elmes® electronic

MULTIFUNCTION FOUR CHANNEL TRANSMISSION SET   RP-501   (EN)

The set consists of four channel radio transmitter and dedicated superheterodyne type receiver designed for use in radio remote control and anti-burglar alarm systems. Both the transmitter (encoder) and the receiver (decoder) use microprocessor controlled input/output logic and 64-bit encryption technology. The system operates in 433,92 MHz frequency band and features up to 500 meters operating range in open field. Wider operating range can be obtained with simple dipole TV UHF band (ch 21-60) directional antenna with coaxial cable used in place of the standard wire antenna. One receiver may operate with up to 60 transmitters in a system. Both units are in same look like ABS plastic enclosures with different colour LED indicators. The transmitter (with red LED indicator) may be powered either from 12VDC supply line or, due to extremely low power requirements, from internal 9V battery. The receiver (bicolour LED indicator) operates from 12VDC supply and has four fully programmable NO/NC relay outputs connecting to the receiver's ground. The relays' time-lapse mode of operation is user programmable. The signalling output S (open collector type) is for external beeper device and delivers signal pulses on alarm state. The S output might also be user set to indicate failure of radio link between transmitter and receiver. This is activated by opening jumper J1 in receiver. The receiver features TAMPER switch and built in bicolour LED allowing necessary programming and output status indication. The transmitter's TAMPER switch, which is connected in series with D4 input, is user activated by cutting jumper ZT and closing input D4 to receiver's ground. It generates alarm transmission in channel 4 on opening of RP501 box. Practical operating range of the set depends on local propagation conditions and should be tested prior to firm installation.

TRANSMITTER OPERATING MODES   (selected by jumpers J1, as illustrated below)

1. Standard operation mode. Opening any of the transmitter's D1..D4 inputs triggers radio transmission lasting 15 seconds that switches to 1 second transmissions every 1 minute interval if any of the inputs remain still opened. Transmission ends when all inputs of the transmitter are closed. Receiver outputs reset after passing user-programmed output relay set time.

2. Prolonged transmission mode. On opening any of the D1..D4 transmitter inputs, even for a short while, prolonged pulse transmissions lasting 15 or 40 seconds (selected by jumper **7-8**: closed-40s, opened-15s) are triggered. Any further triggering while in transmitting extends transmission time. If the triggering lasts longer than the selected prolonged transmission period, the transmitter auto-switches to battery saving mode of 1 second transmission every 1 minute interval time.

3. Radio relay operation mode. Any open-close change on the transmitter's D1..D4 inputs triggers transmission lasting 15 or 40 seconds (as selected by jumper 7-8 described above) with the receiver D1..D2 outputs status corresponding to the status of the transmitter's inputs. This operating mode allows real time monitoring of transmitter's inputs status in the receiver.

4. Radio relay operation with cyclic update mode. The same as in mode 3 described above, with the addition of 1 second lasting update transmission made every 80 seconds, securing that the receiver's outputs state truly correspond to that of the transmitter in case of possible power supply failure or radio transmission interference.

IMPORTANT! Every time a new mode of operation is selected in transmitter, memory of corresponding receiver must be cleared and transmitter(s) be learned to the receiver's memory again (as described in points 3 & 1 of the programming procedures below).

If the transmitter is battery operated its voltage is monitored in all the above modes of operation. Battery voltage drop to approx. 7V level triggers low battery alarm transmissions made every 4 minutes. The receiver signals the need of the transmitter's battery change by blinking LED in green. After the battery is replaced the LED blinking sets off automatically. Additionally, operation of the set in any of the above modes may be user selected to perform **radio link testing**. This function is selected in transmitter by disconnecting jumper **5-6** (J1). Every 35 seconds the transmitter sends radio link test signal. If, for any reason, the receiver does not receive any test signal within 90 seconds time span, it sets on warning by blinking red LED and generates alarm pulses at the S output (rate: 0,5s pulse/1,5s interval) . Only one transmitter may operate with radio link testing in a system. Warning signals are generated untill any next valid transmission is received. The RP501 transmitter operates also with Elmes made **CB32 control panel and CH4H**, **CH8H**, **CH20H** multichannel receivers though radio link testing mode is inactive.

RECEIVER'S OPTIONS

The receiver's four relay outputs may be user set to NC (normally closed) or NO (normally opened) operation. As standard, manufacturer's setting is to NC operation. To change relay(s) output mode NC-NO jumper(s) need to be appropriately set by the user. At standby, the receiver's outputs are off and the LED lights green. When valid transmission from the RP501 transmitter is received the D1-D4 outputs are set according to received information.

PROGRAMMING PROCEDURES

Prior to programming make sure the receiver's LED lights green, otherwise shortly disconnect power supply.

1. Programming - learning transmitter(s) to receiver's memory:
    a) press the receiver's **PRG** switch (LED lights red) for less than 2 seconds. Releasing the switch LED continues to light red,
    b) disconnect one of the D inputs of the transmitter, blinking receiver's LED confirms end of the procedure and the transmitter is in the receiver's memory.

2. Programming - setting the receiver to time-lapse output mode and reset time:
    a) press the receiver's **PRG** switch (LED lights red) for more than 2 and less than 8 seconds. Releasing the switch LED light changes to green,
    b) press shortly PRG switch again to start time-lapse count. Receiver's LED lights red.
    c) when desired time has lapsed (1s up to 6 hours) press the PRG switch shortly again. The receiver's LED changes to green and after 2 seconds starts blinking confirming end of the procedure.
    By triple pressing PRG switch with intervals shorter than 2 seconds, in point 2b above, the receiver's outputs are set to latched (on/off) mode of operation so their reset can only be made by disconnecting power supply.

**3. Programming - erasing all transmitters from the receiver's memory:**
    Press the receiver's **PRG** switch (LED lights red) for more than 8 seconds, until the receiver LED starts blinking confirming end of the procedure. Memory of the receiver is cleared. Programming new transmitter/s to the receiver can be made according to point 1 above.

INSTALLATION

As shown on the schematic wiring diagram, with all not used transmitter's inputs shorted to ground (- DC supply voltage).

SPECIFICATION

transmitter: p. supply 9-14 VDC or 9V battery; transm. current 10mA, standby 17uA, 64 bit - 16777216 code settings; f=433,92 MHz (≤10dBm), operation temp. -20 to +40°C,
receiver: superheterodyne type with 4 relay outputs (60VA, max 1A, 128V) & output S type OC: 1A/60V, power supply 10-15VDC (100mA min.), max. number of transmitters 60; operating temp.-20 to +40°C.

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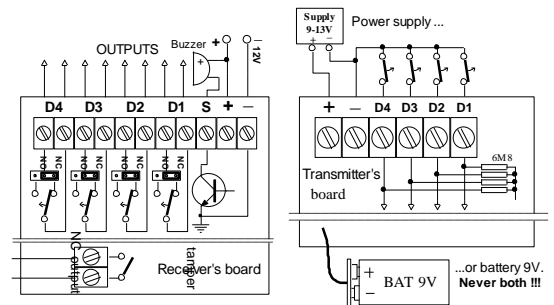
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