AutoAnchor 710

Version 1.3

OWNER'S MANUAL

AutoAnchor 710 (V1.3) Owner's Manual

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To the best of our knowledge the information in this manual was correct at the time of printing. However, the AutoAnchor products are continuously being reviewed and improved and product specifications may be changed without notice. The latest product specifications may not be reflected in this version of the manual. The documentation relating to the AutoAnchor products is created in the English language and may be translated from English to another language. In the event of any conflict between translated documents, the English language version will be the official version.

AutoAnchor documents are available on the website www.autoanchor.co.nz

PART 1 IMPORTANT INFORMATION
READ BEFORE INSTALLING OR USING THE AUTOANCHOR

- The AA710 should only be installed by a qualified marine electrician. Do not attempt to install the AA710 unless you are suitably qualified.
- This manual supports the use of the AA710 only. The appropriate manufacturer's instructions must be followed for the installation and use of the windlass and thruster products, or other equipment, the AA710 is set up to control.
- There must be an alternative method available to operate the windlass, thruster or other equipment. A failure of the wireless link will result in loss of control of the equipment via the AA710.
- The AA710 can be fitted to most vertical windlasses. A horizontal windlass may require a sensor holder or a custom designed sensor which is not included in the standard pack. Check with your supplier or the AutoAnchor manufacturer.
- The AA710 must be fitted to a windlass with a dual direction control box or solenoid pack.
- Alloy, steel or carbon fibre will restrict the wireless communication. The AA702 base station must be positioned to avoid this. Contact your supplier or the AutoAnchor manufacturer for options.
- Information for installation and operation of the AA710 is supplied, including pre-set windlass profile lists, wiring diagrams, templates, the Owner's Manual and the Quick User Guide. **All documents must be left on board for the owner.**
- Non compliance with the instructions could impair the windlass, thruster and the AA710 operation, and could result in personal injury and/or damage to the boat.
- Non compliance with the instructions will negate the manufacturer's warranty.
- The AA710 manufacturer and supplier accept no liability for personal injury or property damage resulting from failure to follow the installation and operation instructions or the use of the AA710 in a way that may cause accidents or damage or that may violate the law.
- All the technical and cable specifications must be checked and adhered to.
- Wiring diagrams must be followed without modification.
- Before use the AA710 must be correctly set up for all the equipment it is to control and tested in a safe environment. The AA710 will not count correctly if the windlass selection is wrong or the windlass is not standard (eg it is installed with a different chainwheel or motor).
- All installations must be carried out in accordance with USCG, ABYC, NMMA and BMEA requirements.
- When this product reaches the end of its useful life it must be disposed of in accordance with local regulations.

TECHNICAL SPECIFICATIONS

Parameter	AA710 Remote Console	AA702 Base Station
Power Supply	2 x AA 1.5V Batteries	12V/24V DC
Current Consumption	N/A	50mA
Output Current Draw	N/A	12V DC: 10mA min/4A max 24V DC: 20mA min/4A max
IP Rating	IP67	IP67
Operating Temperature Range	23°F to 140°F (-5°C to 60°C)	23°F to 140°F (-5°C to 60°C)
Wireless Transmission	2.4GHz ISM Band, IEEE 802.15.4 Compliant, 64 Bit Unique ID	
Wireless Range	Typical Minimum 10m (30ft). Range depends on installation.	

System can support up to 4 base stations and 4 consoles.

RADIO FREQUENCY COMPLIANCE

FCC Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications.

ESTI Information (CE):

This device is compliant with the essential requirements of the R&TTE Directive 99/5/EC, meeting the European harmonized EMC and low-voltage/safety standards.

ELECTROMAGNETIC COMPATIBILITY (EMC)

FCC Information:

This device complies with CFR47 Part 15 of FCC Rules for Class B equipment.

ESTI Information (CE):

This device meets the relevant standards set out in European Standard EN 60945:2002 for maritime navigation and radio communication equipment and systems. These standards are intended to provide reasonable protection against interference by other emission generating products on the boat. Compliance with these standards is no guarantee that interference will not occur in a particular installation. The installation instructions must be followed to minimise the potential for interference.

AA710 equipment (AA702 base station and AA710 remote console) must be installed at least 3 ft (1m) away from any equipment transmitting or cables carrying radio signals eg VHF radios, modified sine wave inverters, cables and antennas or radar antennas; and at least 6 ft (2m) away from any SSB equipment. AA702 cables must be installed at least 1.5 ft (500mm) away from such items.

PART 2 INSTALLATION

INSTALLING THE AA710 TO OPERATE A WINDLASS

The windlass must be installed according to the windlass manufacturer's instructions with the correct size rope and chain. It must also be regularly serviced and lubricated. For smooth operation, the windlass requires a good quality, bow roller and a swivel where the anchor joins the chain.

RODE

Combination Rope and Chain Rode: must have a minimum of 10 ft (3 m) of chain. Chain must be galvanised steel. Rope should be a good quality, nylon anchor rope. Type 66 or equivalent.

Chain Only Rode: can be stainless or galvanised steel.

MAGNET AND SENSOR INSTALLATION

Critical to Operation: Correct magnet and sensor installation is critical to windlass operation using the AA710. If it is not possible to comply with these instructions please check with the AutoAnchor manufacturer or your supplier for other options. Some windlasses are predrilled for sensor and magnet fitting.

Reed Switch Sensors: Some windlasses are supplied pre-fitted with a reed switch sensor. Reed switch sensors can only count the revolutions of the chainwheel. This works for a chain only windlass but it does not provide an accurate count for rope and chain rode. If you use a reed switch sensor with rope and chain, the display may read zero when there is rode still deployed. For an accurate rope and chain count, the reed switch sensor should be replaced with the AA grey sensor (#9067). Reed switch sensors must have a 10mm x 8mm magnet (#9061) and the gap between the reed switch sensor and the magnet must be a minimum of 3mm and a maximum of 5mm.

MAGNET INSTALLATION FOR VERTICAL WINDLASSES

Vertical Windlasses Using Chain Only Rode

Magnet Size: 6mm x 4mm magnet (#9009). A larger magnet may be used. Check with your supplier.

Magnet Fit: If your chainwheel is not predrilled, drill a hole 6.5mm (1/4") diameter and 5mm (3/16") deep to fit the magnet in the underside of a spoke in the bottom of the chainwheel. The magnet must be aligned with the sensor. See Fig 1.

Magnet Seal: Insert the magnet into the hole and cover it with a minimum of 1mm of epoxy to seal it from salt water. Failure to do this will impair the magnet's strength and durability.

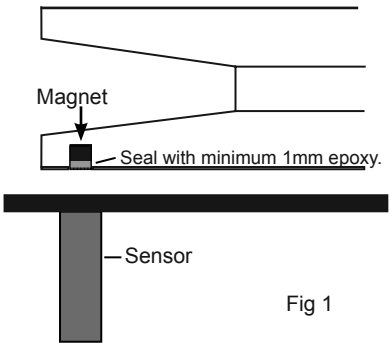


Fig 1

Gap Between the Sensor and Magnet:

Grey AutoAnchor Sensor (#9067):
6mm x 4mm Magnet (#9009): Minimum 3mm and Maximum 30mm
10mm x 8mm Magnet (#9061): Minimum 3mm and Maximum 50mm

Black 2 wire AutoAnchor Sensor (#9008): Minimum 3mm and Maximum 8mm

Reed Switch 2 wire Sensor: Minimum 3mm and Maximum 5mm
(Must use a 10mm x 8 mm magnet)

Magnet Polarity: Not relevant when using the grey AA sensor (#9067) or a reed switch sensor. If retrofitting, using the original black AA sensor (#9008) the south pole (white side) of the magnet must face the sensor.

Vertical Windlasses Using Rope and Chain Rode

The rode must run between the sensor and magnet for an accurate rope and chain count. If your windlass is prefitted with a magnet in the bottom of the chainwheel you need to remove it and fit a new magnet in the top of the chainwheel. Refer to Fig 2.

Magnet Size: 10mm x 8mm magnet (#9061). An 8mm x 6mm magnet (#9052) may be used on smaller windlasses. Check with your supplier.

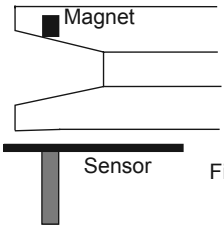


Fig 2

Magnet Fit: If the windlass is not pre-drilled, drill a hole 10.3mm (13/32”) diameter and 9.5mm (3/8”) deep into a spoke in the top of the chainwheel. The magnet and sensor must be aligned so that the anchor rode passes between them. (See Figs 2 & 3). The centre of the magnet and the centre of the sensor may be up to 10mm (3/8”) out of direct alignment. (See Fig 6). Templates and drilling instructions are supplied for some windlasses.

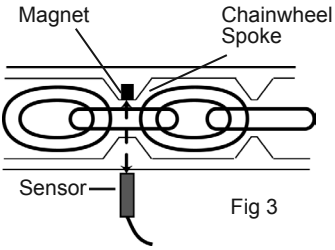


Fig 3

Magnet Seal: Insert the magnet into the hole and cover with a minimum of 1mm of epoxy to seal it from salt water. Failure to do this will impair the magnet’s durability.

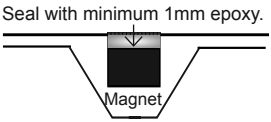


Fig 4

Gap Between the Sensor and Magnet:
Grey 3 wire AutoAnchor Sensor (#9067):
10mm x 8mm Magnet (#9061): Minimum 35mm and maximum 50mm
8mm x 6mm Magnet (9052): Minimum 30mm and maximum 44mm

Magnet Polarity: Not relevant.

SENSOR INSTALLATION FOR VERTICAL WINDLASSES

For accurate rope and chain counting the AA710 must be fitted using the grey AutoAnchor sensor (#9067) supplied in the kit. Some windlasses are prefitted with a reed switch sensor. The reed switch sensor can be used for chain only counting.

The sensor is fitted into the windlass deckplate. Some windlasses are predrilled for the sensor. Others have a dimple or mark to show where the sensor should be fitted. Check with the AutoAnchor or windlass supplier if you are not sure where to drill for the sensor.

Sensor Position for Vertical Windlasses Using Chain Only Rode: The sensor hole can be drilled anywhere on the deckplate provided it is in alignment with the magnet in the chainwheel and the gap between the sensor and magnet will be correct.

Sensor Position for Vertical Windlasses Using Rope and Chain Rode: The hole must be within the sensor position range at the stern end of the windlass (See Fig 5). The sensor must also be aligned with the magnet so that the rode passes between the sensor and the magnet. The centre of the magnet and the centre of the sensor may be up to 10mm out of direct alignment. (See Fig 6)

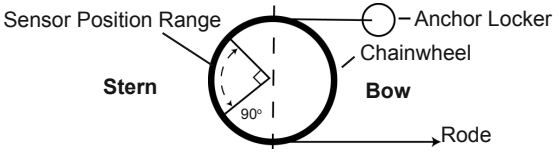


Fig 5

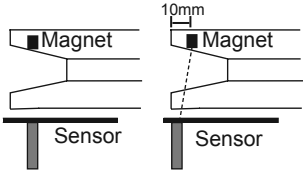


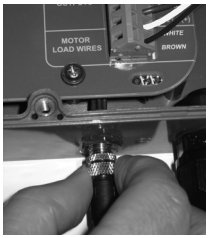
Fig 6 Sensor & Magnet Alignment

Drilling the Deckplate: If the windlass is not factory drilled, drill a hole 10.3 mm (13/32") diameter through the windlass deckplate. Some windlasses will be marked for sensor fitting. Check the AutoAnchor drilling templates supplied with this kit.

Drilling the Deck: Before drilling into the deck, ensure there is nothing below the deck that could be damaged and that any hole you drill will not weaken the boat's structure. Drill a hole 10.3mm (13/32") diameter through the deck. Ensure this hole is directly in line with the sensor hole in the deckplate.

Do not force the sensor into the hole. Hammering the sensor head can damage the internal electronics. Ensure the *sensor head* is positioned so that it will not be hit by the chainwheel during windlass operation and that it is at least 300mm (1ft) away from the battery and motor cables, then secure the sensor into the deckplate with silicone.

Sensor Connection: The sensor is plugged direct into the AA702 base station. Do not leave the cable hanging loose, it must be tied in place with cable ties. Extension cable and field connectors are available.



HORIZONTAL WINDLASSES

Before starting check with the AutoAnchor manufacturer, or supplier, that you can fit a sensor to your windlass. There are several sensor options for windlasses using chain only rode but if your windlass uses rope and chain rode it may not be possible to fit the sensor for an accurate rope count.

MAGNET INSTALLATION FOR HORIZONTAL WINDLASSES

Horizontal Windlasses Using Chain Only Rode

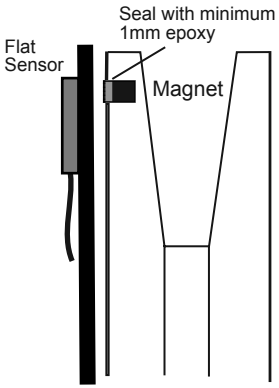


Fig 7a BASE

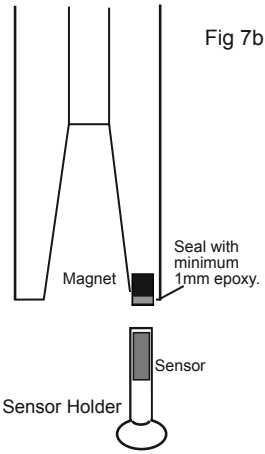


Fig 7b EDGE

Magnet Size: 6mm x 4mm magnet (#9009).
A larger magnet may be used. Check with your supplier.

Magnet Fit: If your chainwheel is not predrilled, drill a hole 6.5mm (1/4") diameter and 5mm (3/16") deep in the underside of a spoke or in the edge of the chainwheel.
See Fig 7a & 7b.

Magnet Seal: Insert the magnet into the hole and cover it with a minimum of 1mm of epoxy to seal it from salt water. Failure to do this will impair the magnet's strength and durability.

Gap Between the Sensor and Magnet:
Grey or Flat 3 wire AutoAnchor Sensor (#9067 or #9058):
6mm x 4mm Magnet (#9009): Minimum 3mm and Maximum 30mm
10mm x 8mm Magnet (#9061): Minimum 3mm and Maximum 50mm

Black 2 wire AutoAnchor Sensor (#9008): Minimum 3mm and Maximum 8mm

Reed Switch 2 wire Sensor: Minimum 3mm and Maximum 5mm
(Must use a 10mm x 8 mm magnet)

Magnet Polarity: If retrofitting, using the original black 2 wire AA sensor (#9008) the south pole (white side) of the magnet must face the sensor. Magnet polarity is not relevant when using the other AA sensors or a reed switch sensor.

Horizontal Windlasses Using Rope and Chain Rode

Fig 8

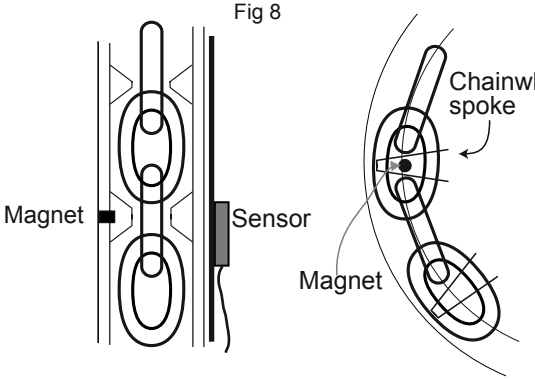
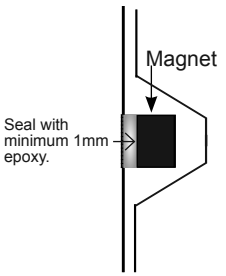


Fig 9



Magnet Size: 10mm x 8mm magnet (#9061). An 8mm x 6mm magnet (#9052) may be used. Check with your supplier.

Magnet Fit: If the windlass is not pre-drilled, drill a hole 10.3mm (13/32") diameter and 9.5mm (3/8") deep into a spoke in the top of the chainwheel. The magnet and sensor must be aligned so that the anchor rode passes between them. See Fig 8. The centre of the magnet and the centre of the sensor may be up to 10mm (3/8") out of direct alignment.

Magnet Seal: Insert the magnet into the hole and cover with a minimum of 1mm of epoxy to seal it from salt water. Failure to do this will impair the magnet's durability. See Fig 9

Gap Between the Sensor and Magnet:
Grey or Flat 3 wire AutoAnchor Sensor (#9067 or #9045):
10mm x 8mm (#9061) Magnet: Minimum 35mm and maximum 50mm
8mm x 6mm (#9052) Magnet: Minimum 30mm and maximum 44mm

Magnet Polarity: Not relevant.

SENSOR INSTALLATION FOR HORIZONTAL WINDLASSES

Horizontal Windlasses Using Chain Only Rode

Standard Sensor

The standard sensor (#9051) is cylindrical 35mm long and 10mm in diameter. This sensor may be fitted inside the windlass housing (See Fig 10a) or it can be fitted using a sensor holder fixed to the deck to sit under the chainwheel (See Fig 10b). The AutoAnchor sensor holder (#9070) is not included in the standard kit. Check with your supplier.

Fig 10a

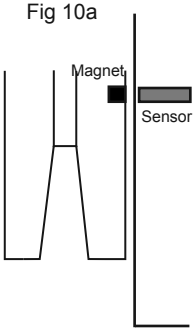
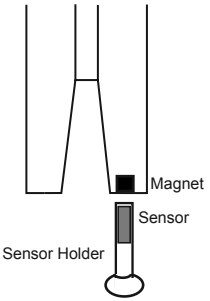


Fig 10b



Flat Sensor

AutoAnchor also makes a 3 wire flat sensor (# 9045) that can be fixed to the exterior housing of the windlass (See Fig 11a) or inside the windlass housing (See Fig 11b). Secure the sensor using a good quality neutral cure silicone or a strong adhesive eg. Sikaflex 291 or 3M 5200. The magnet is aligned with the cross on the sensor. This sensor requires a female plug attached to the cable.

Fig 11a

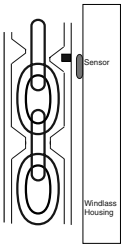
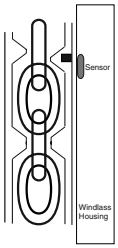


Fig 11b

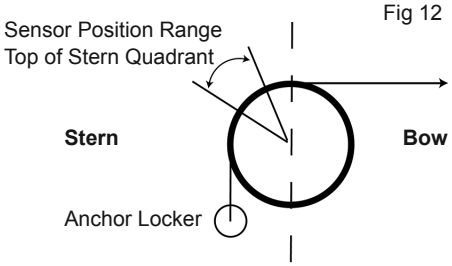


Horizontal Windlasses Using Rope and Chain Rode

It may not be possible to fit the sensor to achieve an accurate rope and chain count on your horizontal windlass. Please check with the AutoAnchor manufacturer, or supplier, to see if you can fit the AA710 to your windlass.

For an accurate rope and chain count the rode must run between the sensor and magnet. On a horizontal windlass this area is limited to the top of the stern quadrant. (See Fig 12). To count rope and chain the sensor must be fitted within this quadrant.

Fig 12



Some windlasses are designed with a space to fit the sensor internally. For other windlasses it may be possible to use the AutoAnchor flat sensor and fix it inside the windlass housing (See Fig 13b) or, on the exterior of the windlass housing behind the chainwheel. (See Fig 13a). The magnet must be aligned with the cross on the flat sensor.

Fig 13a

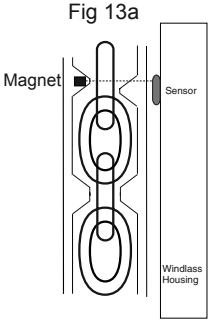
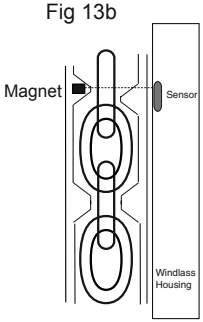


Fig 13b



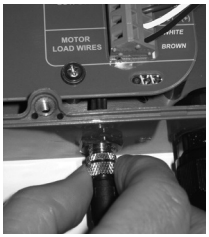
Sealed Rope and Chain Windlasses

Some rope and chain horizontal windlasses are sealed so it is not possible to fit the sensor inside the windlass housing. If there is sufficient space between the chainwheel and the windlass housing, the sensor can be fitted externally (See Fig 13a), or it can be fitted using a sensor holder as for an all-chain system (See Fig 10).

Drilling the Deck: Before drilling into the deck, ensure there is nothing below the deck that could be damaged and that any hole you drill will not weaken the boat's structure. Drill a hole 10.3mm (13/32") diameter through the deck. Ensure this hole is directly in line with the sensor hole in the deckplate.

Fitting the Sensor: Ensure the cable is protected against any moving parts in the windlass. Do not force the sensor. Hammering the sensor head can damage the internal electronics. Ensure the sensor head is positioned so that it will not be hit by the chainwheel during windlass operation and that it is at least 1ft (300mm) away from the battery and motor cables.

Sensor Connection: The sensor is plugged direct into the AA702 base station. Do not leave the cable hanging loose, it must be tied in place with cable ties. Extension cable and field connectors are available.



INSTALLING THE AA710 TO OPERATE A THRUSTER

Before connecting the AA710 to operate a thruster you must ensure that the thruster has been installed and tested by a qualified marine electrician and that the installation has been completed strictly according to the thruster manufacturer's instructions.

Refer to the wiring diagram and notes supplied for the AA710.

An isolating switch must be installed for controls if the main breaker or isolator is not readily accessible from the helm.

If the thruster control circuit uses negative switching, connect a relay between the AA702 output and the control wire to convert from positive to negative switching.

The stern and bow output locations stated in the wiring are the default locations. These can be changed using the AA710 set up menu.

The thruster manufacturer's safety requirements for testing and operating the thruster must be adhered to at all times when using the AA710. These include but are not limited to:

Never operate a thruster close to people swimming.

Never run the thruster out of the water. Not even for a short period. Any operation of the thruster out of the water can seriously damage the motor.

Running a thruster without resistance from the propeller can also cause serious damage to the motor.

If the thruster stops giving thrust while the motor is running, turn it off immediately.

INSTALLING THE AA710 TO OPERATE AUXILIARY EQUIPMENT

Outputs from the AA710 can be connected to control auxiliary equipment on the vessel such as lights, deck or anchor wash, pumps, electric cleats and davits. Up to 4 auxiliary outputs can be set up per system. The outputs can be distributed across up to 4 base stations.

Before connecting the AA710 to operate auxiliary equipment you must ensure that the equipment has been installed and tested by a qualified marine electrician and that the installation has been completed strictly according to the equipment manufacturer's instructions. The equipment must be used according to the equipment manufacturer's instructions.

Refer to the wiring diagrams and notes supplied for the AA710.

An isolating switch must be installed for controls if the main breaker or isolator is not readily accessible from the helm.

Relays: If the auxiliary equipment is outside the specification of the AA702 output (eg current greater than 4A) relays will need to be interfaced between the AA702 output and the auxiliary equipment. This applies also if the auxiliary equiment is running off a different power supply.

INSTALL THE REMOTE CONSOLE AND BASE STATION

The AA710 kit has one master base station and one remote console.

Each base station has four outputs. Up to 3 slave stations can be attached to the master station to provide extra outputs. The default system is set up for 1 windlass located on the bow. Examples of other setups follow:

A system with one base station can operate:

- 1 windlass plus a deck wash and deck light
- or 1 windlass and 1 thruster
- or 2 thrusters

A system with two base stations (1 master and 1 slave) can operate:

- 1 windlass plus a deck wash and deck light plus 1 or 2 thrusters
- or 2 windlasses plus deck wash and deck light
- or 2 windlasses and 2 thrusters

The AA710 can be installed with other windlass control stations eg foot switches, remote controls and other AutoAnchor products. A T-adapter and 2m extension cable are available for the sensor to connect with other AutoAnchor controllers.

REMOTE CONSOLE

Cradle Loop for Lanyard Cover

The remote console is supplied with a cradle and a cover. One remote console can operate multiple base stations. The console has a loop to allow for a wrist or belt lanyard.

The cradle should be mounted on a flat surface at least 3 ft (1m) away from any equipment transmitting or cables carrying radio signals eg VHF radios, cables and antennas or radar antenna and at least 6 ft (2m) away from any SSB equipment.

The remote console is sealed to IP67.

Up to 4 remote consoles can be connected to a system.

Two alkaline AA 1.5V batteries are required to operate the console. These are prefitted in new products.

BASE STATION

The base station can be mounted in close proximity to the windlass. It should be mounted so that the lid can be easily removed to set the wireless registration and so that the LED indicators are visible during operation. The base station must be positioned to allow internal access after installation.

To maintain the IP67 waterproof seal through the cable gland a tinned, marine grade multi core cable must be used.

Alloy, steel or carbon fibre will restrict the wireless communication. The AA702 base station must be positioned to avoid this. Contact your supplier or the AutoAnchor manufacturer for options.

Up to 4 base stations can be connected to a system.

LED Indicators

Mount the base station:

- so that the lid can be removed easily at any time
- so that the LED indicators can be seen during operation
- so that the cables extend below the unit when fixed to the wall

POWER SUPPLY

THE POWER SUPPLY MUST BE DISCONNECTED WHEN INSTALLING, CONNECTING OR CHANGING THE WIRING

12V or 24V DC power supply is required to the AA702 base station.

Check battery polarity before connecting power and ensure output terminals will not short.

Refer to the manufacturer's specifications for fuse/breaker, isolator and main power cable specifications, for the equipment being controlled by the AA710.

Ensure any fuse/breaker on the control circuit has a rating applicable to the current loads connected to the outputs. (AA702 Output maximum is 4 Amps). An additional isolating switch should be installed for controls if the main breaker or isolator is not readily acessible from the helm.

Multiple battery bank negative terminals must be permanently connected together to become the common negative return (ground).

Windlass Installations
Power supply to the AA702 base station must be from the windlass control circuit, along with all other windlass controls eg. toggle switch, remote switches, deck switches, other AutoAnchor devices. If more than 1 base station is installed it is recommended that the windlass be attached to the master base station.

Multiple Base Station Installations
- The master base station must be powered up when using a slave base station application.
- Separate base stations may be powered from separate supplies, however, **if 2 products are connected to the same base station they must be powered by the same supply, or relays must be used as a means of isolation.**
- To maintain power to the windlass it is recommended that the windlass be attached to the master base station.

VOLTAGE LEVELS

Neither the windlass nor the AutoAnchor will operate with insufficient power. (See minimum voltages below). Batteries must be properly maintained and charged and all connections and wires must be of good quality and the correct gauge to prevent voltage drop.

Minimum Voltage Required

Minimum voltage required to start windlass operation.	12V system 24V system	10 Volts 20 Volts
If the windlass is already operating, this is the minimum voltage required to continue operating.	12V system 24V system	7 Volts 14 Volts

WIRING

MOTOR LOAD WIRES (BROWN AND WHITE)

All-chain Counting: If the AA710 is fitted to an **all-chain windlass or a thruster** the brown and white wires are not connected.

Rope/chain Counting: The brown and white wires must be connected for rope/chain counting and for high current foot switches. These wires are connected direct to the windlass motor terminals to measure the load on the motor. **A 1000 Ohm resister must be fitted near the motor terminal** for short circuit protection. The motor load terminators supplied in the kit have motor terminal connectors with a 1000 Ohm resister prefitted.

CABLE SPECIFICATIONS **An appropriate multi-core cable must be used to maintain the cable gland seal into the base station.**	
Total Length	**Cable Size**
Cable from AA702 Base Station to the Power Supply	
Less than 8 m (26 ft)	1.5mm^2 (AWG16)
8 m (26 ft) - 11 m (36ft)	2.0mm^2 (AWG14)
11 m (36 ft) - 17m (56 ft)	2.5mm^2 (AWG12)
Cable from AA702 Base Station to Outputs	
Less than 10 m (33 ft)	1.5mm^2 (AWG16)
10 m (33 ft) and 20 m (66 ft)	2.0mm^2 (AWG14)
20 m (66 ft) and 40 m (132 ft)	2.5mm^2 (AWG12)
Cable from Motor Load Wires	
Up to 30.5 m (100 ft)	1.0mm^2 (AWG18)

Plug In Sensor Connections

The AA701 Base Station and the sensor are prefitted with connector plugs. The 2m sensor cable plugs direct into the base station. Extension cables are available.

Field Connector Plugs: Required for the sensor cable if there is no plug connected eg AA black sensors or reed switch sensors. The field connector is soldered to the wires and provides an all in one waterproof plug-in connector. (Female #9509)

Multiple AutoAnchor Installations: T-adapters (#9506) and 2m/6.56 ft extension cables with plugs (#9505) are available. Refer to the wiring diagrams for detail.

WIRING DIAGRAMS FOR AA702 BASE STATION

The following diagrams are included in the kit. Please refer to them for wiring detail.

702.1 Chain Only Windlasses
702.2 Rope/Chain Windlasses
702.3 AC and Hydraulic Windlasses
702.4 Bow Thruster with Windlass
702.5 Bow and Stern Thruster
All Chain Wiring for Multiple AutoAnchor Products
Rope and Chain Wiring for Multiple AutoAnchor Products

AA702 Base Station Cable Connections

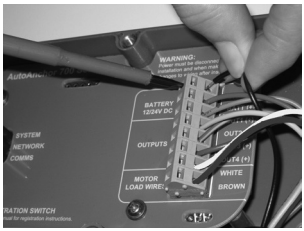
	BATT (-) - Ground
	BATT (+) - Positive
	OUT1 (+) - Windlass Down or Stern Thruster Port or Auxiliary
	OUT2 (+) - Windlass Up or Stern Thruster Starboard or Auxiliary
	OUT3 (+) - Deck Light or Bow Thruster Port or Auxiliary
	OUT4 (+) - Anchor Wash or Bow Thruster Starboard or Auxiliary
	WHITE - Windlass Motor - Load Sensor Wire*
	BROWN - Windlass Motor + Load Sensor Wire*

* Only required for rope/chain counting, or where high current deck switches are installed.

Stern and bow thruster output locations stated are the **default locations.** These can be swapped in the AA710 system set up menu.

To Connect the Wires

Remove the lid from the AA702 base station.
Feed the multi-core cable through the waterproof gland.
Connect the cables to the terminal block, using a screwdriver to press down and open each terminal as required. (See the photograph below).
Tighten the cable gland.
Replace the lid.



Multiple AutoAnchor installations: It is important when wiring multiple AutoAnchor products that potential differences do not occur along the ground connection. This can cause incorrect counting. Ensure consoles and base stations are star grounded, and that there are no other high current paths between consoles. **All wiring for multiple installations is run in parallel.** Refer to wiring diagrams for further details.

Interlock protection is included in the system. Do not fit diodes or interlock devices to windlass outputs as these will prevent the system from operating correctly.

All battery and motor cables must be ring type, insulated to prevent short circuits and installed no closer than 1 ft (300mm) away from the sensor head.

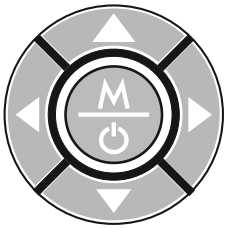
To reduce the potential for interference all cables must be located at least 1.5ft (500mm) away from any equipment transmitting or cables carrying radio signals eg VHF or SSB radios, cables and antennas or radar antennas.

Do not leave cables hanging loose, they must be tied in place with cable ties.

PART 3 SET UP

Set up includes registering the wireless interface and calibrating the AA710 system for the equipment it is to control on the boat. The AA710 must be tested with all the equipment it is to control to ensure it is working correctly.

USING THE AUTOANCHOR BUTTONS



On
Scroll: Menu/Numbers/Up/Down.
Mode/Select/Enter/Save.
Escape or Back.
Hold together to access the Set up menu.
Hold for 2 seconds to disable the lock.
Hold for 1 second to toggle between modes eg windlass to thruster.
Control the windlass.
Control the deckwash, decklight, thruster.
Hold for 6 seconds to turn off.

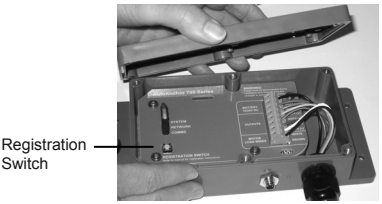
WIRELESS INTERFACE SET UP

SYSTEM OVERVIEW

The AA710 kit is supplied with 1 x AA710 remote console and 1 x AA702 master base station. Each console and base station has a unique ID and the units must be registered to each other to operate the system. If extra outputs are required up to 2 additional base stations, known as slave stations, may be added into the system. Up to 4 consoles can be registered to operate a system. Follow the instructions to register the consoles and base stations.

Registration Switch

Located inside the base station. Use to register the base station to the console and to register a slave to the master base station. (See over).



LED indicators

System (Red)

- Steady red indicates power is on. Flashing continuously indicates registration state is active. Times out after 5 minutes. Flashing a slow pulse indicates sensor is connected when the windlass is turning.

Network (Green)

- Steady green indicates the base station is a master station. Off indicates the base station is a slave (See instructions to connect a slave station below).

Comms (Yellow)

- Flashing indicates data is received.

To Turn the AA710 System On for the First Time

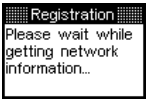
Ensure the AA702 base station is powered up.

Press the Mode button on the AA710 remote console to turn it on. Because the system is not yet set up, the screen will tell you to press the registration switch on the master base station. See instructions below to register the console to to the base station.

Register Remote Consoles to the Base Stations

Each console must be registered separately.

1. Turn off all consoles.
2. Turn on the power to all base stations.
3. Unscrew and remove the cover from the **master** base station.
4. Press the Mode button to turn on the remote console. The screen will tell you to press the register switch on the master base station.
5. Press the registration switch on the **master** base station. The red system LED will flash.
6. Registration is automatic. The screen will show that the system is getting the network information and then that the console has been successfully registered to the base station. This could take up to 30 seconds.
7. Press the Mode button to select OK. The console will return to the set up screen ready to set up the system functions.
8. If you have more than 1 console to register to the base station repeat the steps above ensuring the first console is turned off before you start.
9. When finished replace the lid on the base station.



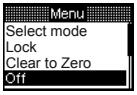
To Turn the AA710 Remote Console Off After Registration

Press the left arrow to escape from Set up to the default start up screen.

Press the Mode button to display the menu.

Scroll to Off.

Select Off.



The AA710 remote console will automatically turn off after 4 minutes without use.

Add Extra Base Stations (Slaves)

Slave base stations are added to supply the outputs for additional functions. All base stations are supplied as masters and they must be reset to operate as a slave. Decide which base station is to remain the master and then follow the directions below to register the slave stations.

1. Ensure all remote consoles are turned off.
2. Unscrew and remove the lid from both base stations.
3. Turn on the power to both base stations. The green LED will light up on both stations.
4. **Slave:** Hold down the registration button, on the slave station, for 6 seconds until the green LED turns off. Then release the button. The red LED will flash to indicate the unit is in registration mode.
5. **Master:** Press and release the registration button. The green LED will stay on. The red LED will flash to indicate the connection is registering. Registration is complete when the red LED stops flashing on both base stations.
6. Repeat the process to add further slave stations as required.
7. Before replacing the lids on the base stations you need to record the unique ID number for each base station. The ID is on the white label next to the registration switch. This number is the same as the last 4 digits on the bar code label on the outside of the base station.

Master Base Station ID _____

Slave Station 1 ID _____

Slave Station 2 ID _____

Slave Station 3 ID _____

Note: The AA710 console will automatically update and register the additional slave station when it is next turned on.

Deregistering a Base Station

If a base station is removed or replaced it must be deregistered from the system. To do this:
Turn the power off to the affected base station and disconnect it. Record the ID number.
Power up the master base station. Turn off the AA710 remote console.

◁ M — Hold together to display the Set Up Menu. It may take up to 20 seconds for the network information to be updated.

M — Select Modes.

▽ — Scroll to the base station ID.

M — Select the base station. The screen will show Not Found.

M — Select Deregister.

M — Select Deregister again. This will remove the registration and restart the system.

If you have deregisterered a **slave** station no further action is required.

If you have deregistered a **master** base station the system must be set up again as if it is a new system.

Registering a Used Base Station or Console

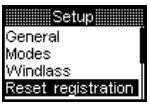
All Settings Must be Cleared

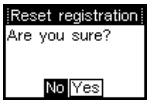
Previously Used Base Station

Turn off all existing base stations or consoles. Turn on the power to the used base station. Hold down the registration button for 15 seconds until all three LED's flash. This indicates the base station has performed a complete factory reset and all settings have reverted to the defaults. Follow the instructions above to register the base station as if it is a new product.

Previously Used Console

Turn off all base stations and consoles, including the used console.





Hold together to access the Set up menu.

Scroll to Reset registration.

Select Reset registration.

Follow the instructions above to register the console to the master base station as if it is a new product.

SYSTEM FUNCTIONS SET UP

Overview of Functions

GENERAL
MODES
WINDLASS
RESET REGISTRATION
ABOUT

WINDLASS
- **Docking distance**
- **Total rode length**
- **Rode**
  - **Chain Only**
    - Chain per turn
  - **Rope & Chain**
    - Preset
    - Chain per turn
    - Rope per turn
- **Sensor**
  - AutoAnchor grey
  - AutoAnchor black
  - Reed baseplate
  - Reed gearbox
  - Gearbox ratio
- **High Current Switch**

MODES
- **Windlass**
  - **Location**
    - Bow
    - Stern
    - Port
    - Starboard
  - **Accessories**
    - Decklight
    - Deckwash
    - Autowash
- **Thruster**
  - **Location**
    - Bow
    - Stern
- **Auxiliary**
  - Aux A-D

GENERAL
- **Units**
  - Feet
  - Meters
  - Fathoms
- **Key Beep**

Note: If you have more than one AA710 remote console, ensure only one unit is switched on when changing settings. The other remotes will automatically update when switched back on.

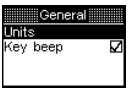
GENERAL SET UP

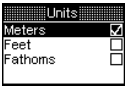
The AA702 base station must be powered up and the AA710 remote console must be turned off to access the Set up Menu.

◁ + M — Hold together to display the Set up menu.
M — Select General.

Set Units

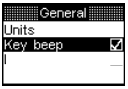
M — Select units.
△▽ — Scroll to select meters, feet or fathoms.
M — Save.
◁ — Return to the General Menu.

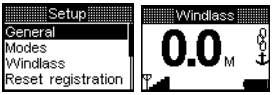




Set Key Beep

△▽ — Scroll to Key beep.
M — Save Key beep on or off.
◁ — Return to the Set up Menu.
◁ — Return to the Start Screen.





MODES SET UP

The AA702 base station must be powered up and the AA710 remote console must be turned off to access the Set up Menu.

The AA710 can be set up to operate your choice of equipment on the boat. The kit has one master base station and one console. Each base station has four outputs. Up to 2 slave stations can be attached to the master station to provide extra outputs. The default system is 1 windlass located on the bow.

Examples of other setups follow:

A system with one base station (4 outputs) can operate:

- 1 windlass plus a deck wash and deck light
- or 1 windlass and 1 thruster
- or 2 thrusters
- or 4 auxiliary outputs

A system with two base stations (8 outputs) can operate:

- 1 windlass plus a deck wash and deck light plus 1 thruster
- or 2 windlasses plus deck wash and deck light for each windlass
- or 2 windlasses and 2 thrusters
- unused outputs can be used for auxiliary functions

ALLOCATE MODES (FUNCTIONS) TO THE AA702 BASE STATIONS

After the AA702 base stations have been connected to the equipment they must be set up to operate the equipment from the remote console. Follow the instructions below:

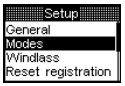
Turn the AutoAnchor off

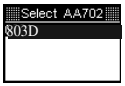
Hold together to display the Set up menu.

Scroll to Modes.

Select Modes.

Select the AA702 base station that you wish to set up.
The ID of all base stations connected to the system will display automatically. If you have more than 1 base station you need the ID for each station.





The ID is on the white label next to the registration switch. This number is the same as the the last 4 digits on the bar code label on the outside of the base station.

Follow the screen prompts to select the functions for the base station selected.

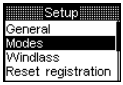
Note: When selecting the base station this message may appear for a few seconds. If it stays for longer than 30 seconds the base station may not be powered up or it may be too far away.

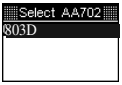
See the example setups overleaf.

EXAMPLE 1
A windlass, decklight and automatic deckwash. This set up uses a single AA702 base station.

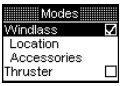
Select Modes In the Set Up Menu

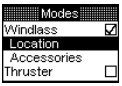
Select the AA702 ID (eg 803D)
The screen will show the Modes menu.



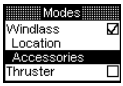


Windlass
Select Windlass.
Scroll to Location.
Select Location.
Scroll to the windlass location.
Select the windlass location.
Return to Modes.





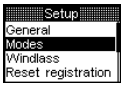
Accessories
Scroll to Accessories.
Select Accessories.
Select decklight.
Scroll to Deckwash or Auto deckwash.
Select Deck wash or Auto deckwash.
Return to Modes.
Press 3 times to return to the start screen.

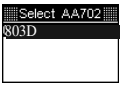


EXAMPLE 2
A windlass and a bow thruster. This set up uses a single AA702 base station.

Select Modes in the Set Up Menu

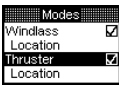
Select the AA702 ID (eg 803D)
The screen will show the Modes menu.

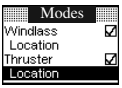


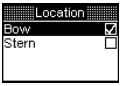


Windlass
Follow the steps in example 1 above for the windlass settings.
Return to Modes.

Thruster
Scroll to Thruster.
Select Thruster.
Select Location.
Scroll to the thruster location.
Select the thruster location.
Return to Modes.
Press 3 times to return to the start screen.

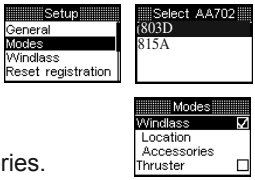






EXAMPLE 3

Two windlasses, decklight, automatic deck wash. This set up uses two AA702 base stations. It is important to select the windlass location when setting up for 2 windlasses.



Select Modes In the Set Up Menu

Windlass 1

Select the AA702 ID for Windlass 1 (eg 803D)

The screen will show the Modes menu.

Follow the steps in Example 1 for Windlass 1 and accessories.

Ensure you select the windlass location.

Return to the Select AA702 Screen.

Windlass 2

Scroll to the AA702 ID for Windlass 2 (eg 815A).

Select the AA702 ID for Windlass 2

The screen will show the Modes menu.

Follow the steps in Example 1 for Windlass 2 and accessories.

Ensure you select the windlass location.

Return to Modes.

Press 3 times to return to the start screen.

EXAMPLE 4

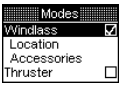
Two windlasses, a bow and stern thruster. This set up uses two AA702 base stations.
It is important to select the locations for the windlasses and the thrusters.

Select Modes In the Set Up Menu

Windlass 1 and Thruster 1

Select the AA702 Base Station ID for Windlass 1 and Thruster 1 (eg 803D)

The screen will show the Modes menu.



Follow the steps in Example 2 for Windlass 1 and Thruster 1.

Ensure you select the location for the windlass and the thruster.

Return to the Select AA702 Screen.

Windlass 2 and Thruster 2

Scroll to the AA702 ID for Windlass 2 and Thruster 2 (eg 815A).

Select the AA702 ID for Windlass 2 and Thruster 2

The screen will show the Modes menu.

Follow the steps in Example 2 for Windlass 2 and Thruster 2.

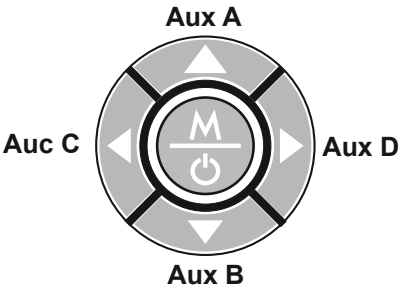
Ensure you select the location for the windlass and the thruster.

Return to Modes.

Press 3 times to return to the start screen.

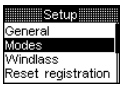
EXAMPLE 5 - AUXILIARY EQUIPMENT

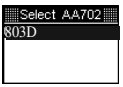
Auxiliary Key References



Example set up is for a windlass plus auxiliary equipment such as a cleat, using a single AA702 base station.

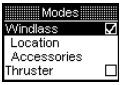
Select Modes in the Set Up Menu





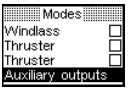
Select the AA702 ID (eg 803D)
The screen will show the Modes menu.

Windlass
Follow the steps in example 1 above for the windlass settings.
Return to the Modes screen. .

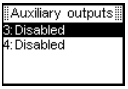


Auxiliary Equipment

Scroll to Auxiliary outputs .

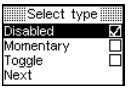


Select Auxiliary outputs. The screen displays the Auxiliary Outputs available. In this example there are 2 auxiliary outputs. Both ouputs are currently disabled.



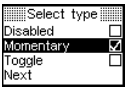
Select the Auxiliary Output to set up. eg Output 3. The screen shows the key logic options. At present the Output is disabled.

Scroll to the Key Logic required for the auxiliary equipment:
Momentary (Hold the button down for activity)
Toggle (Press and release the button to turn on the equipment and press and release again to turn off).

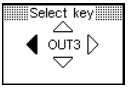


Select the Key Logic

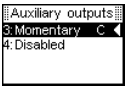
Scroll to Next and then select Next.



The screen shows the operating keys. Press the console key you wish to use to operate the auxiliary output. In this example the left arrow ◁ key will operate Output 3.



Press the mode button to select this key and return to the Auxiliary output screen. Output 3 is now listed as Aux C.



Scroll to and select the next Auxiliary output and repeat the instructions above to select the Key logic and the operating key for the next Auxiliary output.

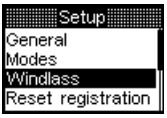
Press 4 times to return to the operating screen.

WINDLASS SET UP FOR CHAIN COUNTING

For accurate chain counting you must set up the AutoAnchor with the following information. for your windlass.

To Access the Windlass Set Up

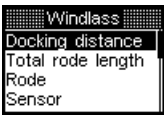
Turn the AA710 remote console off.



◁ M Hold together to access the Set up menu.
▽ Scroll to Windlass.
M Select Windlass.

Set Docking Distance Setting: _____

Defaut = 1.5m or 4ft. Minimum setting = 1m or 3.3ft
This is the point during automatic retrieval when the windlass will stop.
Complete retrieval using manual operation from this point.

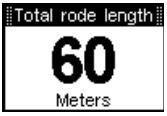


▽ Scroll to Docking distance.
M Select docking distance.
△▽ Increase or decrease the docking distance.
M Save and return to Windlass Setup.

Set Total Rode Length Setting: _____

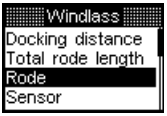
Add total length of chain plus total length of rope
Defaut = 60m or 196 ft. Minimum setting = 10m (33 ft)
or **OFF to operate as a counter only.**

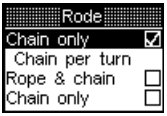
▽ Scroll to Total rode length.
M Select Total rode length.
△▽ Increase or decrease the value in meters or feet.
M Save and return to Windlass Set up.



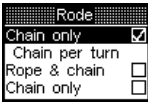
Set Rode Setting: _____

▽ Scroll to Rode.
M Select Rode.
M Select “Chain only” or “Rope and chain” and follow the instructions below to enter the settings for the rode selected.





SETTINGS FOR CHAIN ONLY RODE
Select Chain only



CHAIN PER TURN WHEN USING CHAIN ONLY RODE

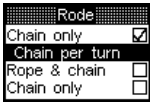
This is the length of chain that is released during one complete turn of the chainwheel. The information for some windlasses is listed in Appendix 1. If your windlass is not listed follow the instructions below.

To Enter the Chain per Turn for Chain Only Rode

Setting: _____

Select Chain per turn.

Enter the measurement. In mm or in metric inches (depending on units selected). See the table below for metric inch calculations.

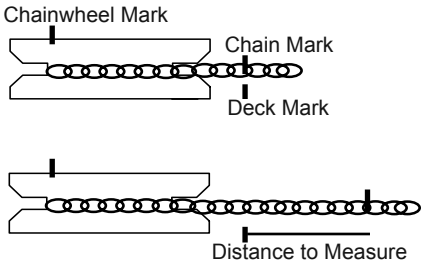


Save and return to Rode Set up.

Exit to Windlass Set up.

CALCULATING THE CHAIN PER TURN

Step 1 Use adhesive tape to place a mark on the chainwheel.
Step 2 Use adhesive tape to place a mark on the chain coming out of the chain wheel.
Step 3 Use adhesive tape to place a mark on the deck below the mark on the chain.
Step 4 Carefully release the chainwheel so that it can be turned by hand to feed the chain out.
Step 5 Using the mark on the chainwheel as a guide, turn the chainwheel one complete turn, causing the chain to be released on to the deck.
Step 6 Measure the length of chain from the mark on the deck to the mark on the chain.
Step 7 Enter this measurement. (See below).

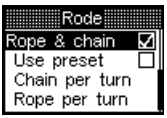


Metric Inches Conversion Table

Inches	Metric Inches	AutoAnchor Setting (to 1 decimal point)
1/8	0.125	0.1
1/4	0.25	0.3
3/8	0.375	0.4
1/2	0.5	0.5
5/8	0.625	0.6
3/4	0.75	0.8
7/8	0.875	0.9

SETTINGS FOR ROPE AND CHAIN RODE

Select Rope and chain
Some rope and chain windlasses have the settings already entered in the AutoAnchor. Refer to the Preset Windlass Profile List in Appendix 1. If your windlass is on the list select “Use preset” to enter the Windlass profile.



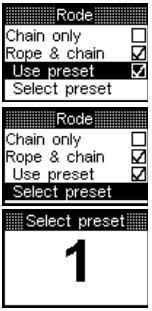
If your windlass is not on the list: You will need to enter information for the chain and rope per turn. (See the instructions below.

Selecting Use Preset

Setting: _____

Refer to the Preset Windlass Profile List list in Appendix 1.

- Select Use Preset.
- Scroll to Select preset.
- Select preset.
- Scroll to the correct preset windlass profile for your windlass.
- Save and return to Rode Set up.
- Exit to Windlass Set up.
- Press to exit to the Set Up menu and press again to return to the start screen.



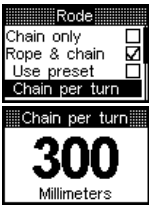
CHAIN PER TURN FOR ROPE AND CHAIN RODE

This is the length of chain that is released during one complete turn of the chainwheel. The chain per turn for some windlasses is listed in Appendix 1. **If your windlass is not listed follow the instructions on page 24 to calculate the chain per turn.**

To Enter the Chain per Turn for Rope and Chain Rode

Setting: _____

- Select Chain per turn.
- Enter the measurement in mm or metric feet (depending on the units selected). See the table above for metric inch calculations.
- Save and return to Rode Set up.



ROPE PER TURN FOR ROPE AND CHAIN RODE

This is the length of rope that is released during one complete turn of the chainwheel. You need to measure the length of rope pulled through for 10 turns and divide the result by 10. ***See instructions below to calculate the rope per turn.***

CALCULATING THE ROPE PER TURN

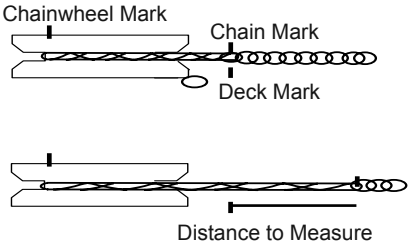
Step 1 Carefully release the chainwheel so that it can be turned by hand to feed the rode out until you have rope.

Step 2 As you did for the chain, use adhesive tape to mark the chainwheel, the deck and the rope. (See the instructions for the chain per turn on page 24).

Step 3 Using the mark on the chainwheel as a guide, pull the rope out by hand until the chainwheel has completed 10 turns.

Step 4 Measure the length of rope pulled, divide it by 10.

Step 5 Enter this measurement (See below).



To Enter the Rope per Turn

Setting: _____

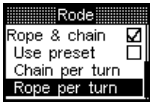
Select Rope per turn.

Enter the measurement in mm or metric inches (depending on the units selected). See the table above for metric inch calculations.

Save and return to Rode Set up.

Exit to Windlass Set up.

Press to exit to the Set Up menu and press again to return to the start up screen.

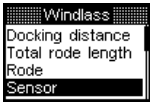


SELECTING THE SENSOR

This setting appears on the Windlass set up menu. Default setting is AutoAnchor grey sensor.

Scroll to Sensor.

Select Sensor.



There are 4 sensor options: The AutoAnchor grey sensor (supplied with the AA710 kit), the AutoAnchor black sensor, a baseplate fitted reed switch sensor and a gearbox fitted reed switch sensor.

Scroll to the sensor for your windlass.

Select the sensor.

If you selected an AutoAnchor sensor or the Reed baseplate sensor there are no further settings. Exit to the Windlass set up menu or press ◁ again twice to return to the start screen.

Select Reed Gearbox

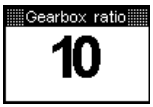
Scroll to Gearbox ratio.

Select Gearbox ratio.

Increase or decrease the Gearbox ratio.

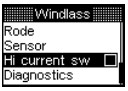
Save and exit to the Sensor set up menu.

Exit to the Windlass set up menu or press ◁ again twice to return to the start screen.



AFTER ANY SENSOR REPAIRS OR CHANGES TO SENSOR INSTALLATION RESET THE SENSOR BY CLEARING TO ZERO TWICE. SEE CLEAR TO ZERO IN PART 4, OPERATION.

SETTING FOR A HIGH CURRENT FOOT SWITCH



This setting is only selected when the windlass foot switch is wired directly into the high current side of the motor. If the "Hi current switch" is not selected the AA710 will not be able to register the direction of the windlass. The brown and white load wires must be connected for this setting. Default is off.

PART 4 OPERATION

USER PRECAUTIONS

It is the owner's sole responsibility to ensure the AutoAnchor is installed, used and maintained in a manner that will not cause accidents, personal injury or property damage. When using the AutoAnchor the operator must follow safe boating practices for all equipment use.

- **all equipment controlled by the AutoAnchor must be used strictly according to the equipment manufacturer's instructions;**
- **only persons who are fully aware of the correct use of the thruster, windlass or auxiliary equipment should be allowed to use the AutoAnchor to control this equipment;**
- **the user must personally control and supervise all anchoring, docking and other equipment operations;**
- **the user must know the location of the main breaker or battery switch to disconnect the windlass, thruster or auxiliary equipment from all power sources in the event of an emergency;**
- **the power supply to all equipment must be turned off when it is not in use;**
- **there must be an alternative method available to operate the windlass, thruster or auxiliary equipment;**
- **a failure of the wireless link will result in loss of control of the equipment via the AA710.**

When Controlling a Windlass

- maintain a clear view of the windlass, rode and/or anchor during windlass operation;
- always ensure the anchor is fully docked and secured before moving the boat.

When Controlling a Thruster

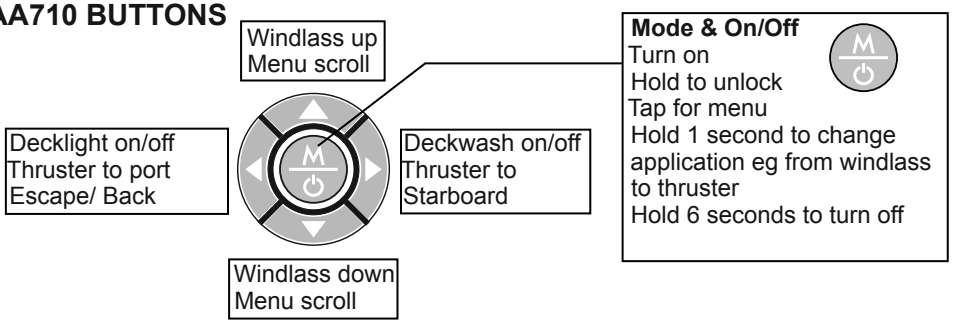
- do not operate close to swimmers, the powerful suction of water could cause serious injury;
- never run the thruster out of the water, this can cause serious damage to the motor;
- running a thruster without resistance from the propeller can also cause serious damage to the motor;
- if the thruster stops giving thrust while the motor is running, turn it off immediately.

The AutoAnchor manufacturer and supplier accept no liability for personal injury or property damage resulting from failure to follow the installation and operating instructions or the use of the AutoAnchor in a way that may cause accidents or damage or that may violate the law.

SET UP AND TESTING

Before use the AutoAnchor must be correctly set up for the equipment it is to control and then tested in a safe environment. The AutoAnchor will not count correctly if the windlass selection is wrong or the windlass is not standard (eg it is installed with a different chainwheel or motor).

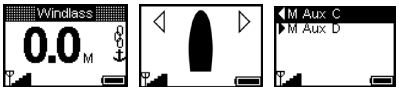
AA710 BUTTONS



To Turn the Auto Anchor On

Power up the AA702 base station.

Press the Mode button to turn the remote console on. There will be a delay of a few seconds while the remote console connects to the network. The screen will be locked and will display the last mode operated.

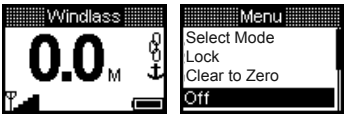


To Turn the Auto Anchor Off

In the start screen press the Mode button to display the menu.

Scroll to Off.

Select Off.

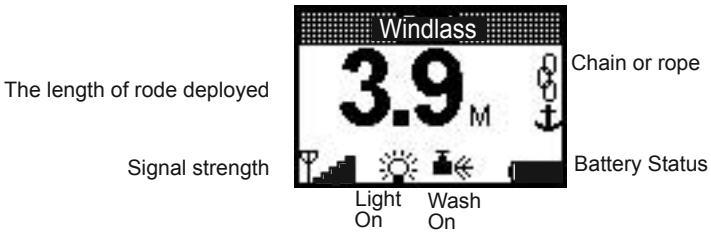


OR

Press and hold the MODE button for 6 seconds.

Note: The AA710 remote console will automatically turn off after 4 minutes without use.

INFORMATION DISPLAYED DURING OPERATION



Battery Status

Displays the power left in the 2 x AA batteries in the remote console. To ensure full operational capacity do not allow the battery status to drop to zero. All settings and measurements are saved if the unit is turned off or if the battery fails. Refer to Part 5 Maintenance in the Owner's Manual for details on battery replacement and care.

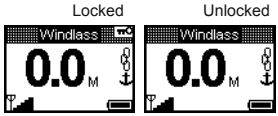
Signal Strength

This is the signal received by the remote console from the base station. It is affected by the distance between the two units and by structural aspects of the boat. Eg. A high concentration of steel superstructure between the base station and the remote console. If the base station is installed beneath a steel, carbon fibre or alloy deck it may not work.

Backlighting

The backlighting turns on when the control buttons are touched. At all other times it is in power saving mode. The backlighting level is controlled by the light sensor fitted to the front of the AA710.

Lock



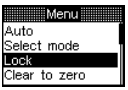
Hold the Mode button for 2 seconds to unlock. The AA710 automatically turns off and resets the lock after 4 minutes without use.

To reset the lock manually:

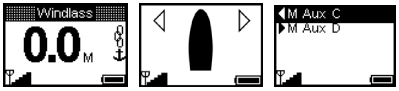
Press the Mode button to display the menu.

Scroll to Lock.

Select Lock. The screen will return to the current mode with the lock on.



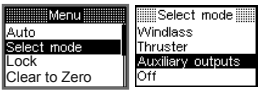
Changing Modes



Cycle through the modes by pressing the Mode button for 1 second at a time

OR

Press and release the Mode button to access the menu. Select the Mode.



WINDLASS OPERATION WITH THE AA710

For an accurate reading always ensure the AutoAnchor display reads 0.0 before deploying the anchor. See Clear to Zero page 32.

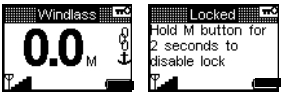
Counting continues if the AA710 remote console is turned and if the windlass is operated by another control eg foot switches.

AUTOMATIC OR MANUAL OPERATION

Keep your finger on the button to deploy the anchor manually or use the automatic function for hands free anchor deployment and retrieval. See the instructions for both options below.

MANUAL OPERATION

Deploy and Retrieve the Anchor Using Manual Operation



Turn the AutoAnchor on.

Clear the safety lock.

Press and hold the Down button to deploy the anchor and the Up button to retrieve the anchor.
Release the button to stop the windlass operation. Ensure the anchor is fully docked and secured before moving the boat.

DOCKING ALARM: During retrieval the AutoAnchor beeps to warn the operator the anchor has passed the preset docking distance. Extra care must be taken at this time.

AUTOMATIC WINDLASS OPERATION

WARNING: **There is an inherent risk when using any automatic function on a boat. If you choose to use the AutoAnchor automatic functions, you must still control and supervise all windlass and anchoring operation.**

Use the Automatic Function to:

- Preset the length of rode for deployment;
- Have hands-free operation of the windlass;
- Retrieve the anchor automatically to the preset docking distance.

Note: For rope/chain counting, if the sensor or load sensing wires are not installed correctly the automatic function **will not operate.** An Installation warning message will display on the screen. The windlass can still be operated using manual operation but the AutoAnchor will not count accurately.

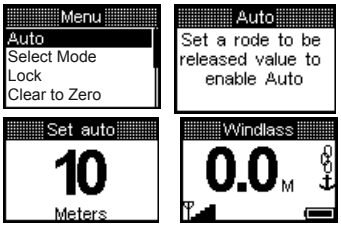
Safety Override

Press any button on the AutoAnchor to stop the windlass during automatic release or retrieval. In an emergency shut off the power to the windlass using the isolating/ breaker switch.

Enable Automatic Operation

A “rode to be released” value must be entered to use automatic operation.

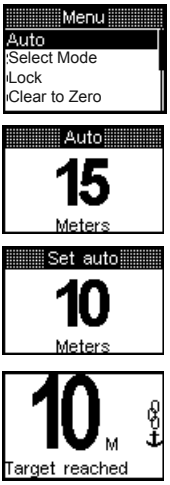
To Set A Rode to be Released Value



- Turn the AutoAnchor on.
- Clear the safety lock.
- Press the Mode button to enter the menu.
- Press the Mode button twice to enter Set auto.
- Scroll up or down to the value.
- Save and return to start screen.

To disable automatic operation: Set the rode to be released value to Off.

Deploy the Anchor Using Automatic Operation



- Turn the AutoAnchor on.
- Clear the safety lock.
- Press the Mode button to enter the Menu.
- Press the Mode button again to select Auto. The screen displays the current length for Auto release. If this setting is correct, press and release the down button to deploy the anchor.

To Change the Setting:

- Press the Mode button again to select Set auto.
- Scroll to the value.
- Save and return to Auto.

The windlass will stop and the AutoAnchor will beep when the preset length of rode has been released. The screen will display “Target reached”.

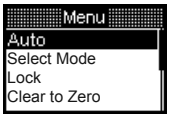
Retrieve the Anchor Using Automatic Operation

Turn the AutoAnchor on.

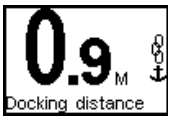
Clear the safety lock.

Press the Mode button to enter the Menu.

Press the Mode Button again to select Auto.



△ Press and release the Up button to retrieve the anchor. The windlass will stop and the AutoAnchor will beep when the docking distance is reached. The screen will display Docking distance.



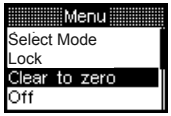
△ Press and hold the Up button to complete retrieval of the anchor. The AutoAnchor will beep during this process.

Ensure the anchor is fully docked and secured before moving the boat.

OTHER WINDLASS OPERATION SETTINGS

Press Ⓜ to access the Menu when the AutoAnchor is turned on.

To Clear to Zero



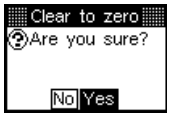
The AutoAnchor must be turned on.

Ⓜ Press to access the Menu.

▽ Scroll to Clear to Zero

Ⓜ Select Clear to zero.

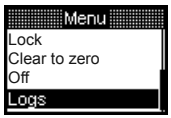
◁▷ Select No/Yes.



Ⓜ **Yes** - return to start screen.

Ⓜ **No** - return to the menu, then press ◁ again to return to the start screen.

To Check Logs



The AutoAnchor must be turned on.

Ⓜ Press to access the Menu.

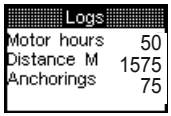
▽ Scroll to Logs.

Ⓜ Select Logs.

◁ Return to the menu.

◁ Exit and return to start screen.

Logs can be cleared if base station is reset.



To Use the Deckwash and Decklight

◁ Use the Left arrow to turn the decklight on and off.

▷ Hold down the Right arrow to use the manual deck wash.

To enable the deckwash or decklight, refer to Set Up.

Note: If Auto wash is set it will turn on automatically during retrieval if any windlass control is used. Control could be via the AA710 and also foot switches, toggle switches or another AutoAnchor unit.

THRUSTER OPERATION WITH THE AA710

The AA710 can control a single bow thruster or a bow and stern thruster together.

USER PRECAUTIONS

Only persons who are fully aware of the requirements for safe operation of the thruster should be allowed to use the AA710 to operate this equipment. The owner of the boat must take responsibility for ensuring the thruster is used according to the manufacturer's instructions and with the appropriate safety precautions.

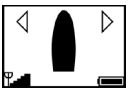
The thruster must not be operated close to swimmers, the powerful suction of water could cause serious injury. Never run the thruster out of the water as this can seriously damage the motor. Running a thruster without resistance from the propeller can also cause serious damage to the motor. If the thruster stops giving thrust while the motor is running, turn it off immediately. Always turn off the power to the thruster when it is not in use.

To Access the Thruster

Turn the AutoAnchor on.

Clear the safety lock.

Cycle through the modes by pressing the Mode button for 1 second at a time



OR

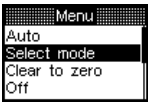
Access the Menu.

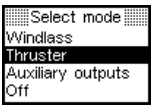
Scroll to "Select Mode".

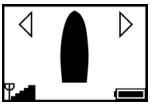
Select "Select Mode".

Scroll to Thruster.

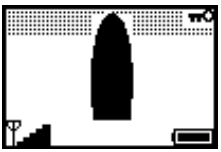
Select Thruster.



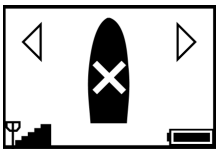




Thruster System Locks



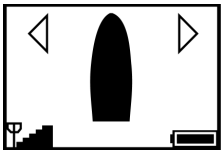
AA710 System locked.
Hold Mode button to clear.



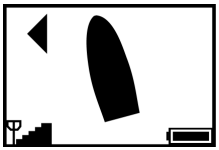
Local lock on. No access from AA710.
Thruster operated by another controller.

Bow Thruster Operation

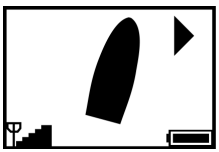
Use the left and right arrow buttons to control the thruster operation.
Left to port and and right to starboard.



Bow thruster selected.
System powered up and idle.



Thrust to port.



Thrust to starboard.

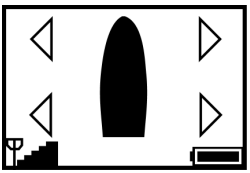
Combined Bow and Stern Thruster Operation

△ If there is a bow and a stern thruster fitted, use the up button to toggle between the bow thruster and the combined bow and stern thruster.

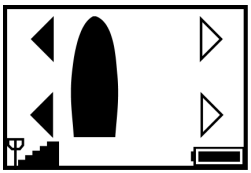
▽ Use the down button to toggle between the stern thruster and the combined bow and stern thruster.

◁▷ **Use the left and right arrow buttons to control the thruster operation to port and starboard.**

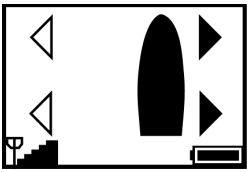
Dual Thruster Operation



Bow and stern thrusters selected. System powered up and idle.

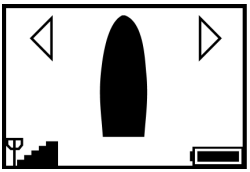


Bow and stern thrusters to port.

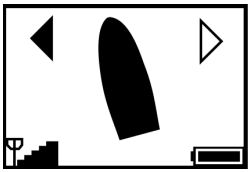


Bow and stern thrusters to starboard.

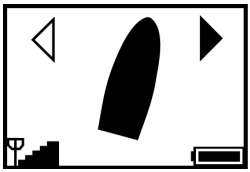
Bow Thruster Operation



Bow thruster selected. System powered up and idle.

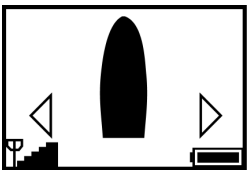


Bow thrusting to port.

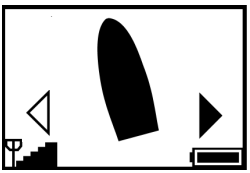


Bow thrusting to starboard.

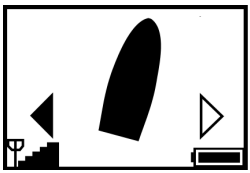
Stern Thruster Operation



Stern thruster selected. System powered up and idle.



Stern thrusting to starboard.

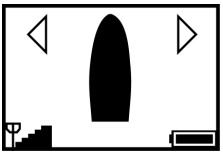


Stern thrusting to port.

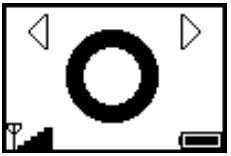
Pivot (360° Turn) Operation

Pivot mode can be selected from any thruster operation mode, by pressing the Up button for more than 1 second. For example:

Bow thruster selected. System powered up and idle.



△ Hold the Up button for more than 1 second to change to Pivot Mode.



◁▷ Use the left or right buttons to turn the boat clockwise or anticlockwise.

▷

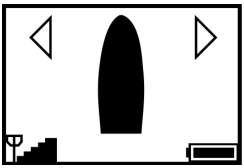
Clockwise.

◁

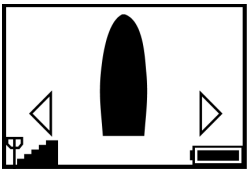
Anticlockwise.

△▽ To exit pivot mode and return to single thruster operation press the up or down button.

△ Press the up button to return to bow thruster operation.



▽ Press the down button to return to stern thruster operation.



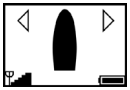
AUXILIARY EQUIPMENT OPERATION WITH THE AA710

The AA710 can control other equipment on the boat such as pumps, davits or cleats using the auxiliary outputs.

USER PRECAUTIONS

Only persons who are fully aware of the requirements for safe operation of the auxiliary equipment should be allowed to use the AA710 to operate this equipment. The owner of the boat must take responsibility for ensuring the equipment is used according to the manufacturer's instructions and with the appropriate safety precautions.

To Access the Auxiliary Mode



Turn the AutoAnchor on.

Clear the safety lock.
Depending on the system set up.

Cycle through the modes by pressing the button for 1 second at a time.

OR

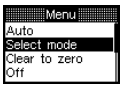
Tap to access the Menu.

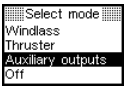
Scroll to "Select Mode".

Select "Select Mode".

Scroll to Auxiliary.

Select Auxiliary.





On the console use the key shown on the screen to operate the Auxiliary output. The Auxiliary output will be highlighted on the screen when it is selected or active.

PART 5 MAINTENANCE

The AutoAnchor does not contain any user servicable parts.
User maintenance is limited to :

- Checking all cables and connections for signs of wear or damage and replacing them as necessary.
- Checking the sensor head is not worn and has not moved out of alignment with the magnet and replacing the sensor if necessary. **After any sensor repairs or changes to sensor installation reset the sensor by clearing to zero twice.**
- Checking the magnet is not worn or corroded and replacing the magnet if necessary.

Note: Do not use chemical or abrasive materials to clean the console unit. If it is dirty wipe it with a clean damp cloth. Avoid wiping the display screen with a dry cloth as this could scratch the screen.

REPLACING THE BATTERY IN THE AA710 CONSOLE

Replace the batteries when the battery indicator shows the battery level is low. Do not allow the battery level to fall to zero. Two alkaline AA 1.5V batteries are required.

Battery Indicator

Turn off the console and turn off the power to the base station. Open the console case by removing the screws and lifting off the back cover. Remove the used batteries and replace them with new batteries in the same position. Check that the perimeter seal is clean and undamaged. Put the cover in place, refit the screws and tighten. **Do not overtighten the screws.**

Note: User settings are not affected by power loss or changing the batteries.

Battery Care

Insert batteries with the correct polarity.
Replace both batteries at the same time.
Do not mix old and new batteries or different types or brands of batteries.
Remove exhausted batteries immediately from the device.
Remove batteries and store separately if an extended period of non use is anticipated.
Follow battery manufacturer's instructions for disposal of used batteries.

PART 6 TROUBLESHOOTING

SCREEN MESSAGES

Messages are displayed on the AA710 remote console screen to assist with operation and troubleshooting. These messages are designed to assist the user. They may be **information messages,** for example, that the console is locked or is searching for the base station. The messages are self explanatory.

Examples of Information Messages

The lock is on. Hold the Mode button for 2 seconds to release the lock to use the AA710.

The console is searching for the base station.
This may take up to 10 seconds.

Diagnostic messages help find an installation problem. The diagnostic messages are all caused by external wiring or installation issues, which need fixing. **They are not caused by a fault with the AutoAnchor.**

A warning screen or information message appears when an issue is detected.

If the warning screen appears:

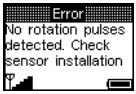
▷ Scroll to Diagnostics.

Ⓜ Select Diagnostics for further information.

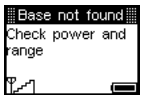
The diagnostic messages are designed to help find installation errors such as loose connections or incorrect set up.

Examples of Diagnostic Messages

An error has been detected in the sensor installation. Check the sensor installation and connections and the gap between the sensor and magnet.



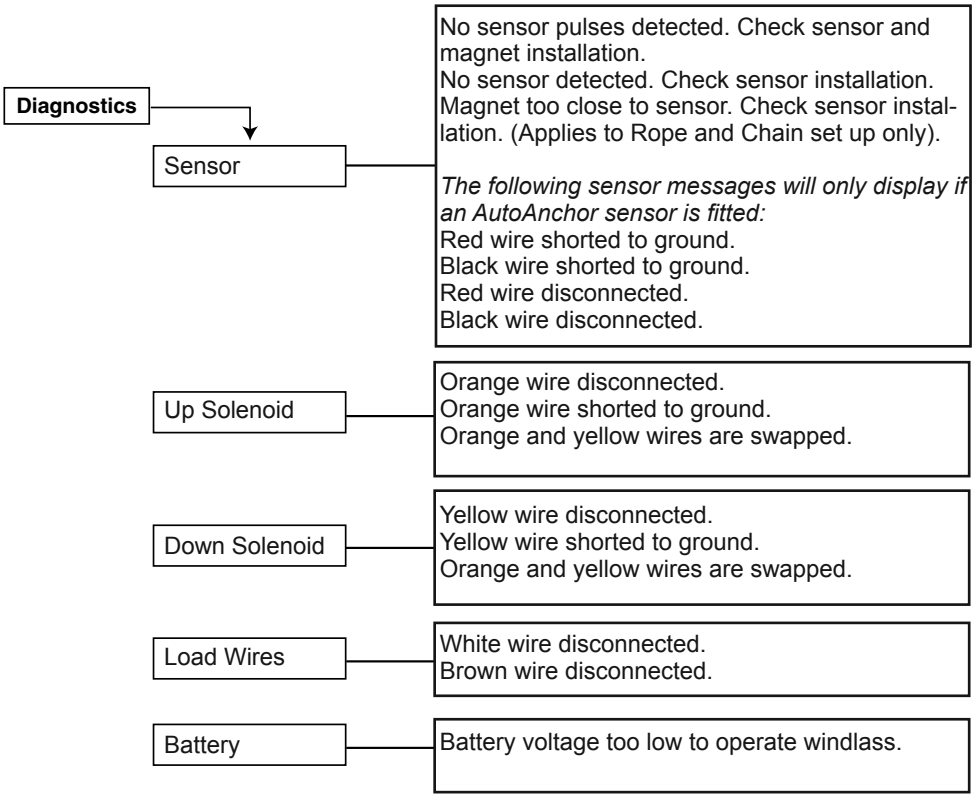
The base station is not receiving information from the sensor. Check the sensor installation is correct.



The console cannot locate the base station. If this message appears, the console will turn off after 60 seconds. Check the base station is turned on and is within range. If the message persists there may be interference on the current channel. Turn all consoles and base stations off and then back on. The master base station selects a clear channel on power up.

The full list of diagnostic messages is set out overleaf.

INSTALLATION DIAGNOSTIC MESSAGES



WIRELESS NETWORK TROUBLESHOOTING

SCREEN MESSAGES	POSSIBLE CAUSE/SOLUTION
Cannot register console and base stations.	Turn all consoles and base stations off and then back on. Try registration again. **If the problem persists:** Clear registration for all consoles and base stations (see page 17). Try registration again. **If the problem persists:** Units may be out of range. Try repositioning the console or base station before trying registration again. Check if the base station or console is close to severe interference eg. VHF radios, modified sine wave inverters, cable and antennas or radar antennas
Console cannot find base station. Console displays ‘‘base not found’ for 60 seconds and then it will turn off.	Check that master base station is powered up. **If the problem persists:** There may be interference on the current channel. Turn all consoles and base stations off and then back on. The master base station selects a clear channel on power up. **If the problem persists:** Units may be out of range. Try repositioning the console or base station. **If the problem persists:** The registration may be incorrect. Clear registration settings for all consoles and base stations (see page 17). Try registration again. Check if the base station or console is close to severe interference eg. VHF radios, modified sine ware inverters, cable and antennas or radar antennas
Console will not turn on.	Check batteries are installed correctly. Batteries may require replacing.

WINDLASS TROUBLESHOOTING

SCREEN MESSAGES	POSSIBLE CAUSE/SOLUTION
Auto mode disabled because of sensor or wiring fault.	Check the sensor diagnostics and magnet installation.
Battery voltage too low to operate windlass.	If the battery is fully charged, check the wiring for bad connections. If the cable is the wrong size there may be voltage drop between the battery and the AutoAnchor.

Magnet too close to sensor.	Check magnet and sensor installation. (*Applies to rope and chain installations only).*
No sensor detected.	Check sensor diagnostics, the sensor installation and set up.
No sensor pulses detected.	Check sensor diagnostics, the magnet installation, the gap and the sensor set up.
Orange and yellow wires are swapped, count incorrect.	Fix the orange and yellow wire connections.
Solenoid is disconnected or stuck on.	Check solenoid diagnostics to see which wire is disconnected and/or check the solenoid operation.
Solenoid output overloaded or shorted to ground.	Check solenoid diagnostics to see which wire is shorted.

OTHER TROUBLESHOOTING

AutoAnchor counts when the windlass is stopped or counts erratically displaying a large number. The screen may display **Sensor unstable"**	The sensor may be damaged. The sensor cable is not the specified type or the connection may be faulty. Check the sensor wiring. Any joins not made with the AA plugs must be soldered. All wires must be connected (including the drain) and screened cable must be used.
The count pauses during retrieval.	If the sensor indicator (arrow) is still pulsing, this is not a fault. The rode is changing from rope to chain.
Windlass deploys when the Up button is pressed and retrieves when the Down button is pressed.	The motor or solenoid wiring is reversed. Change the wiring and check the direction of windlass rotation. If the brown and white wires are connected, also check that they are correct for motor direction after you have changed the wiring.
Windlass does not stop exactly at the preset point.	Stopping is accurate to +1 chainwheel revolution. The chainwheel will run on slightly with momentum.
Windlass stops before the length of rode specified is deployed.	Using the Automatic function the rode release stops 10 ft (3m) short of the Total Length of Rode on Board setting.

AFTER ANY SENSOR REPAIRS OR CHANGES TO SENSOR INSTALLATION RESET THE SENSOR BY CLEARING TO ZERO TWICE.

INDEX

The AutoAnchor is designed and manufactured by:

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