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Dell™ RS232 External Control

1. Application

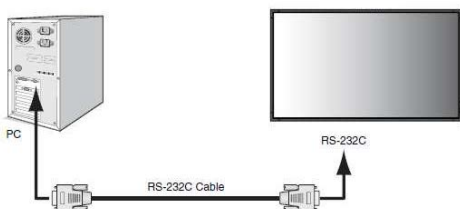
This document defines the communication method for control of the Dell LCD display P7525QT when using an external controller.

2. Connectors and wiring

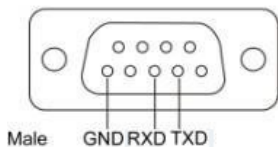
2.1 RS-232C Remote Access

Connector: 9-pin D-Sub

Cable: Straight cable or null modem cable



RS232 Pin Assignment (Facing Display)



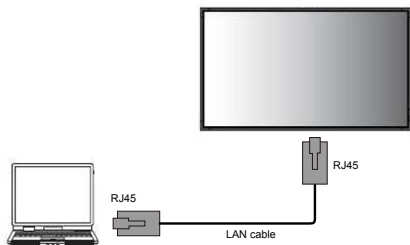
This display uses RXD, TXD and GND lines for RS-232 control.

 **Note 1:** The RS232 cable is not provided by Dell.

2.2 LAN control

Connector: RJ-45 10/100 BASE-T

Cable: Category 5 or higher LAN cable



 **Note 2:** The LAN cable is not provided by Dell

3. Communication Parameter

3.1 RS-232C Remote access

(1) Interface	RS-232C
(2) Baud rate	9600bps
(3) Data length	8bits
(4) Parity	None
(5) Stop bit	1 bit

3.2 LAN control

(1) Communication system	TCP/IP (Internet protocol suite)
(2) Interface	Ethernet
(3) Communication layer	Transport layer (TCP) Using the payload of TCP segment.
(4) IP address	If you need to change, Default: 10.0.50.100 Please refer “Dell Web Management for Displays” section on User’s manual.
(5) Port No.	4661 (Fixed)

4. Communication Format

Control Command Syntax

[H0][H1][Len][R/W][Cmd][Data0]...[DataN][Chk]

[H0] = 0x37

[H1] = 0x51

[Len] = Length

[R/W] = Read/Write

Read = 0xEB

Write = 0xEA

[Cmd] = Command

[Data0]...[DataN] = Data0~N

[Chk] = Check Sum

Reply Command Syntax

[H2][H3][Len][Reply][RC][Cmd][Data0]...[DataN][Chk]

[H2] = 0x6F

[H3] = 0x37

[Len] = Length

[Reply] = Reply (0x02)

[RC] = Result Code

- 0 = Success
- 1 = Timeout
- 2 = Parameters Error
- 3 = Not connected
- 4 = Other Failure

[Cmd] = Command

[Data0]...[DataN] = Data0~N

[Chk] = Check Sum

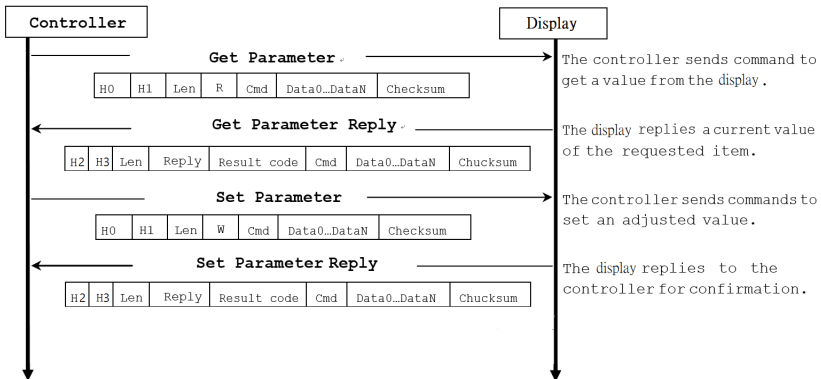
Example: Get Display Name

[From PC to Display] = 37, 51, 02, EB, 01, 8E

[From Display to PC] = 6F, 37, 0F, 02, 00, 01, 44, 65, 6C, 20, 43, 37, 35, 32, 30, 51, 54, 13

Checksum calculation

Xor byte by byte from first byte to the end of the command data stream.



5. Control Commands List

APIs	Parm / Retuen / Comments	HEAD_0	HEAD_1	LEN	R/W	CMD	D0	D1	D2	D3	D4	D5	D6	D7	CHK	HEAD_0	HEAD_1	LEN	Reply	Result	CMD	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	CHK
/* MONITOR MANAGEMENT */																																							
GetMonitorName	Max 10 chars (in ASCII)	37	51	02	EB	01									BE	6F	37	0F	02	00	01																		
GetMonitorSerialNumber	Max 10 chars (in ASCII)	37	51	02	EB	02									8D	6F	37	10	02	00	02																		
GetBacklightHours	Monitor Backlight Hours (WORD)	37	51	02	EB	04									8B	6F	37	05	02	00	04																		
/* POWER MANAGEMENT */																																							
GetPowerState	Power State (BYTE)	37	51	02	EB	20									AF	6F	37	04	02	00	20																		
SetPowerState - off	0 - off	37	51	03	EA	20				00					AF	6F	37	03	02	00	20																	79	
SetPowerState - on	1 - on	37	51	03	EA	20				01					AE	6F	37	03	02	00	20																	79	
SetPowerState - standby	2 - standby	37	51	03	EA	20				02					AD	6F	37	03	02	00	20																	79	
GetPowerLED	Power LED Setting (BYTE)	37	51	02	EB	21									AE	6F	37	04	02	00	21																		
SetPowerLED - off during active	0 - off during Active	37	51	03	EA	21				00					AE	6F	37	03	02	00	21																	78	
SetPowerLED - on during active	1 - on during Active	37	51	03	EA	21				01					AF	6F	37	03	02	00	21																	78	
GetPowerUSB	Power USB Setting (BYTE)	37	51	02	EB	22									AD	6F	37	04	02	00	22																		
SetPowerUSB - off during standby	0 - off during Standby	37	51	03	EA	22				00					AD	6F	37	03	02	00	22																	78	
SetPowerUSB - on during standby	1 - on during Standby	37	51	03	EA	22				01					AC	6F	37	03	02	00	22																	78	
ResetPower	NONE	37	51	02	EA	2F									A1	6F	37	03	02	00	2F																	76	
/* IMAGE ADJUSTMENT */																																							
GetBrightness	Brightness (BYTE)	37	51	02	EB	30									BF	6F	37	04	02	00	30																		
SetBrightness - 75	0 - 100	37	51	03	EA	30				48					F4	6F	37	03	02	00	30																	69	
SetBrightness - 100	values in increments of 1	37	51	03	EA	30				64					DB	6F	37	03	02	00	30																	69	
SetBrightness - 0		37	51	03	EA	30				00					BF	6F	37	03	02	00	30																	69	
SetBrightnessStep - Decrease	0 - Decrease (1)	37	51	03	EA	35				00					BA	6F	37	03	02	00	35																	6C	
SetBrightnessStep - Increase	1 - Increase (1)	37	51	03	EA	35				01					BB	6F	37	03	02	00	35																	6C	
GetContrast	Contrast (BYTE)	37	51	02	EB	31									BE	6F	37	04	02	00	31																		
SetContrast - 75	0 - 100	37	51	03	EA	31				48					F5	6F	37	03	02	00	31																	68	
SetContrast - 100	values in increments of 1	37	51	03	EA	31				64					DA	6F	37	03	02	00	31																	68	
SetContrast - 0		37	51	03	EA	31				00					BE	6F	37	03	02	00	31																	68	
StepContrastStep - Decrease	0 - Decrease (1)	37	51	03	EA	36				00					B9	6F	37	03	02	00	36																	6F	
StepContrastStep - Increase	1 - Increase (1)	37	51	03	EA	36				01					BB	6F	37	03	02	00	36																	6F	
GetAspectRatio	Aspect Ratio (BYTE)	37	51	02	EB	33									BC	6F	37	04	02	00	33																		
SetAspectRatio - Wide 16:9	0 - Wide 16:9	37	51	03	EA	33				00					BC	6F	37	03	02	00	33																	6A	
SetAspectRatio - 4:3	1 - Auto Resize	37	51	03	EA	33				02					BE	6F	37	03	02	00	33																	6A	
SetAspectRatio - 5:4	2 - 4:3	37	51	03	EA	33				04					BB	6F	37	03	02	00	33																	6A	
GetSharpness	Sharpness (BYTE)	37	51	02	EB	34									BB	6F	37	04	02	00	34																		
SetSharpness - 50	0 - 100	37	51	03	EA	34				32					89	6F	37	03	02	00	34																	6D	
SetSharpness - 100	values in increments of 10	37	51	03	EA	34				64					DF	6F	37	03	02	00	34																6D		
SetSharpness - 0		37	51	03	EA	34				00					BB	6F	37	03	02	00	34																6D		
SetSharpnessStep - Decrease	0 - Decrease (1)	37	51	03	EA	37				00					BB	6F	37	03	02	00	37																	6E	
SetSharpnessStep - Increase	1 - Increase (1)	37	51	03	EA	37				01					B9	6F	37	03	02	00	37																	6E	
/* COLOR MANAGEMENT */																																							
GetColorTempCaps	Bitwise representation of color temperatures (DWORD)	37	51	02	EB	42									CD	6F	37	07	02	00	42																		
SetColorTemp - 5000K	0x00000001 - 5000K	37	51	02	EB	43									CC	6F	37	07	02	00	43																		
SetColorTemp - 5700K	0x00000002 - 5700K	37	51	06	EA	43				01	00	00	00		C8	6F	37	03	02	00	43																	1A	
SetColorTemp - 6500K	0x00000004 - 6500K	37	51	06	EA	43				02	00	00	00		C8	6F	37	03	02	00	43																	1A	
SetColorTemp - 6500K	0x00000008 - 7500K	37	51	06	EA	43				04	00	00	00		CD	6F	37	03	02	00	43																	1A	
SetColorTemp - 7500K	0x00000010 - 9300K	37	51	06	EA	43				08	00	00	00		C1	6F	37	03	02	00	43																	1A	
SetColorTemp - 9300K	0x00000020 - 10000K	37	51	06	EA	43				10	00	00	00		D9	6F	37	03	02	00	43																	1A	
SetColorTemp - 10000K		37	51	06	EA	43				20	00	00	00		E9	6F	37	03	02	00	43																	1A	
GetInputColorFormat	Input Color Format (BYTE)	37	51	02	EB	46									C9	6F	37	04	02	00	46																		
SetInputColorFormat - RGB	0 - RGB	37	51	03	EA	46				00					C9	6F	37	03	02	00	46																	1F	
SetInputColorFormat - YPbPr	1 - YPbPr	37	51	03	EA	46				01					C8	6F	37	03	02	00	46																	1F	
GetColorPresetCaps	Bitwise representation of color presets	37	51	02	EB	47									C8	6F	37	07	02	00	47																		
GetColorPreset	0x00000001 - Standard	37	51	02	EB	48									C7	6F	37	07	02	00	48																		
SetColorPreset - Standard	0x00000002 - Multimedia	37	51	06	EA	48				01	00	00	00		C3	6F	37	03	02	00	48																11		
SetColorPreset - ComfortView	0x00000004 - Movie	37	51	06	EA	48				02	00	00	00		C5	6F	37	03	02	00	48																11		
SetColorPreset - Custom	0x00000008 - Game	37	51	06	EA	48				80	00	00	00		42	6F	37	03	02	00	48																		
SetColorPreset - Color Temp	0x00000010 - Paper	37	51	06	EA	48				20	00	00	00		E2	6F																							

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March 2025 Rev. A00