

## Servo inverter INV3

The **INV3** controller serves to reverse the servo movement direction i.e. the sense of turning. This functionality is usually part of all RC transmitters nowadays; however, there are still applications for this kind of controllers. Especially for mirror movement controlled by one channel and where a mechanical solution is not simple. In ship modeling the INV3 can be used for opening of two-wing hatches, covers and gates. As to flying models, it is necessary in many cases to use a servo located reversely in each wing for control of uplift of flaps.

The INV3 contains trimmer for setting-up the final position within  $\pm 15^\circ$  of standard servo rotation range. Trimmer position is indicated by the dark dot. At the Fig.1 is turned to the centre ( $0^\circ$ ). The miniature trimmer is a sensitive device requiring gentle manipulation with a suitable screwdriver. Never turn the trimmer over the red area between  $+15^\circ$  and  $-15^\circ$  values.

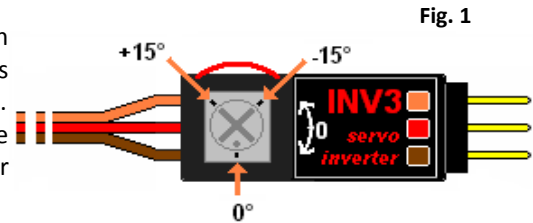


Fig. 1

### Installation procedures

The INV3 can be just connected between a receiver and a servo. ATTENTION, the output connector is not secured against change of polarity of cables. The order of colors must be kept the same as on the cable to receiver, as is indicated on the following picture. The same colors must be towards each other, not the other way as it is shown on Fig 2!

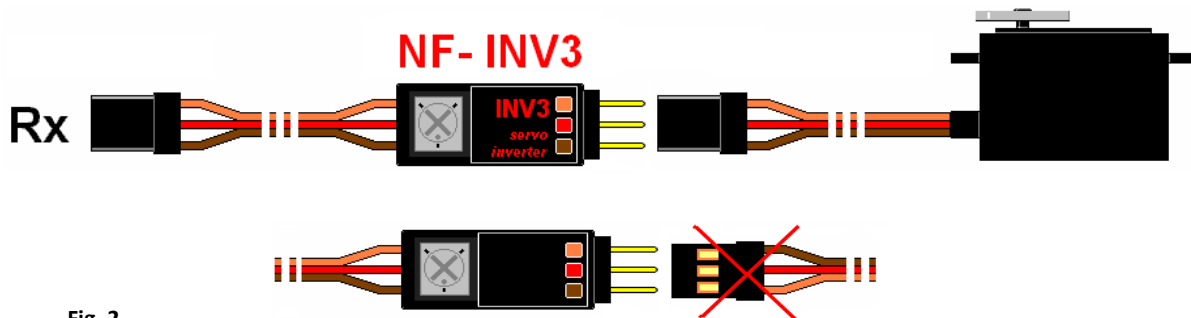


Fig. 2

The operational voltage range is **3,0 to 12,0 V**. The power wires (red and brown) pass through INV3 unchanged. The level of the signal (yellow wire) against the ground (brown wire) cannot exceed 5V and the level of power voltage supplied by Rx (red wire) against the ground. The chart on the Fig. 3 shows the minimal level of the input signal "MIN INP" and the level of the output signal "OUT" depending on the power supply voltage. The level of the signal from a receiver must be inside the space between the "MIN INP" and "OUT". Most of receivers in the market easily meet this requirement.

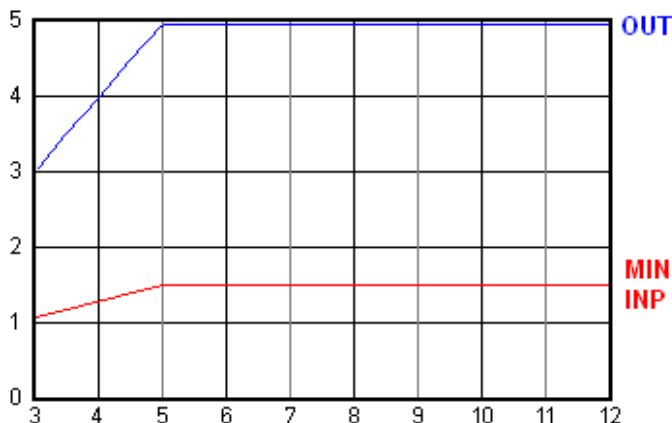


Fig. 3

The INV3 processes the input signal having pulse width from 0,45 to 3 ms. The width of the output pulses is mirrored around the 1,5 ms axe, so that the 1 ms wide input pulse generates 2 ms wide output pulse and vice versa. Input pulses shortest than 0,85 ms generate output pulses 2,15 ms. Input pulses widest than 2,15 ms generate output pulses 0,85 ms. The whole range is shown at the chart on the Fig.4.

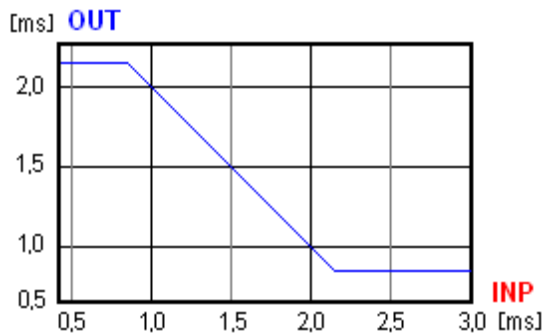


Fig. 4

If the INV3 is sensitive to touch, the likely cause is a free overthrust of the servo-cable to the module connector. A good contact can be ensured by bending down the middle contact by a half of its thickness. Bend it with small pliers, holding the module in your fingers as close as possible to the connector to reduce the risk of the contact's breaking, see Fig.5.



Fig. 5

### Technical parameters NF-INV3

	min	typ.	max.
Operational voltage [V]:	3	5	12
Consumption [mA]:		< 2.5	
Input pulses width[ms]:		0,45 – 3,0	
Output pulses width[ms]:		0,85 – 2,15	
Pulses period [ms]:	10	20	40
Trim 0:		+/- 15°	
Operational temperature:		0 - 70°C	
Dimensions [mm]:		40 x 10.5 x 6.5	
Weigh[g]:		4,5	

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