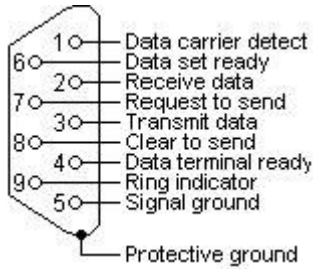


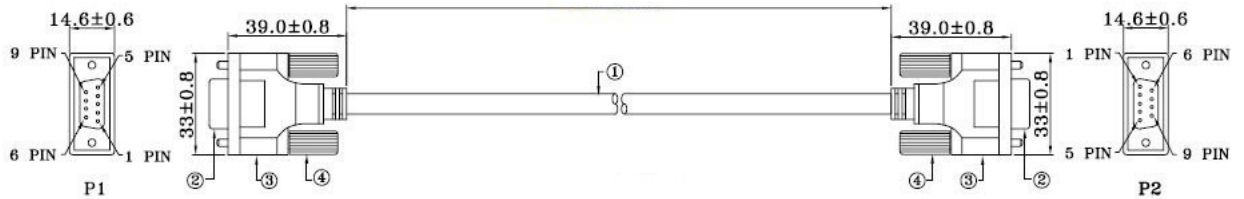


Dell™ 1420/1430 RS232 Protocol Document

● RS232 Projector Pin Assignment



● RS232 Serial Communication Cable Pin Assignment



◆ Pin Assignments

RS232(FEMALE) P1	PIN DESCRIPTION	RS232(FEMALE) P2
1		1
2	RXD	3
3	TXD	2
4		4
5	GROUND	5
6		6
7	RTSZ(Not Used)	8
8	CTS(Not Used)	7
9		9
Case	CASE DRAIN WIRE CASE	Case

- **RS232 Protocol**
Communication Settings

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

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 ($3 \times 256 + 2 \times 16 = 800$) 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: "M0RXXX"

XXX: 000-999

Ex: Version M0R001 "M0R001" 0x4d, 0x30, 0x52, 0x30, 0x30, 0x31 (Success, the Command Code of FW Version, 6 Bytes ASCII Code: "M0RXXX")

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	0xefbe	0x10	0x0005	0xffc6	0x1111	0x0001	0x01		See Note 2
Menu	0xefbe	0x10	0x0005	0xbfc7	0x1111	0x0001	0x02		
Up	0xefbe	0x10	0x0005	0x7e07	0x1111	0x0001	0x03		
Down	0xefbe	0x10	0x0005	0x3fc5	0x1111	0x0001	0x04		
Left	0xefbe	0x10	0x0005	0xfe05	0x1111	0x0001	0x05		
Right	0xefbe	0x10	0x0005	0xbe04	0x1111	0x0001	0x06		
R-sync	0xefbe	0x10	0x0005	0x7fc4	0x1111	0x0001	0x07		
Source Search	0xefbe	0x10	0x0005	0x3fc0	0x1111	0x0001	0x08		
Volume+	0xefbe	0x10	0x0005	0xfe00	0x1111	0x0001	0x09		
Volume-	0xefbe	0x10	0x0005	0xbe01	0x1111	0x0001	0x0a		
Zoom In	0xefbe	0x10	0x0005	0x7fc1	0x1111	0x0001	0x0b		
Zoom Out	0xefbe	0x10	0x0005	0x3e03	0x1111	0x0001	0x0c		
Mute On	0xefbe	0x10	0x0005	0xffc3	0x1111	0x0001	0x0d		
Freeze	0xefbe	0x10	0x0005	0xbfc2	0x1111	0x0001	0x0e		
Video Mode	0xefbe	0x10	0x0005	0x3fca	0x1111	0x0001	0x10		Toggle
V.Keystone Up	0xefbe	0x10	0x0005	0x7fcb	0x1111	0x0001	0x13		
V.Keystone Down	0xefbe	0x10	0x0005	0x3e09	0x1111	0x0001	0x14		
Aspect Ratio (Original/4:3/Wide)	0xefbe	0x10	0x0005	0x7e08	0x1111	0x0001	0x17		Toggle
Power Off	0xefbe	0x10	0x0005	0x3e0c	0x1111	0x0001	0x18		
Source-VGA Analog-A	0xefbe	0x10	0x0005	0xffcc	0x1111	0x0001	0x19		
Source-S-Video	0xefbe	0x10	0x0005	0xbe1f	0x1111	0x0001	0x22		
Source-Composite	0xefbe	0x10	0x0005	0x7fdf	0x1111	0x0001	0x23		
Key Pad Lock On	0xefbe	0x10	0x0005	0x3e1d	0x1111	0x0001	0x24		
Key Pad Lock Off	0xefbe	0x10	0x0005	0xffdd	0x1111	0x0001	0x25		

									0x00: No Source
									0x01: VGA-A
									0x02: VGA-B
									0x03: HDMI
Current Source	0xefbe	0x10	0x0005	0xbfdc	0x1111	0x0001	0x26		0x04: S-Video
									0x05: Composite
									0x07: Wireless Display
									0x08: USB Display
									0x09: USB Viewer
V. Keystone Read	0xefbe	0x10	0x0005	0x3e18	0x1111	0x0001	0x28		
Auto Keystone Write	0xefbe	0x10	0x0006	0x1b28	0x1111	0x0002	0x29	0x00-0x01	0x00: No. Off
									0x01: Yes. On
Lamp-Mode-ECO	0xefbe	0x10	0x0005	0xbfd9	0x1111	0x0001	0x2a		
Lamp-Mode-Normal	0xefbe	0x10	0x0005	0x7e19	0x1111	0x0001	0x2b		
Auto Source On	0xefbe	0x10	0x0005	0x3fdb	0x1111	0x0001	0x2c		
Auto Source Off	0xefbe	0x10	0x0005	0xfe1b	0x1111	0x0001	0x2d		
Factory Reset	0xefbe	0x10	0x0005	0xbe1a	0x1111	0x0001	0x2e		
Lamp-Hours	0xefbe	0x10	0x0005	0x7fda	0x1111	0x0001	0x2f		
Firmware Version	0xefbe	0x10	0x0005	0x3e12	0x1111	0x0001	0x30		
Auto Keystone Read	0xefbe	0x10	0x0005	0xffd2	0x1111	0x0001	0x31		0x00: No. Off
									0x01: Yes. On
Aspect Ratio Read	0xefbe	0x10	0x0005	0xbfd3	0x1111	0x0001	0x32		Feedback:
									0x00: Original (1:1)
									0x01: 4:3
									0x02: Wide(16:9)
Projector Mode Write	0xefbe	0x10	0x0006	0x9ae3	0x1111	0x0002	0x33	0x01-0x04	0x01: Front
									0x02: Front, Ceiling
									0x03: Rear
									0x04: Rear, Ceiling
Projector Mode Read	0xefbe	0x10	0x0005	0x3fd1	0x1111	0x0001	0x34		0x01: Front
									0x02: Front, Ceiling
									0x03: Rear
									0x04: Rear, Ceiling
Brightness Write	0xefbe	0x10	0x0006	0x1ae1	0x1111	0x0002	0x35	0x00-0x64	Range (0x00-0x64)
Brightness Read	0xefbe	0x10	0x0005	0xbe10	0x1111	0x0001	0x36		Range (0x00-0x64)
Contrast Write	0xefbe	0x10	0x0006	0x9b20	0x1111	0x0002	0x37	0x00-0x64	Range (0x00-0x64)
Contrast Read	0xefbe	0x10	0x0005	0x3fd4	0x1111	0x0001	0x38		Range (0x00-0x64)

Color Temperature Write	0xefbe	0x10	0x0006	0x1ae4	0x1111	0x0002	0x39	0x01~0x04	0x01: Low 0x02: Mid 0x03: High 0x04: Custom
Color Temperature Read	0xefbe	0x10	0x0005	0xbe15	0x1111	0x0001	0x3a		0x01: Low 0x02: Mid 0x03: High 0x04: Custom
Saturation Write	0xefbe	0x10	0x0006	0x9b25	0x1111	0x0002	0x3b	0x00~0x64	Range (0x00~0x64)
Saturation Read	0xefbe	0x10	0x0005	0x3e17	0x1111	0x0001	0x3c		Range (0x00~0x64)
Sharpness Write	0xefbe	0x10	0x0006	0x1b27	0x1111	0x0002	0x3d	0x00~0x1f	Range (0x00~0x1f)
Sharpness Read	0xefbe	0x10	0x0005	0xbf6	0x1111	0x0001	0x3e		Range (0x00~0x1f)
Tint Write	0xefbe	0x10	0x0006	0x9ae6	0x1111	0x0002	0x3f	0x00~0x64	Range (0x00~0x64)
Enter	0xefbe	0x10	0x0005	0x3ff6	0x1111	0x0001	0x40		
Tint Read	0xefbe	0x10	0x0005	0xfe36	0x1111	0x0001	0x41		Return INVALID Else Video
Video Mode Read	0xefbe	0x10	0x0005	0xbe37	0x1111	0x0001	0x42		0x00: Presentation Mode 0x01: Bright Mode 0x02: Movie Mode 0x03: sRGB Mode 0x04: Custom Mode
Color Space Write	0xefbe	0x10	0x0006	0x9b07	0x1111	0x0002	0x43	0x01~0x03	0x01: RGB 0x02: YCbCr 0x03: YPbPr
Color Space Read	0xefbe	0x10	0x0005	0x3e35	0x1111	0x0001	0x44		0x01: RGB 0x02: YCbCr 0x03: YPbPr
White Intensity Write	0xefbe	0x10	0x0006	0x1b05	0x1111	0x0002	0x45	0x00~0x0a	Range (0x00~0x0a)
White Intensity Read	0xefbe	0x10	0x0005	0xbff4	0x1111	0x0001	0x46		Range (0x00~0x0a)
H. Position Write	0xefbe	0x10	0x0006	0x1b00	0x1111	0x0002	0x49	0x00~0x64	Range(0x00~0x64) See Note 3
H. Position Read	0xefbe	0x10	0x0005	0xbff1	0x1111	0x0001	0x4a		Return INVALID if not Analog RGB See Note 3
V. Position Write	0xefbe	0x10	0x0006	0x9ac1	0x1111	0x0002	0x4b	0x00~0x64	Range(0x00~0x64) See Note 3
V. Position Read	0xefbe	0x10	0x0005	0x3ff3	0x1111	0x0001	0x4c		Return INVALID if not

Audio Source Read	0xefbe	0x10	0x0005	0xfe39	0x1111	0x0001	0x55		0x01: Audio-A 0x02: Audio-B 0x03: Audio-C 0x04: HDMI 0x07: Wireless/LAN
Password	0xefbe	0x10	0x0009	0xaa9	0x1111	0x0005	0x56		4byte: Original Password
Change Password	0xefbe	0x10	0x000d	0x99fa	0x1111	0x0009	0x57		4byte: Original Password 4byte: New Password
H. Frequency	0xefbe	0x10	0x0005	0xfe3c	0x1111	0x0001	0x59		(KHz)
V. Frequency	0xefbe	0x10	0x0005	0xbe3d	0x1111	0x0001	0x5a		(Hz)
H. Sync Polarity	0xefbe	0x10	0x0005	0x7ffd	0x1111	0x0001	0x5b		0x01: Negative 0x02: Positive
V. Sync Polarity	0xefbe	0x10	0x0005	0x3e3f	0x1111	0x0001	0x5c		0x01: Negative 0x02: Positive
Key Pad Lock State	0xefbe	0x10	0x0005	0xffff	0x1111	0x0001	0x5d		0x01: Key Pad Lock On 0x02: Key Pad Lock Off
Mute Off	0xefbe	0x10	0x0005	0x7e3e	0x1111	0x0001	0x5f		
Get Mute State	0xefbe	0x10	0x0005	0xffee	0x1111	0x0001	0x61		0x00: Mute Off 0x01: Mute On
Freeze Off	0xefbe	0x10	0x0005	0xbfef	0x1111	0x0001	0x62		
OSD Transparency Write	0xefbe	0x10	0x0006	0x5adc	0x1111	0x0002	0x66	0x00-0x0f	Range (0x00-0x0f)
OSD Transparency Read	0xefbe	0x10	0x0005	0x7fec	0x1111	0x0001	0x67		Range (0x00-0x0f)
Volume Write	0xefbe	0x10	0x0006	0xdb18	0x1111	0x0002	0x68	0x00-0x14	Range (0x00-0x14)
Source-VGA Analog-B	0xefbe	0x10	0x0005	0xfe28	0x1111	0x0001	0x69		
Temp Alert	0xefbe	0x10	0x0005	0xbe29	0x1111	0x0001	0x6a		0x00: Normal 0x01: abnormal
Exit Lookup	0xefbe	0x10	0x0005	0xffeb	0x1111	0x0001	0x6d		
Closed Captions	0xefbe	0x10	0x0006	0x9ada	0x1111	0x0002	0x6f	0x00-0x04	0x00: Off 0x01: CC1 0x02: CC2 0x03: CC3 0x04: CC4
Power Saving	0xefbe	0x10	0x0006	0x1a96	0x1111	0x0002	0x81	0x00,1e,3c, 5a,78	0x00: Off 0x1e: 30 min 0x3c: 60 min

0x5a: 90 min

0x78: 120 min

Quick Shutdown	0xefbe	0x10	0x0006	0x5a97	0x1111	0x0002	0x82	0x00-0x01	0x00: No 0x01: Yes
Lamp-Mode	0xefbe	0x10	0x0005	0x7fa7	0x1111	0x0001	0x83		0x00: Eco 0x01: Normal
Operating Hours	0xefbe	0x10	0x0005	0x3e65	0x1111	0x0001	0x84		Hours (2 byte)
Password Off	0xefbe	0x10	0x0005	0xffa5	0x1111	0x0001	0x85		
Password Delete	0xefbe	0x10	0x0005	0xbfa4	0x1111	0x0001	0x86		
Speaker	0xefbe	0x10	0x0006	0x9a94	0x1111	0x0002	0x87	0x00-0x01	0x00: Off 0x01: On
Speaker Status	0xefbe	0x10	0x0005	0x3e60	0x1111	0x0001	0x88		0x00: Off 0x01: On
Zoom Status	0xefbe	0x10	0x0005	0xffa0	0x1111	0x0001	0x89		Range (0x00-0x0a)
Get Power Saving Status	0xefbe	0x10	0x0005	0xbfa1	0x1111	0x0001	0x8a		0x00: Off 0x1e: 30 min 0x3c: 60 min 0x5a: 90 min 0x78: 120 min
System Status	0xefbe	0x10	0x0005	0x7e46	0x1111	0x0001	0xff		0x01: Standby 0x02: Warm Up 0x03: Power On 0x04: Cooling 0x05: Power Saving



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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