Panasonic ideas for life

SPEC FILE

Product Number : PT-**FW100NT**

Product Name : LCD Projector

LCD Projector

PT-**FW100NT**

Specifications

Power supply		100–240 V AC, 50/60 Hz
Power consumption		350 W (Approx. 4 W in standby mode with fan stopped. 35 W in stadby mode when controlled by a Web browser.)
Optical system		Dichroic mirror separation/prism synthesis system
LCD panel	Panel size	0.74˝ (18.8 mm) diagonal, 16:10 aspect ratio
	Display method	Transparent LCD panel (x 3, R/G/B)
	Drive method	Active matrix
	Pixels	1,024,000 (1,280 x 800) x 3, total of 3,072,000 pixels
	Pixel configuration	Stripe
Lens		Manual zoom (1:1–1:2), manual focus
		F 1.7–2.6, f 21.6–43.0 mm
Lamp		250 W UHM™ lamp
Colors		Full color (16,777,216 colors)
Brightness		3,000 lumens
Center-to-corner uniformity		80%
Contrast ratio		400:1 (full on/full off)
Resolution	RGB	1,280 x 800 pixels (Input signals that exceed this resolution will be converted to 1,280 x 800 pixels.)
Scanning frequency	RGB	Horizontal: 15–91 kHz, Vertical: 50–85 Hz
	YP_BP_R	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
		720/60p (750p): f_H 45.00 kHz; f_V 60 Hz
		720/50p (750p): f_H 37.50 kHz; f_V 50 Hz
		1080/60i (1125i): f_H 33.75 kHz; f_V 60 Hz
		1080/50i (1125i): f_H 28.13 kHz; f_V 50 Hz
	S-Video/Video	NTSC, NTSC4.43, PAL-M, PAL60: f_H 15.75 kHz; f_V 60 Hz
		PAL, SECAM, PAL-N: f_H 15.63 kHz; f_V 50 Hz
Projection size		838–7,620 mm (33–300 inches) diagonally, 16:10 aspect ratio
Throw distance		1.2 m–18.1 m (3´11˝–59´5˝), 4:3 aspect ratio
Optical axis shift		Vertical: ±50%, horizontal: ±32%
Keystone correction range		Vertical: approx. ±30°
Installation		Front/rear, ceiling/desk (menu selection)
On-screen menu		17 languages: English, French, German, Spanish, Italian, Korean, Russian, Chinese, Japanese, Swedish, Norwegian, Danish, Portuguese, Polish, Hungarian, Czech, and Thai
Built-in speakers	Size	4 cm (round), x 1
	Output power	3.0 W (monaural)
Terminals	COMPUTER 1 IN	D-sub HD 15-pin x 1
		R, G, B: 0.7 Vp-p, 75 ohms, Sync on green: 1.0 V [p-p], 75 ohms, HD/SYNC, VD: TTL (positive/negative polarity compatible)
	COMPUTER 2 IN/COMPUTER 1 OUT	
		D-sub HD 15-pin x 1 (input/output selectable using on-screen menu)
		R, G, B: 0.7 V [p-p], 75 ohms, Sync on green: 1.0 V [p-p], 75 ohms, HD/SYNC, VD: TTL (positive/negative polarity compatible)
	COMPONENT IN	RCA pin x 3, Y: 1.0 V [p-p] (including sync signal), 75 ohms, P_B, P_R: 0.7 V [p-p], 75 ohms
	VIDEO IN	RCA pin x 1, 1.0 Vp-p, 75 ohms
	S-VIDEO IN	Mini DIN 4-pin x 1, Y: 1.0 V [p-p], C: 0.286 V [p-p], 75 ohms
	AUDIO IN (COMPUTER 1)	M3 (stereo) x 1, 0.5 V [rms]
	AUDIO IN (COMPUTER 2)	M3 (stereo) x 1, 0.5 V [rms]
	AUDIO IN (COMPONENT/VIDEO/S-VIDEO)	
	AUDIO OUT	RCA (L, R) x 1, 0.5 V [rms]
		M3 (stereo) x 1, 0 – 2.0 V [rms] (variable)
	SERIAL	D-sub 9-pin x 1, for external control (RS-232C)
	REMOTE	D-sub 9-pin x 1, for external control (contact control)
	LAN	RJ-45 x 1, 10BASE-T/100BASE-TX/1000BASE-T

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Power cord length		2 m/6′7″
Cabinet material		Moulded plastic (PC+ABS)
Dimensions (W x H x D)		432 x 124.5 x 319 mm (17″ x 4-29/32″ x 12-9/16″)
Weight		6.2 kg (13.7 lbs.)
Operating environment	Temperature	0°–40°C (32°–104°F)
	Humidity	20%–80% (no condensation)
Remote control unit	Power supply	3 V DC (AA battery x 2)
	Operation range*	Approx. 15 m (49′3″) when operated from directly in front of the signal receptor
	Dimensions (W x H x D)	48 x 163 x 24.5 mm (1-7/8″ x 6-13/32″ x 31/32″)
	Weight	117 g (4.1 oz) (including batteries)
Wireless LAN	Standard	IEEE 802.11b/g
	Modulation	
	IEEE 802.11b	Direct sequence spread spectrum (DSSS) system
	IEEE 802.11g	Orthogonal frequency division multiplex (OFDM) system
	Transmission system	
	IEEE 802.11b	CCK (11/5.5 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps)
	IEEE 802.11g	64-QAM (54/48 Mbps), 16-QAM (36/24 Mbps), QPSK (18/12 Mbps), BPSK (9/6 Mbps)
	Transmission speed	
	IEEE 802.11b	11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps
	IEEE 802.11g	54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps
	Operating range*[1]	Approx. 30 m
	Frequency range	PT-FW100NTE/FW100NTEA: 2,412 MHz–2,472 MHz
		PT-FW100NTU: 2,412 MHz–2,462 MHz
	Channels	PT-FW100NTE/FW100NTEA: 1–13 ch
		PT-FW100NTU: 1–11 ch
Supplied accessories		Power cord
		Wireless remote control
		Batteries for remote control
		Wireless Manager ME 4.5 (CD-ROM)
		Safety wire rope
Optional accessories		Replacement lamp unit: ET-LAF100
		Replacement filter unit: ET-RFF100
		Ceiling mount bracket for high ceilings: ET-PKF100H
		Ceiling mount bracket for low ceilings: ET-PKF100S

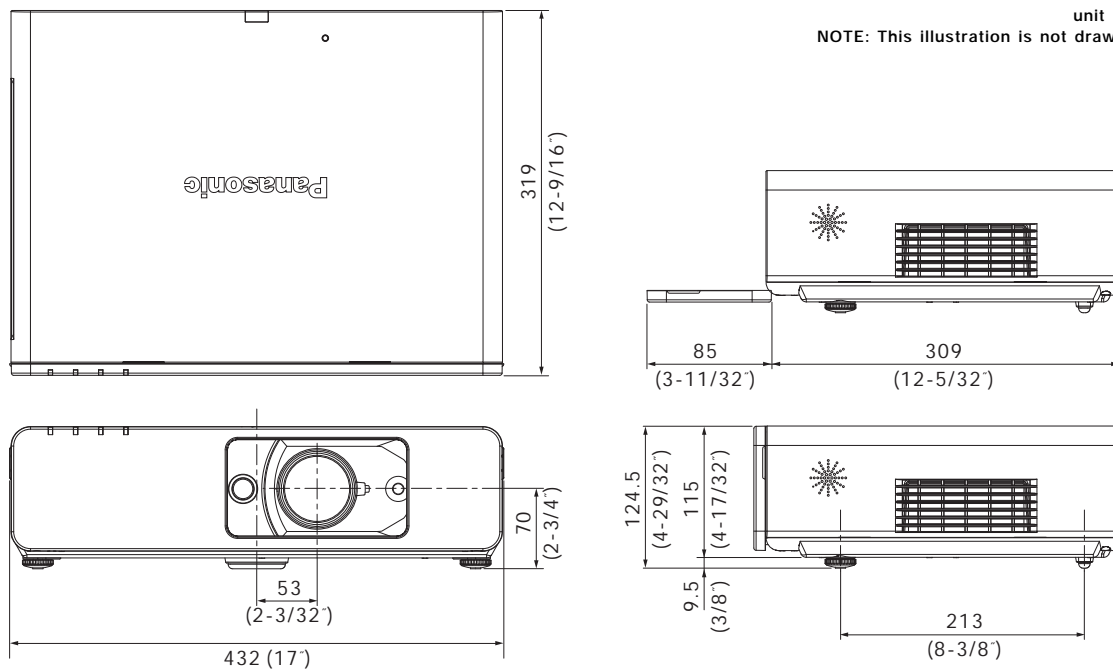***: Operation range differs depending on environments.**

To use network functions, a PC is required that meets the conditions given below:
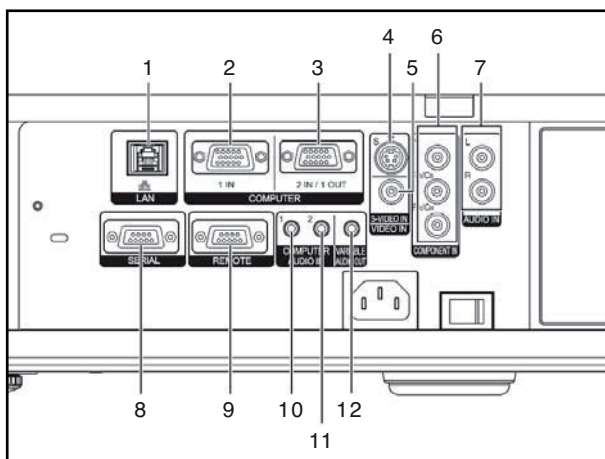
OS:	Microsoft® Windows® 2000 Professional, Windows® XP Professional, Windows® XP Home Edition, Windows Vista™
	Apple Mac OS X 10.4 (Tiger)
	NOTE: Some functions are not available with Windows Vista™ and Mac.
Web browser:	Windows®: Internet Explorer 6.0 or later, or Netscape Communicator 7.0 or later
	Mac OS: Safari 2.0 or later
CPU:	Windows®: Intel® Pentium® III or higher, or other compatible processor (1 GHz or higher is recommended.)
	Mac OS: Intel® Core™ Duo
Memory:	256 MB or more
Free hard disk space:	60 MB or more
CD-ROM drive:	CD-ROM drive or DVD drive
Wireless LAN:	IEEE 802.11b/g compatible (built-in wireless LAN system or external IEEE 802.11b/g LAN card must be installed and running normally.)
	NOTE: Some IEEE 802.11g/b wireless LAN may not allow connection to the projector.
Wired LAN connector:	RJ-45
	NOTE: Use Category 5e (or higher) cables for use with 1000BASE-T.

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Dimensions

< 4 >

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

319
(12-9/16″)

85
(3-11/32″)

309
(12-5/32″)

70
(2-3/4″)

53
(2-3/32″)

432 (17″)

124.5
(4-29/32″)

115
(4-17/32″)

9.5
(3/8″)

213
(8-3/8″)

Terminals

1	LAN
2	Computer 1 input
3	Computer 2 input/computer 1 output
4	S-Video input
5	Video input
6	Component input
7	Audio input for component/S-Video/video
8	Serial input
9	Remote input
10	Audio input for computer 1
11	Audio input for computer 2
12	Audio output

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Standard setting-up positions
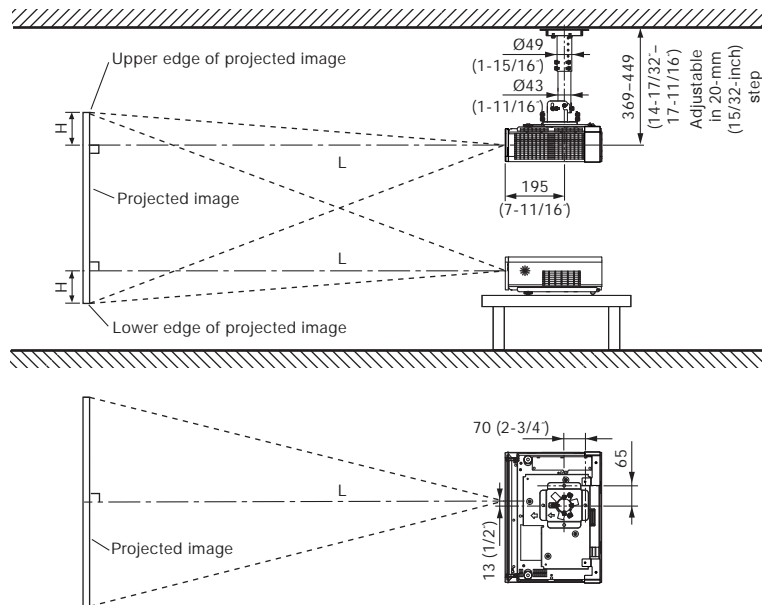
unit : mm (inch)

A: Distance to screen

E: Height from the edge of screen to center of lens

NOTE:

Illustrations show the projector installed using optional ceiling bracket.

This illustration is not drawn to scale.

Projection distance (screen aspect ratio 16:10)

Projection size (diagonal)	Projection distance (L) Min (wide)	Max (telephoto)	Height from the edge of screen to center of lens (H)
0.84 m / 33″	– / –	1.8 m / 6.2′	0 – 0.23 m / 0 – 0.8′
1.02 m / 40″	1.1 m / 3.6′	2.3 m / 7.6′	0 – 0.28 m / 0 – 0.9′
1.27 m / 50″	1.4 m / 4.6′	2.8 m / 9.5′	0 – 0.35 m / 0 – 1.1′
1.52 m / 60″	1.7 m / 5.5′	3.4 m / 11.5′	0 – 0.42 m / 0 – 1.4′
1.78 m / 70″	2.0 m / 6.5′	4.0 m / 13.4′	0 – 0.49 m / 0 – 1.6′
2.03 m / 80″	2.3 m / 7.4′	4.6 m / 15.3′	0 – 0.55 m / 0 – 1.8′
2.29 m / 90″	2.6 m / 8.4′	5.1 m / 17.3′	0 – 0.62 m / 0 – 2′
2.54 m / 100″	2.9 m / 9.3′	5.7 m / 19.2′	0 – 0.69 m / 0 – 2.3′
3.05 m / 120″	3.4 m / 11.2′	6.9 m / 23.1′	0 – 0.83 m / 0 – 2.7′
3.81 m / 150″	4.3 m / 14.1′	8.6 m / 28.9′	0 – 1.04 m / 0 – 3.4′
5.08 m / 200″	5.7 m / 18.8′	11.5 m / 38.6′	0 – 1.39 m / 0 – 4.5′
6.35 m / 250″	7.2 m / 23.6′	14.3 m / 48.4′	0 – 1.73 m / 0 – 5.7′
7.62 m / 300″	8.6 m / 28.3′	17.2 m / 58.1′	0 – 2.08 m / 0 – 6.8′

* This distance is especially recommended for ceiling-mounted use and other permanent installations.

NOTE:

Values shown are approximate. The value for L (distance to screen) varies slightly depending on the zoom lens characteristics.

When the shortest projection distance is used, a small amount of distortion may occur in the image due to the zoom lens characteristics.

The value for H (the height from the edge of the screen to the centre of the lens) is the value when the horizontal optical axis shift function is not used. The value decreases when the horizontal optical axis shift function is used. For details, see Shift range on page 6.

Projection distance (screen aspect ratio 16:9)

Projection size (diagonal)	Projection distance (L) Min (wide)	Max (telephoto)	Height from the edge of screen to center of lens (H)
0.84 m / 33″	– / –	1.9 m / 6.2′	0 – 0.24 m / 0 – 0.8′
1.02 m / 40″	1.2 m / 3.8′	2.3 m / 7.6′	0 – 0.29 m / 0 – 0.9′
1.27 m / 50″	1.4 m / 4.7′	2.9 m / 9.5′	0 – 0.36 m / 0 – 1.2′
1.52 m / 60″	1.7 m / 5.7′	3.5 m / 11.5′	0 – 0.43 m / 0 – 1.4′
1.78 m / 70″	2.0 m / 6.7′	4.1 m / 13.4′	0 – 0.5 m / 0 – 1.6′
2.03 m / 80″	2.3 m / 7.6′	4.7 m / 15.3′	0 – 0.57 m / 0 – 1.9′
2.29 m / 90″	2.6 m / 8.6′	5.3 m / 17.3′	0 – 0.64 m / 0 – 2.1′
2.54 m / 100″	2.9 m / 9.6′	5.9 m / 19.2′	0 – 0.71 m / 0 – 2.3′
3.05 m / 120″	3.5 m / 11.5′	7.1 m / 23.1′	0 – 0.86 m / 0 – 2.8′
3.81 m / 150″	4.4 m / 14.5′	8.8 m / 28.9′	0 – 1.07 m / 0 – 3.5′
5.08 m / 200″	5.9 m / 19.3′	11.8 m / 38.6′	0 – 1.43 m / 0 – 4.7′
6.35 m / 250″	7.4 m / 24.2′	14.7 m / 48.4′	0 – 1.78 m / 0 – 5.8′
7.62 m / 300″	8.9 m / 29.1′	17.7 m / 58.1′	0 – 2.14 m / 0 – 7.0′

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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 16 : 10
          minimum   L (m) = (diagonal screen size in inches) x 0.0289 - 0.046
          maximum   L (m) = (diagonal screen size in inches) x 0.0576 - 0.061
Aspect ratio 16 : 9
          minimum   L (m) = (diagonal screen size in inches) x 0.0297 - 0.045
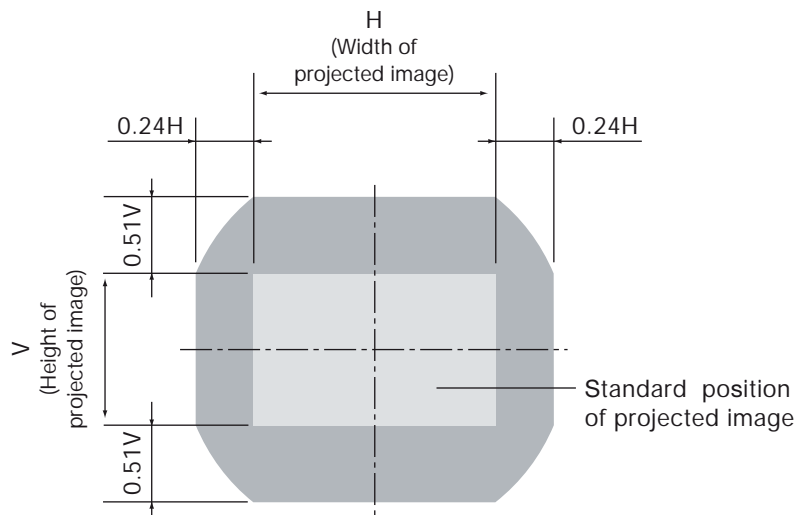   maximum   L (m) = (diagonal screen size in inches) x 0.0592 - 0.061

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

Shift range

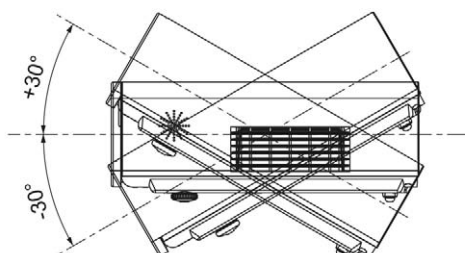Optical axis shift function allows to shift the position of a projected image as shown below.

Installable Angle

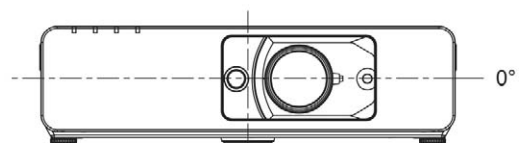Install the projector at an angle within the range shown below..

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

• Horizontal direction
The projector may not be angled horizontally.

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Computer data compatibility

This projector accepts up to 91 kHz horizontal scanning frequency and 193 MHz dot clock.

NOTE: Pixel thinning is applied to signals that exceed a dot clock frequency of 110 MHz. The display resolution of this projector is 1,280 x 800 pixels. If the display resolution indicated in the above data exceeds this resolution, image compression will be used to convert the input signal to 1,280 x 800 pixels.

List of compatible signals

Display mode	Display resolution (dots)[1]	Scanning frequency H (kHz)	V (kHz)	Dot clock frequency (MHz)	Picture quality[2]	Format
NTSC/NTSC4.43/PAL-M/PAL60	720 x 480i	15.7	59.9	-	A	VIDEO/S-VIDEO
PAL/PAL-N/SECAM	720 x 576i	15.6	50.0	-	A	
525i (480i)	720 x 480i	15.7	59.9	13.5	A	COMPONENT
625i (576i)	720 x 576i	15.6	50.0	13.5	A	(YPBPR only) /
525p (480p)	720 x 483	31.5	59.9	27.0	A	COMPUTER (RGB only)
625p (576p)	720 x 576	31.3	50.0	27.0	A	
750 (720)/60p	1280 x 720	45.0	60.0	74.3	A	
750 (720)/50p		37.5	50.0	74.3	A	
1125 (1080)/60i	1920 x 1080i	33.8	60.0	74.3	A	
1125 (1080)/50i		28.1	50.0	74.3	A	
VESA70	640 x 400	31.5	70.1	25.2	A	COMPUTER
VESA85		37.9	85.1	31.5	A	
VGA60	640 x 480	31.5	59.9	25.2	A	
VGA65		35.0	66.7	30.2	A	
VGA72		37.9	72.8	31.5	A	
VGA75		37.5	75.0	31.5	A	
VGA85		43.3	85.0	36.0	A	
SVGA55	800 x 600	35.2	56.3	36.0	A	
SVGA60		37.9	60.3	40.0	A	
SVGA70		48.1	72.2	50.0	A	
SVGA75		46.9	75.0	49.5	A	
SVGA85		53.7	85.1	56.3	A	
MAC16	832 x 624	49.7	74.6	57.3	A	
XGA50	1024 x 768	39.6	50.1	51.9	A	
XGA60		48.4	60.0	65.0	A	
XGA70		56.5	70.1	75.0	A	
XGA75		60.0	75.0	78.8	A	
XGA85		68.7	85.0	94.5	A	
WXGA768/50	1280 x 768	39.6	49.9	65.3	A	
WXGA768/60		47.8	59.9	79.5	A	
WXGA800/50	1280 x 800	41.3	50.0	68.0	AA	
WXGA800/60		49.1	60.2	69.1	AA	
		49.7	59.8	83.5	AA	
MXGA70	1152 x 864	64.0	71.2	94.2	A	
MXGA75		67.5	74.9	108.0	A	
MXGA85		76.7	85.0	121.5	A	
MAC21	1152 x 870	68.7	75.1	100.0	A	
MSXGA60	1280 x 960	60.0	60.0	108.0	A	
SXGA60	1280 x 1024	64.0	60.0	108.0	A	
SXGA75		80.0	75.0	135.0	A	
SXGA85		91.1	85.0	157.5	A	
SXGA60+	1400 x 1050	64.0	60.0	108.0	A	
		65.1	59.9	122.4	A	
WXGA+	1440 x 900	55.9	59.9	106.5	A	
UXGA60	1600 x 1200	75.0	60.0	162.0	A	
WSXGA+	1680 x 1050	65.3	60.0	146.3	A	
WUXGA	1920 x 1200	74.6	59.9	193.3	A	

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

2. The following symbols are used to indicate picture quality.

   AA   Maximum picture quality can be obtained.

   A   Signals are converted by the image processing circuit before picture is projected.

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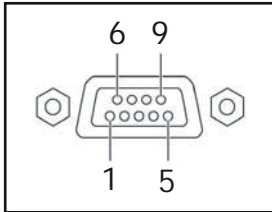
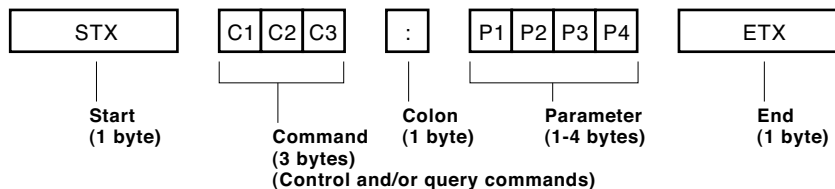| No.	Signal name	Description	No.	Signal name	Signal name
1	–	NC	6	–	NC
2	TXD	Send data	7	CTS	Connected internally
3	RXD	Receive data	8	RTS	Connected internally
4	–	Connected internally	9	–	NC
5	GND	Ground			

D-sub HD 9-pin, female

* **Effective when connected to a PC having proper functions.**

Communication conditions (factory setting)

Signal level	RS-232C-compliant
Synchronization method	Start-stop synchronization
Baud rate	9,600 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 the ID, command, parameter, and ETX are sent in this order. Add parameters according to the details of control.

| STX | | C1 C2 C3 | | : | | P1 P2 P3 P4 | | ETX |

Start (1 byte)

Command (3 bytes) (Control and/or query commands)

Colon (1 byte)

Parameter (1-4 bytes)

End (1 byte)

CAUTIION
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.

NOTE:
If a wrong command is received, the projector will send an ER401 command to the computer.
When sending commands without parameters, a colon (:) is not necessary.

Cable specifications

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

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Control commands

Command: <Parameter>	Function	Callback: <Parameter>	Parameter value Min	Max
`PON`[1]	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>`	–	–
`OST`	The same function as "default" button	`OST`	–	–
`OFZ:<off on>`	Freeze	`OFZ:<off on>`	0	1
`OEN`	Enter	`OEN`	–	–
`VPM:<picture mode>`	Picture mode	`VPM:<picture mode>`	–	–
`:<NAT>`	Natural	`:<NAT>`	–	–
`:<STD>`	Standard	`:<std>`	–	–
`:<DYN>>`	Dynamic	`:<DYN>`	–	–
`:<BBD>`	Blackboard	`:<BBD>`	–	–
`AUU`	Volume up	`AUU`	–	–
`AUD`	Volume down	`AUD`	–	–
`OMN`	Menu	`OMN`	–	–
`OCU`	Cursor up	`OCU`	–	–
`OCD`	Cursor down	`OCD`	–	–
`OCL`	Cursor left	`OCL`	–	–
`OCR`	Cursor right	`OCR`	–	–
`OAS`	Auto setup	`OAS`	–	–
`OSH`[1][2]	Shutter	`OSH`	–	–
`ODW`	Side-by-side	`ODW`	–	–
`OIX`	Index window	`OIX`	–	–
`DZU`	Digital zoom: Enlargement	`DZU`	–	–
`DZD`	Digital zoom: Reduction	`DZD`	–	–
`TSD:<date>`	Date setting	`TSD:<date>`	–	–
`TST:<time>`	Time setting	`TST:<time>`	–	–

[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] When a command other than OSH is sent while the shutter function is operating, the projector will send an ER401 command in reply and release the shutter function.

Status asking commands

Command	Description		Callback <Parameter>
`QPW`	Standby power status		`<power condition>`
`Q$S`	Lamp status		`<lamp condition>`
`QIN`	Input signal status		`<input signal>`
`QAV`	Volume adjustment value		`<pl>`
`QVC`	Color adjustment value		`<pl>`
`QVT`	Tint adjustent value		`<pl>`
`QVB`	Brightness adjustment value		`<pl>`
`QVR`	Contrast adjustment value		`<pl>`
`QVS`	Sharpness adjustment value		`<pl>`
`QWR`	White balance: R adjustment value		`<pl>`
`QWG`	White balance: G adjustment value		`<pl>`
`QWB`	White balance: B adjustment value		`<pl>`
`QHP`	Horizontal position adjustment value		`<pl>`
`QVP`	Vertical position adjustment value		`<pl>`
`QCP`	Clock phase adjustment value		`<pl>`
`QDC`	Dot clock adjustment value		`<pl>`
`QSP`	Projection method status		`<pl>`
`QLG`	On-screen menu language		`<pl>`
`QPM`	Picture mode status	Natural	`<NAT>`
		Standard	`<STD>`
		Dynamic	`<DYN>`
		Blackboard	`<BBD>`
`QFZ`	Freeze status		`<off_on>`
`Q$L`	Lamp run time		`<acctch>`
`QSH`	Shutter function status		`<off/on>`
`QKS`	Keystone correction status		`<pl>`
`QTE`	Color temperature adjustment status		`<color temp>`
`QGD`	Date setting status		`<date>`
`QGT`	Time setting status		`<time>`

Parameter format

Parameter format	Size (Byte)	Difinition
<pl>	3 (1 or 2 bytes also possible when under control)	Dicimal without signs: 0-999 (000, 001, 002...999) Dicimal 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	RG1 = computer 1, RG2 = computer 2, NWP = network, YUV = component, VID = video, SVD = S-Video
<installation>	1	0 = front, 1 = rear, 2 = ceiling and front, 3 = ceiling and rear
<language>	3	ENG = English, DEU = German, FRA = French, ESP = Spanish, ITL = Italian, JPN = Japanese, CHI = Chinese, POR = Portuguese, SVE = Swedish, NOR = Norwegian, DAN = Danish, POL = Polish, CES = Czech, MAG = Hungarian, RUS = Russian, THA = Thai, KOR = Korean
<power condition>	3	000 = power on (standby mode on), 001 = power off (standby mode off)
<lamp condition>	1	0 = standby, 1 = lamp on under control, 2 = lamp off, 3 = lamp off under control
<acctch>	4	Dicimal without signs: 0000-9999 hours
<color temp>	1	0 = economy, 1 = normal
<date>	8	y1y2y3y4m1m2d1d2w = year (y) month (m) day (d) day of week (w) Day of week: Monday = 1, Tuesday = 2, ... Sunday = 7
<time>	6	h1h2m1m2s1s2 = hour (h) minute (m) second (s)

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.

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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 an unobstructed space of 500 mm (19-11/16˝) or more around the projector's exhaust openings.
3. If the projector is placed in a box or enclosure, ensure the temperature of the air surrounding the projector is between 0°C/32°F and 35°C/95°F. Also make sure the projector's intake and exhaust openings are not blocked. Take particular care to ensure that hot air from the exhaust openings is not sucked into the intake openings.

200 mm (7-7/8˝) or more   500 mm (7-5/8˝) or more   500 mm (7-5/8˝) or more
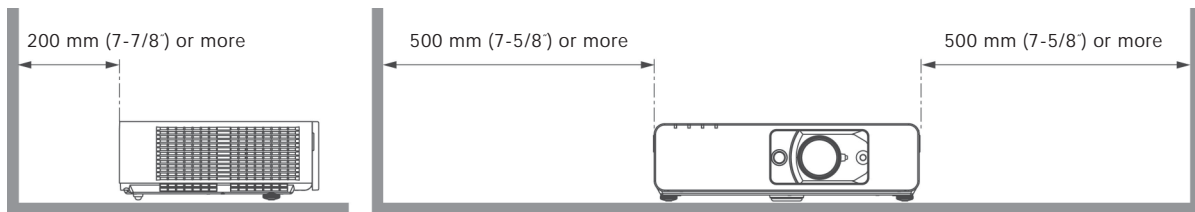
Direction of Air Intake and Exhaust

Intake

Exhaust
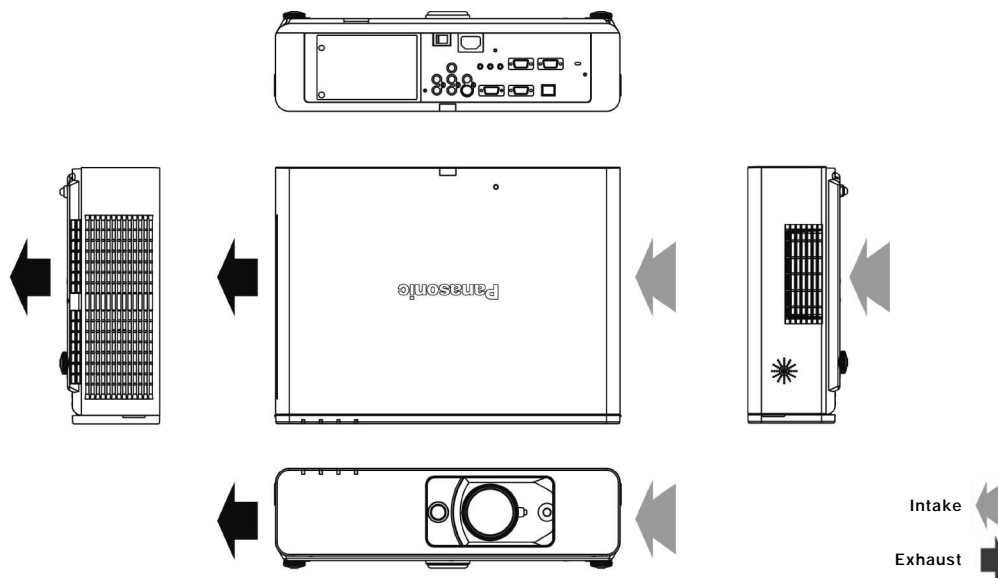
Operating the Projector Continuously

1. If the projector is to be operated continuously 10 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.

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