



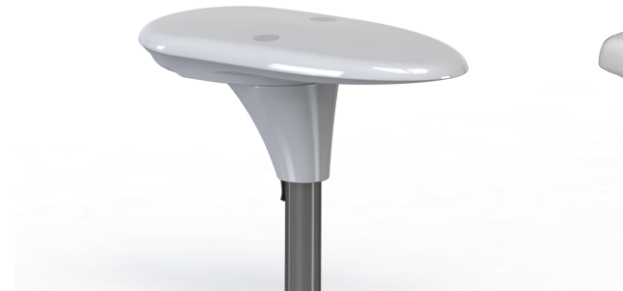
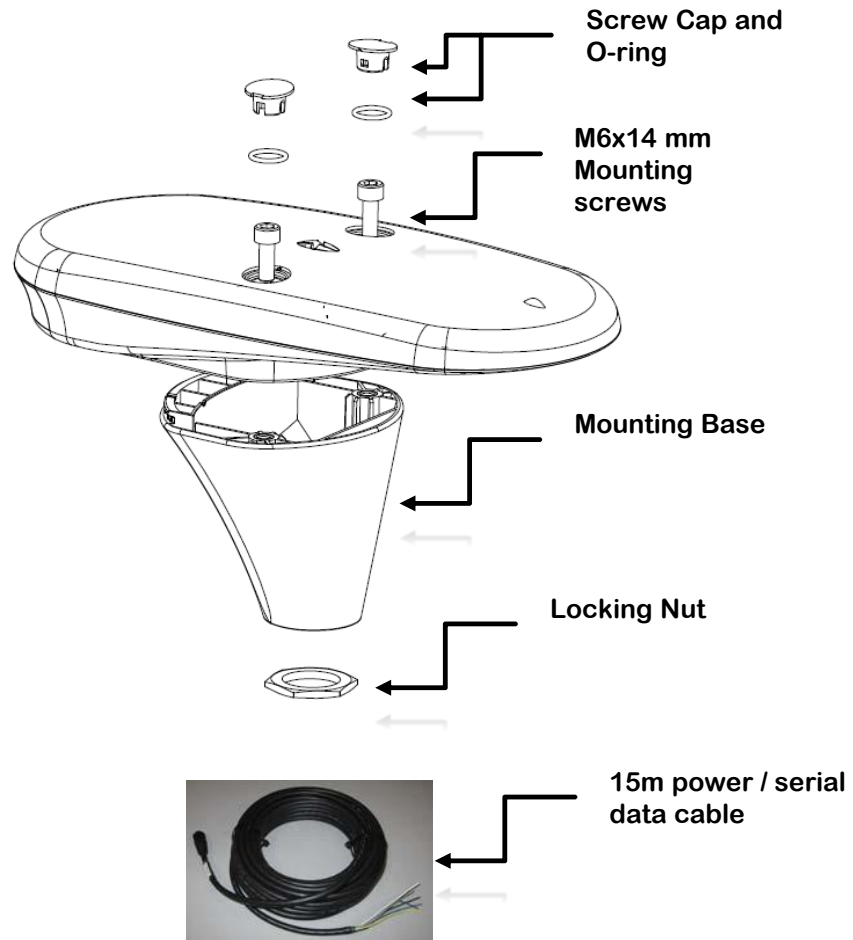
# **Vector Compact-S (NMEA 0183)**

# **Vector Compact-N (NMEA 2000)**

**Quick Installation Guide**

# Vector Compact-S

## NMEA 0183 (Serial) Kit



Front View

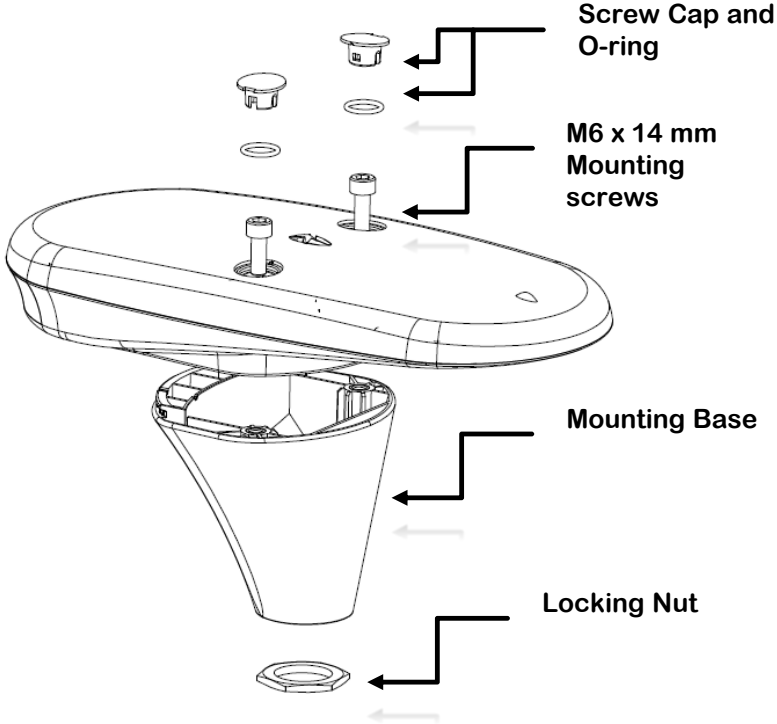


Rear View

Part Number	Qty	Part Name
0051-110-000	1	Vector Compact-S GPS Compass
	1	15m Power/Serial data cable
	2	Screw hole caps
	2	O-Ring for screw hole cap
	2	M6 x 14 mm SS hex mounting screws
	1	Pole mounting base
	1	Pole lock nut; Hex 1"-14 UNF SS

# Vector Compact-N

## NMEA 2000 Kit



Front View

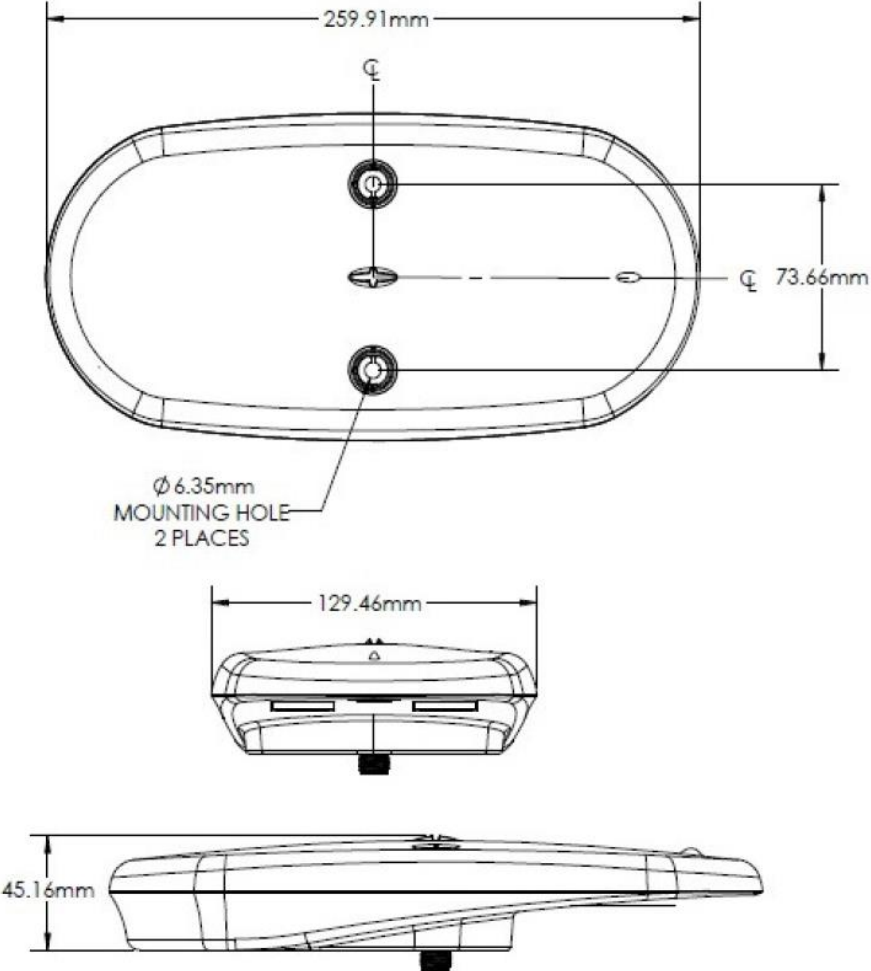


Rear View

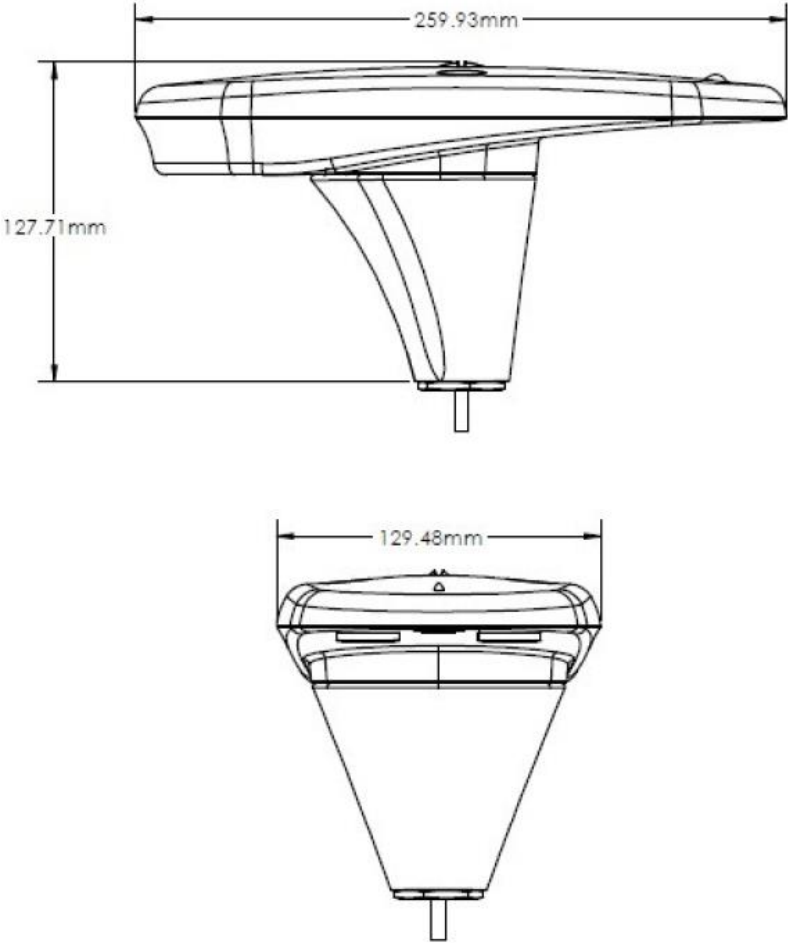
Part Number	Qty	Part Name
0051-020-000	1	Vector Compact-N GPS Compass
	2	Screw hole caps
	2	O-Ring for screw hole cap
	2	M6 x 14 mm SS hex mounting screws
	1	Pole mounting base
	1	Pole lock nut; Hex 1"-14 UNF SS

# Vector Compact Dimensions

## Dimension without base



## Dimension with base

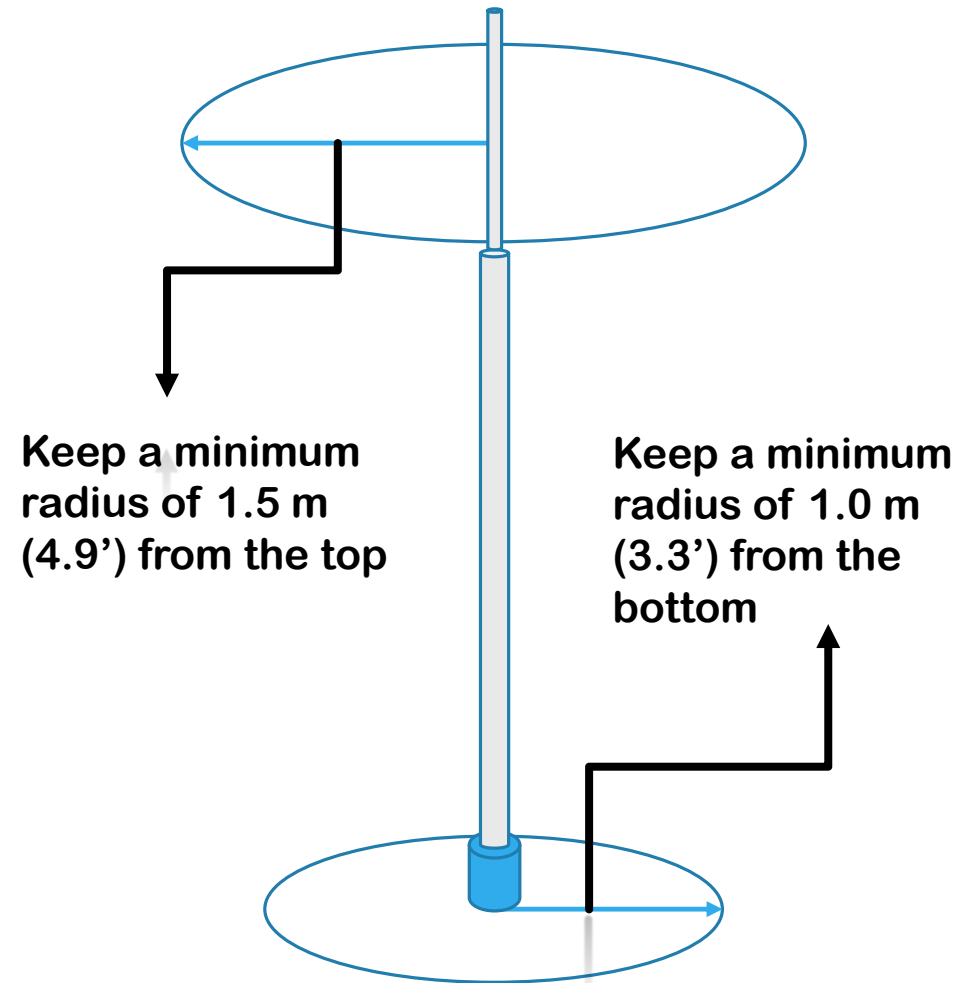


# Installation Considerations

## Location

- Ensure that the Vector has a clear view of the sky
- Keep safe distances away from VHF antennas
- Route the cable the shortest way to a power source or NMEA 2000 backbone (max 6 m)
- Mount the unit on a level plane

## VHF antenna distance from the unit



# Mounting Options

## Flush Mount

- The bottom of the vector compact has two holes for flush mounting the unit to a flat surface .

Recessed arrow located on the bottom of the vector compact

Vent hole



Drill the mounting holes to a diameter of 6.5 mm (0.25")

Do not oversize the hole for the connector to ensure proper sealing

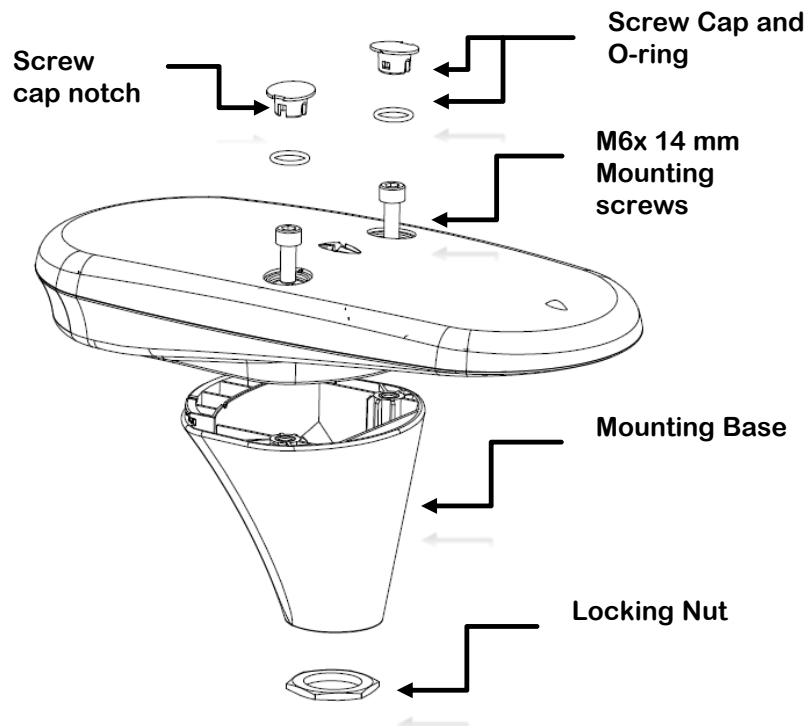
## Flush Mount Installation

- Create a drill template for the two mounting screws.
- Mark the hole centers onto the mounting surface using the drill template.
- Place the Vector Compact over the markings to ensure the planned hole centers properly align.
- Use a nailset to mark the hole centers and drill the mounting holes to a diameter of 6.5 mm (0.25").
- Drill a 15 mm hole for the connector and pull the cable through the hole. Connect to the Vector Compact and ensure that the connector locks with a click.
- Place the Vector Compact over the mounting holes and insert the two M6 screws through the top. Secure the screws using washers and nuts, preferably stainless steel (not supplied). Adjust the antenna using the sight-line and tighten the screws. ***Do not overtighten!***
- Put the O-rings on each of the screw covers and place them over the screw holes on the top of Vector Compact.
- ***Warning: Overtightening the screws or connector may damage the unit!***  
***Make sure that the vent hole is not covered!***

# Mounting Options

## Pole Mount

- Vector compact requires the mounting base, mounting nut and M6 screws for pole mounting. The mounting nut locks vector compact into the correct orientation.



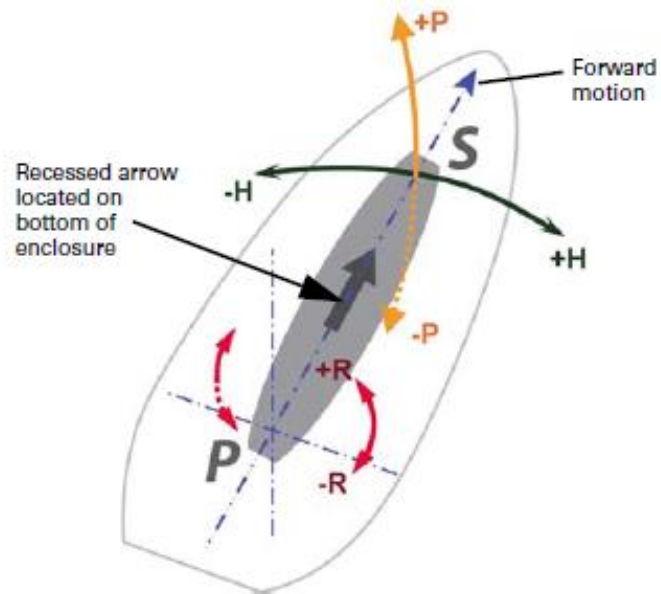
## Pole Mount Installation

- Insert the NMEA2000 cable (not supplied) through the mounting pole, nut and antenna mounting base.
- Mount the nut onto the pole followed by the mounting base. Adjust the mounting base to the desired orientation.
- Tighten the nut to secure the orientation.
- Connect the NMEA2000 cable to the Vector Compact's connector located on the bottom of the unit.
- Place the Vector Compact on top of the mounting base and adjust the antenna so that the base will fit into the groove of the Vector Compact. Press the antenna onto the base.
- Secure the Vector Compact onto mounting base using a 5 mm Allen key to fasten the two M6 screws. Do not over-tighten the screws.
- Put the O-rings onto the screw caps and snap the caps over the screw holes on top of the Vector Compact. Make sure that the rectangular notch is facing towards the outside.
- Align the direction of Vector Compact and secure the unit using the mounting nut (hand-tighten).
- **Warning: Overtightening of the screws and connectors may damage the unit!**

# Mounting Orientation

## Parallel to the vessel center line

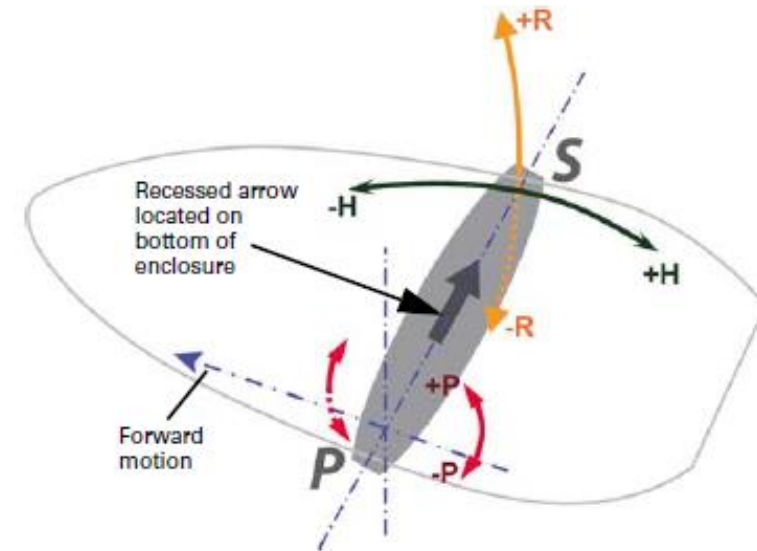
- The recommended installation is parallel to the vessels center line. This is the default setting when the Vector Compact is delivered.
- Mounting along the vessels centerline to the vessel the unit should be set to PITCH mode (default) to provide correct calibration values if the antenna is not horizontal.



*The VectorPC software is required for programming the Vector Compact -S parameters. VectorPC is available on CD or download from <http://www.trueheading.se>*

## Perpendicular to the vessel center line (-S only)

- 1. If the arrow on the antenna is pointing to the starboard side you must set the heading bias value to  $+90^\circ$ .
- 2. If the arrow on the antenna is pointing to the port side of the vessel the bias value must be set to  $-90^\circ$
- As the direction of the antenna is 90 degrees off the default orientation the roll/pitch parameter must be set to ROLL to provide correct calibration values if the antenna is not horizontal.





## Alignment tools

### Using the sight long side

- When the Vector Compact is mounted parallel to the vessel center line the small post on the opposite side of the unit from you, within the channel made in the medallion located in the center of the unit's top as shown below. The alignment accuracy is approximately (+ / -) 1°



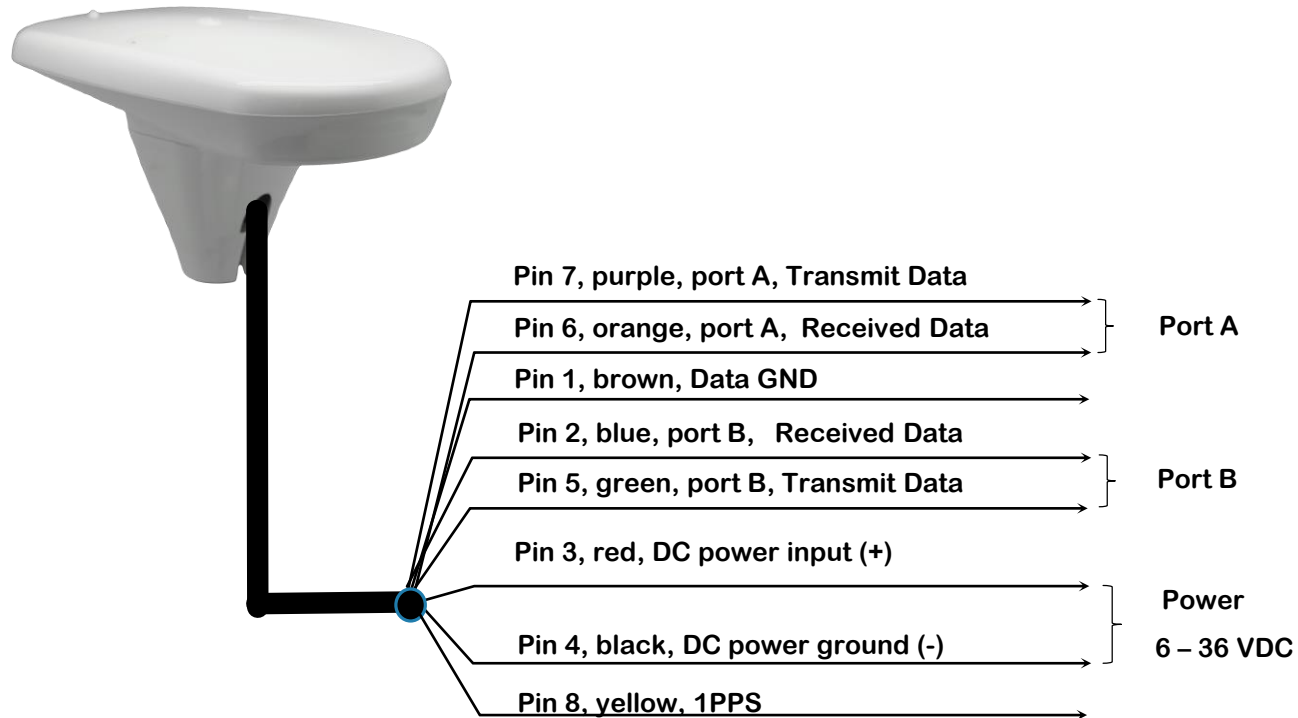
### Using the sight across short side

- When the Vector Compact is mounted perpendicular to the vessel (only possible with the -S version), use only the center sight located in the center of the Vector Compact. The alignment accuracy is approximately (+ / -) 2.5°



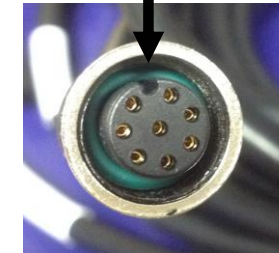
# How to connect the Vector Compact –S (serial)

## Vector Compact-S



## NMEA 0183

Key-way alignment



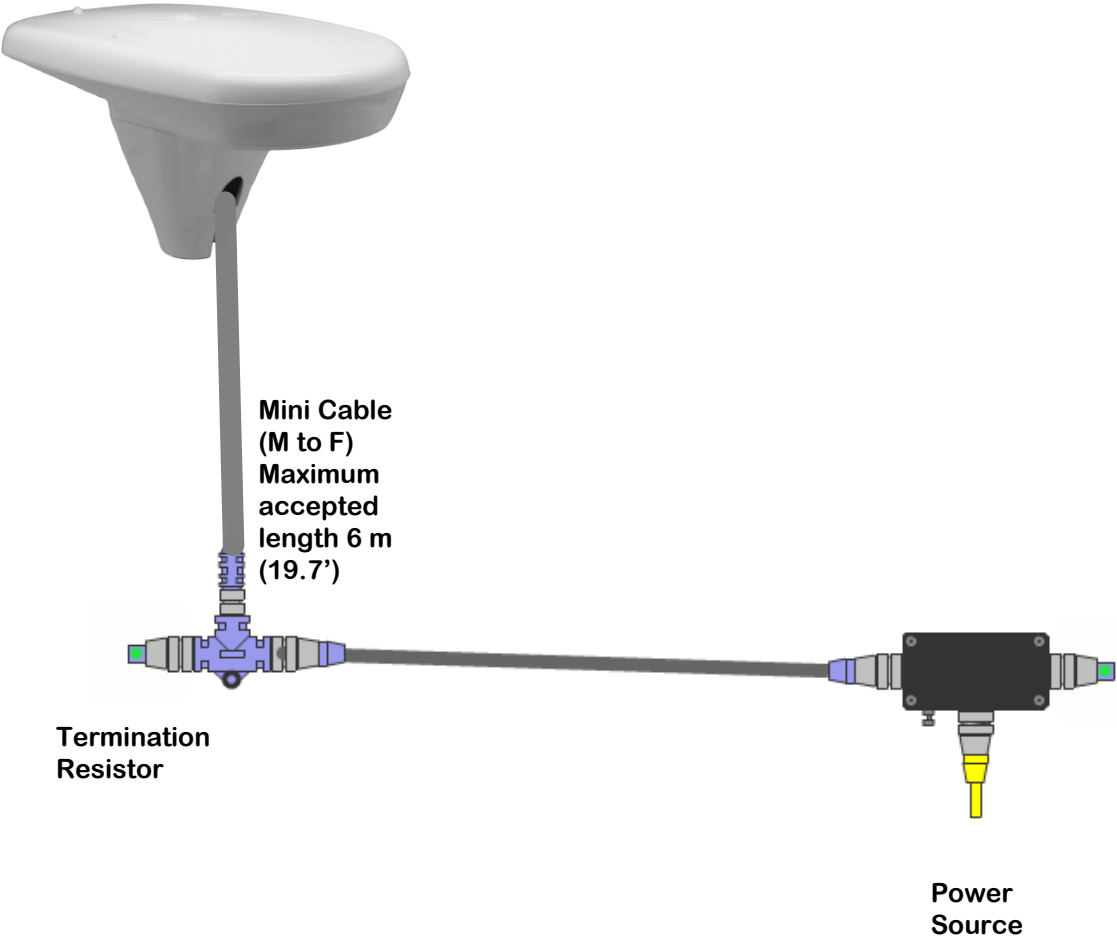
Rotate the cable ring clockwise until it locks. The locking action is firm, but you will feel a positive “click” when it has locked.

Use VectorPC for configuration of the “S” unit. *The configuration software is available at <http://www.trueheading.se> A serial to USB cable is required for connecting the unit to the computer.*

# How to connect the Vector Compact –N (NMEA 2000)

## Vector Compact-N

## NMEA 2000



Key-way alignment



Rotate the cable ring clockwise until it locks. The locking action is firm, but you will feel a positive "click" when it has locked.

# Vector Compact –S Configuration

## NMEA 0183 (Serial)

### Vector Compact –S Default Ports Configuration

Message	Update Rate	Port A	4800
GPZDA	1		
GPGLL	1		
GPVTG	1		
GPHDM	1		
GPHDT	1		
GPROT	1		
Message	Update Rate	Port B	4800
HEHDT	10		
HEHDM	10		
GPVTG	1		

## Vector Compact Defaults

Parameter	Specification
Max DGPS Age	2700 second
Elevation Mask	5°
Differential Mode	SBAS (WAAS / EGNOS)

Feature	Normal Operation	Coasting (no GPS)
Heading	GPS	Gyro
Heave	GPS	None
Pitch	GPS	Inertial
Roll	Inertial	Inertial

# Vector Compact –N NMEA 2000 Requested Messages

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
059392	ISO Acknowledgement Used to acknowledge the status of certain requests addressed to a specific ECU.	B	On Request	On Request
059904	ISO Request Request the transmission of a specific PGN, addressed or broadcast.	B	On Request	On Request
060928	ISO Address Claim Used to identify to other ECUs the address claimed by an ECU	B	On Request	On Request
126996	Production Information NMEA 2000 database version supported, manufacturer's product code, NMEA 2000 certification level, Load Equivalency number, and other product-specific information.	B	On Request	On Request

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
126464	Receive/Transmit PGNs group function The Transmit / Receive PGN List Group type of function is defined by first field. The message will be a Transmit or Receive PGN List group function.	B	On Request	On Request
129538	GNSS Control Status GNSS common satellite receiver parameter status.	B	On Request	On Request
129545	GNSS RAIM Output Used to provide the output from a GNSS receiver's Receiver Autonomous Integrity Monitoring (RAIM) process. The Integrity field value is based on the parameters set in PGN 129546 GNSS RAIM Settings.	B	On Request	On Request
129546	GNSS RAIM Settings Used to report the control parameters for a GNSS Receiver Autonomous Integrity Monitoring (RAIM) process.	B	On Request	On Request

## Vector Compact –N NMEA 2000 Transmitted Messages

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
126992	System Time To provide a regular transmission of UTC time and date. To provide synchronism for measurement data.	B	1000	1
127250	Vessel Heading If the sensor value is Magnetic, the deviation field can be used to produce a Magnetic heading, and the variation field can be used to correct the Magnetic heading to produce a True heading.	B	100	10
127251	Rate of Turn Rate of change of the Heading.	B	100	10
127257	Attitude Provides a single transmission that describes the position of a vessel relative to both horizontal and vertical planes	B	1000	1

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
127258	Magnetic Variation Message for transmitting variation. The message contains Heading or Course over Ground. The quality of service and age of service are		1000	1
128259	Speed Provides a single transmission that describes the motion of a vessel.	B	1000	1
129025	Position, Rapid Update Provides latitude and longitude referenced to WGS84.	B	100	10
129026	COG & SOG, Rapid Update PGN that provides Course Over Ground (COG) and Speed Over Ground (SOG).	B	250	4

## Vector Compact –N NMEA 2000 Transmitted Messages

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
129027	Position Delta, High Precision Rapid Update The “Position Delta, High Precision Rapid Update” This PGN can provide delta position changes down to 1 mm with a delta time period accurate to 5 msec.	B	100	10
129028	Altitude Delta, High Precision Rapid Update The “Altitude Delta, High Precision Rapid Update” This PGN can provide delta altitude changes down to 1 millimeter, a change in direction as small as 0.0057°, and with a delta time period accurate to 5 msec.	B	100	10
129029	GNSS Position Data Conveys a comprehensive set of Global Navigation Satellite System (GNSS) parameters, including position information.	B	1000	1

PG No.	Description (PGN)	Level	Update Rate (msec)	Freq (Hz)
129033	Time & Date Single transmission that provides UTC time, UTC Date, and Local Offset.	B	1000	1
129539	GNSS DOPs GNSS status and dilution of precision components (DOP) that indicate satellite geometry to the overall positioning error horizontal (HDOP), Vertical (VDOP), and time (TDOP).	B	1000	1
129540	GNSS SVs in View GNSS information on current satellites in view tagged by sequence ID. Information includes PRN, elevation, azimuth, SNR, defines the number of satellites; defines the satellite number and the information.	B	1000	1