

Micro Device



User's guide.

November 21, 2003

This document contains proprietary intellectual information exclusively owned by Micro Device S.r.l. All information contained herein is the exclusive property of microdevice

YACHT CONTROLLER IS A WIRELESS DEVICE USED TO CONTROL THE MANEUVERING OF A BOAT WHEN DOCKING, ANCHORING OR MOORING. IT IS NOT A SUBSTITUTE FOR PROPER KNOWLEDGE, EXPERIENCE AND OPERATION OF THE CONTOL OF A YACHT WHEN PERFORMING THESE PROCEDURES.

WARNING:



THIS INSTRUCTION MANUAL MUST BE CAREFULLY REVIEWED PRIOR TO USING YACHT CONTROLLER, IT IS THE OBLIGATION OF THE PURCHASER TO CONTACT THE SELLER OF THE YACHT CONTROLLER OR MICRO DEVICE SRL DIRECTLY IN THE EVENT THERE IS ANY DOUBT WHATSOEVER CONCERNING THE USE OR OPERATION OF THE DEVICE. THE SELLER OR MICRO DEVICE S.R.L. DO NOT TAKE ANY RESPOSIBILITY OR LIABILITY FOR INJURY OR DAMAGE TO PROPERTY DUE TO IMPROPER INSTALLATION OR USE OF THE YACHT CONTROLLER DEVICE.

Safety Precautions

This manual contains information highlighted by symbols, which must be followed for the safe and proper use of the Yacht Controller.



IMPORTANT:

Important information regarding the proper use of the Yacht Controller.



SUGGESTION:

Information that assists in facilitating the use of your Yacht Controller.



WARNING:

Information concerning the proper use of the Yacht Controller which must be followed in order to avoid product malfunction or breakdown.



DANGER:

Information concerning the proper use of the Yacht Controller which must be followed exactly in order to avoid injury and damage to property.

The information contained in this manual is subject to change or modification without notice: in the event of any differences or ambiguity, please ask the reseller or Microdevice.

Summary

SUMMARY	3
1. INTRODUCTION	4
1.1. GENERAL TRANSMITTER FEATURES	4
1.2. GENERAL RECEIVER FEATURES	6
2. YACHT CONTROLLER OPERATION.....	7
2.1. WARNINGS	7
2.2. ACTIVATION PROCEDURE.....	9
2.3. DEACTIVATION PROCEDURE.....	9
3. HOW TO USE YACHT CONTROLLER.....	11
3.1. STERN DOCKING "MED" STYLE	11
3.1.2 <i>Tieing Stern to the dock</i>	11
3.2. ANCHORING AND HOOKING TO MOORING BUOYS	12
3.2.1 <i>Dropping the anchor</i>	12
3.2.2 <i>Weighing anchor</i>	12
3.2.3 <i>Hooking to a mooring buoy</i>	12
3.2.4 <i>Unhooking from a mooring buoy</i>	12
3.3. OTHER SITUATIONS	12
4. MAINTENANCE	14
4.1. REPLACEMENT OF BATTERIES	14
4.2. HOW TO CLEAN THE TRANSMITTER	15
4.3. PROBLEMS AND MALFUNCTIONS	16
5. TECHNICAL SPECIFICATIONS.....	18
6. WARRANTY	19
7. FCC - CE MARK	20

1. Introduction

Yacht Controller, developed by Micro Device S.r.l., is an electronic remote control wireless, able to control a boat the basic manuvering and mororing fuctions.

The first prototype, was developed in 1998, and since then "Yacht Controller" has undergone a continuous evolution. Various types of electronic components have been tested for reliabilty and saftey including such as the switches of the transmitter and the relays of the receiver, in order to satisfy the most rigid military norms.

The system uses special proprietary microprocessors programmed directly in Micro Device S.r.l's laboratory thereby; preventing interference with passerelas, gangways or anchor radio controls which may be available and in use on the market. The range of contol of Yacht Controller is limited and the transmission protocol, codified to the owner, makes interference between the same or different systems working in the same zone impossible.

Severe and rugged tests conducted on various types of vessels, have proven the resistance and the reliability of Yacht Controller in marine environment, addidtionally the Yacht Controller has been subjected to a battery of laboratory tests in order to further ensure proper operation.

With Yacht Controller is possible to easily control, , the bow thruster, stern thruster, either engine, multiple anchors or winches using simple switches

"Yacht Controller" is electronically safe because, it is linked in parallel with the existing controls, thereby allowing uninterrupted full manual contol of them should the need arise. In fact, if the communication between theYacht Controller transmitter and the receiver were to stop for any reason, an acoustic signal immediately informs the user about the necessity of manually taking the control of the boat again.



IMPORTANT:

Further information concerning the complete system, including the transmitter and the correspondent receiver, are available in the installation manual.

1.1. General transmitter features

The transmission unit, similar to a remote control, is supplied with switches (two, three or four or more according to the models) for the radio transmission of the controls..

Some models also include pressure switches on the front of the device for ancor, wich or passerella controls

Every transmitter has a uniques and different code programmed in the factory, and chosen from more than 65.000 combinations.

Electronics is housed in a grey ABS container which combines functionality with an IP65 protection degree which is water resistant but not waterproof. The control is composed of two parts which snap together. A lower cover is removable to change the batteries. The unit is equipped with two luminous LED indicators: - a red LED shows which shows the transmission of control signals to the receiver. It also confirms the transmission of commands when the switches are pressed.

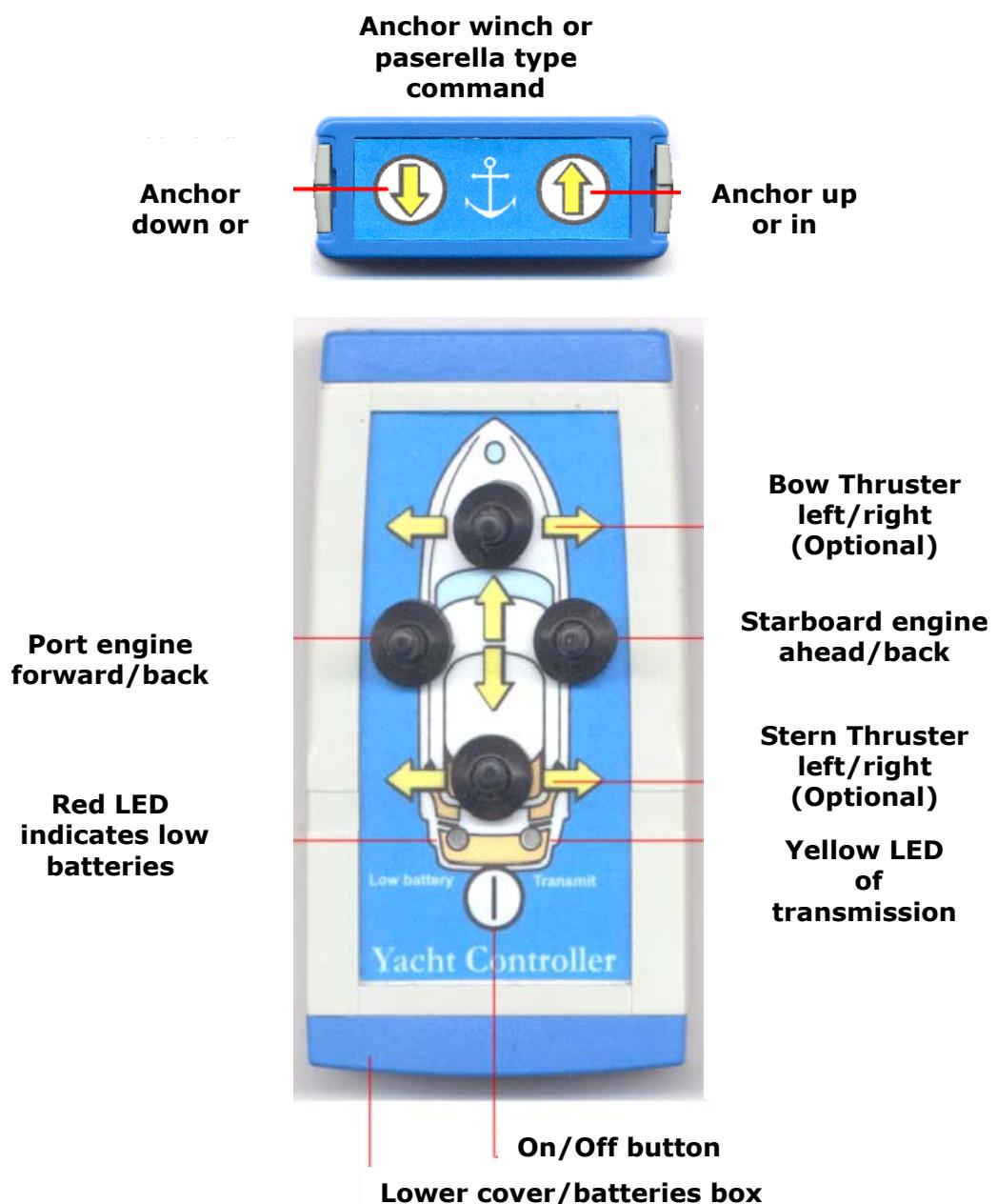


Figure 1: Description of the transmitter

1.2. General receiver features

The receiver is housed in a grey polycarbonate container with a transparent cover, placed inside and out of view of the chosen command station.

The receiver is turned on by a separate switch installed normally nearby the control station.

The receiver acquires the commands of the transmitter and, activates the functions of the boat accordingly.

It is possible to install an individual receiver so that it can communicate with more than one transmitter (not simultaneously).

The system is designed for commanding only engines supplied with electronic controls.. The electronic controls to which the receiver is connected must be activated to control the boat using Yacht Controller.

In the event of failure of communication between the transmitter and receiver, the receiver automatically places the engines in neutral and activates the acoustic signal.

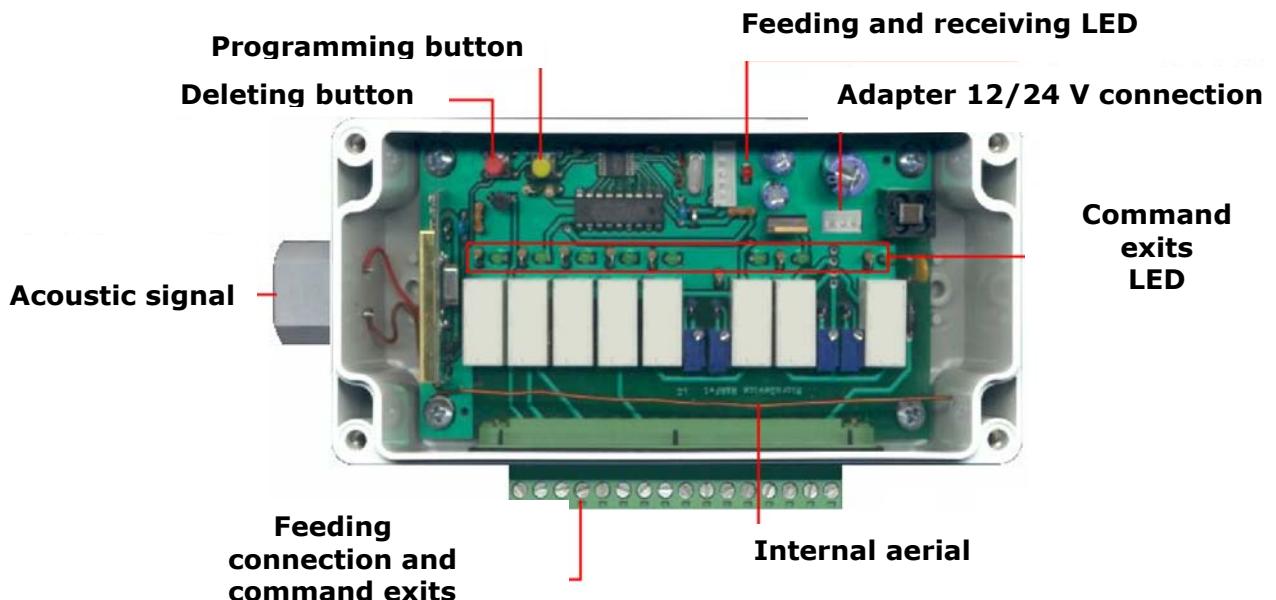


Figure 2: Description of the receiver

OPENING OR DISASSEMBLY OF THE RECEIVER IMMEDIATELY VOIDS THE WARRANTY

2. Yacht Controller operation

The commands on the receiver are activated by the respective switches placed on the transmitter. The transmitter cyclically transfers the state of the switches to the receiver. The command will remain active as long as the corresponding switch is pressed.

In the event of failure of communication between the transmitter and receiver, the receiver automatically places the engines in neutral and activates the acoustic signal.



IMPORTANT:

It is not **simultaneously** possible to command the same receiver from several transmitters. In fact, the periodic transmissions of the radio controls would cause interference and improper activation of the commands.

2.1. Warnings



DANGER:

- The Yacht Controller should only be used by adults with all the qualifications necessary for the proper operation and management of the boat.
- The Yacht Controller must always be secured outside the range of children.
- Do not use Yacht Controller if the transmitter has been immersed in the water (see also the paragraph dedicated to the maintenance).
- During the use of Yacht Controller, pay the maximum attention that the bow of the boat reproduced on the face of the transmitter, **always coincides** in direction with the bow of the boat. Failure to do so will result in commands exactly contrary to the desired ones and could result in injury or damage..



WARNING:

- The communication between the transmitter and the receiver can be disturbed by mobile telephones or radio-frequency transmission devices in operation nearby. If such event should occur receiver will activate the acoustic signal for short periods, signalling the interruption, until such interruption ceases and communication is re-established with the transmitter.
- **Due to the safety of the communication protocol, it is not possible that such interruption or transmissions will operate the receiver.** Also in the nearby presence of other Yacht Controllers, operating at the same time on adjacent boats, improper activations are not possible since the transmitters continuously modify the interval of time among two following transmissions.
Never use the transmitter if you are not on the boat which you are commanding. Such use immediately voids any warranty and is illegal and may be a punishable crime in various localities
- In of the event the LED signals low battery replace **both batteries** within short time..

2.2. Activation procedure

In order to activate Yacht Controller, follow the step by step the procedure described in this paragraph.

- Start the main engines in accordance with the usual procedure.
- Enable the boat command electronics control station to which the **Yacht Controller receiver** is connected .



DANGER:

IT IS ABSOLUTELY REQUIRED THAT THE ELECTRONIC CONTROL LEVERS
REMAIN IN THE NEUTRAL POSITION DURING THE USE OF THE YACHT
CONTROLLER SYSTEM.

- Activate the Yacht Controller system with the proper switch (installed on the boat) for switching on and off the receiver. In about two seconds, the acoustic signal of the device, will start emitting the acoustic signal which means that the receiver is on but has not established radio connection with the transmitter.
- Turn the transmitter ON, by pressing the proper on/off button and holding it down more than three seconds (security time to avoid accidental misuse). The confirmation of the activation is confirmed by the lighting of the transmission LED.

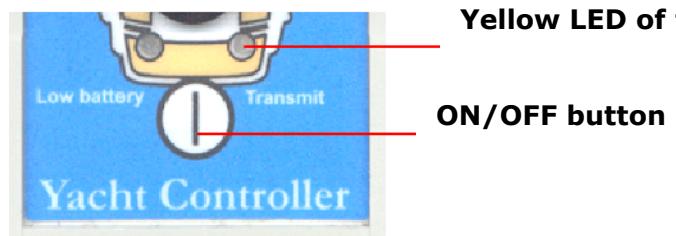


Figure 3: Transmitter ON/OFF button.



WARNING:

From the moment the system is operating, you must pay maximum attention, since involuntary pressure on any of the switches will cause the activation of the relative command.

- At this point, if the receiver and transmitter are communicating, the acoustic signal of the receiver will stop and the system is ready to function. It will now be possible to control the engines and the propellers, thrusters, anchors etc., simply pressing the corresponding switches of the transmitter.



IMPORTANT:

The transmitter automatically turns OFF after approximately four minutes from the last pressure of any switch..

2.3. Deactivation procedure

To deactivate Yacht Controller, follow the procedure described in this paragraph:

- Turn the transmitter OFF by pressing the proper button for more than three seconds (security time to prevent accidental turnoff). The confirmation of the deactivation is confirmed by the switching OFF of the transmission LED and the activation of the acoustic signal of the receiver, caused by the break of communications between the transmitter and receiver..



Figure 4: Transmitter ON/OFF button.

- Deactivate the receiver by pressing the appropriate on/off switch installed on the boat by the installer.



WARNING:

In emergency it is possible to deactivate the Yacht Controller receiver by merely turning off the on/off switch of the receiver without turning the transmitter OFF.

3. How to use Yacht Controller

Yacht Controller is a radio control system that allows you to operate certain functions the boat in a simple and safe way for easier docking, anchoring and mooring..

By pressing the relative switches of the transmitter, it is possible to action, from any point of the boat, either engine, a bow or stern thrusters, anchor or other device depending on the model of the controller..

The small size of the transmitter allow you to keep the transmitter handy, in your hand, on your wrist or around your neck etc..

As an example, the following describes how one may use the Yacht Controller during the operations of mooring, anchorage and hooking to buoys. These suggestions are of course modified in the actual use by each user depending on their experience and the situation at hand..

3.1. Stern docking “Med” Style

3.1.1 Untieing

After properly activating the Yacht Controller as previously described, and **with the control levers strictly in neutral position**, begin unmooring from the dock by going to the stern to release the lines which are holding the boat held to the dock.

Next go to the bow and raise the anchor taking advantage of the perfect visibility obtained by using Yacht Controller correcting the movement of the boat with the help of the engines (or the bow and stern thruster if installed), if necessary due to the wind or the wave-motion.

At this point it is possible to bring in the fenders; before going out of the harbour, go back to the normal driving position, take the manual control again and turn the receiver of the Yacht Controller OFF, following the deactivation procedure previously described.

3.1.2 Tieing Stern to the dock

Once inside the harbour, **put the levers control in the neutral position** and properly activate the Yacht Controller as previously described.

After positioning the fenders and arriving in proximity of the assigned boat place, go to stern and begin the entrance manoeuvre in full visibility. During the manoeuvre, thanks to Yacht Controller, you will always have the chance to instantaneously correct possible shiftings of the boat due to the wind or to the wave-motion. Go to the bow to drop the anchor, taking care to advance the boat with a *short command of engines forward* to avoid hitting the stern against the dock. At this point, it is possible to move to the stern and provide a *short command to reverse* the engines in order to tie the stern to the dock helped by people on the dock or from a member of the crew.



SUGGESTION:

To put in tension on the stern lines without an electric winch, you can use Yacht Controller by providing some short orders of *engines ahead or engine back* according to the situation. You then will be able to fix the lines to the dock with very little effort, before the boat puts strain on the lines.

When you are finished tieing the boat, deactivate Yacht Controller following the deactivation procedure described previously.

3.2. Anchoring and hooking to mooring buoys

3.2.1 Dropping the anchor

Once you have selected the optimal position for the anchorage, **put the control levers in neutral position**, and properly activate the Yacht Controller as previously described. Go to bow and, after checking the depth of sea and the possible presence of other anchors or chains, control the descent of the anchor. After lowering the anchor to the proper depth and providing the necessary scope of line or chain, use the yacht controller to reverse the engines to check the hold on the bottom and the direction of the anchor chain. Once the maneuver is completed deactivate the Yacht Controller following the deactivation procedure described previously.

3.2.2 Weighing anchor

When weighing anchor, **put the levers control in neutral position**, and properly activate the Yacht Controller as previously described. Go to bow to check that the line or chain freely rises and, with short commands of *engines ahead or propeller right/left*, avoid excessive tension on the anchor winch. Once the anchor is raised, deactivate the Yacht Controller following the deactivation procedure described previously.

3.2.3 Hooking to a mooring buoy

Before starting the manoeuvre, **put the levers control in neutral position** and properly activate the Yacht Controller as previously described.

Contrary to the usual procedure which generally requires a person's presence at the bow with a boat hook to catch the mooring buoy; using Yacht Controller, you will be able to pick up the buoy at the stern.

From this position it will be easy to tie to the buoy and walk the line to the bow to secure it to the forward cleat.

Once you have completed the manoeuvre, deactivate Yacht Controller following the deactivation procedure described previously.

3.2.4 Unhooking from a mooring buoy

Before starting the manoeuvre, **put the levers control in neutral position** and properly activate the Yacht Controller as previously described.

Go to bow and release the line from the cleat and slip it OFF from the buoy. In the presence of wind it will be possible to counteract the drifting, with short commands to the engines, thereby avoiding collisions with other boats.

Once you have completed the manoeuvre, deactivate Yacht Controller following the deactivation procedure described previously.

3.3. Other situations

In addition to what has been already described, the Yacht Controller will be useful in many other situations:

- During tying up to a dock for fuel or supplies, especially in confined places you will be able to easily control the boat from greater visibility points without risking collisions and screaming at your mates.

- In presence of low water, submerged rocks or other obstacles, you will be able to control the boat from bow, sides or stern, thereby helping you to avoid unpleasant stranding damage to propellers, shafts and other underwater gear.
- When docking or approaching another boat, you can control the boat from the sides, at stern or bow thereby , helping you to properly estimate the distance.

4. Maintenance

4.1. Replacement of batteries

When the battery discharge LED flashes, it is necessary to replace within a short time both batteries of the transmitter. It's a good rule to keep always on board two first quality alkaline batteries of 1,5V type AAA (LR06) (Duracell or similar).



DANGER:

Before working on the transmitter, make sure that the receiver is OFF. Accidental pressure on a transmitter switch could in fact activate a boat function and cause a dangerous situation.

To access the battery, Remove the lower cover of the transmitter with a screwdriver by inserting it in the slot between the cover and the main container.



Figure 5: Substitution of batteries.

Once the cover is removed, extract the old batteries and replace them with new ones, which must be of the type indicated at the beginning of this paragraph, paying attention to the polarity indicated on the back of the radio control cover.

Then put back the cover, properly respecting the polarity indicated on the metallic plate placed inside.



WARNING:

- This device contains batteries. Attention: batteries must be discarded in accordance with local and federal regulations.
- Always change the batteries in the radio control transmitter before they lose their power and discard the old ones according to the regulations in force.
- In the event the batteries have had some leakage, clean it up and replace them immediately, taking care to properly clean your hands to avoid skin problems.

4.2. How to clean the transmitter

After using your Yacht Controller, remove any salt residue by wiping with a soft cloth using fresh water. **ALWAYS avoid soaking it**

In case the transmitter has fallen into salt water, immediately turn OFF the receiver following the procedure described in this manual. Once the transmitter is recovered, remove the lower cover and remove the batteries. If salt water has entered inside the transmitter dip it momentarily in distilled water (or in lack of this, pure water) to remove salt residuals. Dry the transmitter using a hair-dryer (or, in the sun) until all moisture is completely evaporated..

Before replacing the batteries, be careful that everything is absolutely dry, otherwise short circuits may occur that would irreparably damage the transmitter.



WARNING:

If the transmitter is turned on when it falls into the water it may have irrevocable damage. Before using it again TEST IT COMPLETELY TIED UP AT DOCKSIDE OR IN A SECURE AREA.

If you notice ANY anomalies, contact the retailer or Micro Device Customer Service.

4.3. Problems and malfunctions

This paragraph describes a series of problems and malfunctions which could happen in using the Yacht Controller system; the possible cause, and possible solutions to the problem. For further assistance please contact your installer or Micro Device S.r.l.

Problem	Possible cause	Remedy
The receiver does not turn on	The control station of the boat to which the Yacht Controller receiver is connected has not been activated	Enable the control station and turn on the switch of the Yacht Controller receiver.
	The Yacht Controller receiver switch has not been turned on.	With the transmitter switched OFF, activate the Yacht Controller receiver switch and wait for the acoustic signal as confirmation.
	The Yacht Controller switch does not have power.	<ul style="list-style-type: none"> - Check that the switch has - power from the batteries. - there is no tripped breakers or fuses - the switch functions properly
The transmitter does not turn on.	No power to transmitter	<p>Verify:</p> <ul style="list-style-type: none"> - That the batteries and the cover are properly installed including respecting the polarity as indicated on the back of the transmitter - The batteries are properly charged
The acoustic signal of the receiver always ON	The transmitter is switched OFF.	Turn the transmitter ON by keeping the button pressed at least three seconds.
	The code of the transmitter does not correspond to the receiver	Contact Micro Device S.r.l. for assistance.

Problem	Possible causes	Remedies
The acoustic signal of the receiver emits intermittent signals.	The wireless transmission is interfered by radio-frequency sources near the , (mobile telephones or other radio-frequency equipment)	<ul style="list-style-type: none"> - remove, if possible, the source of disturbance. - if the functionality of the system is compromised, take manual control at the helm station.
	The distance between the receiver and the transmitter has exceeded the signal. Intermittent power to receiver	<ul style="list-style-type: none"> - go closer to the receiver to reduce the distance between the two devices. - the range of communication of the transmitter also depends on the charge of the batteries. Check the charge. <p>Check for loose power connection to switch or receiver</p>
The transmitter activates the low battery signal LED.	Batteries are near exhaustion.	Replace the batteries within short time.
The transmitter has fallen in water.		Remove batteries immediately and proceed as described in the paragraph dedicated to the maintenance.

If you encounter problems which are not contemplated in this table or if the possible malfunction is repeated, contact Micro Device Customer Service.

5. Technical specifications

Power:	2 alkaline 1,5 batteries AAA (LR03) type
Cover:	IABS with protection degree IP65.
Number of channels:	4, 6, or 8 according to the models.
Dimensions (LxAxP)	55 x 98 x 40 mm
Weight:	with batteries in, 60 g
Operating temperature:	from 0°C to +50°C

6. Warranty

Each Yacht Controller system is warranted for 24 months, as from the date of sale to the first user by the manufacturer against defects of material and workmanship. The warranty on the equipment is effective for all the possible faults of manufacture, material and for breakdowns not caused by the customer. This warranty explicitly does not include faults due to maintenance, improper installation and customer misuse. Such warranties are the sole warranties, expressed or implied, pertaining to this order. It is understood and agreed that no warranties, expressed or implied, are made by the seller, including implied warranties of MERCHANTABILITY and FITNESS FOR USE. Seller does not assume, nor does it authorize anyone else to assume on its behalf, any other obligations or liability in connection with the sale or use of this device.

All breakdowns imputable to the customer or due to force majeure, natural events and all faults caused by improper use of the equipment, are not covered by the manufacturer's warranty.

Manufacturer's Warranty is valid in accordance with following conditions:

- Installation must be made by a certified installer.
- Electronic Components Both the Receiver and Transmitter must be integral, not disassembled, tampered or modified in any manner.
- Warranty excludes equipment damaged by water.
- Defective equipment must be returned properly packaged to avoid shipping damage and complete of all the accessories.
- Package must be includes a brief description of the problem.
- Package must clearly show, near the address of the sender, the Number of Authorization to the Re-entry "NAR" given by Micro Device S.r.l.
- Return transportation charges are at the expense of the Purchaser.
- The Manufacturer's responsibility is limited to the substitution or repair of equipment which, in its sole judgment, has a manufacture defect.
- purchaser agrees that the manufacturer and seller's liability for any accident and/or damage to property and/or personal injury which occurs during the use of this equipment is solely limited to the purchase price of this equipment regardless of the incident or circumstances,
- The repair or replacement of equipment, during the warranty period, does not have the effect of extending the original warranty period

7. FCC - CE Mark



YACHT CONTROLLER IS A SYSTEM IN COMPLIANCE WITH CE DIRECTIVES FOR TRANSMITTERS IN NAUTICAL ENVIRONMENTS AND THE DIRECTIVES FOR ELECTROMAGNETIC COMPATIBILITY AND IMMUNITY TO ELECTROMAGNETIC DISCHARGES

Conformity Declaration

The manufacturer:

Micro Device S.r.l.

Declares that the product:

Yacht Controller

Is in compliance with the qualifications and with the pertinent dispositions established from the Directive 1999/5/CE.

IMPORTANT REMARKS

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.