

Azur 640R Serial Control Protocol V1.13

1.1 RS232 Protocol

The protocol is accessed via COM1 i.e. the rear panel RS232C port.

	Header	Command Group	Command Number	Command Data	Footer
	#	1 to 11	, 01 to 19	, XXXX	CR
byte num:	1	1	1 2	1 XX	1

Notes:

- 1) All data consists of ASCII bytes.
- 2) Settings for RS232 comm port are 9600,N,8,1 with no handshaking.
- 3) CR is carriage return, ASCII value 13 decimal.

1.2 Command Groups

Commands are split into the following groups:

Command Group	Description
1	Amplifier Commands
2	Source Commands
3	Tuner Commands
4	Audio Processing Commands
5	Version Commands
6	Replies from Amplifier Commands
7	Replies from Source Commands
8	Replies from Tuner Commands
9	Replies from Audio Processing Commands
10	Replies from Version Commands
11	Error Messages

1.4 Commands and Messages

1.4.1 Group 1 - Amplifier Commands

Command Number	Command Description	Command Data	Example
01	Power State	0 - Standby, 1 - On	#1,01,0\r - Put 640R in standby
02	Volume Up	No Data	#1,02\r - Volume up
03	Volume Down	No Data	#1,03\r - Volume down
04	Bass Up	No Data	#1,04\r - Bass up
05	Bass Down	No Data	#1,05\r - Bass down
06	Treble Up	No Data	#1,06\r - Treble up
07	Treble Down	No Data	#1,07\r - Treble down
08	Sub On	No Data	#1,08\r - Sub woofer on
09	Sub Off	No Data	#1,09\r - Sub woofer Off
10	Set LFE trim	0 = 0db, 1 = -1db... -10 = -10dB	#1,10, 03\r - LFE trim set to -3dB
11	Mute State	00 - Off, 01 - On	#1,11,00\r - 640R mute off
12	Dynamic Range Set	0 - 0/4, 1 - 1/4, 2 - 2/4, 3 - 3/4, 4 - 4/4	#1,12, 02\r - Set dynamic range limit to 2/4
13	OSD On	No Data	#1,13\r - OSD On
14	OSD Off	No Data	#1,14\r - OSD Off
15	OSD Up	No Data	#1,15\r - OSD up
16	OSD Down	No Data	#1,16\r - OSD down
17	OSD Left	No Data	#1,17\r - OSD Left
18	OSD Right	No Data	#1,18\r - OSD Right
19	OSD Enter	No Data	#1,19\r - OSD Enter

1.4.2 Group 2 - Source Commands

Command Number	Command Description	Command Data	Example
01	Input Select	00 = Tuner, 01 - DVD, 02 - Video 1, 03 - Video 2, 04 - Video3, 05 - Rec 1,06 - Aux, 07 - CD, 08 - Rec 2, 09 - ####, 10 - 7.1 Direct In	#2,01,02\r - Select Video 1
02	Input Select Up	No Data	#2,02\r - Next input up
03	Input Select Down	No Data	#2,03\r -Next input down
04	Set input mode	00 - analogue, 01 - Digital	#2,04,01\r - digital source selected
05	Set Video Source	0 - S Video, 1 - Component, 2 - Composite	#2,05,01\r - Component video source

1.4.3 Group 3 – Tuner Commands

Command Number	Command Description	Command Data	Example
01	Tuner Stereo/Mono	0 - Stereo, 1 = Mono	#3,01,01r - tuner in mono
02	Frequency Up	No Data	#3,02r - Frequency up
03	Frequency down	No Data	#3,03r - Frequency down
04	Up	No Data	#3,04r - Tuner up
05	Down	No Data	#3,05r - Tuner down
06	Tuner Mode	1 - Frequency up/down, 2 - search up/down, 3 - Preset up/down	#3,06,03r - Tuner up/down control presets
07	Tuner Search Stop	No Data	#3,07r - Tuner search stop
08	Tuner Auto Search	No Data	#3,08r - Tuner auto search
09	Tuner Band	0 - FM, 1 = AM	#3,09,01r - tuner in AM mode
10	Tuner PTY select	1- News, 2-Affairs, 3-Info, 4-Sport, 5-Educate, 6-Drama, 7-Culture, 8-Science, 9-Varied, 10-Pop, 11-Rock, 12-MOR, 13-Light, 14-Classics, 15-Other	#3,10,11r - PTY Rock selected
11	Store Station	1 - preset 1, 2 - preset 2, 15 - preset 15	#3,11,12r - Store current frequency in preset 12
12	Get Preset	1 - preset 1, 2 - preset 2, 15 - preset 15	#3,12,6r - Set tuner to preset 6
13	Tuner Display mode	1-Frequency, 2-Program name, 3-Program Type, 4-Clock time, 5-Radiotext	#3,13, 04r - Display in clock time mode
14	Get Frequency	No Data	#3,14r
15	Get Station name	No Data	#3,15r
16	Get PTY	No Data	#3,16r
17	Stop PTY Select	No Data	#3,17r

1.4.4 Group 4 - Audio Processing Commands

Command Number	Command Description	Command Data	Example
01	Set Audio to Stereo	00 = Stereo, 01 = Stereo+ SW	#4,01,01\r - Audio set to stereo mode plus sub
02	Set PLII/Neo/DSP	No Data	#4,02\r - cycles to next mode (same as pressing the PLII/Neo/DSP button)
03	DD/DTS	No Data	#4,03\r - cycles to next mode (same as pressing the DD/DTS button)
04	Get current PLII/Neo/DSP mode	No Data	#4,04,\r
05	Get current DD/DTS mode	No Data	#4,05\r

1.4.5 Group 5 - Version Commands

Command Number	Command Description	Command Data	Example
01	Get Main Software Version	No Data	#5,01,\r - Get software version
02	Get Protocol Version	No Data	#5,02,\r - Get protocol version

1.4.6 Group 6 - Replies from Amplifier Commands

Command Number	Command Description	Command Data	Example
01	Power State	0 - Standby, 1 - On	#6,01,0\r - Put 640R in standby
02	Volume Up	-90 to 00 (where -90 = mute, 00 = max volume)	#6,02,-16\r - Vol = -16dB
03	Volume Down	-90 to 00 (where -90 = mute, 00 = max volume)	#6,03,-16\r - Vol = -16dB
04	Bass Up	-10 to 10	#6,04,-6\r - Bass = -6db
05	Bass Down	-10 to 10	#6,05,-6\r - Bass = -6db
06	Treble Up	-10 to 10	#6,06,-7\r - treble = -7db
07	Treble Down	-10 to 10	#6,07,-7\r - treble = -7db
08	Sub On	No Data	#6,08\r - Sub woofer on
09	Sub Off	No Data	#6,09\r - Sub woofer off
10	Set LFE trim	0 = 0db, 1 = -1db... -10 = -10dB	#6,10, 03\r - LFE trim set to -3dB
11	Mute State	0 - Off, 1 - On	#6,11,00\r - 640R mute off
12	Dynamic Range Set	0 - 0/4, 1 - 1/4, 2 - 2/4, 3 - 3/4, 4 - 4/4	#6,12, 02\r - Set dynamic range limit to 2/4
13	OSD On	No Data	#6,13\r - OSD On
14	OSD Off	No Data	#6,14\r - OSD Off
15	OSD Up	No Data	#6,15\r - OSD up
16	OSD Down	No Data	#6,16\r - OSD down
17	OSD Left	No Data	#6,17\r - OSD Left
18	OSD Right	No Data	#6,18\r - OSD Right
19	OSD Enter	No Data	#6,19\r - OSD Enter

1.4.7 Group 7 - Replies from Source Commands

Command Number	Command Description	Command Data	Example
01	Input Select	1 - DVD, 2 - Video 1, 3 - Video 2, 4 - Video3, 5 - Rec 1, 6 - Aux, 7 - CD, 8 - Rec 2, 9 - Tuner, 10 - 7.1 Direct In	#7,01,2\r - Video 1 selected
02	Input Select Up	No Data	#7,02\r - Next input up
03	Input Select Down	No Data	#7,03\r -Next input down
04	Set input mode	0 - analogue, 1 - Digital	#7,04,01\r - digital input selected
05	Set Video Source	0 - S Video, 1 - Component, 2 - Composite	#7,05,02\r - Composite video source selected

1.4.8 Group 8 - Replies from Tuner Commands

Command Number	Command Description	Command Data	Example
01	Tuner Stereo/Mono	0 - Stereo, 1 = Mono	#8,01,01\r - tuner in mono
02	Frequency Up	No Data	#8,02\r - Frequency up
03	Frequency down	No Data	#8,03\r - Frequency down
04	Up	1 - command complete, 2 - tuner searching	#8,04,02\r - Tuner searching
05	Down	1 - command complete, 2 - tuner searching	#8,05,01\r - Tuner down executed
06	Tuner Mode	1 - Frequency up/down, 2 - search up/down, 3 - Preset up/down	#8,06,03\r - Tuner up/down control presets
07	Tuner Search Stop	xxx.xx	#8,07,09525\r - Current frequency is 95.25MHz
08	Tuner Auto Search	No Data	#8,08\r - Tuner auto search
09	Tuner Band	0 - FM, 1 = AM	#8,09,01\r - tuner in AM mode
10	Tuner PTY select	1- News, 2-Affairs, 3-Info, 4-Sport, 5-Educate, 6-Drama, 7-Culture, 8-Science, 9-Varied, 10-Pop, 11-Rock, 12-MOR, 13-Light, 14-Classics, 15-Other, 16-Searching in progress, 17-Search failed	#8,10,11\r - PTY Rock selected
11	Store Station	1 - preset 1, 2 - preset 2, 15 - preset 15	#8,11,12\r - Store current frequency in preset 12
12	Get Preset	1 - preset 1, 2 - preset 2, 15 - preset 15	#8,12,6\r - Set tuner to preset 6
13	Tuner Display mode	1-Frequency, 2-Program name, 3-Program Type, 4-Clock time, 5-Radiotext	#8,13, 04\r - Display in clock time mode
14	Tuner Display mode	1-Frequency, 2-Program name, 3-Program Type, 4-Clock time, 5-Radiotext	#8,14, 04\r - Display in clock time mode
14	Get Frequency	xxx.xx	#8,14,09525\r - Current frequency is 95.25MHz
15	Get station name	xxxxxxxx	#8,15,Radio666\r - Current station name is Radio666. If no RDS station name available, return with string of stars, i.e. *****
16	Get PTY	0-No Pty, 1- News, 2-Affairs, 3-Info, 4-Sport, 5-Educate, 6-Drama, 7-Culture, 8-Science, 9-Varied, 10-Pop, 11-Rock, 12-MOR, 13-Light, 14-Classics, 15-Other	#8,16,11\r - Current PTY is Rock Music
17	Stop PTY Select	No Data	#8,17\r

1.4.9 Group 9 - Replies from Audio Processing Commands

Command Number	Command Description	Command Data	Example
01	Set Audio to Stereo	00 = Stereo, 01 = Stereo+ SW	#9,01,01\r - Audio set to stereo mode plus sub
02	Set PLII/Neo/DSP	xxxxxxx	#9,02, PCM + PLIIx Movie \r - Describes the mode it's just switched to exactly as on front panel
03	DD/DTS	xxxxxxx	#9,03, Dolby Digital (2/0) \r - Describes the mode it's just switched to, exactly as displayed on the front panel
04	Get current PLII/Neo/DSP mode	xxxxxxx	#9,04, PCM + PLIIx Movie \r - Describes the current mode
05	Get current DD/DTS mode	xxxxxxx	#9,05, Dolby Digital (2/0) \r - Describes the current mode

1.4.10 Group 10 - Replies from Version Commands

Command Number	Command Description	Command Data	Example
01	Get Main Software Version	X.X	#10,01,1.2\r - Software is version 1.2
02	Protocol Version	X.X	#10,03,1.6\r - Protocol is version 1.6

1.4.11 Group 11 - Error Messages

Command Number	Command Description	Command Data	Example
01	Command Group Unknown	No Data	#5,01,\r - Command group error
02	Command Number in Group Unknown	No Data	#5,02,\r - Command number error
03	Command Data Error	No Data	#5,03,\r - Command data error

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