

Radio ntrolli®

Wireless Modules

Rev 3.0

IOT MODULES

WIFI MODULES

LORA MODULES

BLUETOOTH MODULES

TRANSCEIVER MODULES

ASK/FSK RADIO MODULES



WIRELESS SENSOR NETWORK

INDUSTRIAL AUTOMATION

HOME AUTOMATION

SECURITY SYSTEM

TELEMETRY

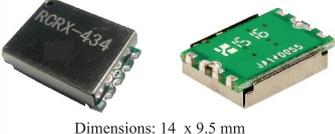
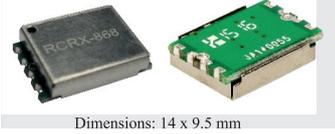
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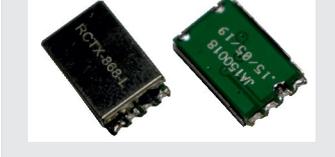


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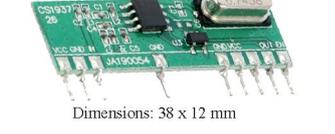
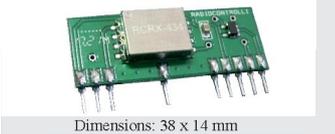
RECEIVER - ASK SUPERHET - Miniaturized Version

MODEL	DESCRIPTION	Vdc Ic	Sensitivity	Frequency (XXX)	-3dB BW	Data Rate	PICTURE
RCRX-434 RCRX-434-L	Very small ASK/OOK Superhet data receiver with PLL. Low Cost. High Performance. Metal Shield .	3 V / 5 V 5.5mA	-108 dBm	433.92 MHz	600 KHz	10 Kbit/s	 Dimensions: 14 x 9.5 mm
RCRX-868 RCRX-868-L	Very small ASK/OOK Superhet data receiver with PLL. Low Cost. High Performance. Metal Shield .	3 V / 5 V 5.5mA	-110 dBm	868.35 MHz	360 KHz	10 Kbit/s	 Dimensions: 14 x 9.5 mm

ASK/OOK TRANSMITTER - Miniaturized Version

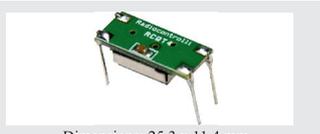
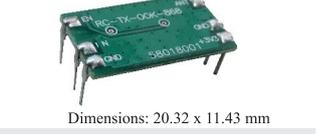
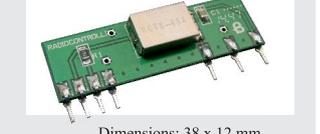
MODEL	DESCRIPTION	Vdc	Current	Frequency	RF Power	Data Rate	PICTURE
RCTX-434 RCTX-434-L	Very small ASK/OOK transmitter module with crystal oscillator at 433.92MHz. Metal shield. SMD mounting. 5Volt version and 3Volt version 315MHz version available	4 - 12 V 2.2-3.6 V	21mA 15mA	433.92 MHz	+11 dBm	50 Kbit/s	 Dimensions: 12 x 6.8 mm
RCTX-868-L	Very small ASK/OOK transmitter module with crystal oscillator at 868.35MHz. Metal shield. SMD mounting. 3Volt version. 915MHz version available	2.2-3.6 V	15mA	868.35 MHz	+9 dBm	50 Kbit/s	 Dimensions: 12 x 6.8 mm

RECEIVER LOW COST - ASK SUPERHET

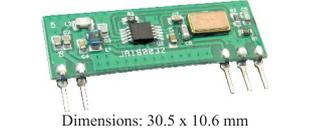
MODEL	DESCRIPTION	Vdc Ic	Sensitivity	Frequency	-3dB BW	Data Rate	PICTURE
RCRX1-434  Very Low Cost	ASK/OOK Superhet data receiver. Standard pin out version. Coated version available	2.0 ÷ 5.5V 3.0mA	-113 dBm	433.92 MHz	±350 KHz	10 Kbit/s	 Dimensions: 38 x 12 mm
RCBRX-434 RCBRX-434-L	ASK/OOK Superhet data receiver with PLL. Metal Shield. Standard pin out version. 5Volt version and 3Volt version 434.5 MHz version available	3V / 5V 5.5mA	-108 dBm	433.92 MHz	600 KHz	10 Kbit/s	 Dimensions: 38 x 14 mm
RCBRX-868-M	ASK/OOK Superhet data receiver with PLL. Metal Shield. Standard pin out version. 5 Volt Version. 868.95 MHz version available	5V 5.5mA	-110 dBm	868.35 MHz	360 KHz	10 Kbit/s	 Dimensions: 35.5 x 12.5 mm
RCASK2-XXX Other frequencies available : - 433.42MHz - 868.95 MHz - 869.20 MHz	AM Superhet data receiver with crytall oscillator and Squelch Circuit. RCASK2-315 = 315.00MHz Version RCASK2-434 = 433.92MHz Version RCASK2-868 = 868.35MHz Version	5V 6mA	-107 -102 dBm	315/433.92 868.35/915 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 38 x 14.5mm
RCASK3-434-CH	AM Superhet data receiver with SAW Front End filter and output noise filter to obtain high immunity to electromagnetic interference. Ideal for application that needs high immunity.	5V 7.5mA	-113 dBm	433.92 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 25.4 x 19.5 mm
RCASK4-434-CH	AM Superhet data receiver with SAW Front End filter and output noise filter to obtain high immunity to electromagnetic interference. Ideal for application that needs high immunity.	5V 7.5mA	-113 dBm	433.92 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 38 x 14.5 mm

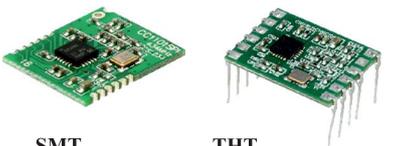
 **On request, we can customize the frequency values**

ASK/OOK TRANSMITTER

MODEL	DESCRIPTION	Vdc	Current	Frequency	RF Power	Data Rate	PICTURE
RC-TX1-434	433.92MHz ASK transmitter module with SAW oscillator and power amplifier.	2 - 12	8	433.92	10	9.6	 RC-TX1-434 RC-TX2-434
RC-TX2-434	RC-TX1-434 Dimensions: 17.9 x 10.1 mm RC-TX2-434 Dimensions: 25.3 x 11.4 mm	Volt	mA	MHz	dBm	Kbit/s	
RCQT4-XXX	Very small ASK/OOK transmitter module with crystal oscillator at 433.92 MHz. Metal shield. RCQT4-434 = 433.92MHz Version RCQT4-868 = 868.35MHz Version	4 - 12 V 2.2 - 3.6V	21mA 15mA	433.92 868.35 MHz	+11 +9 dBm	50 Kbit/s	 Dimensions: 25.3 x 11.4 mm
RC-TASK2-868 <i>Other frequencies available : - 868.95MHz</i>	ASK/OOK transmitter module with crystal oscillator at 868.35MHz. Dual line package operating a 3.3Volt. Power down mode is also available.	2.2 ÷ 3.6 Volt	21mA 15mA	868.35 MHz	+10 dBm	50 Kbit/s	 Dimensions: 20.32 x 11.43 mm
RCBTX-434	ASK/OOK transmitter module with crystal oscillator at 433.92MHz. Metal shield. Standard Pin Out. 5Volt version and 3Volt version	4 - 12 V 2.2 - 3.6V	21mA 15mA	433.92 MHz	+11 dBm	50 Kbit/s	 Dimensions: 38 x 12 mm

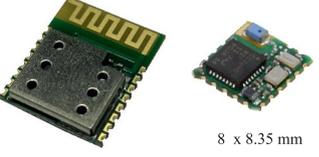
FSK MODULES

MODEL	DESCRIPTION	Vdc/Ic	Sleep Current	Frequency	Power RF Sensibility	Data Rate	PICTURE
RC-TFSK4-434	10mW FSK Radio Transmitter Module with crystal oscillator and external Antenna. Standard pin out version.	3V 14.5mA	100 nA	433.92 MHz	10 dBm	40 Kbit/s	 Dimensions: 30.5 x 10.6 mm
RC-TFSK3-XXX	10mW FSK Radio Transmitter Module with crystal oscillator and external Antenna. Standard pin out version. RC-TFSK3-434 = 433.92MHz Version RC-TFSK3-868 = 868.35MHz Version	3V 14.5mA	100 nA	433.92 868.35 MHz	10 dBm	40 Kbit/s	 Dimensions: 20.3 x 11.4 mm
RC-RFSK1-XXX	FSK Superhet data receiver with PLL synthesizer crystal oscillator and RSSI output. Standard pin out version. RC-RFSK1-434 = 433.92MHz Version RC-RFSK1-868 = 868.35MHz Version <i>Coated version available</i>	5V 5.7mA	100 nA	433.92 868.35 MHz	102 100 dBm	10 Kbit/s	 Dimensions: 38.1 x 18.3 mm
RC-RFSK2-XXX	FSK Superhet data receiver with PLL synthesizer crystal oscillator and RSSI output. It can demodulate in ASK/FSK mode according to ASK/FSK pin selector. RC-RFSK2-434 = 433.92MHz Version RC-RFSK2-868 = 868.35MHz Version	5V 5.7mA	100 nA	433.92 868.35 MHz	102 100 dBm	10 Kbit/s	 Dimensions: 38.1 x 18.3 mm
RC-RFSK3-XXX	FSK Superhet data receiver with PLL synthesizer crystal oscillator and RSSI output. RC-RFSK3-434 = 433.92MHz Version RC-RFSK3-868 = 868.35MHz Version	5V 5.7mA	100 nA	433.92 868.35 MHz	102 dBm	10 Kbit/s	

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	
RC-CC1101-XXX	Low-cost sub 1GHz multichannels radio transceiver based in CC1101 Texas Instruments device. Programmable via SPI interface. RC-CC1101-SPI-XXX = THT Version RC-CC1101-SPI-SMT-XXX SMT Version	1.8 ÷ 3.6V	15mA (RX) 29mA (TX)	433 MHz 868 MHz	-110 dBm +10 dBm	 SMT THT Dimensions: 18 x 15 mm Dimensions: 21.5 x 15.6 mm

 **On request, we can customize the frequency values**

IOT MODULES - TEXAS INSTRUMENTS BASED

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
RC-CC1310-XXX Sub 1GHz	The RC-CC1310-XXX module is based on Texas Instruments CC1310F128 component. Very low power transceiver with a powerful 48MHz Cortex M3 microcontroller in a platform supporting multiple physical layers and RF standard. RC-CC1310-434 = 433MHz Version RC-CC1310-868 = 868MHz Version RC-CC1310-915 = 915MHz Version	1.8 ÷ 3.6V	5.5mA (RX) 23mA (TX)	434 MHz 868 MHz 915 MHz	-124 dBm +14 dBm	 Dimensions: 22 x 15mm
RC-CC1312R-XXX Sub 1GHz	The RC-CC1312R-XXX is based on Texas Instruments CC1312R1F3RGZ component. Very low power transceiver with a powerful 48MHz ARM Cortex M4F CPU in a platform supporting multiple physical layer and RF standard. RC-CC1312R-868 = 868MHz Version RC-CC1312R-915 = 915MHz Version	1.8 ÷ 3.6V	5.5mA (RX) 23mA (TX)	868 MHz 915 MHz	-121 dBm +14 dBm	 Dimensions: 22 x 15mm
RC-CC1352-XXX (Sub 1GHz & 2.4GHz)	The RC-CC1352-XXX module is based on Texas Instruments CC1352R component. The CC1352R device is a multiprotocol Sub-1 GHz and 2.4-GHz. RC-CC1352R-868 = 868MHz Version RC-CC1352R-915 = 915MHz Version	1.8 ÷ 3.6V	8.1mA (RX) 24mA (TX)	433 MHz 868 MHz 915 MHz 2.4 GHz	-122 dBm +14 dBm +5 dBm	 Dimensions: 29.86 x 19.98mm
RC-CC1352P-XXX (Sub 1GHz & 2.4GHz)	The RC-CC1352P-XXX module is based on Texas Instruments CC1352P component. The CC1352P device is a multiprotocol Sub-1 GHz and 2.4-GHz. RC-CC1352P-868 = 868MHz Version RC-CC1352P-915 = 915MHz Version	1.8 ÷ 3.6V	8.1mA (RX) 24mA (TX)	433 MHz 868 MHz 915 MHz 2.4 GHz	-122 dBm +18 dBm +3 dBm	 Dimensions: 29.86 x 19.98mm
RC-CC1310F-XXX Sub 1GHz	The RC-CC1310F-XXX is based on Texas Instruments CC1310F128 component more a 16M-bit of serial flash memory. The «F» version has onboard 16 M-bite serial flash memory type GD25Q16CEIG. RC-CC1310F-868 = 868MHz Version RC-CC1310F-915 = 915MHz Version	1.8 ÷ 3.6V	5.5mA (RX) 23mA (TX)	868 MHz 915 MHz	-124 dBm +14 dBm	 Dimensions: 22 x 15mm
RC-CC3200 (Wi-Fi)	Wi-Fi Module is based on CC3200 Texas Instrument chip. The RC-CC3200 module is the second-generation series of modules in the SimpleLink family and consists of an applications microcontroller unit (MCU), Wi-Fi network processor, and a power-management subsystem.	2.3 ÷ 3.6V	59mA (RX) 229mA (TX)	2.4 GHz	-94.7 dBm +17 dBm	 Dimensions: 18 x 15 mm
RC-CC2640-B (Bluetooth) RC-CC2640-A (Bluetooth Miniaturized)	RC-CC2640-X is based on CC2640R2F128 Bluetooth Smart (BLE4.2) System-on-Chip, fully supports the single mode Bluetooth Low Energy operation. ARM Cortex M3 inside.	1.8 ÷ 3.8V	5.9mA (RX) 6.1mA (TX)	2.4 GHz	-94 dBm +5 dBm	 12 x 15 mm 8 x 8.35 mm
RC-CC2652PA (Multiprotocol)	The RC-CC2652PA module is designed based on CC2652R and CC2592 of Texas Instruments. The RC-CC2652PA module is designed based on CC2652R and CC2592 of Texas Instruments. The CC2652R device is a multiprotocol wireless 2.4GHz MCU targeting Thread, Zigbee, Bluetooth 5low energy.	2.0 ÷ 3.6V	15.0mA (RX) 180mA (TX)	2.4 GHz	103dBm +19 dBm	 Dimensions: 27.5 x 16 mm

IOT MODULES - STMICROELECTRONICS BASED

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
RC-SPIRIT2-XXX Sub 1GHz	The RC-SPIRIT2-XXX module is based on STMicroelectronics S2-LP transceiver. Pin to pin compatible with the SPSGRF family modules, manufactured from STM. RC-SPIRIT2-434 = 433 MHz Version RC-SPIRIT2-868 = 868 MHz Version	1.8 ÷ 3.6V	7.2mA (RX)	433 MHz	-128 dBm	 13.5 x 11.5mm
			20mA (TX)	868 MHz	+16 dBm	
RC-S2LP-XXX Sub 1GHz	The RC-S2LP-XXX module is based on STMicroelectronics S2-LP transceiver. SMD mounting. Metal Shield RC-S2LP-434 = 433MHz Version RC-S2LP-868 = 868MHz Version RC-S2LP-915 = 915MHz Version	1.8 ÷ 3.6V	7.2mA (RX)	433 MHz	-128 dBm	 Dimensions: 22 x 15mm
			20mA (TX)	868 MHz	+16 dBm	
				915 MHz		
RC-S2LP-XXX-HA Sub 1GHz	The RC-S2LP-868-HA module is based on STMicroelectronics S2-LP transceiver. SMD mounting (15x 22mm) - Metal shield. With helical Antenna. RC-S2LP-868-HA = 868MHz Version RC-S2LP-915-HA = 915MHz Version	1.8 ÷ 3.6V	7.2mA (RX)	868 MHz	-128 dBm	 Dimensions: 22 x 15mm
			20mA (TX)	915 MHz	+16 dBm	



Adapter for NUCLEO1/Arduino

This Evaluation board can be used with the modules :

- RC-SPIRIT2-XXX
- RC-S2LP-XXX

With this board it is possible to use all the SW resources provided for the development activity.

RC-S2LP-XXX-EK



RC-SPIRIT2-XXX-EK

LORA MODULES - SEMTECH BASED

MODEL	DESCRIPTION	Vdc	Current	Frequency	Power RF Sensibility	PICTURE
RC-SM1276-XXX (LORA)	The RC-SM1276-XXX module is based on SX1276. The SX1276 incorporates the LoRaTM spread spectrum modem which is capable of achieving significantly longer range than existing systems based on FSK or OOK modulation. Programmable with external microcontroller via SPI interface.	1.8 ÷ 3.6V	12mA (RX)	868 MHz	-139 dBm	 Dimensions: 23.5 x 15 mm
			120mA (TX)	915 MHz	+19 dBm	
RC-SM1278-433 (LORA)	The RC-SM1278-433 module is based on SX1278. The SX1278 incorporates the LoRaTM spread spectrum modem which is capable of achieving significantly longer range than existing systems based on FSK or OOK modulation. Programmable with external microcontroller via SPI interface.	1.8 ÷ 3.6V	12mA (RX)	433 MHz	-139 dBm	 Dimensions: 23.5 x 15 mm
			120mA (TX)		+18 dBm	
RC-LLCC68-868 (LORA)	LoRa Smart Home (based on LLCC68) is a sub-GHz LoRa® RF Transceiver for medium range indoor and indoor to outdoor wireless applications. SPI interface. Designed for long battery life with just 4.2 mA of active receive current consumption. The LLCC68 can transmit up to +22 dBm with highly efficient integrated power amplifiers.	1.8 ÷ 3.7V	4.90mA (RX) 120mA (TX)	868 MHz	-148 dBm +20dBm	 Dimensions: 19.0 x 13 mm

IOT MODULES - RADIOCONTROLLI APPLICATIONS

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility / Power	
RCQ3-XXX (Wireless Switch)	Wireless switch Long Range It's an 4 channels wireless switch module with pairing function, it provides maximum 4 channel signal input and maximum 4 channel control output (bistable and monostable mode). Distance: 1000meters in open field. RCQ3-434= 433MHz Version RCQ3-868= 868MHz Version RCQ3-915= 915MHz Version	1.8 ÷ 3.6V	5.5mA (RX)	433 MHz	+14 dBm	 Dimensions: 22 x 15 mm
				868 MHz	-110 dBm (50kbps)	
			24mA (TX)	915MHz	-122 dBm (2.5kbps)	
RC-WuTRX-XXX (Wake Up Transceiver)	Wake Up Transceiver It is a transceiver module that uses «wake up receiver technique» to be used in very low consumption applications. The WakeUp-Receiver continuously monitors the wireless channel (without the use of a microcontroller) and recognizes if there are any radio signals addressed to him, in this case it returns the data received on the serial interface. RC-WuTRx-434= 433MHz Version RC-WuTRx-868= 868MHz Version RC-WuTRx-915= 915MHz Version	1.8 ÷ 3.6V	10.0 µA (RX)	433 MHz	+14 dBm	 Dimensions: 22 x 15 mm
				868 MHz	-110 dBm (50kbps)	
			24mA (TX)	915MHz		

Wake Up Transceiver

Evaluation Kits

These Evaluation board can be used with the modules :

- RC-RCQ3-XXX
- RC-WuTRx-XXX

With this board it is possible to verify all the functionality of the Wireless Switch (RCQ3) and of the Wake Up Transceiver.



Wireless Switch

MULTICHANNELS RADIO MODEM 433/868/915

MODEL	DESCRIPTION	Vdc	Current	Frequency	Power RF Sensibility	
RCQ2-XXX (SMT & THT version)	The RCQ2 is a high performance wireless modem providing a reliable low cost serial data communication. This RF modem is very simple to use and provides a wireless RS232 link with a RF data rate up to 100 kbps.	3.0 ÷ 3.6V	20mA (RX)	433 MHz	+20 dBm	 Dimensions :23.5 x 15 mm Dimensions: 26 x 24 mm
			34mA (TX)	868 MHz	-112 dBm	
RCQ3-XXX-RM (SMT version)	Multichannels Radio Modem operates in the band 433/868/915MHz . The Radio modem is very simple to use and provides a wireless RS232 link with a RF data rate up to 50kbps. Can be work in Long Range Mode (LRM) that is particularly encoding technique that trades data rate for sensibility gains. RCQ3-434-RM = 433.92MHz Version RCQ3-868-RM = 868.35MHz Version RCQ3-915-RM = 915.00MHz Version	1.8 ÷ 3.6V	5.5mA (RX)	433 MHz	+14 dBm	 Dimensions: 22 x 15 mm
				868 MHz	-110 dBm (50kbps)	
			24mA (TX)	915MHz	-122 dBm (2.5kbps)	
RCQ3-XXX-DK	Evaluation Board Multichannels Radio Modem in the band 433/868/915MHz . The purpose of this evaluation kits is to verify all the features and technical characteristics about the Radio Modem RCQ3-XXX-RM. RCQ3-434-DK = 433.92MHz Version RCQ3-868-DK = 868.35MHz Version RCQ3-915-DK = 915.00MHz Version	1.8 ÷ 3.6V	5.5mA (RX)	433 MHz	+14 dBm	 Dimensions: 76 x 27.5 mm Antenna height : 56mm
				868 MHz	-110 dBm (50kbps)	
			24mA (TX)	915MHz	-122 dBm (2.5kbps)	

RX UNIT WITH DECODING

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility	PICTURE
RC-RHCS-4CH	RC-RHCS-4CH is a 433.92MHz ASK Radio Receiver Module with integrated HCS and «Learning Code» decoding and 4 output channels (open collector output).	4.5 ÷ 5.5V	6.8mA	433.92MHz	-108 dBm	 Dimension: 38.1 x 11 mm

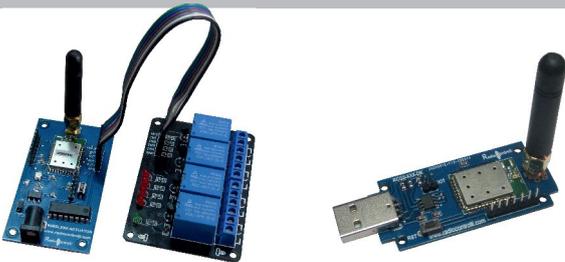
KEYFOB

MODEL	DESCRIPTION	Vdc	Keys	Frequency	Encoder	PICTURE
RCTV-01	RCTV-01 is a 4 channels keyfob transmitter with SAW oscillator and learning Code Ev1527. EV1527 is an OTP encoder with 20bit can storage 1048576 combinations. Color: Gold Dimension : 5.8 /3.8/1.25cm	12Volt battery	4 keys	433.92MHz	EV1527	 RCTV-02 RCTV-01
RCTV-02	RCTV-02 is a 2 channels keyfob transmitter with SAW oscillator and HCS 301 rolling code encoder. Manufacturing code = RadioControlli Color : black Dimension : 5.2 /3.1/1.2cm	3 Volt CR2032 battery	2 keys	433.92MHz	HCS 301	

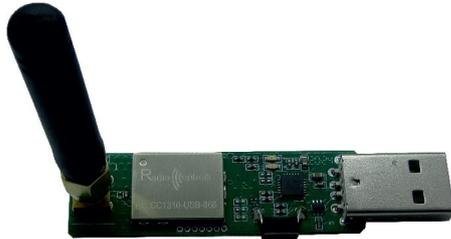
BIDIRECTIONAL REMOTE CONTROL

MODEL	DESCRIPTION	PICTURE
TBLO-869	<p>Long Range Bidirectional Remote Control</p> <p>869MHz Bidirectional wireless system for home automation, composed by a bidirectional remote control and a receiver unit with the possibility to switch up to N.8 relays.</p> <p>TBLO-869-4 = 4 channels TBLO-869-8 = 8 channels 1000meters in open field</p> <p> On request, we can supply 433MHz / 915MHz versions</p>	

WIRELESS ACTUATOR THROUGH SERIAL INTERFACE

MODEL	DESCRIPTION	PICTURE
RCQ3-XXX-ACT	<p>Wireless actuator for home automation</p> <p>is composed by a Gateway unit, controllable via RS232 serial interface, and by one or more ACTUATOR units, with the possibility to switch from a minimum of 4 up to a maximum of 256 devices (relays). With simple Rs232 command you control «n» Remote Unit. 1000meters in open field.</p> <p>RCQ3-868-ACT = 868MHz Version RCQ3-434-ACT = 433MHz Version RCQ3-915-ACT = 915MHz Version</p>	

CC1310 USB DONGLE

MODEL	DESCRIPTION	PICTURE
RC-CC1310-USB-XXX	<p>Ultra Low Power sub 1GHz Multichannels Radio Transceiver with USB interface.</p> <p>RC-CC1310-USB-XXX module is based on the Texas Instruments CC1310F128 component. This device combines a flexible very low power RF transceiver with a powerful 48MHz Cortex M3 microcontroller in a platform supporting multiple physical layers and RF standard.</p> <p>In addition the transceiver is connected to a single chip Cp2102 (Silicon Labs), to allow the USB to UART data transfer.</p> <p>RC-CC1310-USB-868 = 868.00MHz RC-CC1310-USB-915 = 915.00MHz</p>	



Capacitive Thick Film Technology - Rain Sensor

RC-SPC1K and RC-SPC1KA are thick film technology rain sensors. This device is realized in Alumina (Al_2O_3) substrate, this material is endowed a big reliability from an electrical thermal point of view.

The sensor consists of three parts :

- 1) Capacitive sensor (Face A)
- 2) Heater generator
- 3) Temperature Sensor.

The Face A is the sensitivity area (capacitive sensor); this area is exposed to natural agents (rain). In dry condition the value of the capacitor is nominal 100pF; In presence of rain the capacitance goes to high value respect the dry condition.

The difference between the two versions lies in the different sensitivity of the area : with the same amount of water falling on the surface, the variation of the capacity is different between the two versions.

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