Radio Control Equipment

REMdevice

INSTRUCTION MANUAL

UTC

CONTENTS

WARNING !

The use and installation of the radio control must be carried out exclusively by qualified and authorized personnel. Incorrect use or installation can cause serious injury to people and damage to objects.
This instruction manual must be READ CAREFULLY before any attempt is made to install and/or operate the REMdevice radio control.

DESCRIPTION

The radio control consists of a UTC transmitter unit (Model UTC) and a Receiver RxDIN unit (URC Receiver), both units are fitted with an external antenna.

The two units are housed in standard DIN modules for installing inside the electric panel.

The transmitter contains:
- 22 ON/OFF simultaneous inputs,
- 1 GEAR input (for turning on the radio control)
- 2 STOP link-up inputs (to enable the radio control and to use the safety devices)

The inputs can be controlled by signals coming from the PLC, switches o relays.

For each of the Transmitter inputs the Receiver has a relay contact output.

For the GEAR input there are two relay contact outputs for GEAR and CLAXON. While for the STOP_A and STOP_B there are two relay contact outputs, one for the safety STOP and one for LAMP.

The are various models available depending on the Frequency Band required (434Mhz or 870Mhz) and the type of power supply available. For more information please refer to the chapter on TECHNICAL SPECIFICATIONS.

Within the 870 frequency range it is possible to program the operation of the system either to continuous transmission (duty cycle 100%) or to impulse transmission to each 340 ms (duty cycle <10%). With the latter option, it is also possible to choose from two different PASSIVE EMERGENCY time values, that is the maximum arrival time of the correct digital data before the safe disactivation of the outputs.

Serial Numbers

Each radio control is identified by a unique serial number printed on the transparent cover of the Transmitter and Receiver units.
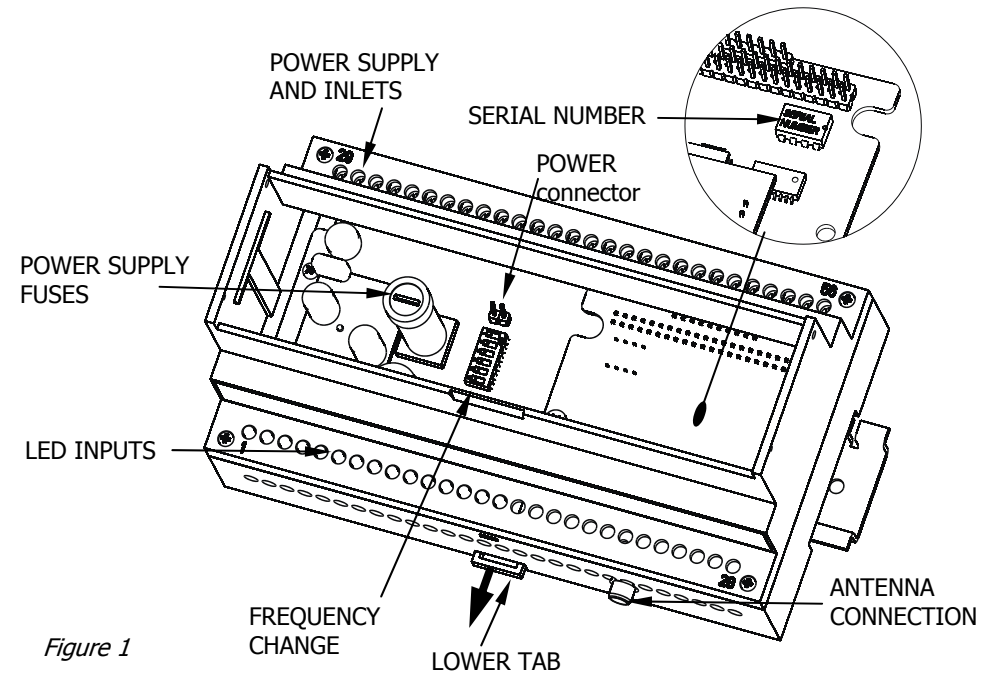
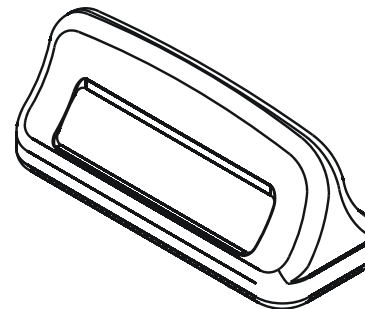**UTC Transmitter Unit**

Figure 1

External ANTENNA

Figure 2

RxDIN Receiver unit

EXPANSION CONNECTOR

POWER SUPPLY FUSES

FREQUENCY CHANGE

FUNCTIONS CHANGE

SERIAL NUMBER

ANTENNA WIRE

FUSIBILE RELAY STOP

LED PLL

LED LINK

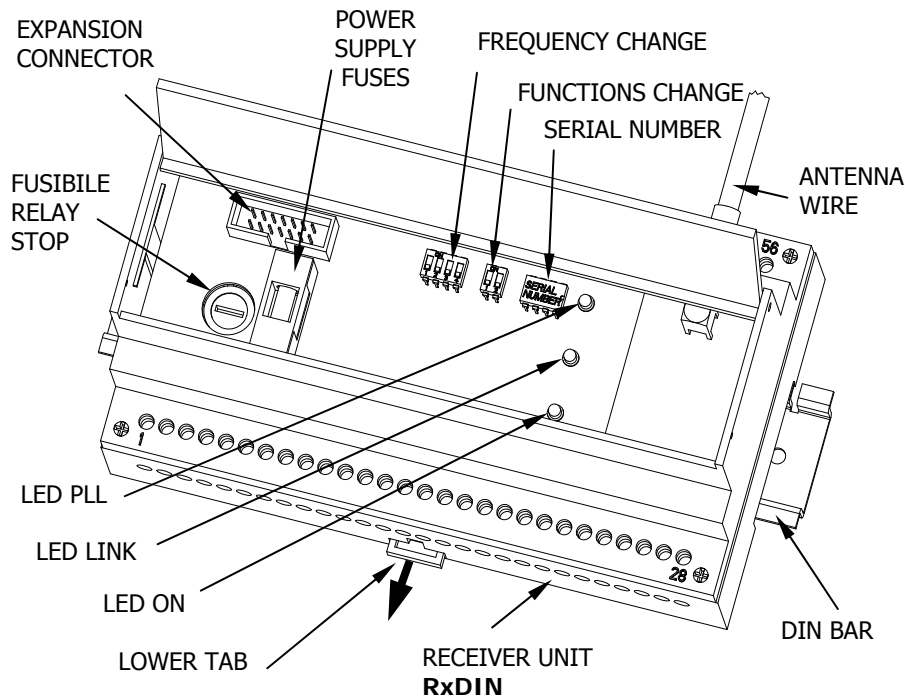LED ON

LOWER TAB

RECEIVER UNIT **RxDIN**
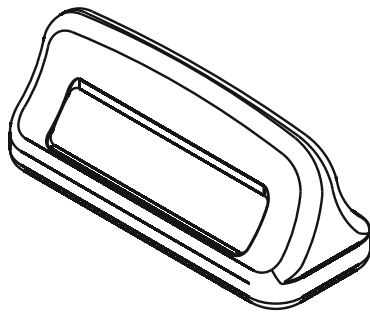
DIN BAR

Figure 3

External ANTENNA

Figure 4

INSTALLATION

The installation of the radio control is to be undertaken solely by qualified and competent personnel that have agreed to assume total responsibility for possible damage to people or objects caused by the incorrect wiring, non observation of safety regulations, the use of unsuitable materials and tools or for the incorrect or lack of proper testing of the apparatus.

Installation engineers are invited to contact REMdevice for help with technical information in order to ensure the correct installation and the starting up of the apparatus.

Power supply

Using a voltmeter check the power supply to the electric panel is suitable for the Transmitter and Receiver modules. Refer to the chapter TECHNICAL SPECIFICATIONS for the correct power supply required, this is also reported on the label on the terminals. The wires, phase and neutral or positive and negative, can be put in any position.

When power is supplied to the Transmitter the green ON led comes on and the green led TX_ON flashes.

When power is supplied to the Receiver the green ON led comes on and the green led PLL flashes regularly.

Switching on

Connect the STOP_A and STOP_B inputs (which must always be present) and GEAR input of the Transmitter. Press GEAR once and check the green led TX_ON flashes regularly, this confirms the unit is switched on (see Figure 5). On the Receiver, the three green leds (ON, LINK and PLL) come on and the STOP and LAMP contacts close. As long as the GEAR is activated, the START and CLAXON contacts remain closed.

Functions Change

By inserting an electric bridge on the POWER connector (figure 1) the output power of the Transmitter is reduced.

ELECTRIC DIAGRAMS AND CONNECTIONS
UTC connections ELECTRIC DIAGRAM
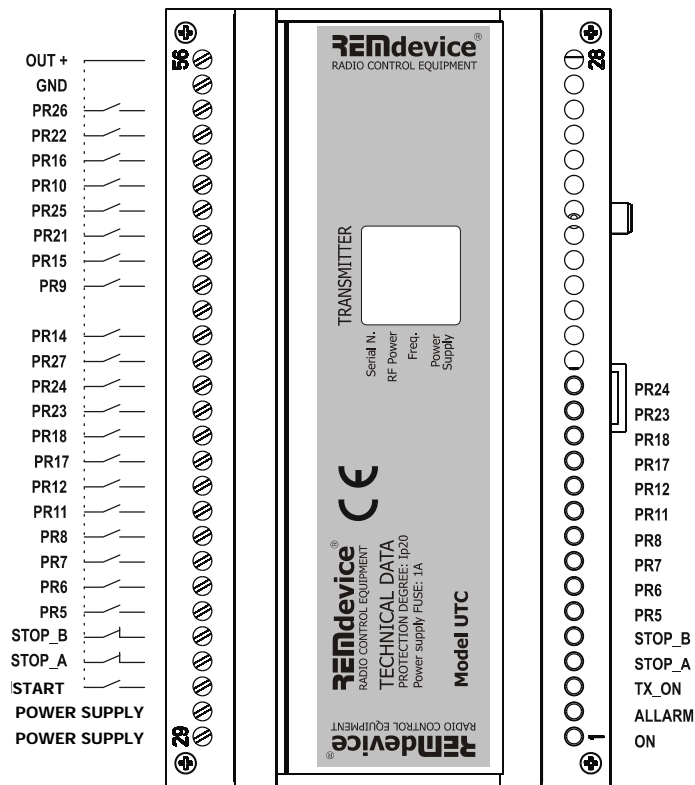

Figure 5

The outputs are connected to the **OUT+** voltage checker either via the switches or directly to a circuit board or PLC with outputs from **5 to 24Vdc**.

Transmitter Fuses
- Power supply fuses   5x20   0,5 A

The fuses are located inside the DIN module under the transparent plastic top (see figure 1).
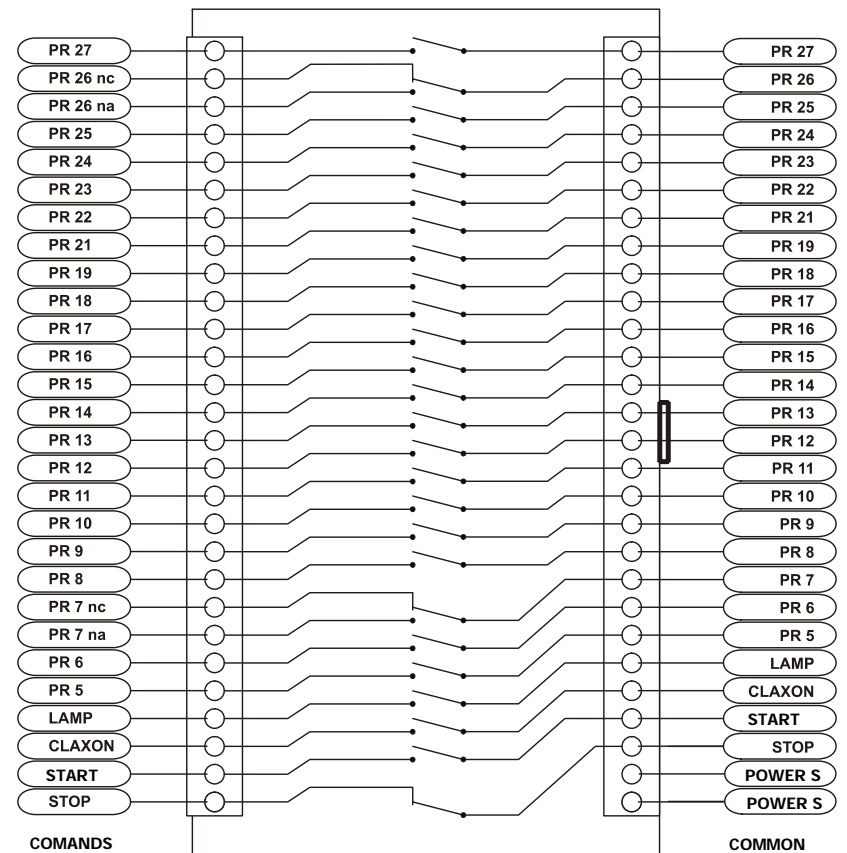
RxDIN Connection ELECRIC DIAGRAM

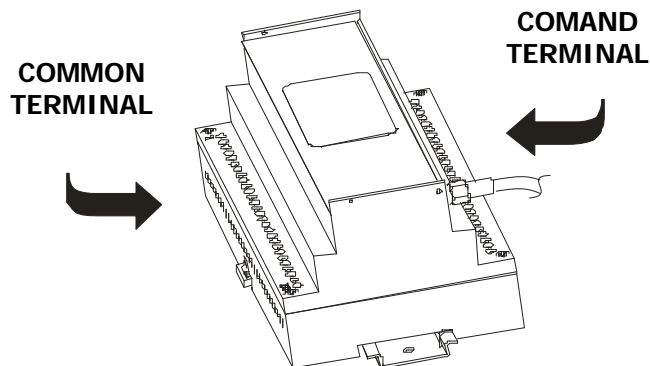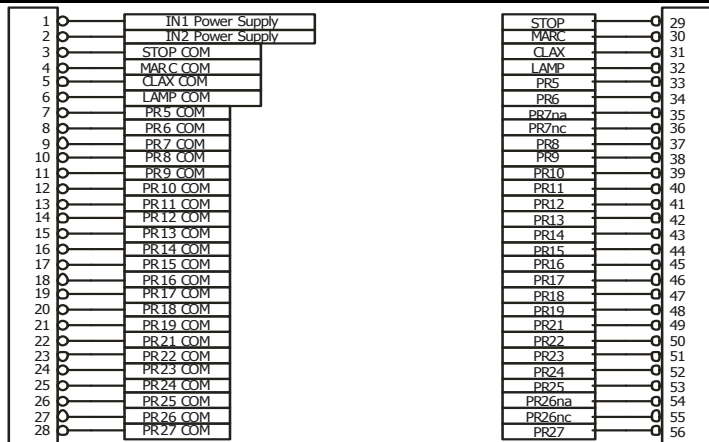*Figure 6*

1	IN1 Power Supply	
2	IN2 Power Supply	
3	STOP COM	
4	MARC COM	
5	CLAX COM	
6	LAMP COM	
7	PR5 COM	
8	PR6 COM	
9	PR7 COM	
10	PR8 COM	
11	PR9 COM	
12	PR10 COM	
13	PR11 COM	
14	PR12 COM	
15	PR13 COM	
16	PR14 COM	
17	PR15 COM	
18	PR16 COM	
19	PR17 COM	
20	PR18 COM	
21	PR19 COM	
22	PR21 COM	
23	PR22 COM	
24	PR23 COM	
25	PR24 COM	
26	PR25 COM	
27	PR26 COM	
28	PR27 COM	

STOP	29
MARC	30
CLAX	31
LAMP	32
PR5	33
PR6	34
PR7na	35
PR7nc	36
PR8	37
PR9	38
PR10	39
PR11	40
PR12	41
PR13	42
PR14	43
PR15	44
PR16	45
PR17	46
PR18	47
PR19	48
PR21	49
PR22	50
PR23	51
PR24	52
PR25	53
PR26na	54
PR26nc	55
PR27	56

COMMON TERMINAL

COMAND TERMINAL

Figure 7

Receiver Fuses

- STOP Fuse   5x20 **4 A**
- Power supply fuse   10-30 Vdc   5x20 **1,6 A**
- Power supply fuse   24-48 Vac/Vdc   5x20 **1 A**
- Power supply fuse   48-115 Vac/Vdc   5x20 **0,5 A**

The fuses are located inside the DIN module under the transparent plastic top (see figure 3).

External Antenna for UTC Transmitter & URC Receiver RxDIN

The antennas for the UTC Transmitter and URC Receiver are the same. They should be placed on the outside of the electric panel, each with the long side facing the other. Drill a 16 mm diameter hole on the side of the panel to fix them in place.
Use the tightening nut of the wire exit hole to hold the antenna in place.

Pay particular attention to the correct connection of the antenna wires to the Transmitter and Receiver. The holding nuts are relatively small and once it is ensured the connector is properly inserted the nut must be correctly tightened.
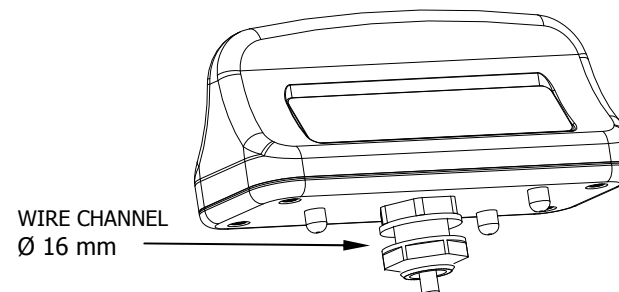
WIRE CHANNEL
Ø 16 mm   *Figure 8*

CHANGING FREQUENCY

Change the frequency on both the **Transmitter and Receiver** in the same way.

Open the transparent cover (Figures 1 and 3) and using a pointed tip, move one or more of the microswitches (FREQUENCY CHANGE) into a new position. Refer to the following channel frequency tables and paying close attention to the Frequency Band of the radio control. Once finished properly close the transparent cover.
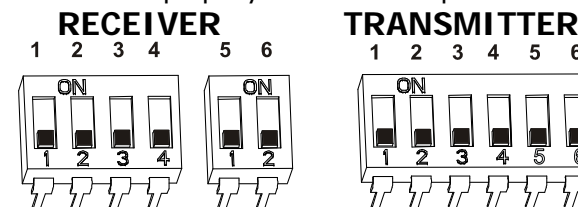

Figure 9

Frequency 433 I°

freq MHz	Channel	1	2	3	4	5	6
433,0750	1	on	on	on	on	on	on
433,1000	2	on	off	off	off	off	off
433,1250	3	off	on	off	off	off	off
433,1500	4	on	on	off	off	off	off
433,1750	5	off	off	on	off	off	off
433,2000	6	on	off	on	off	off	off
433,2250	7	off	on	on	off	off	off
433,2500	8	on	on	on	off	off	off
433,2750	9	off	off	off	on	off	off
433,3000	10	on	off	off	on	off	off
433,3250	11	off	on	off	on	off	off
433,3500	12	on	on	off	on	off	off
433,3750	13	off	off	on	on	off	off
433,4000	14	on	off	on	on	off	off
433,4250	15	off	on	on	on	off	off
433,4500	16	on	on	on	on	off	off
433,4750	17	off	off	off	off	on	off
433,5000	18	on	off	off	off	on	off
433,5250	19	off	on	off	off	on	off
433,5500	20	on	on	off	off	on	off
433,5750	21	off	off	on	off	on	off
433,6000	22	on	off	on	off	on	off
433,6250	23	off	on	on	off	on	off
433,6500	24	on	on	on	off	on	off
433,6750	25	off	off	off	on	on	off
433,7000	26	on	off	off	on	on	off
433,7250	27	off	on	off	on	on	off
433,7500	28	on	on	off	on	on	off
433,7750	29	off	off	on	on	on	off
433,8000	30	on	off	on	on	on	off

Frequency 433 II°

freq MHz	Channel	1	2	3	4	5	6
434,0750	31	off	on	on	on	on	off
434,1000	32	on	on	on	on	on	off
434,1250	33	off	off	off	off	off	on
434,1500	34	on	off	off	off	off	on
434,1750	35	off	on	off	off	off	on
434,2000	36	on	on	off	off	off	on
434,2250	37	off	off	on	off	off	on
434,2500	38	on	off	on	off	off	on
434,2750	39	off	on	on	off	off	on
434,3000	40	on	on	on	off	off	on
434,3250	41	off	off	off	on	off	on
434,3500	42	on	off	off	on	off	on
434,3750	43	off	on	off	on	off	on
434,4000	44	on	on	off	on	off	on
434,4250	45	off	off	on	on	off	on
434,4500	46	on	off	on	on	off	on
434,4750	47	off	on	on	on	off	on
434,5000	48	on	on	on	on	off	on
434,5250	49	off	off	off	off	on	on
434,5500	50	on	off	off	off	on	on
434,5750	51	off	on	off	off	on	on
434,6000	52	on	on	off	off	on	on
434,6250	53	off	off	on	off	on	on
434,6500	54	on	off	on	off	on	on
434,6750	55	off	on	on	off	on	on
434,7000	56	on	on	on	off	on	on
434,7250	57	off	off	off	on	on	on
434,7500	58	on	off	off	on	on	on
434,7750	59	off	on	off	on	on	on

Frequency 870

CONTINUOUS TRANSMISSION DUTY CYCLE 100%

freq MHz	Channel	DIP-switch 1	2	3	4	5	6
869,7000	1	off	off	off	off	off	off
869,7250	2	on	off	off	off	off	off
869,7500	3	off	on	off	off	off	off
869,7750	4	on	on	off	off	off	off
869,8000	5	off	off	on	off	off	off
869,8250	6	on	off	on	off	off	off
869,8500	7	off	on	on	off	off	off
869,8750	8	on	on	on	off	off	off
869,9000	9	off	off	off	on	off	off
869,9250	10	on	off	off	on	off	off
869,9500	11	off	on	off	on	off	off

IMPULSE TRANSMISSION DUTY CYCLE <10% EMERGENCY 1 s

freq MHz	Channel	DIP-switch 1	2	3	4	5	6
869,4125	1	off	off	off	off	on	off
869,4375	2	on	off	off	off	on	off
869,4625	3	off	on	off	off	on	off
869,4875	4	on	on	off	off	on	off
869,5125	5	off	off	on	off	on	off
869,5375	6	on	off	on	off	on	off
869,5625	7	off	on	on	off	on	off
869,5875	8	on	on	on	off	on	off
869,6125	9	off	off	off	on	on	off
869,6375	10	on	off	off	on	on	off

IMPULSE TRANSMISSION DUTY CYCLE <10% EMERGENCY 1.8 s

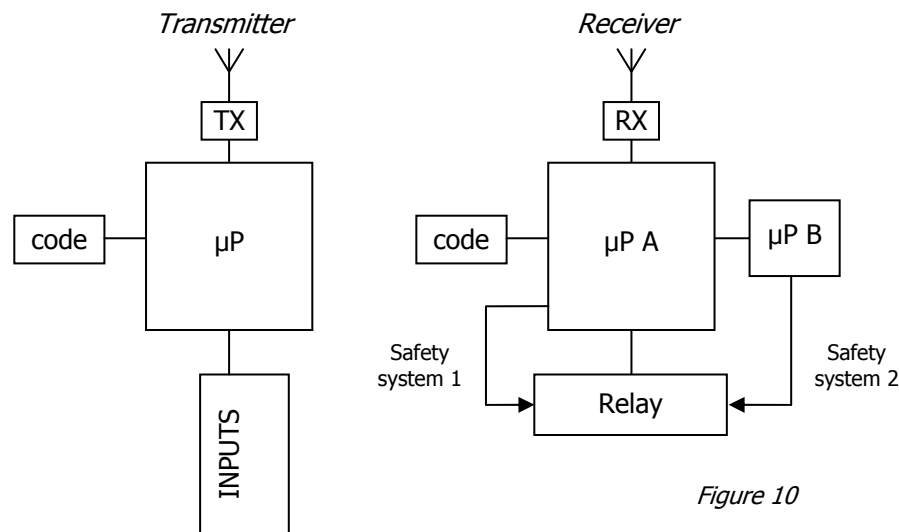| freq MHz	Channel	DIP-switch 1	2	3	4	5	6
869,4125	1	off	off	off	off	on	on
869,4375	2	on	off	off	off	on	on
869,4625	3	off	on	off	off	on	on
869,4875	4	on	on	off	off	on	on
869,5125	5	off	off	on	off	on	on
869,5375	6	on	off	on	off	on	on
869,5625	7	off	on	on	off	on	on
869,5875	8	on	on	on	off	on	on
869,6125	9	off	off	off	on	on	on
869,6375	10	on	off	off	on	on	on

Figure 10

Description of Transmitter Unit

The commands sent via the transmitter unit are processed by the microprocessor that supplies a linking telegram containing a unique identification code. They are then sent to the TX module by radio frequency.

Description of Receiver Unit

The RX module receives the linking telegram and is processed by the µP A microprocessor that verifies the authenticity of the telegram by checking its unique idenfication code. If the commands received are confirmed to be valid the microprocessor activates the corresponding relays.

If an active or passive emergency command is activated or in the case of disturbance or lack of signal, the µP A microprocessor stops the machine being operated (safety system 1).

In turn, microprocessor µP B checks the correct functioning of microprocessor µP A and intervenes in the case of a direct breakdown to the control and safety relays (safety system 2).

TECHNICAL SPECIFICATIONS

Transmitter unit
Modulation: FM Manchester
Radio frequency output power: 5 mW
Oscillator: digital synthesizing PLL
Antenna: ¼ λ
Power supply (depending on model):
DC 10-30V - 1,0A or AC/DC 24-48 or AC/DC 48-115 - 50-60 Hz - 0,4A
Container: Modulbox for fixing on bracket DIN EN 50022
Protection Modulbox: IP20
Dimensions Modulbox: 158×90×75 mm (L×H×D)

Receiver unit
Radio frequency receiver unit: Single Chip
Antenna: ¼ λ
Commands relay contacts capacity: 4A 115 Vac.
Stop relay contacts capacity: 4A 115 Vac.
Power supply (depending on model):
DC 10-30V - 1,0A or AC/DC 24-48 or AC/DC 48-115 - 50-60 Hz - 0,4A
Container: Modulbox for fixing on bracket DIN EN 50022
Protection Modulbox: IP20
Dimensions Modulbox: 158×90×75 mm (L×H×D)

Parameters common to both units
Frequency range:
869,700– 870,000 MHz/ Frequency steps 25kHz/ 11 channels
869,400– 869,650 MHz/ Frequency steps 25kHz/ 10 channels*
433,050– 434,790 MHz/ Frequency steps 25kHz/ 59 channels
Hamming distance: 4
Maximum simultaneous on/off command: 22
Command response time: 30 ms
Active emergency stop command response time: 30 ms
Passive emergency command response time: 1 or 1,8 s
Transmission range: 100 m
Working/storage temperature: -20°C / +70°C
* Duty cycle mode: <10%
- Command response time: 340 ms
- Active emergency stop response time: 340 ms

CONDITIONS OF GUARANTEE

REMdevice guarantees the radio control unit for 1 year.
The guarantee commences from the date of the Transport Document.
The guarantee is only valid for equipment with manufacturing defects. The radio control unit MUST NOT be subjected to attempted repairs, tampering or replacement of parts by persons not authorised by REMdevice.
The guarantee becomes void in the case of incorrect usage or errors in installation.
Equipment under guarantee must be repaired only at authorised assistance centres or by REMdevice.
Parts with manufacturing defects will be replaced free of charge excluding return transport costs of the equipment.
Wear and tear to parts is not covered by the guarantee.
REMdevice is not liable to give compensation for machine stoppage in that the machines to be operated are equipped with cabled keypads.
REMdevice is not liable for any damage, loss or theft of new, repaired or to be repaired equipment during transportation.
REMdevice will not carry out repairs to equipment (whether under guarantee or not) that has no serial number and without having previous contact with the owner.

Manufacturer: **REMdevice**® s.r.l.   E-Mail: info@remdevice.com
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