CEBEK® ELECTRONIC CIRCUITS

CD-17 CONTROL KEYBOARD for GIANT DISPLAYS.

Thanks to the supplied keyboard, it's possible to create a number with 4 digits as maximum, supplying data at the output in BCD in order to visualise it later on CEBEK displays.
It allows the connection of Giant displays CD-10 and CD-11, as well as CD-40 and CD-41 displays.
You could do following operations : Standard visualisation, with intermittence, relay connection, displays light off, etc....
It includes a protection against inversion polarity, Indicators Leds, acoustic indicators and connection terminals.

TECHNICAL CHARACTERISTICS.

Voltage.	12 V. D.C.
Minimum Consumption.	10 mA.
Maximum Consumption.	60 mA.
Minimum number to visualise.	0.
Maximum number to visualise.	9999.
Time for Relay connection, (automatic mode).	1,5 sec.
Signal Level of BCD Outputs.	Voltage.
Maximum output load.	5 A.
Protection against inversion of polarity, (P.I.P.).	Yes.
Sizes.	96 x 95 x 30 mm.

POWER SUPPLY and INSTALLATION.

POWER SUPPLY. The CD-17 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 (max. 60 cm). Verify that the assembly is correct.
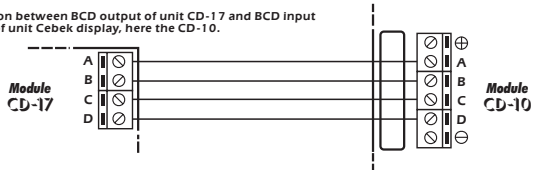**Note.** Connections indicated as 230 VAC in the wiring map have to be connected to 110 VAC. in Americans countries. Cebek's Modules and/or transformers will be supplied with corresponding modifications for their connection in these countries.

CONNECTION BETWEEN BCD OF CD-17 AND BCD OF DISPLAYS. In order to visualise operations and data of control keyboard, it is necessary to have display with BCD inputs. Cebek offers modules with BCD input for a single display like CD-10 and CD-11, or 2 like CD-40 and 4 displays like CD-41, all modules are completely compatible with CD-17 module.
The control keyboard will offer four BCD outputs ; Unit, Ten, Hundred and Thousand. Each output will be connected with the corresponding display, otherwise the displayed number can't be correctly read. If you don't use an output, you can leave it without connection.
Each BCD output, itself, is also composed by four data terminals : A, B, C and D. You have to connect each terminal with its corresponding terminal on the display. The A terminal of the Unit CD-17 had to be connected with the A terminal of the Unit display; the B terminal of the Ten CD-17 had to be connected with the B terminal of the Ten display, and so on till the end of the connection for all terminals. Be careful during the assembly to be sure to connect A terminals between them, and so on following B, C and D terminals. See the Fig 1.

Fig. 1. Connection between BCD output of unit CD-17 and BCD input of unit Cebek display, here the CD-10.

If you don't use the same power supply for CD-17 module and for displays, you have to connect between them, more over than with their respective power supplies, feed negatives from module and displays connected to it. If you use the same power supply to supply both modules, this connection doesn't be necessary.

OUTPUT CONNECTION. LOAD. The CD-17 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.
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.

IMPORTANT. Don't modify, increase or remove connection cable between beyboard and the main board of the CD-17. If you don't respect this point, the module won't properly work and the warranty will be automatically cancelled.

OPERATING MODE.

CONSIDERATIONS. In different paragraphs of this instruction manual, it will be required to press at the same time two buttons. The process to follow, to do this operation and to avoid any mistake from the module, is: Firstly, you have to press the first indicated button and then, without realising it, you have press the second one. Once the orders confirmed, release both buttons.

MODULE INDICATORS. Each time you will indicate an order to the CD-17, the STATE Led will shortly light and the acoustic indicator will emit a sound signal, which will change according to the operation done. Then, and in order to confirm that a button has been correctly pressed, the acoustic indicator will emit a small confirmation "bip".
The Relay led will light during the relay's connection. The other Leds will light according to the different operation offered by the module. Its behaviour being describe in the corresponding paragraph.

OPERATING MODE. Once the installation finished, you can use it. Each time you press a digit on the keyboard, internally this one will be placed at the right from previous one, it will move other digits from a position to the left. When you will have composed the wished number, you have to press the confirmation button, "*". Then, the result will be displayed. For numbers composed by less than 4 digits, it won't be necessary to previously insert zero.
To erase the indicated number on displays, you have to firstly press the digit 0 and immediately after the confirmation button "*".

Low consumption Function, (Displays no necessary are light off). When you display a number like 95 on a system composed by 4 displays, instead to indicate two zero it could be interesting to light off the two displays placed on the left and then to save consumption. The CD-17 includes this function.
If you press at the same time "#" and "1" buttons, displays with a zero at the left side of the indicated number will light off. The DSP Led will be also lighted off. At the opposite case, if you press at the same time "#" and "2" buttons, displays with a zero at the left side of the indicated number won't light off.
The DSP Led will indicate this function lighting.

Fig. 2. Light off for non necessary display function.

#	+ 1	Activated Function.
#	+ 2	Deactivated Function.

Intermittence Function. The module allows to visualise the data on displays, according two mode fix or constantly intermittent. In order to activate this function, you have to press at the same time "#" and "3" buttons, the INTER Led will light indicating the operation. To deactivate this function, you have to press at the same time "#" and "4" buttons, the INTER Led will light off.

OPERATING MODE.

Fig. 3. Intermittent Function.

#	+ 3	Activated Function.
#	+ 4	Deactivated Function.

Relay's Automatic Connection. Thanks to this function, each time you insert a new number or you reset displays, the circuit's relay will be automatically activated during 1,5 sec. If you wish to deactivate this function, you have to press at the same time "#" and "7" buttons, the RMODE Led will light. To cancel this function you have to press at the same time "#" and "8" buttons, the RMODE Led will light off.

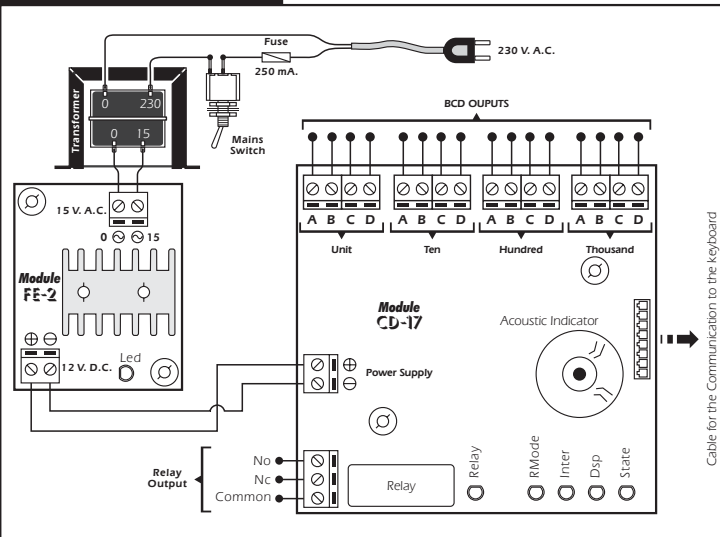Fig. 4. Relay's Automatic Connection Function.

#	+ 7	Activated Function
#	+ 8	Deactivated Function.

Relay's Manual Connection. Independently of the displayed number, or the relay's automatic function, the CD-17 allows to activate and to connect manually the relay when you wish. To activate the relay, you have to press at the same time "#" and "5" buttons, this last one, will be activated till you press at the same time "#" and "6" buttons, then the relay will be disconnected.
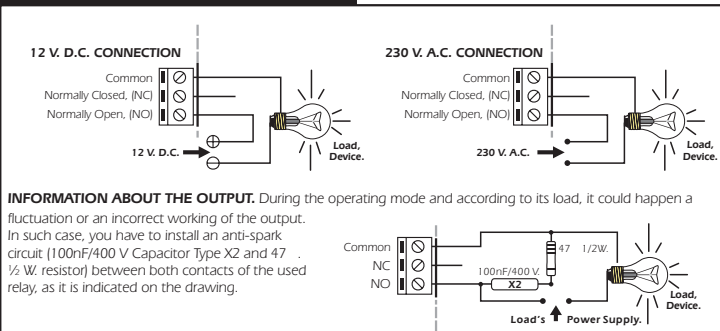
Fig. 5. Relay's Manual Connection Function.

#	+ 5	Relay Connection.
#	+ 6	Relay Disconnection.

GENERAL WIRING MAP.

OUTPUT CONNECTION. LOAD.

12 V. D.C. CONNECTION
Common
Normally Closed, (NC)
Normally Open, (NO)
12 V. D.C. → Load, Device.

230 V. A.C. CONNECTION
Common
Normally Closed, (NC)
Normally Open, (NO)
230 V. A.C. → Load, Device.

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 (100nF/400 V Capacitor Type X2 and 47 . ½ W. resistor) between both contacts of the used relay, as it is indicated on the drawing.

Common
NC
NO
47 1/2W.
100nF/400 V
X2
Load's ↑ Power Supply.
Load, Device.

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.

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