



ALPHATRON  
Marine



# AlphaLine Repeater

A new generation of displays

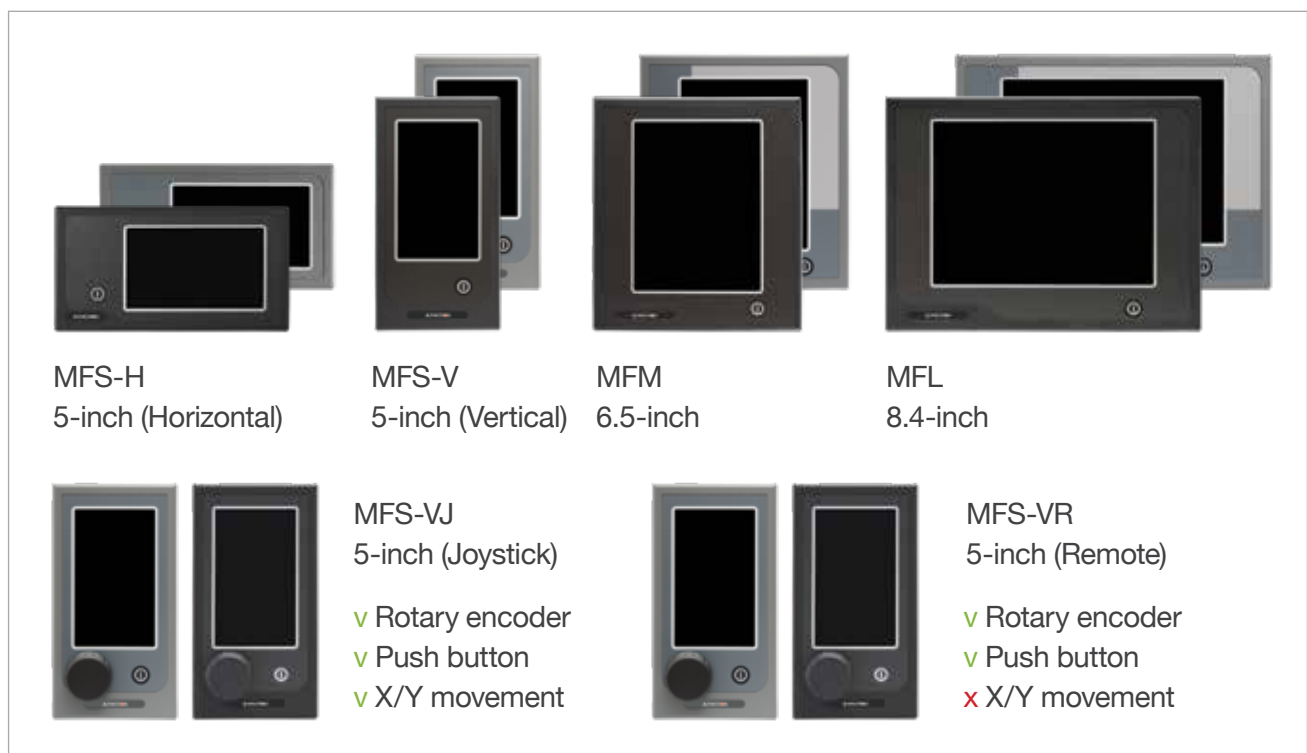
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# A new standard

Smart, clear, consistent, safe, just some of the ways to describe what the AlphaLine Repeater Display series of navigation and communication instruments bring to the bridge of the future. A full lineup of instruments that are easy to operate via an intuitive color touchscreen display, which is available in three standard sizes and two colors that form a well-aligned complete whole. A software-driven instrument line that will meet the requirements of information displays for use in the marine and offshore sector.

## Choose a display then software, or vice versa

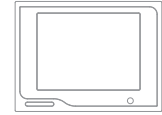
The nautical instruments can act as a standalone indicator or as a repeater for measurements such as speed, depth, time, wind speed and direction. In the AlphaLine displays we offer a complete series of sophisticated instruments typified by uniform design and simple operation. Besides touchscreen control we also have a version supported by a multifunctional rotary knob or joystick operation whenever more functionality is needed.



The TFT displays can also be used outside according to DNV 2.4 standard, front IP56 and rear IP22. The touch screens can be easily read during daylight but also in darkness, with excellent clarity, even when viewed from a wide angle.

# Display sizes

The most suitable arrangement of instruments and screen sizes can be selected for every type of ship. Depending on the application or information required, the software can be installed for merchant or inland shipping.



Product	MFS-H	MFS-V	MFM	MFL
AlphaHeading	v	v	Ⓟ	Ⓟ
AlphaHeading+				Ⓟ
AlphaTMC		○		
AlphaTMC+		○		
AlphaDepth	v	v	v v	
AlphaDepth Single			v	
AlphaSpeed	v	v v	v	
AlphaSpeedLog			v	v
AlphaTime	v	v	v	v
AlphaRudder		v	Ⓟ v	
AlphaTurn			Ⓟ v	v
AlphaTurn (optional rudder)			□	□
AlphaRudderTurn			v	v
AlphaWind			v	v
AlphaWind (relative)		v	v v	
AlphaMeteo			v	v
AlphaMeteo (relative)			v v	
AlphaNav				v

v Repeater

v Repeater River

○ IMO approved indicator

□ CCR-ZKR approved indicator

The AlphaLine Repeater displays have all software versions of different instruments built in and at the time of installation a particular function can be selected. However, the AlphaLine "indicator" displays have dedicated software for a particular application which cannot be changed and is as such certified and MED approved as part of a complete system.

# Discover the software versions. On a single hardware platform.



## Heading

Shows the ship's heading information from a standard ship's compass.



## Heading+

Shows the ship's heading from a standard compass and an analog scale in tenths of degrees.



## TMC

Shows a digital read out of the analog magnetic compass.



## TMC+

Shows a digital read out of the analog magnetic compass and with GPS connected true heading is available.



## Depth (Sea)

Shows depth, shallow depth alarm and selectable depth scales and units.



## Depth (River)

Shows two depth readings simultaneously from both transducers installed.



## Depth Single

Shows, similar to the sea version, single depth information.



## Nav

Shows the ship's speed, heading and depth info.



## Speed (Sea)

Shows the ship's speed in knots (either from single GPS antenna or speed log).



## Speed (River)

Shows the ship's speed in km/h (either from single GPS antenna or speed log).



## Speed log

The speed log uses two GPS sensors (bow/stern) and a heading sensor (gyro) to calculate longitudinal and transversal ship speed, useful in docking and slow speed maneuvering. The system can also be used as a generic speed log repeater for showing SOG or STW info.



## Rudder (Sea)

Shows the rudder angle (with needle up) is if required expandable with a rudder feedback unit.



## Rudder (River)

Shows the rudder angle (with needle down) is if required expandable with a rudder feedback unit.



## Turn (Sea)

Shows the ship's Rate of Turn (ROT) from a standard ship's compass.



## Turn (River)

Shows the ship's Rate of Turn (ROT) mandatory for all inland vessels, which have also installed a river radar.



## RudderTurn

Shows the Rudder and Rate of Turn (ROT) on a single screen, particularly useful while maneuvering.



## Time

Shows the actual date and time, can also be connected to GPS for time synchronization.



## Wind (Sea/Relative)

Shows the relative and/or true wind info received from compatible wind sensor.



## Wind (River)

Shows the relative wind info received from compatible wind sensor.



## Meteo (Sea/Relative)

Shows true and/or relative wind and meteo info such as atmospheric pressure and temperature.



## Meteo (River)

Shows relative wind and meteo info such as atmospheric pressure and temperature.



## Uniform user interface

With just one physical button on the display, the three display sizes may be the first thing you notice. But there is so much more. Our engineers have created a beautiful platform for the software driven instrument line. The three display sizes may be horizontal or vertical, regardless of which of the many different products software is installed. The graphical user interface is logical, easy to use and consistent throughout.

This uniform approach and complete range of sophisticated display lines have been built from the ground up and inspired by JRC's Multi Function Display (MFD). Think of logic of operation, finding menu buttons and even the color palette have been shared to create a consistent bridge and operational approach. This allows the operator to familiarize easily with our product range, whether it is the AlphaLine Repeater, JRC's MFD or any of the navigation and communication products that will be introduced in the near future.

Day



Dusk



Night



## Day, dusk, night and more

All our instruments feature dim backlighting from 0 to 100% from a central dimming system and have a theme-option available from the menu. This theme-option has three backlight presets where contrast and color are set in a fixed value and can be easily adjusted to day, dusk and night. Within these presets, a customer is able to do manual dimming with small increments.

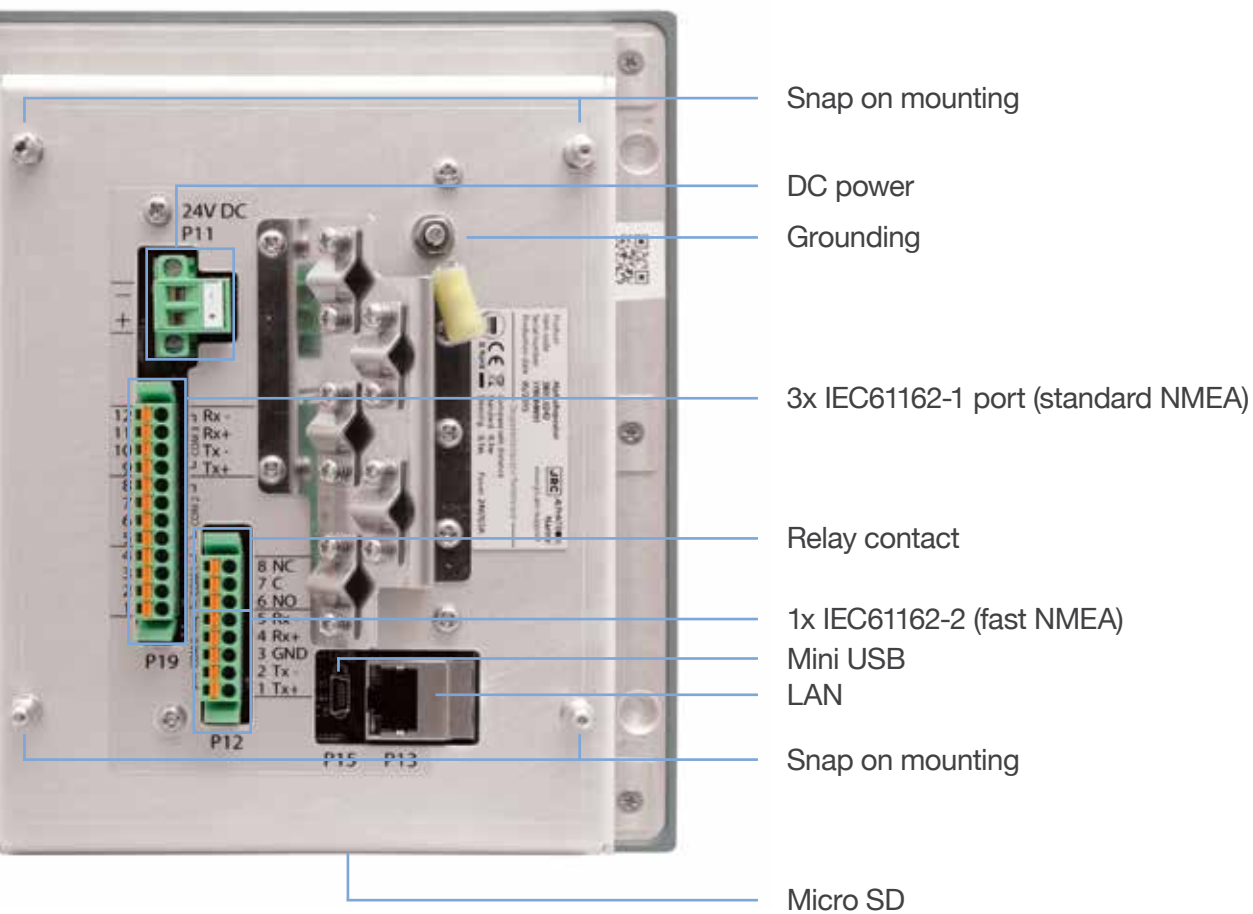
## Gloves

Considering the working and environmental climate, we have opted for resistive touch displays, allowing operation while the display is wet or with gloved fingers.



# Extensive interfacing

Regardless of display size each display has a wide range of data inputs and outputs as standard. It features a LAN interface and four NMEA ports. All data ports are galvanically isolated, full duplex and supporting signals according to the NMEA standard. Also Modbus for serial communication with industrial controllers such as Programmable Logic Controllers (PLC's) are supported. Next to this, all products are provided with a relay with normal open and closed contacts, a mini-USB port for connecting a trackpad and a mini-SD card port for software updates or maintenance. MF displays variants do not contain moving parts and feature a static cooling system.

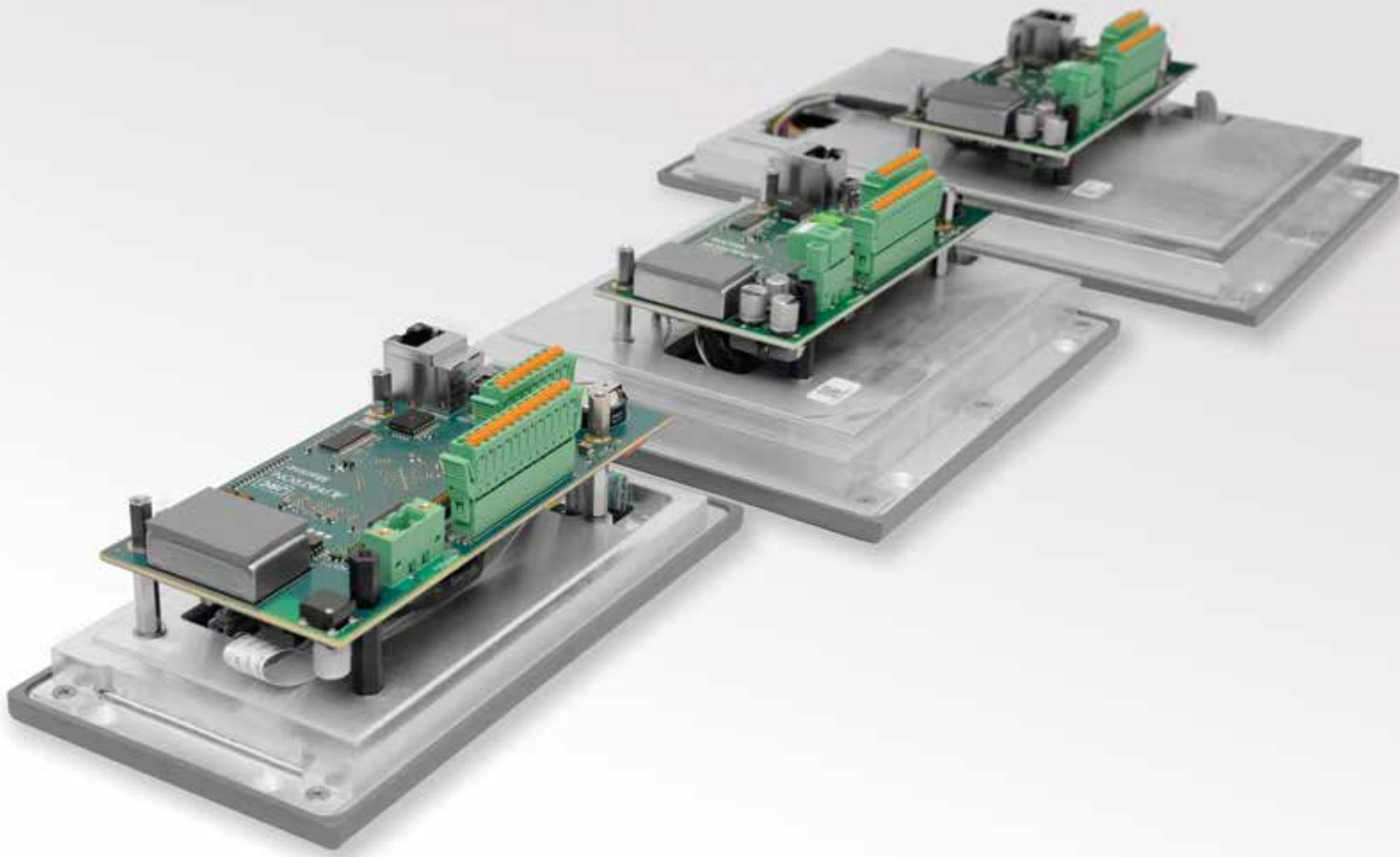


# Type approved

All AlphaLine Repeater displays and accessories are designed for the industrial environment found on board of ships with respect to physical as well as electrical environment, and as such have been separately certified and comply with the marine IEC60945 and latest DNV 2.4 standard. By meeting these rigorous test standards we can ensure years of problem free operation.







## One PCB for all

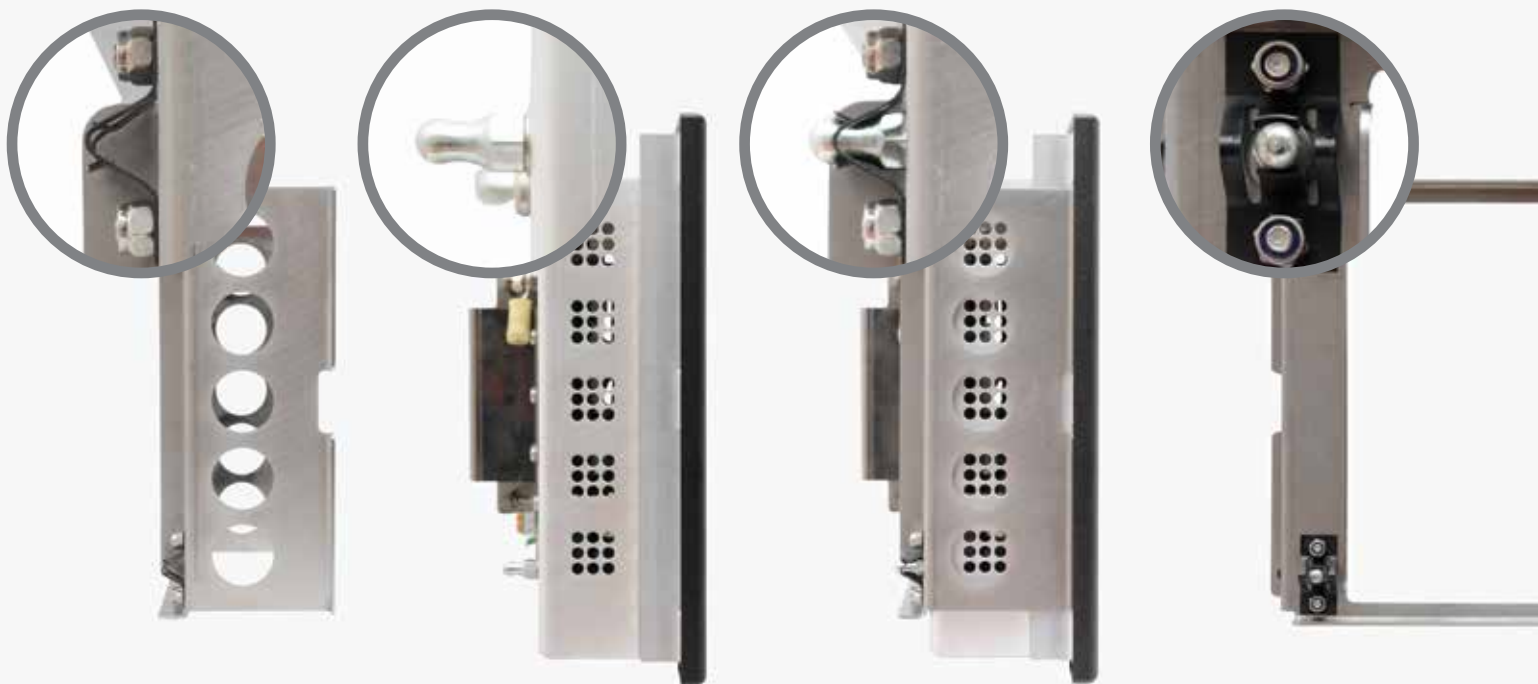
While developing the hardware we decided not to use a standard computer, but designed a dedicated computer board instead. This computer board is the same across the entire display line making maintenance easier and allows for a cost-effective approach throughout the display line. It also guarantees our ability to supply spare parts for many years.

It is designed with many features that off the shelf industrial computers do not have. Think of 4 integrated IEC61162 ports, relay contact, wide power supply range and temperature stability from -25 to 70 degrees. The performance is highly optimized both in computer design as in software to deliver PC performance on a very power efficient system by using a 182Mhz CPU instead of gigahertz performance other systems require.



# Snap on mounting

Standard in the box is our famous and unique snap on flush mount system, making it possible to fit the display without tools. After cutting a hole that fits the mounting frame, the display can easily be pushed into the frame and kept in position by a click/spring system. As a result a minimal amount of screws or mounting bolts are visible and allows for easy maintenance.



# Desktop and ceiling mounting

Desktop or ceiling mounting for the 6.5-inch display is optionally possible using a ruggedized and watertight bracket.





# Touchpad

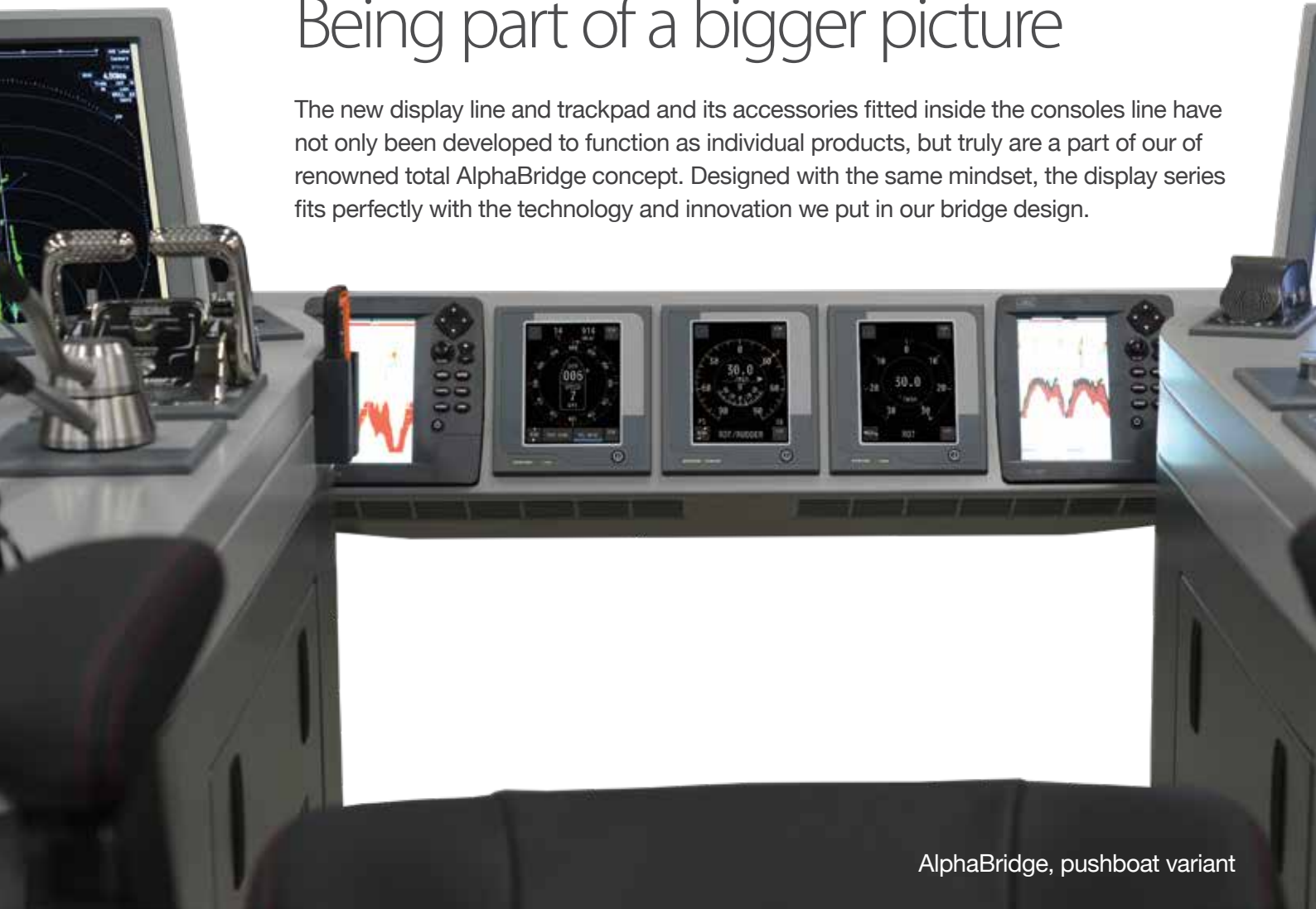
Full, flexible and ergonomic control is a leading principle in the AlphaBridge system, with trackpad control of the same type and quality as used by the aviation industry. Available in grey or black, the touchpad acts as a standard mouse, suitable for left and right-handed operation on any USB capable workstations. This touch pad is extremely suitable for wheelhouses which endure vibration for example, when a lot of engine power or thrust is used. With the touchpad having no moving parts and thus no rolling ball, the cursor is left at exactly the same position as the last operation. Naturally a speaker is integrated for audible feedback when needed.




The touchpad includes our snap on mounting system which allows for a straightforward installation.

## Being part of a bigger picture

The new display line and trackpad and its accessories fitted inside the consoles line have not only been developed to function as individual products, but truly are a part of our renowned total AlphaBridge concept. Designed with the same mindset, the display series fits perfectly with the technology and innovation we put in our bridge design.





Modules can be fitted on to a DIN rail.



AlphaTurn interface Mk2

## Rate of Turn

This is a digital interface for connecting and calibration of EBF rate of turn sensors. The module can be fitted on to a DIN rail. The information is provided in MODBUS format, making the sensor fit into the standard SCADA applications.

*Part of AlphaTurn CCR-ZKR approved indicator*



NMEA distribution module Mk2

## Data distribution

The NMEA distribution module is used when IEC61162 signals from a sensor must be distributed to multiple listeners. The system provides galvanic isolation between talker and listeners and between listeners to avoid problems when a listener is influencing the signal. Through BUSBAR connection you can create as many outputs as you want.



Analog interface Mk2

## Analog to digital

The analog interface converts analog to digital signals. Supported signals include 0-20mA, +/- 5/10/20V and potentiometer signal for using with dimmers or rudder feedback units. The analog interface converts the analog signal to a digital MODBUS and IEC61162-1 signal.



AlphaRemote control interface

## AlphaRemote

This remote control interface is a module for connecting PC equipment or JRC MFD workstations to an onboard LAN. The interface provides remote control capabilities to the connected equipment using the MFS with rotary encoder.



## Rudder feedback units

The rudder feedback units consist of aluminum housing and are available as medium or heavy-duty versions. The output can be connected to the analog module. The rudder feedback units contain a potentiometer, which is proportional to the rudder angle. Next to this, the heavy-duty version contains additional limit switches.

The rudder feedback units can be mechanically coupled to the rudder post by chain or a transmission link. The continuously transmitted accurate rudder angle data will be received by the analog interface. It converts the analog signal to a digital Modbus and IEC61162-1 signal and can be transmitted to any AlphaLine Repeater display capable of displaying graphical rudder information.

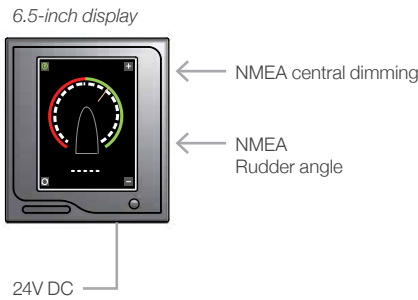
## AlphaTMC

The Transmitting Magnetic Compass (TMC) is a product used as an addition to traditional magnetic compasses. It is used to show the analog compass digitally, making the analog compass as usable as any other (gyro) compass. The TMC+ adds the possibility to connect a GPS antenna for position data and a calculation to show true heading as well.

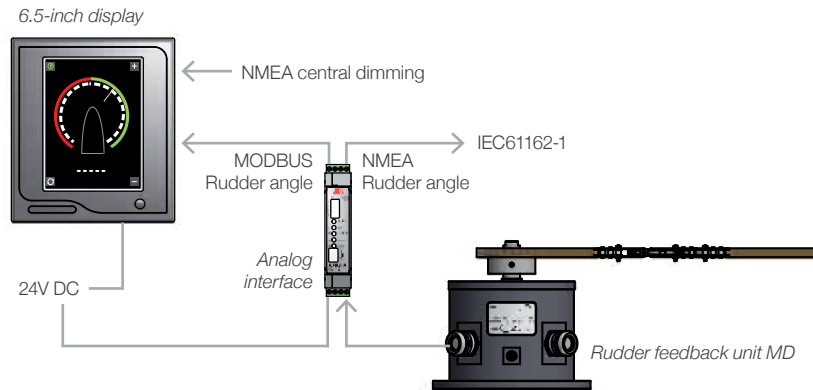
# Typical installation

As example, the picture on the left shows an repeater display as a rudder angle repeater. The picture on the right shows a display as a dedicated rudder angle indicator as part of a system, including an analog interface and a rudder feedback unit (with chain transmission).

## AlphaRudder Repeater



## AlphaRudder Indicator



## In the box

- AlphaLine Repeater display
- Sheet with front stickers
- Mounting bracket
- Screws (4 pcs)
- USB stick with manual
- Template for cutouts

A sheet with front stickers is included so that the commissioning engineer can place the relevant product sticker on front of the AlphaLine Repeater display with the correct name of the function of the instrument.

## Joystick/Remote/Indicators

MFS-VJ (Joystick)	● 3803.0234	● 3803.0236
MFS-VR (Remote)	● 3803.0238	● 3803.0240
MFS-V AlphaTMC (MED)	● 3105.0088	● 3105.0090
MFS-V AlphaTMC+ (MED)	● 3105.0092	● 3105.0094
MFM AlphaRudder (MED)	● 3109.0188	● 3109.0190
MFM AlphaHeading (MED)	● 3106.0110	● 3106.0112
MFM AlphaTurn (MED)	● 3108.0096	● 3108.0098
MFM AlphaTurn (River)	● 3108.0092	● 3108.0094
MFL AlphaTurn (River)	● 3108.0102	● 3108.0104
MFL AlphaHeading (MED)	● 3106.0114	● 3106.0116
MFL AlphaHeading+ (MED)	● 3106.0118	● 3106.0120

## Repeater display

MFS-H	● 3803.0226	● 3803.0228
MFS-V	● 3803.0230	● 3803.0232
MFM	● 3803.0242	● 3803.0244
MFL	● 3803.0246	● 3803.0248

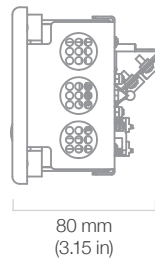
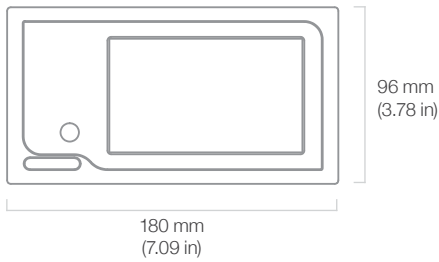
## Accessories

AlphaTouchPad	● 3402.0288	● 3402.0290
AlphaTMC interface box/sensor	3105.0096	3105.0098
ROT/AlphaTurn interface Mk2	3108.0100	
Analog interface Mk2	3109.0192	
NMEA distribution module Mk2	3401.0240	
AlphaRemote control interface	3402.0292	
Rudder feedback unit (RFU) MD/HD	3109.0194	3109.0196
RFU linkage/chain transmission	3109.0198	3109.0200

# Tech Specs

## AlphaLine MFS-H

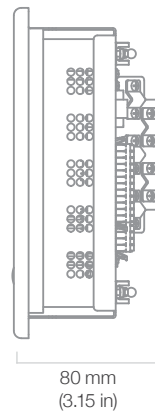
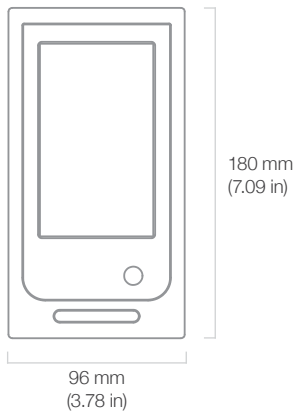
3803.0226 (grey), 3803.0228 (black) Weight 0.75 kg (1.65 lbs)



5-inch touch display  
800-by-480-pixel resolution  
Horizontal orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 170°  
Panel cutout 160x90 mm

## AlphaLine MFS-V

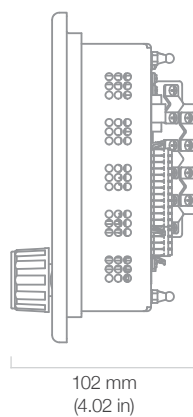
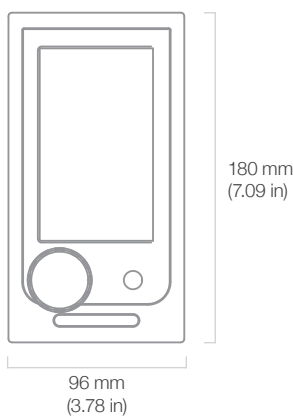
3803.0230 (grey), 3803.0232 (black) Weight 0.75 kg (1.65 lbs)



5-inch touch display  
480-by-800-pixel resolution  
Vertical orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 170°  
Panel cutout 90x160 mm

## AlphaLine MFS-VJ

3803.0234 (grey), 3803.0236 (black) Weight 0.77 kg (1.70 lbs)



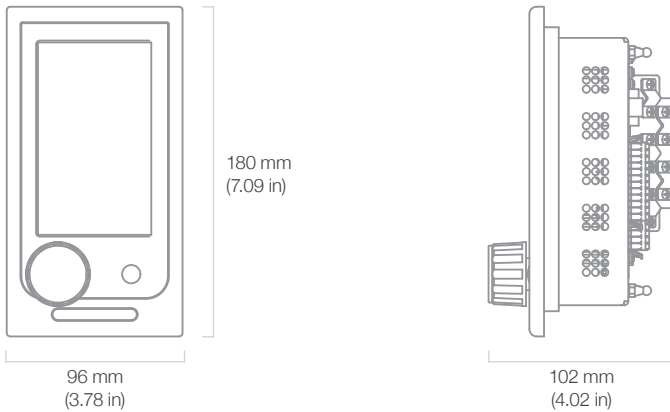
5-inch touch display with joystick  
480-by-800-pixel resolution  
Vertical orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 170°  
Panel cutout 90x160 mm



# Tech Specs

## AlphaLine MFS-VR

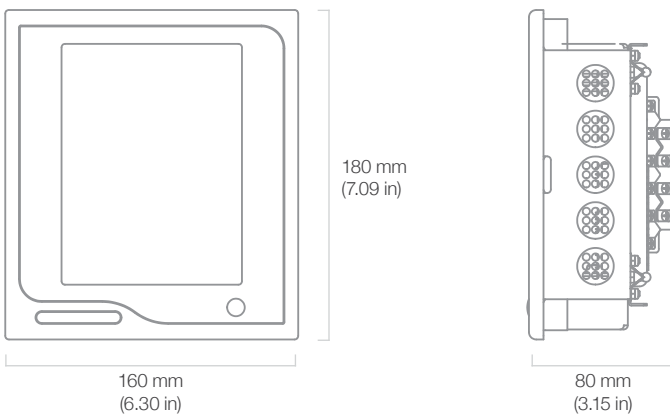
3803.0238 (grey), 3803.0240 (black) Weight 0.77 kg (1.70 lbs)



5-inch touch display with rotary encoder  
480-by-800-pixel resolution  
Vertical orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 170°  
Panel cutout 90x160 mm

## AlphaLine MFM

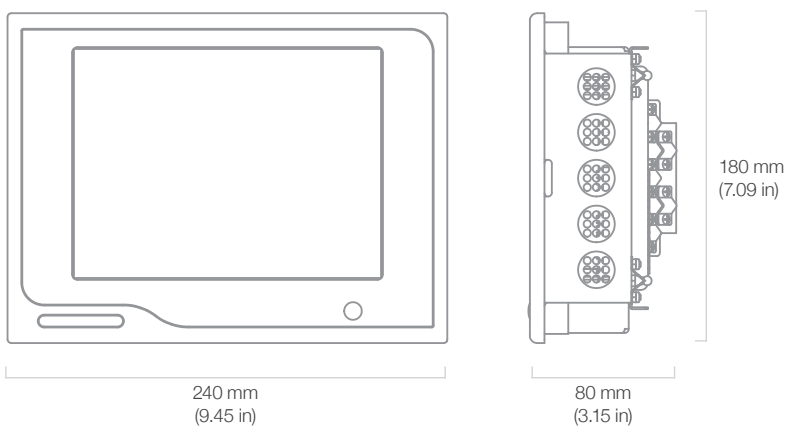
3803.0242 (grey), 3803.0244 (black) Weight 1.23 kg (2.71 lbs)



6.5-inch touch display  
480-by-640-pixel resolution  
Vertical orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 140°/160°  
Panel cutout 138 x172 mm

## AlphaLine MFL

3803.0246 (grey), 3803.0248 (black) Weight 1.83 kg (4.04 lbs)

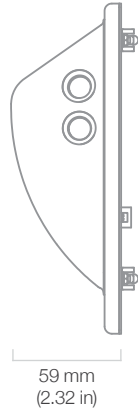
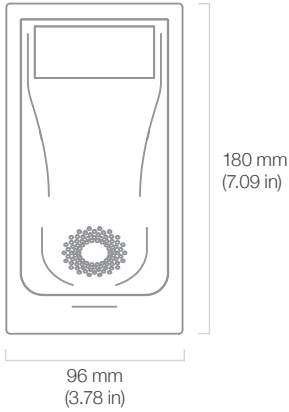


8.4-inch touch display  
800-by-600-pixel resolution  
Horizontal orientation  
450 cd/m<sup>2</sup> max brightness  
View angle (H/V) 170°  
Panel cutout 216x172 mm

# Tech Specs

## AlphaTouchpad

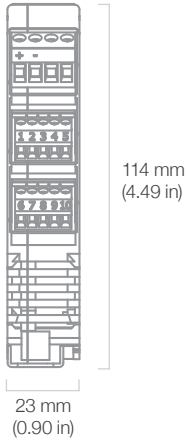
3402.0288 (grey), 3402.0290 (black) Weight 0.40 kg (0.88 lbs)



- USB interface
- Built in speaker (8Ω, 0.5W)
- No moving parts
- Temperature: -25° to 75°C
- Protection rate: IP56 (front)
- Snap on mounting
- Panel cutout 90x160 mm

## Analog interface Mk2

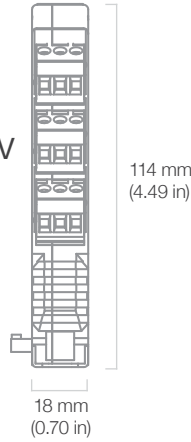
3109.0192 Weight 0.14 kg (0.31 lbs)



- IEC61162-1 serial port
- IEC61162-2 serial port
- Input 2x 0-20mA, +/- 5/10/20V
- Potentiometer input
- Outputs to:
- NMEA/MODBUS
- DIN rail installation

## NMEA distribution module Mk2

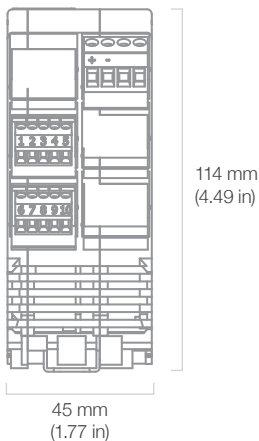
3401.0240 Weight 0.12 kg (0.26 lbs)



- IEC61162-1 serial port
- 1 input
- 4 outputs
- BUSBAR connection
- Master/slave/standalone
- Isolates listeners
- DIN rail installation

## AlphaTurn interface Mk2

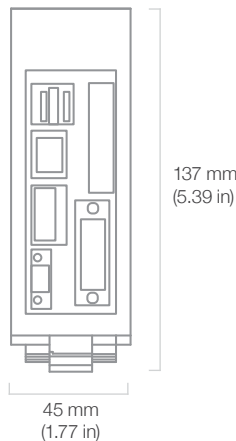
3108.0100 Weight 0.25 kg (0.55 lbs)



- IEC61162-1 serial port
- IEC61162-2 serial port
- Outputs to:
- NMEA/MODBUS
- Communicates with:
- ROT sensor/Autopilot
- DIN rail installation

## AlphaRemote control interface

3402.0292 Weight 0.30 kg (0.66 lbs)

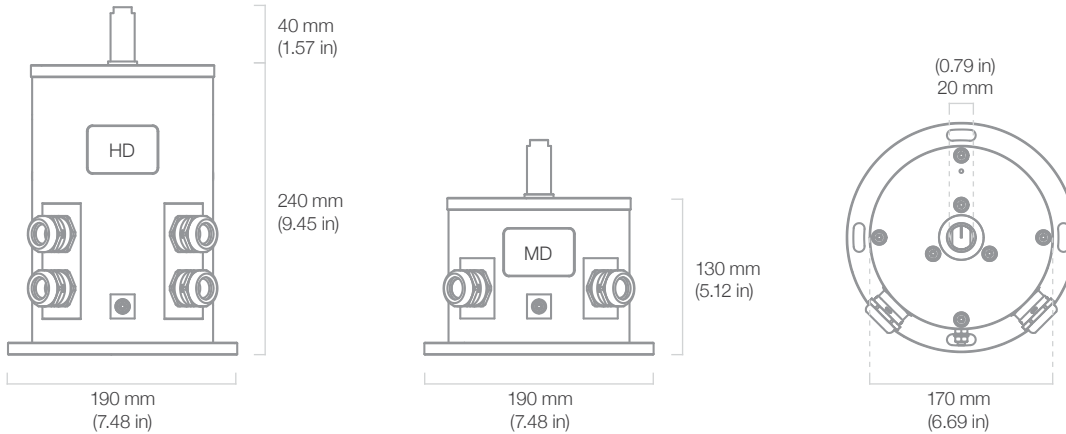


- Connection to PC or JRC MFD
- IEC61162-1 serial port
- Audio output
- IEC61162-450 ethernet port
- Relay contact
- Mini-USB connection
- DIN rail installation

# Tech Specs

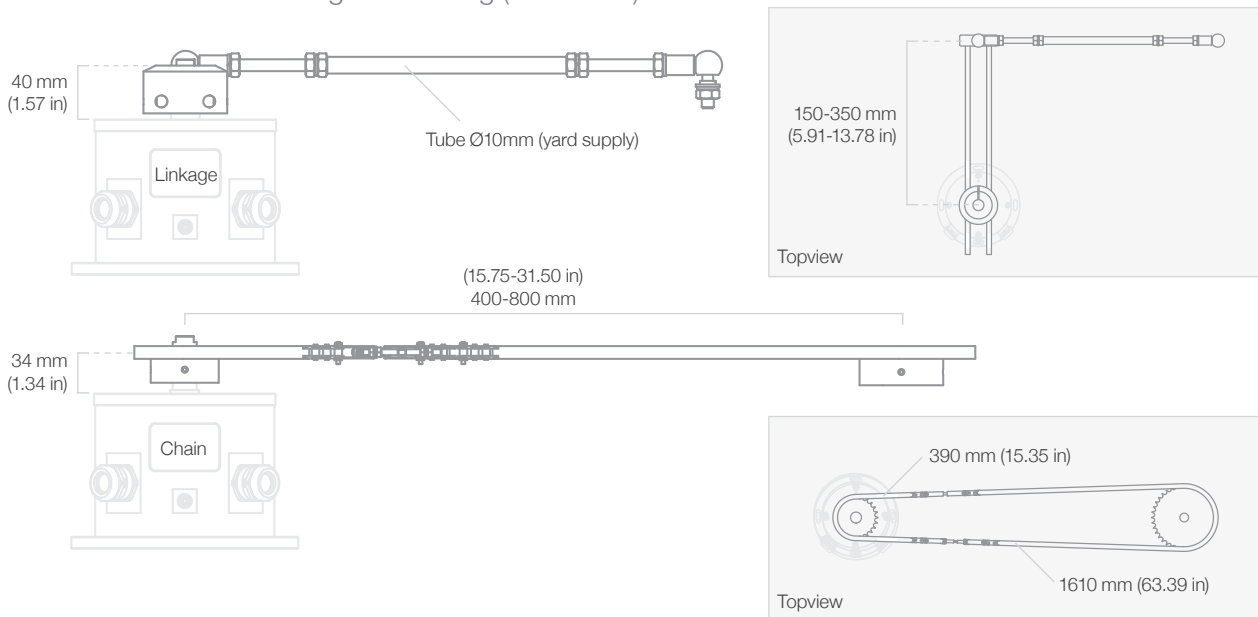
## Rudder feedback unit HD/MD

3109.0194/3109.0196 Weight 6/4.2 kg (9.26/13.23 lbs)



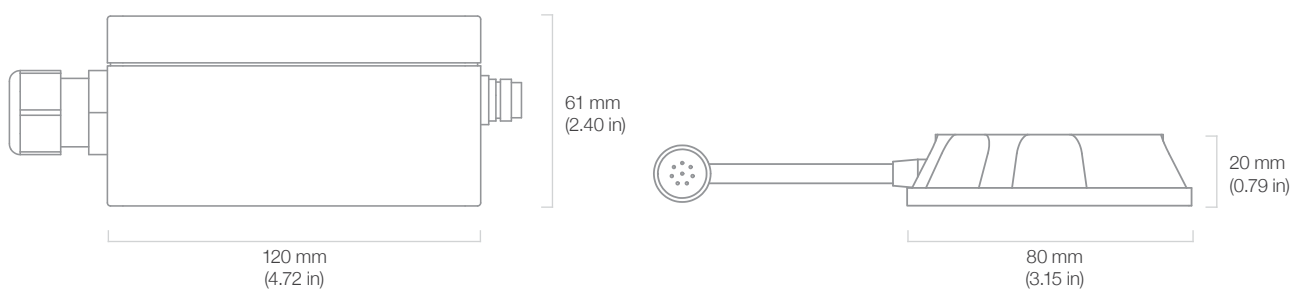
## Rudder feedback unit Linkage/Chain transmission

3109.0198/3109.0200 Weight 1.2/2.5 kg (2.6/5.5 lbs)



## AlphaTMC interface box/sensor

3105.0096/3105.0098 Weight 0.25/0.19 kg (0.55/0.42 lbs)





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