

ZR-6 MultiZone Receiver RS-232C Control Protocols

The ZR-6 MultiZone Receiver supports full two-way RS-232C control communications. This greatly expands potential applications, allowing complete integration with third-party control systems.

Hardware Configuration:

- 3.5 mm female connector:
 - Tip = Transmit
 - Ring = Receive
 - Sleeve = Ground

- Communication Parameters:
 - 38,400 Baud
 - 8 Data Bits
 - 1 Stop Bit
 - No parity
 - No Flow Control

Control Command Strings:

Note: The ZR-6 MultiZone Receiver does not continually provide system status and responds only to requests for information. It therefore must be polled to update third-party devices. Information can only be requested for the active control zone.

1) Making a zone the active control zone - *selects the zone to receive commands*

Syntax: **znc,4,[zone #][cr]**

where

znc,	<i>indicates the command type (zone command)</i>
4,	<i>indicates an active zone change</i>
[zone #]	<i>is the number of the zone to become active(1-18)</i>
[cr]	<i>is a carriage return</i>

Example:

Command: **znc,4,2[cr]**
 (make zone 2 the active zone)

ZR-6 Response: **rznc,4,2[cr]**
 (confirmation that Zone 2 is now the active zone)

where:

rznc,	<i>identifies a response to a zone command</i>
4	<i>identifies an active zone change</i>
2	<i>the number of the current active zone</i>
[cr]	<i>carriage return</i>

2) Request zone status – *provides status of all active zone parameters*

Syntax: **znc,5,[cr]**

where

znc,	<i>indicates the command type (zone command)</i>
5	<i>indicates an active zone status request</i>
[cr]	<i>is a carriage return</i>

Example:

Command: **znc,5[cr]** (request status information for the active zone)

ZR-6 Response: **usc,2,2,3,1,14,0,0,0[cr]** (status of the active zone)
where:

usc, *identifies a response to a status request*
 2, *identifies the response as an answer to a status request*
 2, *is the number of the current active zone for which status is provided*
 3, *number of the currently selected source (1-6) in the active zone*
 1, *On/Off status of the active zone (1=On, 0=Off)*
 14, *active zone volume level (0-100)*
 0, *active zone mute status (1=muted, 0=unmuted)*
 0, *active zone bass level (-7 to +7)*
 0 *active zone treble level (-7 to +7)*
 [cr] *is a carriage return*

In the example: (zone 2 is playing source 3; the zone is On at a volume level of 14%; the zone is unmuted; bass and treble are flat)

3) Zone specific command – for controlling parameters of a single zone

Syntax: **zsc,[zone #],[com #][cr]**

where

zsc, *indicates the command type (zone specific command)*
 [zone #] *indicates the zone number to receive the command (1-18)*
 [com #] *number of the desired command (see table of command codes)*
 [cr] *is a carriage return*

Example:

Command: **zsc,3,01[cr]** (selects the tuner in zone 3)

ZR-6 Response: **rzsc,3,01,OK[cr]** (tuner selected in zone 3)

where:

rzsc, *identifies a response to a zone specific command*
 3, *identifies the zone responding to the command*
 01, *is the number of the command executed*
 OK *ZR-6 says, "I got it"*
 [cr] *is a carriage return*

In the example: (zone 3 has selected the tuner to play)

4) **Global control command** – to simultaneously turn on or off all zones

Syntax: **znt,[com #],h[cr]**

where

znt, indicates the command type (zone transport command)
[com #], number of the desired command (see table of command codes)
h indicates a command hold
[cr] is a carriage return

Note: the global control (or hold) function only works with source selection and Off to turn all party mode enabled zones on; or to turn all zones off.

Example:

Command: **znt,01,h[cr]** (selects the tuner in all party enabled zones)

ZR-6 Response: **rznt,01,OK[cr]** (tuner is selected in all party enabled zones)

where:

rznt, identifies a response to a zone transport command
01, is the number of the command executed (source 1 selected)
OK ZR-6 says, "I got it"
[cr] is a carriage return

In the example: (the tuner has been selected to play in all zones enabled for party mode)

5) **Direct tune command** – to directly select radio stations (the tuner must be the active source in the active zone; zones 1-6 use the tuner in the Master chassis only, and zones 7-12 use the tuner in the first Slave chassis only, and zones 13 – 18 use the tuner in the second Slave chassis only)

Syntax: **src,11,[station][cr]**

where

src, indicates the command type (source command)
11, indicates direct tuner command
[station] the frequency of the desired station
 AM stations are shown as XXXX (four digits)
 FM stations are shown as XXX.X (four digits, must include decimal)
[cr] is a carriage return

Example:

Command: **src,11,102.7[cr]** (tunes FM 102.7 directly)

src,11,0560[cr] (tunes AM560 directly)

ZR-6 Response: **rsrc,11,OK[cr]** (station tuned as requested)

where:

rsrc, identifies a response to a source command
11, identifies direct tune as the command executed
OK ZR-6 says, "I got it"
[cr] is a carriage return

- 6) **Ready Command** – sent by the ZR-6 after the power up boot sequence to indicate proper operation, satisfactory completion of the diagnostic routines, and readiness to accept serial command. Note during the boot sequence, the ZR-6 will be sending the results of all diagnostic tests conducted during the sequence. The ready command will be sent only if the diagnostics are completed satisfactorily.

ZR-6 Response: **usc,1[cr]** (ZR-4 is now ready)

where:

usc, identifies the response as an unsolicited command
1 indicates the ZR-6 is ready
[cr] is a carriage return

- 7) **Command Fail response** – sent by the ZR-6 when a received command fails

ZR-6 Response: **r[type],[com #],FAIL,[fcode][cr]**

where:

r indicates a ZR-6 command response

[type] identifies the response type

znc = zone command

znt = zone transport command

src = source command

srt = source transport command

spc = special command

syc = system command

zsc = zone specific command

[com #], the number of the failed command (see table)

FAIL, indication the command failed

[fcode] code number of the failure type:

1 Cannot allocate memory to process message

2 Invalid Command

3 Incomplete message: missing command

4 Incomplete message: missing parameter

5 Cannot allocate memory to process command

- 6 *Cannot change the zone: invalid zone number*
- 7 *Invalid key code (command type)*
- 8 *Is not allowed hold flag*
- 9 *Is not allowed repeat flag*
- 10 *Invalid flag*
- 11 *Is not allowed flags*
- 12 *Cannot find the zone: invalid index*
- 13 *Cannot find the source: invalid index*
- 14 *Cannot find the soft key: invalid index*
- 15 *Cannot find the menu item: invalid index*
- 16 *IP address is not defined*
- 17 *Alternative behavior is not supported*
- 18 *ZR-6 is waiting previous special command answer*
- 19 *ZR-6 is waiting previous special command setting answer*
- 20 *Parameter 1 is out of range*
- 21 *Parameter 2 is out of range*
- 22 *Parameter 3 is out of range*
- 23 *Parameter 4 is out of range*
- 24 *Invalid parameter: too many dots*
- 25 *Invalid parameter: must be all numbers*
- 26 *Menu is not available*
- 27 *Pound (#) or bytes do not match with the string value bytes that were taped*
- 28 *Menu does not support alphanumeric search*

[cr] *is a carriage return*

- 8) **Erase EEPROM** – *erases all configuration input and tuner presets, restoring the ZR-6 to the factory default condition.*

Syntax: **syc,3,[cr]**

where

syc, *indicates the command type (system command)*

3, *indicates this is an EEPROM erase command*

[cr] *is a carriage return*

Example:

Command: **syc,3,[cr]** (erases the EEPROM)

ZR-4 Response: **rsyc,3,[cr]** (EEPROM has been erased)

where:

rsyc, *identifies a response to a system command*

3, *indicates the EEPROM was erased*

[cr] *is a carriage return*

Table of Codes for ZR-6 MultiZone Receiver Zone Specific Commands

Command	Code	Command	Code
Tuner Select	01 (h)	Cursor Up	23
Source 2 Select	02 (h)	Cursor Down	29
Source 3 Select	03 (h)	Cursor Left	25
Source 4 Select	04 (h)	Cursor Right	27
Source 5 Select	05 (h)	Select	26
Source 6 Select	06 (h)		
		Next	44
Volume Up	12	Previous	43
Volume Down	13		
Mute	11		
		Play	17
OFF	10 (h)	Pause	19
Power	49	Stop	18
		Fast Forward	21
#1	33	Rewind	20
#2	34	Record	144
#3	35		
#4	36	Shuffle	45
#5	37	Group	46
#6	38	Disc	47
#7	39	Favorites	48
#8	40		
#9	41		
#0	42	Page Up	126
Enter	69	Page Down	127

(h) – Command supports hold function

Table of Hex Codes for Zone Specific Commands

Available commands are directly related to buttons on the R-6L remote.

Command	Hex Code	
Tuner Select	01	supports hold function
Source 2 Select	02	supports hold function
Source 3 Select	03	supports hold function
Source 4 Select	04	supports hold function
Volume Up	0C	
Volume Down	0D	
Mute	0B	
OFF	0A	supports hold function
Bass Increase	80	
Bass Decrease	81	
Treble Increase	82	
Treble Decrease	83	
#1	21	
#2	22	
#3	23	
#4	24	
#5	25	
#6	26	
#7	27	
#8	28	
#9	29	
#0	2A	
Enter	45	
Next	2C	
Previous	2B	
Tuner Next Preset	43	
Tuner Prev Preset	44	
Tuner Scan Up	1B	
Tuner Scan Down	19	