

Monitoring and control technology



Electronics for superyachts and commercial vessels

Refit packages



Retrofit packages for superyachts and commercial vessels

Böning marine electronics are not only suitable for original equipment, but also for retrofitting on used ships.

Retrofitting the ship's electronics offers owners of used yachts and commercial shipping the opportunity to bring electronic systems up to the latest technical standard and benefit from many advantages.

The reasons for retrofitting may arise from the desire for more comfort, better operating characteristics or the requirements of new regulations. The operating profile of the ship, the expected remaining service life and current and future international requirements are key factors that should be taken into account when deciding on retrofitting measures.

As part of technical progress, old and no longer supported components are replaced by systems with modern, improved technology and enhanced functionality. Every refit is therefore also a useful investment in operational safety and reliability, and the resulting increase in the value of the ship can significantly outweigh the necessary investment.

In addition, we offer specially tailored retrofit packages for older Böning systems. We would particularly like to highlight the more than 10,000 yachts that have been equipped with MAN engines and Böning electronics over the past 15 years.

User-friendly touchscreen displays, powerful panel PCs, the integration of iPad® or Android tablets, and redundant safety systems are features that owners of older yachts or ships don't have to do without.

The Böning team stands for continuous development and long-term availability of spare parts throughout the entire lifetime of the ship.

If you combine several retrofit packages, you can save costs and use a common display for visualization. In many applications, chart plotters that are already installed can also be used. All Böning systems work with common protocols, and the displays can show data and status from multiple systems independently of each other on different display pages.

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Customized Modernization

+

State-of-the-art technology

+

Durable, modular products

+

Specially attuned retrofit solutions
(can be expanded at any time)

+

Minimal installation/cabling requirement
due to the use of bus technology

+

Type approval by many classification societies
(ABS, BV, DNV, LR)

+

Visualization of the system data with numerous
customer-specific analog and digital displays

+

High-quality individualized visualization of the
propulsion engines and other on-board systems

+

Internet connectivity for remote access

+

Reduction of service costs by remote maintenance

+

Appealing, homogeneous design

+

Front-end devices for a uniform bridge console

+

Integration of navigation systems

**19" Panel PC
AHD 1319 GW (Option)**



Power Supply 24VDC + 30% / -25%

*) Customer scope of delivery

**12.3" Panel PC
AHD 1312 GW**



LAN (Böning SAS-Network)

Internet

Ethernet Switch



**B:Connect
Performance
4G Antenna**

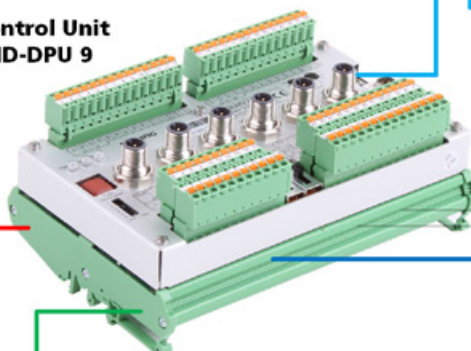


B:Connect Gateway



CAT5 *)
Ethernet

**Control Unit
AHD-DPU 9**



J1939 *)

J1939 *)

ModBus
1939 *)

NMEA
0183 *)



PS. Engine *)



SB. Engine *)



GenSet *)



Refit Package

Remote Access - Application 1

Böning "Remote Access" refit packages provide a reliable infrastructure for secure remote access to selected ship parameters. This enables effective remote diagnosis in the event of an alarm or other critical situations..

Application with Böning displays + Remote access via B:Connect

The example on the left shows a small alarm system consisting of the AHD-DPU 9 central data processing unit, a B:Connect Gateway with Cloud Server software and one or more Böning display panels.

Data processing unit AHD-DPU 9

The AHD-DPU 9 data processing station processes a wide range of protocols, including engine data, GPS data or information from other external components.

AHD-DPU 9 has 6 CAN buses, a network connection (Ethernet) and many other inputs and outputs for processing various serial data sources and additional binary inputs.

B:Connect Gateway with cloud server software

The B:Connect system consists of a cloud server with configurable visualization software and a powerful wireless gateway modem.

A project-specific configuration is used to select all the ship data that is to be displayed on the PC or a smart-phone. Once the connection to the cloud server has been established, all data released via the configuration can be called up and visualized graphically or in tabular form on various pages.

Displays AHD 1312 GW and AHD 1219 GW

Color displays in various sizes are available for the local display of the acquired data. The example shows a compact 12" touchscreen color display AHD 1312 GW as well as the wider 19" touchscreen color display AHD 1319 GW.

Thanks to their slimline design, these display models can be used universally and are easy to integrate in most installation situations. The displays are connected to the central data processing station AHD-DPU 9 via a fast LAN network.



B:Connect Gateways

Functional description

The AHD-DPU 9 data processing unit handles data from the main engines and all other information generated within the ship alarm system. In addition to the serial communication buses, the AHD-DPU 9 has further inputs for capturing binary data (such as door contacts, bilge sensors, alarm switches, fire alarm or security system). The ship alarm system can be expanded as required, for example with binary data stations of type "AHD-PS 15", each with an additional 15 inputs.

The data released for remote access, including alarm and status messages, can be called up at any time via the Internet from any PC or mobile device. In critical situations (e.g. fire or bilge alarm) you can act quickly, even if no one is on board. Early warning can significantly reduce potential damage.

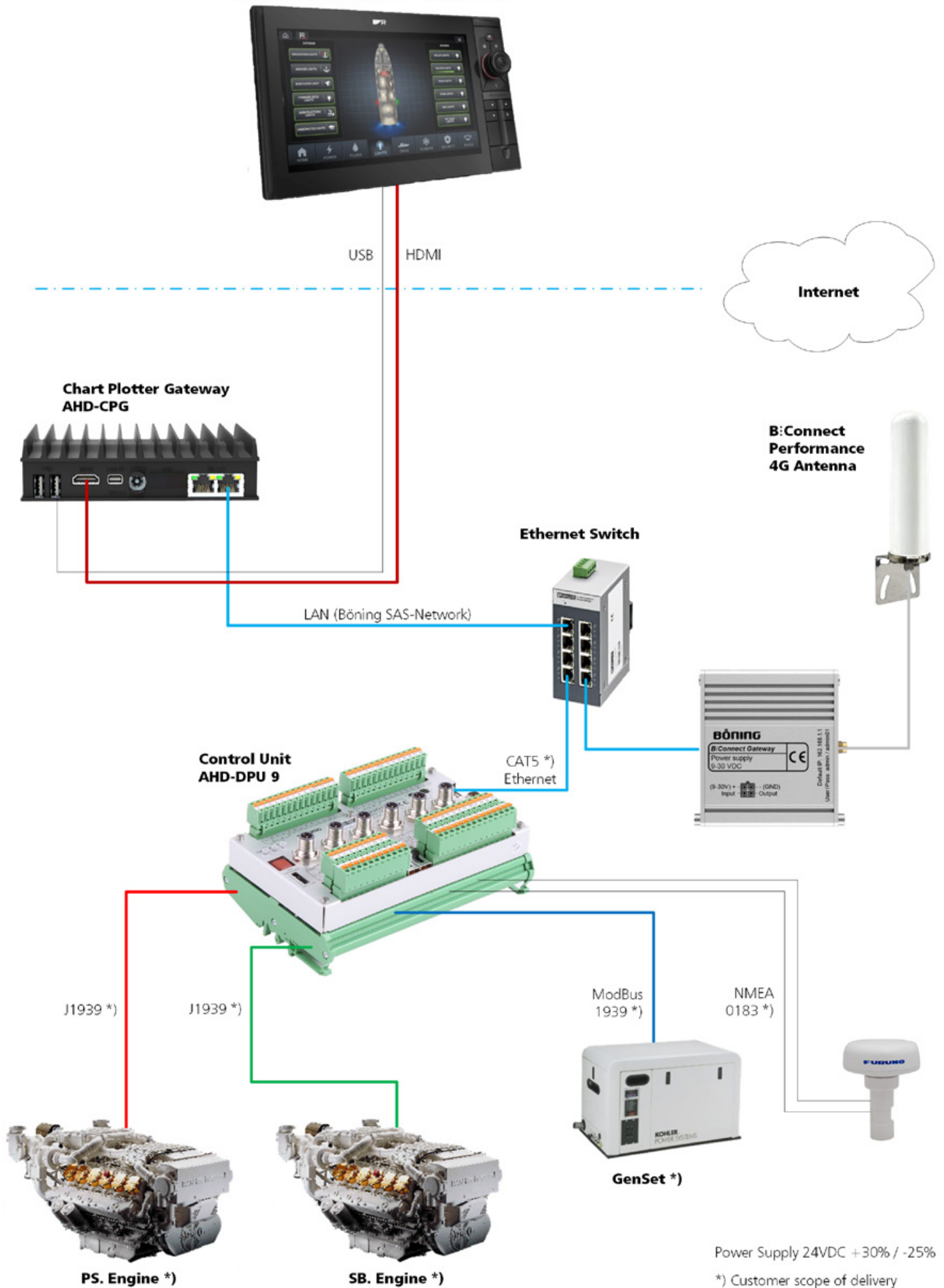
Local alarming and visualization is carried out via Böning standard display units (e.g. AHD 1312 GW and AHD 1219 GW).

Expansion options

The [Remote Access](#) retrofit package can be combined with the following packages:

-  Fuel data and range monitoring
-  Engine start/stop system
-  Navigation light system
-  Surface drive and trim tab control

Raymarine „Lighthouse“ Chart Plotter



Refit Package

Remote Access - Application 2

Böning "Remote Access" refit packages provide a reliable infrastructure for secure remote access to selected ship parameters. This enables effective remote diagnosis in the event of an alarm or other critical situations.

Application with HDMI Chart Plotter

The example on the left shows a small alarm system consisting of the AHD-DPU 9 central data processing unit, a B:Connect Gateway with Cloud Server software and a chart plotter gateway AHD-CPG for direct connection to a Raymarine chart plotter (HDMI).

Data processing unit AHD-DPU 9

The AHD-DPU 9 data processing station processes a wide range of protocols, including engine data, GPS data or information from other external components.

AHD-DPU 9 has 6 CAN buses, a network connection (Ethernet) and many other inputs and outputs for processing various serial data sources and additional binary inputs.

B:Connect Gateway with cloud server software

The B:Connect system consists of a cloud server with configurable visualization software and a powerful wireless gateway modem.

A project-specific configuration is used to select all the ship data that is to be displayed on the PC or a smartphone. Once the connection to the cloud server has been established, all data released via the configuration can be called up and visualized graphically or in tabular form on various pages.

Chartplotter Gateway AHD-CPG

An existing chart plotter with HDMI input is used to display the acquired data. Raymarine "Lighthouse" chart plotters are currently supported (others on request).

AHD-CPG contains a project-specific visualization and outputs all relevant data from the Böning ship alarm system directly as an HDMI video signal. The chart plotter is controlled via USB (e.g. for page switching).

Functional description

The AHD-DPU 9 data processing unit handles data from the main engines and all other information generated within the ship alarm system. In addition to the serial communication buses, the AHD-DPU 9 has further inputs for capturing binary data (such as door contacts, bilge sensors, alarm switches, fire alarm or security system). The ship alarm system can be expanded as required, for example with binary data stations of type "AHD-PS 15", each with an additional 15 inputs.

The data released for remote access, including alarm and status messages, can be called up at any time via the Internet from any PC or mobile device. In critical situations (e.g. fire or bilge alarm) you can act quickly, even if no one is on board. Early warning can significantly reduce potential damage.

Local alerting and visualization is carried out via a Raymarine "Lighthouse" chart plotter, which is linked with AHD-CPG.

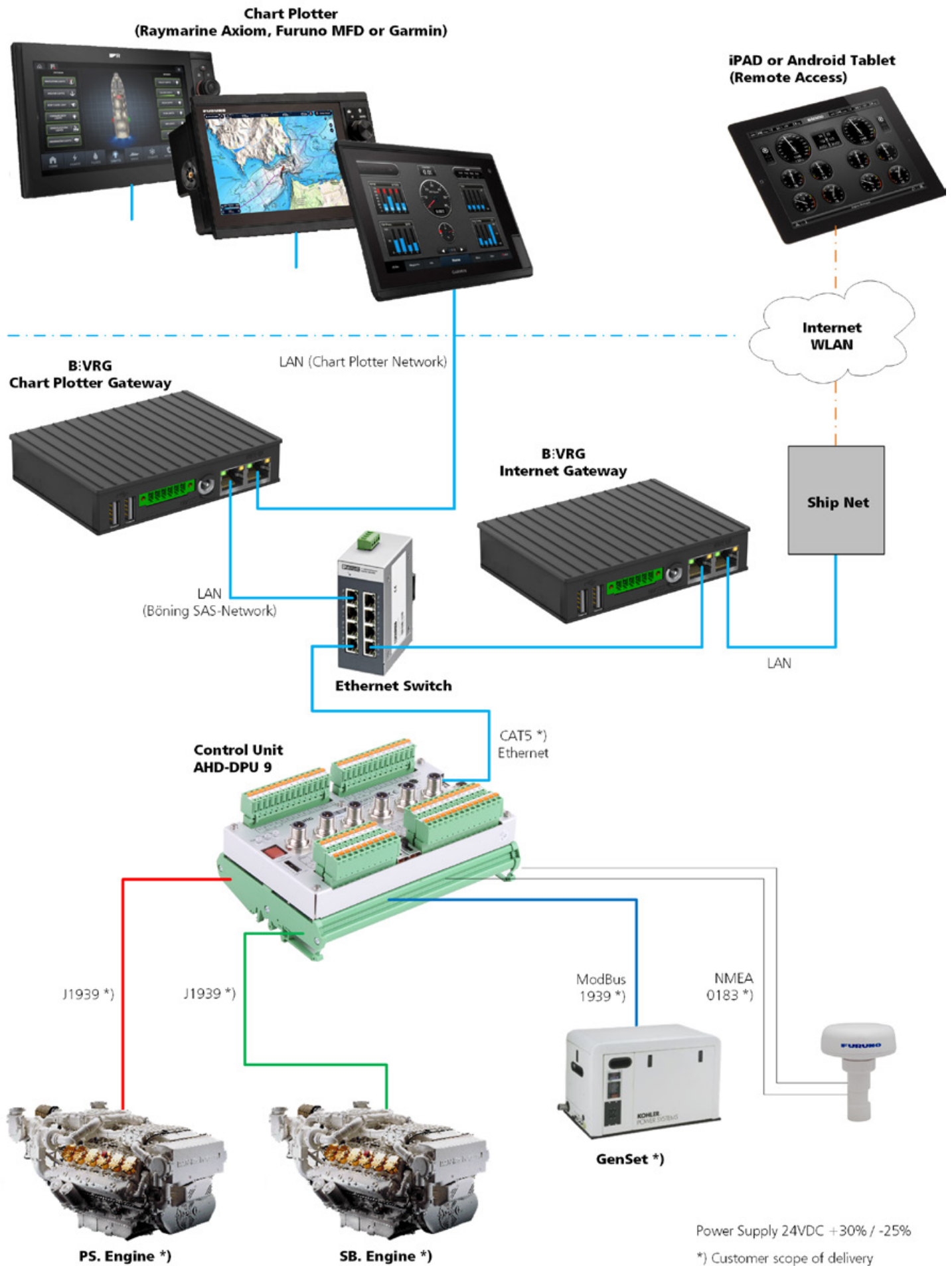


AHD-CPG mit HDMI-Ausgang

Expansion options

The [Remote Access](#) retrofit package can be combined with the following packages:

-  TFuel data and range monitoring
-  Engine start/stop system
-  Navigation light system
-  Surface drive and trim tab control



Refit Package

Remote Access - Application 3

Böning "Remote Access" refit packages provide a reliable infrastructure for secure remote access to selected ship parameters. This enables effective remote diagnosis in the event of an alarm or other critical situations.

Application with B:VRG Chartplotter Gateway + Remote access via B:VRG and ship network

The example on the left shows a small alarm system consisting of the central data processing unit AHD-DPU 9, a B:VRG Internet Gateway for connection to the ship's own network and a second B:VRG Gateway for direct connection to various chart plotters.

Data processing unit AHD-DPU 9

The AHD-DPU 9 data processing station processes a wide range of protocols, including engine data, GPS data or information from other external components.

AHD-DPU 9 has 6 CAN buses, a network connection (Ethernet) and many other inputs and outputs for processing various serial data sources and additional binary inputs.

B:VRG Internet gateway to the ship network

The B:VRG Internet Gateway connects to an iPad®, Android tablet or external PC system via the ship's existing Internet and WLAN network. With the help of the system configuration, the released alarm data is visualized or corresponding remote functions are made available. Data communication is encrypted in accordance with the current state of technology.

B:VRG Chartplotter Gateway

Chart plotters already installed on the ship are used for the local data display. The following devices are supported:

- ◆ Garmin „One Helm“-System
- ◆ Raymarine „Lighthouse“
- ◆ Aktuelle Multi Function Displays from Furuno

The B:VRG chartplotter gateway converts all relevant information from the information from the Böning ship alarm system into a suitable HTML5 format and forwards the available data to the connected chart plotters via the existing IP network.

Functional description

The AHD-DPU 9 data processing unit handles data from the main engines and all other information generated within the ship alarm system. In addition to the serial communication buses, the AHD-DPU 9 has further inputs for capturing binary data (such as door contacts, bilge sensors, alarm switches, fire alarm or security system). The ship alarm system can be expanded as required, for example with binary data stations of type "AHD-PS 15", each with an additional 15 inputs.

The data released for remote access, including alarm and status messages, can be called up at any time from any PC or mobile device (iPad® or Android tablet). In critical situations, you can act quickly, even if no one is on board. Early warning can significantly reduce potential damage.

Local alarming and visualization is carried out via the B:VRG Chartplotter Gateway on the existing devices.



Expansion options

The [Remote Access](#) retrofit package can be combined with the following packages:

- + Fuel data and range monitoring
- + Engine start/stop system
- + Navigation light system
- + Surface drive and trim tab control

Fly Bridge

**Start/Stop-Unit
AHD-DEOP (PS. & SB.)**


Bridge

**Start/Stop-Unit
AHD-EOP (PS.)**


8-pol. Cable with Plug

**Start/Stop-Unit
AHD-EOP (SB.)**


8-pol. Cable with Plug

8-pol. Cable with Plug

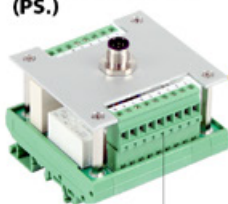
8-pol. Cable with Plug

**AHD-EOP EM
(Option)**
EOP
Control-Bus
PS.

2x8-pol. Cable with Plug

**AHD-EOP EM
(Option)**
EOP
Control-Bus
SB.

2x8-pol. Cable with Plug

**AHD-EOP Adapter
(PS.)**


8-pol. Cable with Plug

**AHD-EOP Adapter
(SB.)**


8-pol. Cable with Plug



PS. Engine *)



SB. Engine *)

Engine Room

 Supported Engine Types:
MAN (CR, Vneü, ISEA), CAT, MTU

Power Supply 24VDC +30% / -25%

*) Customer scope of delivery

Refit Package

Engine Start/Stop

The „Engine Start/Stop“ retrofit package can be combined with the main marine engines of most common manufacturers. Different versions have been optimized for engines from manufacturers such as MAN, MTU, CAT, Volvo, Yanmar and Cummins.

The system consists of the “Engine Operation Panel” itself and the AHD-EOP adapter for adaptation to the respective engine electronics. A Dual Engine Operation Panel (AHD-DEOP) is optionally available for two main engines, which can be installed on additional control stands (such as fly bridges).

All AHD-EOP / AHD-DEOP units are connected to each other via pre-assembled cables; additional panels can be added at any time if required.

Engine Operation Panel AHD-EOP

The Engine Operation Panel AHD-EOP allows you to start and stop the main engine conveniently. Instead of the conventional ignition key with external start and stop buttons, integrated control buttons and transponder technology are used. This simplifies wiring and increases protection against unauthorized use.

Engine Operation Panel AHD-DEOP

The Dual Engine Operation Panel AHD-DEOP is designed as a compact solution for additional operating stations. One device can control two main engines, provided the ignition has been activated with the transponder on the AHD-EOP.

Unlock ignition

The engines are unlocked individually using a transponder key. To do this, the key is inserted into the opening provided on the AHD-EOP. The system is now ready for operation and the engines can be started and stopped on each AHD-EOP / AHD-DEOP. The status is displayed visually on all panels.

Transponder Key

Each device comes with a transponder key with a unique code. Two keys (for twin-engine systems) can be plugged together for transportation so that they form a practical and visually appealing unit.

The keys are available in metal or floatable plastic versions. On request, the key can also be engraved with the ship's logo.

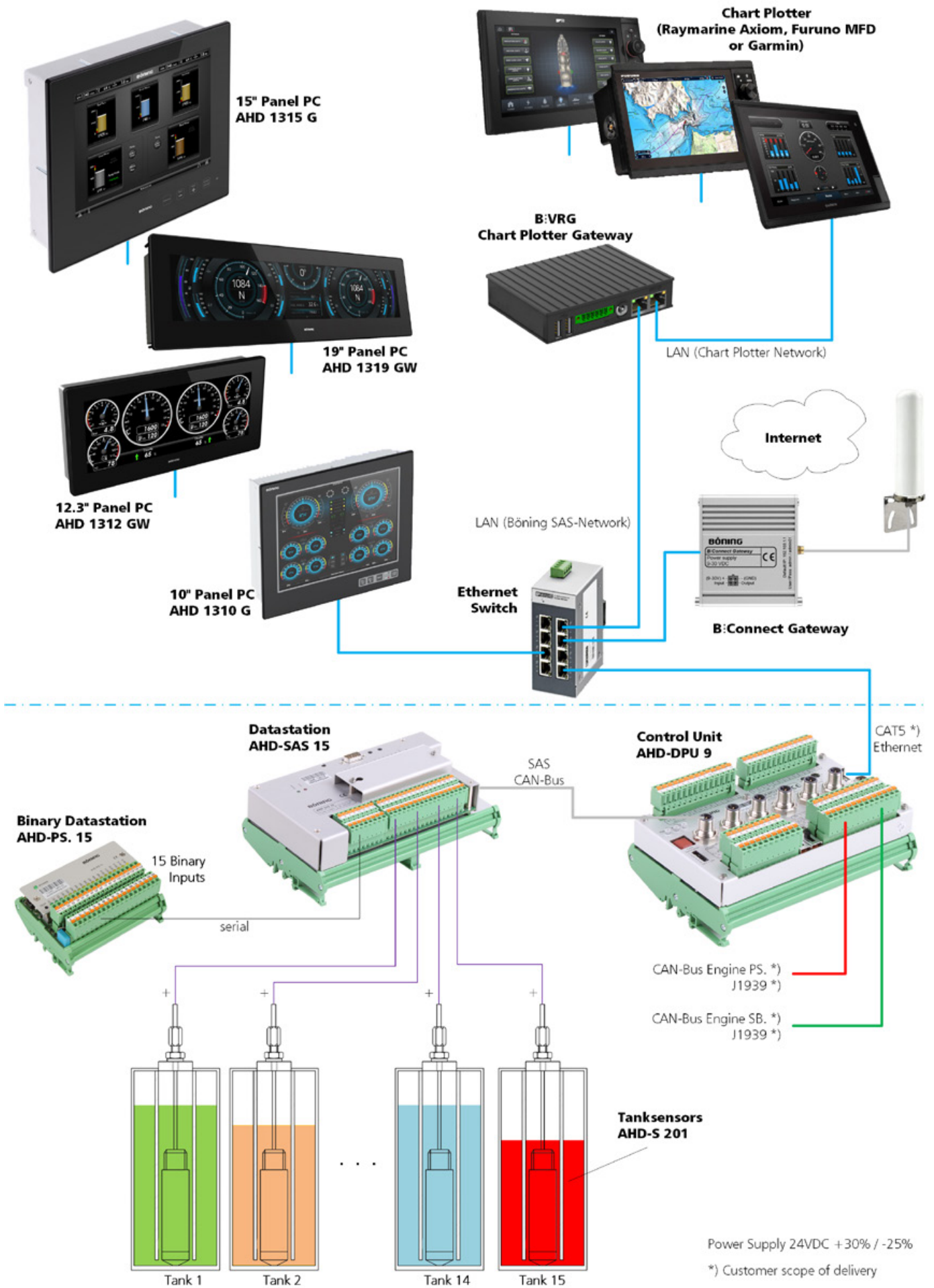
The engine start/stop system combines elegant design, high-quality manufacturing and secure transponder technology and offers every yacht owner convenient functionality with an individual appearance.



Expansion options

The [Engine Start/Stop](#) retrofit package can be extended with the following packages:

-  Engine monitoring
-  Fuel data and range monitoring
-  Remote access
-  Navigation light system
-  Surface drive and trim tab control



Refit Package

Fuel data and range monitoring

The retrofit package „Tank data and area monitoring“ essentially consists of any number of AHD-SAS 15 data stations for capturing 15 tank sensors each and an AHD-DPU 9 data processing unit which, in among other optional additional functions, establishes the connection to the LAN network.

The example on the left combines different display systems to visualize the tank contents:

- ◆ B:VRG Gateway with Chart Plotter
- ◆ B:Connect Gateway with cloud server software
- ◆ Böning standard display units (10"...19")

The optional AHD-PS 15 binary data station reads additional switching contacts that can be used for bilge monitoring, for example.

Data acquisition

Data acquisition is handled by the AHD-SAS 15 analog data station with 15 inputs each. This measures very precisely, can be configured flexibly and can process a variety of different sensor types.

Sensors

By using the high-precision AHD-S 201 hydrostatic level transmitter, the exact fill level of each tank can be determined. Suitable versions are available for every tank height.

Visualization and monitoring

The tank data can be displayed and alarmed in various ways. In addition to the optional use of existing chart plotters, Böning standard displays are also available in various sizes, for example:

- ◆ AHD 1310 G (10" PC-Panel)
- ◆ AHD 1312 GW (12" PC-Panel)
- ◆ AHD 1315 G (15" PC-Panel)
- ◆ AHD 1319 GW (19" PC-Panel)

All data is transmitted via fast LAN networks.

Calculation of fuel consumption and range

Depending on the engine type and manufacturer, the AHD-DPU 9 data processing unit can read additional engine data on current fuel consumption. Alternatively, a suitable flow meter can also be used.

With a suitable configuration and a GPS system, the expected range can be calculated and displayed based on current consumption data and the fuel tank level.

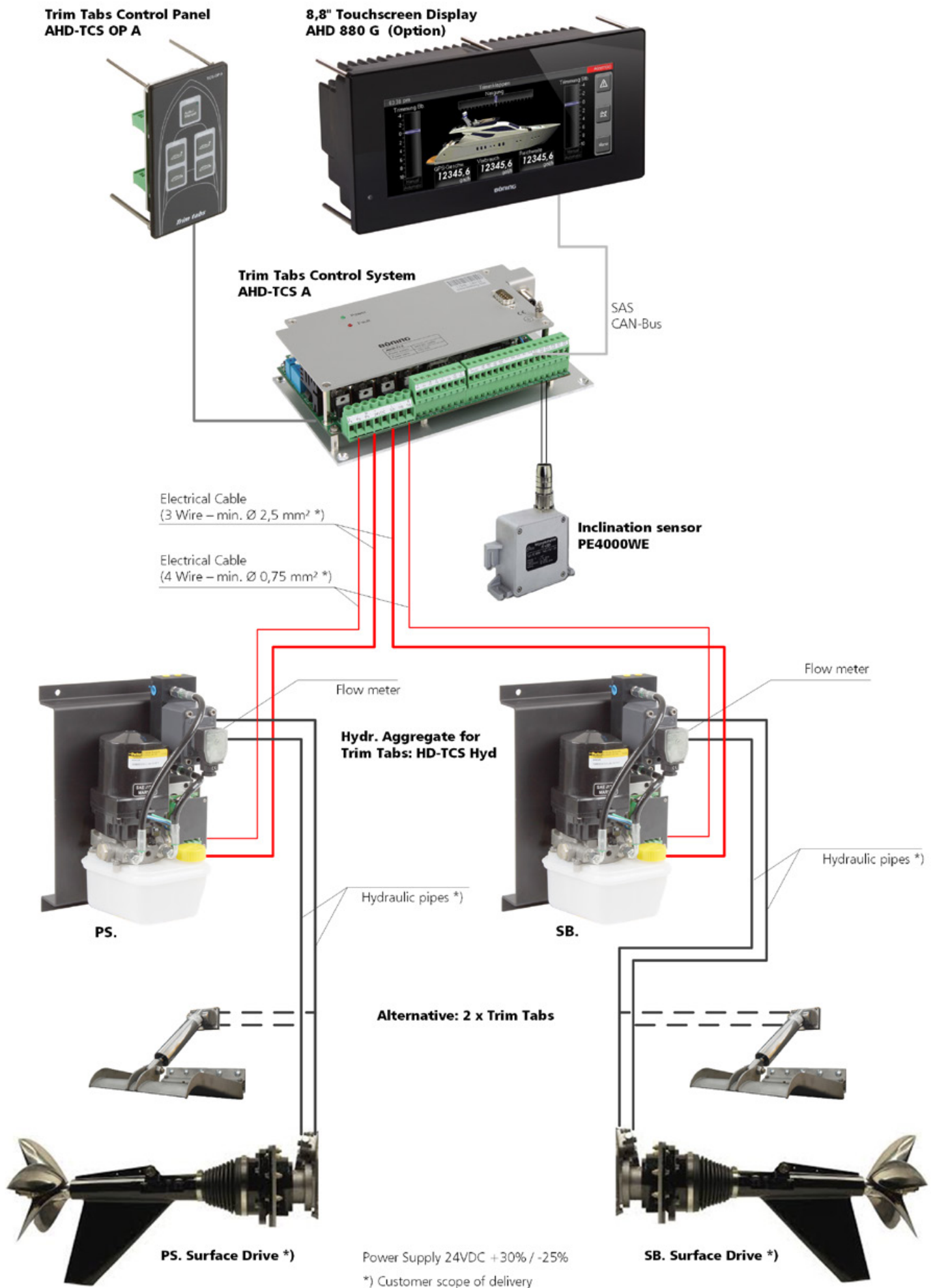


Hydrostatic Level-Transmitter AHD-S 201

Expansion options

The [Fuel data and range monitoring](#) retrofit package can be extended with the following packages:

- ✚ Remote access
- ✚ Engine start/stop system
- ✚ Navigation light system
- ✚ Surface drive and trim tab control



Refit Package

Control of surface drives and trim tabs

The „Trim Tabs Control“ AHD-TCS retrofit package developed and patented by Böning was designed for use on board fast yachts, which are often equipped with electro-hydraulic trim tabs. The AHD-TCS system supports the optimum alignment of the trim tabs, which helps to stabilize the yacht's handling and reduces fuel consumption.

Control and monitoring

The trim tab cylinders are controlled via the electric multi-port valves of the AHD-TCS HYD hydraulic unit. Instead of conventional position sensors, special flow meters are used, which can be acquired and evaluated directly by the AHD-TCS A electronic control unit. A major advantage of this system is that there is no need for electrical cabling on the outside of the ship, which is often subject to malfunction.

Control unit AHD-TCS A

The AHD-TCS A electronic control unit processes the data from all connected sensors as well as the control commands from the control panel. The trim tab cylinders are controlled according to the selected operating mode (manual or automatic); the current trim position is also output via the CAN bus so that it can be displayed graphically on a color display (e.g. AHD 880 TC). The AHD-TCS A electronic control unit processes the data from all connected sensors as well as the control commands from the control panel. The trim tab cylinders are controlled according to the selected operating mode (manual or automatic); the current trim position is also output via the CAN bus so that it can be displayed graphically on a color display (e.g. AHD 880 TC).

Manual control

The trim tabs are controlled manually and automatic mode is activated via the AHD-TCS OP A control panel. All operating elements are illuminated and easily recognizable even in the dark.

Automatic control

If a GPS receiver is connected to the AHD-TCS A control unit, the system can also be operated in automatic mode. In this case, the trim tabs are controlled depending on the trim curve configured by the shipyard and the current speed.

In combination with an optional inclination sensor, the position of the ship can be further optimized when turning.

Intelligent protection

In automatic mode, the trim tabs are automatically retracted at low speeds (less than 2 knots) so that external components are positioned as far as possible above the waterline when the engine not in use. Among other things, this function reduces deposits on the pistons, which helps to extend the service life of the system.



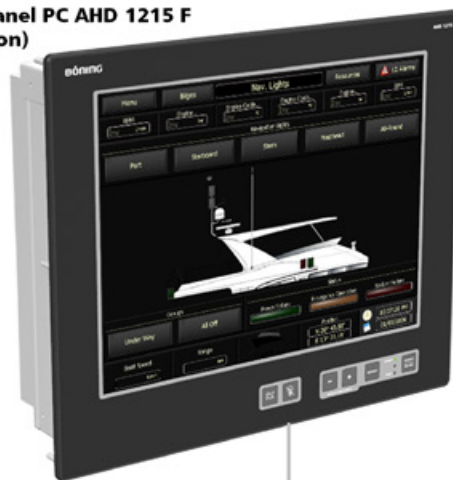
Draghetti Trim Tab

Expansion options

The [Control of surface drives and trim tabs](#) retrofit package can be extended with the following packages:

-  Fuel data and range monitoring
-  Engine start/stop system
-  Engine monitoring

**15" Panel PC AHD 1215 F
(Option)**



SAS
CAN-Bus

Power Supply 24VDC +30% / -25%

*) Customer scope of delivery

**8,8" Touchscreen Display
AHD 880 TC**



SAS
CAN-Bus

**Navigation lamp Control Panel
AHD-DPS 02 BS**



AHD-DL M6NM Sq



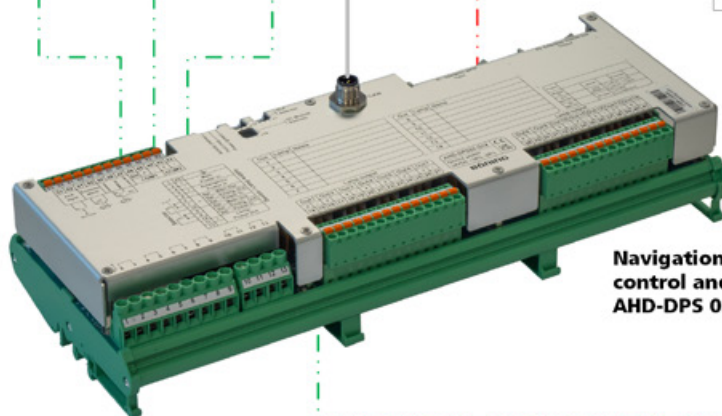
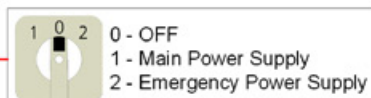
AHD-DL S3NM Sq



AHD-DL P3NM Sq



Selector switch



**Navigation and Signal Lights
control and monitoring unit
AHD-DPS 02 G14**

Ribbon cable

Refit Package

Navigation light system

The „Navigation light system“ retrofit package consists of the AHD-DPS02 G14 base module with 14 lamp channels and a control panel, for example the AHD 880 TC touch screen display or the AHD-DPS BS individual control panel with pushbuttons and feedback lights.

Different variants cover the usual voltages and lamp types on the ship. With additional modules AHD-DPS02 A07, an extension to up to 42 lamp channels is possible (seven additional lamp channels per module).

Basic module AHD-DPS02 G14

The base module has 14 independent channels for controlling and monitoring navigation lamps. Power is supplied via a dual power supply so that it is very easy to switch to emergency operation if the main supply fails. All channels are monitored electronically and are protected by a fuse accessible on the device.

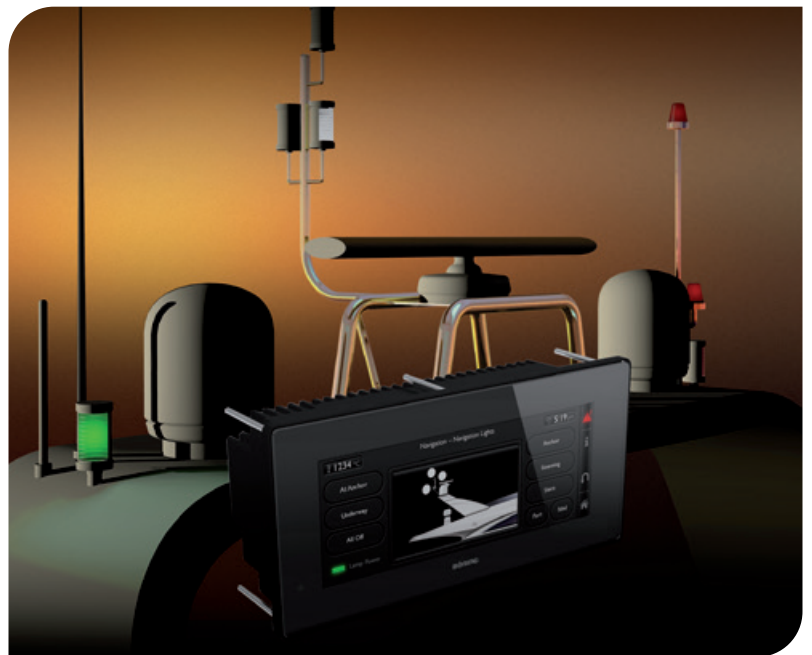
Control and alarms

A switch and a control LED are provided for each lamp circuit. These elements are either shown graphically on a display or are integrated as physical parts in the control panel.

If a short circuit or an interruption (wire break) is detected within a lamp channel, a corresponding alarm is triggered.

Group control

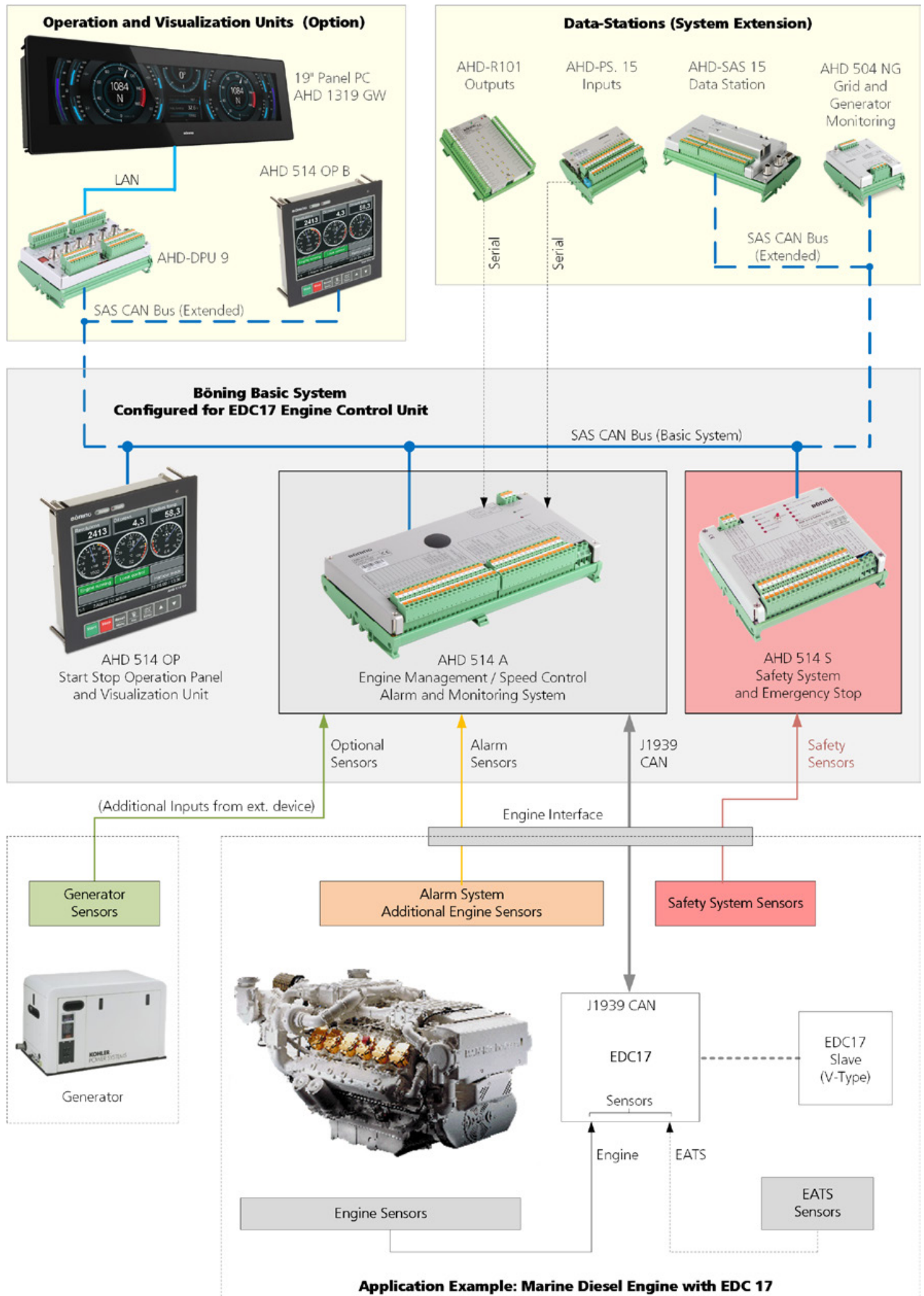
The AHD-DPS02 G14 base module offers the additional option of switching navigation lamps not only individually, but also in groups. This allows the light combination required for a specific driving situation to be preconfigured for each customer and called up directly at the touch of a button.



Expansion options

The [Navigation light system](#) retrofit package can be extended with the following packages:

-  Remote access
-  Fuel data and range monitoring
-  Engine start/stop system
-  Navigation light system
-  Surface drive and trim tab control



Refit Package

Engine monitoring

The „Engine Monitoring“ retrofit package was developed to equip older engines with modern sensors and monitoring systems and adapt them to current requirements.

The basic set offers all functions for starting, stopping and monitoring a marine engine. It consists of a combined start-stop and alarm system AHD 514 A, the safety system AHD 514 S and the display and operating unit AHD 514 OP, which shows all relevant engine data in a compact and clear format on a color display.

Start-stop and alarm system AHD-514 A

As a central unit, the AHD 514 A reads the existing engine sensors and combines all the necessary functions for monitoring, engine start and engine stop.

AHD 514 A has 18 measuring channels and a CAN bus for capturing and monitoring all relevant sensors. The J1939 engine data from external control units can be read in directly via the CAN bus. All data is forwarded to the connected display and operating units (AHD 514 OP or larger panel PCs) via a second CAN bus (monitoring CAN).

The large number of inputs and outputs (including for remote operation, engine start and stop) offer a high level of functionality. The integrated serial interface enables simple expansion with an AHD-PS 15 analog data station and an AHD-R101 relay unit. With its flexible configuration options, the AHD 514 A can cover almost all applications for main drives or generators.

The AHD 514 A COM variant is equipped with an additional ModBus interface (RS 485).

AHD-514 S safety system

AHD 514 S fulfills all the safety functions specified by the classification societies. The device is a combined emergency stop and alarm system and monitors all safety-relevant redundant sensors. In the event of an alarm, a safety stop is triggered.

The device has 6 alarm inputs and a number of other input and output channels for control (including for emergency stop, reset, override, safety status and safety stop). All relevant channels are monitored for wire breakage. Communication with the AHD-514 A alarm system and the AHD 514 OP display and control unit is done via the monitoring CAN.

Display and control unit AHD 514 OP

The AHD 514 OP display and operating unit was designed as a console or cabinet-mounted device with a high-quality 5.7" color display. The panel communicates with all other system components via CAN bus and is used to display all available engine operating and alarm data in graphical and tabular form. The engine can be started and stopped directly on site using integrated buttons on the front.

The optionally available AHD 514 OP B variant is intended for use on the bridge.

Mains and generator monitoring option AHD 504 NG

The AHD 504 NG module for mains and generator monitoring is available for genset applications as an option. A special measuring device can be used to measure both mains and generator voltage and frequency.

Expansion options

The [Engine monitoring](#) retrofit package can be extended with the following packages:

-  Remote access
-  Fuel data and range monitoring
-  Engine start/stop system
-  Navigation light system
-  Surface drive and trim tab control

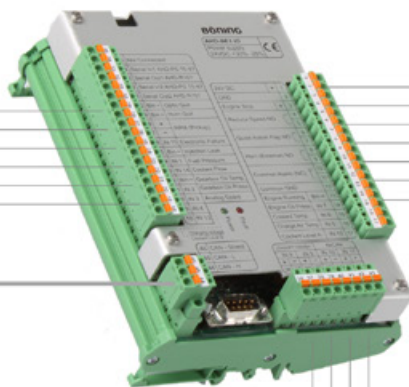
Fly Bridge

5,7" Visualization
AHD 570

Bridge

5,7" Visualization
AHD 570Engine
CAN

Data Station AHD-BE1 IO CAN



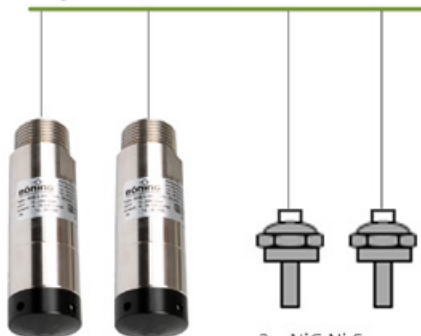
Engine wiring

Option

more Plotters

Chart Plotter
(NMEA 2000)NMEA 2000
CANEngine
CANNMEA 2000 Protokoll-Converter
AHD-UCC H N2K

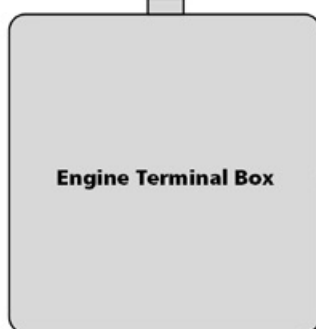
Optional Sensors



2 x Tank Sensor

2 x NiCrNi Sensor
(Exhaust gas temp.)

Engine Terminal Box



Engine Room



MAN Engine (EDC)

Refit Package

BE1-IO / BE1-A refit for MAN diesel engines

Modernization and value enhancement through refit measures

Since 1996, the engine manufacturer MAN has been equipping marine engines with the BE1-A/BE1-IO alarm systems, which monitor all important measurement data and generate an alarm message in the event of a fault. These systems are designed for mechanically controlled engines and are equipped with a simple LED panel. The connected engine sensors are acquired and alerted in the event of a fault (sensor failure, wire breakage or limit value violations). However, no analog measured values can be displayed with these systems.

Böning Automationstechnologie GmbH therefore offers an elegant alternative for modernizing engine data visualization on that is specially customized to older motor yachts.

The existing BE1-IO/BE1-A alarm system is replaced by modern components from Böning. The combination of minimal installation effort and state-of-the-art display technology results in a modern appearance. At the same time, additional functions are made available, which significantly increases cost-effectiveness and operational reliability.

New for old

The system presented here shows an AHD-BE1 IO CAN, which is used as a replacement for an old BE1-IO. In this case, the engine data is displayed via the AHD 570 graphic display panel.

AHD-BE1 IO CAN

The AHD-BE1 IO CAN module is designed as a direct replacement device so that no additional wiring is required on the sensor side. In the standard configuration, only one additional CAN bus cable is required for the display panel.

The device is functionally compatible with the previously installed BE1-IO module, but has 4 additional sensor inputs. These are freely configurable and can be used to read exhaust gas or tank sensors as required. Communication with the display panel is via the CAN bus.



AHD 570

Display unit AHD 570

The AHD 570 display unit was designed as a console or cabinet-mounted device with a high-quality 5.7" color display. The panel communicates with AHD-BE1 IO CAN via CAN bus and visualizes all engine and alarm data in graphical and tabular form. Buttons integrated on the front are used for alarm acknowledgement, reset or page switching.

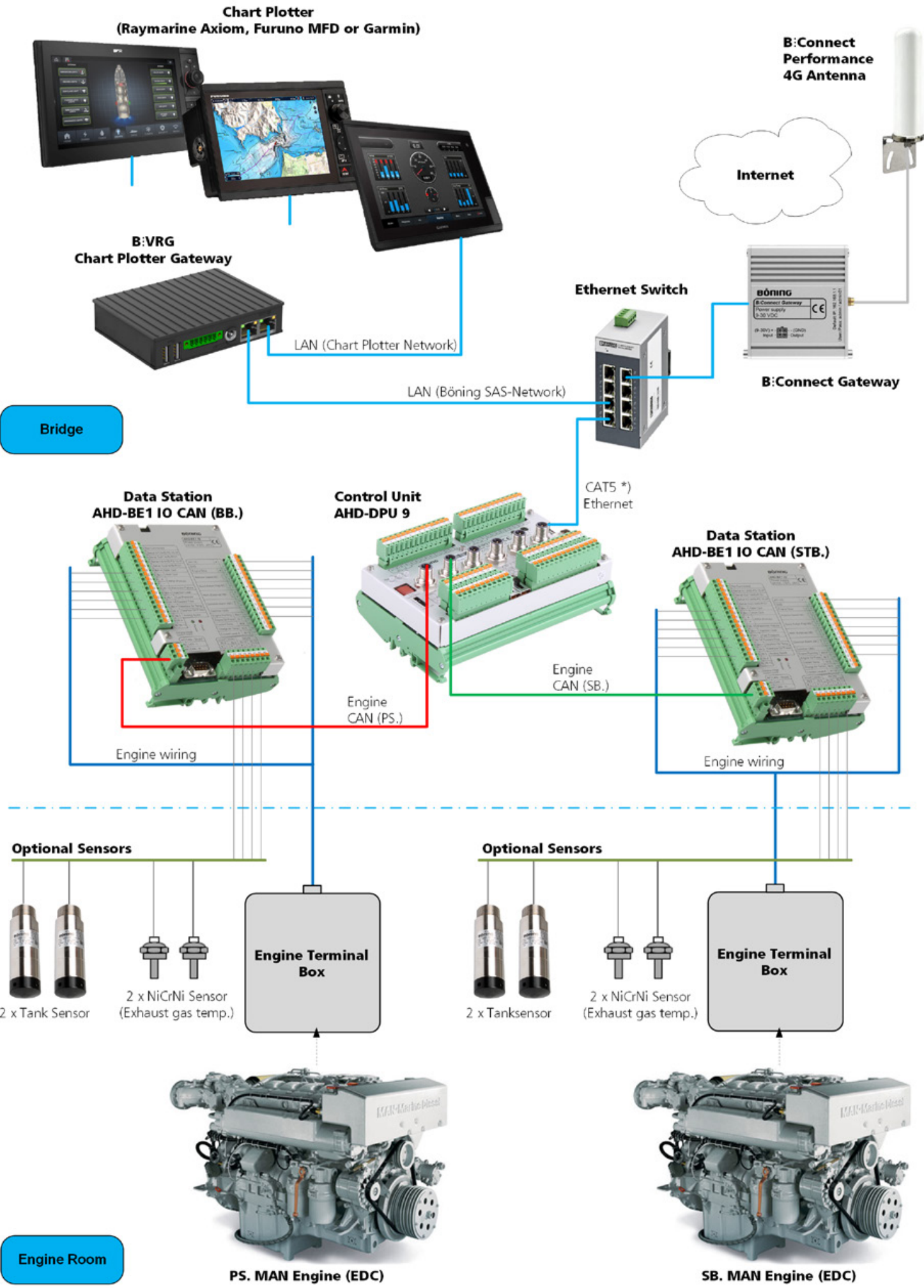
If required (e.g. for flybridge), several parallel AHD 570 display units can be installed.

AHD-UCC H N2K

The optional AHD-UCC H N2K module converts the engine data processed by the AHD-BE1 IO CAN into a standardized NMEA 2000 CAN protocol. This allows the relevant engine data to be read by standard chart plotters and displayed at additional installation locations.

Advantages of modernization

- ✚ The latest technology
- ✚ Low cabling effort
- ✚ Increased cost efficiency and operational reliability



Refit Package

BE1-IO / BE1-A Integration in alarm system



AHD-DPU 9



B:VRG Gateway

Modernization and value enhancement through refit measures

Since 1996, the engine manufacturer MAN has been equipping marine engines with the BE1-A/BE1-IO alarm systems, which monitor all important measurement data and generate an alarm message in the event of a fault. These systems are designed for mechanically controlled engines and are equipped with a simple LED panel. The connected engine sensors are acquired and alerted in the event of a fault (sensor failure, wire breakage or limit value violations). However, no analog measured values can be displayed with these systems.

Böning Automationstechnologie GmbH therefore offers an elegant alternative for modernizing engine data visualization on that is specially customized to older motor yachts.

The existing BE1-IO/BE1-A alarm system is replaced by modern components from Böning. The combination of minimal installation effort and state-of-the-art display technology results in a modern appearance. At the same time, additional functions are made available, which significantly increases cost-effectiveness and operational reliability.

New for old

The system presented here shows 2 replacement modules AHD-BE1 IO CAN, which replace the old BE1-IO modules. Each device is connected via CAN bus to the common data station AHD-DPU 9, which can also be part of a higher-level alarm system. The data from the two MAN engines is processed here and forwarded to the existing chart plotters via a B:VRG gateway.

AHD-BE1 IO CAN

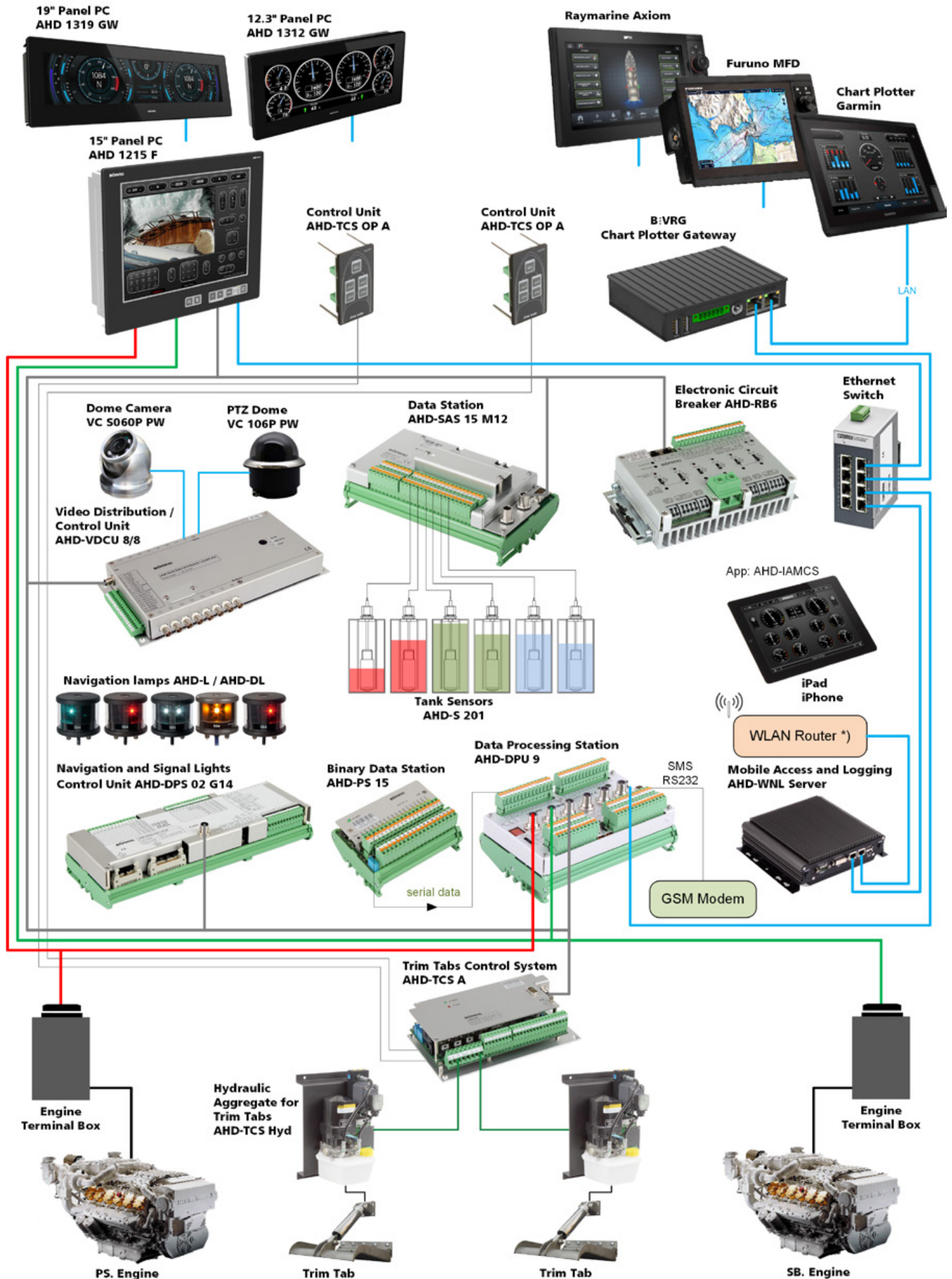
The AHD-BE1 IO CAN module is designed as a direct replacement device so that no additional wiring is required on the sensor side.

The device is functionally compatible with the previously installed BE1-IO module, but has 4 additional sensor inputs. These are freely configurable and can be used to read exhaust gas or tank sensors as required. Communication with the alarm system is via the integrated CAN bus.

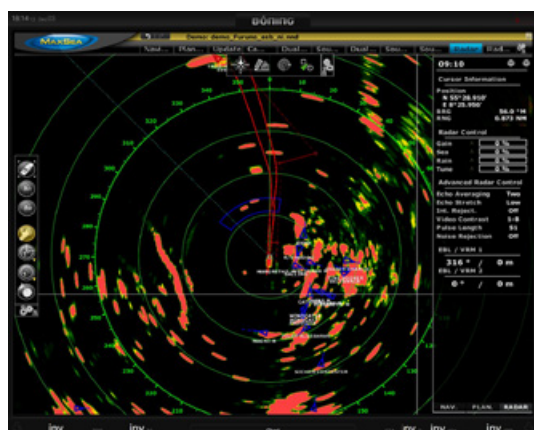
Advantages of modernization

- ✚ The latest technology
- ✚ Low cabling effort
- ✚ Increased cost efficiency and operational reliability
- ✚ Utilization of existing resources

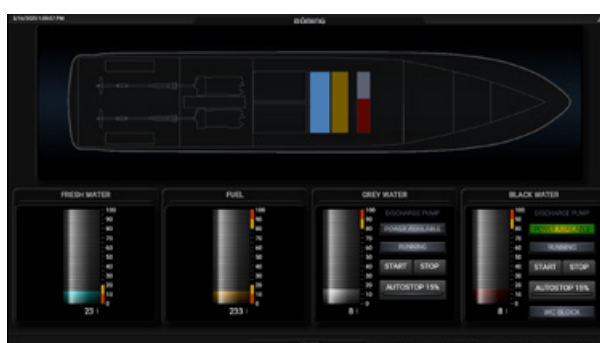
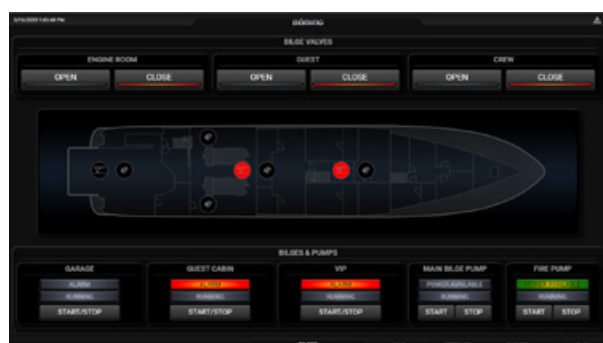
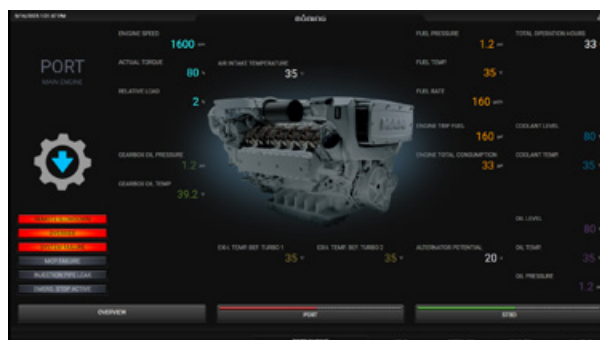
Refit packages – all combined in one system



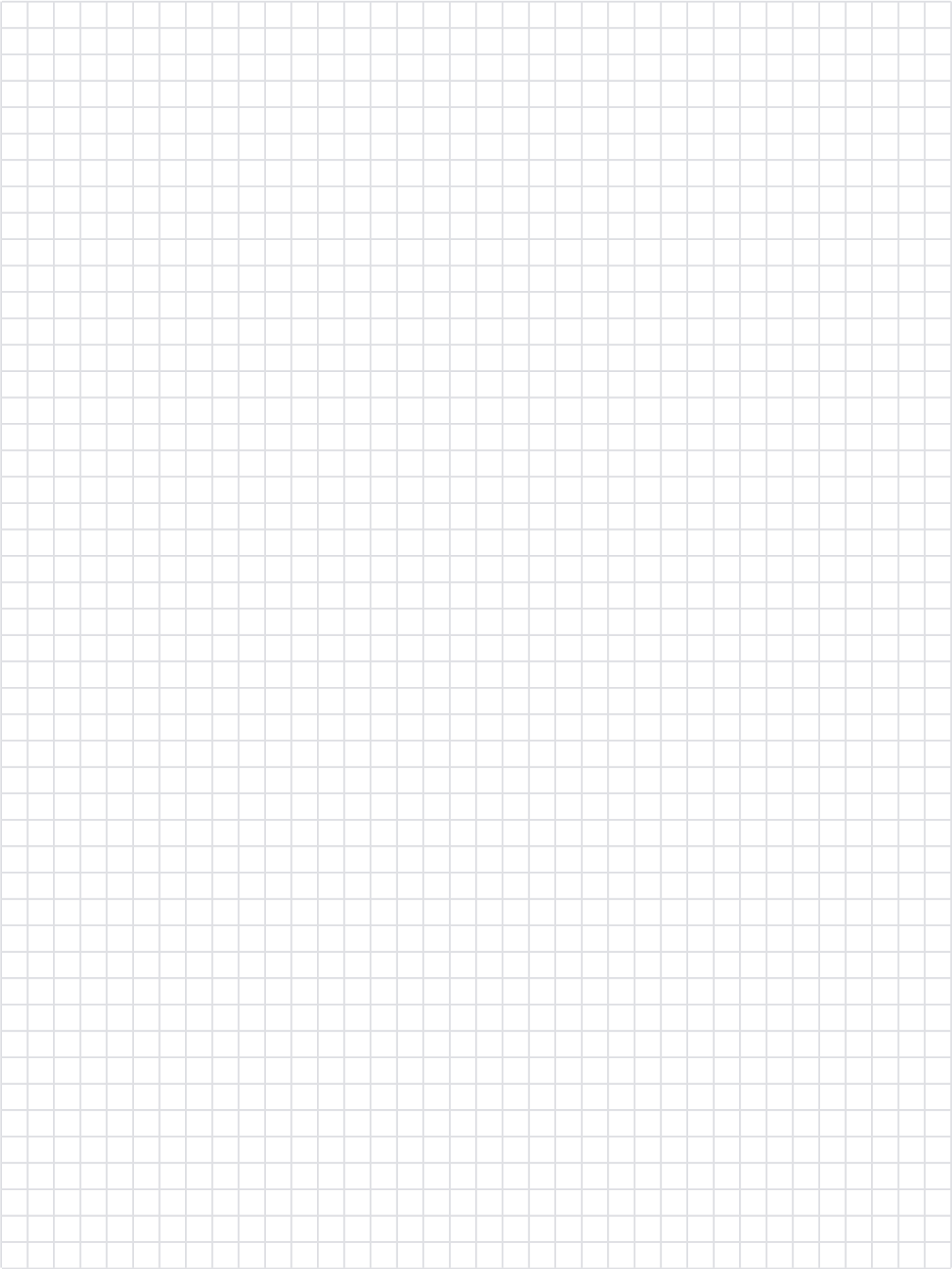
B:MACS Panel PC Visualization examples



B:VRG Chartplotter Visualization examples



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