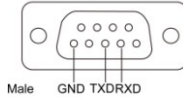


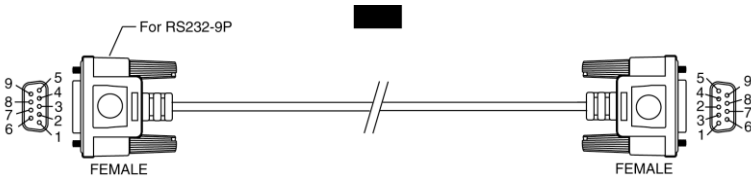


Dell™ S520 RS232 Protocol Document

- **RS232 Projector Pin Assignment (Facing Projector)**




- **RS232 Serial Communication Cable Pin Assignment (Facing Cable)**



- ◆ **Pin Assignments**

RS232	PIN DESCRIPTION	RS232
1		
2	TXD	3
3	RXD	2
4		
5	GROUND	5
6		
7	Not Used	7
8	Not Used	8
9		

 **Note 1:** The RS232 (pin2-3 swap) cable is not provided by Dell.

- **RS232 Protocol Communication Settings**

Connection Settings	Value
Baud Rate	19200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow control	None

- ◆ **Command Types**

To display the OSD menu and adjust the settings.

Control Command Syntax (From PC to Projector)

[H][AC][SoP][CRC][ID][SoM][COMMAND]
[H][AC][SoP][CRC][ID][SoM][COMMAND][Value]

Example: Power On Command (Send Low Byte Firstly)

Enter the following code:

0xbe, 0xef, 0x10, 0x05, 0x00, 0xc6, 0xff, 0x11, 0x11, 0x01, 0x00, 0x01

Header [H] ==> Fixed, "be (Low Byte), ef (High Byte)"

Address Code [AC] ==> Fixed, "10"

Size of Payload [SoP] ==> Byte size from MsgID to Command Code, "05 (Low Byte), 00 (High Byte)" or Byte size from MsgID to Value, "06 (Low Byte), 00 (High Byte)".

CRC16 [CRC] ==> CRC value, "c6 (Low Byte), ff (High Byte)"

MsgID [ID] ==> Fixed, "11 11"

MsgSize [SoM] ==> Byte size of Command Code, "01 (Low Byte), 00 (High Byte)" or Byte size of Command Code and Value, "02 (Low Byte), 00 (High Byte)"

Command Code [COMMAND] ==> "Power On" Command, "01"

Projector Response Message Table

Byte0 value:

0x00: Success

0x01: Invalid Command (on the control command list but no valid)

0x02: Error Command (includes CRC error and unknown commands)

Projector Response System Status

Byte0, Byte1, Byte2

Byte0: 0x00 (Success)

Byte1: 0xff (the Command Code of System Status)

Byte2: Return status

Ex: When the projector is in standby mode, the return status will be 0x01.

Projector Response Lamp Hour

Byte0, Byte1, Byte2, Byte3

Byte0: 0x00 (Success)

Byte1: 0x2f (the Command Code of Lamp Hour)

Byte2: LSB (Hex)

Byte3: MSB (Hex)

Ex: 800 (3x256 + 2x16 = 800) hours --> 0x00, 0x2f, 0x20, 0x03

Firmware Version Response

Byte0, Byte1, Byte2, Byte3...Byte7

Byte0: 0x00 (Success)

Byte1: 0x30 (the Command Code of Firmware Version)

Byte2...Byte7

Firmware version: 6 Bytes ASCII Code: "MORXXX"

XXX: 000-999

Ex: Version M0R001 → "M0R001" → 0x4d, 0x30, 0x52, 0x30, 0x30, 0x31
(Success, the Command Code of FW Version, 6 Bytes ASCII Code: "MORXXX")

Control Commands List

Command Description	Header (WORD)	Address Code (BYTE)	Size Of The Payload (WORD)	CRC16 For The Entire Packet (WORD)	Msg ID (WORD)	Msg Size (WORD)	Command Code (BYTE)	Value (BYTE)	Comment
Power On	0xfbe	0x10	0x0005	0xffc6	0x1111	0x0001	0x01		See Note 2
Menu	0xfbe	0x10	0x0005	0xbf7	0x1111	0x0001	0x02		
Up	0xfbe	0x10	0x0005	0x7e07	0x1111	0x0001	0x03		
Down	0xfbe	0x10	0x0005	0x3fc5	0x1111	0x0001	0x04		
Left	0xfbe	0x10	0x0005	0xfe05	0x1111	0x0001	0x05		
Right	0xfbe	0x10	0x0005	0xbe04	0x1111	0x0001	0x06		
R-sync	0xfbe	0x10	0x0005	0x7fc4	0x1111	0x0001	0x07		
Source Search	0xfbe	0x10	0x0005	0x3fc0	0x1111	0x0001	0x08		
Volume +	0xfbe	0x10	0x0005	0xfe00	0x1111	0x0001	0x09		
Volume -	0xfbe	0x10	0x0005	0xbe01	0x1111	0x0001	0x0a		
Zoom In	0xfbe	0x10	0x0005	0x7fc1	0x1111	0x0001	0x0b		
Zoom Out	0xfbe	0x10	0x0005	0x3e03	0x1111	0x0001	0x0c		
Mute On	0xfbe	0x10	0x0005	0xffc3	0x1111	0x0001	0x0d		
Freeze	0xfbe	0x10	0x0005	0xbf2	0x1111	0x0001	0x0e		
Hide	0xfbe	0x10	0x0005	0x7e02	0x1111	0x0001	0x0f		
Video Mode	0xfbe	0x10	0x0005	0x3fca	0x1111	0x0001	0x10		Toggle
V. Keystone Up	0xfbe	0x10	0x0005	0x7fcb	0x1111	0x0001	0x13		
V. Keystone Down	0xfbe	0x10	0x0005	0x3e09	0x1111	0x0001	0x14		
Aspect Ratio (Original/4:3/Wide)	0xfbe	0x10	0x0005	0x7e08	0x1111	0x0001	0x17		Toggle
Power Off	0xfbe	0x10	0x0005	0x3e0c	0x1111	0x0001	0x18		
Source-VGA	0xfbe	0x10	0x0005	0xffcc	0x1111	0x0001	0x19		
Analog-A	0xfbe	0x10	0x0005	0x3e0c	0x1111	0x0001	0x19		
Source-S-Video	0xfbe	0x10	0x0005	0x3e1f	0x1111	0x0001	0x22		
Source-Composite	0xfbe	0x10	0x0005	0x7fdf	0x1111	0x0001	0x23		
Current Source	0xfbe	0x10	0x0005	0xbfdc	0x1111	0x0001	0x26		0x00: No Source 0x01: VGA-A 0x02: VGA-B 0x03: HDMI 0x04: S-Video 0x05: Composite 0x07: Wireless Display 0x08: USB Display 0x09: USB Viewer 0x0a: Intel® WiDi 0x0b: Internal Memory
V. Keystone Read	0xfbe	0x10	0x0005	0x3e18	0x1111	0x0001	0x28		
Lamp-Mode-ECO	0xfbe	0x10	0x0005	0xbfd9	0x1111	0x0001	0x2a		
Lamp-Mode-Normal	0xfbe	0x10	0x0005	0x7e19	0x1111	0x0001	0x2b		
Auto Source On	0xfbe	0x10	0x0005	0x3fdb	0x1111	0x0001	0x2c		
Auto Source Off	0xfbe	0x10	0x0005	0xfe1b	0x1111	0x0001	0x2d		
Factory Reset	0xfbe	0x10	0x0005	0x3e1a	0x1111	0x0001	0x2e		
Lamp- Hours	0xfbe	0x10	0x0005	0x7fda	0x1111	0x0001	0x2f		
Firmware Version	0xfbe	0x10	0x0005	0x3e12	0x1111	0x0001	0x30		
Aspect Ratio Read	0xfbe	0x10	0x0005	0xbfd3	0x1111	0x0001	0x32		Feedback: 0x00: Original(1:1) 0x01: 4:3 0x02: Wide(16:10)
Projector Mode Write	0xfbe	0x10	0x0006	0x9ae3	0x1111	0x0002	0x33	0x02,0x04	0x02: Front, Ceiling 0x04: Rear, Ceiling
Projector Mode Read	0xfbe	0x10	0x0005	0x3fd1	0x1111	0x0001	0x34		0x02: Front, Ceiling 0x04: Rear, Ceiling
Brightness Write	0xfbe	0x10	0x0006	0x1ae1	0x1111	0x0002	0x35	0x00~0x64	Range (0x00~0x64)
Brightness Read	0xfbe	0x10	0x0005	0x3e10	0x1111	0x0001	0x36		Range (0x00~0x64)
Contrast Write	0xfbe	0x10	0x0006	0x9b20	0x1111	0x0002	0x37	0x00~0x64	Range (0x00~0x64)
Contrast Read	0xfbe	0x10	0x0005	0x3fd4	0x1111	0x0001	0x38		Range (0x00~0x64)
Color Temperature Write	0xfbe	0x10	0x0006	0x1ae4	0x1111	0x0002	0x39	0x01~0x04	0x01: Low 0x02: Mid 0x03: High 0x04: Custom
Color Temperature Read	0xfbe	0x10	0x0005	0x3e15	0x1111	0x0001	0x3a		0x01: Low 0x02: Mid 0x03: High 0x04: Custom
Saturation Write	0xfbe	0x10	0x0006	0x9b25	0x1111	0x0002	0x3b	0x00~0x64	Range (0x00~0x64)
Saturation Read	0xfbe	0x10	0x0005	0x3e17	0x1111	0x0001	0x3c		Range (0x00~0x64)
Sharpness Write	0xfbe	0x10	0x0006	0x1b27	0x1111	0x0002	0x3d	0x00~0x1f	Range (0x00~0x1f)
Sharpness Read	0xfbe	0x10	0x0005	0xbfd6	0x1111	0x0001	0x3e		Range (0x00~0x1f)
Tint Write	0xfbe	0x10	0x0006	0x9ae6	0x1111	0x0002	0x3f	0x00~0x64	Range (0x00~0x64)

Enter	0xfbe	0x10	0x0005	0x3ff6	0x1111	0x0001	0x40	
Tint Read	0xfbe	0x10	0x0005	0xfe36	0x1111	0x0001	0x41	Range (0x00~0x64)
Video Mode Read	0xfbe	0x10	0x0005	0xbe37	0x1111	0x0001	0x42	0x00: Presentation Mode 0x01: Bright Mode 0x02: Movie Mode 0x03: sRGB Mode 0x04: Custom Mode
Color Space Write	0xfbe	0x10	0x0006	0x9b07	0x1111	0x0002	0x43	0x01~0x03 0x01: RGB 0x02: YCbCr 0x03: YPbPr
Color Space Read	0xfbe	0x10	0x0005	0x3e35	0x1111	0x0001	0x44	0x01: RGB 0x02: YCbCr 0x03: YPbPr
White Intensity Write	0xfbe	0x10	0x0006	0x1b05	0x1111	0x0002	0x45	0x00~0x0a Range (0x00~0x0a)
White Intensity Read	0xfbe	0x10	0x0005	0xbf4	0x1111	0x0001	0x46	Range (0x00~0x0a)
H. Position Write	0xfbe	0x10	0x0006	0x1b00	0x1111	0x0002	0x49	0x00~0x64 Range(0x00~0x64) See Note 3
H. Position Read	0xfbe	0x10	0x0005	0xbf1	0x1111	0x0001	0x4a	Range(0x00~0x64) See Note 3
V. Position Write	0xfbe	0x10	0x0006	0x9ac1	0x1111	0x0002	0x4b	0xfb~0xff, 0x00 Range(0xfb~0x00) See Note 3
V. Position Read	0xfbe	0x10	0x0005	0x3ff3	0x1111	0x0001	0x4c	Range(0xfb~0x00) See Note 3
Current Language Write	0xfbe	0x10	0x0006	0x1ac3	0x1111	0x0002	0x4d	0x01~0x10 0x01: English 0x02: German 0x03: French 0x04: Italian 0x05: Spanish 0x06: Polish 0x07: Swedish 0x08: Dutch 0x09: Iberian Portuguese 0x0a: Japanese 0x0b: T_Chinese 0x0c: S_Chinese 0x0d: Korean 0x0e: Russian 0x0f: Arabic 0x10: Turkish
Current Language Read	0xfbe	0x10	0x0005	0xbe32	0x1111	0x0001	0x4e	0x01: English 0x02: German 0x03: French 0x04: Italian 0x05: Spanish 0x06: Polish 0x07: Swedish 0x08: Dutch 0x09: Iberian Portuguese 0x0a: Japanese 0x0b: T_Chinese 0x0c: S_Chinese 0x0d: Korean 0x0e: Russian 0x0f: Arabic 0x10: Turkish
Volume Read	0xfbe	0x10	0x0005	0x7ff2	0x1111	0x0001	0x4f	Range (0x00~0x14)
Source-HDMI	0xfbe	0x10	0x0005	0x3e3a	0x1111	0x0001	0x50	
Password	0xfbe	0x10	0x0009	0xaaf9	0x1111	0x0005	0x56	0x30~0x39 0x41~0x5a 4byte: Original Password
Change Password	0xfbe	0x10	0x000d	0x99fa	0x1111	0x0009	0x57	0x30~0x39 0x41~0x5a 4byte: Original Password 4byte: New Password
H. Frequency	0xfbe	0x10	0x0005	0xfe3c	0x1111	0x0001	0x59	(KHz)
V. Frequency	0xfbe	0x10	0x0005	0xbe3d	0x1111	0x0001	0x5a	(Hz)
H. Sync Polarity	0xfbe	0x10	0x0005	0x7ff d	0x1111	0x0001	0x5b	0x01: Negative 0x02: Postivite
V. Sync Polarity	0xfbe	0x10	0x0005	0x3e3f	0x1111	0x0001	0x5c	0x01: Negative 0x02: Postivite
Mute Off	0xfbe	0x10	0x0005	0x7e3e	0x1111	0x0001	0x5f	
Get Mute State	0xfbe	0x10	0x0005	0xffe	0x1111	0x0001	0x61	0x00: Mute Off 0x01: Mute On
Unfreeze	0xfbe	0x10	0x0005	0xbfef	0x1111	0x0001	0x62	
Unhide	0xfbe	0x10	0x0005	0x3fed	0x1111	0x0001	0x64	
Get Hide State	0xfbe	0x10	0x0005	0xfe2d	0x1111	0x0001	0x65	0x00: Unhide 0x01: Hide

OSD Transparency Write	0xfbe	0x10	0x0006	0x5adc	0x1111	0x0002	0x66	0x00~0x0f	Range (0x00~0x0f)
OSD Transparency Read	0xfbe	0x10	0x0005	0x7fec	0x1111	0x0001	0x67		Range (0x00~0x0f)
Volume Write	0xfbe	0x10	0x0006	0xdb18	0x1111	0x0002	0x68	0x00~0x14	Range (0x00~0x14)
Source-VGA Analog-B	0xfbe	0x10	0x0005	0xfe28	0x1111	0x0001	0x69		
Temp Alert	0xfbe	0x10	0x0005	0xbe29	0x1111	0x0001	0x6a		0x00: Normal 0x01: Abnormal
Exit Lockup	0xfbe	0x10	0x0005	0xffeb	0x1111	0x0001	0x6d		
Closed Captions	0xfbe	0x10	0x0006	0x7e2a	0x1111	0x0002	0x6f	0x00~0x04	0x00: Off 0x01: CC1 0x02: CC2 0x03: CC3 0x04: CC4
Lamp Mode Dynamic	0xfbe	0x10	0x0005	0x3fe2	0x1111	0x0001	0x70		
Lamp Mode Extreme Dimming	0xfbe	0x10	0x0005	0xfe22	0x1111	0x0001	0x71		
Power Saving	0xfbe	0x10	0x0006	0xfe66	0x1111	0x0002	0x81	0x00~0x78	0x00, 0x05, 0x0a, 0x0f, 0x14, 0x19, 0x1e, 0x23, 0x28, 0x2d, 0x32, 0x37, 0x3c, 0x41, 0x46, 0x4b, 0x50, 0x55, 0x5a, 0x5f, 0x64, 0x69, 0x6e, 0x73, 0x78
Quick Shutdown	0xfbe	0x10	0x0006	0xbe67	0x1111	0x0002	0x82	0x00~0x01	0x00: No 0x01: Yes
Lamp-Mode Read	0xfbe	0x10	0x0005	0x7fa7	0x1111	0x0001	0x83		0x00: Eco 0x01: Normal 0x02: Dynamic 0x03: Extreme Dimming
Operating Hours	0xfbe	0x10	0x0005	0x3e65	0x1111	0x0001	0x84		Hours (2 byte)
Password Off	0xfbe	0x10	0x0005	0xffa5	0x1111	0x0001	0x85		
Password Delete	0xfbe	0x10	0x0005	0xbfa4	0x1111	0x0001	0x86		
Zoom Status	0xfbe	0x10	0x0005	0xffa0	0x1111	0x0001	0x89		Range (0x01~0x0a) 0x00, 0x05, 0x0a, 0x0f, 0x14, 0x19, 0x1e, 0x23, 0x28, 0x2d, 0x32, 0x37, 0x3c, 0x41, 0x46, 0x4b, 0x50, 0x55, 0x5a, 0x5f, 0x64, 0x69, 0x6e, 0x73, 0x78
Power Saving Status	0xfbe	0x10	0x0005	0xbfa1	0x1111	0x0001	0x8a		0x01: Standby 0x02: Warm Up 0x03: Power On 0x04: Cooling 0x05: Power Saving
Source-Wireless Display	0xfbe	0x10	0x0005	0x7e61	0x1111	0x0001	0x8b		
Wireless Off	0xfbe	0x10	0x0005	0x3fa3	0x1111	0x0001	0x8c		
Wireless On	0xfbe	0x10	0x0005	0xfe63	0x1111	0x0001	0x8d		
Source-USB Display	0xfbe	0x10	0x0005	0xbe62	0x1111	0x0001	0x8e		
Source-USB Viewer	0xfbe	0x10	0x0005	0x7fa2	0x1111	0x0001	0x8f		
Source- Intel® WiDi	0xfbe	0x10	0x0005	0x3fac	0x1111	0x0001	0x98		
Source-Internal Memory	0xfbe	0x10	0x0005	0xfe6c	0x1111	0x0001	0x99		
System Status	0xfbe	0x10	0x0005	0x7e46	0x1111	0x0001	0xff		



Note 2: After power on the projector, wait for 5 seconds before sending next command.

Note 3: The range will depend on VGA input resolution.

Note 4: If sending multiple commands, check that a response has been received from the projector before sending next command.

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