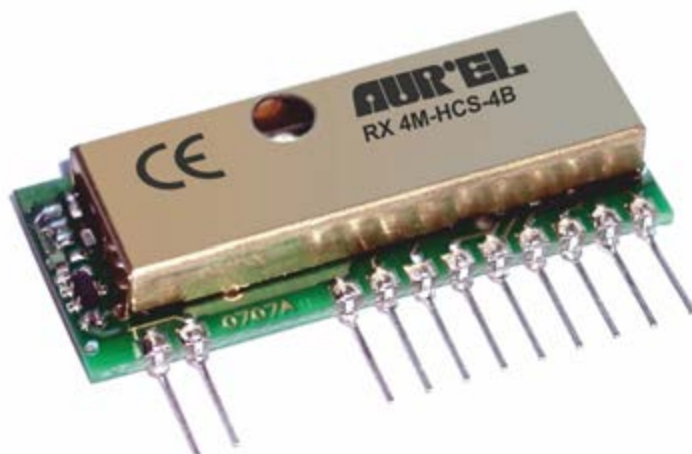


RX 4MHCS-4B

433.92MHz OOK(AM) receiver 4bit digital decoding

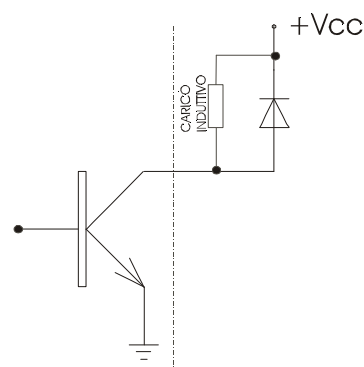
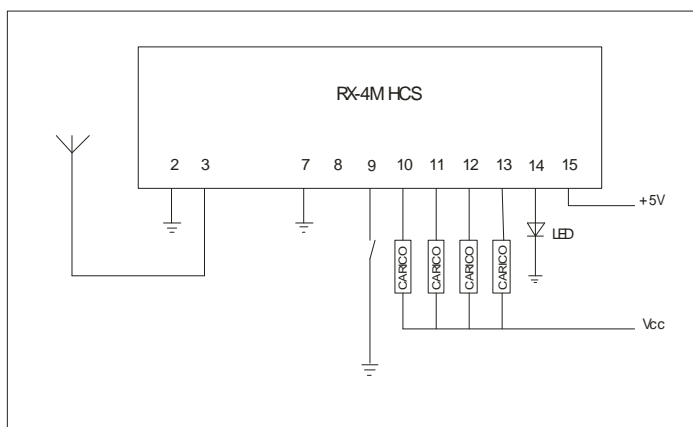


Picture 1: RX-4MHCS-4B

Description

Receiver RF with AM modulation, 433.92 MHz working frequency, high sensitivity and selectivity with integrated HCS decoding. HCS is a code variation technology of KEELOQ Microchip. The 4 output bit allow the digital decoding of HCS transmitters up to 12 channels.

The module has open-collector outputs, actives with low logic level. Ideal in the applications where it requests all possible combinations of the 4 bit as coding of the channel. The code of the transmitter is memorized though auto learning procedure(see technical feature). Matchable with Aurel transmitters as: **HCS-TX-1/2/3 (OVO)**, **TX1/2/3-HCS-433 (HCS)**, **TX-2/4/6 M-HCS**, **TX-12 CH**.



Technical features are subjected to change without notice . AUR°EL S.p.A does not assume the responsibility of any damages by improper use of the device.

Connection Pin out

- 2) GND
- 3) Antenna
- 7) GND
- 8) Test Point – RX analog output
- 9) Programming push button
- 10) Least significant bit - Open collector
- 11) Second significant bit - Open collector
- 12) Third significant bit - Open collector
- 13) Most significant bit 8 - Open collector
- 14) LED output – Connected to anode of LED
- 15) Vcc (+5Volt)

* HCS e KEELOQ are Microchip brand

How it works

The voltage supply to the module (pin 15) shall be 5Vdc. Pin 9 shall be connected to the push button for programming the receiver, pin 14 shall be connected to the anode of LED to control that programming has been carried out (output current is internally limited to around 20 mA by a 180 ohm resistor). External antenna shall be connected, by utilizing for example a piece of wire 17 cm long and a surrounding widespread ground plane(see picture 1). Each outputs of the receiver RX 4MHCS-4B is driven by a transistor in open collector configuration, able to bear max current of 100 mA. In stand-by mode transistor is cut off while when triggered is in saturation region. The outputs are active all the time you press the corresponding button on the transmitter, releasing the button, output switches-off. If the output is connected to an inductive load (eg a relay), it is necessary to prevent voltage transients by putting a diode in parallel to the inductive load. The anode of the diode is connected to the output of the module. In order to receive, it will be necessary memorize the transmission codes of the matched transmitter in the RX 4MHCS-4B module. To carry out this operation is necessary to have the transmitter close to the receiver. By pressing a button (it doesn't matter which one) of a matchable keyfob during the auto-learning phase, RX 4MHCS-4B will recognize the pushed button and automatically also the other buttons will be recognize. Only transmitters with HCS coding and 'Aurel Standard Code' will be recognized by RX 4MHCS-4B receiver. Transmitters not parameterized or with a different manufactured code will not be matchable. Based on reasonable demand, Aurel is willing to program the receiver RX 4MHCS-4B per with specific manufacturer code indicated by the customer.

Ground plane

The circuit must be double layer. Ground plane must surround at the best the welding area of the receiver. For further info please refer to the user manuals of AUREL's receivers.

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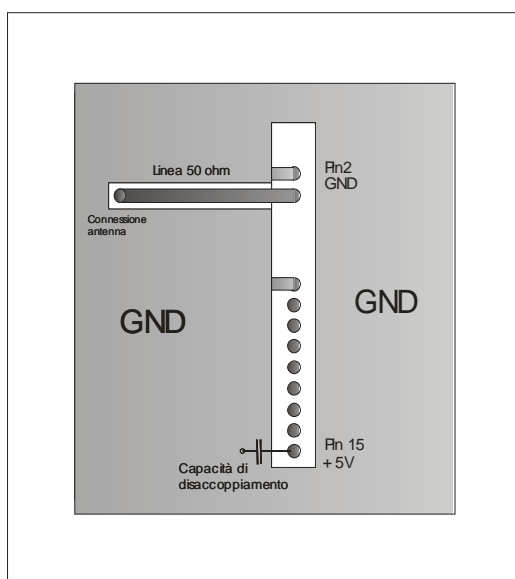


Fig. 1 – Ground plane

Programmation

Auto-learning procedure.

Pushing and releasing the auto-learning button starts the auto-learning procedure. LED will quickly blink for ten seconds: during this time, each pushing of a button of a transmitter close to RX 4MHCS-4B allow the auto-learning of all buttons. LED will show the correct procedure by a blink a 1sec. It's possible repeat this procedure up to 10 transmitters.

Erasing memory procedure

In order to erase the memory of RX 4MHCS-4B, push and release immediately the button connected to the pin9, LED will start to blink. Pushing again the button for 3 seconds until the LED from a permanent light will switch-off, release the button and verify the five blinks to show the correct erasing. After the erasing procedure no transmitters with HCS coding will be recognized.

Binary output decoding chart with TX 12 Channel

Number on keyboard	Pin 10	Pin 11	Pin 12	Pin 13
1	0	1	1	1
2	1	0	1	1
3	0	0	1	1
4	1	1	0	1
5	0	1	0	1
6	1	0	0	1
7	0	0	0	1

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8	1	1	1	0
9	0	1	1	0
0	1	0	1	0
SHIFT	0	0	1	0
ENTER	1	1	0	0
No button pushed	1	1	1	1

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