Rako WRA-232

TCP / RS232 Interface

Table of Contents

RAKO RS232 Interface Description

RS232 Interface configuration

The flow control should be set to Xon/Xoff or None.

The WRA-232 Interface uses the following configuration:

9600 bps, No Parity, 8 Data bits, 1 stop bit.

The Baud rate can be changed via the Configuration section of the web pages.

The flow control should be set to Hardware or None.

The Bi-directional RS232 Interface uses the CTS line to indicate it is in a state to receive commands (Hardware flow control). If the CTS line is not connected or the connecting equipment does not implement hardware flow control, care must be taken to either not send commands too quickly or wait for the “>” prompt following a command.
Due to the extra power requirement, the Bi-directional RS232 Interface MUST be powered by an external supply of 9 to 15V DC @ 50mA or from the Wired Network.

TCP / Telnet Interface configuration

The WRA-232 has a single TCP connection available on port 9761.

The setup software also uses this port. Ideally, provision should be made to disconnect the TCP connection when required.

Command Line Interface

The interface indicates it is waiting for a command by issuing the “>” character. Characters sent to the interface are echoed. The interface interprets text commands and, where necessary, encodes and transmits the appropriate message via the radio link. The interface is not case sensitive. Each command consists of the following:

[COMMAND] <VALUE>

The command is terminated with a carriage-return or ampersand character and, depending on the command, has an additional argument. The argument is delimited by one or more white-spaces, tabs or colons. If the Command is valid, the interface responds with: ‘OK’

If the command is invalid, the interface responds with: ‘Invalid Command!’

It is not necessary to enter the full text of the command. A shortened non-ambiguous version can be used. For example the command ROOM:1 can be shortened to RO:1.

Command Summary

Command	Notes
HOUSE <house_number> (Deprecated)	**Note: House number is no longer used on the WRA-232. It is set via the web pages.** Sets the HOUSE address to <house_number>. The House number must be between 1 and 255. The House number is stored in non-volatile memory.
ROOM <room_number>	Sets the ROOM address to <room_number>. The Room number must be between 0 and 255. Room 0 controls all units with the same House address. If <room_number> is omitted, the room is set to 0. The Room address is stored in non-volatile memory.
CHANNEL <Channel_Number>	Selects the Channel address. The <channel_number> must be between 0 and 15. Channel 0 controls all channels within the current Room. If <Channel_Number> is omitted the channel is set to 0.
SCENE <scene number>	Sets the scene for the current House/Room/Channel. The <scene number> must be between 1 and 16, which correspond to the buttons on a control panel.
OFF	Turns off the lights in the current House/Room/Channel.
LEVEL Power_level	Sets the power level for the current House/Room/Channel. The <power_level> must be between 0 and 255, with 255 representing 100% power.
STORE	Stores the current power level to the current Scene. This will only apply to dimmers addressed by the current House/Room/Channel.
VER	Displays version information
STATUS	Displays current House, Room and Channel in the form: HO:nnn RO:nnn CH:nnn EH:nnn nnn is a 3 digit decimal number with leading zeros. nnn is between 0 and 255. EH is reserved for future use and is an optional value
COM <command_number>	Issues <command_number> to the lights in the current House/Room/Channel. The <command_number> must be between 0 and 15.

Table 1 – Command Line Interface

Command Number Summary

Using the COMMAND instruction, a literal command can be sent to the addressed controllers. Table 2 details the meanings of the various instructions.

Instruction Number	Instruction	Notes
0	Off	
1	light+	Fade Up
2	light-	Fade Down
3	ps1	Not recommended: Use “SCENE”
4	ps2	
5	ps3	
6	ps4	
7	program mode	Only used from wireless keypads
8	ident	
9		
10	low battery	Sent from battery devices
11	eeprom write	
12	level set	Not recommended: Use “LEVEL”
13	store	
14		
15	STOP	Stop Fading

Table 2- Command Instructions

To fade the lights the command light+ or light- must be issued. This fades the lights at the rate determined by the value stored within the dimmer. To stop the lights fading the STOP command needs to be issued. It is not recommended to use command 3-6 instead use the “SCENE” command.

EEPROM Addresses

Information is stored in the dimmers in non-volatile or EEPROM memory. This memory can be written to using the RS232 interface. The EEPROM consists of 128 bytes of storage, some of which is used internally by the dimmer to remember the current state. ONLY THE ADDRESSES DETAILED BELOW SHOULD BE WRITTEN TO. To write data to the EEPROM area it is first necessary to set the HOUSE, ROOM and CHANNEL address of the dimmer(s). Next, the address should be set using the ADDRESS command and finally, the data should be written using the DATA command.

EEPROM ADDRESS	Action	Notes
1	Scene 1 preset value	
2	Scene 2 preset value	
3	Scene 3 preset value	
4	Scene 4 preset value	
9	Start Mode (After power failure)	0=0ff 1-4 = Scene 5=Memory 6-255=Absolute power level
22	Ignore Program Mode	>0= Ignore
23	Ignore Group Commands	>0 = Ignore
24	Ignore House Commands	>0 = Ignore
26	Use Profile	>0 = use profile
34	Scene Fade Rate	0=fast
36	Scene Fade Decay Rate	0=no decay
40	Manual Fade Rate Max	Sets the maximum rate
48	Manual Fade Rate Acceleration	Sets the acceleration to the maximum rate
50	Manual Fade Rate Start	Sets the starting fade rate
63-127	Profile Data	Determines the dimmers profile These values should only be changed using the RASOFT software.

Table 3- EEPROM Addresses

Care should be taken when changing values if the channel or house number is set to zero as this will change the values on all the dimmers.

Extra instructions for feedback

Instruction Number	Instruction	Data
49	SET_SCENE	Scene 0-16 (0 == off)
52	SET_LEVEL	Level 0 - 255

Table 4- Extra Instructions

Feedback format

The WRA-232 will output received commands in the following format:

<RRR:CCC:II
or
<RRR:CCC:III:DDD

RRR	The decimal room number from 0-255
CC or CCC	The channel number 0-15 (0 being 'all channels'). 2 or 3 digits.
II	The 2 digit instruction as set out in Table 2-Command Instructions. Used when the instruction number is less than 16.
III	The 3 digit instruction as set out in Table 4-Extra Instructions. Used when the instruction number is greater than or equal to 16.
DDD	The Data value in Table-4

Table 5- Feedback format

The string will always be on a separate line, start with a "<" and terminate with a CR LF.

The unit will only output messages for the current house. The house address must first be set using the HOUSE command as described in Table 1.

The following sequence represents a controller in room 4. Note: the text in italics is for explanation and does not appear on the output.

<004:00:03 *Scene 1 button pressed.*
>
<004:00:49:01 Alternative *Scene 1 button pressed.*
>
<004:00:10 *Battery low indication.*
>
<004:00:01 *Fade up button pressed.*
>
<004:00:15 *Fade up button released.*
>
<004:00:10 *Battery low indication.*
>

Command Examples:

This section details some typical command line examples. The '>' character is issued by the interface as is the 'OK' response. Note that the commands are not case sensitive, shortened versions of the commands and various delimiters can be used.

Multiple commands can be processed in a single TCP message.

The house and room address are stored in EEPROM within the RS232 interface and do not require resetting should a power failure occur.

To set the dimmers in room 4 to scene 1 (single line format)

ro:4&ch:0&sc:1\r\n

To set the dimmers in room 4 to scene 1 with responses

>RO:4\r\n
OK
>CH:0\r\n
OK
>SC:6\r\n
OK

To set the dimmers in room 4 channel 1 to 50%

RO 4\r\n
CH 1\r\n
LEV 127\r\n