



DOCKMATE, single-handed wireless remote control over your boat.



Docking Made Easy !

Installation manual

1. Safety precautions



Before installing the Dockmate, read all the manuals carefully.



Before starting any work on the installation of the Dockmate, make sure the boat is very well moored on strong and tight ropes.



The Dockmate should be installed by a trained and qualified engineer only.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by the manufacturer could void your authority to operate this equipment.

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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

1.1. Preparing the transmitter

1.1.1. TWIN/SINGLE Transmitter



Testing the battery:

- Press and hold down the HORN button; the green LED will light up.
- After about 2,5 seconds, the LED will turn off and you have to release the HORN button.
- The green LED will start to flash and the buzzer will start to sound (providing that the Receiver is off), indicating that it is trying to communicate with the Receiver.
 - o If the battery is still (sufficiently) charged, the red battery status LED (on the right) will remain off.
 - o If the battery voltage is (critically) low, after 3 seconds the red battery status LED will start blinking for about 30s. => This means the battery has to be charged.
 - o If the battery voltage is too low, then there will be no reaction on the transmitter at all (no LEDs or buzzer). => This means the battery has no charge left at all and needs to be charged.

When the transmitter is switched off, only the HORN button will be able to switch it on. Pressing any other button will have no effect.

To charge a TWIN or SINGLE transmitter place it on the charging pad. The red battery status LED should start blinking. The charger will also indicate that it is charging.


Troubleshooting the charger:


If after 1 minute on the charger the red battery status LED still isn't blinking:

- Check if the charger is on; if so continue to the next step
- Check the battery status (see "test the batteries" procedure above)
 - o If you're able to turn on the transmitter but the red battery status LED remains off when testing the battery, then the battery is completely full.
 - o If you're able to turn on the transmitter and the red battery status LED blinks for 30s, then there might be something wrong with the charger
 - o If you're unable to turn on the transmitter and it won't charge either, please contact your Dockmate dealer.





1.1.2. TWIST Transmitter








Press the  key for 1 second to turn on the transmitter.

The transmitter will be automatically switched off after 30 minutes of non use. Alternatively the transmitter can be switched off by pressing 3 times the  button or holding it down for 3 sec.

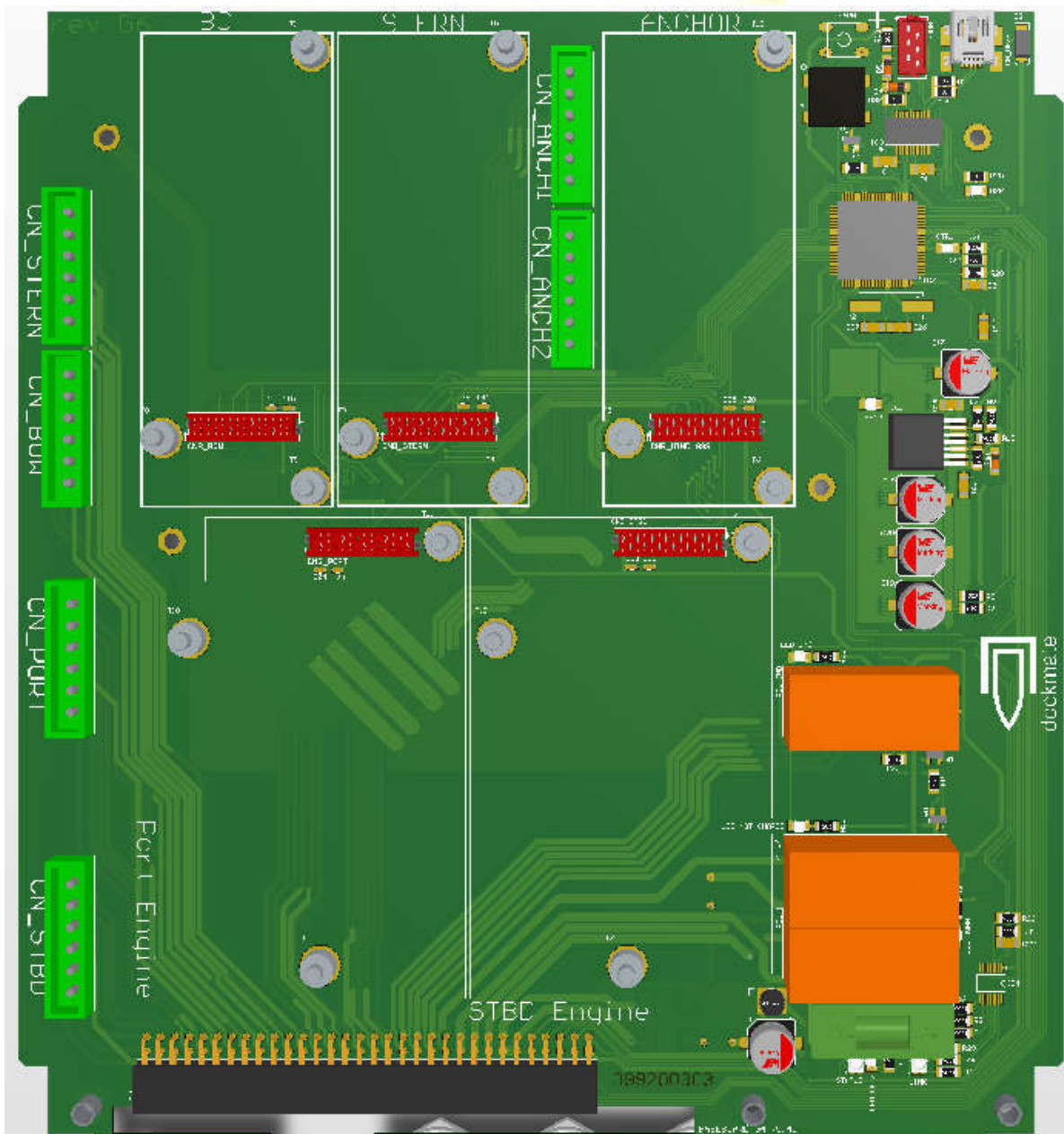
After the transmitter is switched on, both LEDs will go white. Then the LINK light will go dark and the **STATUS** LED will show one of following:

	Battery fully charged	More than 3.90V
	Battery OK	Between 3.45V and 3.90V
	Battery Warning	Between 3.30V and 3.45V
	Battery Failed	Less than 3.30V

Then it will go dark and the **LINK** light will show the communication status:

	Communication OK, actively transmitting data	When moving the joystick or pressing a button
	Communication OK, standby mode	When not moving the joystick or pressing any button for more than 15s
	Yellow / Green Blinking	Receiver status warning. For example CAN bus interface not in command
	Purple / Green Blinking	Receiver status error. For example CAN bus interface not powered on
	Communication lost	When communication could not been established or was interrupted. The transmitter also beeps.

2.Receiver rev. G overview



3. Installing the modules

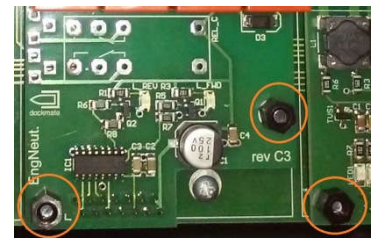
Always disconnect the power, before installing or removing modules !

Usually, the Dockmate comes ready with the correct modules.

When a module needs to be changed, it has to be done with care, not to damage anything by putting too much force.

To remove the module, use a socket wrench and a screwdriver as a lever and lift the module gently at each mounting point.

Then carefully mount the new module. Start with a point next to the red connector so the connector fits perfectly. Avoid bending the mother board or the module.



4. Connecting and installing the antenna

To connect the antenna to your Dockmate, connect the antenna directly or with the optional extension cable to the SMA connector on the front of the Dockmate Receiver.

For steel boats we strongly recommend mounting the antenna on the dashboard by using our antenna extension cable.

It is very important to place the antenna (either external or internal) in the right spot on the boat. The antenna has to be mounted as far as possible from other cables and equipment (especially radio equipment) – minimum clearance from other electrical cables and metal objects is 30cm.

The position of the antenna is very important.

- The antenna has to be positioned vertically, that means that the main antenna element has to point upwards or completely downwards if mounted on the side.
- In case of use of the dome shaped external antenna; this antenna has to be mounted horizontally, preferably on top of the dashboard, away from all metal.

After installing the antenna, make a range test with the Dockmate transmitter.

Go **slowly** around the boat and on the jetty with one button pressed to see if there are no 'blind' spots. Look closely to the transmitters' led. It should be lit constantly showing operation. If it starts to blink and the transmitter starts to beep, it indicates that it has lost the signal.

Note that, without pressing a button, the transmitter will stop sending radio signals after a couple of seconds (green LED still on), so it is crucial to keep pressing one of the buttons when testing the radio range.

5. Connecting the Dockmate receiver to the power

The Dockmate must be powered from the ship's 12V or 24V installation. The maximum voltage allowed on the Dockmate receiver is 28V.



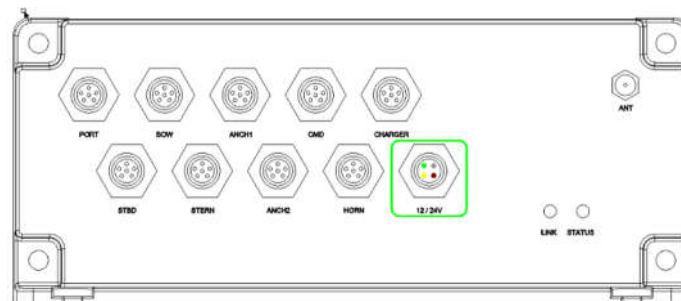
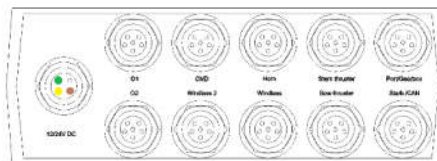
It must be connected to a switch that is marked 'Dockmate', and/or to the starting key.

On the picture the power connector inside the Dockmate is shown. The wires are connected to the connector on the front panel shown below.

The two pins with **white** and **brown** wires are used for the ship's ground, and the two pins with **yellow** and **green** should be connected to the ship's +12VDC or +24VDC.



Yellow is used to power the **receiver**.
Green is used to power the **wireless charger**.



6. Pairing the transmitter and receiver

At delivery, the transmitter and receiver are paired already.

In some cases, e.g. when ordering an extra transmitter, the new transmitter has to be paired with the Receiver.

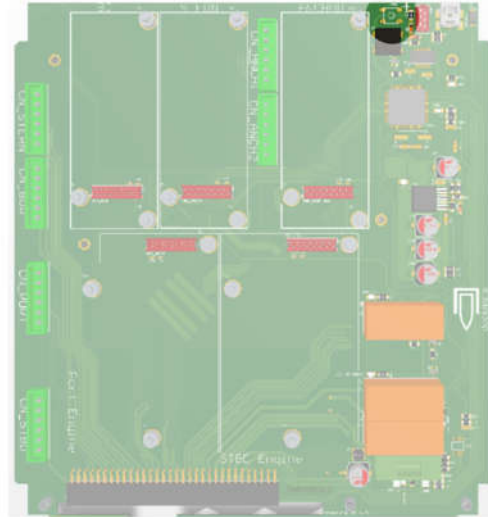
To do this, turn on the power of the receiver. Then after a few seconds, press briefly the button "**LEARN**".

The status led on the receiver will change to a blue color.

Then turn on the transmitter (Hold Horn button for 1 second and release it).

The status LED in the receiver will flash white.

Switch off the power of the transmitter and the receiver, then switch on again.



7. Programming / Settings



Connectors used for programming and settings are marked above. Red plug needs to be fitted, so yellow marking on the plug corresponds with yellow plus marked on the drawing.

Note that rev.G receiver has a mini USB socket which can be used as a **LiveView** cable (to read/write settings) but not to program. To change software mini programmer is still needed.

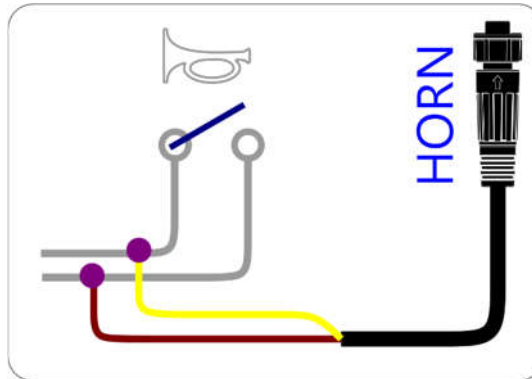


When going to the boat for installation / fixing issue minimum required set is MINIPROGRAMMER and LIVEVIEW CABLE + DOCKCONTROL software installed on the LAPTOP.



8. Connecting the horn module

The first step of connecting the Dockmate to the boat is by connecting the horn module.



Please note that when depressing the 'Horn'-button on the single and twin transmitter, there will be a delay time of about 0,6 seconds.



The Dockmate Receiver may only be connected directly to the boat's horn button when the boat's horn circuit has a built-in relay. When the horn button is big, bulky and has very thick wire, that suggests that no relay is used on the boat. In that case, wiring the Dockmate the standard way can cause wires or relays to burn, since it can only switch up to 2-3A.

For boats without a built in horn relay, an additional relay must be used.

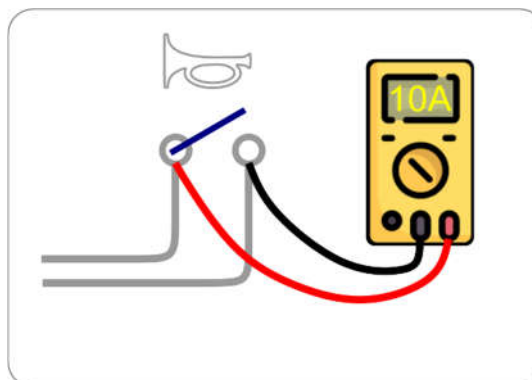
Dockmate can supply:

- "09.03.02 – External Horn Relay – 12V"
- "09.03.03 – External Horn Relay – 24V"

Alternatively, you can use a generic 12V relay (or 24V relay, depending on the boat).

You can easily check the need for an additional relay by using a multimeter.

Disconnect one wire from the horn button and set your multimeter for amps (10 or 20A range). Connect it as shown in the image below, and press the horn. When the current is bigger than 3A, an External Horn relay has to be used.



9. Connecting the TAKE COMMAND option

On the scheme above the option with two separate “TAKE COMMAND” buttons is shown. When there is only one button, leave “Take CMD 2” unconnected.

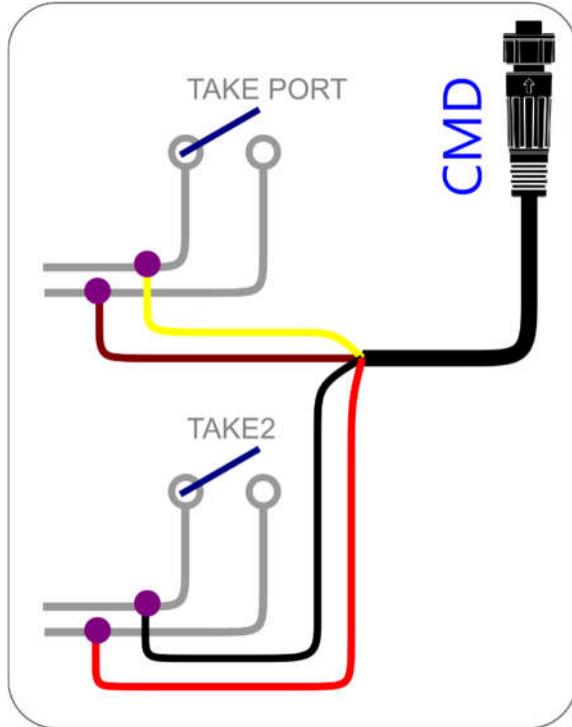
Some analogue gear shifts require only one push on the boat’s “take command” button. While others require two or more pushes.

The required push/click hold time can also vary from system to system.

If You have correctly connected the take command cable but Dockmate is unable to take command, please check the “Take Command” settings.

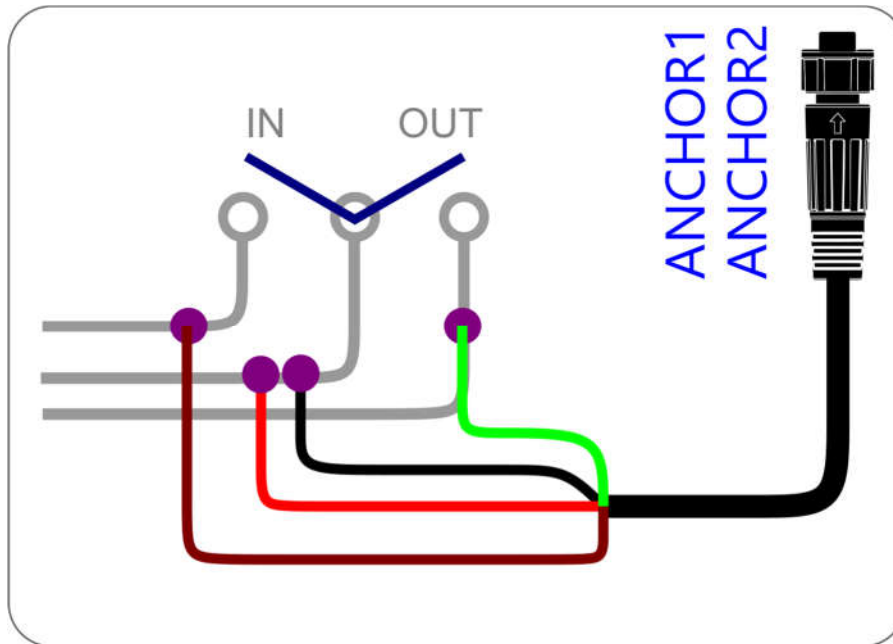
In DockControl’s Dockmate Settings window, go to the “General” tab.

There you will find the “Take Command” section, where you can set the “Number of clicks” and the “Click hold time”. Those values need to be the same as or higher than when you push the boat’s “take command” button.



10. Connecting the anchor winch

Most anchor winches are connected as shown below.



To find out which wire is which, use a voltmeter. Turn on the power of the windlass (but don't press any buttons) and measure the voltage between the ship's ground and the 3 pins of the windlass switch. The one that has +12 or +24V is the center one and has to be connected to the **red and black** wires. Then measure the voltage on the remaining wires by pressing the windlass button on the dashboard to find out which wire is powered when you press the up or down buttons.

Be careful: the windlass will move when you press the buttons!

Connection for both anchors are the same.

To select which anchor is active (on the remote there is only one pair of IN/OUT buttons) press both the (IN and OUT) buttons simultaneously for 0.5s on the transmitter. It will beep twice for the first anchor and 4 times for the second anchor.

NOTE: On the transmitter, together with the beep, also the battery LED will blink 2 or 4 times depending on which windlass is selected.

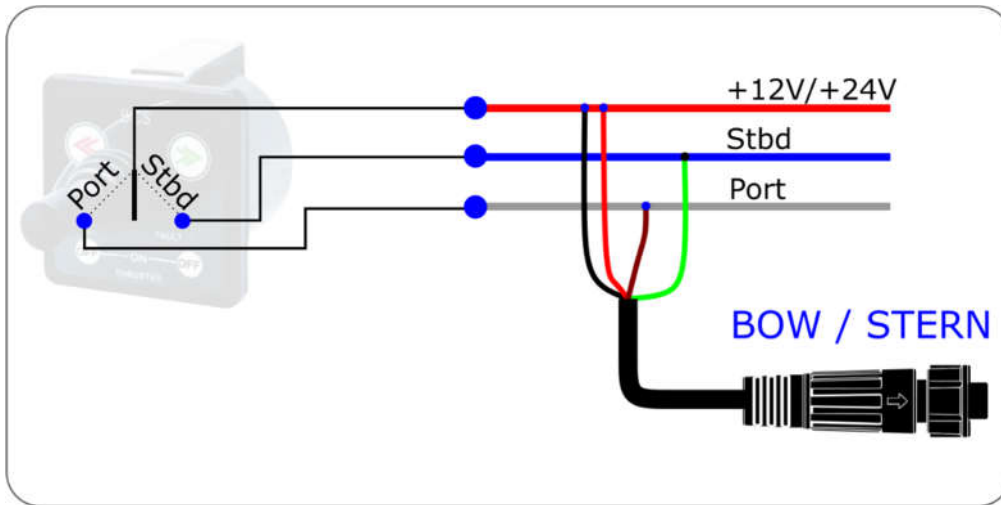
In DockControl please select if Single or Double anchor module is installed and used.

Direction of the buttons can be reversed for each anchor.

Note : White and yellow wires must be left unconnected.



11. Connecting the Thrusters



Both Bow and Stern thruster connection is the same and shown above

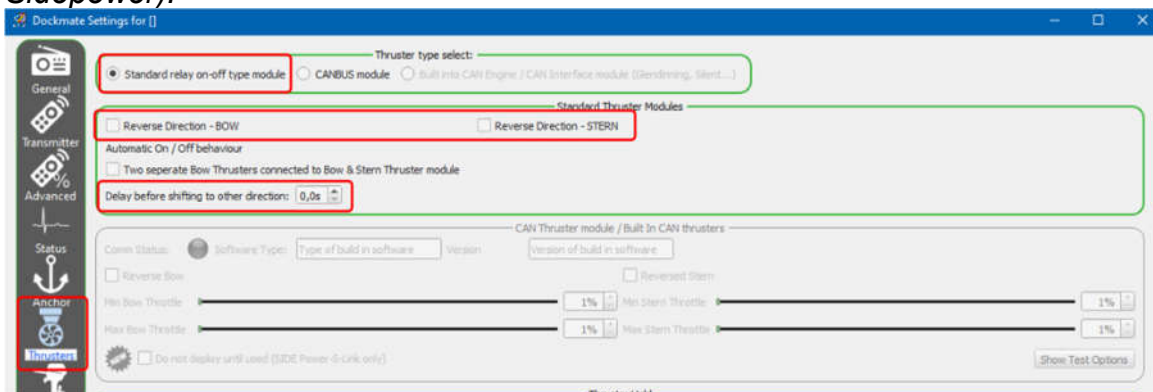
NOTE1: If the thruster operates in reversed direction in the DOCKCONTROL Settings or by swapping Green and Brown wires.

NOTE2: Cables coming out of the thruster panel may have different colors depending on the brand of the panel.

NOTE3: On some of the panels, there may be more than 3 wires, for example black and yellow. They are not important for this connection.

NOTE4: This schematic applies for generic thrusters. When having ready made cable with plugs, please consult manual for this type of thruster / cable.

NOTE5: White wire is unused. Yellow wire is used only for automatic switches (ie. Sidepower).



In DockControl please select 'Standard relay on-off type'. Default time - delay before switching to other direction is 0.8s.

12. Engine modules

There are no generic engine modules. Installation drawings and procedure is delivered in a separate manual for specific brand of engine controls

Appendix A: Analog Engine Controls : Measurement sheet

Conditions

Dockmate powered on
 Control system powered on
 Engines NOT running

MEASURED VALUES

CALIBRATED VALUES

Measure points PORT STBD	Max desired throttle FWD	GND OUT		GND OUT		
		VDC		VDC		
		VDC		VDC		
Measure points PORT STBD	Gear FWD idle	GND OUT		GND OUT		
		VDC		VDC		
		VDC		VDC		
Measure points PORT STBD	Levers neutral	GND OUT	⚠	GND MID	⚠	
		VDC		VDC		
		VDC		VDC		
Measure points PORT STBD	Gear REV idle	GND OUT		GND OUT		
		VDC		VDC		
		VDC		VDC		
Measure points PORT STBD	Max desired throttle REV	GND OUT		GND OUT		
		VDC		VDC		
		VDC		VDC		

For all analogue engine modules
For Speed Ctrl modules only

**At this point your DOCKMATE system is ready to use.
From now on you can dock your ship single handed!**

