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DIGITAL RADIO CONTROLS WITH DYNAMIC CODES S435

Warning: Changes or alterations made to this device which have not been expressly approved by the party responsible for compliance with the local standards and regulations could cancel the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a class B digital device, according to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is advised to try to correct the situation by taking one or more of the following measures:

- Reorientate or relocate the receiving antenna
- Increase the distance between the equipment and the receiver
- Connect the equipment to a wall socket which is on a different ring circuit to that of the receiver
- Consult your dealer or an experienced radio/TV technician for help.

Description

The **S435** radio control system consists of one or more transmitters and one or more receivers which can be combined to meet the specific needs of the system.

The **S435** system uses a highly reliable encoding system guaranteed by the use of dynamic codes. The code is changed for each encoding transmission through the use of an encoding algorithm which only the receiver is able to recognise and therefore decide whether or not the code transmitted corresponds to the original code. The code is generated for each channel in the transmitter using the random arbitrary method with 2^{36} combinations. The generated code is memorised in the receiver via radio. The receiver is able to memorise 128 different codes. During the transfer stage the codes are memorised in a non volatile memory module which can be moved to another receiver without having to reprogram it. As this is a system based on dynamic codes each code is processed individually by the receiver.

Important

This is a device which uses a high security encoding system it follows therefore that if you lose one or more transmitters you will have to reprogram the system codes. The transmitted code changes for each command (rolling code). Disturbance during the transmission will deactivate the relay, at this point the relay can only be activated by first releasing and then pressing the transmitter channel button a second time.

Use

The **S435** radio control allows the remote activation of electrical and electronic appliances with its best use in the following areas: automatic opening systems, alarm systems, and in all systems which require remote control activation (without wires) using secret codes.

Transmitter versions

TRS435200.0US	Miniaturised transmitters	2 buttons
TRS435400.0US	Miniaturised transmitters	4 buttons
TRS435120.0US	Miniaturised transmitters with switch (12 channels)	4 buttons
TRS43540M.0US	Wall mounted transmitter	4 buttons

Receiver versions

RCS435128	Modular receiver + container	4 channels
RSS435100	Slot-in receiver card	1 channel
RSS435200	Slot-in receiver card	2 channels
RMS435100.0US	Mini receiver	1 channel
RMS435200.0US	Mini receiver	2 channels

Memory module

This is extractable, furnished with a non volatile EEPROM type memory and contains the system code. The programmed code is maintained in this module even in the absence of power. This component can be ordered as an accessory with s.p.n. code:

- YMCC66128 up to 128 codes.

Receiver antenna installation

Minimum and maximum range of the radio controls. 'Range' is intended to mean the working distance, measured in free space, between the receiver and the transmitter with the antenna installed. The range is therefore closely linked to the technical characteristics of the system (power and sensibility) and varies according to the characteristics of the site in which the system is located. It therefore follows that to obtain the best results from the radio control the installation sites for the receiver and the antenna should be carefully chosen.

You are not advised to install 2 receivers at a distance of less than 1.5 m from each other and it is also good practise to position the receiver away from computer systems, alarm systems and other possible sources of disturbance.

(A bad choice of positioning could compromise the correct performance of the receiver).

Antenna

The installation of the antenna is fundamental, connected to the receiver it represents the reception point for the radio control.

When installing the antenna the following points should be observed:

- The receiver is supplied with its own antenna which consists of a piece of rigid wire 170 mm in length. In alternative it is possible to connect an ANS400 tuned antenna using a coaxial cable RG58 (impedance 50Ω) with a maximum length of 15 m.

Outdoor receivers (fig.9)

The receiver could be:

- in a case fitted with a 14-way terminal board (printed circuit CS926) with the following electrical connections:

12V ac/dc between binding posts 11-12

24V ac/dc between binding posts 10-12

The case type receiver is fitted using "fast-fitting" brackets. The bracket should be fixed to the wall using two raw plugs (check that it is in square).

After connecting the wiring the case should be slid onto the bracket therefore fixing it to the wall. If any repair work is necessary the case can be easily extracted by pushing upwards the action of which will separate it from the bracket.

Interchangeable channel modules

In the receivers the channel functions are printed on the circuit board. The interchangeable channel modules can only have the following configurations and must not be mixed:

- from 1 to 4 impulsive relay strips **MCC0381R0** 1 -2 Channels
- one memory relay strip **MCC0381M0** (On/Off) ON-OFF
- one timer relay strip **MCC0381T0** 0,5 to 120 Sec.

CODICE	SERIE	MODELLO	DATA
L378.00	S435	AM	20-10-2000
This product has been tried and tested in the manufacturer's laboratory, during the installation of the product follow the supplied indications carefully.			

Slot-in receiver cards (fig.10)

- The receiver card (printed circuit CS939) is inserted directly into an appliance which is designed to receive and has the following electrical connections:

12V ac/dc with jumper "12V" in position "B"

24V ac/dc with jumper "24V" in position "A"

The receiver cards can either be fitted with one relay (single channel) or two relays (double channel) the outputs of which are marked CH1 (normally open contact) and CH2 (normally open/normally closed contact)

The relays CH1 and CH2 can be activated by selecting the functions A-B-C-D and made to correspond with the transmitter channels CHA-CHB-CHC-CHD by setting the jumpers situated on the circuit board.

Mini receivers (fig.11)

- The mini receiver (printed circuit CS938) is housed in an indoor container, it is fitted with an 10-way terminal board and has the following electrical connections:

12V ac/dc between binding posts 7-8.

24V ac/dc between binding posts 6-8.

The mini receiver can either be fitted with one relay (single channel) or two relays (double channel) the outputs of which are marked CH1 (normally open contact) and CH2 (normally open/normally closed contact). The relays CH1 and CH2 can be activated by selecting the functions A-B-C-D and made to correspond with the transmitter channels CHA-CHB-CHC-CHD by setting the jumpers situated on the circuit board.

Generating the user code in the transmitters (fig. 1-6)

- 1) Open the access door (fig.1)
- 2) For the version equipped with a channel block selection switch choose the desired block of channels by moving the switch ("Y1" fig.1,2)
Y1 in position "1" = A,B,C,D
Y1 in position "2" = E,F,G,H
Y1 in position "3" = I,L,M,N
- 3) Press the button "J1" (fig.3)
- 4) While keeping button "J1" pressed down press the button "CH" corresponding to the required channel which is to be memorised (Led "L1" will start to flash) (fig.4).
- 5) Release the channel button "CH" and the led will flash rapidly and the channel will be memorised. Only one code can be inserted at a time. To insert successive codes repeat steps 1 and 2.
- 6) Release the button "J1", the led will turn off and the transmitter will memorise the last code which was transmitted (fig.6).
- 7) Repeat points 3-4-5-6 for any successive channels
- 8) To memorise another block of channels move the switch ("Y1" fig.2) to the required position and repeat the operations 3-4-5-6.
If a code is not generated it could be due to the fact that the memory is empty and it is therefore impossible to transfer the code to the receiver.

Memorising the user code in the receiver (fig. 9-10-11)

- **Attention!** Before memorising the transmitters for the first time remember to cancel the entire memory content.

- 1) Keep button "P1" pressed down and the led "L1" will start to flash
- 2) Transmit the channel which is to be memorised, the led will flash rapidly and the channel will be memorised. Only one code can be inserted at a time. To insert successive codes repeat steps 1 and 2.

If the code is not memorised:

- The memory is full (128 codes already memorised) and the led remains lit. If this is the case you can only insert a new code after you have first cancelled an existing one or after wiping the entire memory (see memory cancelling procedure);
- The code may already exist in memory;
- You have not generated a channel code in the transmitter.

Memory cancelling procedure

To cancel a code proceed as follows:

- 1) Keep the button "P2" pressed down and the led "L1" will flash slowly.
- 2) Transmit the channel which is to be cancelled for at least 3 seconds until the led starts to flash quickly then repeat points 1 and 2 for any successive channels.
To wipe all the code from memory:
- 3) Keep buttons "P1" and "P2" pressed down simultaneously for at least 5 seconds until "L1" flashes quickly.

Channel functions for the S435 radio controls

Channel "A" of the transmitter must always correspond to channel "A" of the receiver and so forth for all four of the available channels.

Attention! The receiver can only respond to one signal at a time, it therefore follows that several channels cannot be activated simultaneously.

Selecting channel groups ("J1", fig.9-10-11)

The receiver can decode up to 12 different channels in blocks of 3 (A,B,C,D - E,F,G,H - I,L,M,N.) by inserting the jumper "J1" in the right position.

J1 not inserted = A,B,C,D

J1 in position "1" = E,F,G,H

J1 in position "2" = I,L,M,N

TECHNICAL SPECIFICATIONS

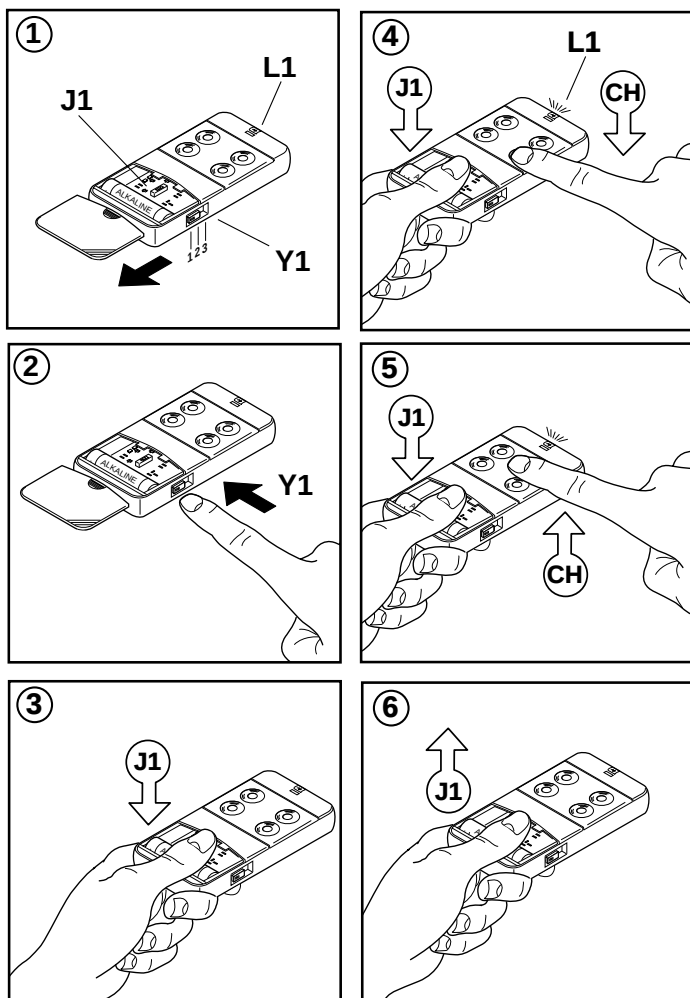
RECEIVER

- reception frequency 433.92 MHz
- local oscillation emission <57dBm (<2nW)
- antenna impedance in input 50Ω
- sensitivity (finely tuned signal) 1 μV
- power supply 12-24 V ac/dc
- maximum power consumption at rest/activated 20/50 mA
- maximum commutable power at the relay with resistive load:
 - load ac/dc 60VA/28W
 - maximum voltage 42.4Vac/dc
- excitation delay/dropout delay 150 ms
- operating temperature range -20° ... +60°C

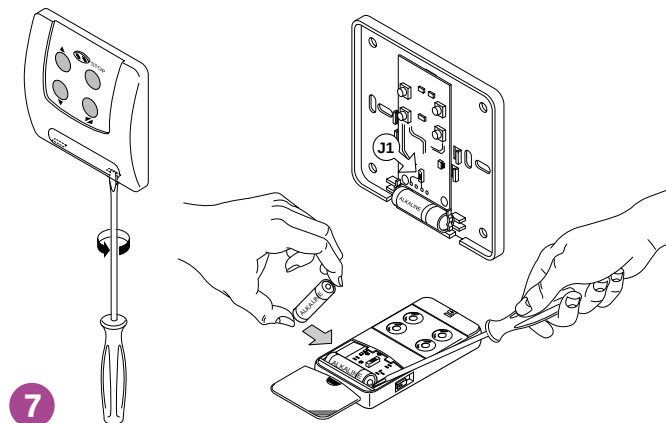
TRASMITTERS

- carrier frequency 433.92 MHz
- carrier frequency tolerance ±75 kHz
- band width >25 kHz
- modulation AM/ASK
- power supply (Alkaline battery GP23A) 12V ± 10%
- maximum power consumption 25 mA
- operating temperature range - 10...+55°C

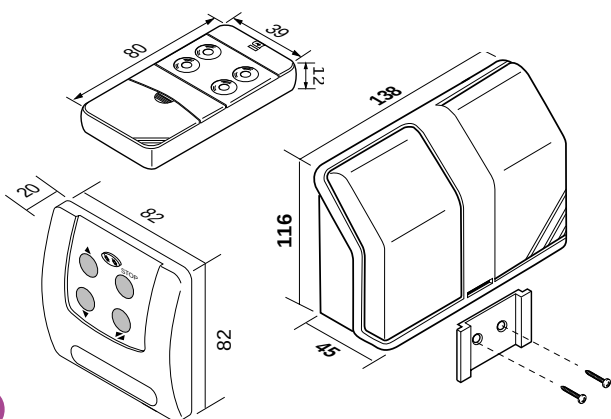
GENERATING THE TRANSMITTER CODE



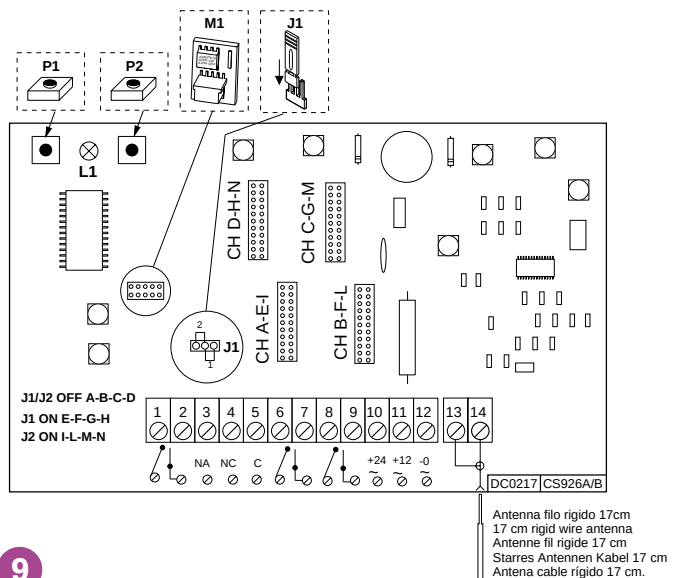
Changing the battery



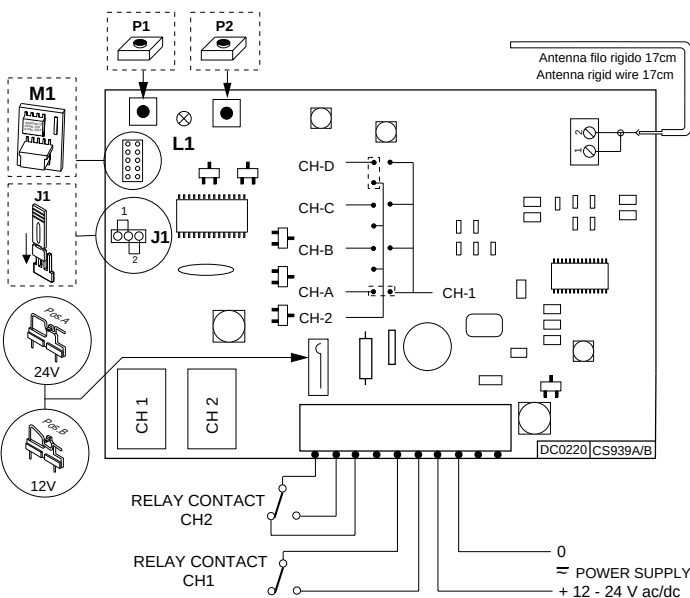
External dimensions



Modular receivers



Slot-in receiver cards



Mini receivers 1 -2 channels

