

## RS232 interface for TVLINK systems

**Product code:**  
**TVTRX232**

**TVTRX232 works with the following devices:**

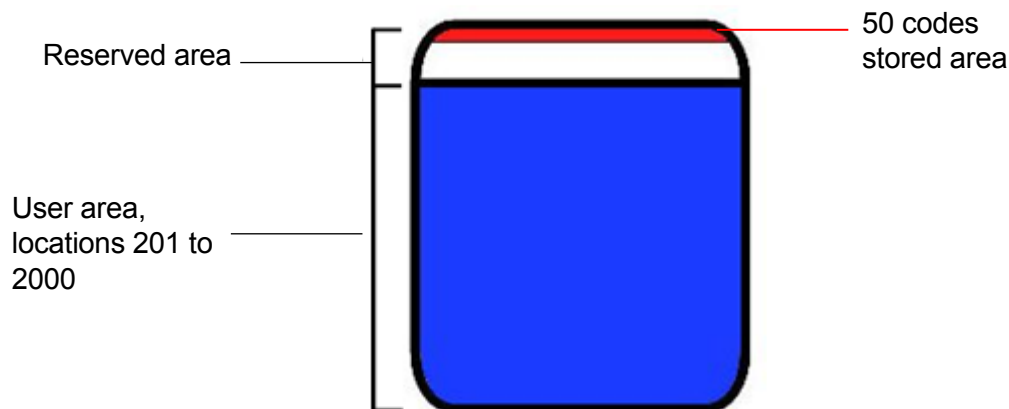
- receivers
- transceivers
- transmitters
- temperature, water and sun sensors.

**RS232 SERIAL COMMUNICATION SETTINGS:**

Baud rate            19200  
 Data bits            8  
 Parity                none  
 Stop bits            1  
 Flow control        none

**MEMORY MAP:**

The device has 50 transmitter codes stored in location 1 to 50 of its memory.



These codes allow TVTRX232 work as 50 different transmitters. Every transmitter can send up to 7 channels. These codes are fixed and not modifiable. In user memory area(201-2000) it's possible to store codes belonging to physical transmitters. To memorize a physical transmitter's channel can be use command 2 which allow to store a transmitter code via radio in a defined memory location.

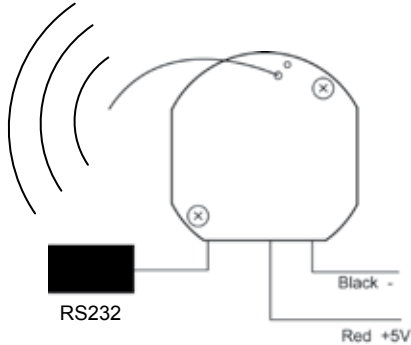
|                 |               |  |              |            |
|-----------------|---------------|--|--------------|------------|
| Code Number:    | Series        |  | Model number |            |
| <b>TVTRX232</b> | <b>TVLink</b> |  | T517.01_EN   | 26/02/2013 |

## 1 - RS232 commands

Checksum: the checksum value of the commands equals the carryless sum of the transmitted bytes. For example, if the hexadecimal values data to send are 54 5B F1 00 07, their sum is  $54+5B+F1+00+07 = 1A7$  so the checksum is A7.

### 1.1- Command 1: Transmit (the device transmits for 300 ms.)

Transmit via radio using one of the 50 codes stored in memory and a specific channel.



|                |         |                       |
|----------------|---------|-----------------------|
| Command string | 1 byte  | 'T' ( hexadecimal 54) |
| ID             | 2 bytes | Hex 1 to Hex 50       |
| Channel        | 2 bytes | 1-0xFFFF              |
| Checksum       | 1 byte  | Value                 |

Answer(hexadecimal):      54    06    checksum

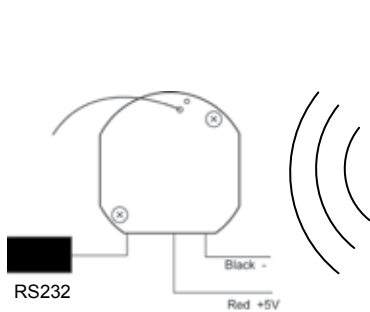
Example 1: Transmitting channel 7 for code stored in location ID=42.

Data to send(hexadecimal): 54 00 2A 00 07 85

↑            ↑            ↑            ↑  
 'T'        42        channel    checksum

Answer received:      54    06    5A

### 1.2- Command 2: Memorize a physical transmitter



|                |         |                       |
|----------------|---------|-----------------------|
| Command string | 1 byte  | 'A' ( hexadecimal 41) |
| ID             | 2 bytes | Hex 201 to Hex 2000   |
| Checksum       | 1 byte  | Value                 |

Wait answer(hexadecimal):    57    06    checksum

Answer after a successful memorization  
(hexadecimal): 57    06    checksum

NOTE 1: any command shuts down the 'waiting for a code' operation.

NOTE 2: to memorize more than one channel belonging to the same transmitter, you have to use the same ID number.

Example 2: memorizing a transmitter on location ID = 500

Data to send(hexadecimal): 41 01 F4 36

↑            ↑            ↑  
 'A'        500        checksum

Wait answer received:    54    06    5D

Transmission of a channel of the physical transmitter(for example channel 3)

Answer:    54    06    59

(To memorize another channel of the same transmitter must be used the same data to send:  
41 01 F4 36)

|              |        |  |              |            |
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When TVTRX232 receives and recognizes a radio transmission, it sends on RS232 these **data**:

Example 3: receiving the channel 3 of a transmitter(see example 2).

Data received on RS232 (*hexadecimal*): 52 01 F4 00 03 4A

↑            ↑            ↑            ↑  
'R'       ID=500     channel   checksum

## Delete a serial number stored in the range location 201 – 2000

Successful deletion answer(hexadecimal):      43      06      checksum

Data to send (hexadecimal): 43 01 5E 01 A3

'C' 350 number of locations checksum

Answer received: 43 06 49

## Delete all the memory from ID = 201 to 2000

Successful deletion answer(hexadecimal):      43      06      checksum

Data to send (*hexadecimal*): 44 45 4C 45 54 45 20 41 4C 4C A

“DELETE ALL”                      checksum

Answer received: 43 06 49

|                 |               |  |              |            |
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## 2. Error codes:

|                       |        |                              |
|-----------------------|--------|------------------------------|
| <b>Error string</b>   | 1 byte | 'E'                          |
| <b>Error specific</b> | 1 byte | X (from 0 to 9 see table II) |
| <b>Checksum</b>       | 1 byte | Value                        |

| Error types:  | Hex Value |
|---|-----------|
| Framming error  | 0         |
| Checksum error  | 1         |
| Wrong command error                                       | 2         |
| ID = 0 error  | 3         |
| ID > 2000 error   | 4         |
| Number of code to read/delete = 0 error                   | 5         |
| Number of code to read > 16 or >128 error                 | 6         |
| Number of code to read/delete > 2000 (out of range) error | 7         |
| Serial code already stored error                          | 8         |
| ID < 201 error  | 9         |
| Empty location transmission attempt error                 | 10        |
| Value out of valid codes range memorization attempt error | 11        |

### Example 6: Error answer received

Data sent (hexadecimal): 41 01 F4 39 (see example 2):  
                                   ↑       ↑       ↑  
                                   'T'   500   wrong checksum

Answer received: 45 01 46  
                           'E'   checksum error   checksum

## TECHNICAL SPECIFICATIONS

- Power supply                           5Vdc
- Carrier frequency                   868.3 MHz
- Working temperature               - 10°   +55°C

In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice.

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