The name says it all:

The aim of the development of this electronic speed controller (ESC) is to provide practical, easy-to-use units that can be used in submarines and scale ships.

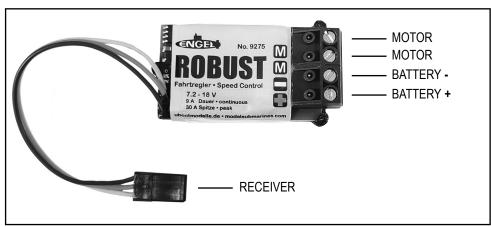
Robust means that they react well to the rudeness of everyday life such as short circuit or blocked engine instead of burning. This is largely achieved by using modern power semi-conductors with built in current limit and thermal overload protection.

The brain of the controller is a microprocessor. So noise filtering, transmission failure detection and variable motor frequency are standard.

To keep usage easy and straight forward no adjustments are necessary. Zero and full throttle can be set on the transmitter.

## CONNECTION

The battery terminals are marked with + and - , the motor terminals with M. The screw terminal can accommodate wires up to 1,5 mm2 (=AWG 16), more than enough for this current.



This ESC is short circuit proof by current limiting to 40 A and fast, reversible over temperature shut down.

The only way for damaging the controller is reversed polarity of the drive batteries. So be careful!

Although only one track on the PCB will burn, it needs repair. To avoid this, a fuse (rated 15 A) in the battery supply line should be used.

Keyed connectors on the battery should be standard.

**ROBUST ESC** Item No. 9275

## RECEIVER CONNECTION

The receiver plug fits Graupner and thus also Futaba and newer Multiplex.

The controller is set to joysticks of Futaba transmitters at 100% travel setting. Other transmitter brands can usually be set to these values.

## TRANSMISSION FAILURE

The only meaningful safety circuit is a transmission failure detection.

The engine power is then shut down in the course of 5 seconds to zero. This ignores short glitches but brings the boat to a stop when loosing contact.

The signal is already filtered so that the engine needs some 1/10th seconds to full throttle. Although this is hardly noticeable, it prevents wild spasms in noisy transmission.

## **TECHNICAL DATA**

nominal voltage 7.2 - 17 V under voltage lock out 4.5 V over voltage lock out 19 V continuous current 9 A

short time current 12 A for 3.5 min.

input signal center 1.5 ms

full throttle 1.1 or 1.9 ms

output signal variable frequency

(sigma-delta-modulation max. 900 Hz)

dimensions approx. 50 x 30 x 16 mm

weight approx. 15 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 dissassemble, modify or repair this unit in any way yourself warranty will be yoid.



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.

