ENGLISH.

# CD-44 4 DIGIT COUNTER with MEMORY and PRE-SELECTION

The CD-44 is a digital counter Up & Down till a maximum of 9.999 units, with the capacity to memorise the last counted number when the module's supply is stopped and it includes a pre-selection function to count from zero till a determined number or opposite way.
It includes Reset function, front panel and connection terminals.

## TECHNICAL CHARACTERISTICS.

| | |
|---|---|
| Voltage. | 12 V. D.C. |
| Minimum Consumption. | 50 mA. |
| Maximum Consumption. | 100 mA. |
| Maximum Frequency to count. | 100 Hz. |
| Maximum Number to count. | 9.999. |
| Display. | 4 Displays 0.5'' (13.5 mm.). |
| Maximum Output Load. | 5 A. |
| Protection against inversion polarity, (PI.P). | Yes. |
| Sizes. | 86 x 62 x 52 mm. |

## INSTALLATION AND OPERATING MODE.

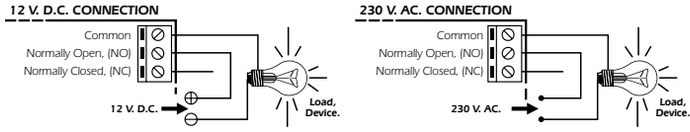
**POWER SUPPLY.** The CD-44 circuit had to be supplied by a 12 VDC power supply correctly filtered. We recommend you to use the FE-2 power supply which has been developed to perfectly answer to the circuit needs. Install a fuse and a switch has it is indicated on the schedule. Both are necessary for 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 (max. 60 cm). Verify that the assembly is correct.
**Note.** Connections indicated as 230 VAC in the wiring map have to be connected to 110 VAC. in Americans countries. Cebek's Modules and/or transformers will be supplied with corresponding modifications for their connection in these countries.

**INSTALLATION.** See the paragraph "General Wiring Map". Install a push button on the Clock and Reset inputs. Then, install a switch at the Up/Down input. It is important to use Quality push buttons and switch because they highly influence the module's operating mode.
For the Clock, Up/Down and Reset connections, the maximum length has to be inferior than 30 cm. For superior length, you have to use shielded cable, connecting its braid to the negative terminal of its corresponding input. Nevertheless, even if you use shielded cable, the maximum length is 100 cm. If you don't respect this point, the module could don't properly work.
For the installation, you have to use a metallic enclosure and connect the negative of the circuit to it.
Important. Don't modify, increase or substitute connection cable between keyboard and main CD-44 board. If you don't respect these data, the module doesn't properly operate and the warranty will be automatically cancelled.

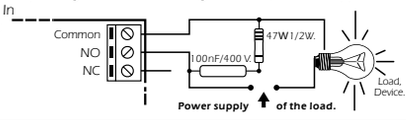
**IMPULSES INPUT.** The impulses input of the module is done by negative-going clock. To excite this input you could use contact free of power (like push buttons, relays, switches, etc... or an external Clock.
If you use an external clock, you have to verify that its signal level is 5 V DC. Then, don't forget that because of the anti-rebotes filter of the module, the maximum input frequency accepted is 100 Hz.
If you don't supply the Clock device with the same power supply than the CD-44 module, you have to connect between them negative terminals of both circuits. If you use the same power supply, to supply both devices it any union is required.

**OUTPUT CONNECTION. LOAD.** The CD-44 output is controlled by a relay, and accept 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. How 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 between both contacts of the used relay, as it is indicated on the drawing.




## OPERATING MODE.

**CONSIDERATIONS.** On different paragraphs of this Manual Instructions, it will required to press at the same time two buttons. To correctly do this operation, and not confuse the module, you have to proceed as following : firstly you have to press the first indicated button and then, without releasing it, press the following indicated button. Once the order is confirmed, you could release both buttons.

**MEMORY.** The CD-44 module allows to record (on its memory) the last counted number to recuperate it later. This internal function will be automatically activated when the module topped to be supplied. At this moment this one will record the last counted value on the display. This data will be stored till the module is supplied again, then the display will show the memorised value.
Don't forget, if you don't stop the impulses input before to supply again the module, when the memorised data will be displayed it will be substituted by the sum or subtraction of new impulses. In the same way, when the stored data coincide with the pre-selected number, the CD-44 will recuperate the data on the display but it doesn't activate the pre-selection

**TO ACTIVATE THE PRE-SELECTION FUNCTION.** The CD-44 allows to operate with or without pre-selection, according to the DIP1 switch position. To activate the Pre-selection function, you have to place the mentioned switch in ON position. To deactivate the Pre-selection function, you have to place this switch in OFF position. See the Fig.2

**Fig. 2. Configuration of the Seeding Function.**


**OPERATING MODE.** Activating or not the Pre-selection function, circuit's inputs will operate on the same mode, as follow:

**Count Up/Down.** If you leave open the Up/Down input, the circuit will count up all injected impulses. If you close this input, the module will count down.

**Impulses Input (Clock).** Each time you close the push button on the Clock input, or you introduce an impulse, the module will sum or subtract one unit, depending on Up/Down input configuration.

**Reset.** If you wish to make a Reset, you only have to briefly press the Reset push button, automatically the display erase all previous data and it will stay at zero till the next impulse.

## OPERATING MODE.

**FORCED STARTING.** The CD-44 allows a count up or down from a determined number. Nevertheless, this number had to be previously programmed as pre-selection number, see the Pre-selection paragraph.
The forced starting has to be done before to start to count up. Otherwise, you will loose the reached data at this moment.
Press at the same time buttons "#" and "1", then automatically the display will show the number of the pre-selection and you could start the count up or count down from this one.

**Fig. 3. Forced Starting.**




## PRE-SELECTION.

Before to activate this function, firstly you have to record a number as pre-selection, different from zero. Otherwise, the module won't allow to start the impulses count.

**RECORD.** To record the number of the pre-selection, you have to press at the same time buttons "#" and "3", then automatically the three displays will light off and the right one will show a zero, to indicate that you could program. Then, insert the required number. Each inserted number will appear on the right display, moving the other one to the left. When the display shows the required number, press the confirmation button, "*".
Each time that you record a new number, it will substitute the previous one, and stored on the memory even if you stop to supply the module.

**DISPLAY.** To verify the number of the stored pre-selection, you have to press at the same time "#" and "4" buttons. This one will appear on the display, in a constant intermittent mode during 5 sec. Then, the display will show the register data before the activation of this function.
During recording ("#" and "3") and display functions of the pre-selected number, ("#" and "4"), the module don't record injected impulses at the input.

**PRE-SELECTION OPERATING MODE.** When the number of the pre-selection is recorded and you activate this pre-selection, (Switch PST on ON position), the module doesn't allow to count over or under the pre-selected number.

**Fig. 4. To Record the Pre-selected Number.**

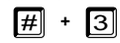
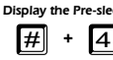



**Fig. 5. To Display the Pre-slected Number.**



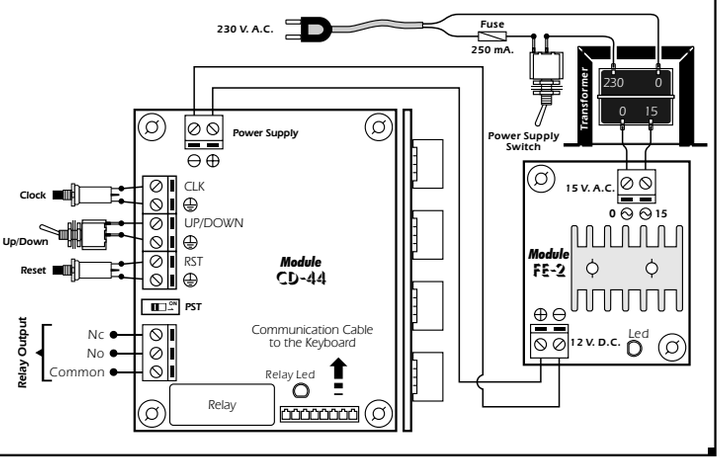

**To count from Zero till the pre-selected Number.** If you start to count up or down from zero, when the module reach the pre-selected number, it will block the impulses input and activate the output, maintaining it connected till you Reset it or you cancel the pre-selection function. (Switch PST on OFF position).

**To count from the pre-selected Number till zero.** If you start to count down with pre-selection, firstly you have to do a Forced Starting, then you could start the impulses count down. When the circuit will reach zero, like for the previous case, it will block the impulses input and activate the output, maintaining it connected till you Reset it or you cancel the pre-selection function. (Switch PST on OFF position).
When you will cancel the pre-selection function, and continue the count operation over or under the selected number, you have to take in account that if you activate again the pre-selection, the module will only activate the output when it reach zero for the count down and the pre-selected number for the count up.

**Example 1.** Pre-selection from 0 till 500. Firstly you have to record the number of the pre-selection, open the Up/Down switch to count up. Inject impulses on the Clock input. The module will add impulses till 500. At this moment it will stop the count up and connect the output. If you do a reset the output will be disconnected and the display shows zero, then you could count up again. Otherwise, if you prefer to continue to count up, firstly you have to cancel the pre-selection, placing the PST switch on OFF position. Then, you could continue your count up or down, but if you activate again the pre-selection function, don't forget that the CD-44 will only activate the output reaching 0 (on a count down) or 500 (on a count up).

**Example 2.** Pre-selection from 500 till 0. Firstly you have to record a pre-selection number making a Forced Starting. Press at the same time "#" and "1" buttons, the number 500 will be displayed. Then, you have to close the Up/Down switch for a count down. Finally, inject impulses on the Clock input. The module will withdraw received impulses till zero. At this moment, it will be stopped and activate the output. To activate again the counter and disconnect the output, you have to do reset or cancel the pre-selection function.

## GENERAL WIRING MAP.




## TECHNICAL CONSULTATIONS.

If you have any doubt, you could contact your wholesaler or our Technical Department.
- E-Mail, **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 wish 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 spaces from the date of buy.

GARANTIA 3 ANOS TOTAL WARRANTY 3 YEARS GARANTIA

MORE ! CEBEK's

Much more CEBEK module's are aviable in our products range, please, require our general catalogue or visit our Web side.
**cebek.com**

Rev. Full0302