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S P E C   F I L E

Product Number : PT-**VX415NZ**

Product Name : LCD Projectors

LCD Projectors

PT-**VX415NZ**

Specifications

Main unit

Power supply		100 V, 100–240 V AC, 50/60 Hz
Power consumption		100–120 V: 300 W, 220–240 V: 280 W
		(0.4 W when Standby mode set to Eco*1, 5 W when Standby mode set to Network, 14 W when Standby mode set to Normal)
LCD panel	Panel size	16.0 mm (0.63 inches) diagonal (4:3 aspect ratio)
	Display method	Transparent LCD panel (× 3, R/G/B)
	Pixels	786,432 (1,024 × 768) × 3, total of 2,359,296 pixels
	Pixel configuration	Stripe
Lens		Manual zoom (1.6×), manual focus F 1.60–2.12, f 15.30–24.64 mm
Throw ratio		1.2–1.9:1
Lamp		230 W UHM lamp
Screen size		0.76–7.62 m (30–300 inches) diagonally, 4:3 aspect ratio
Colors		Full color (16,777,216 colors)
Brightness*2		4,200 lumens (LAMP POWER: NORMAL)
Center-to-corner uniformity*2		85%
Contrast*2		4,000:1 (full on/off, LAMP POWER: NORMAL, Iris on)
Resolution		1,024 × 768 pixels (Input signals that exceed this resolution will be converted to 1,024 × 768 pixels.)
Scanning frequency	HDMI	f_H: 15–80 kHz, f_V: 50–85 Hz, dot clock: 162 MHz or lower
	RGB	f_H: 15–100 kHz, f_V: 50–100 Hz, dot clock: 162 MHz or lower (Signals exceeding the dot clock rate of 140 MHz are downsampled.)
	YPBPR (YCBCR)	480i (525i): f_H 15.75 kHz; f_V 60 Hz,
		576i (625i): f_H 15.63 kHz; f_V 50 Hz,
		480p (525p): f_H 31.50 kHz; f_V 60 Hz,
		576p (625p): f_H 31.25 kHz; f_V 50 Hz,
		720 (750)/60p: f_H 45.00 kHz; f_V 60 Hz,
		720 (750)/50p: f_H 37.50 kHz; f_V 50 Hz,
		1080 (1125)/60i: f_H 33.75 kHz; f_V 60 Hz,
		1080 (1125)/25p: f_H 28.13 kHz; f_V 25 Hz,
		1080 (1125)/24p: f_H 27.00 kHz; f_V 24 Hz,
		1080 (1125)/24sF: f_H 27.00 kHz; f_V 48 Hz,
		1080 (1125)/30p: f_H 33.75 kHz; f_V 30 Hz,
		1080 (1125)/60p: f_H 67.50 kHz; f_V 60 Hz,
		1080 (1125)/50p: f_H 56.25 kHz; f_V 50 Hz,
		1080 (1125)/50i: f_H 28.13 kHz; f_V 50 Hz
	Video/S-Video	f_H: 15.75 kHz, f_V: 60 Hz [NTSC/NTSC4.43/PAL-M/PAL60]
		f_H: 15.63 kHz, f_V: 50 Hz [PAL/PAL-N/SECAM]
Optical axis shift		9:1 (fixed)
Keystone correction range		Vertical: ±40°, horizontal: ±30° (when an WXGA signal is input) (vertical ±30° and horizontal ±20° with EASY SETTING)
Installation		Ceiling/desk, front/rear (menu selection)
Built-in speaker	Size	4 cm (1-9/16 inches) (round) × 1
	Output power	10 W (monaural)
Terminals	HDMI IN	HDMI 19-pin × 1, HDCP compatible
		480i (525i)*3, 576i (625i)*3, 480p (525p)*3, 576p (625p)*3, 720 (750)/60p, 720 (750)/50p, 1080 (1125)/60i, 1080 (1125)/50i, 1080 (1125)/25p, 1080 (1125)/24p, 1080 (1125)/24sF, 1080 (1125)/30p, 1080 (1125)/60p, 1080 (1125)/50p
		VGA (640 × 480)–WUXGA*4 (1,920 × 1,200), dot clock: 25.2 MHz–146.25 MHz; Audio signal: linear PCM (sampling frequencies: 48 kHz, 44.1 kHz, 32 kHz)
	COMPUTER (RGB) 1 IN	D-sub HD 15-pin (female) × 1
	R, G, B	G: 0.7 Vp-p (1.0 Vp-p for sync on G), 75 ohms; B, R: 0.7 Vp-p, 75 ohms; HD/VD, SYNC: high impedance, TTL (positive/negative) **NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.**
	Y, PB (CB), PR (CR)	Y: 1.0 Vp-p (including sync signal); PB (CB), PR (CR): 0.7 Vp-p, 75 ohms

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COMPUTER (RGB) 2IN/ 1OUT	D-sub HD 15-pin (female) × 1
R, G, B	(input/output selectable using on-screen menu)
	G: 0.7 Vp-p (1.0 Vp-p for sync on G), 75 ohms;
	B, R: 0.7 Vp-p, 75 ohms;
	HD/VD, SYNC: high impedance, TTL (positive/negative)
	NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.
VIDEO IN	Pin jack × 1, 1.0 Vp-p, 75 ohms
S-VIDEO IN	Mini DIN 4-pin × 1, Y: 1.0 Vp-p; C: 0.286 Vp-p, 75 ohms
AUDIO IN 1	M3 (L, R) × 1, 0.5 Vrms
AUDIO IN 2 / MIC IN	M3 (L, R) × 1, 0.5 Vrms
AUDIO IN 3	Pin jack × 2 (L/R × 1), 0.5 Vrms
AUDIO OUT	M3 (L, R) × 1 (monitor out: 0–2.0 Vrms, variable)
SERIAL IN	D-sub 9-pin (male) × 1, for external control (RS-232C compliant)
LAN	RJ-45 × 1, for network connection, 100Base-TX/10Base-T, compliant with PJLink™
USB	USB A (type A) connector × 1, for USB memory viewer
	USB B (type B) connector × 1, for USB display

Power cord length	2.0 m (6 ft 7 in)
Cabinet materials	Molded plastic
Dimensions (W × H × D)	352 × 98[5] × 279.4[6] mm
	(13-27/32 × 3-27/32[5] × 11[6] inches)
Weight[7]	Approx. 3.4 kg (7.5 lbs)
Operation noise[2]	35 dB (Lamp power: Normal), 29 dB (Lamp power: Eco 1 / Eco 2)
Operating temperature	0–40 ˚C (32°–104°F) (At altitudes less than 1400 m, High altitude mode: OFF)
	0–30 ˚C (32°–86°F) (At altitudes of 1400 m to 2000 m, High altitude mode: HIGH1)
	0–30 ˚C (32°–86°F) (At altitudes of 2000 m to 2700 m, High altitude mode: HIGH2)
Operating humidity	10%–80% (no condensation)

Remote control unit

Power supply	3 V DC (R03/LR03/AAA type battery × 2)
Operation range[8]	Approx. 7 m (23 ft) when operated from directly in front of the signal receptor
Dimensions (W × H × D)	48 × 145 × 27 mm (1-7/8 × 5-23/32 × 1-3/32 inches)
Weight	Approx. 102 g (3.6 oz) (including batteries)

Wireless LAN

Standard		IEEE 802.11a/b/g/n
Modulation		DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM, MIMO
Transmission speed[9]	IEEE 802.11b	Up to 11 Mbps
	IEEE 802.11g/a	Up to 54 Mbps
	IEEE 802.11n	Up to 300 Mbps
Operating range[8]		Approx. 30 m (98 ft 5 in)
Frequency range	IEEE802.11a/n	5.18–5.85 GHz
	IEEE802.11b/g/n	2.4GHz
Security	Infrastructure mode	WPA-PSK (TKIP/AES), WPA2-PSK (TKIP/AES), WEP (128 bit/64 bit), WPA-EAP/WPA2-EAP (PEAP [MS-CHAPv2/GTC], EAP-FAST [MS-CHAPv2/GTC], EAP-TTLS [MD5/MS-CHAPv2]

Wireless Manager ME 6.0.2 system requirements To use network functions, a PC is required that meets the conditions given below.

OS	Microsoft®	
	Windows® XP:	Professional 32-bit, Home Edition 32-bit, Tablet PC Edition 2005 32-bit
	Windows Vista®:	Ultimate 32-bit/64-bit, Business 32-bit/64-bit, Home Premium 32-bit/64-bit, Home Basic 32-bit/64-bit
	Windows® 7:	Ultimate 32-bit/64-bit, Professional 32-bit/64-bit, Home Premium 32-bit/64-bit
	Windows® 8:	Windows® 8 Pro 32-bit/64-bit, Windows® 8 32-bit/64-bit
	Apple Mac OS X*[10]:	v10.6, v10.7, v10.8
Web browser	Windows®:	Internet Explorer 6.0/7.0/8.0/9.0/10.0
	Mac OS:	Safari 2.0/3.0/4.0/5.0/6.0
CPU	Intel® Core™ i5 or higher, or other compatible processor	
Memory	1024 MB or more	
Free hard disk space	100 MB or more	
CD-ROM drive	CD-ROM drive or DVD drive (required for installation)	
Wireless LAN	IEEE 802.11b/g/n compatible (built-in wireless LAN system or external IEEE 802.11b/g/n LAN card must be installed and running normally.)	

NOTE: Wireless connection may not be possible with some IEEE 802.11b/g/n wireless LAN systems. Macintosh computers must have a built-in wireless LAN adapter. For IEEE 802.11n connection, use a wireless LAN adapter, projector and access point that are IEEE 802.11n compatible, and connect with Infrastructure mode.

Wired LAN connector	RJ-45 (10BASE-T/100BASE-TX/1000BASE-T)

Supplied accessories

Power cord with security lock (× 1)

Wireless remote control unit (× 1)

Batteries for remote control (R03/LR03/AAA type × 2)

VGA cable (× 1)

Software CD-ROM (Logo Transfer Software, Multi Projector Monitoring and Control Software, Wireless Manager ME 6.0.2) (× 1)
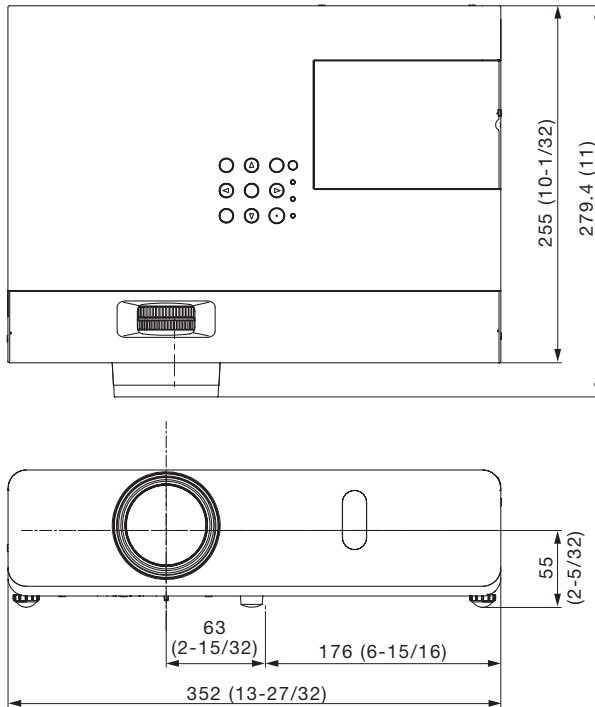
Optional accessories

Replacement lamp unit	ET-LAV300
Replacement filter unit	ET-RFV300
Ceiling mount bracket	ET-PKV100H (for high ceilings)
Ceiling mount bracket	ET-PKV100S (for low ceilings)
Bracket assembly	ET-PKV101B
Early Warning Software	ET-SWA100

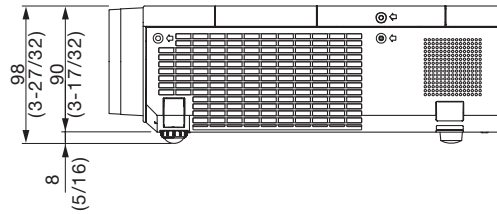**Weights and dimensions shown are approximate. Specifications subject to change without notice.**
*1   When the Standby mode is set to Eco, network functions such as power on over the LAN network will not operate. Also, only certain commands can be received for external control using the serial terminal.
*2   Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards.
*3   Only compatible with dot clock frequency of 27 MHz (pixel repetition signal)
*4   WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).
*5   With legs at shortest position.
*6   Include protruding parts.
*7   Average value. May differ depending on models.
*8   Operation range differs depending on environments.
*9   This is a theoretical speed. The actual transfer speed varies depending on the usage environment and connected devices.
*10 The operation system must be pre-installed at the factory or clean installed.
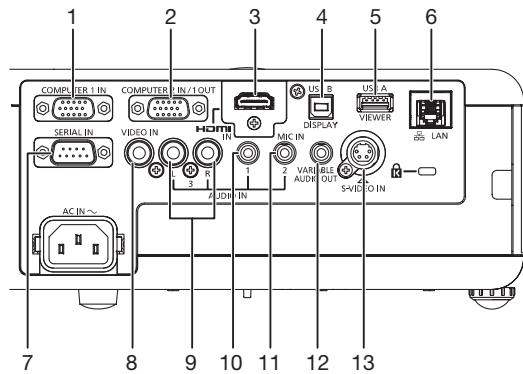
Dimensions

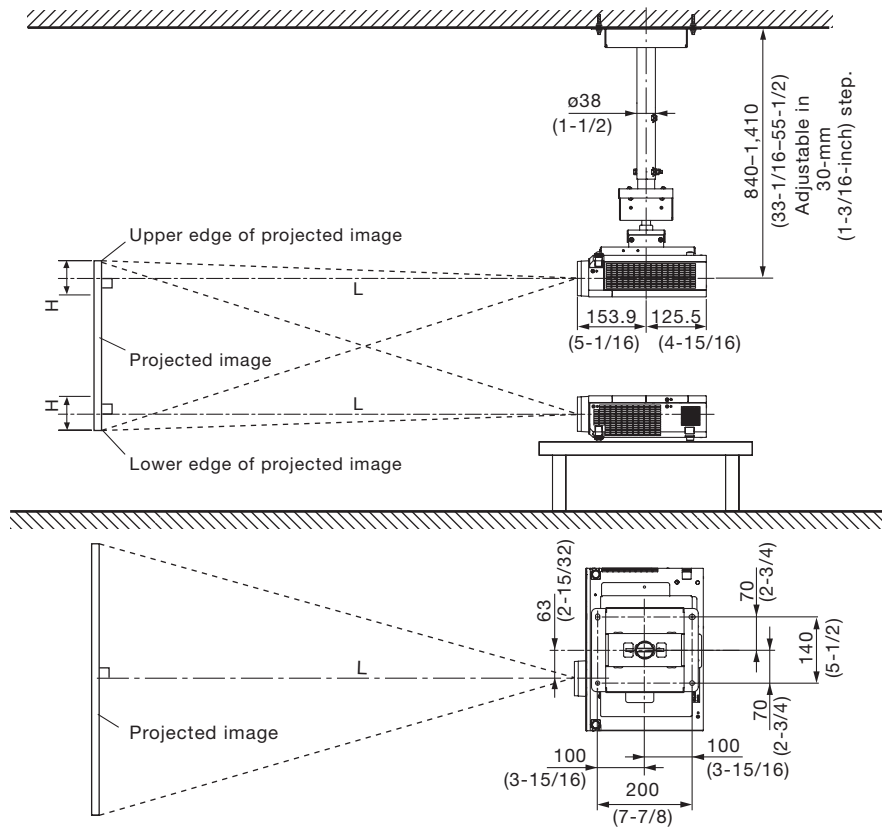unit : mm (inch)
NOTE: This illustration is not drawn to scale.

255 (10-1/32)
279.4 (11)
55 (2-5/32)
63 (2-15/32)
176 (6-15/16)
352 (13-27/32)
98 (3-27/32)
90 (3-17/32)
8 (5/16)

Terminals

1   Computer 1 input

2   Computer 2 input / computer 1 output

3   HDMI input

4   USB B connector

5   USB A connector

6   LAN connector

7   Serial input

8   Video input

9   Audio input 3

10 Audio input 1

11 Audio input 2 / mic input

12 Audio output

13 S-Video input

LCD Projectors

PT-**VX415NZ**

Standard setting-up position

ø38
(1-1/2)

840–1,410
(33-1/16–55-1/2)
Adjustable in
30-mm
(1-3/16-inch) step.

Upper edge of projected image

L

H

Projected image

H

L

Lower edge of projected image

153.9   125.5
(5-1/16) (4-15/16)

63
(2-15/32)

70
(2-3/4)

140
(5-1/2)

70
(2-3/4)

Projected image

L

100
(3-15/16)

100
(3-15/16)

200
(7-7/8)

NOTE:

Illustrations show the projector installed using optional ceiling mount bracket ET-PKV100H and bracket assembly ET-PKV101B.

This illustration is not drawn to scale.

unit : mm (inch)

> **Caution:**
> • All construction work should be done by a qualified technician.
> • When mounting to the ceiling, use the special mounting bracket. To prevent the projector from swaying or dropping, attach the wire that is included with the projector between the mounting bracket and the ceiling.

Projection distance for 4:3 aspect ratio screen

unit: meters (feet)

Projection size [diagonal]	Projection distance [L]				Height from the edge of screen to center of lens [H]	
	Min [wide]		Max [telephoto]			
0.76 m / 30˝	0.7	(2.3)	1.1	(3.6)	0.05	(0.16)
1.02 m / 40˝	0.9	(3.0)	1.5	(4.9)	0.06	(0.20)
1.27 m / 50˝	1.2	(3.9)	1.9	(6.2)	0.08	(0.26)
1.52 m / 60˝	1.4	(4.6)	2.3	(7.5)	0.09	(0.30)
1.78 m / 70˝	1.7	(5.6)	2.7	(8.9)	0.11	(0.36)
2.03 m / 80˝	1.9	(6.2)	3.1	(10.2)	0.12	(0.39)
2.29 m / 90˝	2.2	(7.2)	3.5	(11.5)	0.14	(0.46)
2.54 m / 100˝	2.4	(7.9)	3.9	(12.8)	0.15	(0.49)
3.05 m / 120˝	2.9	(9.5)	4.7	(15.4)	0.18	(0.59)
3.81 m / 150˝	3.6	(11.8)	5.8	(19.0)	0.23	(0.75)
5.08 m / 200˝	4.8	(15.7)	7.8	(25.6)	0.31	(1.02)
6.35 m / 250˝	6.0	(19.7)	9.7	(31.8)	0.38	(1.24)
7.62 m / 300˝	7.3	(23.6)	11.7	(38.4)	0.46	(1.51)

NOTE:

• **The value for L (distance to screen) varies slightly depending on the zoom lens characteristics.**

• **At the shortest projection distance, the zoom lens characteristics may cause slight image distortion.**

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Calculation of the projection distance

For a screen size different from the above, use the equation below to calculate the projection distance.

Aspect ratio 4:3
minimum   L (m) = (diagonal screen size in inches) × 0.0243 − 0.0294
maximum   L (m) = (diagonal screen size in inches) × 0.0391 − 0.0319
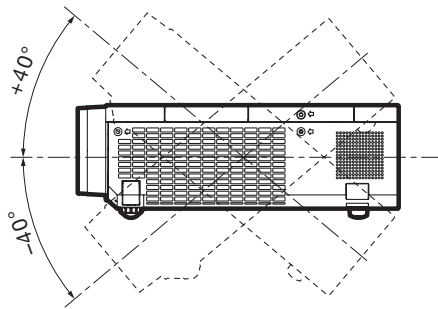
NOTE:
Distances calculated with the above equations will include a slight error.

Installable angle

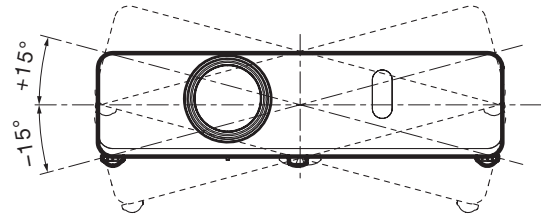Install the projector at an angle within the range shown below.

• Vertical direction
The projector may be installed at a vertical angle of 40°.

• Horizontal direction
The projector may be installed at a horizontal angle of 15°.

PT-**VX415NZ**

List of compatible signals

The signals that can be input to this projector are shown in the table below. Horizontal scanning frequencies of 15 kHz to 80 kHz (15 kHz to 100 kHz for RGB signals), vertical scanning frequencies of 50 Hz to 120 Hz (50 Hz to 100 Hz for RGB signals), and a dot clock of 162 MHz maximum imum for RGB signals) can be input.

NOTE: The native resolution of this projector is 1,024 × 768 pixels. If the display resolution of the input signal is different from the native resolution, image compression or expansion will be used to convert the input signal to a level within the native resolution.

Display mode	Display resolution (dots)*1	Scanning frequency H (kHz)	V (kHz)	Dot clock frequency (MHz)	Format
NTSC/NTSC4.43/PAL-M/PAL6	720 × 480i	15.7	59.9	–	VIDEO/S-VIDEO
PAL/PAL-N/SECAM	720 × 576i	15.6	50.0	–	
480i(525i)	720 × 480i	15.7	59.9	13.5	YPBPR(YCBCR)/RGB
576i(625i)	720 × 576i	15.6	50.0	13.5	
480i(525i)	720(1440) × 480i*2	15.7	59.9	27.0	HDMI
576i(625i)	720(1440) × 576i*2	15.6	50.0	27.0	
480p(525p)	720 × 483	31.5	59.9	27.0	HDMI/
576p(625p)	720 × 576	31.3	50.0	27.0	YPBPR(YCBCR)/RGB
720(750)/60p	1280 × 720	45.0	60.0	74.3	
720(750)/50p		37.5	50.0	74.3	
1080i(1125i)/60i*3	1920 × 1080i	33.8	60.0	74.3	
1080i(1125i)/50i		28.1	50.0	74.3	
1080(1125)/24p	1920 × 1080	27.0	24.0	74.3	
1080(1125)/24sF	1920 × 1080i	27.0	48.0	74.3	
1080(1125)/25p	1920 × 1080	28.1	25.0	74.3	
1080(1125)/30p		33.8	30.0	74.3	
1080(1125)/60p		67.5	60.0	148.5	
1080(1125)/50p		56.3	50.0	148.5	
VESA400	640 × 400	31.5	70.1	25.2	HDMI/RGB
		37.9	85.1	31.5	
VGA	640 × 480	31.5	59.9	25.2	
		35.0	66.7	30.2	
		37.5	75.0	31.5	
		37.9	72.8	31.5	
		43.3	85.0	36.0	
SVGA	800 × 600	35.2	56.3	36.0	
		37.9	60.3	40.0	
		46.9	75.0	49.5	
		48.1	72.2	50.0	
		53.7	85.1	56.3	
MAC16	832 × 624	49.7	74.6	57.3	
XGA	1024 × 768	39.6	50.0	51.9	
		48.4	60.0	65.0	
		56.5	70.1	75.0	
		60.0	75.0	78.8	
		65.5	81.6	86.0	
		68.7	85.0	94.5	
		80.0	100.0	105.0	
MXGA	1152 × 864	64.0	70.0	94.2	
		67.5	74.9	108.0	
		77.1	85.0	119.7	
MAC21	1152 × 870	68.7	75.1	100.0	
1280×720	1280 × 720	37.1	50.0	60.5	
		44.8	60.0	74.5	

*1 The "i" appearing after the resolution indicates an interlaced signal.

*2 Only compatible with dot clock frequency of 27 MHz (pixel repetition signal)

*3 When a 1125 (1035)/60i signal was input, it is displayed as a 1125 (1080)/60i signal.

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PT-**VX415NZ**

| Display mode	Display resolution (dots)*1	Scanning frequency H (kHz)	V (kHz)	Dot clock frequency (MHz)	Format
1280 × 768	1280 × 768	60.3	74.9	102.3	HDMI/RGB
		68.6	84.8	117.5	
1280 × 800	1280 × 800	41.2	50.0	69.9	
		49.7	60.0	84.7	
MSXGA	1280 × 960	60.0	60.0	108.0	
SXGA	1280 × 1024	64.0	60.0	108.0	
		80.0	75.0	135.0	
		91.1	85.0	157.5	
1366 × 768	1366 × 768	39.6	50.0	69.9	
		47.7	60.0	84.7	
SXGA+	1400 × 1050	65.2	60.0	122.6	
		82.2	75.0	155.9	
WXGA+	1400 × 900*2	55.5	59.9	88.8	
1600 × 900	1600 × 900	46.3	50.0	97.0	
		55.9	60.0	119.0	
UXGA	1600 × 1200	75.0	60.0	162.0	
WSXGA+	1680 × 1050	65.2	60.0	146.3	
1920 × 1080	1920 × 1080*2	66.6	59.9	138.5	
WUXGA	1920 × 1200*2	74.0	60.0	154.0	

*1 The "i" appearing after the resolution indicates an interlaced signal.

*2 VESA CVT-RB (Reduced Blanking)-compliant.

LCD Projectors

PT-**VX415NZ**

Serial connector

The serial connector complies with RS-232C. To control the projector from a personal computer, commands must be input through communication software, based on the format and satisfying the communication conditions shown below.

Pin assignments and signal names
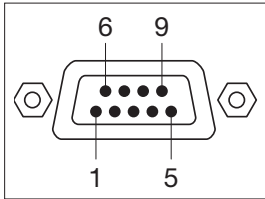
**D-sub 9-pin (male)
Serial input**

No.	Signal name	Description	No.	Signal name	Description
1	–	NC	6	–	NC
2	TXD	Send data	7	CTS	Connected internally
3	RXD	Receive data	8	RTS	Connected internally
4	–	NC	9	–	NC
5	GND	Ground			

Communication conditions (factory setting)

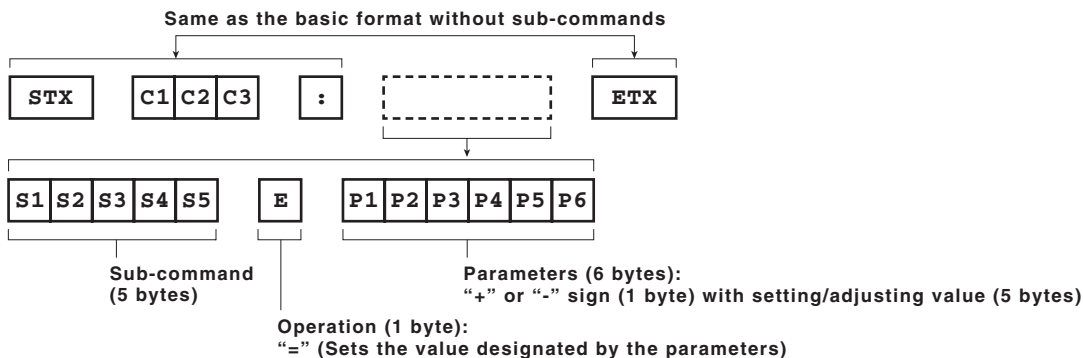|				
Signal level	RS-232C-compliant		Character length	8 bits
Synchronization method	Start-stop synchronization		Stop bit	1 bit
Baud rate	9,600 bps		X parameter	None
Parity	None		S parameter	None

Basic format

Transmission from the computer begins with STX, then command, parameter, and ETX are sent in this order. Add parameters according to the details of control.

STX	C1 C2 C3	:	P1 P2 ... Pn	ETX
**Start
(1 byte)**	**Command
(3 bytes)**	**Colon
(1 byte)**	**Parameters
(undefined length)**	**End
(1 byte)**
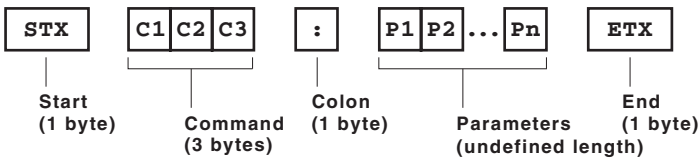
NOTE: When sending commands without parameters, a colon (:) is not necessary.

Basic format with sub-commands

Same as the basic format without sub-commands

STX	C1 C2 C3	:	- - - - - -	ETX

S1 S2 S3 S4 S5	E	P1 P2 P3 P4 P5 P6
**Sub-command
(5 bytes)**		**Parameters (6 bytes):
"+" or "-" sign (1 byte) with setting/adjusting value (5 bytes)**

**Operation (1 byte):
"=" (Sets the value designated by the parameters)**

NOTE: When sending sub-commands that require no parameters, operation (E) and parameters are not necessary.

CAUTION
• It may not be possible to send or receive commands for about 10 to 60 seconds when the lamp is first turned on. If this occurs, wait for 60 seconds, then try sending or receiving again.
• When sending multiple commands, be sure to wait for at least 0.5 second after receiving a response from the projector before sending the next command.
• Additional time is sometimes required for response due to processing inside the projector. Set the time-out period for command response to 10 seconds or more.

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LCD Projectors

PT-**VX415NZ**

Cable specifications

	Projector				PC (DTE)	
	1	**NC**		**NC**	1	
	2				2	
	3				3	
	4	**NC**		**NC**	4	
	5				5	
	6	**NC**		**NC**	6	
	7				7	
	8				8	
	9	**NC**		**NC**	9	

Control commands

Command: <Parameter>	Function	Callback: <Parameter>	Parameter value Min	Max
PON[*1/*2]	Power on (standby mode on)	**PON**	–	–
POF[*1]	Power off (standby mode off)	**POF**	–	–
IIS:<input signal>	Input signal selection	**IIS:<input signal>**	–	–
ORF[*3]	YP$_B$P$_R$/RGB signal switching	**ORF=1**	–	–
VPM:STD	Picture mode: Standard	**VPM:STD**	–	–
VPM:DYN	Picture mode: Dynamic	**VPM:DYN**	–	–
VPM:CIN	Picture mode: Cinema	**VPM:CIN**	–	–
VPM:REA	Picture mode: Real	**VPM:REA**	–	–
VPM:BBD	Picture mode: Blackboard	**VPM:BBD**	–	–
VPM:CBD	Picture mode: Colorboard	**VPM:CBD**	–	–
VPM:IM1	Picture mode: Image 1	**VPM:IM1**	–	–
VPM:IM2	Picture mode: Image 2	**VPM:IM2**	–	–
VPM:IM3	Picture mode: Image 3	**VPM:IM3**	–	–
VPM:IM4	Picture mode: Image 4	**VPM:IM4**	–	–
AVL:<p1>	Volume control	**AVL:<p1>**	0	63
AUU	Volume up	**AUU**	–	–
AUD	Volume down	**AUD**	–	–

*1 **Do not send PON, or POF commands continuously in a short period of time. Doing so may burst the lamp or shorten the lamp replacement cycle.**

*2 **These commands are effective when the standby mode is set to eco. (Other commands are not effective.)**

*3 **This command is only enabled when Computer 1 is selected.**
  If anything other than Computer 1 is selected, first transmit the "IIS:RG1" command, and then transmit this command.
  Furthermore, RBG is always selected when the "IIS:RG1" command is transmitted.

Status request commands

Command	Description		Callback <Parameter>
`QPW*`	Standby power status		`<power condition>`
`Q$S*`	Lamp status		`<lamp condition>`
`QIN`	Input signal status		`<input signal>`
`QPM`	Picture mode status	Standard	`STD`
		Dynamic	`DYN`
		Cinema	`CIN`
		Real	`REA`
		Blackboard	`BBD`
		Colorboard	`CBD`
		Image 1	`IM1`
		Image 2	`IM2`
		Image 3	`IM3`
		Image 4	`IM4`
`Q$L`	Lamp run time		`<acctch>`
`QAV`	Volume adjustment value		`<pl>`

* These commands are effective when the standby mode is set to eco. (Other commands are not effective.)

NOTE: If a wrong command is received, the projector will send an ER401 command to the computer.

Parameter format

Parameter format	Size (Byte)	Definition
`<pl>`	3 (1 or 2 bytes also possible when under control)	Decimal without signs: 0 to 999 (000, 001, 002...999) Decimal with signs: -99 to +99 (-99...-01, +00, +01, +02...+99) Callback from the projector is 3 Byte.
`<off on>`	1	0 = off, 1 = on
`<input signal>`	3	HD1 = HDMI, RG1 = computer 1, RG2 = computer 2, NWP = network PA1 = memory viewer, MG1 = panasonic application, MV1 = Miracast, VID = video, SVD = S-Video
`<power condition>`	3	000 = power off (standby mode off), 001 = power on (standby mode on)
`<lamp condition>`	1	0 = standby, 1 = lamp on under control, 2 = lamp on, 3 = lamp off under control
`<acctch>`	4	Decimal without signs: 0000−9999 hours

NOTE: If a wrong command is received, the projector will send an ER401 command to the computer.

Command example

To set the volume to +30, send the command as shown below.

STX   AVL   :   30   ETX

Start   **Command**   **Parameter**   **End**

NOTE: When sending commands without parameters, a colon (:) is not necessary.

Notes on projector placement and operation

The projector uses a high-wattage lamp that becomes very hot during operation. Please observe the following precautions.

1. Never place objects on top of the projector while it is operating.
2. Make sure there is the unobstructed space as shown below or more around the projector's exhaust openings. In addition to this space, also ensure that there is a sufficient work space for removing and installing the lamp, filter and other parts.
3. Make sure that nothing blocks the projector's air intake and exhaust openings. Also, install the projector so that cool or hot air from other air conditioning equipment does not flow directly toward the projector's air intake or exhaust openings.
4. Do not install the projector in an enclosed space. If it is necessary to install it in an enclosed space, add a separate ventilation system. If ventilation is insufficient, hot air will accumulate at the intake opening. This may cause the projector's protective circuit to interrupt projector operation.

200 mm (7-7/8) or more	500 mm (1 ft 8 in) or more	1,000 mm (3 ft 3 in) or more
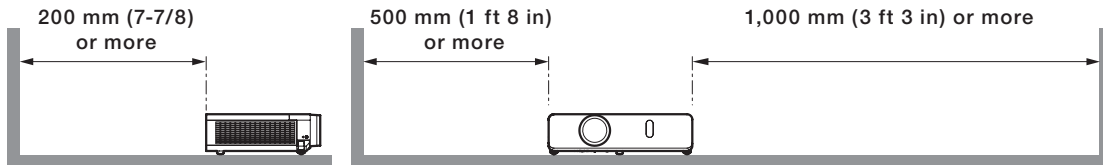
Direction of air intake and exhaust

Intake

Exhaust
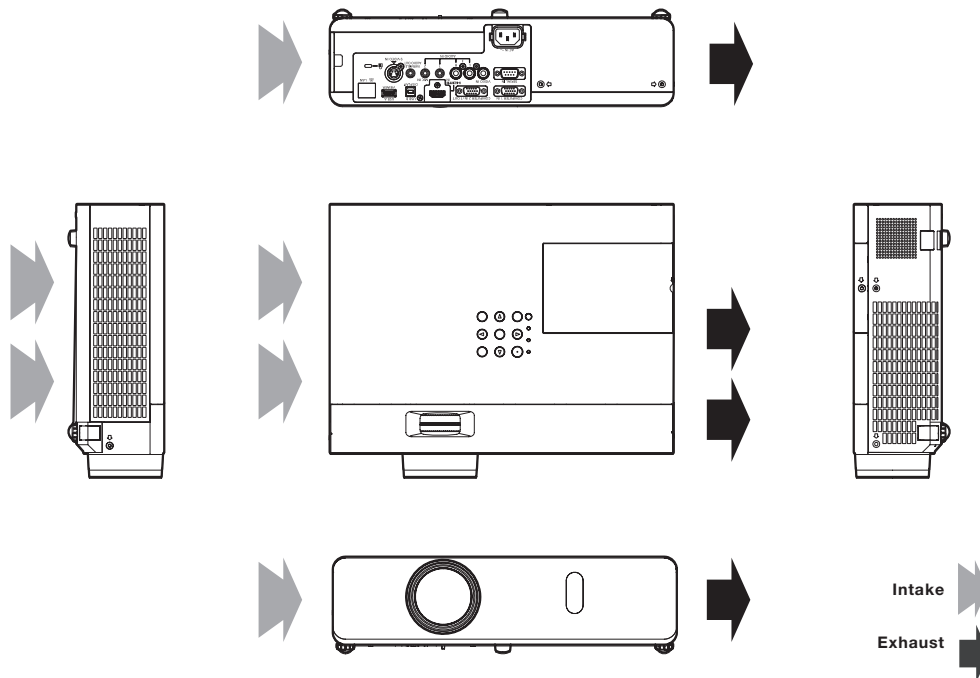
Operating the projector continuously

1. If the projector is to be operated continuously 12 hours or more, lamp replacement cycle duration becomes shorter.

2. The lamp replacement cycle duration becomes shorter if the projector is operated repeatedly for short periods (one hour or less).