



The **DC¹** allows stabilizing a model submarine at a desired depth. It is connected directly to and powered by the receiver. The module can be operated by a control stick as well as a rotary or linear slider on the transmitter. The servo signal is passed on to a pitch controller connected to the output pins of the module allowing the automatic control of depth and pitch of the model.

The **DC¹** offers two operational modes which are set by a jumper.

MODE 1: Active when NO jumper is set. **DC¹** then holds the actual depth as long as the control stick remains in its middle position (neutral). Moving the stick up or downwards forces the model to alter its depth until the stick is moved back to neutral. The control range ends at a depth of about 1 to 1.5 meters. Larger depths are possible but will not be kept automatically by the module. Furthermore, as soon as the stick is set back to neutral with the model at such larger depths, the submarine will be steered back within standard control range.

MODE 2: Active when jumper is set. **DC¹** will bring the model to the depth as given by the transmitter. With the control stick set to surface the model will also remain resurfaced. The more the control stick is moved downward the more the model submerges. Depth adjustment within the surface area is rather limited. Adjustment increases with the control stick at about half way down. This allows very precise control to periscope as well as larger depths. The control range ends at a depth of about 1 to 1.5 meters as in MODE 1. Moving the stick all the way downward allows the model to exceed this depth all the way down to the bottom.

Installation

The pitch controller should have been pre-installed, properly wired and adjusted. We recommend to test and adjust the pitch controller prior to installation of **DC¹**.

The **DC¹** is connected to the receiver with the lead protruding the module. The depth sensor of the module requires an outboard connection such as a piece of brass tube glued into the WTC. This outboard connector is then connected to the sensor via the silicone tube supplied. The sensor should never come in touch with water. Therefore, the tubing supplied has a relatively small diameter. Length of tubing should not be extended as this will prevent proper measurement of depth.

Apply jumper for MODE 2 or leave off for MODE 1. Connect a pitch controller to the output pins. Alternatively, for submarine models using a thruster as diving device (such as underwater exploration vehicles) the motor's ESC can be connected to the **DC¹** for depth control. Actually any unit reacting to servo signals is compatible.

The module can be fixed in any position with the M3 screw and nut supplied or with double-sided adhesive tape.

Adjustment and Setup

DC¹ is now connected between receiver and pitch controller. Power up transmitter (Tx) and receiver (Rx).

• In MODE 1 bring control stick to neutral.

• In MODE 2 bring control stick in the desired position for *fully surfaced*.

Then push button on **DC¹** for memorising the position of the control stick. This procedure can be repeated at your discretion should a different stick position be desired.

Test functionality by blowing into the silicone tubing. The dive planes should turn immediately upwards (surface position). Should the dive planes turn the opposite way **DC¹** must be inverted. Just turn off Rx, press and hold button on **DC¹**, and switch Rx on. Press button on **DC¹** again in order to reprogram position for *fully surfaced*.

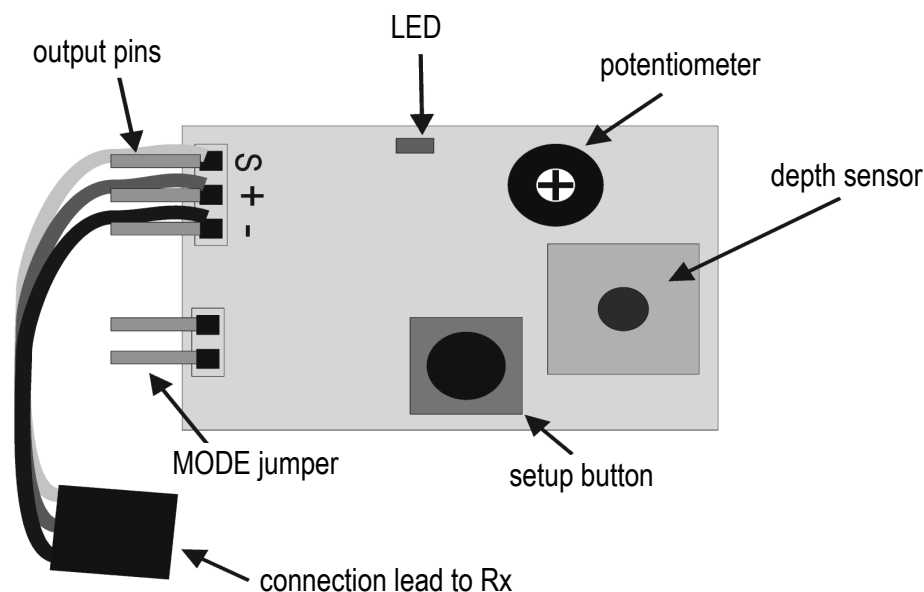
Finally, the sensitivity of the module must be adjusted during the model's maiden voyage. Turning the potentiometer on **DC¹** clockwise increases sensitivity, anti-clockwise decreases its function.

Should depth be adjusted by **DC¹** at very sluggishly (slow) sensitivity must be increased by turning the potentiometer in clockwise direction. If the model shows "dolphin-like" behavior sensitivity must be decreased.

Optimal underwater functioning of the model might require minor adjustment of pitch controller connected should no optimal behavior be achieved otherwise.

Technical Specifications

Operational voltage	3.5 - 8.5 V
Current consumption	6.1 mA (forward) to 8.4 mA (reverse) at 5 V receiver voltage
Propulsion motor voltage	max. 30 V
Dimensions (l x w x h)	approx. 32 x 23 x 9 mm
Weight (incl. casing/cables)	approx. 13 g



WARNING! This item is not a toy and therefore not suitable for persons under 16 years of age. Please adhere to your country's safety guidelines during construction and operation of this item. We are not liable for any personal injury or damage of any kind resulting with the assembly and/or use of our products as we are neither able to delegate nor verify the assembly and/or use of these items.

24 Month Limited Warranty: The manufacturer of this unit warrants this product to be free from defects in material and workmanship for a period of 24 (twenty-four) months from date of purchase. During that period, we will repair or replace, at our option, any unit supplied through us that does not meet these standards. You will be required to provide proof of purchase (receipt or invoice). Defects

caused by abuse, misuse, or accident, etc. are not covered under this warranty. Under no circumstances will the purchaser be entitled to consequential or incidental damages. If you attempt to disassemble, modify, or repair this unit in any way yourself it may void the warranty. For service or repair please send item post paid and insured to the address stated below. Please ensure adequate and safe packaging.



This symbol indicates that after the service life of this electrical device has ended it must be disposed separately from domestic refuse at your communal waste collection.

