CEBEK® ELECTRONIC CIRCUITS

I-204 TIMER for COIN MACHINES and PURSES

The I-204 timer is a battery which adds a pre-established time register in every imput impulse, supplied by the entertaining coins machine selectors, the cybercafes forgers, pay per view channels, etc.... At the same time and according to the needs of the customer, the I-204 module will constantly deduct the time which it consumes. It allows the consumption by automatic time or by controlled external signal.

TECHNICAL CHARACTERISTICS.

Voltage. ....12 or 24 V. D.C.
Minimum Consumption. ....80 mA.
Maximum Consumption. ....140 mA.
Signal Inputs. ....5 V. D.C. (Low level). / Closure of contacts free of potentiel
Time adjustment by coins. ....From 1 to 9999 sec. or 1 to 9999 min.
Timing count down. ....Automatic / External Control. .
Memory Function, (accuracy). .... ± 1 minute.
Display. ....4 digits x 0,5", (13,5 mm).

INSTALLATION AND CONNECTIONS.

POWER SUPPLY. See the general wiring map. The module offers two independent power supply inputs, one at 12 VDC and on other at 24 VDC. To correctly use the circuit you will have to select between both feeds, but never use both at the same time.
To supply the circuit at 12 VDC or at 24 VDC, the power supply should be correctly stabilised and filtered. We recommend you to use the FE-103 (12V) or the FE-115 (24) power supplies, which have been developed to perfectly answer to the circuit needs, offering a low ripple level.
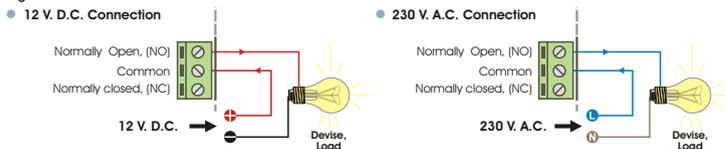Connect the positive terminal of the power supply to the respective terminal (+12), or to the terminal (+24), according to the required voltage. Then, connect the negative of the power supply to the common negative of the module, as it is indicated in the wiring map.
Install a fuse and a switch has it is indicated on the schedule of the power supply. Both are necessary for the module's protection as well as for your own safety, as it is required by the "CE" regulations.

OUTPUT CONNECTION. LOAD. The I-204 output is controlled by a relay, which is electrically insulated from the rest of the circuit and it accepts any load up to 5 A. The relay is not a component supplying voltage but its function is limited to accept and 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 the load between the Common and the NO in accordance with the

Fig. 1. Load Connection.

- 12 V. D.C. Connection

Normally Open, (NO)
Common
Normally closed, (NC)

12 V. D.C. → Devise, Load

- 230 V. A.C. Connection

Normally Open, (NO)
Common
Normally closed, (NC)

230 V. A.C. → Devise, Load

INFORMATION ABOUT THE RELAY. A relay output can produce a fluctuation or an incorrect working of the output, and mainly with inductive loads. 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, to absorb the current peak provoking this problem.
If the load connected to the circuit relay is supplied at 230V, you have to use a (100 nF/400V Type X2 Capacitor and 47W. ½ W resistor (See the Fig.2).
If the load connected to the circuit relay is supplied at 12V or at 24V, you have to remove the resistor and maintain only the type X2 capacitor between two the contacts of the

Fig. 2. Anti-Fluctuation relay Filter.

NO
Common
NC

47 1/2W
100nF X2

Load Supply → Devise, Load
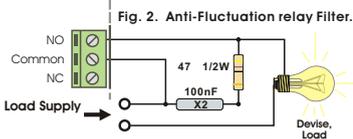
CONTROL INPUTS. The circuit inputs make reference to the ground terminal of the same connector. Their activation is done by connecting the terminal indicated by "Coins", "Start" or "Reset" to the ground terminal through devices free of potential such as relays, push buttons, etc.
If you use a 5 VDC external signal, this one must be connected between the corresponding input and the ground terminal (negative of the circuit). If the signal comes from the same power supply as the module, the connection in the ground terminal will not be necessary.
Inputs will be activated by low level (0 V).
To implement a continuous signal of a different level than 5V, and make it compatible with the requirements of every input, it is possible to insert for each of them, a transistor NPN as it is indicated on the

Fig. 3. Adaptation to control through external signal different to 5 V. D.C.

BC547
Input terminal — 4K7 1/4W
Ground terminal — 3 - 24 V. DC. Signal

The cable used for these connections have to be as shortest as possible. If the distance is superior to 50 cm, you have to use a shielded cable, by connecting the braid to the ground terminal. The total length have to always be inferior to 2 m.

PROGRAMMATION ET CONFIGURATION.

CONFIGURATION. Except the time by coins, the rest of parameters for the circuit operating mode, including its configuration, is determined through the "SET" Dipswitches battery, according to their On or OFF position.

Fig. 4. Dip's Functions Assignation.

	Off	On
Dip 1 →	Time by coins in seconds	Time by coins in minutes
Dip 2 →	Automatic Time count down	Time count down according "Start"
Dip 3 →	Deactivated Memory function	Activated Memory Function
Dip 4 →	Deactivated programming	Activated programming

Dip 1. Time by Coins. The number stored in the memory of time by coins, can assume a value in seconds or in minutes, determining the consumption speed of the circuit.
Dip2. Time Count down Mode. Independently of the increase provoked by the insertion of coins, the module can automatically start the time count down, as long as it will find a value superior to zero on the display. It can also condition this action to the situation of the "Start" input, by realizing the consumption of the number present in the display only if the "Start" input is closed. When the "Start" input will be deactivated, the time count down will remain stopped.
Dip 3. Memory Function. If the device is stopped or disconnected from the power supply, the module can get back the last displayed value by restoring the electric current. Nevertheless and being active, this function offer a recovery by approximation and minute. Therefore, the resultant value will slightly be superior or lower than the last recorded one, always with a gain or loss of 60 seconds at maximum.

PROGRAMMATION AND CONFIGURATION. (Second part)

Dip 4. Access to the programming. The programming of time by coins, described hereafter, will be possible only if this dip is in ON position, otherwise, the process of access to the programming will be disabled.

Programming Time by coins. (It is possible only if the dip 4 is in ON position). The access to the programming display is authorized if you maintain pressed the "Up" key during three seconds by activating the power supply of the circuit.
In Programming mode, the luminosity of the display decreases in 50 %, so differing from the Operating mode. If the module detects a period of inactivity superior to 20 seconds, it will abandon automatically the programming display, without confirming any changes and by displaying operating mode.
Once on the programming mode, through "up" and "down" keys, you can modify the time. The count up or count down will be faster if you maintain pressed one of these keys.
To record into the memory the selected number, it will be necessary to close or to momentary activate the "coins" input. The circuit will store the data and will return to the operating mode. The value in seconds or in minutes of this number will depend on the configuration of the dip. To leave without recording any change, you have to close or momentary activate the "Reset" input or wait for the drainage of the inactivation period.

OPERATING MODE

OPERATING MODE. The operating mode will normally start in the device once you will activate the power supply of the circuit, (except when you enter in the Programming mode).
Every time the "coins" input will be activated, the display will increase its value, by adding to the quantity of time indicated on the display, the value assigned by the coin. In the same way and independently, the module will consume second by second the contents of the display.
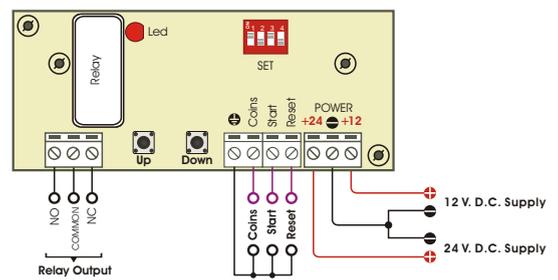The consumption of displayed time will be automatically done or by external activation through the "start" input, according to the configuration of the corresponding dip.
In order to inform the end-user of the imminent end of the accumulated amount, when the available time will be 60 seconds, every 10 seconds approximately the display will generate an intermittence, which will remain till the end of the countdown or until the balance is again increased by a value superior to one minute.
The relay output will be connected till the display indicates a quantity of time, by displaying this state through the led of the circuit. The relay and the led will be disconnected when the display reach zero.

Reset. There will be a reset when the corresponding input will be activated or closed. Therefore, the display will be reseted at zero and the relay output is disconnected. If the reset remains activated, "Coins" and

GENERAL WIRING MAP.

Led
Relay
SET
Coins Start Reset
POWER +24 +12
Up Down

NO COMMON NC
Relay Output

Coins Start Reset
12 V. D.C. Supply
24 V. D.C. Supply

Note. Only use one of both supply inputs.

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