Panasonic ideas for life

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S P E C   F I L E

</div>

Product Number :   PT-**VX500**

Product Name :   LCD Projector

Specifications

Main unit

Power supply		100–240 V AC, 50/60 Hz
Power consumption		365 W
		(0.3 W when STANDBY MODE set to ECO,*1 11.5 W when STANDBY MODE set to NETWORK.)
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 15.28–24.62 mm
Throw ratio		1.18–1.90:1
Lamp		280 W UHM lamp
Screen size		0.76–7.62 m (30–300 inches) diagonally, 16:10 aspect ratio
Colors		Full color (16,777,216 colors)
Brightness*2		5,000 lumens (LAMP POWER: NORMAL)
Center-to-corner uniformity*2		85%
Contrast*2		4,000:1 (full on/off, LAMP POWER: NORMAL, with 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: 25 kHz–80 kHz, f_V: 50 Hz–85 Hz, dot clock: 162 MHz or lower
	RGB	f_H: 15 kHz–100 kHz, f_V: 50 Hz–100 Hz, dot clock: 140 MHz or lower (Signals above 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)/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		Vertical: +40% (manual)
Keystone correction range		Vertical: ±30° (±20° with Real-Time Keystone Correction)
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
		480p (525p), 576p (625p), 720 (750)/60p, 720 (750)/50p, 1080 (1125)/60i, 1080 (1125)/50i, 1080 (1125)/60p, 1080 (1125)/50p
		VGA (640 × 480)–WUXGA*3 (1,920 × 1,200), 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
	COMPUTER (RGB) 2 IN / 1 OUT	
	R, G, B	D-sub HD 15-pin (female) × 1
		(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	RCA pin × 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
COMPUTER AUDIO IN 1	M3 (L, R) × 1, 0.5 Vrms
COMPUTER AUDIO IN 2 / MIC IN	
	M3 (L, R) × 1, 0.5 Vrms
VIDEO/S-VIDEO AUDIO IN	
	RCA × 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 (female) × 1, for external control (RS-232C compliant)
LAN	RJ-45 × 1, for network connection, 100Base-TX/10Base-T, compliant with PJLink™

Power cord length	2.0 m (6 ft 7 in)
Cabinet materials	Molded plastic
Dimensions (W × H × D)	379 mm × 107 mm*4 × 305 mm*5
	(14-29/32 × 4-7/32*4 × 12*5 inches)
Weight	Approximately 4.8 kg (10.6 lbs)
Operation noise	37 dB (LAMP POWER: NORMAL), 29 dB (LAMP POWER: ECO)
Operating temperature	0–40 °C (32–104 °F)
Operating humidity	20%–80% (no condensation)

Remote control unit

Power supply	3 V DC (R03/LR03/AAA type battery × 2)
Operation range*6	Approximately 7 m (23 ft) when operated from directly in front of the signal receptor
Dimensions (W × H × D)	52 × 110 × 18 mm (2-1/16 × 4-11/32 × 23/32 inches)
Weight	Approx. 67 g (2.4 oz) (including batteries)

Supplied accessories

Power cord (× 1) (× 2 for PT-VX500EA)
AC power cord holder (× 1)
Wireless remote control unit (× 1)
Batteries for remote control (R03/LR03/AAA type × 2)
Carrying bag (× 1)
Computer cable (1.8 m (5 ft 11 in), for VGA) (× 1)
Software CD-ROM (Logo Transfer Software, Multi Projector Monitoring and Control Software) (× 1)

Optional accessories

Replacement lamp unit	ET-LAV200
Replacement filter unit	ET-RFV200
Ceiling mount bracket	ET-PKV100H (for high ceilings)
	ET-PKV100S (for low ceilings)
Bracket assembly	ET-PKV200B

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.
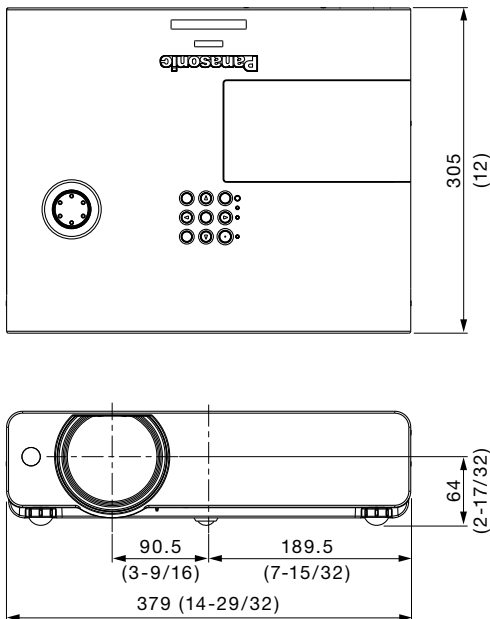*2 Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards.
*3 WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).
*4 With legs at shortest position.
*5 Protruding parts not included.
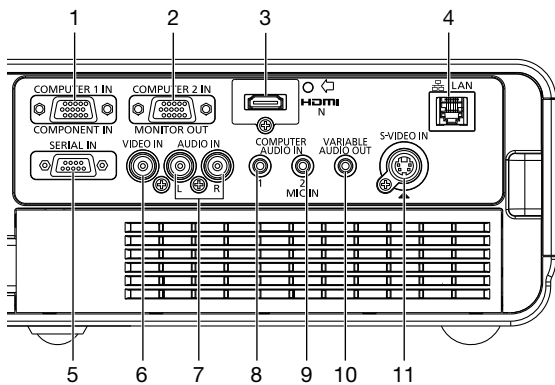*6 Operation range differs depending on environments.

PT-**VX500**

Dimensions

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

305 (12)

64 (2-17/32)

90.5 (3-9/16)   189.5 (7-15/32)

379 (14-29/32)

107 (4-7/32)   100 (3-15/16)

7 (9/32)

Terminals

1   COMPUTER 1 IN
    COMPONENT IN
    SERIAL IN
2   COMPUTER 2 IN
    MONITOR OUT
    VIDEO IN   AUDIO IN
    L   R
3   HDMI
    N
4   LAN
    COMPUTER
    AUDIO IN
    1   2
    MIC IN
    VARIABLE
    AUDIO OUT
    S-VIDEO IN

5   6   7   8   9   10   11

1   Computer 1 input

2   Computer 2 input / computer 1 output

3   HDMI input

4   LAN connector

5   Serial input

6   Video input

7   Audio input for video/S-Video

8   Audio input for computer 1

9   Audio input for computer 2 / mic input

10 Audio output

11 S-Video input

PT-**VX500**

Standard setting-up position
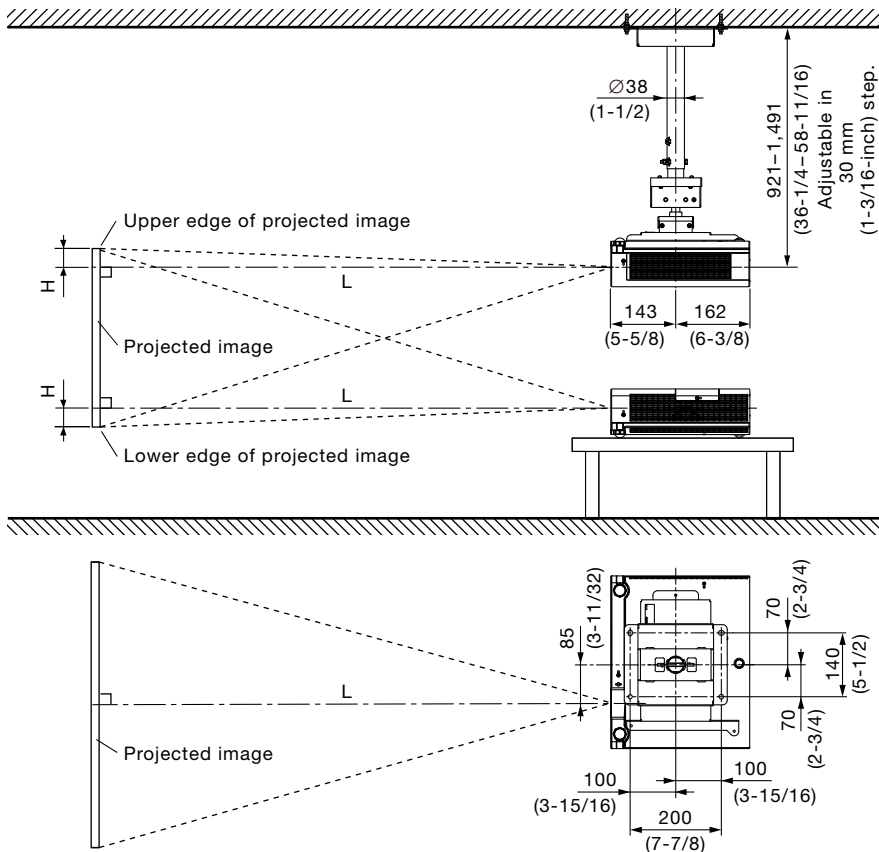
NOTE:

Illustrations show the projector installed using optional ceiling mount bracket ET-PKV100H and bracket assembly ET-PKV200B.

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	(3.9)	0.05 – 0.23	(0.16 – 0.75)
1.02 m / 40˝	0.9	(3.3)	1.5	(5.2)	0.06 – 0.31	(0.20 – 1.02)
1.27 m / 50˝	1.2	(4.3)	1.9	(6.6)	0.08 – 0.38	(0.26 – 1.25)
1.52 m / 60˝	1.4	(4.9)	2.3	(8.2)	0.09 – 0.46	(0.30 – 1.51)
1.78 m / 70˝	1.7	(5.9)	2.7	(9.5)	0.11 – 0.53	(0.36 – 1.74)
2.03 m / 80˝	1.9	(6.6)	3.1	(10.8)	0.12 – 0.61	(0.39 – 2.00)
2.29 m / 90˝	2.2	(7.5)	3.5	(12.1)	0.14 – 0.69	(0.46 – 2.26)
2.54 m / 100˝	2.4	(8.2)	3.9	(13.5)	0.15 – 0.76	(0.49 – 2.49)
3.05 m / 120˝	2.9	(10.2)	4.7	(16.1)	0.18 – 0.91	(0.59 – 2.99)
3.81 m / 150˝	3.6	(12.5)	5.8	(20.3)	0.23 – 1.14	(0.75 – 3.74)
5.08 m / 200˝	4.8	(15.7)	7.8	(25.6)	0.31 – 1.52	(1.02 – 4.99)
6.35 m / 250˝	6.0	(19.7)	9.7	(32.0)	0.38 – 1.91	(1.25 – 6.27)
7.62 m / 300˝	7.2	(23.6)	11.7	(38.4)	0.46 – 2.29	(1.51 – 7.51)

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
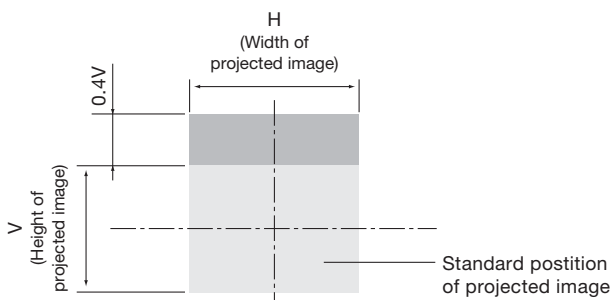maximum   L (m) = (diagonal screen size in inches) × 0.0391 − 0.0319

NOTE:
Distances calculated with the above equations will include a slight error.

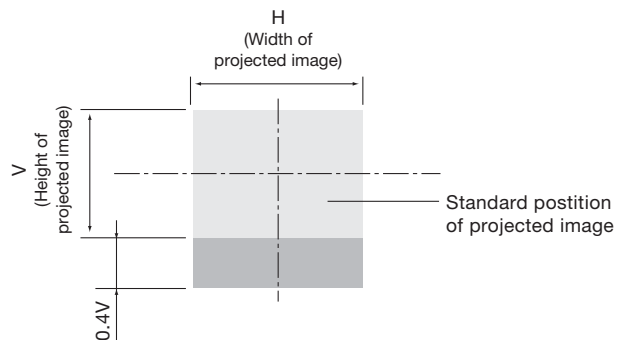## Shift range

Optical axis shift function allows to shift the position of a projected image as shown below.
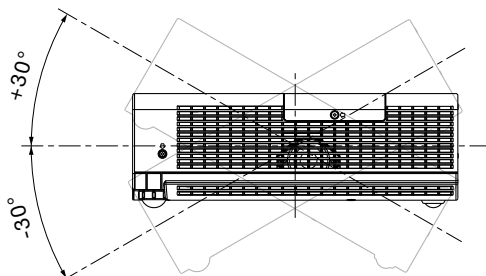
• **Floor mount**

• **Ceiling mount**

Installable angle

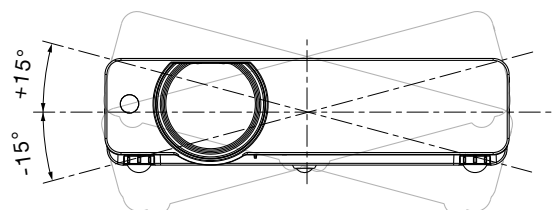Install the projector at an angle within the range shown below.

• **Vertical direction**
The projector may be installed at a vertical
angle of 30°.

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

List of compatible signals

The signals that can be input to this projector are shown in the table below. Horizontal scanning frequencies of 25 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 (140 MHz maximum 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/PAL60	720 × 480i	15.7	59.9	–	VIDEO/S-VIDEO
PAL/PAL-N/SECAM	720 × 576i	15.6	50.0	–	
525i (480i)	640 × 480i	15.7	59.9	12.3	YPBPR/RGB
625i (576i)	768 × 576i	15.6	50.0	14.8	
525p (480p)	640 × 480	31.5	59.9	25.2	HDMI/YPBPR/RGB
625p (576p)	768 × 575	31.3	50.0	29.5	
720p	1280 × 720	45.0	60.0	74.3	
		37.5	50.0	74.3	
1035i	1920 × 1035i	33.8	60.0	74.3	
1080i	1920 × 1080i	33.8	60.0	74.3	
		28.1	50.0	74.3	
VGA	640 × 400	31.5	70.1	25.2	RGB
	640 × 480	31.5	59.9	25.2	HDMI/RGB
		37.5	75.0	31.5	RGB
		37.9	72.8	31.5	
		37.9	74.4	31.5	
		43.3	85.0	36.0	
	720 × 400	31.5	70.1	28.3	
MAC LC13	640 × 480	35.0	66.6	31.3	
MAC13		35.0	66.7	30.2	
SVGA	800 × 600	32.7	51.1	32.7	
		34.5	55.4	36.4	
		35.2	56.3	36.0	
		37.9	60.3	40.0	
		37.9	61.0	40.0	
		38.0	60.5	40.1	
		38.6	60.3	38.6	
		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	44.0	54.6	59.1	
		46.9	58.2	63.0	
		47.0	58.3	61.7	
		48.4	60.0	65.0	HDMI/RGB
		48.5	60.0	65.2	RGB
		58.0	72.0	74.7	
		60.0	75.0	78.8	HDMI/RGB
		60.3	74.9	79.3	
		61.0	75.7	81.0	RGB
		62.0	77.1	84.3	
		63.5	79.4	83.4	
		56.5	70.1	75.0	HDMI/RGB
		68.7	85.0	94.5	
	1024 × 768i	36.0	87.2	47.3	RGB
		35.5	87.0	44.9	
MAC19	1024 × 768	60.2	75.1	80.0	

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

LCD Projector

PT-**VX500**

Display mode	Display resolution (dots)[1]	Scanning frequency H (kHz)	V (kHz)	Dot clock frequency (MHz)	Format
WXGA	1280 × 768	47.8	59.9	79.5	HDMI/RGB
		60.3	74.9	102.3	
		68.6	84.8	117.5	
	1280 × 800	41.2	50.0	68.6	
		49.6	60.1	79.4	
		49.7	59.8	83.5	
		56.0	70.0	95.0	RGB
		57.6	72.0	97.8	
		58.2	70.0	98.9	
		60.0	72.0	102.8	
		62.8	74.9	106.5	
		63.9	60.0	108.0	HDMI/RGB
		71.5	84.8	122.5	RGB
	1360 × 768	47.7	60.0	86.7	
		56.2	72.0	86.7	
	1366 × 768	48.4	60.0	100.1	
	1376 × 768	48.4	60.0	86.7	
MAC21	1152 × 870	68.7	75.1	100.0	
SXGA	1152 × 900	61.2	65.2	92.0	HDMI/RGB
		71.4	75.6	105.1	
		61.9	66.0	94.5	
	1280 × 960	60.0	60.0	108.0	
	1280 × 1024	62.5	58.6	108.0	
		63.3	60.0	107.3	
		63.7	60.0	109.5	
		63.9	60.0	108.0	
		71.7	67.2	117.0	
		81.1	76.1	135.0	
		64.0	60.2	108.1	
		80.0	75.0	135.0	
		63.4	60.0	111.5	
		77.0	72.0	130.1	
		63.8	60.2	109.5	
		91.1	85.0	157.5	
	1280 × 1024i	50.0	86.0	80.0	
		50.0	94.0	80.0	
		46.4	86.7	78.4	
MAC	1280 × 960	75.0	75.1	126.0	RGB
	1280 × 1024	80.0	75.1	135.2	
SXGA+	1400 × 1050	64.0	60.2	108.0	HDMI/RGB
		65.4	60.1	122.9	
		65.1	59.9	122.4	
WXGA+	1440 × 900	55.9	59.9	106.5	
		74.9	60.0	161.9	RGB
UXGA	1600 × 1200	75.0	60.0	162.0	
		81.3	65.0	175.5	
		87.5	70.0	189.0	
		93.8	75.0	202.5	
WSXGA+	1680 × 1050	65.3	60.0	146.3	HDMI/RGB
WUXGA	1920 × 1200	74.0	59.9	154.0	
		74.6	59.9	193.3	RGB

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

SFL12M010   **Panasonic**

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
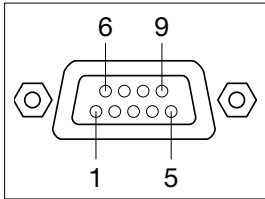
D-sub 9-pin (female)
Serial input

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

Communication conditions (factory setting)

Signal level	RS-232C-compliant
Synchronization method	Start-stop synchronization
Baud rate	19,200 bps
Parity	None

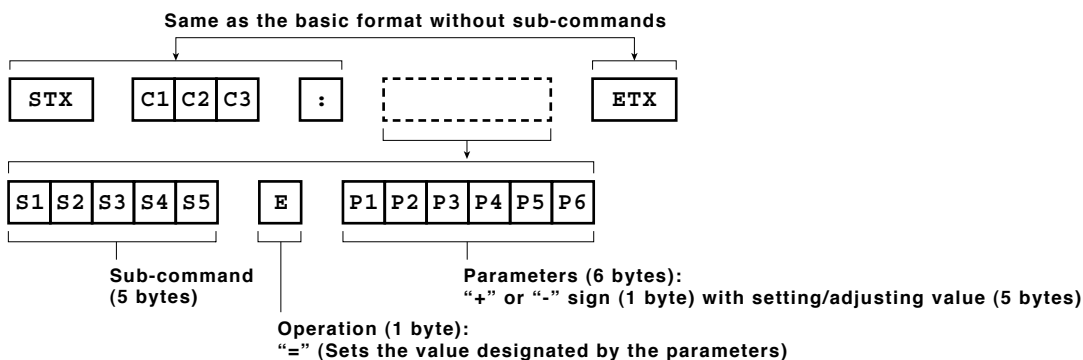| Character length	8 bits
Stop bit	1 bit
X parameter	None
S parameter	None

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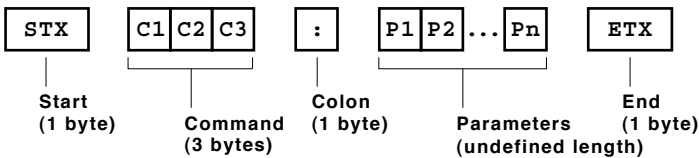
NOTE: When sending commands without parameters, a colon (:) is not necessary.

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)

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

Parameters (6 bytes):
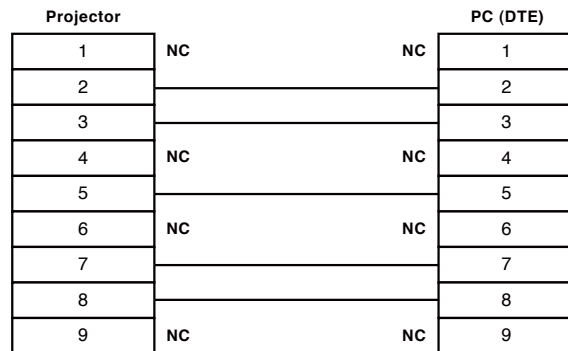**"+" or "-" sign (1 byte) with setting/adjusting value (5 bytes)**

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.

SFL12M010

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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`	–	–
`AVL:<pl>`	Volume control	`AVL:<pl>`	0	63
`IIS:<input signal>`	Input signal selection	`IIS:<input signal>`	–	–
`OFZ:<off on>`	Freeze	`OFZ:<off on>`	0	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`	–	–
`AUU`	Volume up	`AUU`	–	–
`AUD`	Volume down	`AUD`	–	–
`OSH`[1]	AV mute	`OSH`	–	–
`DZU`	Digital zoom: Enlargement	`DZU`	–	–
`DZD`	Digital zoom: Reduction	`DZD`	–	–

[1] **Do not send PON, POF, or OSH 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.)**

Status request commands

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

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, 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

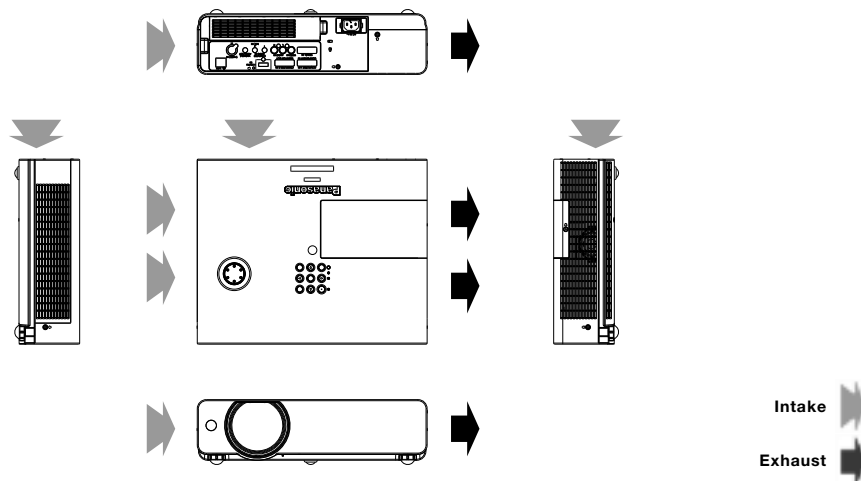**NOTE: When sending commands without parameters, a colon (:) is not necessary.**

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.

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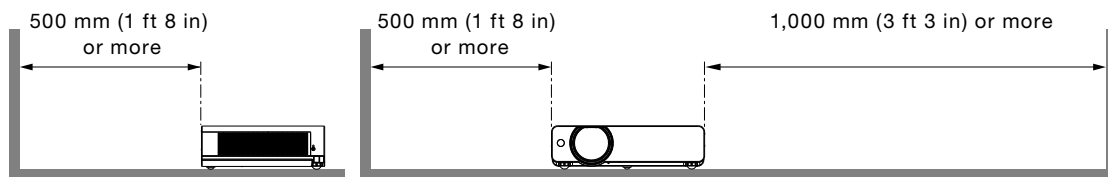
Direction of air intake and exhaust

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).

Weights and dimensions shown are approximate. Specifications and appearance are subject to change without notice.
Product availability differs depending on region and country. This product may be subject to export control regulations.

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