

## Illumination unit NF53 & NF54

**NF53** and **NF54** units are designed for realistic illumination of big models with wingspan two meters and more. The unit contains eight independent current-powered outputs to power color ultra bright LEDs. Two outputs are dedicated for position lights **P1** and **P2**, three outputs for anti-collision flashing lights **F1**, **F2** and **F3** and two for landing lights **L1**, **L2**. Output **L3** can be set up as another output for landing or position lights. From one to three LEDs can be connected to each output according to level of the current. Unit **NF53** is designed for LED with the nominal current of 120 or 350 mA, flashing lights 350 or 700 mA. Unit **NF54** contains active cooling and it is designed for LED 350 and 700 mA, flashes 500 and 1000 mA. Higher or lower value of the each output can be selected by jumper. The jumpers are placed between the coolers. The output switches to a higher value by inserting of jumper. Possible current values are shown in the table on the unit label. A red dot indicates a value without a jumper, a blue dot value with a jumper.

- 0:  Outputs of the flashing lights **F1** and **F2** flash in synchronization with one second period. One of the eight combinations can be selected by blue jumpers **1**, **2**, **4**. (see fig. 2)
- 1:  The **F3** output has an independent time base, so its flashes drift slowly against flashes **F1** and **F2**. This makes more realistic impression as on the real airplane. **F3** output can be set to one, two or three consecutive flashes (see fig. 3).
- 2:  The black jumper **L3** for output function selection is located under this jumper. The pulled out jumper switches off the output. Inserted jumper as shown on the picture 4 sets up the mode for landing or position lights.
- 3:  The unit can be used as non-controlled without connecting a cable to the receiver **Rx**. In this case it is necessary to have inserted black jumper **SW** (Switch). The landing and position lights comes on immediately after power-up.
- 4:  The red jumper **3P** in this mode is dedicated to switch off the landing lights manually. When the jumper **3P** is pulled out, the landing lights are switched on. The lights are off with the inserted jumper.
- 5:  The unit can be used as non-controlled without connecting a cable to the receiver **Rx**. In this case it is necessary to have inserted black jumper **SW** (Switch). The landing and position lights comes on immediately after power-up.
- 6:  The red jumper **3P** in this mode is dedicated to switch off the landing lights manually. When the jumper **3P** is pulled out, the landing lights are switched on. The lights are off with the inserted jumper.
- 7:  The unit can be used as non-controlled without connecting a cable to the receiver **Rx**. In this case it is necessary to have inserted black jumper **SW** (Switch). The landing and position lights comes on immediately after power-up.

Fig. 2

When you connect the connector **Rx** into a free channel of the receiver, you get the option to switch on the lights during the flight. The red jumper **3P** selects the control lights mode (see fig. 5).

In **2P** mode the position and anti-collision lights are on permanently and landing lights are controlled from the transmitter. In **3P** mode the standard range of servo is divided into thirds. In the first the lights are switched off, position and anti-collision lights are on in the second and in the third all lights are on. Anti-collision and landing lights automatically begin to flash when the receiver is unable to receive a signal from the remote controller. The receiver circuit and the light circuits are electrically separated by an opto-coupler. Unit is compatible with Graupner or Hitec-type connectors.

The unit is equipped with an electronic power supply switch. If the black jumper **SW** is pulled out, the mode of electronic switch is activated. If the power supply of the receiver is switched off and or if the receiver cable is disconnected, the unit is automatically disconnected from the power supply. If you want the lights on even after switching off the receiver or want to use the unit without control by the receiver, **SW** jumper must be inserted.

### Installation procedure

Unit power input is protected against reverse polarity by diode. The outputs maintain the nominal current of LED in the wide range of voltage from (4,8V) 6 V to 14 V without the need to connect compensating resistance series in the circuit. As the number of the cells of the powering accumulator increases, so does the number of diodes that can be connected serially on each output. It is only necessary that the sum of voltages of diodes plus 1,8 V is below the voltage of accumulator, otherwise the luminosity of LEDs falls down. The typical working voltage for red and yellow LEDs is 1,8 to 2 V. For white and green it is from 3,0 to 3,3V. The colors of diodes in one circuit can differ.

You may check function of the unit before the installation by connecting it to the accumulator and by connecting diodes on output contacts. Units NF54 has the fan located above the cooler that is switch on and off together with lighting.

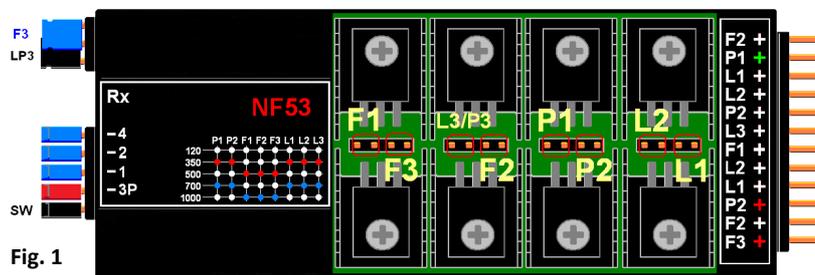


Fig. 1

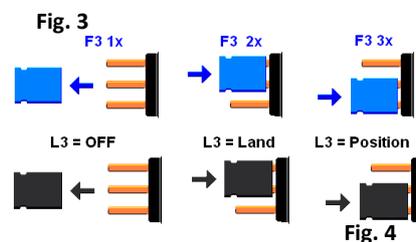


Fig. 3

Fig. 4

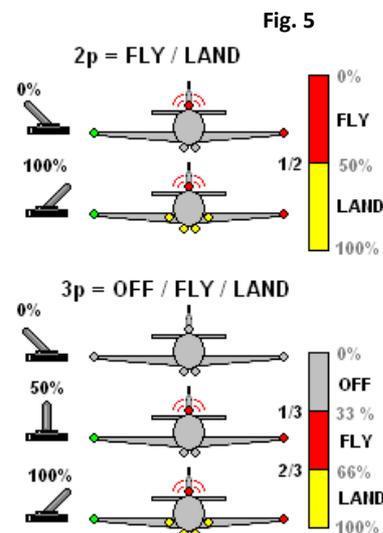
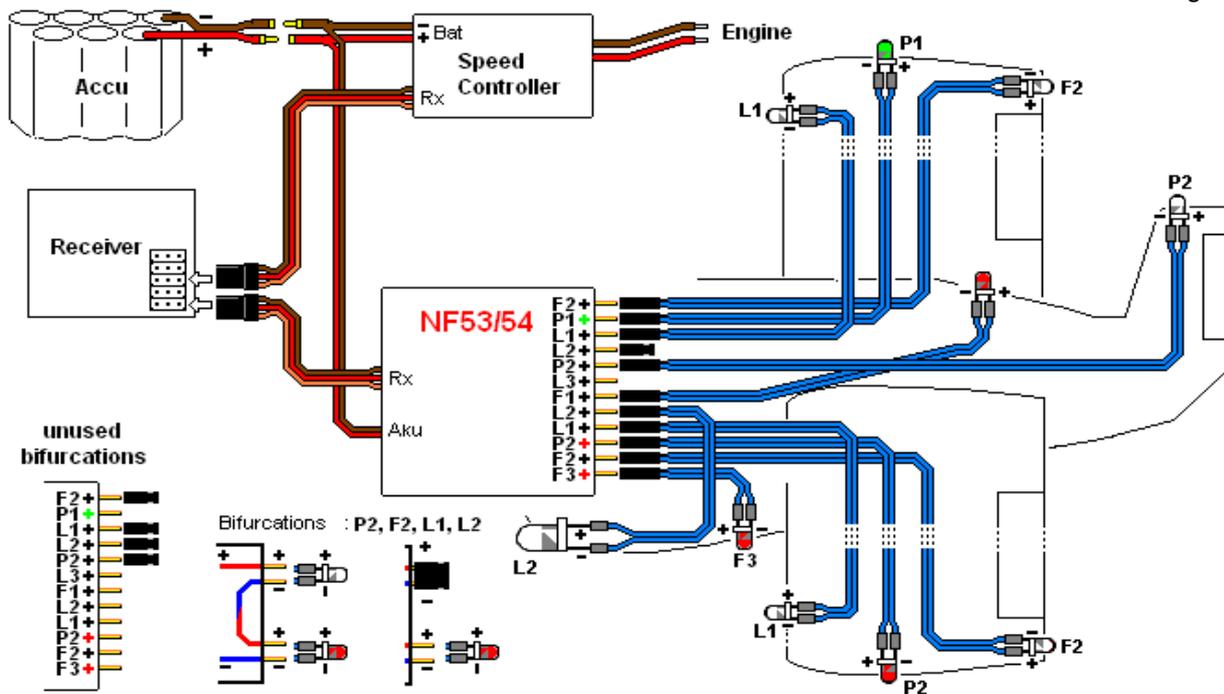


Fig. 5

Typical circuit of aircraft lighting connection is on figure 6.

Fig. 6



If you want to change the jumpers settings, you have to remove the fan. Do not connect diode to the output with the current bigger than the nominal current of the diode. The exception is the involvement of flash output. There current passes through the diode only a fraction of the time and instantaneous current may therefore be higher than the nominal. This does not apply in general to all types of LEDs.

To avoid overheating, the power supply voltage should not be more than 5 V higher than the lowest sum of the diodes voltage that you want to connect to position or landing outputs. Overheating is possible even with LED with nominal current 350 and 700 mA, which can lead to a shorter lifetime. Therefore, it is advisable to place them on the cooler and provide them with the airflow. You can discover the risk of overheating indicatively by plugging the unit in your suggested configuration. Therefore, it is advisable to place them on the cooler and provide them with the airflow. You can discover the risk of overheating indicatively by plugging the unit in your suggested configuration. Check the temperature of cooler and LEDs by touching them by finger occasionally. If you can keep your fingers on them after two or three minutes, everything is fine. For an accurate calculation of the entire lighting consumption, go to websites [www.nightfly.cz](http://www.nightfly.cz). For the approximate determination of the required capacity of the battery, add up the currents of used positioning outputs and add the sum of currents used flashing and landing outputs divided by ten.

#### Assembly and pre-flight tests

Unscrew the collar's nuts and replace them with a spacer from accessory bag. Then the plate can be screwed into predrilled holes with the pitch 48.5 x 39 mm (31.6 x 31.1 mm for NF54). Lighting cables themselves are not the source of interference. However, they can distribute across the whole model the interference from the engine or affect reception when they are placed near the receiver's antenna. It is therefore not appropriate to lay the cables in parallel with the antenna of receiver and the wires should not form surface loops. After installation it is better to check the model's behavior on the ground first and if necessary to add interference or change the unit or cables location. Do not forget to check the temperature. The procedure is referred to above.

**The manufacturer is not liable for damages caused by the operation of the unit beyond the technical parameters and the above recommendations.** Instructions for the implementation of socket adapters, cabling and more information about diodes can be found on the website.

#### Technical parameters of NF53/NF54

	min	typ.	max.
Operating Voltage [V]:	5	9	14
Consumption [mA]:	16	23	23
Weight [g]:	68,0	68,7	69,6 *
	91,3	92,0	92,6 **
Current per output P+L:	120/350 mA *		
	350/700 mA **		
Flashes (frekv. 1 Hz):	pulsy 33 ms		
Current per flashes:	350/700 mA		
	700/1000 mA		
Temperature:	0 – 70 °C		
Dimensions:	152 x 42 x 19 mm		
	152 x 42 x 34 mm		

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\* valid for NF53

\*\* valid for NF54