



**RADIOCONTROLLI SRL**

IOT Modules  
Wireless Modules  
RF Modules  
LoRa Modules  
Radio Modem

**Radio**  **controlli**®

**WIRELESS MODULES**

[www.radiocontrolli.com](http://www.radiocontrolli.com)

Rev 4.1

## Our company

**Competence, determination and passion are our core value in RadioControlli.**

We are a young company but with an important baggage of experiences. Our company was founded by initiative of managers with long and established experiences (electronics engineering and research & development) in some of the major Italian industrial groups (*Italtel, IPM Group, Olivetti*); later they were joined by professional and skilled resources. We are specialized in the design engineering of electronics devices and we are particularly focused on the radiofrequency field. Our catalog is composed by a wide range of sub 1GHz standard RF modules (433/868/915 MHz) :

Transmitter Module, Receiver Module, Transceiver Module.

Besides, we supply a series of IoT modules based on the latest technologies from Texas Instruments, STMicroelectronics and others. The final device manufacturer can take products to market faster, so there is more time to develop more functions for the final product and this process minimize the development's costs. These modules are calibrated, they are all tested and certified (CE or FCC).

**RadioControlli Modules = Time to Market reduction**





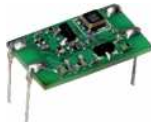



**RadioControlli**<sup>®</sup>  
WIRELESS MODULES






# INDEX



Product	Page
Transmitter Module	4
Receiver Module Miniaturized Version	5
Receiver Module	6
CC1101 Transceiver Module	7
IoT Modules Texas Instruments based	8
IoT Modules STMicroelectronics based	10
LoRa Modules Semtech based	12
CC1310 USB Dongle	12
Multichannels Radio Modems 433/868MHz	13
IoT Modules RadioControlli Applications	14
Long Range Bidirectional Remote Control	15
Evaluation KIT	15
Remote Control	16
Antennas	17
Capacitive Rain Sensor	18
Data Transceiver Unit LoRa	19














MODEL	DESCRIPTION	Vdc	Current	Frequency	RF Power	Data Rate	PICTURE
<b>RCTX-434</b> <b>RCTX-434-L</b>	Very small ASK/OOK transmitter module with crystal oscillator at 433.92MHz. Metal shield. SMD mounting. 3Volt and 5Volt version. <i>315MHz version available</i>	4 - 12 V 2.2-3.6 V	21mA 15mA	433.92 MHz	+11 dBm	50 Kbit/s	 Dimensions: 12 x 6.8 mm
<b>RCTX-868-L</b>	Very small ASK/OOK transmitter module with crystal oscillator at 868.35MHz. Metal shield. SMD mounting. 3Volt version. <i>915MHz version available</i>	2.2-3.6 V	15mA	868.35 MHz	+9 dBm	50 Kbit/s	 Dimensions: 12 x 6.8 mm
<b>RC-TX1-434</b>	433.92MHz ASK transmitter module with SAW oscillator and power amplifier.	2 - 12 Volt	8 mA	433.92 MHz	+10 dBm	9.6 Kbit/s	 Dimensions: 17.9 x 10.1 mm
<b>RC-TX2-434</b>	433.92MHz ASK transmitter module with SAW oscillator and power amplifier.	2 - 12 Volt	8 mA	433.92 MHz	+10 dBm	9.6 Kbit/s	 Dimensions: 25.3 x 11.4 mm
<b>RCBTX-434</b>	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
<b>RCQT4-XXX</b>	Very small ASK/OOK transmitter module with crystal oscillator at 433.92 MHz. Metal shield.	4 - 12 V 2.2 - 3.6V	21mA 15mA	433.92 MHz	+11 +9 dBm	50 Kbit/s	 Dimensions: 25.3 x 11.4 mm

MODEL	DESCRIPTION	Vdc	Current	Frequency	RF Power	Data Rate	PICTURE
<p><b>RC-TXASK-XXX</b></p> <p>RC-TXASK-433 = 433.92MHz                      RC-TXASK-433.42 = 433.42MHz                      RC-TXASK-434.15 = 434.15MHz                      RC-TXASK-434.50 = 434.50MHz                      RC-TXASK-868 = 868.35MHz                      RC-TXASK-868.95 = 868.95MHz                      RC-TXASK-869.50 = 869.50MHz</p>	<p>OOK/ASK Radio transmitter module with crystal oscillator ,dual line package operating at 3.3Volt. Output Power 10dBm.</p> <p>We can customize the Frequency range:                      from 433.00MHz to 435.00MHz                      from 867.00MHz to 870.00MHz</p>	2.2 ÷ 3.6 Volt	21mA	433.00 ÷ 435.00 867.00 ÷ 870.00 MHz	+10 dBm	50 Kbit/s	 <p>Dimensions: 20.32 x 11.43 mm</p>
<p><b>RC-TXFSK-XXX</b></p> <p>RC-TXFSK-433 = 433.92MHz                      RC-TXFSK-433.42 = 433.42MHz                      RC-TXFSK-434.15 = 434.15MHz                      RC-TXFSK-434.50 = 434.50MHz                      RC-TXFSK-868 = 868.35MHz                      RC-TXFSK-868.95 = 868.95MHz                      RC-TXFSK-869.50 = 869.50MHz</p>	<p>FSK Radio transmitter module with crystal oscillator ,dual line package operating at 3.3Volt. Output Power 10dBm.</p> <p>We can customize the Frequency range:                      from 433.00MHz to 435.00MHz                      from 867.00MHz to 870.00MHz</p>	2.2 ÷ 3.6 Volt	21mA	433.00 ÷ 435.00 867.00 ÷ 870.00 MHz	+10 dBm	50 Kbit/s	 <p>Dimensions: 20.3 x 11.4 mm</p>
<p><b>RC-TFSK4-433N</b></p> <p>RC-TFSK4-433N = 433.92MHz                      RC-TFSK4-433.42N = 433.42MHz                      RC-TFSK4-434.15N = 434.15MHz                      RC-TFSK4-434.50N = 434.50MHz                      RC-TFSK4-868N = 868.35MHz                      RC-TFSK4-868.95N = 868.95MHz                      RC-TFSK4-869.50N = 869.50MHz</p>	<p>FSK Radio transmitter module with crystal oscillator ,dual line package operating at 3.3Volt. RF Power 10dBm.</p> <p>from 433.00MHz to 435.00MHz                      from 867.00MHz to 870.00MHz</p>	2.2 ÷ 3.6 Volt	21 mA	433.00 ÷ 435.00 867.00 ÷ 870.00 MHz	+10 dBm	40 Kbit/s	 <p>Dimensions: 30.5 x 10.6 mm</p>




RECEIVER MODULES - Miniaturized Version





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

MODEL	DESCRIPTION	Vdc Ic	Sensitivity	Frequency	-3dB BW	Data Rate	PICTURE
<b>RCRX1-434</b>  <b>Very Low Cost</b>	ASK/OOK Superhet data receiver. Standard pin out version. <b>Coated version available</b>	2.0 ÷ 5.5V 4.2mA	-110 dBm	433.92 MHz	±350 KHz	10 Kbit/s	 Dimensions: 38 x 12 mm
<b>RCBRX-434</b> <b>RCBRX-434-L</b>	ASK/OOK Superhet data receiver with PLL. Metal Shield. Standard pin out version. 5Volt version and 3Volt version <b>434.5 MHz version available</b>	3V / 5V 5.5mA	-108 dBm	433.92 MHz	600 KHz	10 Kbit/s	 Dimensions: 38 x 14 mm
<b>RCBRX-868-M</b>	ASK/OOK Superhet data receiver with PLL. Metal Shield. Standard pin out version. 5 Volt Version. <b>868.95 MHz version available</b>	5V 5.5mA	-110 dBm	868.35 MHz	360 KHz	10 Kbit/s	 Dimensions: 35.5 x 12.5 mm
<b>RC-RXASK-XXX</b> RC-RXASK-433 = 433.92MHz RC-RXASK-433.42 = 433.42MHz RC-RXASK-434.15 = 434.15MHz RC-RXASK-434.50 = 434.50MHz RC-RXASK-868 = 868.35MHz RC-RXASK-868.95 = 868.95MHz RC-RXASK-869.50 = 869.50MHz	ASK Superhet data receiver with PLL synthesizer crystal oscillator. Standard pin out version. We can customize the Frequency range: <b>from 433.00MHz to 435.00MHz</b> <b>from 867.00MHz to 870.00MHz</b>	5V 6mA	-110 dBm	433.00 ÷ 435.00 867.00 ÷ 870.00 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 38 x 14.5mm
<b>RCASK3-434-CH</b>	AM Superhet data receiver with SAW Front End filter and output noise filter to obtain high immunity to electromagnetic interference. <b>Ideal for application that needs high immunity.</b>	5V 7.5mA	-113 dBm	433.92 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 25.4 x 19.5 mm
<b>RCASK4-434-CH</b>	AM Superhet data receiver with SAW Front End filter and output noise filter to obtain high immunity to electromagnetic interference. <b>Ideal for application that needs high immunity.</b>	5V 7.5mA	-113 dBm	433.92 MHz	150 KHz	4.8 Kbit/s	 Dimensions: 38 x 14.5 mm

MODEL	DESCRIPTION	Vdc Ic	Sleep Current	Frequency	Sensitivity	Data Rate	PICTURE
<b>RC-RFSK1-XXXN</b> RC-RFSK1-433N = 433.92MHz RC-RFSK1-433.42N = 433.42MHz RC-RFSK1-434.15N = 434.15MHz RC-RFSK1-434.50N = 434.50MHz RC-RFSK1-868N = 868.35MHz RC-RFSK1-868.95N = 868.95MHz RC-RFSK1-869.50N = 869.50MHz Coated version available	FSK Superhet data receiver with PLL synthesizer crystal oscillator. Standard pin out version. We can customize the Frequency range: from 433.00MHz to 435.00MHz from 867.00MHz to 870.00MHz	5V 8 mA	100 nA	433.00 ÷ 435.00 867.00 ÷ 870.00 MHz	-115 dBm	4.8 Kbit/s	 Dimensions: 38.1 x 14.4 mm
 <b>RC-INFASK-433</b>	FSK Radio Receiver Module with PLL Synthesizer and crystal oscillator. This receiver module is based on Infineon TDA5240 chip, controlled by a STM32 microcontroller ; RSSI Output. This module was designed to replace all stand-alone receivers FSK module based on the obsolete TDA5210 chip.	5V 14 mA	100 nA	433.92 MHz	-110 dBm	4.8 Kbit/s	 Dimensions: 38.1 x 18.3 mm
<b>RC-RHCS-4CH</b>	is a 433.92MHz ASK Receiver Module with integrated HCS an «Learning Code» decoding and 4 output channels (open collector output).	5V 6.8mA	100 nA	433.92MHz	-108 dBm	4.8 Kbit/s	 Dimension: 38.1 x 11 mm





CC1101 TRANSCEIVER MODULES



MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	
<b>RC-CC1101-XXX</b>	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 915 MHz	-110 dBm  +10 dBm	   SMT Version Dimensions: 18x15mm  THT Version Dimensions: 21.5x15.6mm

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
<b>RC-CC1310-XXX</b> <b>RC-CC1310-XXX-H</b> Sub 1GHz	This module is based on the Texas Instruments CC1310F128 component. Very low power transceiver with a powerful 48MHz Cortex M3 microcontroller. Available as standard version (UFL connector) or in «H» version antenna output directed towards the pad. 433/868/915MHz.	1.8 ÷ 3.6V	5.5mA (RX)	434 MHz  868 MHz	-124 dBm	 Dimensions: 22 x 15mm
			23mA (TX)	915 MHz	+14 dBm	
<b>RC-CC1312R-XXX</b> <b>RC-CC1312R-XXX-H</b> Sub 1GHz	This module is based on the Texas Instruments CC1312R1F3RGZ component. Very low power transceiver with a powerful 48MHz arm Cortex M4F cpur. Available as standard version (UFL connector) or in «H» version antenna output directed towards the pad. 433/868/915MHz.	1.8 ÷ 3.6V	5.5mA (RX)	434 MHz  868 MHz	-121 dBm	 Dimensions: 22 x 15mm
			23mA (TX)	915 MHz	+14 dBm	
<b>RC-CC1352-XXX</b> Sub 1GHz & 2.4GHz	Dual band sub 1GHz and 2.4GHz Multichannels Radio Transceiver. This module is based on the Texas Instruments CC1352R. The CC1352R device is a multiprotocol sub-1GHz and 2.4GHz.	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
<b>RC-CC1352P</b> Sub 1GHz & 2.4GHz	The <b>RC-CC1352P</b> module is based on Texas Instruments CC1352P component. The CC1352P device is a multiprotocol Sub-1 GHz and 2.4-GHz. Powerful ARM Cortex-M4F processor 352KB flash program memory 80KB SRAM.	1.8 ÷ 3.6V	8.1mA (RX)  24mA (TX)	868 MHz  915 MHz  2.4 GHz	-122 dBm  +20 dBm  +3 dBm	 Dimensions: 29.86 x 19.98mm



MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
<b>RC-CC1352P7</b> Sub 1GHz & 2.4GHz	The <b>RC-CC1352P7</b> module is based on Texas Instruments CC1352P7 component. The CC1352P device is a multiprotocol Sub-1 GHz and 2.4-GHz. 704KB flash program memory 256KB of ROM for protocol	1.8 ÷ 3.6V	8.1mA (RX) 24mA (TX)	868 MHz 915 MHz 2.4 GHz	-122 dBm +20 dBm +3 dBm	 Dimensions: 29.86 x 19.98mm
<b>RC-CC2652PA</b> Multiprotocol	The <b>RC-CC2652PA</b> module is designed based on CC2652R and CC2592 of Texas Instruments. The <b>RC-CC2652PA</b> module is designed based on CC2652R and CC2592 of Texas Instruments.	2.0 ÷ 3.6V	15.0mA (RX) 180mA (TX)	2.4 GHz	103dBm +19 dBm	 Dimensions: 27.5 x 16 mm
<b>RC-CC3200</b> Wi-Fi	Wi-Fi Module is based on CC3200 Texas Instrument chip. The <b>RC-CC3200</b> module is the second-generation series of modules in the SimpleLink family and consists of an applications microcontroller unit (MCU).	2.3 ÷ 3.6V	59mA (RX) 229mA (TX)	2.4 GHz	-94.7 dBm +17 dBm	 Dimensions: 18 x 15 mm
<b>RC-CC2640-B</b> Bluetooth <b>RC-CC2640-A</b> Bluetooth Miniaturized	<b>RC-CC2640-X</b> 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
<b>RC-CC2340</b> Bluetooth	The RC-CC2340 module is designed based on CC2340 of TI. The SimpleLink™ CC2340R5 device is a 2.4 Ghz wireless microcontroller (MCU) targeting Bluetooth® 5.3 Low Energy, Zigbee®, IEEE 802.15.4.	1.8 ÷ 3.8V	5.3mA (RX) 12mA (TX)	2.4 GHz	-102 dBm +8 dBm	 Dimensions: 22.13 x 12 mm

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
<b>RC-WLE5-XXX</b> LORAWAN	<p><b>RC-WLE5-XXX</b> is an ultra low power long range device designed by RadioControlli. The module is based on STM32WLE5JC device from STMicroelectronics. Multiprotocol LPWAN 32bit Arm®Cortex® M4 MCUs, LoRa®, (G)FSK, (G)MSK, BPSK .</p>	2.5 ÷ 3.7V	5.0mA (RX)	433MHz	-140 dBm +20 dBm	 Dimensions: 22 x 15mm
			120mA (TX)	868MHz	-140 dBm +10 dBm	
<b>RC-WLE5-868-HA</b> LORAWAN	<p><b>RC-WLE5-868-HA</b> is an ultra low power long range device designed by RadioControlli. The module is based on STM32WLE5JC device from STMicroelectronics. Multiprotocol LPWAN 32bit Arm®Cortex® M4 MCUs, LoRa®, (G)FSK, (G)MSK, BPSK . With Helical Antenna.</p>	2.5 ÷ 3.7V	5.0mA (RX) 120mA (TX)	868MHz	+18.5 dBm	 Dimensions: 22 x 15mm
<b>RC-SPIRIT2-XXX</b> <b>RC-SPIRIT2-XXX-NA</b> Sub 1GHz	<p>This module is based on STMicroelectronics S2LP transceiver. Pin to pin compatible with the SPSGRF family modules, manufactured from STM. Available as standard version (UFL connector) or in «NA» version antenna output directed towards the pad. 433/868/915MHz.</p>	1.8 ÷ 3.6V	7.2mA (RX) 20mA (TX)	433 MHz 868 MHz 915 MHz	-128 dBm +16 dBm	 Dimensions: 13.5 x 11.5mm
<b>RC-SPIRIT-A</b> Sub 1GHz	<p>This module is based on STMicroelectronics S2LP transceiver. Pin to pin compatible with the SPSGRFC family modules, manufactured from STM. With chip antenna onboard.</p>	1.8 ÷ 3.6V	7.2mA (RX) 20mA (TX)	868 MHz 915 MHz	-128 dBm +14 dBm	 Dimensions: 13.5 x 11.5mm

MODEL	DESCRIPTION	Vdc	Current	Frequency	Sensibility Power	PICTURE
<b>RC-S2LP-XXX-HA</b> Sub 1GHz	The <b>RC-S2LP-868-HA</b> 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	
<b>RC-S2LP-XXX</b> Sub 1GHz	The <b>RC-S2LP-XXX</b> 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		



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**




MODEL	DESCRIPTION	Vdc	Current	Frequency	Power Sensitivity	PICTURE
<b>RC-SM1276-XXX</b> (LORA)	The <b>RC-SM1276-XXX</b> module is based on SX1276 from Semtech. 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	
<b>RC-SM1278-433</b> (LORA)	The <b>RC-SM1278-433</b> module is based on SX1278 from Semtech. 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	
<b>RC-LLCC68-868</b> (LORA)	LoRa Smart Home (based on LLCC68) is a sub-GHz LoRa® RF Transceiver . SPI interface. The LLCC68 can transmit up to +22 dBm with highly efficient integrated power amplifiers.	1.8 ÷ 3.7V 1.8 ÷ 3.7V	4.90mA (RX)	868 MHz	-148 dBm	 Dimensions: 19.0 x 13 mm
			120mA (TX)		+20dBm	




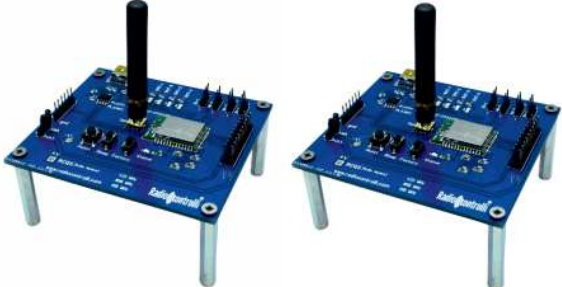
CC1310 USB DONGLE





MODEL	DESCRIPTION	PICTURE
<b>RC-CC1310-USB-XXX</b>	<p>Ultra Low Power sub 1GHz Multichannels Radio Transceiver with USB interface.</p> <p><b>RC-CC1310-USB-XXX</b> 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. Available at 868MHz and 915MHz for the US market.</p> <p><b>RC-CC1310-USB-868</b> = 868.00MHz  <b>RC-CC1310-USB-915</b> = 915.00MHz</p>	



MODEL	DESCRIPTION	Vdc	Current	Frequency	Power RF Sensibility	PICTURE
<b>RC-RICK-XXX</b>	<p>is a radio modem with UART interface usable with AT commands for long distance communication with LoRa modulation (LoRa Transparent Transmission Protocol). Working into European bandwidth : 433/868MHz.</p> <p>The hardware is based on the module RC-WLE5-XXX designed by RadioControlli (STM32WLE5JC based).</p>	2.5 ÷ 3.7V	<p>5mA (RX)</p> <p>120mA (TX)</p>	<p>433 MHz</p> <p>868 MHz</p>	<p>+10 dBm</p> <p>-140 dBm</p> <p>+20 dBm</p> <p>-140 dBm</p>	
<b>RC-RICK-868-HA</b>	<p>is a radio modem with UART interface usable with AT commands for long distance communication with LoRa modulation (LoRa Transparent Transmission Protocol). Working into European bandwidth : 868MHz. The hardware is based on the module RC-WLE5-868-HA designed by RadioControlli (STM32WLE5JC based). 868MHz Helical Antenna onboard.</p>	2.5 ÷ 3.7V	<p>5mA (RX)</p> <p>120mA (TX)</p>	868 MHz	<p>+20 dBm</p> <p>-140 dBm</p>	
<b>RC-RICK-XXX-EV</b>	<p>EVALUATION KIT (N.2 USB Dongle)</p> <p>The purpose of this evaluation kits is to verify all the features and technical characteristics about the Radio Modem RC_RICK-XXX with a point to point connection.</p> <p>It's composed by N. 2 USB Dongle with :</p> <ul style="list-style-type: none"> <li>- The module RC-RICK-XXX onboard</li> <li>- CP2102 USB/Serial Interface</li> <li>- Antenna</li> </ul>	2.5 ÷ 3.7V	<p>5mA (RX)</p> <p>120mA (TX)</p>	<p>433 MHz</p> <p>868 MHz</p>	<p>+10 dBm</p> <p>-140 dBm</p> <p>+20 dBm</p> <p>-140 dBm</p>	

MODEL	DESCRIPTION	Vdc	Current	Frequency	Power RF Sensibility	PICTURE
<p><b>RCQ5-XXX</b></p> <p><b>RCQ5-XXX-H</b></p>	<p><b>Radio Modem</b> is a radio modem with UART interface usable with AT commands for long distance communication with FSK modulation. Working into the following bandwidth : 433/868/915MHz.</p> <p><b>OTA Command / Remote I/O Functionality</b> The module has the ability to manage No. 4 digital outputs and No. 4 digital inputs both locally and remotely (OTA Command) by sending simple AT commands. The hardware is based on the module RC-CC1312R-XXX designed by RadioControlli (CC1312R chip based).</p>	1.8 ÷ 3.6V	<p>5.5mA (RX)</p> <p>23mA (TX)</p>	<p>433 MHz</p> <p>868 MHz</p> <p>915MHz</p>	<p>+14 dBm -121 dBm</p> <p>+14 dBm -121 dBm</p>	 <p>Dimensions: 22 x 15 mm</p>
<p><b>RC-WuTRX-XXX</b> (Wake Up Transceiver)</p>	<p><b>Wake Up Transceiver</b> 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. The hardware is based on the module RC-CC1310-XXX designed by RadioControlli (CC1310 chip based).</p>	1.8 ÷ 3.6V	<p>120.0 µA (RX)</p> <p>24mA (TX)</p>	<p>433 MHz</p> <p>868 MHz</p> <p>915MHz</p>	<p>+14 dBm</p> <p>-110 dBm (50kbps)</p>	 <p>Dimensions: 22 x 15 mm</p>
<p><b>RCQ3-XXX</b> (Wireless Switch)</p>	<p><b>Wireless switch Long Range</b> It is a 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. The hardware is based on the module RC-CC1310-XXX designed by RadioControlli (CC1310 chip based).</p>	1.8 ÷ 3.6V	<p>5.5mA (RX)</p> <p>24mA (TX)</p>	<p>433 MHz</p> <p>868 MHz</p> <p>915MHz</p>	<p>+14 dBm</p> <p>-110 dBm (50kbps)</p> <p>-122 dBm (2.5kbps)</p>	 <p>Dimensions: 22 x 15 mm</p>

MODEL	DESCRIPTION	PICTURE
<b>TBLO-869</b>	<p><b>Long Range Bidirectional Remote Control</b></p> <p>869MHz Bidirectional wireless system for home automator composed by a bidirectional remote control and a receiver unit with the possibility to switch up to N.8 relays.            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>	
<b>RCQ3-XXX-EV</b> <b>RC-WUTRX-XXX-EV</b>	<p><b>EVALUATION KIT</b></p> <p>Composed by N.2 Evaluation board with Antenna and USB/RS232 cable.            With this equipment it is possible to verify all the functionality of the Wireless Switch (RCQ3) and of the Wake Up Transceiver (RC-WUTRX-XXX).</p>	
<b>RCQ5-XXX-EV</b>	<p><b>EVALUATION KIT</b></p> <p>Composed by N.2 Evaluation board with Antenna and USB/RS232 cable.            With this equipment it is possible to verify all the functionality of the RCQ5 device :</p> <ul style="list-style-type: none"> <li>- Multichannels radio modem with AT command</li> <li>- Over The Air Commands</li> <li>- Remote I/O Functionality</li> </ul>	

MODEL	DESCRIPTION	Vdc	Keys	Frequency	Encoder	PICTURE
<b>RCTV-02</b>	<p><b>RCTV-02</b> is a 2 channels keyfob transmitter with SAW oscillator and HCS300 rolling code encoder. Manufacturing Code = RadioControlli Color : Black Dimension : 52/31/12mm</p>	3 Volt CR2032 battery	2 keys	433.92MHz	HCS 300	
<b>RCTV-03</b>	<p><b>RCTV-03</b> is a 4 channels keyfob transmitter with SAW oscillator and Learning Code EV1527. Ev1527 is an OTP encoder with 20bit can storage 1048576 combinations. Ideal for application in remote control systems and in anti-theft control units. Color : Blue      Dimension : 59/35/11mm</p>	6 Volt	4 keys	433.92MHz	EV1527	
<b>RCTV-04</b>	<p><b>RCTV-04</b> is a 4 channels keyfob transmitter with SAW oscillator and Learning Code EV1527. Ev1527 is an OTP encoder with 20bit can storage 1048576 combinations. Ideal for application in remote control systems and in anti-theft control units. Color : Blue/White      Dimension : 59/32/9.5mm</p>	3 Volt CR2016 battery	4 keys	433.92MHz	EV1527	
<b>RCTV-05</b>	<p><b>RCTV-05</b> is a 4 channels keyfob transmitter with SAW oscillator and HCS300 rolling code encoder. Manufacturing Code = RadioControlli Color : Green Dimension : 59/35/11mm</p>	6 Volt	4 keys	433.92MHz	HCS 300	



MODEL	DESCRIPTION	Frequency	Gain	Length / Diameter	PICTURE
<b>RC-ANT-XXX-SMA</b>	<b>RC-ANT-XXX-SMA</b> is an antenna with SMA connector that can be used for wireless data transmission / meter communication systems. Frequency : 433/868/915MHz	433 ± 5MHz 868± 5MHz 915± 5MHz	2.5dBi 2.2dBi 2.15dBi	50mm / 8mm 50mm / 8.5mm 50mm / 8mm	
<b>RC-ANT-433A-SMA</b>	<b>RC-ANT-433A-SMA</b> is an antenna with SMA connector that can be used for 433MHz wireless data transmission / meter communication systems.	433 ± 5MHz	3.0dBi	195mm / 13mm	
<b>RC-ANT-868A-SMA</b>	<b>RC-ANT-868A-SMA</b> is an antenna with SMA connector that can be used for 868MHz wireless data transmission / meter communication systems.	868 ± 5MHz	3.0dBi	153mm / 13mm	
<b>RC-ANT-2.4-SMA</b>	<b>RC-ANT-2.4-SMA</b> is a 2.4GHz WIFI Swivel Antenna with SMA Male connector. The dipole Antenna is primarily designed for use with WIFI modules.	2400÷2500MHz	2.5dBi	108mm / 13mm	
<b>RC-ANT-XXX-EL</b>	<b>RC-ANT-XXX-EL</b> is an helical antenna that can be used for wireless data transmission / meter communication systems. Frequency : 433/868/915MHz	433 ± 5MHz 868± 5MHz 915± 5MHz	0.0dBi 0.0dBi 0.0dBi	18mm / 4.5mm 6.8mm / 4.5mm 6.6mm / 4.5mm	

**RC-SPC1K-NI** and **RC-SPC1KA** are thick film technology rain sensors.

This device is realized in Alumina (Al2O3) substrate, this material is endowed a big reliability from an electrical thermal point of view.

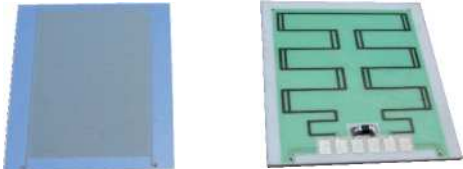
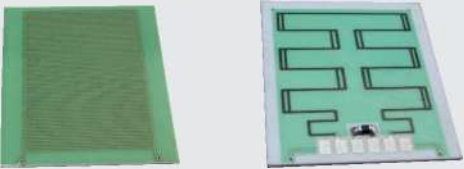
The sensor consists of three parts :

- 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.

MODEL	DESCRIPTION	PICTURE																					
<b>RC-SPC1K-NI</b>	<p><b>Capacitive change characteristic</b></p> <table border="1"> <thead> <tr> <th colspan="2">Sensitive area</th> <th>Capacitance</th> </tr> <tr> <th>% Dry</th> <th>% water</th> <th>pF</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>0</td> <td>100</td> </tr> <tr> <td>75</td> <td>25</td> <td>180</td> </tr> <tr> <td>60</td> <td>40</td> <td>280</td> </tr> <tr> <td>50</td> <td>50</td> <td>390</td> </tr> <tr> <td>0</td> <td>100</td> <td>&gt;550</td> </tr> </tbody> </table>	Sensitive area		Capacitance	% Dry	% water	pF	100	0	100	75	25	180	60	40	280	50	50	390	0	100	>550	 <p style="text-align: center;">Face A                      Face B</p> <p style="text-align: center;">Dimensions: 33.56 x 30.48 mm</p>
	Sensitive area		Capacitance																				
% Dry	% water	pF																					
100	0	100																					
75	25	180																					
60	40	280																					
50	50	390																					
0	100	>550																					
<b>RC-SPC1KA</b>	<p><b>Capacitive change characteristic</b></p> <table border="1"> <thead> <tr> <th colspan="2">Sensitive area</th> <th>Capacitance</th> </tr> <tr> <th>% Dry</th> <th>% water</th> <th>pF</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>0</td> <td>100</td> </tr> <tr> <td>75</td> <td>25</td> <td>320</td> </tr> <tr> <td>60</td> <td>40</td> <td>450</td> </tr> <tr> <td>50</td> <td>50</td> <td>2000</td> </tr> <tr> <td>0</td> <td>100</td> <td>&gt;3000</td> </tr> </tbody> </table>	Sensitive area		Capacitance	% Dry	% water	pF	100	0	100	75	25	320	60	40	450	50	50	2000	0	100	>3000	 <p style="text-align: center;">Face A                      Face B</p> <p style="text-align: center;">Dimensions: 33.56 x 30.48 mm</p>
Sensitive area		Capacitance																					
% Dry	% water	pF																					
100	0	100																					
75	25	320																					
60	40	450																					
50	50	2000																					
0	100	>3000																					

## RC-DTU-LORA

RC-DTU-LORA is a wireless information transmission unit based on LoRa, which mainly uses Lora Modulation Technology for data transmission.

This DTU can run in two modes:

1. General transparent transmission mode, receiving or sending through AT instruction.
2. Master-Slave transparent transmission mode, which can be set as Master or Slave, can interact according to Modbus protocol.



### Product features

- Point-to-point communication protocol
- Support fixed-point sending mode
- Support master-slave mode
- Support data encryption transmission
- AT command configuration, supporting setting tools
- 4000 meters transmission distance
- 148dBm receiving sensitivity (10.4 kHz, SF 12)
- RS232/RS485 interface
- 12 - 36 VDC power supply
- ESD protection (level4)
- Power surge protection (level 3)
- RS232/RS485 surge protection (Grade 3)
- Hardware watchdog



# RADIOCONTROLLI S.R.L.

Via C. Santagata 73  
81055 Santa Maria C.V. (CE) ITALY  
Phone: +39 0823 522185  
Mobile: +39 333 4156216

[www.radiocontrolli.com](http://www.radiocontrolli.com)  
[sales@radiocontrolli.com](mailto:sales@radiocontrolli.com)



[www.radiocontrolli.eu](http://www.radiocontrolli.eu)



# Radiocontrolli®

WIRELESS MODULES