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CE

# RS232 INTERFACE FOR TVLINK SYSTEMS

Product code
TVTRX232-916

TVTRX232-916 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.

Reserved area — 50 codes stored area

User area, locations 201 to 2000
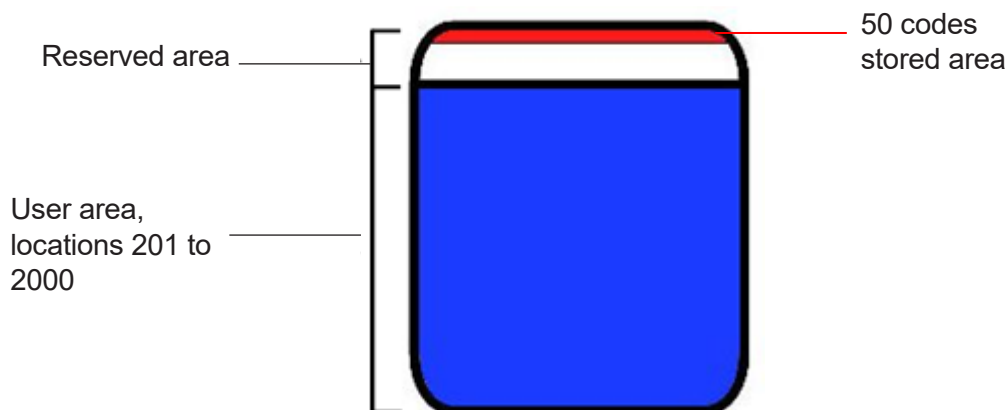
These codes allow TVTRX232-916 work as 50 different transmitters. Every transmitter can send up to 7 channels. These codes are fixed and not modifiable. In user memory area(201-2000) it's possible to store codes belonging to physical transmitters. To memorize a physical transmitter's channel can be use command 2 which allow to store a transmitter code via radio in a defined memory location.

⚠ WARNINGS

IMPORTANT! READ CAREFULLY THIS INSTRUCTIONS BEFORE INSTALLING AND COMMISSIONING THE PRODUCT. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE. The product at issue must be installed, commissioned and maintained only by licensed and authorised people, respecting the laws concerning the electrical installations. The manufacturer is not responsible for any damage due to wrong installation or improper use. The manufacturer, Teleco Automation s.r.l, declares that the type of radio equipment is compliant with Directive 2014/53/EU. The full text of the EU compliance declaration is available at the following Internet address: www.telecoautomation.com/ce.
INFORMATION TO USERS under art. 14 of the 2012/19/EU DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE). The crossed bin symbol on the equipment, or its packaging, indicates that the product must be collected separately from other waste at the end of its useful life and not with mixed urban waste. Please contact your municipality, or local authority, for all information regarding the waste sorting systems available in the area. The retailer is obliged to collect the old equipment free-of-charge when the customer buys a new equivalent equipment. This is to encourage correct recycling/disposal. Appropriate waste sorting for the subsequent recycling,reatment and disposal in an environmentally sound way of the disused equipment avoids negative effects on the environment or human health and favours the re-use or recycling of the equipment's materials.
In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice.

Teleco Automation s.r.l. shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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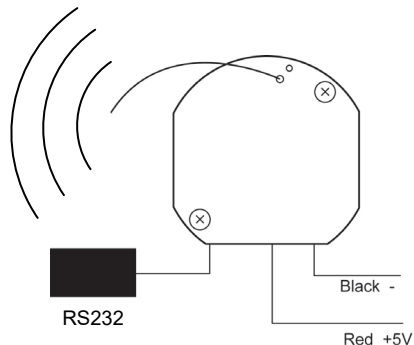
Command string	1 byte	'T' (hexadecimal 54)
ID	2 bytes	Hex 1 to Hex 50
Channel	2 bytes	1-0xFFFF
Checksum	1 byte	Value

Answer(hexadecimal):   54   06   checksum

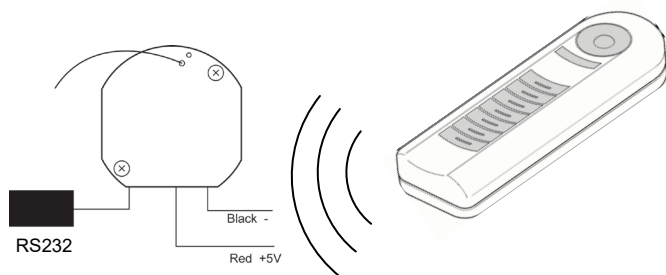Example 1: Transmitting channel 7 for code stored in location ID=42.

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)

Receiving a transmitter memorized

When TVTRX232-916 receives and recognizes a radio transmission, it sends on RS232 these **data:**

Command string	1 byte	'R' (hexadecimal 52)	
ID	2 bytes	Hex 201 to Hex 2000	
Channel	2 bytes	1-0xFFFF	
Checksum	1 byte	Value	

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

1.3- COMMAND 3: DELETE MEMORY LOCATION/S

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

Command string	1 byte	'C' (hexadecimal 43
Starting ID	2 bytes	Hex 201 to Hex 2000
Number of locations to delete	1 bytes	1-0xFF
Checksum	1 byte	Value

Successful deletion answer*(hexadecimal)*:   43   06   checksum

Example 4: deleting one location with ID = 350

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

'C'   350   number of locations checksum

Answer received: 43   06   49

1.4- COMMAND 4: DELETE ALL THE MEMORY

Delete all the memory from ID = 201 to 2000

Command string	10 bytes	'DELETE ALL' (hexadecimal 44 45 4C 45 54 45 20 41 4C 4C)
Checksum	1 byte	Value

Successful deletion answer*(hexadecimal)*:   43   06   checksum

Example 5: deleting all the memory

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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Error string	1 byte	'E'
Error specific	1 byte	X (from 0 to 9 see table II)
Checksum	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	5 Vdc
Carrier frequency	916 MHz
Operating temperature range	-10°C ÷ +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.

DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause 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 encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
Teleco Automation Srl declares that the above mentioned articles satisfy the following technical regulations applicable:
- FCC (Federal Communications Commission Part 15 (FCC ID: P59TVTRX232-916) WARNING:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
(3) Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.