

Monitoring, Control and Navigation Systems

Recreational and Commercial Marine

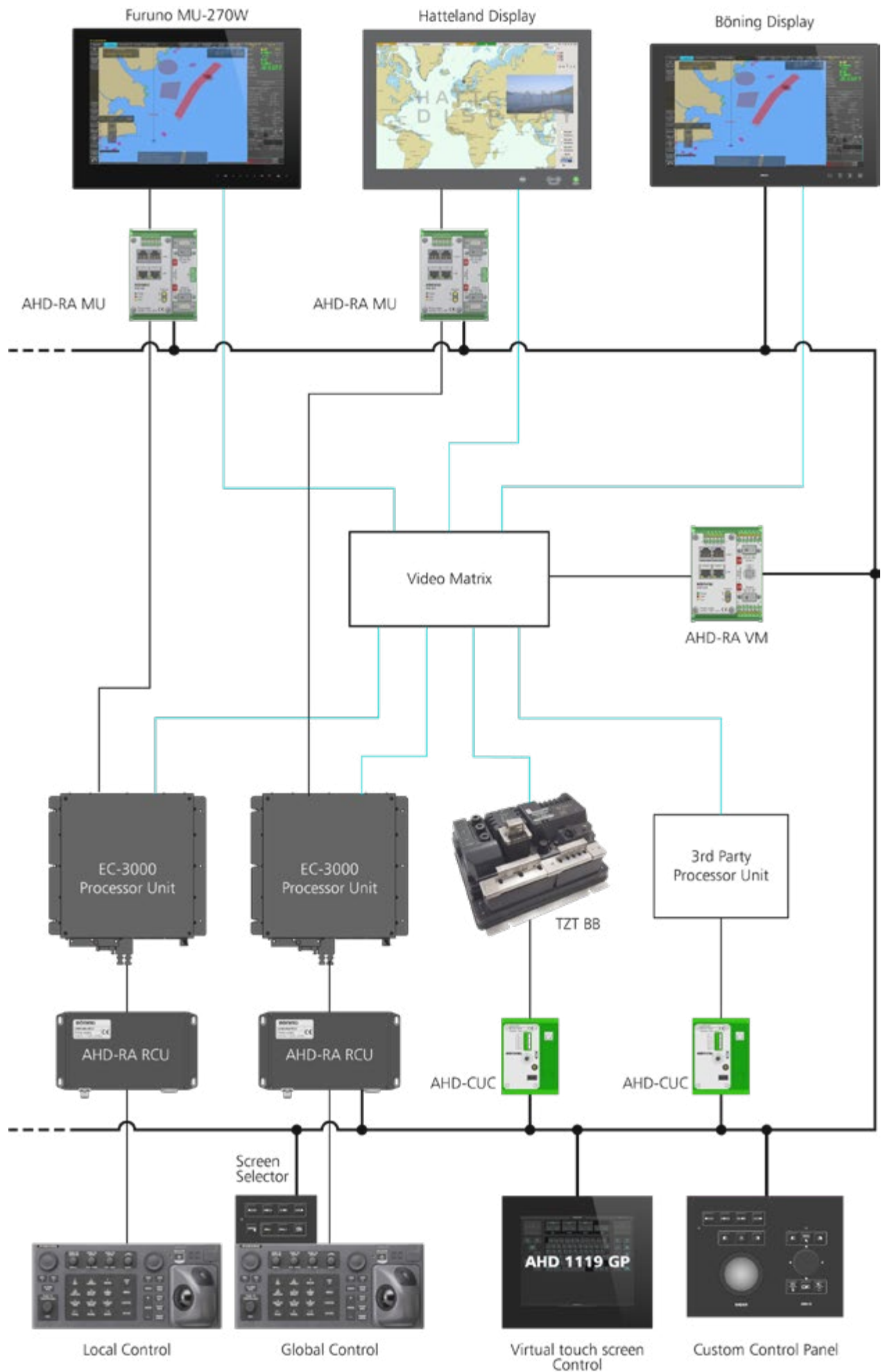
# Integration Concept







Integrating Furuno and Böning Components



# Integrating Furuno and Böning Components

The seamless integration of Böning components into the Furuno world aims to increase the overall flexibility and usability of the navigation and automation system. The necessary device or series of devices reads signals from Furuno input, display and VHF units, is failsafe and distributes commands via CAN Bus or Ethernet. This way, the following features shall become available:

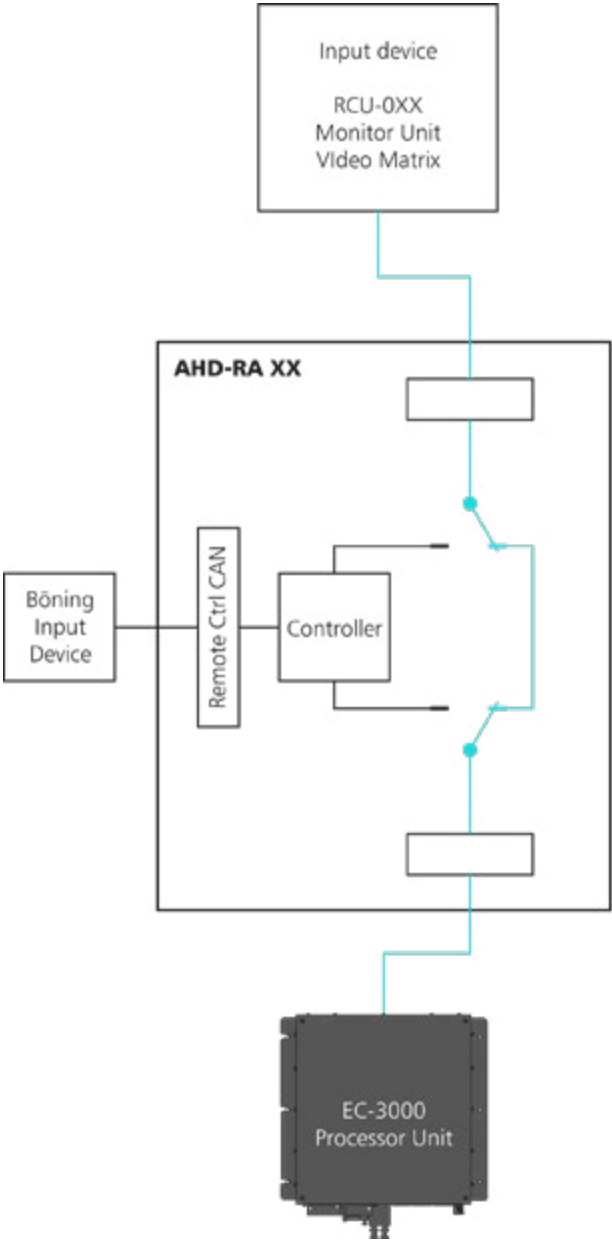
- Using any RCU for any Processor on any given monitor
- Emulating an RCU with a virtual keyboard on a Böning touchscreen or using a custom keyboard panel
- Switching any video source on a video matrix to any monitor
- Using a trackball or custom control panel to control any monitor
- Common dimming
- Emulating VHF on a Böning touchscreen or custom control panel

The new device is an adapter unit for its specific task with its own 24V power supply, reading inputs from a source and feeding them to members of a CAN Bus network.

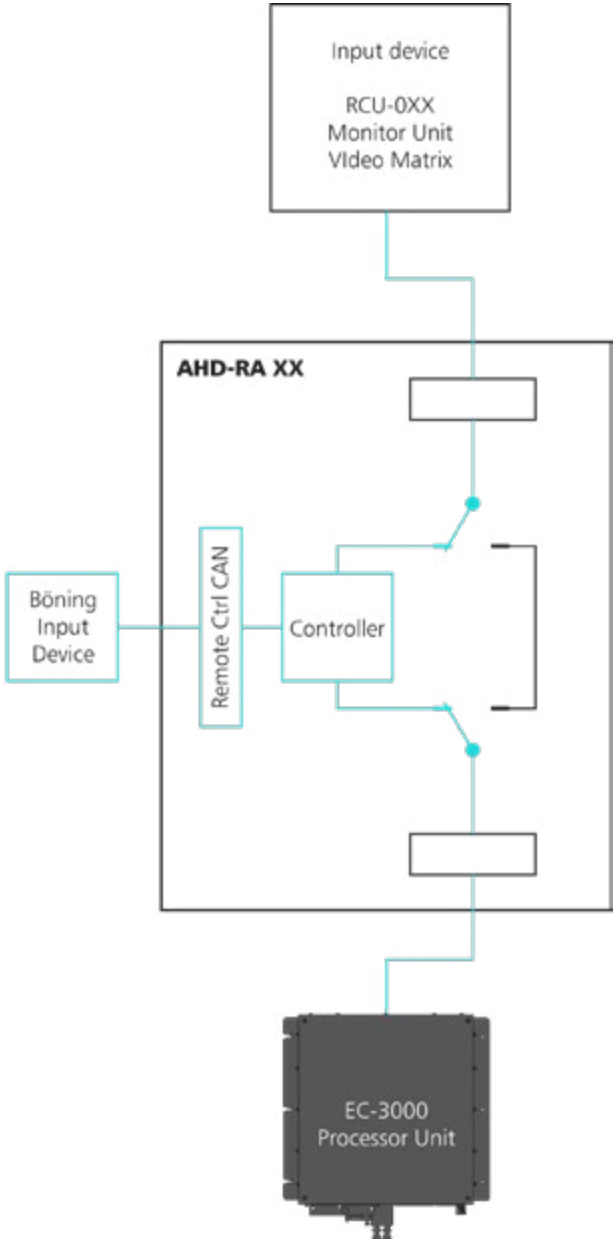
AHD-RA is the basic name (RA=Remote Adapter) followed by its designated task as follows:

- AHD-RA RCU  
Interface for RCU-024 and RCU-025
- AHD-RA MU  
Interface for Furuno and Hatteland monitors
- AHD-RA VM  
Interface for Video Matrix devices
- AHD-RA VHF (not in schematic)  
Furuno VHF interface

- DVI Video
- Serial Connection
- Remote Control CAN Bus



Failsafe Operation - Direct Connection



CAN Bus active - Network Connection

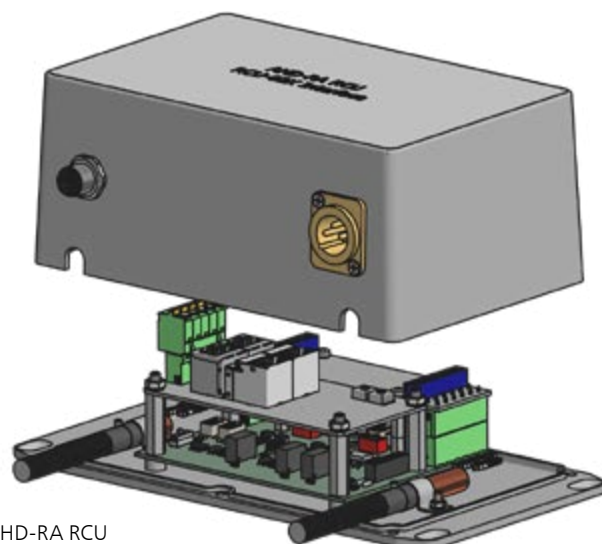
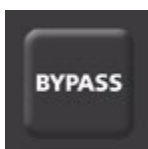
# The Converter Device

## Basic Functionality

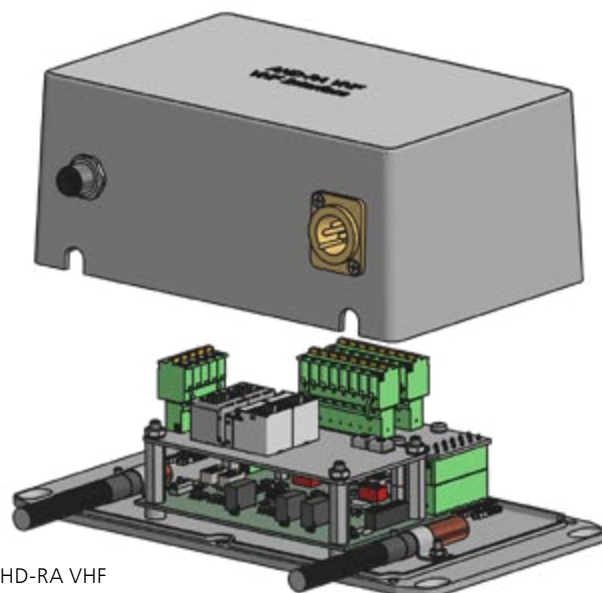
The device reads signals from an input device using its standard connections. Via relays, the signals can either be passed through a controller or bypass it completely. When the controller is active, the signals are broadcast on the remote control CAN Bus (Ethernet on AHD-RA VHF).

In case of an electronics or software failure, the relays will enable a direct connection between RCU and processor, making the device completely failsafe.

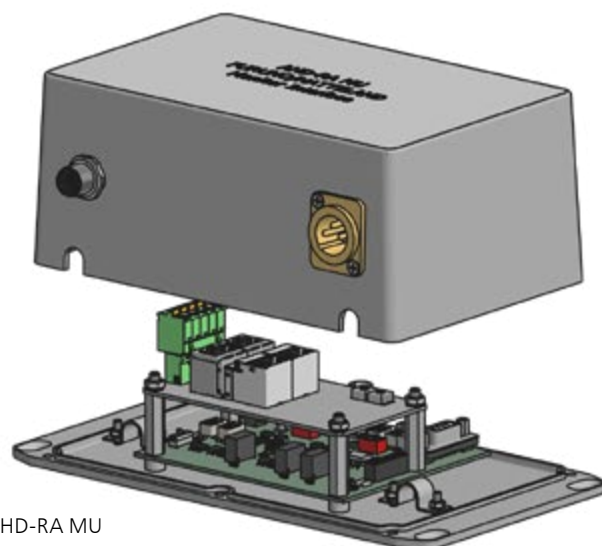
In some cases, it may also be desirable to manually bypass the AHD-RA electronics. This may be carried out by an additional button on the custom control panel.



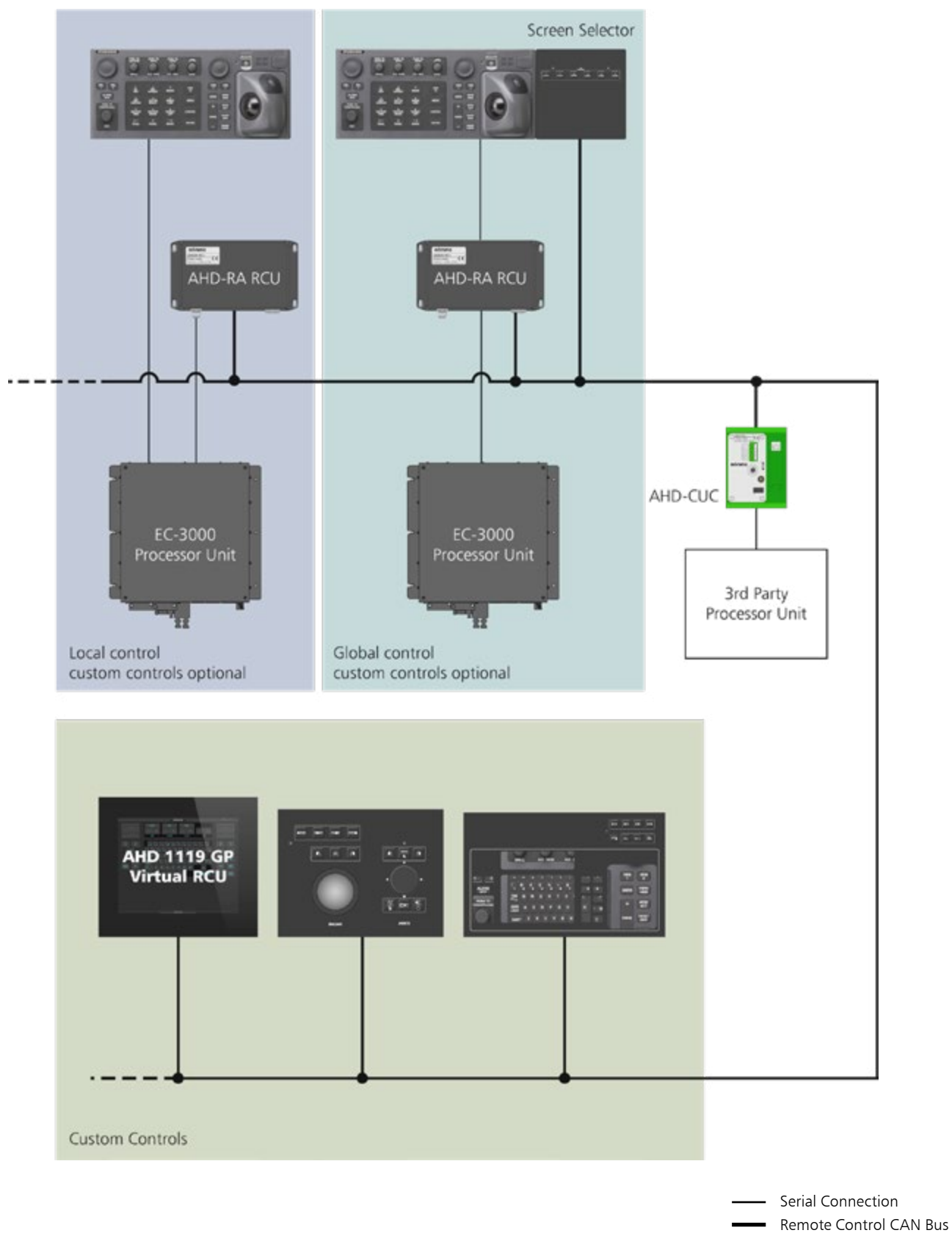
AHD-RA RCU



AHD-RA VHF



AHD-RA MU





# AHD-RA RCU

This device connects to the remote control CAN Bus and to processing units. This way the user can use one keyboard for multiple processors. For every keyboard and processor in the system one adapter AHD-RA RCU is required.

## ■ Local Control

When an RCU is meant to control one dedicated processor only, the AHD-RA RCU can be added as a way to make this processor controllable by other custom controls.

## ■ Global Control

To enable one RCU to control any processor, connect it to the AHD-RA RCU and the commands will be distributed via remote control CAN Bus. An additional Screen Selector Panel is required to select the desired processor.

## ■ Failsafe

In case of an electronics failure, the keyboard commands are still directly transmitted to the processing unit.

## ■ 3rd Party Devices

In case there is a third party processor in the system, it can be connected via USB converter AHD-CUC and controlled via trackball and mouse buttons.

## ■ AHD-USP Screen Selector

Screen/Processor Selection can be carried out by buttons on AHD-USP installed close to the keyboard.

## ■ Custom controls

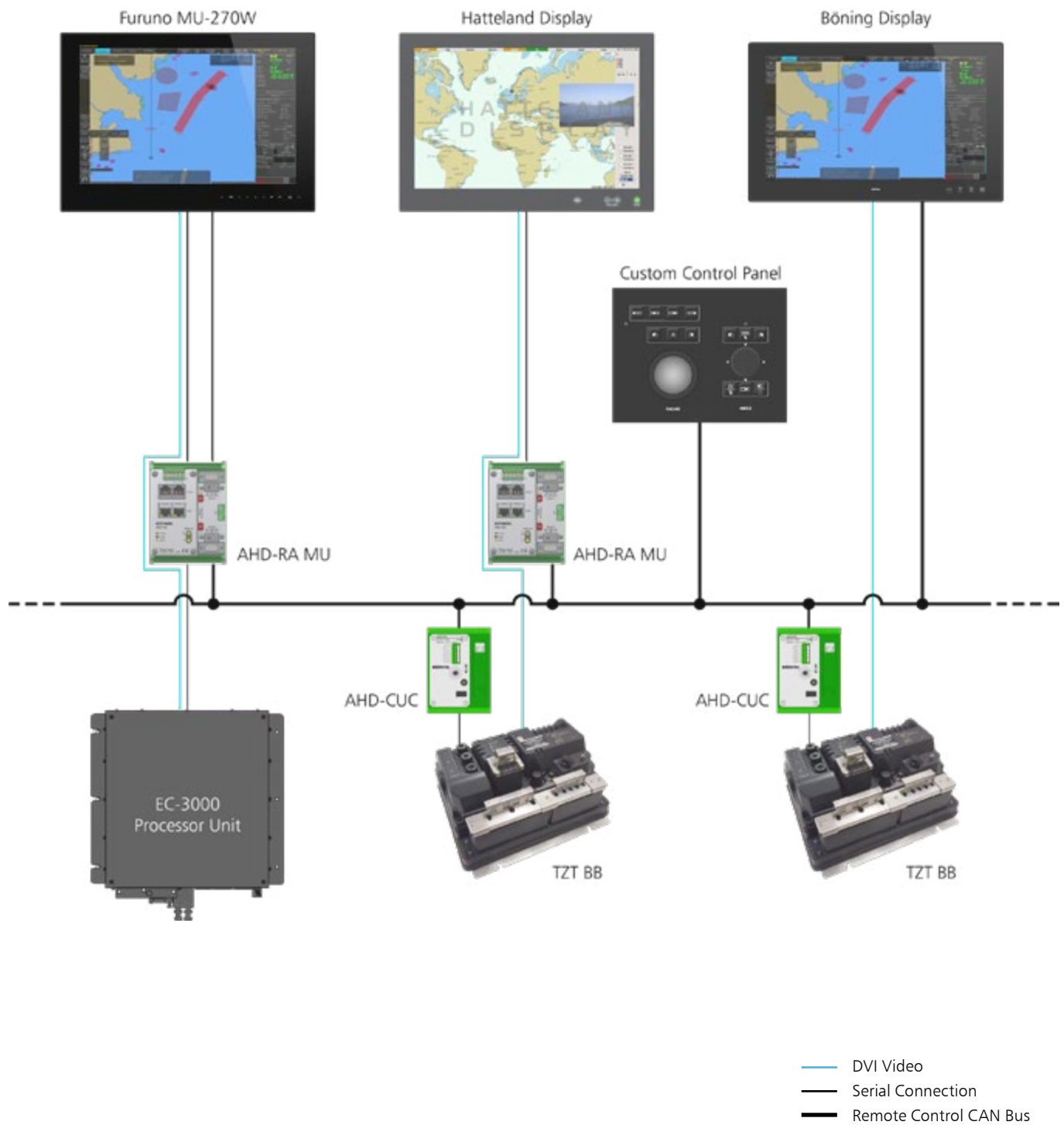
For more flexibility in bridge design, alternative control methods are available. AHD 1119 GP features a fullscreen keyboard mimicking the RCU. With a custom control panel, user specific variants of the RCU can be created.



Virtual radar keyboard



Virtual ECDIS keyboard



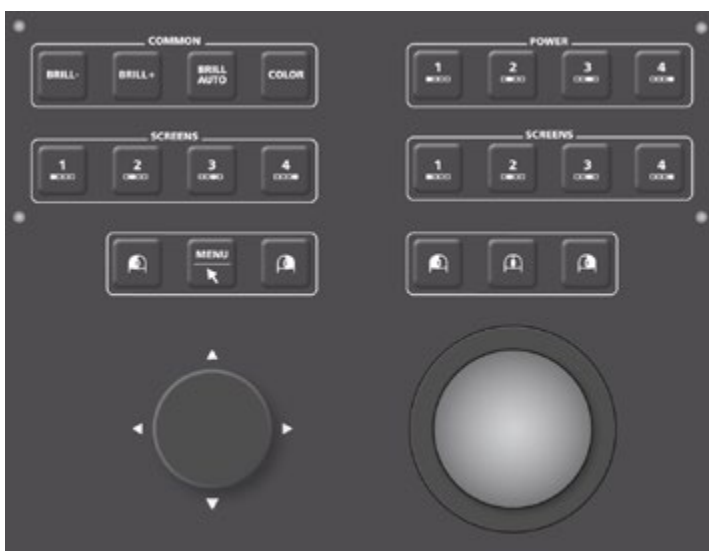
# AHD-RA MU

This device connects display units via the remote control CAN Bus. When a display is connected, the following features are available:

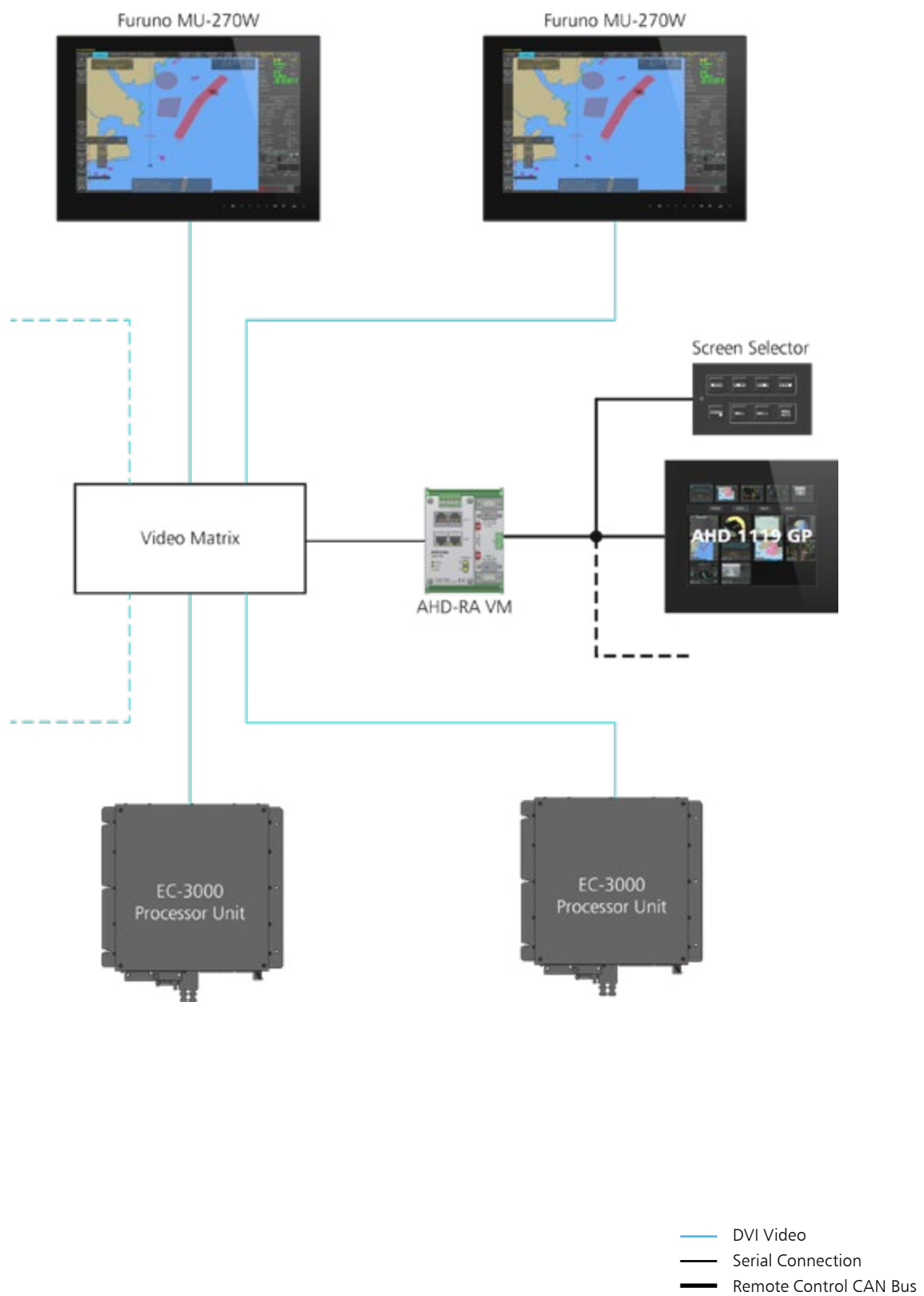
- Common Dimming  
Access to global dimming settings.  
Local dimming remains available.
- Remote Power On/Off  
Remotely switches the power of monitors on or off.
- Universal Control Commands  
All control commands on the remote control CAN Bus can be transmitted to any screen regardless of its type and the processor it is connected to.

When a Hatteland Display is used, the available commands are: On/Off, Source Selection and Dimming.

When the Furuno MU-270W is used, the available commands are: Source Selection from DVI1 and DVI2, Dimming



Example of a custom display control panel



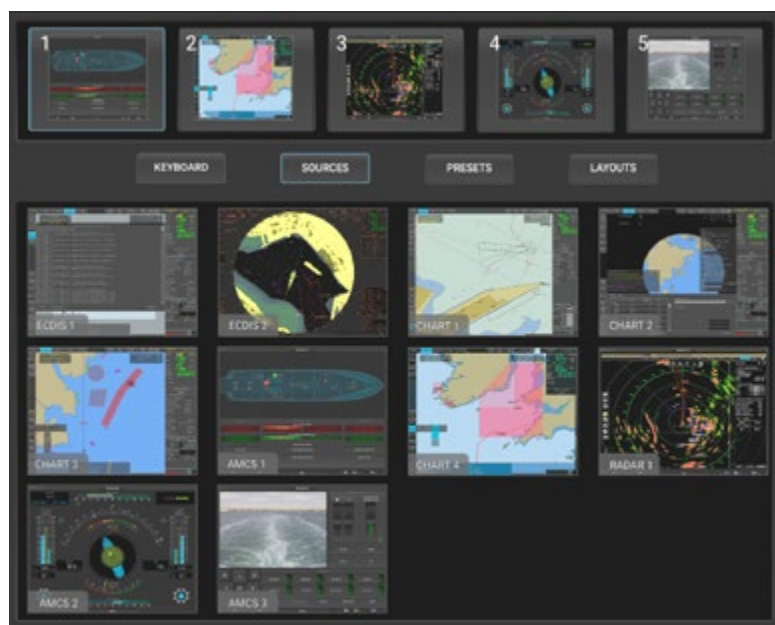


# AHD-RA VM

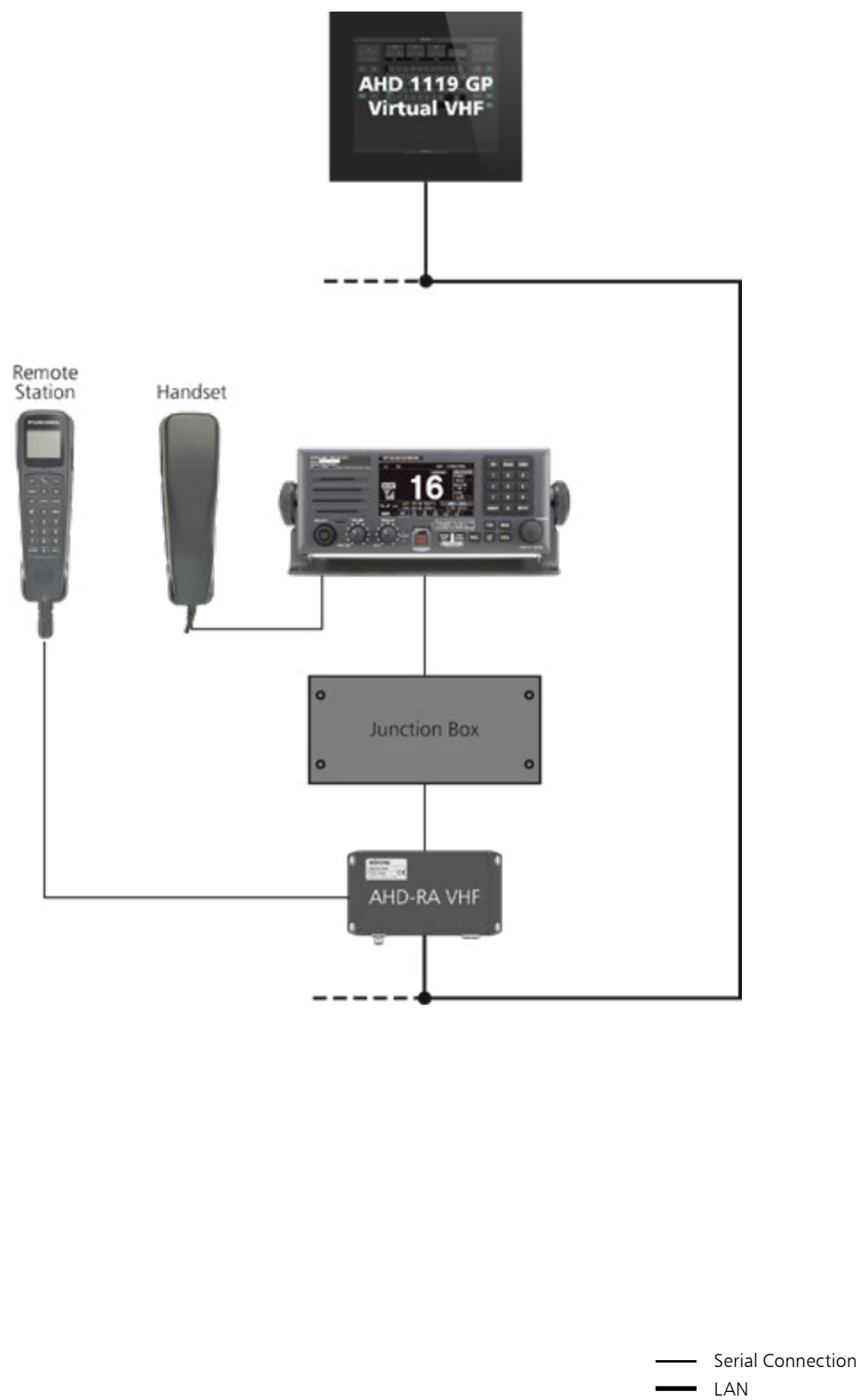
With this adapter, a video matrix device can be controlled via any Böning CAN-Bus device such as AHD 1119 GP or buttons on a custom control panel. In this way, you can freely select a video source for every monitor.



Example of a custom video matrix control panel



Example of a custom video matrix control page on AHD 1119 GP



# AHD-RA VHF

This device is a failsafe means to control a Furuno VHF remote station by a CAN-Bus device such as the AHD 1119 GP or a custom control panel. The available remote station functions are:

- DW

DW function on or off.

- HI/LO

Changes the output power to high (25W) or low (1W).

- CH16

Switches to the RT (radiotelephone) screen and sets CH16.

- SCAN

Turns the scan function on or off.

- SQ\*

Adjusts the squelch.

- VOL\*

Adjusts the volume.

- MUTE\*

Turns the loudspeaker on or off.

- MENU\*

Opens or closes the menu.

- CONTRAST\*

Adjusts contrast settings.

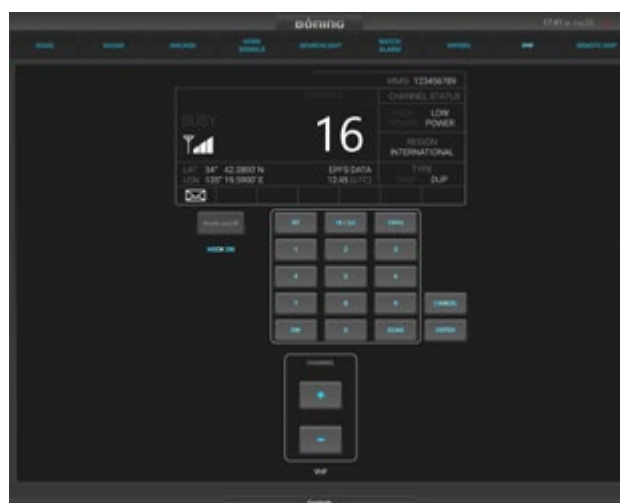
- BRILL\*

Adjusts brightness settings.

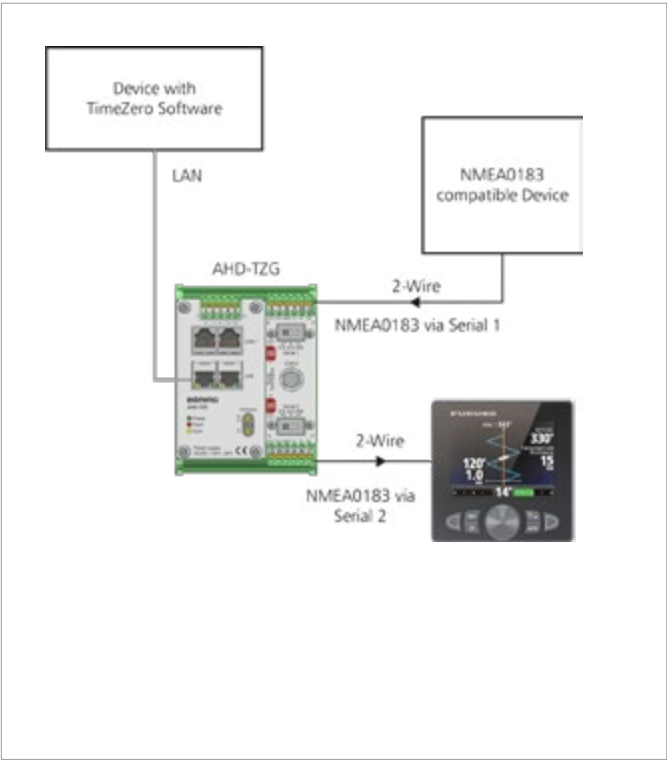
- CHANNEL SELECTION

Changes the channel to communicate on.

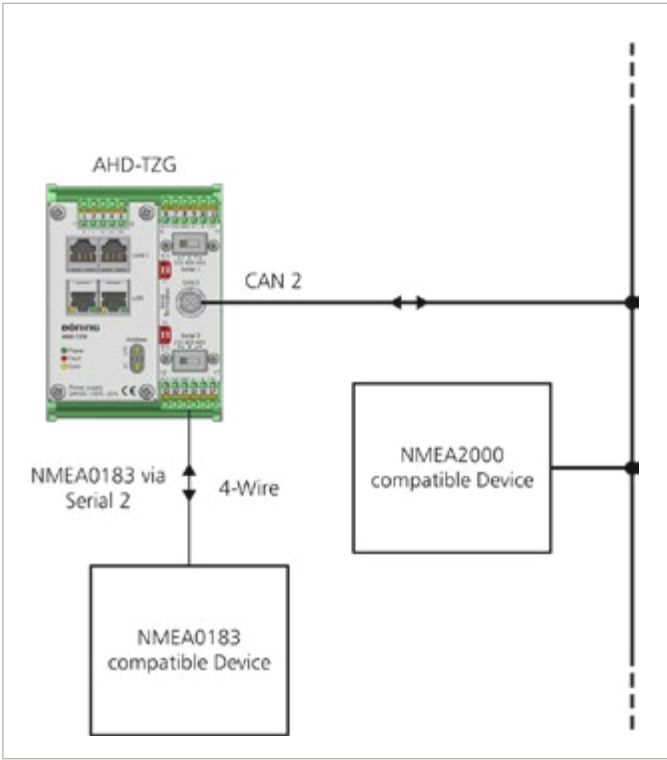
\* These features are only available when a remote handset is present.



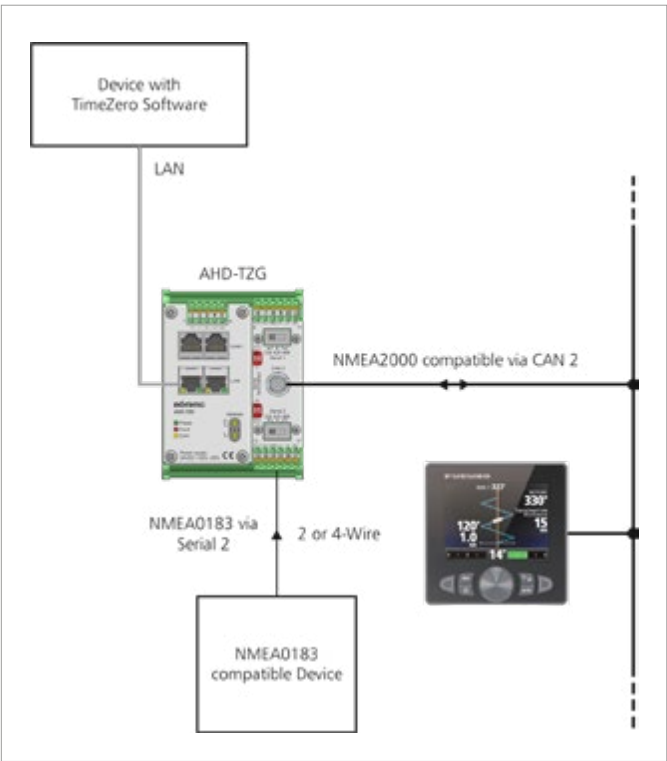
# optional configurations



This configuration allows to receive data from an NMEA0183 device and transmit it to a TimeZero device.



This configuration allows AHD-TZG to be used as a converter between NMEA0183 and NMEA2000 devices.



This configuration allows to receive NMEA2000 and NMEA0183 data and send it to a TimeZero device.

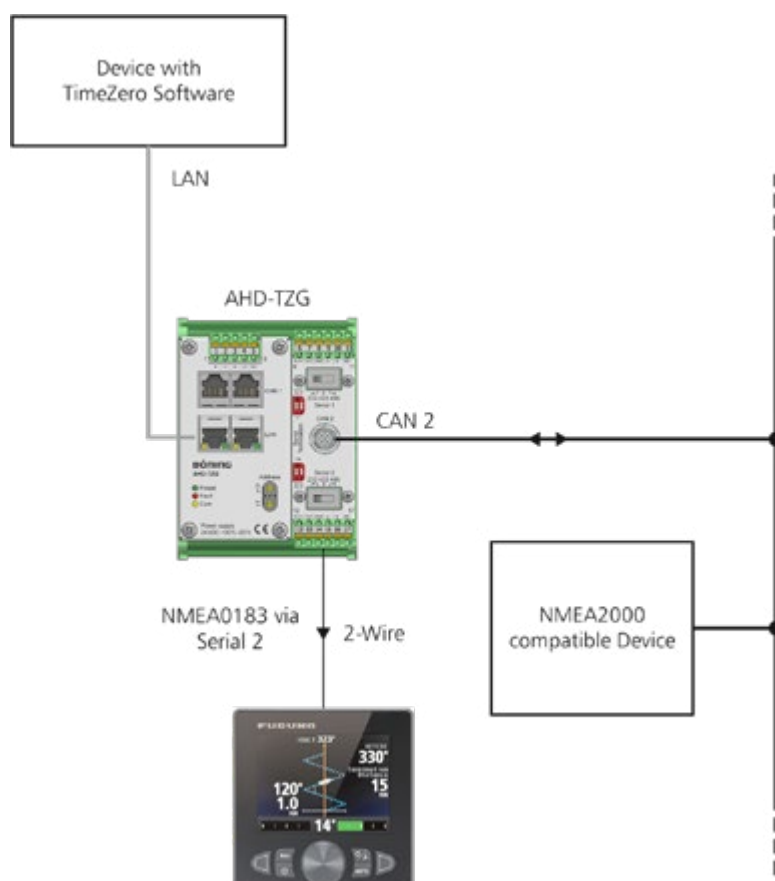
- Serial Connection
- LAN
- CAN

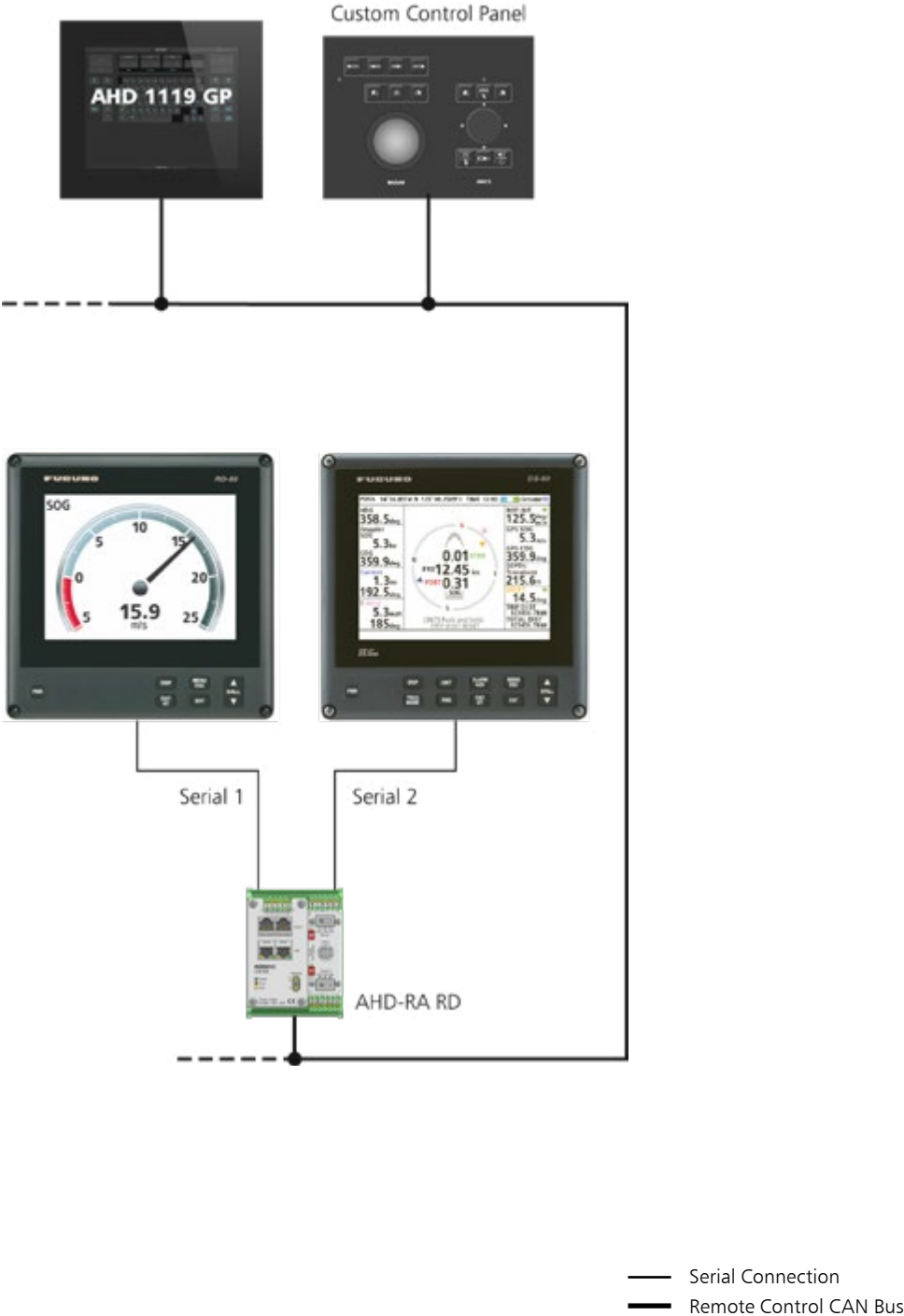


# AHD-TZG

This „TimeZero Gateway“ is a data distributor for various data on the ship network between TimeZero and NMEA devices.

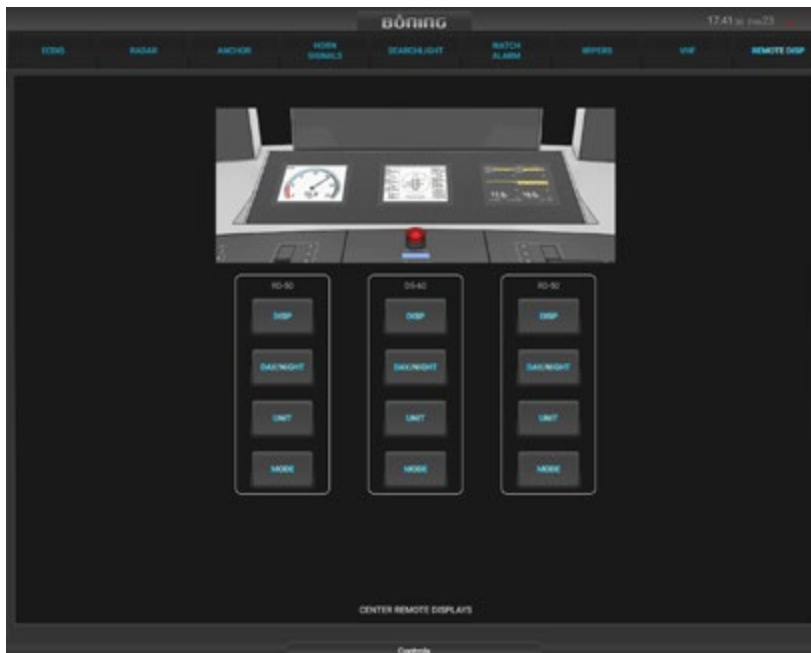
This main configuration allows to receive and send NMEA2000 data and to transmit it to an autopilot and a TimeZero device.





# AHD-RA RD

This device provides remote control CAN access for Furuno RD-50 and DS-60 for remote dimming and operation.



Visualization screenshot of display controls

[www.boening.com](http://www.boening.com)



**Böning Automationstechnologie  
GmbH & Co. KG**

Am Steenöver 4  
27777 Ganderkesee  
Germany

Phone: +49 4221 9475 0  
Fax: +49 4221 9475 222  
Email: [info@boening.com](mailto:info@boening.com)