

QUASAR KIT No 1220

4 CHANNEL SELECTOR FOR CAMERAS MONITORING

DESCRIPTION

Living in an era where, unfortunately, the crime rate is continuously getting worse, people search more ways to guard their property. A good solution to this problem is the placement of a camera that will monitor several areas of the house such as the entrance or the garage. But, what happens if someone wants to monitor more than one areas at the same time? Obviously, the solution is to mount more than one cameras at several places - and unfortunately, having to put four different displays on his desk in order to watch them, something that is expensive and cumbersome.

The correct answer to this problem is to place 4 cameras at the places we want to monitor, connect their output signals to the four inputs of the Quasar kit No 1220, and finally to send its output at a single display monitor. In this way, when we press the right or the left button we can interchange among the four cameras and watch the camera we choose. If we press the button in the middle (auto) for more than 5 seconds the sequence among the cameras is done automatically, thus enabling us to watch four different areas through only one monitor. The device can also be used in audio sources, or in other application where there is a need for combined monitoring such as the watching of an area in tandem with an alarm, so that when the alarm is activated the security personnel will be able to immediately watch the monitored area.

TECHNICAL CHARACTERISTICS

Operation voltage :	5VDC
Power consumption :	50 mA (relais armed and LED on)
Channels :	4
Control :	Manual or automatic
Inputs / outputs :	Relays

OPERATION

Due to the use of the PIC 12F675 micro controller -which contains only 8 pins- the circuit is extremely simple.

The pins no 1(+) and 8(-) of the PIC are used for the power supply. The pins no 3, 4 and 7 of the PIC are programmed as inputs, and accept commands from three 'button' type switches. Each switch is connected to a resistor (R9, R10, R11), so that it can keep the respective pin at a low

voltage before the button is pushed and the respective input changes status. The two end switches (S1 και S3) move the output to be monitored to the left and to the right, while if the middle one (S2) is pushed for some seconds it commands the micro controller to use the automatic monitoring routine, by sequencing all the outputs every 5 seconds approximately. The pins 2, 5 και 6 are used as outputs, and through the resistors R12, R13, R14 and R3, R5 and R7 drive the transistors TR3, TR4 and TR5. The transistor TR1 is indirectly driven from the transistor TR2 via a special routine.

There is a visual, LED indicator, (L1, L2, L3 και L4) for every activated output. Every LED is serially connected to the R2, R4, R6 and R8 resistors, in order to protect it from a power surge. The diodes D1, D2, D3 and D4 are used to protect the transistors from the anti-electromotive power that appears on the coil of the relays and could destroy them.

The board also contains the regulator circuit, comprised of the IC2 and the C1 και C2 filtering capacitors.

CONSTRUCTION

First solder the smaller components, and next the larger ones. Start by placing the resistors and then the diodes, paying attention so that their polarity fits to the polarity of the board. The strip on their body signifies the cathode. Next, solder the socket of the integrated circuit (8DIL), remembering that its notch must correspond to the diagram of the board. After that, solder the ceramic and multilayer capacitors and next the electrolytic ones, paying attention to their polarity. The positive pin is longer than the respective negative one. Then, solder the 78L05 regulator by watching its direction, next the pins and finally the transistors and the LED's, always paying attention to their polarity (the long pin is the anode, while the notch on their body signifies the cathode). Finally, solder the relays.

In order to avoid the continuous operation of the circuit after placing it in the box, it is a good idea to add a small switch so that you can open and close the circuit without needing to disconnect the power supply.

After checking thoroughly all the components and especially those with polarity, place carefully the micro controller on the base, checking that the notch that signifies the pin no. 1 corresponds to the one on the board. If you place it the other way around the circuit won't work, and there is also the danger of destroying the micro controller.

Supply the circuit and at the points 1 (-) and 2 (+) with voltage from a 9-12V "pack". Press the left button, and you will see that the next LED is on and the respective relay is armed. Press again the left button, and you will see that next LED is on and again the respective relay is armed. If you press the right button, then the previous LED is on and the respective

relay is armed. Now press the middle button, keep it pressed for more than 5 seconds and then leave it. You will see that all the LEDs are activated successively for 5 seconds approximately, by closing the respective relays. The device is working properly, and now you can put it in a box of your choice.

Connect now the signal from every camera to the points 5 – 6, 7 – 8, 9 – 10 and 11 - 12, and also you can connect the monitor to the points 3 and 4 in order to see each time the camera which has been activated.

IF IT DOESN'T WORK

Have you soldered correctly all the components?

Turn the board on its other side and check all the solderings, one by one. If anyone of them seems to be cold, then reheat it with the soldering iron. The cold soldering does not shine, it seems dull, has knobs and causes lots of problems to the circuit.

Next, check carefully the position and the direction of every component by comparing it with the drawing plan, the table of the components and the theoretical circuit. Also, check if you have placed a component in the place of another.

During the repairs remove the micro controller from its socket, check with the help of a voltammeter the voltage between the points 1(+) and 8(-). If it is 5V you must close the power supply, place it again on its base, and try again.

Are you sure that during the soldering you didn't short-circuit two adjacent areas of the printed circuit? Therefore, it is better to check very carefully all the solderings and the adjacent areas of the board. You could help this process by lighting the board from below, and carefully inspecting all the pads.

If you go through all the above possibilities, then the circuit will certainly work properly. In any case, if you have any problem with the device you can contact the Quasar Electronics service department, daily (09:00 - 16.00) Monday - Friday.

PARTS LIST (full details supplied with product)

R1, R3, R5, R7

R2, R4, R6, R8

R9... R14

C1, C2

C3

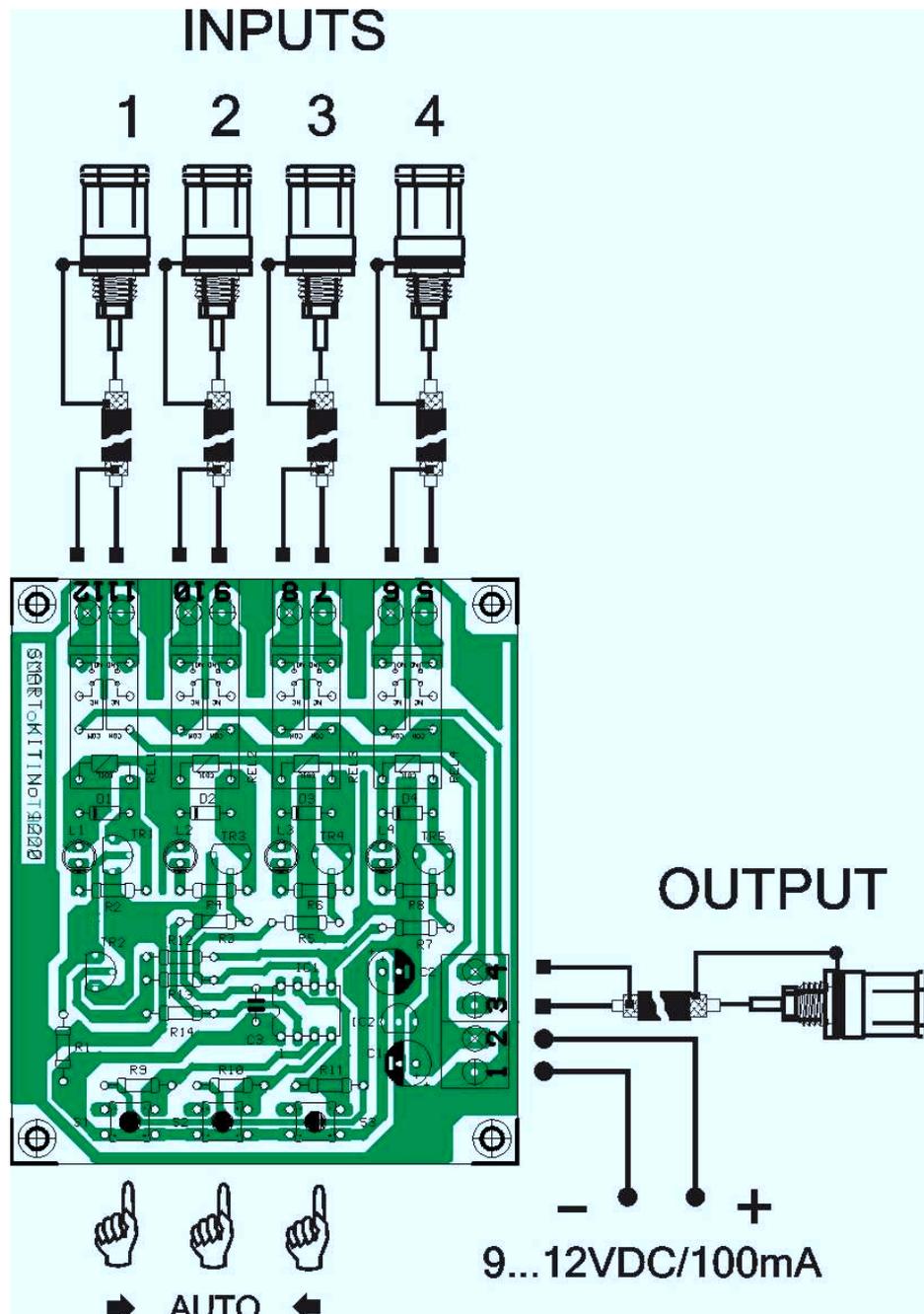
D1...D4

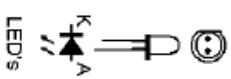
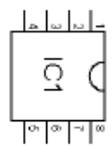
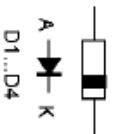
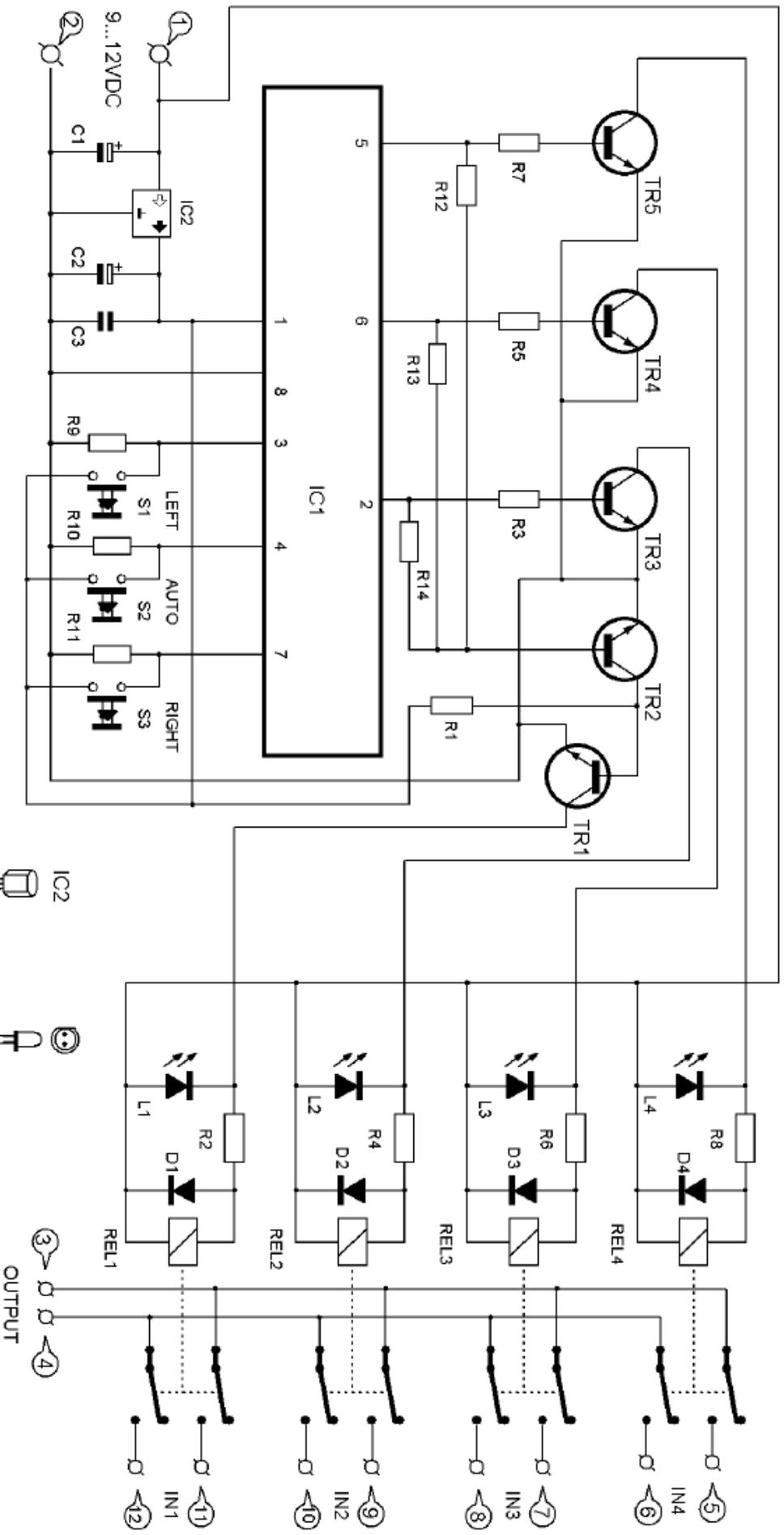
TR1...TR5

IC1

IC2
L1...L4
S1..S3
REL1...REL4

Various: Quasar kit No 1220 PCB, solder wire, 12 pins, 8DIL socket.





KIT No
1220

MICROCONTROLLER 4 CHANNEL SELECTOR