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SERIAL NUMBER	SERIES	MODEL	DATE
ZVL379.01	S435	RXPR	24-01-2008

The S435 series conforms to the essential requirements of the directive 99/05/CE and the technical reference standards have been applied.

Frequency validity: 433.92 MHz for all countries

DIGITAL RADIOPROGRAMMER WITH DYNAMIC CODES S435

Warning: Changes or alterations made to these devices LH8TX-S435 and LH8RP-S435 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 radioprogramming system consists of one or more transmitters and one or more receivers which can be combined to meet the specific needs of the system.

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 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 2³⁶ combinations and is memorised in the receiver via radio. The receiver is able to memorise up to 24 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.

Use

The radioprogrammer is best used in systems controlling automatic rolling shutters and allows the remote activation of a single phase 120 Vac 350 W motor using dynamic commands Open-Stop-Close-Stop or the same commands by cable. During the code memorisation phase the channel can be associated (using the Dipswitch "SW1") with one of the following functions: stop command only; open command only or sequential dynamic commands "Open-Stop-Close-Stop". This allows you to either control one motor or more than one motor contemporaneously using one channel for the complete opening command, one channel for the complete closing command and one channel for the single movement command.

Transmitter versions

TRS435200.0US	Miniaturized transmitters	2 Buttons
TRS435400.0US	Miniaturized transmitters	4 Buttons
TRS435120.0US	Miniaturized transmitters with switch (12 channels)	4 Buttons
TRS43540M.0US	Wall mounted transmitters	4 Buttons

Receiver version

RPS435000.0US	Radioprogrammer
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Memory module

This is extractable, furnished with a non volatile EEPROM type memory and contains the system codes. 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: MCC46320

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 remember that the receiver is supplied with its own antenna which consists of a piece of rigid wire 170mm 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. The antenna should be positioned out of doors in the highest possible point, visible and away from metal structures.

INSTALLATION

Depending on the type of installation, work out the position in which the programmer will be situated remembering that the site must be:

- a position safe from accidental collision;
- high enough above the ground to be safe from pools of water;
- in a position which the technician can easily reach.

The fixing of the case type receiver is carried out by using "fast-fitting" brackets. The bracket should be fixed to the wall using two raw plugs (check that it is square to the wall), the case can be then slid onto the bracket therefore fixing it to the wall. The slot-in circuit located towards the bottom of the case can be easily extracted to facilitate wiring up the device. 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.

ELECTRICAL CONNECTION (fig. 9)

Before connecting the device to the mains make sure that:

- the voltage and frequency rated on the data plate conform to those of the mains supply;
 - an all pole circuit breaker which leaves at least 3 mm between the contacts has been installed between the device and the mains;
 - the high voltage 120 V wires pass through the holes marked "A" and are routed separately from the low voltage wires which pass through the holes marked "B";
 - the wires are fastened down using a cable clamp;
 - once wiring is complete the holes through which the wires have passed have been sealed using silicon;
 - the holes which are not used are blocked by inserting the caps "D".
- Only low voltage circuits may be wired to the external circuit binding posts.

TERMINAL BOARD CONNECTIONS (fig. 9)

1-2	Earth connection.
3-4	Radioprogrammer power supply 120 Vac 60 Hz.
5-6-7	Motor control in output "Open-Close-Common" 350 W.
8-9	Contact N.C. input for safety devices (safety edge contact) with travel direction inversion during the closing cycle. Should a pair of photocells be connected an external power circuit will be required.
10-11	Dynamic button in input (contact N.O.) with Open-Stop-Close-Stop functions.
12	Antenna ground.
13	Antenna connection 170 mm rigid wire.

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

- Once the container has been opened the programming procedure for the wall mounted transmitter is the same as for the hand held transmitter (the circuit is the same).

- 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 carry on flashing (fig.5).
- 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.

DIP-SWITCH SW1 FUNCTIONS

Work time programming



DIP1 OFF/ DIP2 OFF

Work time programming:

- move the door/shutter to the completely closed position;
- press and hold down the MEMO button for 4 seconds: release the button when the LED starts to flash;
- within 10 seconds, press the MEMO button once to start the opening manoeuvre; when the door/shutter has stopped in the completely open position, wait for 2-3 seconds and then press the button again to memorise the work time; this completes the program function and the LED will switch off;

NOTE: during programming the photoelectric cells are ignored and the LED will flash rapidly indicating that the work time is being counted.

- Maximum programmable time: 120 seconds

Generating the user code in the receiver (fig. 9)

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



DIP1 ON/ DIP2 OFF

The memorised code is associated with the opening command



DIP1 OFF/ DIP2 ON

The memorised code is associated with the closing command



DIP1 ON/ DIP2 ON

The memorised code is associated with the dynamic function
Open-Stop-Close-Stop

Memorising the user code in the receiver

- 1) Using dipswitch "SW1" select the function to be associated with the channel
 - 2) Keep button "P1" pressed down and the led "LD" will start to flash
 - 3) 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 2 and 3.
- When you have finished memorising the codes remember to replace dips 1-2 in the off position on "SW1". If the code is not memorised it could be due to the following:
 - The memory is full (24 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:

- 1) Keep the button "P2" pressed down and the led "LD" 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 codes from memory:

Keep buttons "P1" and "P2" pressed down simultaneously for at least 5 seconds until the led "LD" flashes rapidly.

Receivers

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) without a selection.

TECHNICAL SPECIFICATIONS

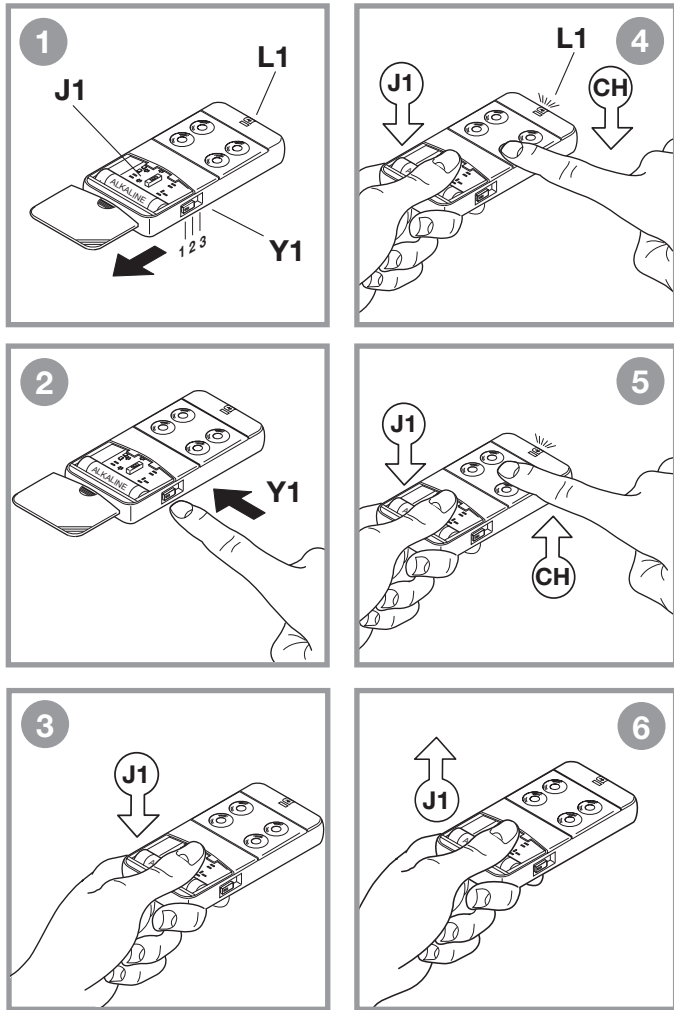
RECEIVER

- reception frequency	433.92 MHz
- local oscillation frequency	433.42 MHz
- local oscillation emission	<-57dBm (<2nW)
- intermediate frequency IF	500 kHz
- antenna impedance in input	50 Ω
- sensitivity (finely tuned signal)	1 μV
- power supply	12V ± 10%
- operating temperature range	-20°...+60 °C

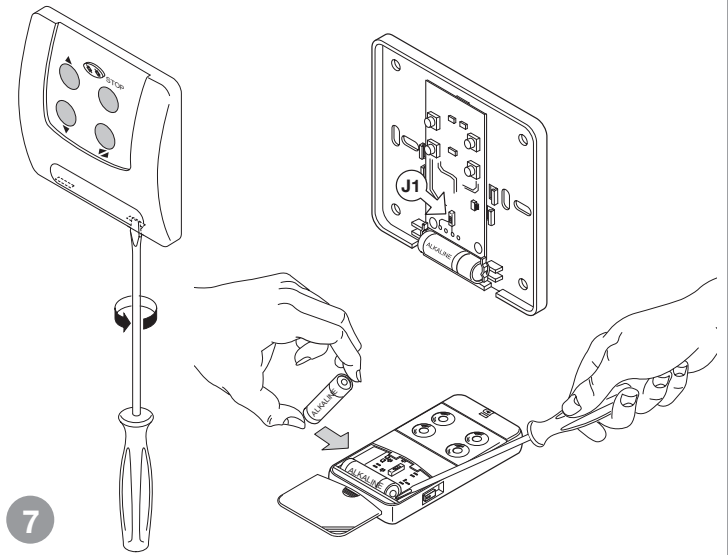
TRANSMITTERS

- carrier frequency	433.92 MHz
- carrier frequency tolerance	±75 kHz
- band width	>25 kHz
- apparent radiated power	-10...-7dBm (100-200 μW)
- apparent power harmonic products	<-54dBm (<4 nW)
- modulation	AM/ASK
- signal modulation	PCM, 1.3ms/bit
- power supply (Alkaline battery GP23A)	12V ± 10%
- maximum power consumption	25 mA
- operating temperature range	-10...+55 °C
- relative humidity	<95%

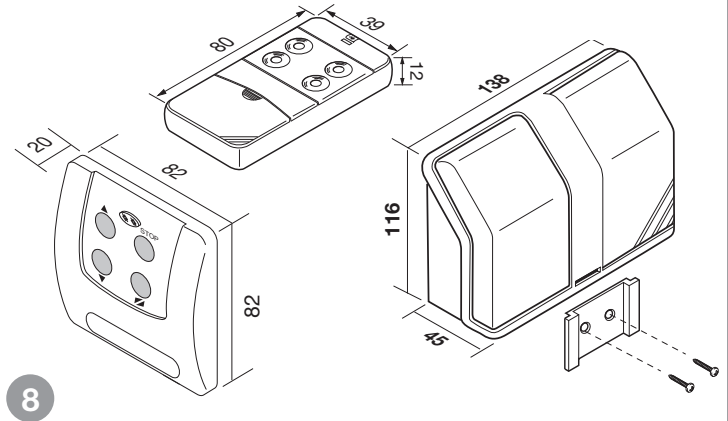
GENERATING THE TRANSMITTER CODE



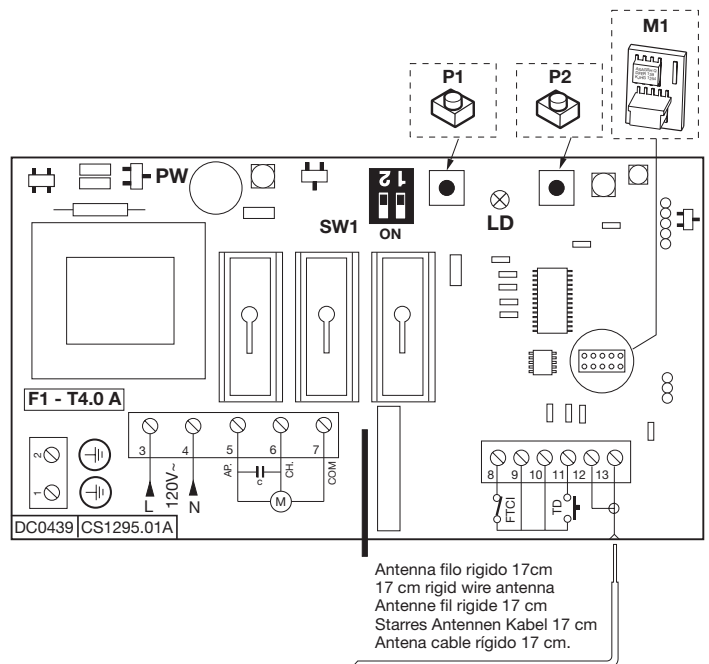
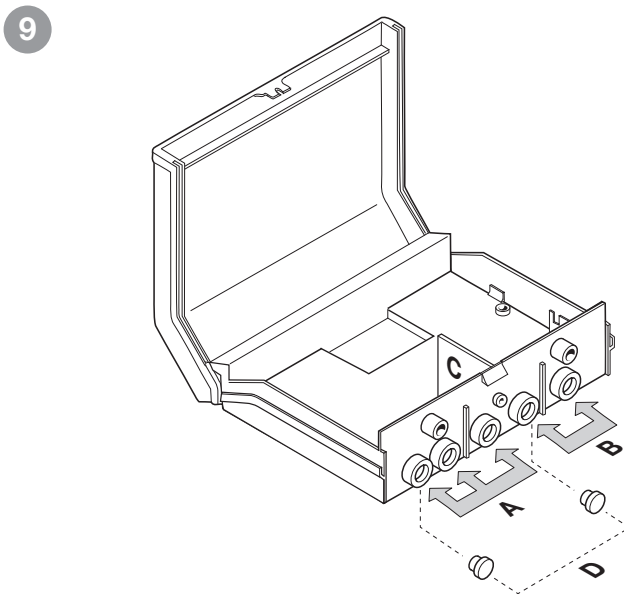
BATTERY REPLACEMENT



EXTERNAL DIMENSIONS



RADIOPROGRAMMER ELECTRICAL CONNECTION



Legend

- A:** Entry holes for 120 V~ mains wiring
- B:** Entry holes for low voltage 12/24V wiring + antenna
- C:** Separator wall
- D:** Hole sealing plugs
- LD:** Signal led
- M1:** Memory module
- P1:** Memorising button
- P2:** Delete button
- PW:** Power on led
- SW1:** Function selection dip

- 1-2 Earth connection.
- 3-4 Radioprogrammer power supply **120 Vac 60 Hz.**
- 5-6-7 Motor control in output "Open-Close-Common" **350 W.**
- 8-9 Contact N.C. input for safety devices (safety edge contact) with travel direction inversion during the closing cycle. Should a pair of photocells be connected an external power circuit will be required.
- 10-11 Dynamic button in input (contact N.O.) with Open-Stop-Close-Stop functions.
- 12 Antenna ground.
- 13 Antenna connection **170 mm** rigid wire.