

# Micro Invent MINOR



*Miniature FM receiver  
with electronic speed controller*

*Small dimensions, low weight  
Automatic configuration of outputs  
Possibility to connect the coil actuators  
Masking of a signal failure up to 0.5s  
Programmable "Fail safe" mode  
Linear course of the electromotor capacity control  
Reduce of power of motor if the voltage drops below 3.2V  
Turning off of the controller if the voltage drops below 3.0V  
Current fuse of motor  
Acoustic indication of state of controller*

## *Data*

<i>Number of channels</i>	<i>5</i>
<i>Frequency band</i>	<i>35, 40, 72 MHz</i>
<i>IF frequency / selectivity</i>	<i>455 kHz / 10 kHz</i>
<i>Modulation</i>	<i>FM negative or positive shift</i>
<i>Range (aerial 30 cm)</i>	<i>min. 100 m</i>
<i>Dimensions MINOR (FLAT)</i>	<i>15(17) x 10 x 6(4) mm</i>
<i>Weight MINOR (battery wires)</i>	<i>0.9 g with wires, without crystal</i>
<i>Weight MINOR FLAT</i>	<i>0.75 g without crystal</i>
<i>Power supply voltage</i>	<i>2.7 to 5.5 V</i>
<i>Current consumption</i>	<i>6 mA</i>
<i>Permanent current of motor</i>	<i>2.0 A (2.6 A peak)</i>
<i>Current fuse of motor</i>	<i>2.6 A</i>
<i>Resistance of coil actuator</i>	<i>min. 50 ohm</i>
<i>Operation temperature range</i>	<i>0 to +40 °C</i>

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# **MINOR**

*Dear modellers, you have received the subminiature five channel receiver MINOR with electronic speed controller. The receiver is designed with respect of achievement of very small dimensions and weight, it is intended especially for micro RC models.*

*The receiver is equipped with miniature connectors for the connection of servos and motor and it has soldered aerial. Outputs of receiver are adapted for the control of standard servos or simple coil actuators. Output of electronic speed controller is connected to 5th output of receiver.*

*The receiver differentiates whether standard servos or coil actuators are connected. When using coil actuators or motor, the receiver must automatically configure its outputs and therefore it is necessary to switch on transmitter prior to the connection of a battery to receiver and to adjust the "throttle" lever to minimal position.*

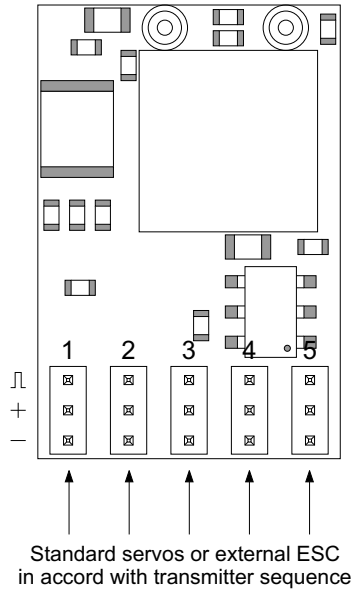
*The receiver is equipped with programmable "Fail safe" mode that sets and maintains programmed the position of servos at signal blackout longer than 0.5 s. "Fail safe" setting is to be achieved by setting the required position of servos for example by transmitter controllers so that it was not necessary to hold the levers with our hands. Set "throttle" lever to minimal position. Then disconnect and again connect receiver battery and do not move the levers for at least 1 minute. Then switch off the transmitter and check whether servos "hold" the set position. Deactivation of "Fail safe" mode is to be achieved by not moving the transmitter levers for at least 2 minutes after switching the receiver on.*

## **Warnings:**

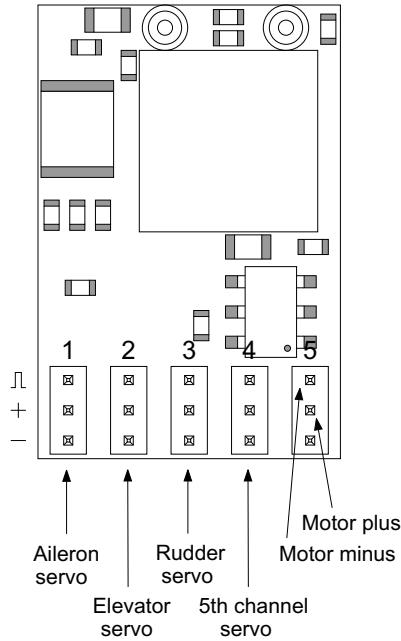
*Wrong polarity of battery or a short circuit of one of the outputs is likely to damage the receiver.  
Keep the antenna away from the rest of the electrical installation.  
Before the first flight of model we recommend range test with and without motor running.*

# Connecting the outputs

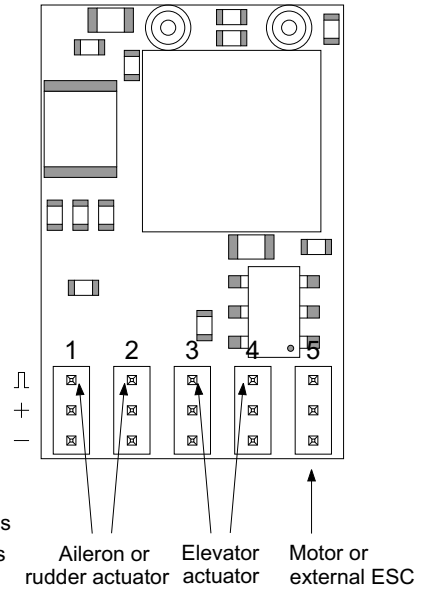
## Standard mode



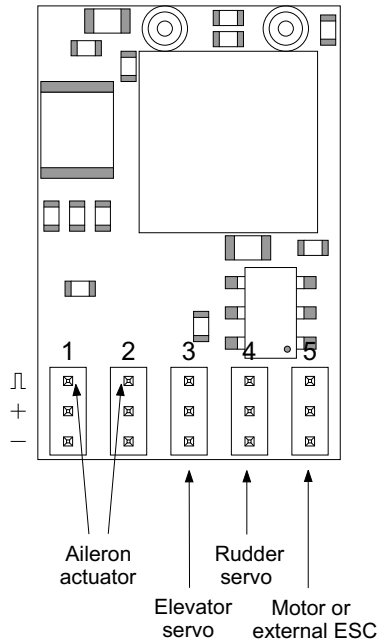
## ESC mode



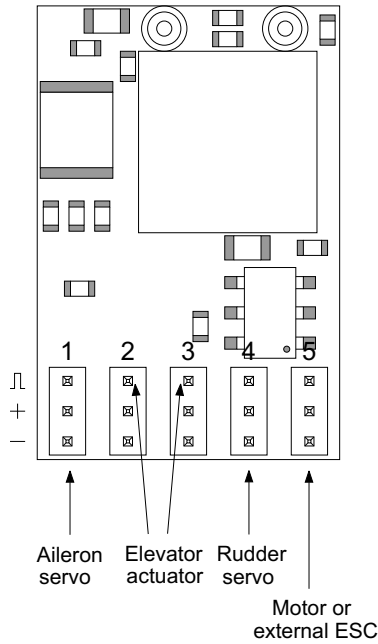
## Actuator mode



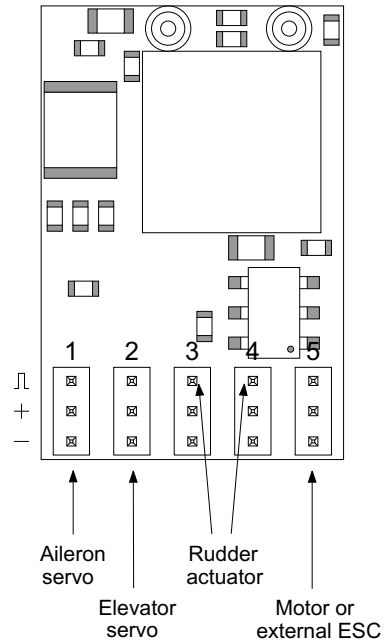
## Mix mode 1



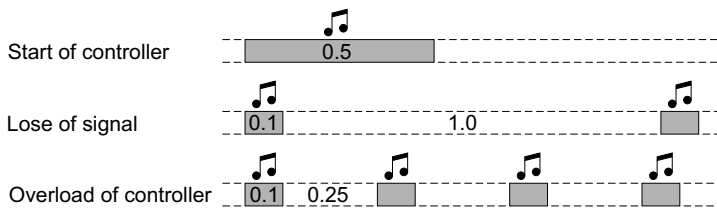
## Mix mode 2



## Mix mode 3

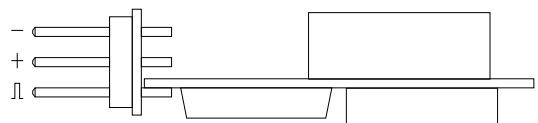


## State beeps of controller



Note : Time in seconds.

## MINOR FLAT



Notes :

Actuator direction can be changed by reversing its connector.  
Receiver may be powered by any channel output.  
MINOR and MINOR SMD versions has the battery inlets.  
Red wire is battery plus, black wire is battery minus.  
The frequency band assignment of the receiver is identified by the antenna colour. Red colour - 35MHz band, blue colour - 40MHz band, white colour - 72MHz band.