Marine Module I

Instructions for Assembly and Handling

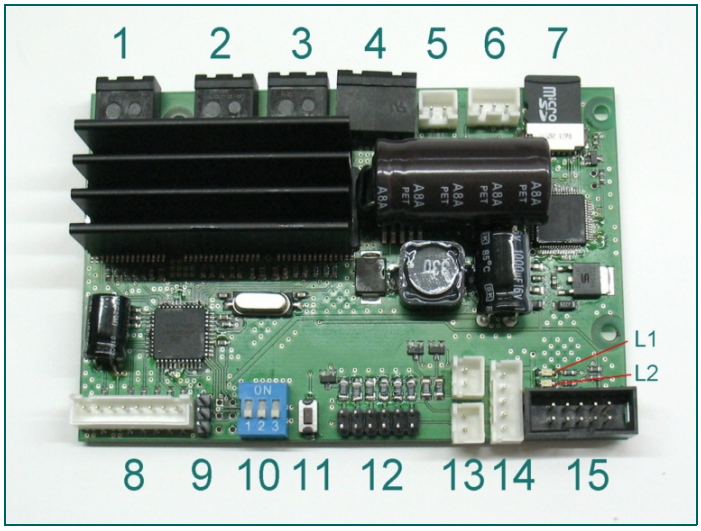
Please read this manual carefully before assembling and using the Marine Module!

Any warranty is denied by disregarding the instructions of this manual.

Scope of Delivery

- Marine Module I board
- cable for speaker
- volume controller (potentiometer)
- microSD card with sample sets
- cable set for receiver
- two cable for light
- power cable
- three motor connectors

Overview



1 Motor connector for optional bow thruster

2 Motor connector for left motor (portside motor)

3 Motor connector for right motor (starbordside motor)

4 Power connector (12 V)

5 Speaker output for 8 Ohm speaker

6 Volume control output (potentiometer is included)

7 MicroSD card with sample sets

8 RC-receiver input (six channels and BEC)

9 Rudder-servo, pin assignment: ground (bottom pin), + 5 V (middle pin), signal (top pin)

10 DIP switch for profile selection

11 Setup key for testing of the correct connection of the motors

12 Output „light 1“ for up to six lightchains (ground are on the bottom pins).

13 Output „light 2“ with integrated dropping resistor, top

13 Output „light 3“ with integrated dropping resistor, bottom

15 Connector for Configurator Box (optional available)

L1 Status LED for sound functions

L2 Status LED for driving parameters

14 Connector for PC Configurator (optional available)

Assembly

HINT: All connectors are labeled on the bottom side of the PCB!

Motors: The Marine Module I allows the use of up to three motors. Two of them drive the rear screws, the third one may be used for an optional bow thruster. Attach the motors to the corresponding connector using the included plugs. If your ship only features one screw, please left the connector 1 unused.

To assure that the motors are connected correctly jack up your boat that all rudder and screws are free. Switch on the power suppy. Wait a couple of seconds and press and hold the setup key. The motors start to move. The correct movement pattern is:

– the rear drive move in shear direction. i.e. the boat would move ahead.

– the right screw (in case of a two screw drive) moves faster than the left one.

– the optional bow thruster drives the boat to the starbordside, i.e. the bow thruster blows to the left.

If the movement of any of the connected motors differs from the described, swap the cables of the motor on the corresponding connector and run the test again.

Lights

Up to thee independent lights may be attached to the board:

- „light 1“ is able to switch up to six light chains (all chains on or off)
- „light 2“ and „light 3“ may switch 1 to 2 LEDs each.

Usage of Light Chains

Up to six light chains may be attached to the connector 5 („light 1“). All chains may be switched on and off collectively. The switching of individual chains is not possible. Each chain consists of multiple LEDs which are in series circuit. The length of the chain is determined by the voltage drop of each LED. The sum of the voltage drop of all LEDs of one chain must not be below 9 V (Volts) and should not be above 11 V. In the first case the LEDs may be destroyed, in the latter case the LEDs are dim or don't light at all.

The voltage drop depends on the color of the LED. The approximate values are summarized below. Please see the datasheed of the LED type you use for exact values.

Red 1,7 V	Orange 2 V	Yellow 2 V	Green 2 V	Blue 3,5 V	White 3,5 V

Examples of valid light chains:

red portside (1.7 V) + green starbordside (2 V) + bow and stern: 2 x white (2 x 3.5 V) = 10.7 V (valid)

blue (3.5 V) + yellow (2 V) + red (1.7 V) + white (3.5 V) = 10.7 V (valid)

orange (2 V) + yellow (2 V) + green (2V) + red (1.7 V) + orange (2 V) = 9.7 V (valid)

Light 2 and 3

Up to two arbitrary LEDs may be attached to each connector. If more than one LED is attached to one connector, they have to be in series circuit. No further external parts (dropping resistor) are necessary.

Connection of a Loudspeaker

A loudspeaker may be attached to connector 5. Please make sure that the impedance of the speaker is 8 Ohm or higher. If the impedance is lower, the electronics may be irreversibely damaged.
For optimal result, use high quality speakers with the largest possible diameter. The speaker should be embedded in aa as large as possible air tight box filled with accoustic insulating material.

Color Code of the Receiver Cable

Channel	control unit	function; color = signal, red = +5 V, black = ground
1	right stick	drive
2		steering
3	left stick	optional bow thruster
4		functions (ingnition and lights)
5	„on-off-on“ switch	Usersounds 1 and 2
6	„on-off-on“ switch	Usersounds 3 and 4
		BEC

Steering and Functions

The drive is controlled with the right stick. The vertical axis controlls the acceleration and the horizontal axis controlls the direction.
To ignite the motor push the left stick to the upper most position. Other functions are controlled as displayed on the chart below.
Depending on the receiver it may be necessary to adjust the channel order or swap its movement direction. All additional functions of the radio like mixers, expo, doubel rate should be deactivated. Check the manual of your rc gear for details.

channel 3 + 4

full: start / stop motor

half: toggle lightchain

bow thruster left (proportional)

bow thruster right (proportional)

half: Light 2 on / off

full: Light 3 on / off

Drive & Light

channel 1 + 2

ahead

portside

starboardside

back

Usersounds 1 – 4: Channel 5 & 6,

using 100% (full)

(3-way-switch or servo control unit)

Optional Bow Thruster

Connector 1 is used for the optional bow thruster, which is controlled as a full proportional drive. Check the correct connection by testing the blowed out air. Moving the bow to the starbordside, the air has to be fan out to the portside et vice versa.

Drive Support with or without Reverse with 2 Screws

Depending of the profile selection an optional speed depending steering support isJavailable with or without reverse shear direction of the inner screw.

Steering support: At low speed and depending of the rudder the inner screw will be slowered until to zero rounds. A rudder movement at standstill leads the screws to move antidirectional („spin turn“).

Reverse: Choosing this option the inner screw will be slowered even to antidirectional movement at low speed. The reverse increases with slowering the speed and vice versa.

The driving support can be choosen with or without reverse („spin turn“). This can be done by the optional available Configurator Box or PC Configurator depending of your model type. The initial values are for secure driving without surprising steering. To know the behaviour of your model we recommend not to send rapid commands – learn to use the advantages of our intelligent electronics.

Sound Sets and Usersounds

The board features a sophisticated sound generator. There are several different sound sets which are stored on the included microSD card. To select a particular sample set, attach the microSD card to your PC (an appropriate card reader or card adapter is necessary). The setup programme starts automatically - in other case start the file „MasterBlaser.exe“ which is in the root directory of the card.. For Apple Macintosh™ users, start the file „MasterBlaster.app“ in the root directory of the card.

Undervoltage Warning

In case the battery voltage drops below 10V, the board activates a power saving mode. The sound module is deactivated and all lights start to flash. Steer the ship immediately back to the coast to prevent total loss of control.

Drive Profile Selection

The drive behaviour is influenced by the activated profile. The current profile may be changed by the setting of the dip switches (10). The following profiles are currently available:

1 screw with simulated slowered dynamics

2 screws with optional bow thruster, no driving support, no slowered dynamics

1 or 2 screws with optional bow thruster, no driving support

unused

2 screws with optional bow thruster, driving support without reverse

unused

2 screws with optional bow thruster, driving support with reverse („spin turn“)

User defined profile (requires the optional PC Configurator or Configurator Box)

Trouble Shooting

Rudder servo doesn't move	Make sure that the servo is connected properly. The minus pole (brown or black cable) must show to the bottom edge of the board.
No audible sound	Check the position of the volume control and the correct connection of the speaker. Ignite the motor or activate a user sample to test the function.
No motor movement	Check the radio setup and the function of the receiver! Ignite the motor.

L2 (status driving function)	off	no power (check the wiring and battery)
	blinking	No valid receiver signal detected Check th rc gear.
	on	functional
L1 (status sound functtion)	off	no sd card detected or card malfunction
	blinking	communication or hardware damage
	flickering	a sound is currently played
	on	functional

Nicht geeignet für Kinder unter 14 Jahren.
Not suitable for Children under 14 years.
Ne convient pas pour aux enfants de moins de 14 ans.
Niet geschikt voor kinderen onder de 14 jaar.

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