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Dell™ RS232 External Control

1. Application

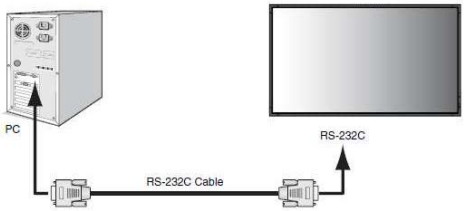
This document defines the communication method for control of the Dell LCD display P5524QT/ P6524QT/P7524QT/P8624QT when using an external controller.

2. Connectors and wiring

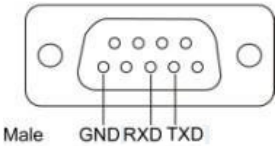
2.1 RS-232C Remote Access

Connector: 9-pin D-Sub

Cable: Straight cable or null modem cable



RS232 Pin Assignment (Facing Display)



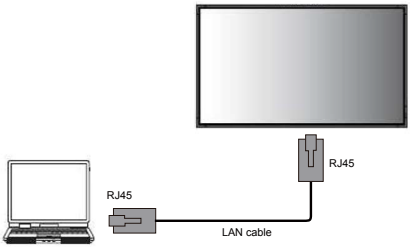
This display uses RXD, TXD and GND lines for RS-232 control.

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

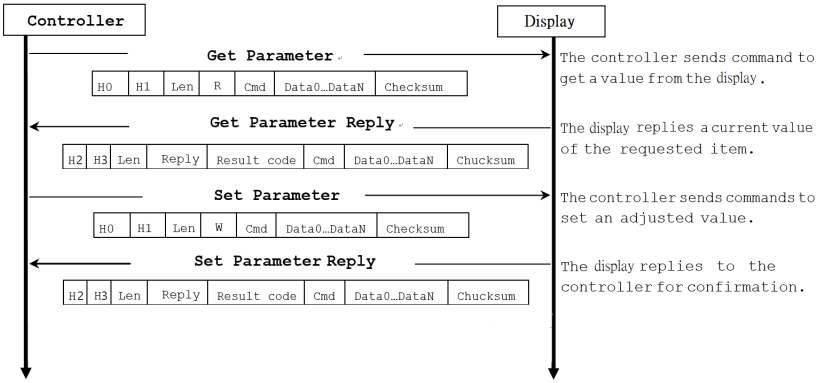
Example: Get Display Name

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

[From Display to PC] = 6F, 37, 0F, 02, 00, 01, 44, 65, 6C, 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									8E	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																	7B
SetPowerUSB - on during standby	1 - on during Standby	37	51	03	EA	22	01								AC	6F	37	03	02	00	22																	7B
ResetPower	NONE	37	51	02	EA	2F									A1	6F	37	03	02	00	2F																	76
/* IMAGE ADJUSTMENT */																																					
GetBrightness	Brightness (BYTE) 0 - 100 values in increments of 1	37	51	02	EB	30									BF	6F	37	04	02	00	30																	
SetBrightness - 75		37	51	03	EA	30	48								F4	6F	37	03	02	00	30																	69
SetBrightness - 100		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	Brightness Step 0 - Decrease (-)	37	51	03	EA	35	00								BA	6F	37	03	02	00	35																	6C
SetBrightnessStep - Increase	1 - Increase (+)	37	51	03	EA	35	01								BB	6F	37	03	02	00	35																	6C
GetContrast	Contrast (BYTE) 0 - 100 values in increments of 1	37	51	02	EB	31									BE	6F	37	04	02	00	31																	
SetContrast - 75		37	51	03	EA	31	48								F5	6F	37	03	02	00	31																	68
SetContrast - 100		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	Contrast Step 0 - Decrease (-)	37	51	03	EA	36	00								B9	6F	37	03	02	00	36																	6F
StepContrastStep - Increase	1 - Increase (+)	37	51	03	EA	36	01								B8	6F	37	03	02	00	36																	6F
GetAspectRatio	Aspect Ratio (BYTE) 0 - Wide 16:9 1 - Auto Resize 2 - 4:3	37	51	02	EB	33									BC	6F	37	04	02	00	33																	
SetAspectRatio - Wide 16:9		37	51	03	EA	33	00								BC	6F	37	03	02	00	33																	6A
SetAspectRatio - 4:3		37	51	03	EA	33	02								BE	6F	37	03	02	00	33																	6A
SetAspectRatio - 5:4		37	51	03	EA	33	04								B8	6F	37	03	02	00	33																	6A
GetSharpness	Sharpness (BYTE) 0 - 100 values in increments of 10	37	51	02	EB	34									BB	6F	37	04	02	00	34																	
SetSharpness - 50		37	51	03	EA	34	32								89	6F	37	03	02	00	34																	6D
SetSharpness - 100		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	Sharpness Step 0 - Decrease (-)	37	51	03	EA	37	00								B8	6F	37	03	02	00	37																	6E
SetSharpnessStep - Increase	1 - Increase (+)	37	51	03	EA	37	01								B9	6F	37	03	02	00	37																	6E
/* COLOR MANAGEMENT */																																					
GetColorTempCaps	Bitwise representation of color temperatures (DWORD) 0x00000001 - 5000K 0x00000002 - 5700K 0x00000004 - 6500K 0x00000008 - 7500K 0x00000010 - 9300K 0x00000020 - 10000K	37	51	02	EB	42									CD	6F	37	07	02	00	42																	
GetColorTemp		37	51	02	EB	43									CC	6F	37	07	02	00	43																	
SetColorTemp - 5000K		37	51	06	EA	43	01	00	00	00					C8	6F	37	03	02	00	43																	1A
SetColorTemp - 5700K		37	51	06	EA	43	02	00	00	00					CB	6F	37	03	02	00	43																	1A
SetColorTemp - 6500K		37	51	06	EA	43	04	00	00	00					CD	6F	37	03	02	00	43																	1A
SetColorTemp - 7500K		37	51	06	EA	43	08	00	00	00					C1	6F	37	03	02	00	43																	1A
SetColorTemp - 9300K		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) 0 - RGB 1 - YPbPr	37	51	02	EB	46									C9	6F	37	04	02	00	46																	
SetInputColorFormat - RGB		37	51	03	EA	46	00								C9	6F	37	03	02	00	46																	1F
SetInputColorFormat - YPbPr		37	51	03	EA	46	01								C8	6F	37	03	02	00	46																	1F
GetColorPresetCaps	Bitwise representation of color presets 0x00000001 - Standard 0x00000002 - Multimedia 0x00000004 - Movie 0x00000008 - Game 0x00000010 - Paper	37	51	02	EB	47									C8	6F	37	07	02	00	47																	
GetColorPreset		37	51	02	EB	48									C7	6F	37	07	02	00	48																	
SetColorPreset - Standard		37	51	06	EA	48	01	00	00	00					C3	6F	37	03	02	00	48																	11
SetColorPreset - ComfortView		37	51	06	EA	48	00	04	00	00					C6	6F	37	03	02	00	48																	11
SetColorPreset - Custom		37	51	06	EA	48	80	00	00	00					42	6F	37	03	02	00	48																	11
SetColorPreset - Color Temp		37	51	06	EA	48	20	00	00	00					E2	6F	37	03	02	00	48																	11
GetCustomColor	Custom color type (BYTE) 0 - Gain 1 - offset 2 - Hue	37	51	03	EB	49	00								C7	6F	37	06	02	00	49																	
SetCustomColor - Gain_RGB (100,100,100)		37	51	06	EA	49	00	64	64	64					A7	6F	37	03	02	00	49																	10
SetCustomColor - Gain_RGB (50,50,50)		37	51	06	EA	49	00	32	32	32					F1	6F	37	03	02	00	49																	10
SetCustomColor - Gain_RGB (0,0,0)		37	51	06	EA	49	00	00	00	00					C3	6F	37	03	02	00	49																	10
ResetColor	NONE	37	51	02	EA	4F									C1	6F	37	03	02	00	4F																	16

/* VIDEO INPUT MANAGEMENT */																				
GetAutoSelect	Auto Select (BYTE) 0 - off 1 - on	37	51	02	EB	60							EF	6F	37	04	02	00	60	
SetAutoSelect - off		37	51	03	EA	60	00						EF	6F	37	03	02	00	60	39
SetAutoSelect - on		37	51	03	EA	60	01						EE	6F	37	03	02	00	60	39
GetVideoInputCaps	Bitwise representation of video inputs (DWORD) 0x00000001 - HDMI1/MHL1 0x00000002 - HDMI2/MHL2 0x00000004 - HDMI3 0x00000008 - DP1 0x00000010 - DP2 0x00000020 - DP3 0x00000040 - VGA1 0x00000080 - VGA2 0x00000100 - DVI1 0x00000200 - DVI2	37	51	02	EB	61							EE	6F	37	07	02	00	61	
GetVideoInput		37	51	02	EB	62							ED	6F	37	07	02	00	62	
SetVideoInput - HDMI1		37	51	06	EA	62	01	00	00	00			E9	6F	37	03	02	00	62	3B
SetVideoInput - HDMI2		37	51	06	EA	62	02	00	00	00			EA	6F	37	03	02	00	62	3B
SetVideoInput - HDMI3		37	51	06	EA	62	04	00	00	00			EC	6F	37	03	02	00	62	3B
SetVideoInput - DP1		37	51	06	EA	62	08	00	00	00			E0	6F	37	03	02	00	62	3B
SetVideoInput - USB-C		37	51	06	EA	62	00	10	00	00			F8	6F	37	03	02	00	62	3B
/* OSD MANAGEMENT */																				
GetOSDTransparency	OSD Transparency (BYTE) 0 - 100 values in increments of 20	37	51	02	EB	80							0F	6F	37	04	02	00	80	
SetOSDTransparency - 20		37	51	03	EA	80	14						1B	6F	37	03	02	00	80	D9
SetOSDTransparency - 100		37	51	03	EA	80	64						6B	6F	37	03	02	00	80	D9
SetOSDTransparency - 0		37	51	03	EA	80	00						0F	6F	37	03	02	00	80	D9
GetOSDLanguage	OSD Language (BYTE) 0 - English 1 - Español 2 - Français 3 - Deutsch 4 - Português (Brasil) 5 - Русский 6 - 简体中文 7 - 日本語	37	51	02	EB	81							0E	6F	37	04	02	00	81	
SetOSDLanguage - English		37	51	03	EA	81	00						0E	6F	37	03	02	00	81	D8
SetOSDLanguage - Español		37	51	03	EA	81	01						0F	6F	37	03	02	00	81	D8
SetOSDLanguage - Français		37	51	03	EA	81	02						0C	6F	37	03	02	00	81	D8
SetOSDLanguage - Deutsch		37	51	03	EA	81	03						0D	6F	37	03	02	00	81	D8
SetOSDLanguage - Português (Brasil)		37	51	03	EA	81	04						0A	6F	37	03	02	00	81	D8
SetOSDLanguage - Русский		37	51	03	EA	81	05						0B	6F	37	03	02	00	81	D8
SetOSDLanguage - 简体中文		37	51	03	EA	81	06						08	6F	37	03	02	00	81	D8
SetOSDLanguage - 日本語		37	51	03	EA	81	07						09	6F	37	03	02	00	81	D8
GetOSDTimer	OSD Timer (BYTE) 5 - 60 seconds values in increments of 1	37	51	02	EB	83							0C	6F	37	04	02	00	83	
SetOSDTimer - 20		37	51	03	EA	83	14						18	6F	37	03	02	00	83	DA
SetOSDTimer - 60		37	51	03	EA	83	3C						30	6F	37	03	02	00	83	DA
SetOSDTimer - 5		37	51	03	EA	83	05						09	6F	37	03	02	00	83	DA
GetOSDButtonLock	OSD Button Lock (BYTE) 0 - Unlock 1 - Lock	37	51	02	EB	84							0B	6F	37	04	02	00	84	
SetOSDButtonLock - Unlock		37	51	03	EA	84	00						0B	6F	37	03	02	00	84	DD
SetOSDButtonLock - Lock		37	51	03	EA	84	01						0A	6F	37	03	02	00	84	DD
GetKioskMode	Kiosk Mode (BYTE) 0 - Disable 1 - Enable	37	51	02	EB	85							0A	6F	37	04	02	00	85	
SetKioskMode - Disable		37	51	03	EA	85	00						0A	6F	37	03	02	00	85	DC
SetKioskMode - Enable		37	51	03	EA	85	01						0B	6F	37	03	02	00	85	DC
ResetOSD	NONE	37	51	03	EA	8F	01						01	6F	37	03	02	00	8F	D6
/* SYSTEM MANAGEMENT */																				
GetVersionFirmware	Max 10 chars (in ASCII)	37	51	02	EB	A0							2F	6F	37	09	02	00	A0	
GetDDCCI	DDCCI (BYTE) 0 - Disabled 1 - Enabled	37	51	02	EB	A2							2D	6F	37	04	02	00	A2	
SetDDCCI - Enable		37	51	03	EA	A2	01						2C	6F	37	03	02	00	A2	FB
SetDDCCI - Disable		37	51	03	EA	A2	00						2D	6F	37	03	02	00	A2	FB
GetLCDConditioning	LCD Conditioning (BYTE) 0 - Disabled 1 - Enabled	37	51	02	EB	A3							2C	6F	37	04	02	00	A3	
SetLCDConditioning - Disable		37	51	03	EA	A3	00						2C	6F	37	03	02	00	A3	FA
SetLCDConditioning - Enable		37	51	03	EA	A3	01						2D	6F	37	03	02	00	A3	FA
SetIPAddressOSD	IPv4 Address (4 BYTE)	37	51	06	EA	A4	0A	00	32	64			72	6F	37	03	02	00	A4	FD
FactoryReset	NONE	37	51	02	EA	AF							21	6F	37	03	02	00	AF	F6
/* AUDIO MANAGEMENT */																				
GetVolumeInput	Volume (BYTE) 0 - 100 values in increments of 1	37	51	02	EB	B0							3F	6F	37	04	02	00	B0	
SetVolumeInput - 0		37	51	03	EA	B0	00						3F							
SetVolumeInput - 50		37	51	03	EA	B0	32						0D							
SetVolumeInput - 100		37	51	03	EA	B0	64						5B	6F	37	03	02	00	B0	E9
SetVolumeStep -Decrease	Volume Step 0 - Decrease (-) 1 - Increase (+)	37	51	03	EA	B3	00						3C	6F	37	03	02	00	B3	EA
SetVolumeStep -Increase		37	51	03	EA	B3	01						3D	6F	37	03	02	00	B3	EA
GetSpeakerMute	Mute (BYTE) 0 - Disabled 1 - Enabled	37	51	02	EB	B1							3E	6F	37	04	02	00	B1	
SetSpeakerMute - Unmute		37	51	03	EA	B1	00						3E	6F	37	03	02	00	B1	E8
SetSpeakerMute - Mute		37	51	03	EA	B1	01						3F	6F	37	03	02	00	B1	E8
AudioReset	NONE	37	51	02	EA	BF							31	6F	37	03	02	00	BF	E6

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