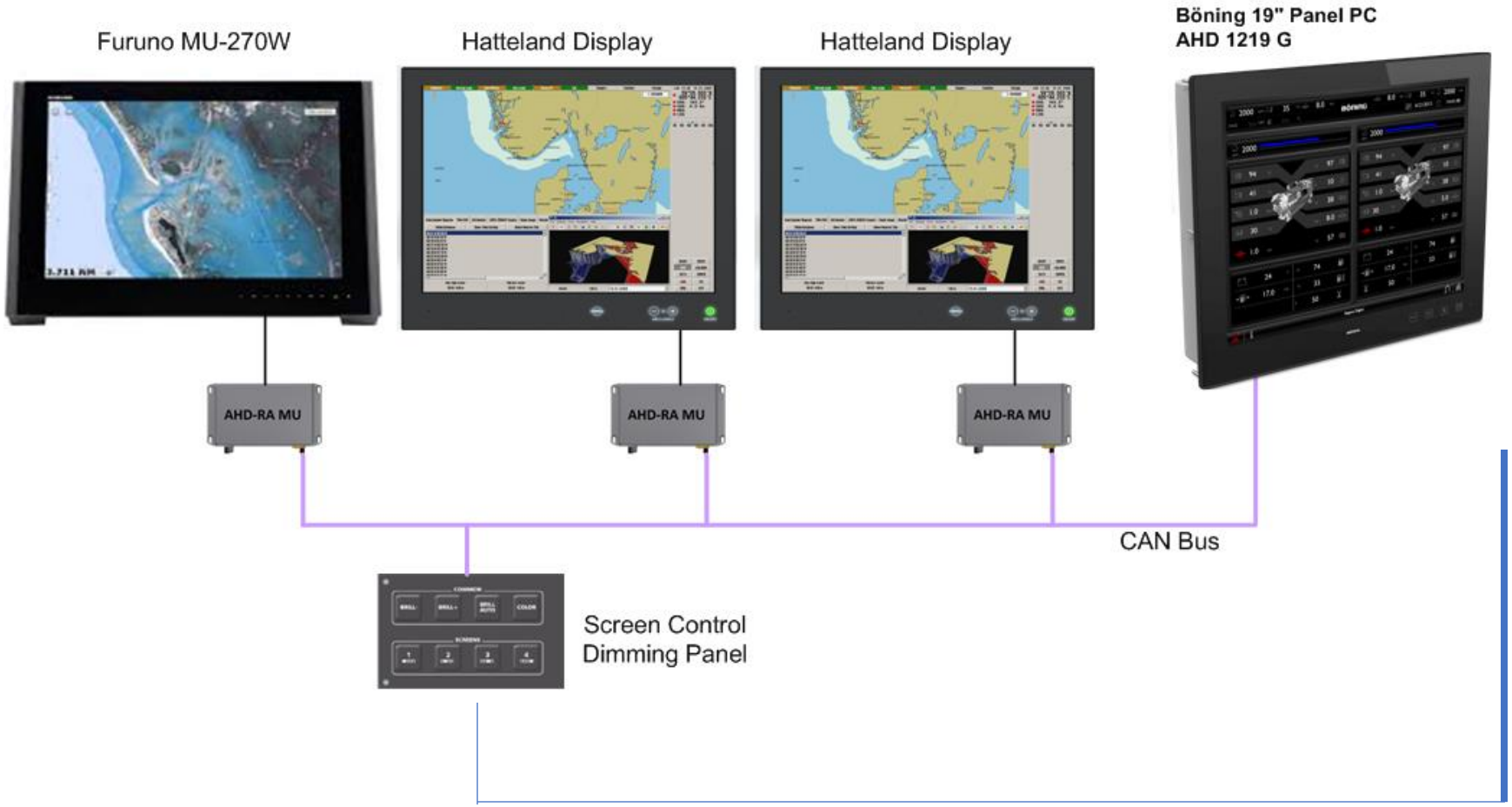
# Multi-screen dimming panel

From one (or more) control panel(s), to dim multiple screens at the same time.




**Common Dimming**
Access to global dimming settings. Local dimming remains available.

**Remote Power On/Off**
Remotely switches the power of monitors on or off.

**Presets**
Define presets and dimming profiles

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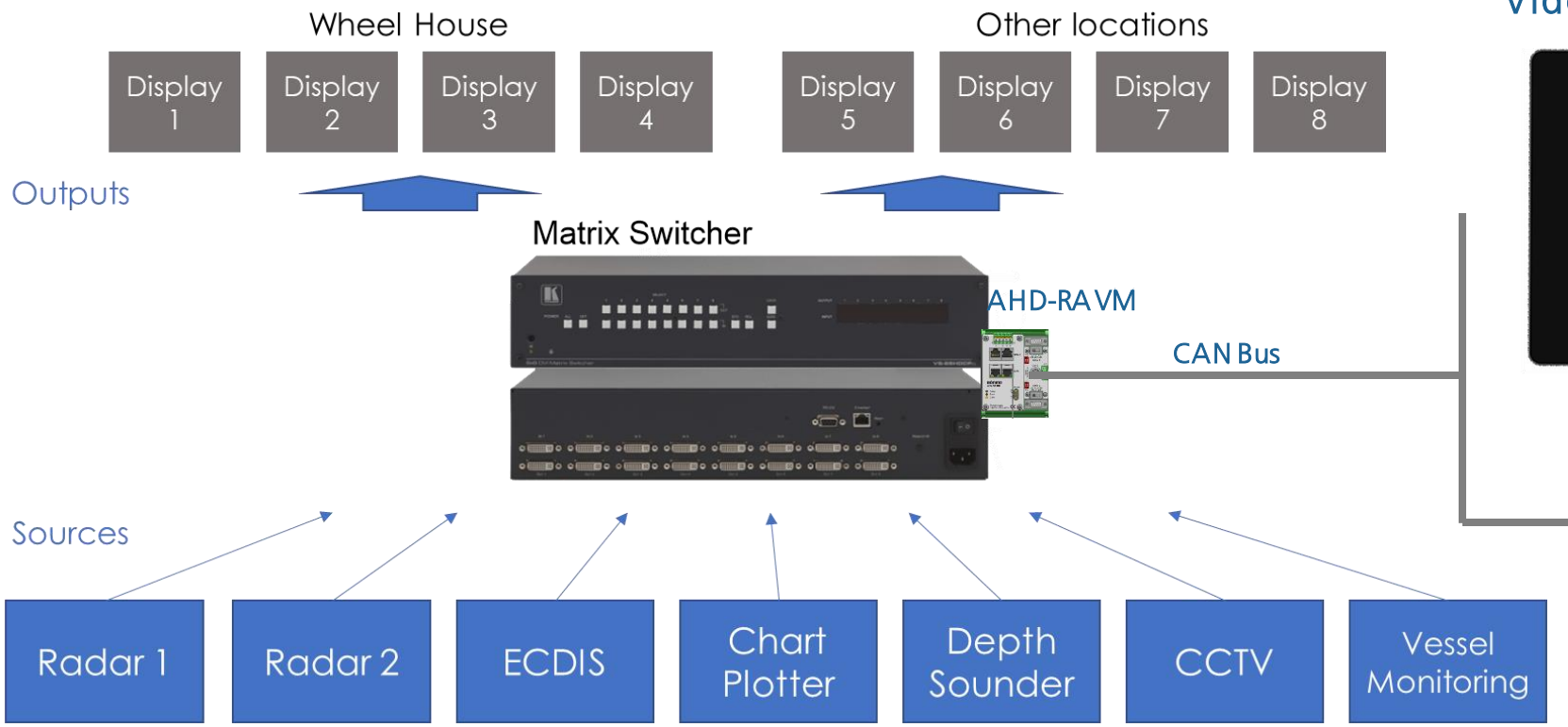
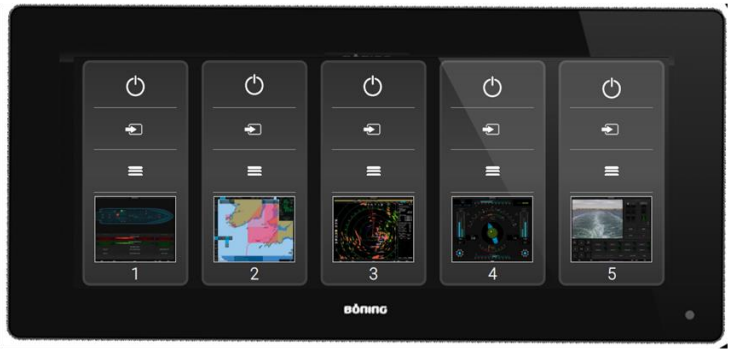
# Video matrix control panels

Control all bridge displays and processors through one panel




AHD 1312 GW
Video Matrix Control Touch Screen (12")



Video Matrix Control Panel

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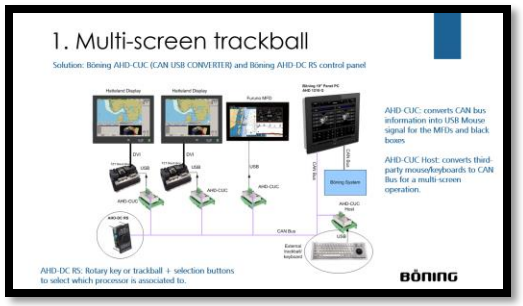
# 8. Bridge management system

Seamless integration to increase flexibility and usability.




Multi-screen control

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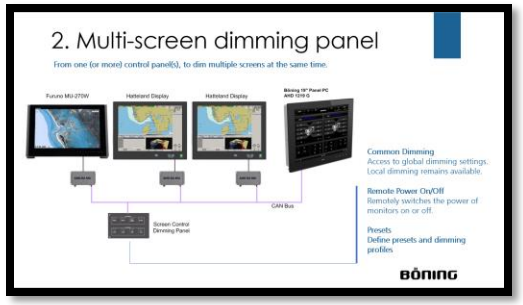


Multi-screen dimming

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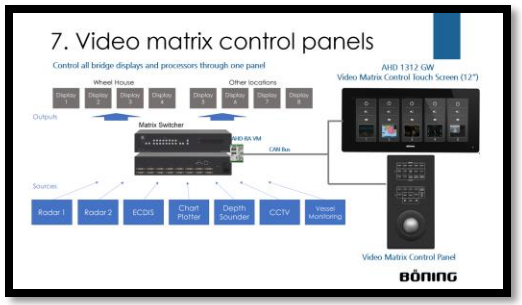
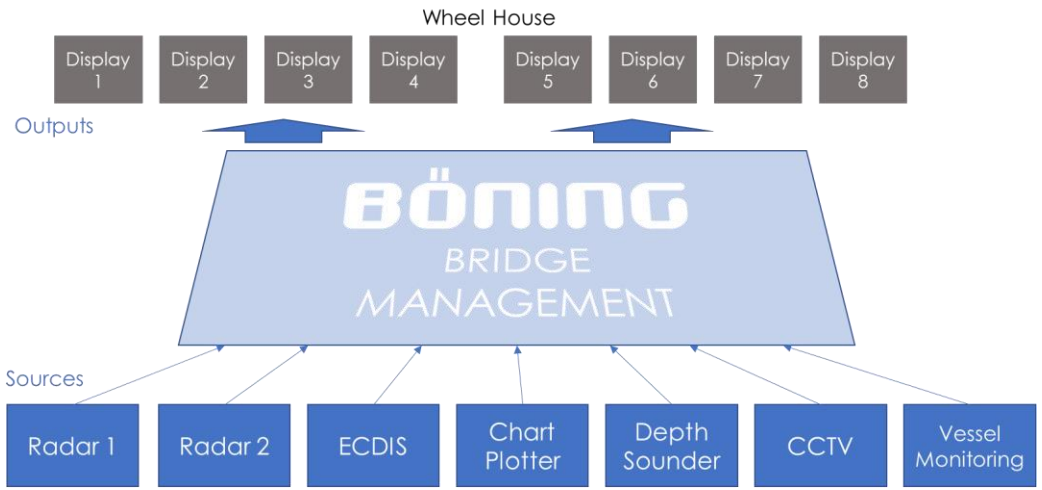



Video Matrix Control

## Böning Bridge Management System

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# Bridge management system

Seamless integration to increase flexibility and usability.

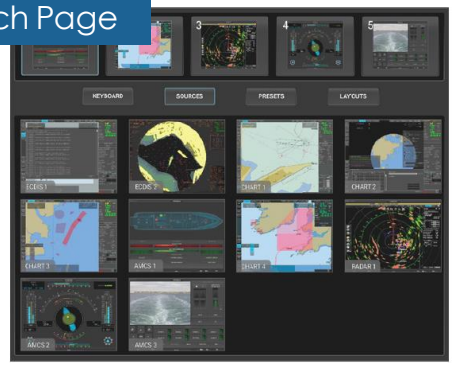
Commercial boats

Pleasure boats

Virtual ECDIS Keyboard

Virtual Radar Keyboard

Video Switch Page




Watch video: www.boening-usa.com/videos
or
HTTPS://WWW.YOUTUBE.COM/WATCH?V=GQM3OWMTSQI

# 9. Böning USA Dealership Program

# Reseller

**Requirements:**

- Böning Basic Training

**Responsibilities:**

- Acquire leads
- System installation (optional)

**Benefits:**

- 15% discount on equipment, software, service rates
- Böning USA is responsible for:
  - System specification
  - Programming
  - Commissioning
  - After Sales

# Integrator

**Requirements:**

- Böning Advanced Training
- Böning training simulator / customer demonstration

**Responsibilities:**

- Acquire leads
- System specification
- System installation
- Programming (optional)
- Commissioning (optional)
- After Sales

**Benefits:**

- 30% discount on equipment, software, service rates

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# 10. Questions?

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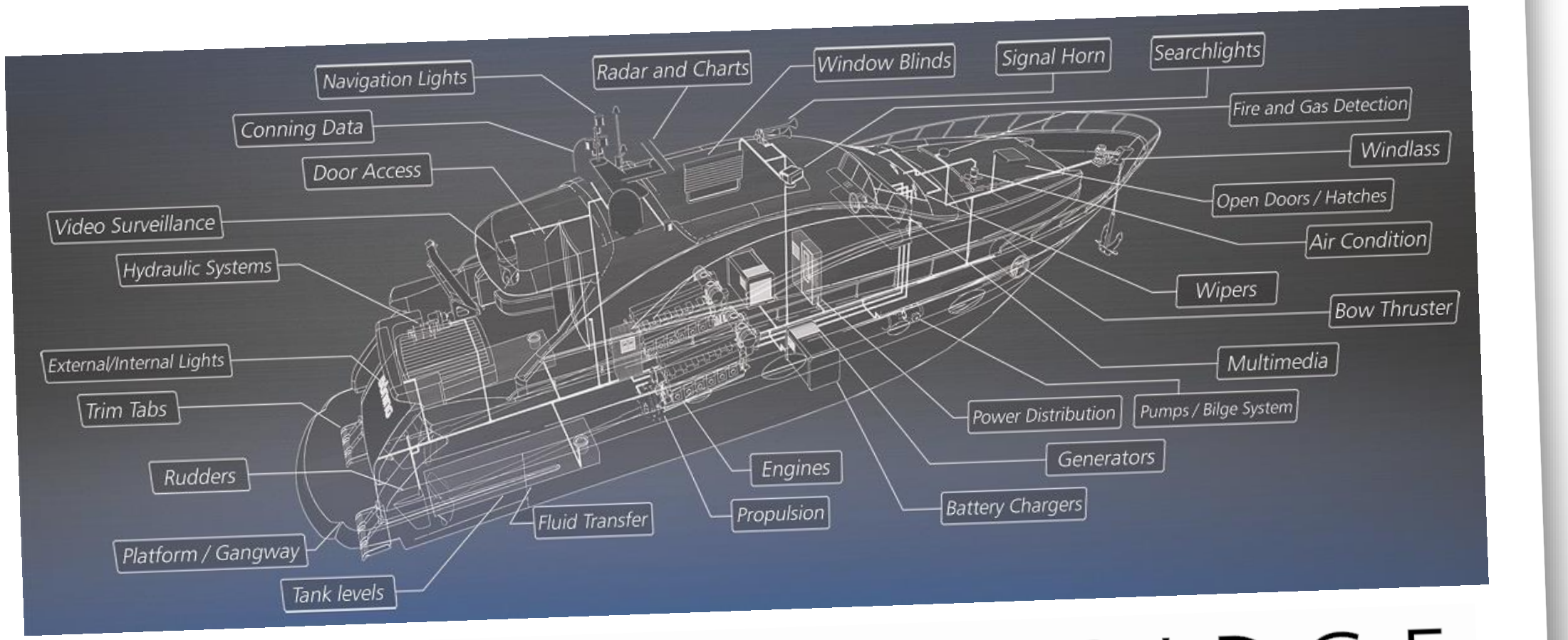
# THANK YOU!




BÖNING SMART BRIDGE

WWW.BOENING-USA.COM

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