Azur 351R Serial Control Protocol V1.0

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	PowerState	0 - Standby, 1 - On	#1,01,0\r - Put 551R 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	N/A	N/A	
09	N/A	N/A	
10	Set LFE trim	0 = 0db, 1 = -1db… -10 = -10dB	#1,10, 03\r - LFE trim set to -3dB
11	MuteState	00 - Off, 01 - On	#1,11,00\r - 640R mute off
12	DynamicRange Set	0 – Auto, 1 – On, 2 = Off	#1,12, 01\r - Set dynamic range on
13	OSD On	No Data	#1,13\r - OSD On
14	OSD Back	No Data	#1,14\r - OSD Back one level/store
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
20	Lip Sync Up	No Data	#1,20\r - Lip Sync Up
21	Lip Sync Down	No Data	#1,21\r - Lip Sync Down

1.4.2   Group 2 - Source Commands

Command Number	Command Description	Command Data	Example
01	Input Select	01 - BD/DVD, 02–CD/Video 1, 03 - Video 2, 04 – AUX, 06 - Tuner, 09 - TV ARC	#2,01,02\r - Select Video 1
02	Input Source Rotate	No Data	#2,02\r - Next input
03	N/A	N/A	
04	Set audio source for input	00 - analogue, 01 – Coax1, 02 – HDMI, 03 – Coax2, 04 – Opt	#2,04,01\r –Coax1 source selected

1.4.3 Group 3 – Tuner Commands

Command Number	Command Description	Command Data	Example
01	Tuner Stereo/Mono	0 - Stereo, 1 = Mono	#3,01,01\r - tuner in mono
02	Frequency Up	No Data	#3,02\r - Frequency up
03	Frequency down	No Data	#3,03\r - Frequency down
04	Up	No Data	#3,04\r - Tuner up
05	Down	No Data	#3,05\r - Tuner down
06	Tuner Mode	1 - Manual up/down, 2 - Auto up/down, 3 - Preset up/down	#3,06,03\r - Tuner up/down control presets
07	N/A	N/A	
08	N/A	N/A	
09	Tuner Band	0 - FM, 1 = AM	#3,09,01\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 M, 11-Rock M, 12-M.O.R. M, 13-Light M, 14-Classics, 15-Other	#3,10,11\r - PTY Rock selected
11	Store Station	1 - preset 1, 2 - preset 2, ….. 15 - preset 15	#3,11,12\r - Store current frequency in preset 12
12	Get Preset	1 - preset 1, 2 - preset 2, ….. 15 - preset 15	#3,12,6\r - Set tuner to preset 6
13	Tuner Display mode	1-Frequency, 2-Program name, 3-Program Type, 4-Clock time, 5-Radiotext	#3,13, 04\r - Display in clock time mode
14	Get Frequency	No Data	#3,14\r
15	Get Station name	No Data	#3,15\r
16	Get PTY	No Data	#3,16\r
17	Stop PTY Select	No Data	#3,17\r

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	N/A	N/A	
03	Surround Modes	No Data	#4,03\r - cycles to next mode
04	N/A	N/A	
05	Get current DD/DTS mode	No Data	#4,05\r
06	Analogue Stereo Direct	No Data	#4,06\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

1.4.6 Group 6 - Replies from Amplifier Commands

Command Number	Command Description	Command Data	Example
01	PowerState	0 - Standby, 1 - On	#6,01,0\r - Put 551R 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	N/A	N/A	
09	N/A	N/A	
10	N/A	N/A	
11	MuteState	0 - Off, 1 - On	#6,11,00\r - 640R mute off
12	DynamicRange Set	0 –Auto, 1 – On, 2 - Off	#6,12, 02\r - Dynamic range set to off
13	OSD On	No Data	#6,13\r - OSD On
14	OSD Back	No Data	#6,14\r - OSD Back/Store
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
20	Lip Sync Up	No Data	#6,20\r - Lip Sync decreased
21	Lip Sync Down	No Data	#6,21\r - Lip Sync increased

1.4.7 Group 7 - Replies from Source Commands

Command Number	Command Description	Command Data	Example
01	Input Select	01 - BD/DVD, 02 – CD/Video 1, 03 - Video 2, 04 – AUX, 06 - Tuner, 09 - TV ARC	#7,01,2\r - Video 1 selected
02	Input Source Rotate	No Data	#7,02\r - Next input
03	N/A	N/A	
04	Set audio source for input	00 - analogue, 01 – Coax1, 02 – HDMI, 03 – Coax2, 04 – Opt	#7,04,01\r – Coax1 input 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 |

1.4.8 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	N/A	N/A	
03	Surround Mode	xxxxxxxx	#9,03, Dolby Digital (2/0) \r - Describes the mode it's just switched to, exactly as displayed on the front panel
04	N/A	N/A	N/A
05	Get current surround mode	xxxxxxxx	#9,05, Dolby Digital (2/0) \r - Describes the current mode
06	Analogue Stereo Direct	N/A	#9,06\r – ASD On

1.4.9 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 – Displays date

1.4.10 Group 11 - ErrorMessages

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