


## Appendix E RS232 Protocol

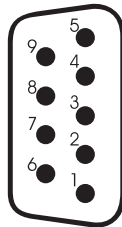
### RS232 Hardware Connections

RTS and CTS are not implemented in Generation VIII

### DB9

Pin	I/O	
1 - DCD	0	
2 - Generation VIII sends on this pin	0	
3 - Generation VIII receives on this pin	1	
4 - DTR	1	
5 - GND		
6 - DSR	0	
7 - RTS	1	
8 - CTS	0	
9 - Ring	---	

CN2



Rear panel view of DB9 connector  
(From outside of unit).

These are the connector drawings only. The RS232 cable must be a regular RS232 or mouse extender cable that are wired pin for pin.

## Generation VIII RS232 Control Details

RS232 settings are user definable in the Setup/RS232 menu, to accommodate interfacing with a wide range of control products.

Baud rate	4800, 9600, 19200, 38400, 57600 or 115200
Echo status	On-Off

Baud rate: Maximum number of bits per second. The duration of a single bit is equal to 1 / baud rate.

Echo status: Specifies whether the **STATUS** of each parameter shown in the protocol will automatically (**On**) be echoed back to the controller when there is any change, or whether no status information will be transmitted. Please refer to page 14 or information on changing these settings.

The parameters for RS232 communication will default to 8 bits, 1 stop bit and no parity. (Software flow control).

### All values in this document are in Decimal.

All commands will follow the format:

<Header><Command Identifier><Argument 1><Argument 2><Argument 3>

where:

<Header> = <254><241>

<Command identifier> = <byte>

<Argument 1> = <byte>

<Argument 2> = <byte>

<Argument 3> = <byte>

Each command will be able to access the system configuration directly, eliminating the need to press any button on the Generation VIII's front panel.

### Examples:

- 1) To put the Generation VIII into standby: Send 254, 241, 04, 14, 01, 00 (all values in decimal).  
Where 254 and 241 are the header, 04 = Command\_Do Action, 14 = Action\_Power Main, 01 = put unit into standby, and 00 = filler (4 characters required).
- 2) To change to Input # 2: Send 254, 241, 01, 04, 00, 02  
Where 254 and 241 are the header, 01 = Command\_Variable\_Change, 04 = Variable\_Input\_Selected, 00 = filler (4 characters required), and 02 = Input 2.  
-OR-  
254, 241, 04, 05, 02, 00  
Where 254 and 241 are the header, 04 = Command\_Do Action, 05 = Select Input, 02 = Input 2, and 00 = filler (4 characters required).
- 3) To increment the Master Volume: Send 254, 241, 04, 20, 00, 00  
Where 254 and 241 are the header, 04 = Command\_Do Action, 20 = Action\_Variable Specified Increment, 00 = Variable\_Master Volume, and 00 = filler (4 characters required)

**Please note: All values below are in decimal.**

Command	Description	Argument 1	Argument 1 Description	Argument 2	Argument 2 Desc	Argument 3	Arg 3 Desc
1	Variable Change	0-33	Variable number (See list)			0-86	new value
4	Do Action	5-21	Action number (See list)				See Action List
5	Get Variable Value	0-33	Variable number (See list)				
6	Return Status	0-1	Status level to return (See list)				
11	Simulate Keypress		Simulate Keypress number (See list)				
25	Execute Macro	2	Restore Factory Settings	4			
Action List	Action Name						
5	Select Input			1-5	Input number		
6	Mute			0-2	0=Toggle, 1=Mute, 2=Unmute		
8	Go to Menu			0-11	Menu # (See List)		
14	Power Main			0-2	0=Cycle Standby, 1=In Standby, 2=Out of Standby		
20	Variable Specified Increment					0-33	Variable # (See List)
21	Variable Specified Decrement					0-33	Variable # (See List)
Variable List	Variable Name	Range	Range Description				
0	Master Volume	0-86					
1	Volume Muted	0-1	0=Not muted, 1=Muted				
2	Display Brightness	0-4	0=Full, 1=3/4, 2=1/2, 3=1/4, 4=Off				
3	Balance	-7 to 7					
4	Input Selected	1-5					
5	Input Jack - Inp # 1	1-14	See Jack List.				
6	Input Jack - Inp # 2	1-14	See Jack List.				
7	Input Jack - Inp # 3	1-14	See Jack List.				
8	Input Jack - Inp # 4	1-14	See Jack List.				
9	Input Jack - Inp # 5	1-14	See Jack List.				
10	Input Name - Inp # 1	0-19	See Input Name List.				
11	Input Name - Inp # 2	0-19	See Input Name List.				
12	Input Name - Inp # 3	0-19	See Input Name List.				
13	Input Name - Inp # 4	0-19	See Input Name List.				
14	Input Name - Inp # 5	0-19	See Input Name List.				
15	Clock Type - Inp # 1	0-1	0=Jitter Jail, 1=Reclock				
16	Clock Type - Inp # 2	0-1	0=Jitter Jail, 1=Reclock				
17	Clock Type - Inp # 3	0-1	0=Jitter Jail, 1=Reclock				
18	Clock Type - Inp # 4	0-1	0=Jitter Jail, 1=Reclock				
19	Clock Type - Inp # 5	0-1	0=Jitter Jail, 1=Reclock				
20	Phase - Inp # 1	0-1	0="-", 1="+"				

Variable List	Variable Name	Range	Range Description				
21	Phase - Inp # 2	0-1	0="-", 1="+"				
22	Phase - Inp # 3	0-1	0="-", 1="+"				
23	Phase - Inp # 4	0-1	0="-", 1="+"				
24	Phase - Inp # 5	0-1	0="-", 1="+"				
25	Burn In	0-1	0=Off, 1=On				
26	Remote Trigger	0-3	0=Out-DC, 1=Out-Pulse, 2=Receive-DC, 3=Receive-Pulse				
27	Pulse Duration	0-4	0=50, 1=100, 2=150, 3=200, 4=250				
28	Baud Rate	0-5	0=4800, 1=9600, 2=19200, 3=38400, 4=57600, 5=115200				
29	Echo Status	0-1	0=No, 1=Yes				
30	IR Source	0-2	0=Front Panel, 1=Rear Jack, 2=None				
31	Ext Volume Receive	0-6	0=Left/Right, 1=Center/Sub, 2=L/R Surr, 3=Ch 7/8, 4=Ch 9/10, 5=Ch 11/12, 6=None				
32	Screensaver Time	1-60	Time in minutes				
33	Initial Volume	0-86	0=Level 0, 1=Level 1, etc.				
50	Inp_Offset_LVL_1	0-86	0=Offset 0...86=Offset -86				
51	Inp_Offset_LVL_2	0-86	0=Offset 0...86=Offset -86				
52	Inp_Offset_LVL_3	0-86	0=Offset 0...86=Offset -86				
53	Inp_Offset_LVL_4	0-86	0=Offset 0...86=Offset -86				
54	Inp_Offset_LVL_5	0-86	0=Offset 0...86=Offset -86				
55	Unity_Gain_Inp_1	0-1	0=Off, 1=On				
56	Unity_Gain_Inp_2	0-1	0=Off, 1=On				
57	Unity_Gain_Inp_3	0-1	0=Off, 1=On				
58	Unity_Gain_Inp_4	0-1	0=Off, 1=On				
59	Unity_Gain_Inp_5	0-1	0=Off, 1=On				
Jack List	Jack Name						
1	RCA1						
2	RCA2						
3	BNC						
4	XLR						
5	TOS						
6	Optical						
7	Analog Bal						
8	Analog S.E						
Input Name	Input Name						
0	Number						
1	RCA1						
2	RCA2						
3	BNC						
4	XLR						
5	TOS						
6	Opti						

7	Abal						
8	A Se						
9	CD						
10	CD1						
11	CD2						
12	DVD						
13	DVD1						
14	DVD2						
15	Phon						
16	Tune						
17	AM						
18	FM						
19	TV						
Menu List	Menu Name						
0	Standby						
1	Main						
2	Setup Inputs						
3	Setup Clocking						
4	Setup Burn In						
5	Setup Trigger						
6	Setup RS232						
7	Setup IR						
8	Setup Ext Volume						
9	Setup Screensaver						
10	Setup Initial Volume						
11	Setup Version						
12	Edit Balance						
15	Setup Unity Gain						
16	Setup Offset Level						
Status Returned							
Byte #	Description	Value					
1	Input	1-5					
2	Jack	1-14					
3	Volume	0-86					
4	Standby	0-1	0=standby, 1=not in standby				
5	Lock	0-1	0=not locked, 1=locked				
6	Sample Rate	0-7	0=32K, 1=44K, 2=48K, 4=88K, 5=96K, 6=176K, 7=192K				
7	Variable 0		(System Volume)				
8	Variable 1		(Muted)				
9	Variable 2						
10	Variable 3						
11	Variable 4						
12	Variable 5						

...	Variable ...						
67	Variable 60						
Simulate Keypress List							
Key	Value						
1-5	1-5						
Mute	8						
Setup	11						
Display	13						
Standby	14						
Level up	15						
Level down	16						
Level Left	19						
Level Right	20						
Phase	21						
Discrete Off	25						
Discrete On	26						