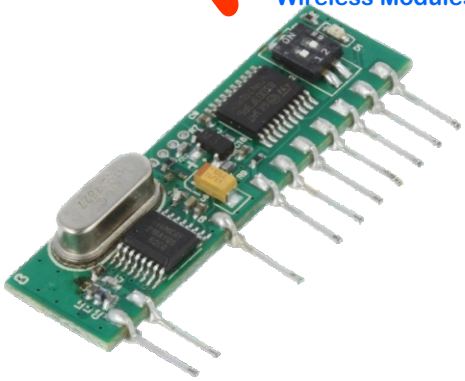
Radiocontrolli
Wireless Modules

433.92MHz OOK (AM) Superhet Receiver Module with on-board decoding.



RC-RHCS-4CH is an 433.92MHz ASK Radio Receiver Module with PLL Synthesizer and crystal oscillator.
On the same board is integrated HCS and «Learning Code» decoding and 4 output channels.

HIGHLIGHTS :

1) Recognizes the following decodings :

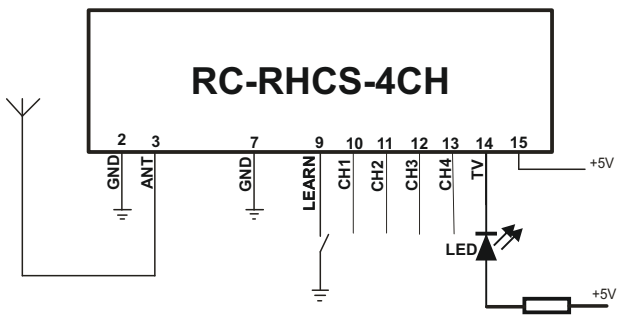
HCS 301	HCS decoding (technology of KEELOQ Microchip).
EV1527	Learning Code
RT1530	Learning Code

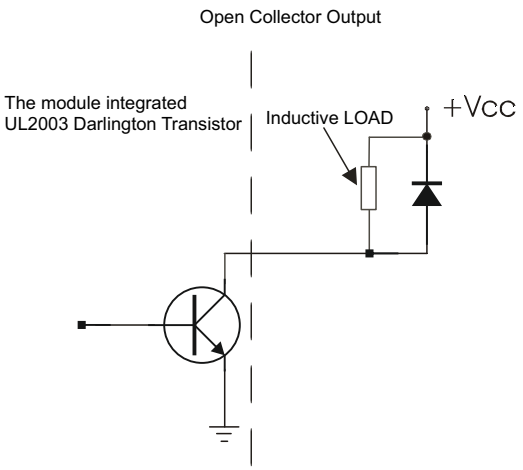
2) Up to 20 remote controls storable
3) The module has open-collector outputs, activies with low logic level
4) Outputs customizable in monostable and bistable way
5) The code of the remote control is memorized through auto learning procedure.

APPLICATIONS :

Security systems, building automation, industrial control, home automation, etc.

Functional Schematics:

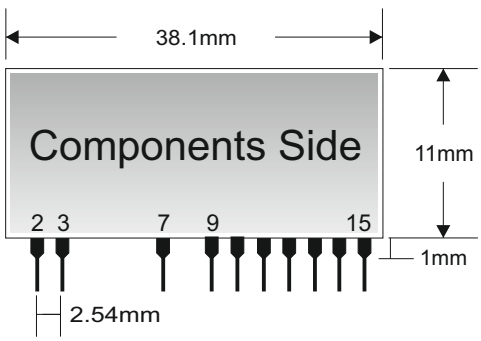




Pin Description

Pads	Name	Description
2	GND	Ground
3	ANT	Antenna
7	GND	Ground
9	LEARN	Learn Programming key.
10	CH1	Open Collector Output Channel 1
11	CH2	Open Collector Output Channel 2
12	CH3	Open Collector Output Channel 3
13	CH4	Open Collector Output Channel 4
14	TV	Monitoring Output
15	VCC	Power Supply

Mechanical Dimensions



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Technical Characteristics

Characteristics		MIN	TYP	MAX	UNIT
V_{cc}	Supply Voltage	4.5		5.5	Vdc
I_s	Supply Current (Operation mode)		5.7	6.8	mA
F	Frequency		433.92		MHz
D	Max Data Rate			10	Kbit/s
S	RF Sensitivity		108		dBm
B	3dB Bandwith		600		KHz
TE	Operating Temperature Range	-25		+80	°C

How it work

The voltage supply to the module (pin 15) must be 5Volt.
Pin 9 shall be connected to the push button for programming the receiver.
External Antenna shall be connected, for example by utilizing a piece of wire 17 cm long, to a pin 2 or an elicoidal antenna type RC-ANT-434-EL for more details you can consult the Radiocontrolli website : Antenna Design Consideration chapter.

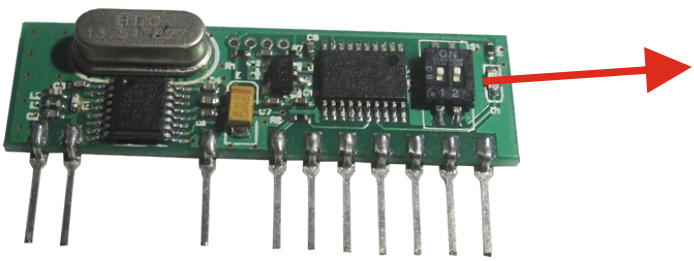
Each output of the receiver RC-RHCS-4CH is driven by a transistor darlington (type ULN2003) in open collector configuration active with low logic level, able to support max current of 400mA.
When the output is connected to an inductive load (relay) it's necessary to prevent voltage transient by inserting a diode in parallel to a relay.

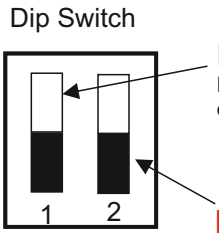
This module is able to recognized the following type of decodings :
- HCS 301 HCS decoding (technology of Keeloq Microchip)
- EV1527 Learning Code
- RT1530 Learning Code

About the encoding EV1527 and RT1530 you can use any type of remote control.
About the HCS encoding this module can accept only remote control with manufactoring code Radiocontrolli std.

The module is able to support up to 20 remote controls

Configuration





Dip Switch N.1
Determines if the system work with RT1530/EV1527 encoding or HCS encoding

Dip Switch N.2
Determines the modality of the work :

- Monostable mode

- Bistable mode

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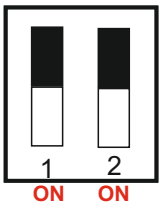
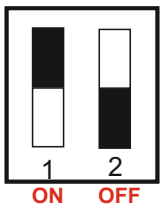
Possible configurations :



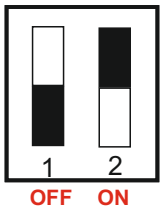
The system work with **RT1530** Encoding and **EV1527** Encoding

The modality is : **BISTABLE** (the receiver activies the output and remains active as long as it receives frames from one of the stored remote controls).



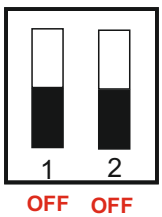
The system work with **RT1530** Encoding and **EV1527** Encoding.

The modality is : MONOSTABLE (the receiver change the status of the output at each pressure on the remote controls).



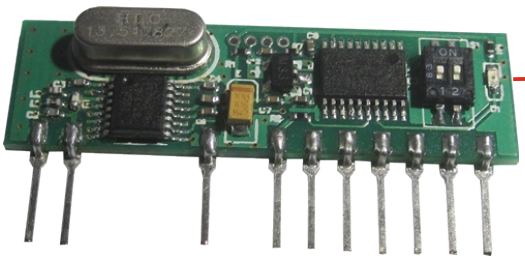
The system work with **HCS300** Encoding

The modality is : **BISTABLE** (the receiver activies the output and remains active as long as it receives frames from one of the stored remote controls).



The system work with **HCS300** Encoding

The modality is : **MONOSTABLE** (the receiver change the status of the output at each pressure on the remote controls).



Learning Procedure :

1) Push LEARN button (pin 9 to GND) about 1 sec.
2) The Red LED keep lighting, press any button of remote for learnig
3) Red LED flash once, means learning success
4) Repeat the step for more remotes learning.
It' possible repeat this procedure up to 20 transmitter.

Erasing Memory Procedure :

1) Push LEARN button (pin 9 to GND) about 3 sec.
2) The Red LED flash 3 times, means all learned remotes was deleted.

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