



# TL-24 AMPLIFICATION of 4 OUTPUTS FOR TL-22 or TL-23.



The TL-24 is an amplification of 4 outputs or monostable channels for 4 Output CEBEK remote control modules. It allows connecting others TL-24 or TL-25 but always on a main TL-22 or TL-23 remote control. It includes micro-switches for the code selection, indicator LEDs and output for amplification.

### TECHNICAL CHARACTERISTICS.

Voltage.....	12 V. D.C.
Minimum Consumption.....	2 mA.
Maximum Consumption.....	65 mA.
Maxi. Output load per relay.....	5 A.
Protection against polarity inversion, [P.L.P.].....	Yes.
Sizes.....	107 x 97 x 30 mm.

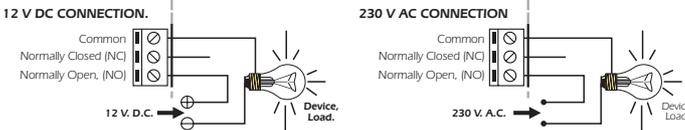
### POWER SUPPLY & OUTPUTS CONNECTION.

**POWER SUPPLY.** The TL-24 circuit had to be supplied by a 12 VDC power supply correctly filtered. We recommend you to use the FE-2power supply, which has been developed to perfectly answer to the circuit needs. Install a fuse and a switch has it is indicated on the schedule. Both are necessary for the module's protection as well as for your own safety, as it is required by the "CE" regulations.

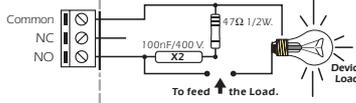
Connect the positive and the negative of the power supply to the respective positive and negative terminals of the module, indicated in the wiring map. The distance between the power supply and the module has to be as short as possible. Verify that the assembly is correct.

**OUTPUT CONNECTION. LOAD.** The TL-24 output is controlled by a relay, and accepts any device up to 5 A. The relay is not a component supplying voltage but its function is limited to accept or deny the voltage passage like a standard switch. For this reason, you have to supply the load through this component. The relay has three output terminals: The normally open quiescent (NO), the normally closed quiescent (NC) and the common. Install it between the Common and the NO in accordance with the schedule "Output Connection. Load". For the inverse function you have to place the load between the NC and Common.

Fig. 1. To Connect the Load.



**INFORMATION ABOUT THE OUTPUT.** During the operating mode and according to its load, it could happen a fluctuation or an incorrect working of the output. In such case, you have to install an anti-spark circuit (100 nF/400V Type X2 Capacitor and 47 Ohms 1/2 W resistor) between both contacts of the used relay, as it is indicated on the drawing.

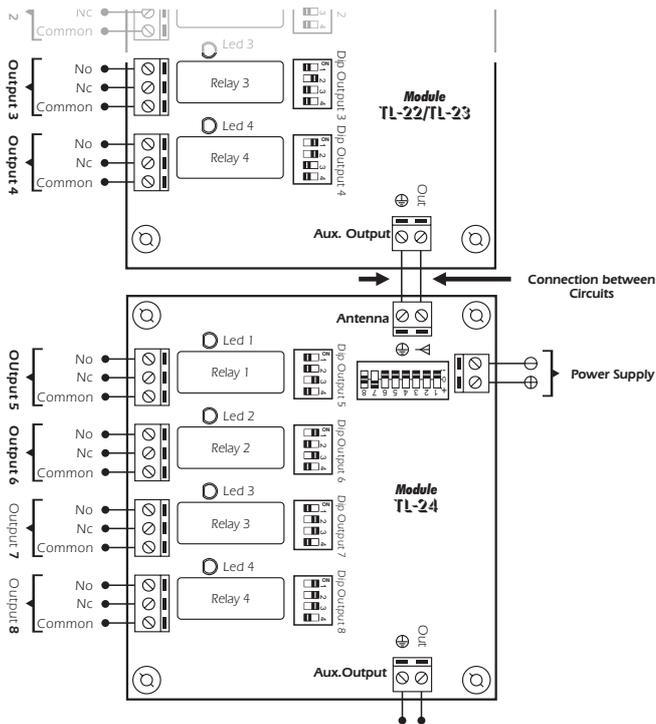


### SYSTEM AMPLIFICATION.

The TL-24 is not a receiver, it doesn't have a processor for the R.F signal. For this reason, it could not operate if you don't connect it previously to a TL-22 or TL-23 receiver, increasing then its outputs number.

**CONNECTION.** Once connections described in this instruction manuals done on the receiver, to increase with four supplementary outputs, thanks to the TL-24, you have to connect its antenna input to the auxiliary output of the TL-22/23 (Cf. Fig.2).

Fig. 2. Connection between a TL-24 and a TL22/23.



The length cable to connect these two modules has to be inferior than 50 cm. Otherwise, circuits could be damaged. If you use the same power supply to supply the receiver and amplification module(s), for the connection between circuits you don't have to connect the cable with the ground symbol. Otherwise, if you use independent power supplies for each module, this connection has to be done. Even if the maximum channels accepted by the Cebek transmitters, in fact the TL-21, is eight (8), if you want, you could connect more amplification modules on the first TL-24. Nevertheless, you will be obliged to use the same number of push buttons for different outputs. You could connect other amplification remote controls, repeating the installation process described for the TL-24.

### SYSTEM AMPLIFICATION.

connecting the auxiliary output of the anterior module to the antenna output of the new one, configuring the same security code. Don't use any auxiliary output from remote control to connect TL-22 or TL-23, receivers couldn't operate as amplification module.

### OPERATING.

**SECURITY CODE CONFIGURATION.** All CEBEK remote control operate on the 433,92 MHz regulated frequency. For this reason, they include a micro-switches battery composed by 8trinary switches, allowing to configure a security code which make the difference and exclusive each module.

**The security code used to personalise the TL-24, has to be identical than the used one for the transmitter and the receiver, otherwise, the amplification doesn't be effective.**

Each switches in this battery could be placed according to three different positions: "1", "0"; and "1/2". Change the disposition from the factory, modifying switches and selecting the same personal code used to configure the transmitter and the receiver TL-22/23.

**TO ASSIGN THE CHANNEL NUMBER.** Independently of the security code, each channel or output has to be assigned to the transmitter's push button which will control it. On the instruction manual, TL-20 and TL-21 transmitters, each push button is identified with a number. Through the 4 switches battery, corresponding to each output, you have to select the number of the push button which will activate each channel.

The selection of this number on the corresponding battery or DIP that you wish to configure is done in binary, thanks to the 4 switches corresponding to the output that you wish to configure. If you place one of these 4 switches in ON position, its binary value will correspond to "1", but if you place it on Off, they will correspond to "0" as binary value.

On the table of the fig. 4, you will note the relation between decimal numbers from 0 up to 8 with their corresponding binary code.

Configure each DIP with the number of the wished push button, making the binary combination. Don't make any other combination different from described one on the table in fig. 4, otherwise the number doesn't be recognised by the module.

It's not necessary to assign in the order the number of push buttons on each output, neither to assign a different number for each output. If you wish, you could use the same number of push button for several channels, controlling all of them with a single push button.

**OPERATING.** Once the security code selected and the number of push button assigned for each output, and after done all connections, you could supply the module. When you will press a push button on the transmitter, the output assigned to this push button will be connected and maintained connected until you press again the push button. When you release it, the output will be disconnected. Don't forget the transmitter doesn't allow to press several push buttons at the same time. If you wish to activate several outputs, you have to activate them one by one.

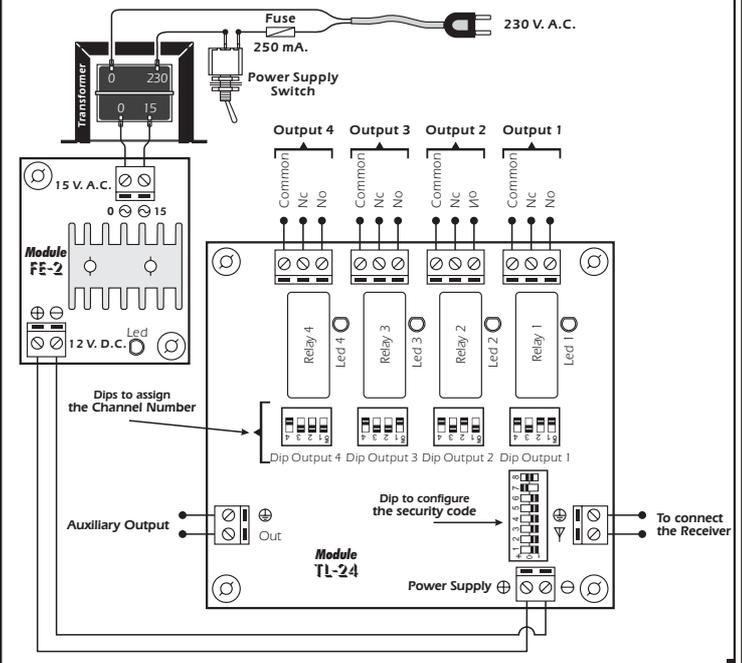
Fig. 3. Binary Value for switches according to their position.



Fig. 4. Table Decimal - Binary.

Switches	1	2	3	4	Switches	1	2	3	4
Push Button N° 1 →	0	0	0	0	Push Button N° 9 →	0	0	0	1
Push Button N° 2 →	1	0	0	0	Push Button N° 10 →	1	0	0	1
Push Button N° 3 →	0	1	0	0	Push Button N° 11 →	0	1	0	1
Push Button N° 4 →	1	1	0	0	Push Button N° 12 →	1	1	0	1
Push Button N° 5 →	0	0	1	0	Push Button N° 13 →	0	0	1	1
Push Button N° 6 →	1	0	1	0	Push Button N° 14 →	1	0	1	1
Push Button N° 7 →	0	1	1	0	Push Button N° 15 →	0	1	1	1
Push Button N° 8 →	1	1	1	0	Push Button N° 16 →	1	1	1	1

### GENERAL WIRING MAP.



### TECHNICAL CONSULTATIONS.

If you have any doubt, you could contact your wholesaler or our Technical Department.  
 - E-Mail, [sat@cebek.com](mailto:sat@cebek.com) | Fax. 34.93.432.29.95 | by mail. P.O. Box. 23455 - 08080 Barcelona - Spain.  
 - Keep the invoice of this module. For any repair, the corresponding invoice had to be added. If the invoice is not presented together with this module, the module's warranty will be automatically cancelled.

All the module's CEBEK have 3 years of total warranty in technical repairing, and spares from the date of buy.



Much more CEBEK module's are available in our products range, please, require our general catalogue or visit our Web side.  
[Http://www.cebek.com](http://www.cebek.com)

