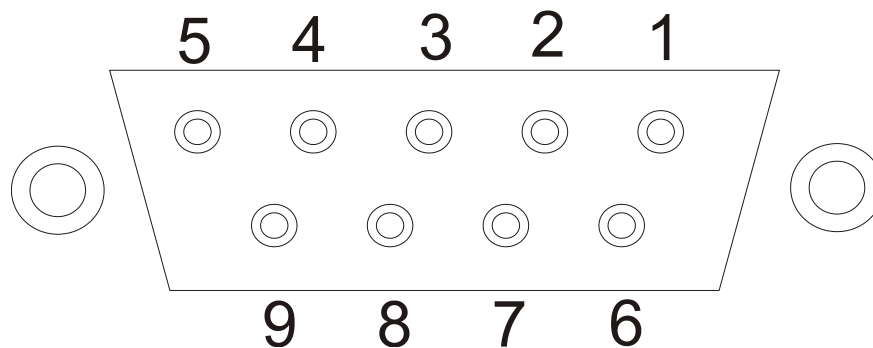


RS-232 Protocol for PDP/LCD00XR8DA

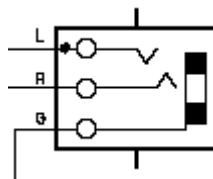
1 Physical Definition

Type A : Female D-Sub 9 pin

1. NC
2. TXD (To the Computer)
3. RXD (From the Computer)
4. NC
5. Ground
6. NC
7. NC
8. NC
9. NC



Type B: Mini earphone Jack

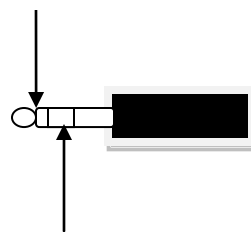


L : TXD (To the Computer)

R : RXD (From the Computer)

G : Ground

Tip to Pin 2 on Computer



Ring to Pin 3 on Computer

2 Electrical Definition:

Signal Level	RS-232 Compliant
Synchronization Method	Asynchronous
Baud Rate	9600Bps
Parity	None
Character Length	8 Bits
Flow control	None
Start Bits	1Bit
Stop Bits	1Bit

3 Basic format for control

The Transmission of data from the Control (Computer or AV Controller) starts with an STX signal, followed by the command, then the parameters, and lastly an ETX signal. If there are no parameters, then the parameter does not need to be sent. There is a Colon that separates the commands from the parameters. Numeric parameters are zero packed to three (3) digits. (e.g. 0=000, 12=012) except for Power On command "PWD" where the Parameter is ONLY ONE (1) digit e.g. "STXPWD:1ETX"

All Commands start with STX (02h) and end with ETX(03h). The Data outside the STX and ETX will be ignored.

Optionally an ID number, three ASCII digits ranging from 000-999
A Semicolon separates the ID number from the Command.
The ID number can be set for the TV in the Service Menu.

Each command is 3 ASCII character plus a Parameter
A Colon separates the Command from the Parameter.

The Parameter is 1 to 7 ASCII characters long.

After each command is received, the TV shall send back an acknowledgment.
For most commands, this should be a simple STX , the letters "OK", and an ETX.

If there is an error, the TV shall return STX, the letters "ER", and ETX. There could be parameters added after a Colon if more details are possible.

Examples:

All commands are ASCII. Hex has been included is just for clarification.

Example of a Power ON for Unit 001:

ASCII (STX)001;PWD:1(ETX)
 Hex 02 30 30 31 3B 50 57 44 3A 31 03
 TV ASCII Returns: (STX)OK(ETX)
 Hex 02 4F 4B 03

Example of a Power ON with No Unit Number:

ASCII (STX)PWD:1(ETX)
 Hex 02 50 57 44 3A 31 03
 TV Returns: (STX) OK (ETX)
 Hex 02 4F 4B 03

Query Examples:

Use a “?” as the parameter and the TV will return the current Value for that command. There is no “OK” sent after a query.

(STX)PWD:?(ETX)

Would return to this status if the TV is ON:

(STX)1(ETX)

Or, this status if TV is OFF:

(STX)0(ETX)

Example of a Volume Query with No Unit Number assumes that the Volume is set at 50.

(STX)VOL:?(ETX)

TV Returns: (STX)50(ETX)

- Note: 1) ID number is an optional field. If ID number is supported, TV factory setting menu must include ID number item, the default setting is 000.
 2) ID number 000 is a broadcast address. All device receive command with this address must respond it, even this device does not support ID number.

4 Commands

1) IR KEYS

Command	KEY	
Return Code	OK	
Query Result	Not support	
Parameter	<i>Common Keys</i>	
	000~009	Numeric Keys
	010	Channel up
	011	Channel down

012	Volume up
013	Volume down
014	Menu
015	Enter
016	Return
017	Up
018	Down
019	Left
020	Right
021	Power
022	Input(Source select)
023	Mute
024	Dsp(display channel information)
<i>Other keys</i>	
025	Picture Mode
026	Sound mode
027	-/--
028	Sleep
029	Audio effect (BBE/SRS on/off)
030	Aspect(Display mode)
031	Previous channel
032	CCD
033	MST(mono/stereo/sap)
034	Favorite
035	Picture freeze
036	Cable
037	Red
038	Green
039	Blue
040	Yellow
041	Teletext on/ff
042	Teletext mode
043	Update

044	Reveal
045	Hold
046	Index
047	Size
048~049	Reserved
<i>DTV Keys</i>	
070	EPG
071	'-Dash (Separate symbol between major channel number and minor number: 21-2)
072	List((Available program list)
073	Audio List
074	TV/Radio
<i>Discrete code function key</i>	
102	TV(RF)
103	Video-1
104	Video-2
105	Video-3
106	Component-1
107	Component-2
108	Component-3
109	VGA
110	HDMI-1
111	HDMI-2
112	HDMI-3
113	16:9
114	4:3
115	ZOOM
116	Panaroma
117~130	Reserved

2) Power

Command	PWD	
Return Code	OK	
Query Result	0	Power Off
	1	Power On
Parameter	000	Power Off
	1	Power On

3) Channel

Command	CHA	
Return Code	OK	
Query Result	Return current channel number	
Parameter	<i>Format 1 (For analog TV)</i>	
	000~999	

4) INPUT

Command	INP	
Return Code	OK	
Query Result	Return current input code.	
Parameter	000	TV(RF)
	001	VGA
	002	Componet-1
	003	Componet-2
	005	HDMI-1
	006	HDMI-2
	007	HDMI-3
	008	VIDEO-1
	016	DTV

5)VOLUME

Command	VOL
Return Code	OK
Query Result	Return current volume setting.
Parameter	000 ~ 100

6)Format

Command	FOR	
Return Code	OK	
Query Result	Return current format code	
Parameter	000	16 : 9
	001	4 : 3
	002	Panarama
	003	Zoom
	004~	Other format

7)CONTRAST

Command	CON
Return Code	OK
Query Result	Return current contrast setting
Parameter	000 ~ 100

8)BRIGHTNESS

Command	BRT
Return Code	OK
Query Result	Return current brightness setting
Parameter	000 ~ 100

9)SATURATION

Command	SAT
Return Code	OK
Query Result	Return current saturation setting
Parameter	000 ~ 100

10)TINT

Command	TIN
Return Code	OK
Query Result	Return current Tint setting
Parameter	000 ~ 100

11) Maximal Volume

Command	MAV
Return Code	OK
Query Result	Return current maximal volume setting
Parameter	000 ~ 100