

### General features

This microprocessor controlled 20 channel receiver substitutes two earlier models and is designed to operate with large number of code hopping transmitters in alarms and access control systems. It works with all 433,92 MHz band Elmes made *KEELOQ®* coded hand transmitters, wireless PIR motion detectors PTX and wireless magnet contacts CTX offering highest level of security and low battery channel identification. It features 20 integral galvanic separated NO/NC relay outputs with front panel LED channel indication for each channel, sound control output S and tamper switch. Most of the receiver features are user set and programmable offering flexibility in application. Below listed, are standard Elmes Electronic transmitters specified for operation with the CH20H receiver:

- code hopping hand transmitters UMB100H, DWB100H, AN200H, DW200H, CH4H, CH4H-200;
- code hopping wireless PIR motion detector PTX50 and wireless contact magnets CTX3H and CH4H;
- fixed code four channel RP501 transmitter (except when set to operate with radio link testing).

Each receiver channel may have pre-programmed any number of Elmes transmitters with total number operating with one CH20H receiver not exceeding 60. Programming 61<sup>st</sup> would erase 1<sup>st</sup>, etc. Multi channel hand transmitters and RP501 transmitter programmed to the receiver would occupy and control adjacent receiver channels in number respective to the number of channels used in the transmitter. The PTX50 detector signals alarm state in any user selected channel while its tamper signal is automatically set to dedicated channel 20 while programming.

### Application examples:

1. Dedicated wireless alarm control panel armed on/off by UMB100H hand transmitter programmed to channel no 1, monitoring alarm signals from Elmes Electronic wireless transmitters such as CTX, PTX and RP501
2. As calling-in and wireless panic button control panel in a system where many users have AN200H hand transmitter as personal wireless panic button. Any AN200H transmitter activated would generate alarm state in the receiver lasting until reset by the use of big red button at the receiver's front panel. Two channel hand transmitters used as wireless panic buttons may have one button used for quiet calling function while other used for panic alarm function.
3. As any standard alarm system receiver monitoring alarm, tamper and low battery signals from all installed Elmes code hopping wireless equipment, switching on/off respective alarm zones in the main system control panel.

### Modes of operation:

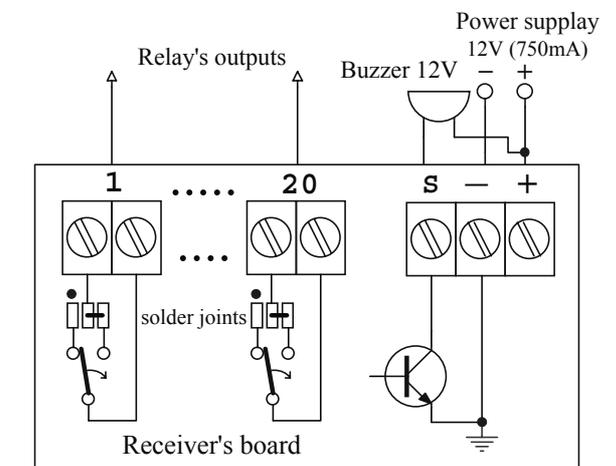
Activating transmitter programmed to the receiver results in switching its channel relay output and illuminating its channel LED indicator. Depending on user programming as described in sub close 2 of the programming procedures, the following modes of the receiver's relay outputs operation are possible:

1. Temporary output switching lasting from 0.5 sec. up to 4 h. Output S generates two pulses on any relay set and one pulse on reset. See programming procedures sub cl. 2d. **Note:** operating with RP501 transmitter in radio relay mode the receiver's outputs remains set for as long as the transmitter's input is opened.
2. Output switched to set lasting until reset is made by the use of the front panel red switch. Output S generates pulses lasting for as long as any output relay remains set. This mode enables construction of calling-in system. For programming see sub cl. 2(\*).
3. Output switching in bistable on-off mode as activated by consecutive signals from the transmitter. This mode is possible in channel no 1 only and can be user programmed according to sub cl. 2(\*) of the programming procedures. Practical use of this mode is described in application examples, subcl.1 above.

The receiver monitors low battery state in Elmes transmitters type PTX50, CTX and RP501. Detected low battery state in one of the transmitters will be indicated by blinking of the front panel red LED marked **LOW BATTERY INDIC.** To find out channel or channels of low battery transmitter the user is required to press front panel red button marked **LOW BATTERY CH.** Illuminating channel LEDs will indicate channels with low battery in transmitters. After replacing batteries and activating transmitters low battery indication is switched off automatically.

### Installation (as shown on fig. 1):

Receiver CH20H is designed to operate indoors with ambient temperature range from 0 to +40°C. Place of installation should be dry and far from any electromagnetic power lines, radio transmitters, metal screening and other devices that may cause interference and reduce operation range. Receivers should be positioned 2 to 3 metres above floor level and minimum spacing of two metres is required if more than one receiver is installed at the same place. Placing receivers close to ground or under the ground level may result in total cease of operating range. Practical local tests should be taken prior to firm installation to determine exact operation range. Receiver's wire antenna should be let loose downwards and cannot be fixed or glued to wall.



### User optional outputs setting:

1. **Setting relay output to NC or NO** is made by solder joints made for each relay on printed circuit board soldering side. Factory setting for channels 1 to 19 is NO type (normally opened) while tamper channel no 20 is set to NC (normally closed). On power supply cut off the 20<sup>th</sup> relay output switches to open indicating tamper alarm.
2. **Setting the signal output S:**
  - with jumper **JP1** closed signalling active to all 20 channels,
  - with jumper **JP1** opened signalling active to channel no 1 only.

## CH20H PROGRAMMING PROCEDURES

Programming is made with front panel taken off and the use of programming LED and switches on the receiver's board.

### 1. Learning transmitter(s) to receiver's memory (maximum 60):

- a) press receiver's PRG switch for less than 2 seconds. The PRG LED switches off and on and the first channel indication LED will illuminate,
- b) shortly pressing the PRG switch select the required channel for programming transmitter,
- c) press the BATT red switch – the LED will switch off,
- d) depending on type of programmed transmitter proceed as follows:
  - for hand transmitter – double press the transmitter's switch. In multi channel transmitters press switch number respectively to number of channels to program, example: double pressing the 3<sup>rd</sup> switch in four ch. transmitter CH4H will program first three channels to the receiver. The fourth channel will not be active in this receiver.
  - for the PTX50 detector – set the detector internal transmission channel selector to ch. no 1 activate two transmission by moving hand in front of the detector,
  - for the CTX3H wireless contacts – activate double transmission by moving magnet in and out of the CTX housing,
  - for the RP501 transmitter – set the transmitter required mode of operation and activate transmission by opening any of its four inputs respectively to number of channels required, example: activating input 2 will program input 1 and 2 to the receiver while inputs 3 and 4 will not be programmed.

**NOTE: the RP501 operation mode with radio link testing is not allowed.**

- e) blinking LED in the receiver will indicate end of the procedure.

### 2. Setting the outputs' set time in channel no 1 and channels 2 to 20:

- a) press receiver's PRG switch for more than 2 and less than 8 seconds. LED switches off indicating entering this programming mode,
- b) pressing the PRG switch select required channel range for programming:
  - set time for channel no 1 (channel 1 LED is illuminated),
  - set time for channels 2 to 20 (channel 2 LED is illuminated),
- c) shortly press BATT switch and the PRG LED will illuminate,
- d) press PRG switch and the PRG LED switches off and when desired set time has lapsed (up to 4 hours) press the PRG switch again,
- e) after 2 seconds blinking LED in the receiver will indicate end of the procedure.

**NOTE!** To program bistable set time of channel outputs press the PRG switch three times at sub cl. 2d with less than 2 second intervals. If bistable mode is programmed the only way to reset the outputs operating is to press front panel red switch or alternatively, cut off the power supply (not recommended).

### 3. Deleting all transmitters from the receiver's memory:

press receiver's PRG switch (LED switches off) for more than 8 seconds, until the receiver LED starts blinking and then release the switch. Memory of the receiver is cleared but the channels' programmed modes of operation remain unchanged. To learn new transmitter(s) to the receiver's memory follow procedure 1 above.

**NOTE:** programming errors are indicated by fast blinking PRG LED. If no programming steps are made for more than 16 seconds the receiver automatically sets off from the programming mode.

## SPECIFICATION:

- 20 channels with NO/NC user set galvanic isolated relay outputs and LED front panel indication,
- multi mode relay output operation programmed by the user,
- up to 60 Elmes code hopping 434 MHz band transmitters programmable to the receiver,
- transmitters low battery monitoring and channel identification,
- user set mode of operation of external siren output S signalling alarm either in any channel alarm or alarm in channel no 1 only,
- receiver's TAMPER switch signalling tamper alarm in dedicated channel 20,
- power supply: 12VDC with 500 mA maximal current on all channels set,
- relay output rating is 1A/24VDC or 0,5A/125VAC.