RS232 COMMAND SUMMARY

RAV232 & RAV232+ RF INTERFACE DESCRIPTION

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 character and, depending of 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

HOUSE:1

can be shortened to

HO:1.

RS232 Serial interface configuration:

The Rako **RAV232** Interface uses the following configuration:

1200 bps, No Parity, 8 Data bits, 1 stop bit
The flow control should be set to Xon/Xoff or None

The RAV232 interface can also be set to 9600bps using the command line interface, but requires an external power supply.

In RASOFT or windows Hyperterminal type:

BAUD 96 (for 9600 bps)
BAUD 12 (for 1200 bps)

Switch on and off after selecting one of the above.

The Rako Bi-directional **RAV232+** Interface uses the following configuration:

9600 bps, No Parity, 8 Data bits, 1 stop bit
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 requirements, the RAV232 (when operated at 9600bps) and the Bi-directional RAV232+ interfaces MUST be powered by an external supply of 9 to 15V DC @ 50mA.

RS232 COMMAND SUMMARY
COMMAND LINE INTERFACE TABLE

COMMAND	NOTES
HOUSE <house_number>	Sets the HOUSE address to <house_number>. The House number must be between 1 and 255. The House number is stored in non-volitile 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 4, 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. For example: 0 represents 0%, 128 represents 50% and 255 represents 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.
RESET	Resets the microcontroller.
VER	Displays version information.
STATUS	Displays current House, Room and Channel in the form: HO:nnn RO:nnn CH:nnn nnn is a 3 digit decimal number with leading zeros. nnn is between 0 and 255.
COMMAND <command_number>	Issues <command_number> to the lights in the current House/Room/Channel. The <command_number> must be between 0 and 15.
ADDRESS <EEPROM_address>	Sets the EEPROM address within the dimmers. The <EEPROM_address> must be between 0 and 127.
DATA <EEPROM_data>	Transmits <EEPROM_data> to the address set using the ADDRESS command. The <EEPROM_data> must be between 0 and 255.
NOECHO	Turns off character echoing. This command is only available on the Bi-directional RS232 interface. The current echo mode is stored in non-volatile memory.
ECHO	Turns on character echoing. This command is only available on the Bi-directional RS232 interface. The current echo mode is stored in non-volatile memory.

RS232 COMMAND SUMMARY
COMMAND NUMBER SUMMARY & EEPROM ADDRESSES

Command Instructions

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

NB: To fade the lights the Command LIGHT+ and 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.

Instruction Number	Instruction	Program Mode Instruction
1	LIGHT -	
2	LIGHT +	LIGHT +
3	SCENE 1	LIGHT -
4	SCENE 2	STORE & IDENT
5	SCENE 3	CHANNEL +
6	SCENE 4	CHANNEL -
7	PROGRAM MODE	
8	IDENT	
9		IDENT
10	LOW BATTERY	LOW BATTERY
11	EEPROM WRITE	EEPROM WRITE
12	LEVEL SET	LEVEL SET
13	STORE	STORE
14		EXIT
15	STOP	STOP

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.

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.

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	Power Up Mode (After Power Failure)	0 = Off 1-4 = Scene 5 = Last Scene 6-255 = 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 Accelaration To Maximum
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 RASOFT software

RS232 COMMAND SUMMARY
BI-DIRECTIONAL MODULE & EXAMPLE COMMANDS

Bi-Directional Module

The Rako Bi-directional RS232 interface works as both a transmitter and receiver of Rako coded messages. Using this module it is possible to interface a Rako lighting installation to an external system where the system can both control the lighting and be aware of buttons being pressed on Rako devices.

In addition to accepting the commands defined in Table 1, the Rako® Bi-directional RS232 interface will output received commands in the following format:

<RRR:CC:IN

Where RRR represents the decimal room number from 0-255, CC indicates the channel number 0-15 (0 being 'all channels') and IN indicates the instruction as set out in the Command Instructions table. The string will always be on a separate line, start with a "<" and terminate with a CR LF.

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.

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.*
>
<004:00:10   *Battery low indication.*
>
<004:00:01   *Fade up button pressed.*
>
<004:00:15   *Fade up button released.*
>
<004:00:10   *Battery low indication.*
>

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 current house:

>HO:1
OK
>

To set all the dimmers in room 4 to scene 1:

>RO:4
OK
>CH:0
OK
>SC:1
OK