

# **Micro Invent MINOR Eco**



*Miniature FM receiver with  
electronic speed controller*

*Small dimensions, low weight  
Automatic configuration of ESC output  
Possibility to connect the coil actuators  
Masking of a signal failure up to 0.5s  
Programmable "Fail safe" mode  
Acoustic indication of state of controller  
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*

## *Data*

<i>Number of channels</i>	<i>3</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 20 cm)</i>	<i>min. 50 m</i>
<i>Dimensions</i>	<i>15 x 10 x 6 mm</i>
<i>Weight (with wires)</i>	<i>0.8 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>PWM of ESC</i>	<i>2 kHz</i>
<i>Resistance of coil actuator</i>	<i>min. 50 ohm</i>
<i>Operation temperature range</i>	<i>0 to +40 °C</i>

*[www.microinvent.com](http://www.microinvent.com)  
[info@microinvent.com](mailto:info@microinvent.com)*

# **MINOR Eco**

*Dear modellers, you have received the subminiature three channel receiver MINOR Eco 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 3th connector of receiver.*

*The receiver must automatically configure ESC output 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.*

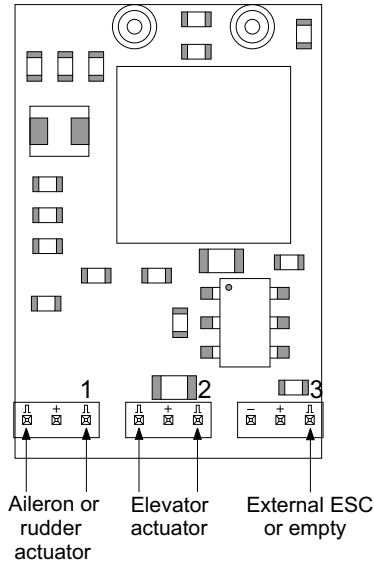
*Keep the antenna away from the rest of the electrical installation.*

*Before the first flight of model we recommend range test with and without motor running.*

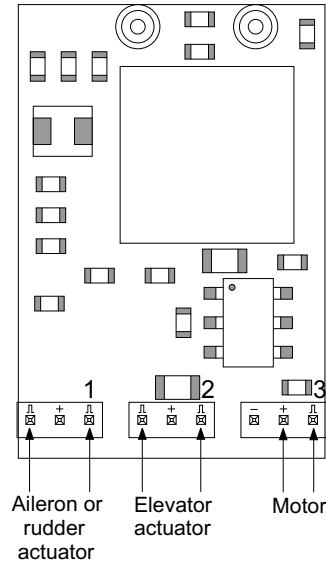
# Connecting the outputs

## MINOR Eco-A

### Actuator mode

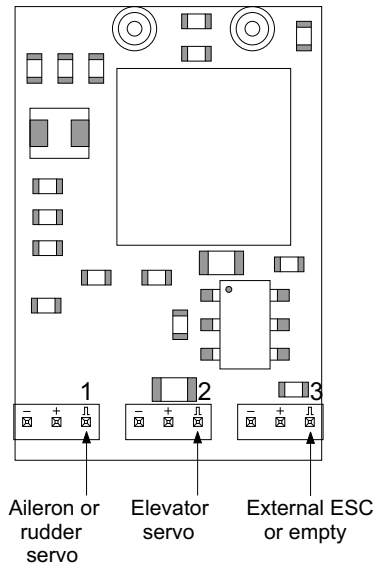


### Actuator ESC mode

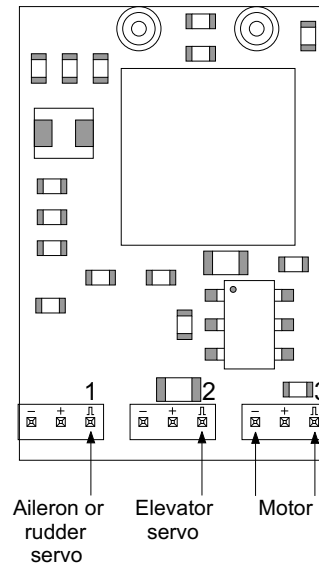


## MINOR Eco-S

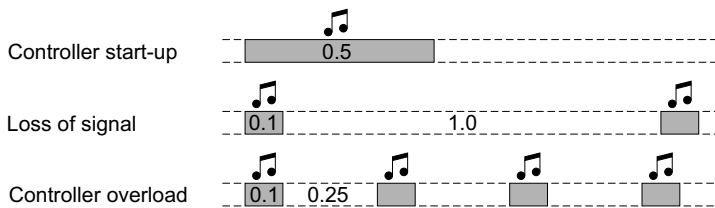
### Servo mode



### Servo ESC mode



## Controller state acoustic indication



Note : Time in seconds.

### Notes :

Actuator direction can be changed by reversing its connector.  
Receiver may be powered by a battery wires or external ESC.  
Red wire is battery plus, black wire is battery minus.  
Battery minus on ESC output is marked by the yellow colour.  
Motor output is marked by the red colour.  
The frequency band assignment of the receiver is identified by the antenna colour. Red colour - 35MHz band, black colour - 40MHz band, white colour - 72MHz band.