

This manual covers the following remote control products operation, installation and programming:

Equipment Type	Set Content	Operating Range
U1HS	receiver U1HR + 2 transmitters UMB100HT	100 m
U1HSD	receiver U1HSR + 2 transmitters DWB100HT	100m
U1HSL	receiver U1HR + 1 transmitter AN200HT	200 m
U1HR	U1HR – receiver only	-

All above listed products include the same superhet receiver model featuring:

- One galvanic separated relay output with NC/NO terminals,
- One OC (open collector) transistor type signal output S pulse indicating relay output switch-over,
- Two colour LED indicating state of the relay output,
- Highly sensitive and selective superhet receiver,
- Memory capacity of up to 112 keyfob remote control transmitters,
- KEELOQ® dynamic encoding system.

### **Receiver Operation Modes**

U1HR receiver allows various operation modes depending on selection made by jumpers JP1 & JP2 and programming Monostable (pulse) or Bistable (on/off) relay output mode (step 2 and 3 of programming procedures), as shown in the Table below:

**Table of relay output available operation modes**

Jumpers State	Monostable Mode <sup>(1)</sup>	Bistable Mode <sup>(1)</sup>
JP2 On JP1 <sup>(3)</sup>	<b>A.</b> Pressing transmitter button sets receiver's relay output on for programmed time period. Next pressing of the button, while output is on, prolongs set on time of the output.	<b>B.</b> Each pressing of remote transmitter button sets receiver relay output on and off alternately (on/off mode).
JP2 Off, JP1 On	<b>C.</b> Receiver relay output is set on for as long as transmitter button is pressed and sets off, after short delay <sup>(2)</sup> , on button release.	Not available
JP2 Off JP1 Off	<b>D.</b> Pressing transmitter button 1 sets the output on. Pressing button 2 sets output off. If button 2 is not pressed, relay output sets off after programmed time period <sup>(4)</sup> .	<b>E.</b> Pressing transmitter button 1 sets output on. Pressing button 2 sets output off.

- <sup>(1)</sup> Output relay Monostable Mode (pulse) or Bistable Mode (on/off) is programmed in steps 2 and 3 of programming procedures.
- <sup>(2)</sup> Delayed output set off reduces risk of unwanted interruptions in output set on continuity, due to interferences caused e.g. electric motors. Precise setting of this short delay timing is facilitated by programming 8-fold longer time delay of that needed. Example: to obtain 0.5s set off delay, programmed delay of 4..5s delay must be made (0.5 x 8=4).  
Number of remote control transmitters that can be used in this mode is limited to 20.
- <sup>(3)</sup> In modes A & B jumper JP1 selects timing of switch-over signal pulses at output S: jumper On – 0.25s pulse, jumper Off – 0.50s pulse. Longer timing of switch-over signal pulses is necessary for certain acoustic signalling devices in which shorter pulses are not recognized properly.
- <sup>(4)</sup> This mode requires use of hand transmitter with two or more buttons.

### **KEELOQ® Encoding System**

In the system, newly encoded control signal is generated and sent each time transmitter button is pressed. Receiver monitors code changes and responds to new code signals only. Once received code will not be accepted second time. This allows protection of radio transmission signals from deliberate code grabbing and unauthorized use.

### **Transmitter Memory**

As each transmitter generates specific dynamic code, receiver must “learn” and memorize individual coding of every transmitter that will operate with the receiver. Therefore, receiver's memory capacity is limited to 112 transmitters. Learning 113<sup>th</sup> transmitter would delete first transmitter in memory, etc. Eliminating lost or stolen transmitters from receiver's memory requires deleting all transmitters and learning all remaining transmitters again. Deleting single transmitter from receiver's memory is possible only with the use of the transmitter to be deleted (see pt 5 of programming procedures).

### **Receiver Relay Output**

Receiver is equipped with galvanic isolated relay output with NO (normally open) and NC (normally closed) three wiring terminals – one common. The output switches over on command received from transmitter. Details are shown on installation diagram included in this manual.

### **Signalling Output S**

The receiver features one open collector type (OC) signalling output for connecting to external acoustic siren or light strobe. The output generates two pulses shorting to receiver's ground (-V) on receiver's relay set ON and one pulse on relay set OFF. Two pulses are generated also when pressed transmitter's button is used to prolong set on timing in monostable mode only (mode A – see Table above). In operation modes D and E (see Table above), in which button 1 sets output on and button 2 sets output off, two pulses are generated each time button 1 is pressed and one pulse each time button 2 is pressed.

### **LED Indication**

Receiver is equipped with two colour LED signalling power supply connection and status of relay output. It lights red when power is connected and relay output is not activated. When relay is set on it lights green.

### **Receiver Installation**

Receiver's place of installation should be dry and away from electromagnetic power lines, radio transmitters, metal screening and other devices that may cause interference and reduce operation range. It is recommended to install the receiver well above floor/ground level and test practical operating range of transmitter-receiver set prior to firm installation. The level of hand transmitter signals and local unwanted radio interference signals can be checked using optional Elmes RFM indicator.

## PROGRAMMING PROCEDURES

Receiver LED low flashing green in confirms properly performed programming procedure. Fast flashing LED in red indicates programming error. Programming procedure must be repeated.

### 1. Learning transmitter(s) to receiver's memory (maximum 112):

- Press receiver's **PRG1** switch for less than 2 seconds - LED lights green.
- Press shortly hand transmitter button once - receiver LED changes to red.
- Press shortly the same hand transmitter button again.

### 2. Programming receiver output monostable operation mode (pulse) and output set on timing:

- Press receiver's **PRG1** switch - LED lights green and after two seconds changes to red. Now release the switch.
- Press hand transmitter button. Relay in the receiver sets on. After required pulse time has lapsed press hand transmitter button again. Relay in receiver sets off. After 2 seconds receiver's LED starts flashing green confirming end of the procedure.

### 3. Programming receiver output bistable (on/off) operation mode:

- Press receiver's **PRG1** switch - LED lights green and after two seconds changes to red. Now release the switch.
- Press transmitter button three times with less than 2 seconds intervals. Receiver LED flashes green confirming end of the procedure.

### 4. Deleting all transmitters in receiver memory:

Press and hold depressed **PRG1** switch for more than 8 seconds. Receiver LED first lights green. After 2 seconds changes to red and after 6 seconds starts flashing green. Now release the switch. To learn new transmitter(s) follow procedure 1 above.

### 5. Deleting single transmitter in receiver memory (condition: transmitter to be deleted is available):

- Press receiver's **PRG1** switch for less than 2 seconds - LED lights green.
- Press shortly button of the hand transmitter to be deleted - receiver LED changes to red.
- Perform one of the following steps:
  - Press button of any other Elmes made hand transmitter button, or
  - temporarily disconnect receiver power supply, or
  - wait round 30 seconds till receiver exits programming mode.

Correct performing of this procedure is confirmed by LED flashing red (error indication).

**Advice 1: Procedures 2, 3 and 5 can be performed with the use of transmitter learned to the receiver memory.**

**Advice 2: Time for performing procedures 1 and 5 above is limited to 30 seconds. If the procedures are not completed within this time period receiver exits programming mode and error is indicated.**

## SPECIFICATION

UMB100HT transmitter: radiated power < 5mW, battery: 12V (23A).

AN200HT transmitter: radiated power < 10mW, battery: 9V (6F22).

Receiver:

- dynamic code system **KEELOQ®** of Microchip Corp. USA,
- transmitter memory capacity: 112 (up to 20 in mode C),
- superhet receiver module with sensitivity: -106 dBm,
- power supply range: 1 .. 17VDC, 50mA,
- operating temperature range from -20 to + 55 ° C,
- output relay max. power rating: 1A, 120VAC/30VDC,
- monostable output mode timing: from 0,25s up to 4 hours,
- bistable output mode: on/off,
- signal output S (1A/60V max.) OC type,
- sabotage alarm terminals NC type (closed box).
- external dimensions (h/w/l): 24/46/73 mm



## Manufacturer

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Low battery in transmitters is indicated either by its LED flashing (UMB100HT) or dimming and failing to light (AN200HT).

**WARNING! Batteries may contain substances hazardous to human health. Do not place batteries in fire or household waste. Dispose of old batteries properly in accordance with local law regulations. Used batteries can always be disposed of at points of electronic waste collection.**

## Manufacturer's Limited Warranty

This product carries two year manufacturer's warranty as from the date of purchase. The warranty is limited to the replacement of faulty original parts or repair defects of improper manufacture. Damage, misuse or improper handling by the user or installer as well as any alterations in product's hardware or software caused by unauthorized person violate warranty obligations and all due repair costs will be charged. Elmes Electronic shall not be liable for any personal or material damage or loss resulting from any of its products direct, indirect or partial use or failure to operate properly.

