

# Azur 551R Serial Control Protocol

## 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
255	Factory features

## 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 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	Mute State	00 - Off, 01 - On	#1,11,00\r - 640R mute off
12	Dynamic Range Set	0 – Auto, 1 – Off, 2 = On	#1,12, 02\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 – Video 1, 03 - Video 2, 04 – CD/AUX, 05 – Tape/MD/CDR, 06 - Tuner, 07 – Video 3, 08 – Direct In, 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 - Digital, 02 - HDMI	#2,04,01\r - digital source selected
05	N/A	N/A	N/A

### 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 - Frequency up/down, 2 - search 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-Variety, 10-Pop, 11-Rock, 12-MOR, 13-Light, 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
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 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	Mute State	0 - Off, 1 - On	#6,11,00\r - 640R mute off
12	Dynamic Range Set	0 – Auto, 1 – Off, 2 - On	#6,12, 02\r - Dynamic range set to on
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 – Video 1, 03 - Video 2, 04 – CD/AUX, 05 – Tape/MD/CDR, 06 - Tuner, 07 – Video 3, 08 – Direct In, 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	0 - analogue, 1 - Digital, 2 - HDMI	#7,04,01\r - digital input selected
05	N/A	N/A	

### 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	xxxxxxx	#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	xxxxxxx	#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
02	Protocol Version	X.X	#10,03,1.6\r - Protocol is version 1.6

#### 1.4.10 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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