Panasonic

ideas for life

PT-LB51NTU
PT-LB51U

Micro Portable XGA LCD Projectors

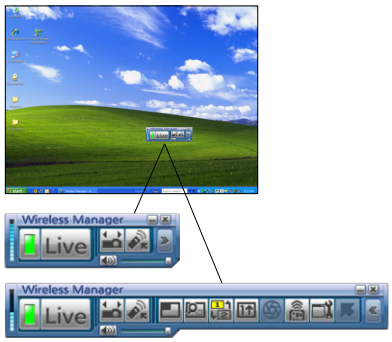
2000 lm XGA

Practical and Easy.

A New Level of **Wireless** Convenience.

Wireless Projection the Easy Way

The PT-LB51NTU's wireless ability completely eliminates the need for PC cable connection. You simply bring in your laptop (with a wireless LAN function) for smooth, hassle-free presentations and flexible room layouts. The supplied Wireless Manager ME 4.5 software makes setup quick and easy, and a host of wireless functions complement projector applications. On top of all this, the PT-LB51NTU and PT-LB51U incorporate Panasonic's original Daylight View 2 technology, which makes images easy to see even in brightly lit rooms.



Wireless Manager Control Panel (Launcher)
To begin wireless projection, simply use the control panel (launcher) displayed in the PC window.

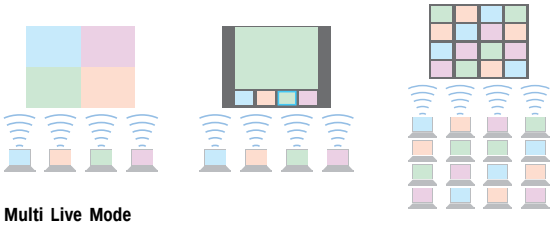
Easy Wireless Projection
(PT-LB51NTU)

Easy Wireless Projection from Multiple PCs
You can make the settings for wireless connection quickly and easily using Wireless Manager ME 4.5 software. When the presentation is finished, Wireless Manager restores the PC to its previous LAN settings, so the PC is ready to reconnect to your LAN. Wireless Manager functions include Live mode and Multi-Live mode. In Live mode, the image projected is identical to the image seen on the PC screen. In Multi-Live mode, you can wirelessly connect with multiple PCs.

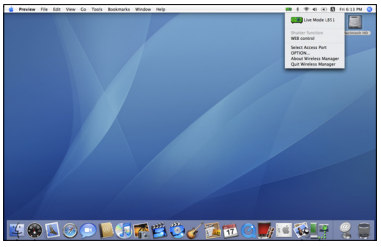
Virtual Remote Control
The same graphics used on the projector's remote control can be displayed on the PC screen. This makes it easy to operate the projector right from the PC, without having to use the remote control.

Easy Connection
Wireless Manager ME 4.5 greatly simplifies the PC-projector connection procedure. Simply press the "Computer Search" button on the supplied remote control and the projector locates all live-mode ready PCs in the area. All you do is select the desired PC-to-projector connection.

Four-window style | **Index style (Four thumbnails)** | **Extended index style (16 thumbnails)**



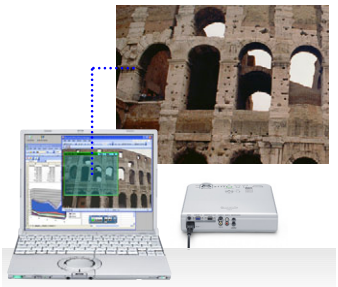
Multi Live Mode
The PT-LB51NTU provides a host of convenient wireless functions, including Wireless Prompter (Secondary Display Transmission), selective area transmission and a 16-window index style that lets you project images from up to 16 PCs at the same time. Wireless transmission is possible from one PC to a maximum of eight projectors at a time.



Windows Vista™/Macintosh Compatibility
Wireless Manager ME 4.5 is Microsoft® Windows Vista™ compatible, and also allows wireless projection (in Live mode only) from a Macintosh computer running Mac OS X (v10.4 or later).

More convenient wireless functions (PT-LB51NTU)

Selective Area Transmission



By using the area select window, you can specify the necessary information alone from the computer screen, and display it on the projection screen.

Wireless Prompter Function (Secondary Display Transmission)

This allows transmission of content other than what's displayed on your PC. For example, you can display text documents on your PC screen while projecting slide from your Microsoft® PowerPoint® presentation*1.

Multiple Source Live Mode

You can simultaneously project a single computer's screen on up to eight projectors. This mode is useful when a number of projectors are installed, for example, in a large conference room, or when holding simultaneous presentations in several conference rooms.

- No need for PC cable connection
- Multiple PC connection capability
- A wide variety of wireless functions

Daylight View 2

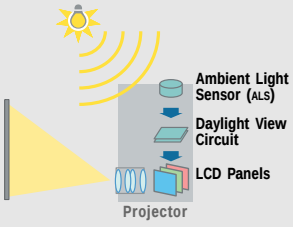
Crisp, Clear Images in a Well-Lit Room

Panasonic's Daylight View 2 technology, which helps project sharp, crisp images that are easy to see even in brightly lit rooms. A built-in sensor measures the ambient light, and the halftone colour and brightness level are adjusted accordingly in real-time.

Simulated image when the Daylight View 2 is turned off.

Simulated image when the Daylight View 2 is turned on.

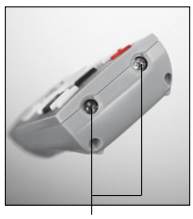
The Daylight View 2 Process



Presentation Flexibility

Easy-to-Use Remote Control

The control range and distance have been extended compared to previous models, and the buttons are now larger and easier to use.



Equipped with two transmitters for an extended remote control range.

PT-LB51NTU

PT-LB51U

The PT-LB51NTU's supplied remote control features Microsoft® PowerPoint® page up/down capability.

Blackboard Mode

This special picture mode allows the PT-LB51NTU to project images onto an ordinary classroom or conference room blackboard when a projection screen is not available.

Ultra-Lightweight and Compact

At only 1.8 kg or 1.9 kg*2, PT-LB51NTU and PT-LB51U won't weigh you down—even when you're carrying with you a laptop. Both models are 297 mm wide by 210 mm deep—about the size of an A4 sheet of paper—and only 57 mm high. They slip easily into a bag or briefcase.

Rear view

Equipped with two computer (RGB) inputs. The computer (RGB) 2 IN can be switched to computer (RGB) 1 OUT for loop-through monitoring.

Quick Operation

Customizable Function Button

One frequently used function can be assigned to this button on the top panel of the projector for instant, pushbutton use. Select from shutter, auto setup, picture mode, freeze, and index window functions.

Two-Second Speed Start

With Speed Start, the image appears in about two seconds after you press the power button.

Auto Search

When a source is connected and you switch the unit on, it automatically detects what kind of source is connected and begins projection.

Real-Time Keystone Correction

The projector automatically senses if you adjust its angle (vertical direction) during operation and instantly makes whatever keystone correction is necessary for optimum viewing.

Direct Power Off

You can disconnect the power cable and move the projector as soon as your presentation is finished, because the cooling fan keeps operating until the lamp is cooled.

Other Features

• Operation assistance •Short-throw zoom lens • Anti-theft features: User password, control panel lock and text superimposing • Projector AI • Index Window • Auto power off • HDTV compatibility • Full compatibility with sRGB colour space for accurate colour reproduction (in natural mode) • Picture mode selection (standard/dynamic/natural) • 3x digital zoom • Shutter function for image/sound muting • Selectable 17-language on-screen menu • Ceiling mountable (option)

*1 With Wireless Manager ME 4.5, you can use the projector screen as a secondary monitor for the PC. In this setup, Microsoft® PowerPoint® must be set to "Show Presenter View."
*2 1.8 kg for the PT-LB51U; 1.9 kg for the PT-LB51NTU.

Specifications

Model number	PT-LB51NTU	PT-LB51U
Power supply	100–240 V AC, 50/60 Hz	
Power consumption	240 W (Approx. 4 W in standby mode with fan stopped)	
LCD panel	4:3 aspect ratio	
Panel size	0.6″ (15.24 mm) diagonal	
Display method	Transparent LCD panel (x 3, R/G/B)	
Drive method	Active matrix	
Pixels	786,432 (1,024 x 768) x 3, total of 2,359,296 pixels	
Pixel configuration	Stripe	
Lens	Manual zoom (1:1–1:1.2), manual focus, F 1.6 –1.9, f 18.8– 22.6 mm	
Lamp	165 W UHM™ lamp	
Colors	Full color (16,777,216 colors)	
Brightness	2,000 lumens	
Contrast	400:1*1 (full on/full off)	
Scanning frequency		
RGB	Horizontal: 15–91 kHz, Vertical: 50–85 Hz	
YP_BP_R	480i (525i): f_H 15.75 kHz; fv 60 Hz, 480p (525p): f_H 31.5 kHz; fv 60 Hz 576i (625i): f_H 15.63 kHz; fv 50 Hz, 576p (625p): f_H 31.25 kHz; fv 50 Hz 720p (750p): f_H 45 kHz; fv 60 Hz, 1080i (1125i): f_H 33.75 kHz; fv 60 Hz, 1080i (1125i): f_H 28.125 kHz; fv 50Hz	
S-Video/Video	NTSC, NTSC4.43, PAL-M, PAL60: f_H 15.75 kHz; fv 60 Hz, PAL, SECAM, PAL-N: f_H 15.63 kHz; fv 50 Hz	
Projection size	33–300 inches/838–7,620 mm diagonally	
Throw distance	1.1 m–11.1 m (3′7″–36′5″)	
Optical axis shift	6:1 (fixed)	
Keystone correction range	Vertical: ±30°	
On-screen menu	17 languages: English, French, German, Spanish, Italian, Korean, Russian, Chinese, Japanese, Swedish, Norwegian, Danish, Portuguese, Polish, Hungarian, Czech, and Thai	
Installation	Front/rear ceiling/desk (menu selection)	
Built-in speakers	4 x 2 cm x 1 (oval), 1.0 W (monaural) output power	
Terminals		
COMPUTER 1 IN	D-sub HD 15-pin x 1	
COMPUTER 2 IN/1 OUT	D-sub HD 15-pin x 1 (input/output selectable using on-screen menu)	
VIDEO IN	RCA pin x 1	
S-VIDEO IN	Mini DIN 4-pin x 1	
AUDIO IN	RCA (L-R) x 1 (for VIDEO/S-VIDEO)	
COMPUTER AUDIO IN	M3 (stereo) x 1 (for COMPUTER 1 and COMPUTER 2)	
VARIABLE AUDIO OUT	M3 (stereo) x 1	
SERIAL	Mini DIN 8-pin x 1 (RS-232C)	
Power cord length	2 m (6′7″)	
Cabinet material	Moulded material (PC + ABS)	
Dimensions*2 (W x H x D)	297 x 57 x 210 mm (11-11/16″ x 2-7/32″ x 8-1/4″)	
Weight	1.9 kg (4.2 lbs.)	1.8 kg (4.0 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*3	Approx. 15 m (19.2 feet) 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	IEEE802.11b/g	–
Supplied accessories	Power cord, Wireless remote control, Batteries for remote control, VGA cable, Carrying bag, Wireless Manager ME 4.5 (CD-ROM)	Power cord, Wireless remote control, Batteries for remote control, VGA cable, Carrying bag
Optional accessories	ET-LAB50 Replacement lamp unit, ET-PKB50 Ceiling mount bracket ET-ADSER Serial adapter (DIN 8-pin/D-sub 9-pin)	

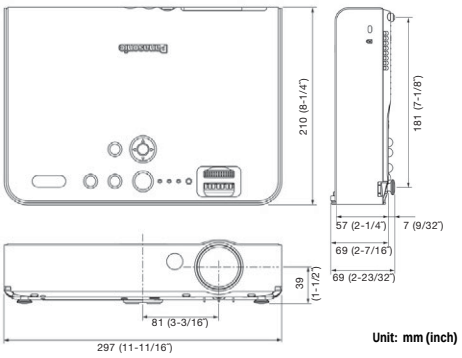
*1: In AI mode. *2: Legs and protruding parts not included. *3: Operation range differs depending on the environment.

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™ Ultimate 32-bit, Windows Vista™ Business 32-bit, Windows Vista™ Home Premium 32-bit, Windows Vista™ Home Basic 32-bit, Apple Mac OS X 10.4
NOTE:	**Some functions are not available with Windows Vista™ and Mac OS X.**
Web browser:	Windows®: Internet Explorer 6.0 or later, or Netscape Communicator 7.0 or later. Macintosh: Safari 2.0 or later
CPU:	Windows®: Intel® Pentium® III or higher, or other compatible processor (800 MHz or higher is recommended). Macintosh: PowerPC G4 with 800 MHz or more, or Intel® Core™ Duo with 1.8 GHz or more.
Memory:	256 MB or more (Macintosh: 512 MB or more is recommended)
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.**

Visit the **Projectors Global Web Site** shown below for the latest information.

Dimensions



Unit: mm (inch)

Projection Distance

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″	– / –	1.1 m / 3.9′	0 – 0.07 m / 0 – 0.2′
1.02 m / 40″	1.2 m / 4.0′	1.4 m / 4.7′	0 – 0.09 m / 0 – 0.3′
1.27 m / 50″	1.6 m / 5.0′	1.8 m / 5.9′	0 – 0.11 m / 0 – 0.4′
1.52 m / 60″	1.9 m / 6.0′	2.1 m / 7.2′	0 – 0.13 m / 0 – 0.4′
1.78 m / 70″	2.2 m / 7.0′	2.5 m / 8.4′	0 – 0.15 m / 0 – 0.5′
2.03 m / 80″	2.5 m / 8.0′	2.9 m / 9.6′	0 – 0.17 m / 0 – 0.6′
2.29 m / 90″	2.8 m / 9.0′	3.3 m / 10.8′	0 – 0.19 m / 0 – 0.6′
2.54 m / 100″	3.1 m / 10.0′	3.6 m / 12.0′	0 – 0.21 m / 0 – 0.7′
3.05 m / 120″	3.7 m / 12.0′	4.4 m / 14.5′	0 – 0.25 m / 0 – 0.9′
3.81 m / 150″	4.6 m / 15.1′	5.5 m / 18.1′	0 – 0.32 m / 0 – 1.1′
5.08 m / 200″	6.2 m / 20.1′	7.3 m / 24.2′	0 – 0.42 m / 0 – 1.4′
6.35 m / 250″	7.7 m / 25.1′	9.2 m / 30.3′	0 – 0.53 m / 0 – 1.8′
7.62 m / 300″	9.2 m / 30.2′	11.1 m / 36.4′	0 – 0.64 m / 0 – 2.1′

Optional Accessories

Replacement lamp unit: ET-LAB50

Ceiling mount bracket: ET-PKB50

Ecology-Conscious Design

Panasonic works from every angle to minimise environmental impact in the product design, production and delivery processes, and in the performance of the product itself over its life cycle. The PT-LB51 series projectors reflect the following ecological considerations.

- No halogenated flame retardants are used in the cabinet.
- No styrofoam is used in the packing materials.
- Lead-free glass is used for the lens.
- The packing case and operating manual are made from recycled paper.

NOTES ON USE

- The projector uses a high-voltage mercury lamp that contains high internal pressure. This lamp may break, emitting a large sound, or fail to illuminate, due to impact or extended use. The length of time that it takes for the lamp to break or fail to illuminate varies greatly depending on individual lamp characteristics and usage conditions.
- The brightness of the lamp will gradually decrease with use.
- The projector includes consumable parts. The frequency of replacement for the lamp and other consumable parts will increase if the projector is subjected to extended, continuous use. For details, please consult a service representative.

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Projectors Global Web Site: **http://panasonic.co.jp/pavc/global/projector**

Please contact Panasonic or your dealer for a demonstration.

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CERTIFIED JQA MANAGEMENT SYSTEM ISO 9001
JQA-1617

JAB EMS Accreditation RE 009

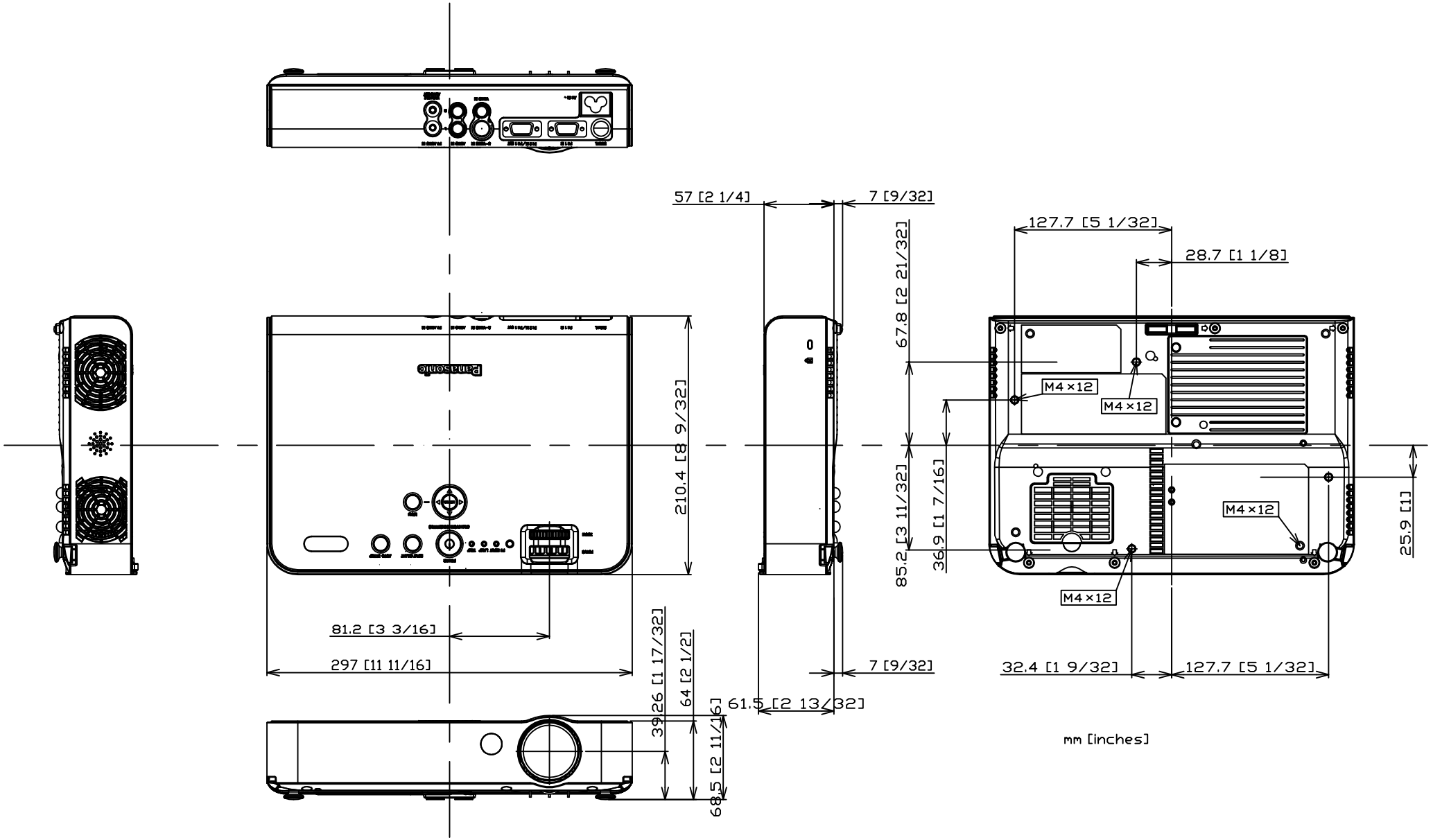
ISO 14001 JACO JAPAN ACCREDITATION ORGANIZATION FOR ENVIRONMENT AND QUALITY

UKAS ENVIRONMENTAL MANAGEMENT 051

PT-LB51NTU1-07JUN30K Printed in Japan.

Panasonic Projector

PT-LB51NT / LB51 / LB51S



mm [inches]

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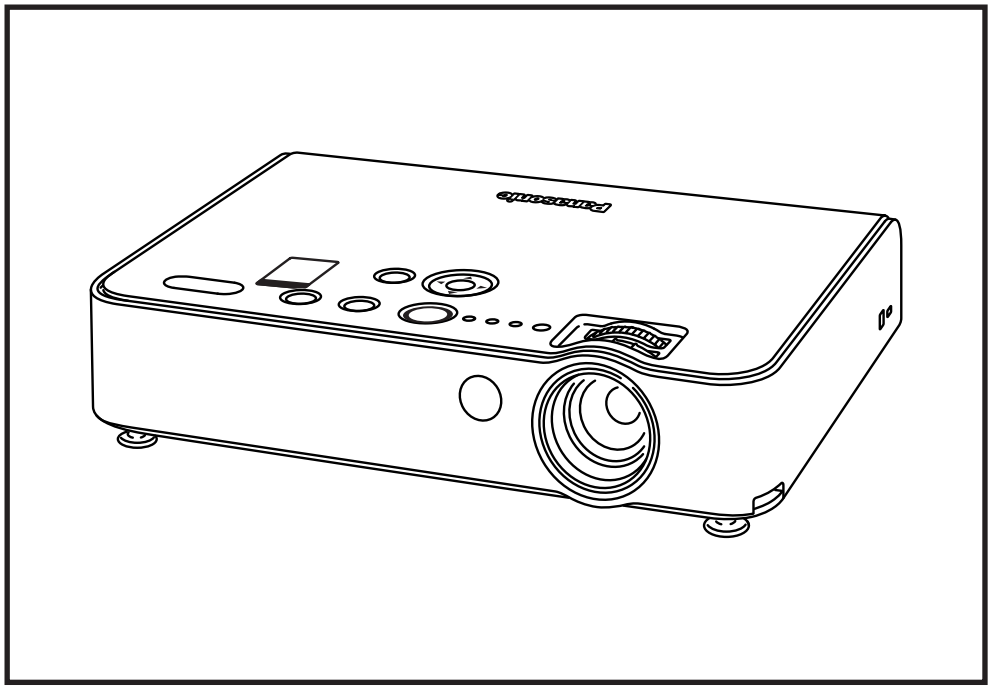
SPEC FILE



Product Number : PT-**LB51**

Product Name : Micro-Portable Wireless LCD Projector

Micro-Portable Wireless LCD Projector

PT-LB51

Specifications

Power supply		100–240 V AC, 50/60 Hz
Power consumption		240 W (approx. 4 W in standby mode with fan stopped.)
Optical system		Dichroic mirror separation/prism synthesis system
LCD panel	Panel size	0.6″ (15.24 mm) diagonal, micro lens array (4:3 aspect ratio)
	Display method	Transparent LCD panel (x 3, R/G/B)
	Drive method	Active matrix
	Pixels	786,432 (1,024 x 768) x 3, total of 2,359,296 pixels
	Pixel configuration	Stripe
Lens		Manual zoom (1:1–1:1.2), manual focus
		F 1.6–1.9, f 18.8–22.6 mm
Lamp		165 W UHM™ lamp
Colors		Full color (16,777,216 colors)
Brightness		2,000 lumens
Center-to-corner uniformity ratio		85%
Contrast ratio		400:1*1 (full on/full off)
Resolution RGB		1,024 x 768 pixels (Input signals that exceed this resolution will be converted to 1,024 x 768 pixels.)
Scanning frequency	RGB	Horizontal: 15.00–91.00 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
		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, 4:3 aspect ratio
Throw distance		1.1 m–11.1 m (3′7″–36′5″)
Optical axis shift		6:1 (fixed)
Keystone correction range		Vertical: approx. ±30°
On-screen menu		17 languages: English, French, German, Spanish, Italian, Korean, Russian, Chinese, Japanese, Swedish, Norwegian, Danish, Portuguese, Polish, Hungarian, Czech, and Thai
Installation		Front/rear, ceiling/desk (menu selection)
Built-in speakers	Size	4 x 2 cm x 1, oval
	Output power	1.0 W (monaural)
Terminals	COMPUTER (RGB) 1 IN	D-sub HD 15-pin x 1
	RGB signal	R, G, B: 0.7 Vp-p, 75 Ω, Sync on green: 1.0 V [p-p], 75 Ω, HD/SYNC, VD: TTL (positive/negative polarity compatible)
	YP_BP_R signal	Y: 1.0 V [p-p] (including sync signal), 75 Ω, P_B, P_R: 0.7 Vp-p, 75 Ω
	COMPUTER (RGB) 2 IN/1 OUT	
		D-sub HD 15-pin x 1 (input/output selectable using on-screen menu)
	RGB signal	R, G, B: 0.7 V [p-p], 75 Ω, Sync on green: 1.0 V [p-p], 75 Ω, HD/SYNC, VD: TTL (positive/negative polarity compatible)
	YP_BP_R signal	Y: 1.0 V [p-p] (including sync signal), 75 Ω, P_B, P_R: 0.7 V [p-p], 75 Ω
	VIDEO IN	RCA pin x 1, 1.0 Vp-p, 75 Ω
	S-VIDEO IN	Mini DIN 4-pin x 1, Y: 1.0 V [p-p], C: 0.286 V [p-p], 75 Ω
	COMPUTER AUDIO IN	M3 (L, R) x 1, 0.5 V [rms], for COMPUTER (RGB) 1 and 2
	AUDIO IN	RCA (L, R) x 1, 0.5 V [rms], for VIDEO and S-VIDEO
	AUDIO OUT	M3 (L, R) x 1, 0–2.0 V [rms] (variable)
	SERIAL	Mini DIN 8-pin x 1, for external control (RS-232C)
Power cord length		2 m/6.6′
Cabinet material		Moulded plastic (PC + ABS)

Dimensions (W x H x D)		297 x 57 x 210 mm (11-11/16″ x 2-7/32″ x 8-1/4″)*2
Weight		1.8 kg (4.0 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*3	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)

Supplied accessories	Power cord Wireless remote control Batteries for remote control VGA cable Carrying bag
Optional accessories	Replacement lamp unit: ET-LAB50 Ceiling mount bracket: ET-PKB50 Serial adapter (DIN 8-pin/D-sub 9-pin): ET-ADSER

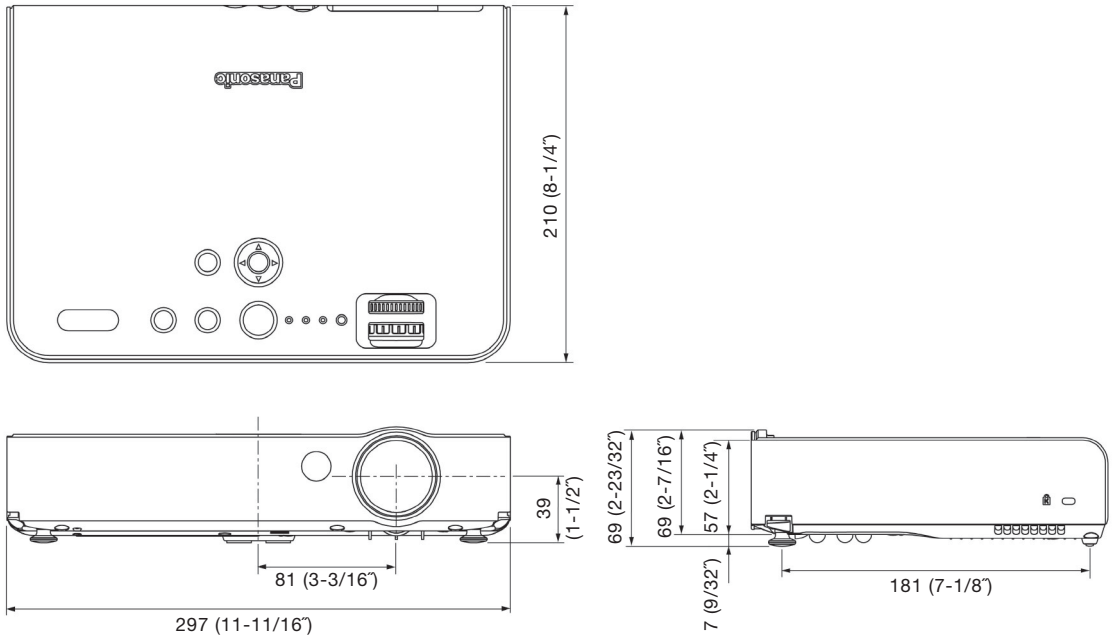
***1: In AI mode. *2: Operation range differs depending on environments.**
Weights and dimensions shown are approximate. Specifications subject to change without notice.

Micro-Portable Wireless LCD Projector

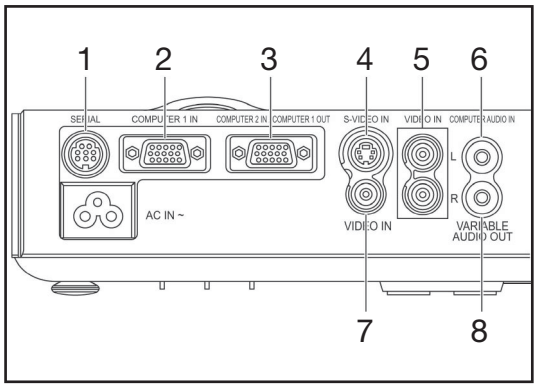
PT-LB51

Dimensions

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



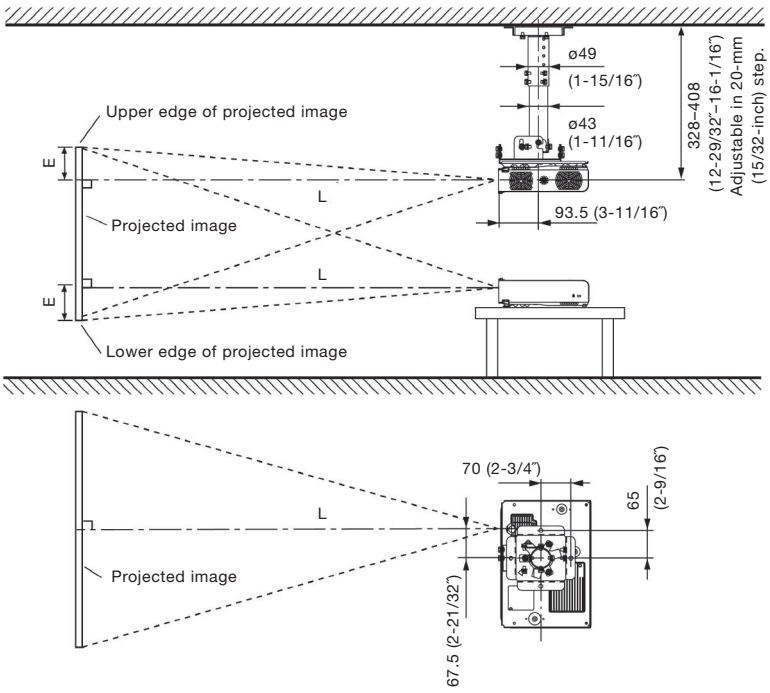
Terminals



1 Serial
2 COMPUTER (RGB) 1 input
3 COMPUTER (RGB) 2 input/COMPUTER (RGB) 1 output
4 S-Video input
5 Audio input for Video/S-Video
6 Audio input for COMPUTER 1/2
7 Video input
8 Audio output

Standard setting-up positions

unit : mm (inch)



L: 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 size (diagonal)	Projection distance (L) Min (wide)	Max (telephoto)	Height from the edge of screen to center of lens (H)
0.84 m / 33˝	– / –	1.1 m / 3.9´	0 – 0.07 m / 0 – 0.2´
1.02 m / 40˝	1.2 m / 4.0´	1.4 m / 4.7´	0 – 0.09 m / 0 – 0.3´
1.27 m / 50˝	1.6 m / 5.0´	1.8 m / 5.9´	0 – 0.11 m / 0 – 0.4´
1.52 m / 60˝	1.9 m / 6.0´	2.1 m / 7.2´	0 – 0.13 m / 0 – 0.4´
1.78 m / 70˝	2.2 m / 7.0´	2.5 m / 8.4´	0 – 0.15 m / 0 – 0.5´
2.03 m / 80˝	2.5 m / 8.0´	2.9 m / 9.6´	0 – 0.17 m / 0 – 0.6´
2.29 m / 90˝	2.8 m / 9.0´	3.3 m / 10.8´	0 – 0.19 m / 0 – 0.6´
2.54 m / 100˝	3.1 m / 10.0´	3.6 m / 12.0´	0 – 0.21 m / 0 – 0.7´
3.05 m / 120˝	3.7 m / 12.0´	4.4 m / 14.5´	0 – 0.25 m / 0 – 0.9´
3.81 m / 150˝	4.6 m / 15.1´	5.5 m / 18.1´	0 – 0.32 m / 0 – 1.1´
5.08 m / 200˝	6.2 m / 20.1´	7.3 m / 24.2´	0 – 0.42 m / 0 – 1.4´
6.35 m / 250˝	7.7 m / 25.1´	9.2 m / 30.3´	0 – 0.53 m / 0 – 1.8´
7.62 m / 300˝	9.2 m / 30.2´	11.1 m / 36.4´	0 – 0.64 m / 0 – 2.1´

*** 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.

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) x 0.0307 - 0.0310
- maximum L (m) = (diagonal screen size in inches) x 0.0371 - 0.0290

Aspect ratio 16 : 9
- minimum L (m) = (diagonal screen size in inches) x 0.0335 - 0.0315
- maximum L (m) = (diagonal screen size in inches) x 0.0405 - 0.0365

Computer data compatibility

This projector accepts up to 91 kHz horizontal scanning frequency and 162 MHz dot clock.

NOTE: Pixel thinning is applied to signals that exceed a dot clock frequency of 100 MHz. The display resolution of this projector is 1,024 x 768 pixels. Input signals that exceed this resolution will be converted to 1,024 x 768 pixels.

List of compatible signals

Display mode	Display resolution (dots)[1]	Scanning frequency H (kHz)	Scanning frequency 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	COMPUTER/
625i (576i)	720 x 576i	15.6	50.0	13.5	A	COMPONENT
525p (480p)	720 x 480	31.5	59.9	27.0	A	
625p (576p)	720 x 576	31.3	50.0	27.0	A	
750 (720)/60p	1,280 x 720	45.0	60.0	74.3	A	
1125 (1080)/60i	1,920 x 1,080i	33.8	60.0	74.3	A	
1125 (1080)/50i		28.1	50.0	74.3	A	
VGA400	640 x 400	31.5	70.1	25.2	A	COMPUTER
		37.9	85.1	31.5	A	
VGA480	640 x 480	31.5	59.9	25.2	A	
		35.0	66.7	30.2	A	
		37.9	72.8	31.5	A	
		37.5	75.0	31.5	A	
		43.3	85.0	36.0	A	
SVGA	800 x 600	35.2	56.3	36.0	A	
		37.9	60.3	40.0	A	
		48.1	72.2	50.0	A	
		46.9	75.0	49.5	A	
		53.7	85.1	56.3	A	
MAC16	832 x 624	49.7	74.6	57.3	A	
XGA	1,024 x 768	48.4	60.0	65.0	AA	
		56.5	70.1	75.0	AA	
		60.0	75.0	78.8	AA	
		68.7	85.0	94.5	AA	
	1,280 x 768i	35.5	87.0	44.9	AA	
MXGA	1,152 x 864	64.0	71.2	94.2	B	
		67.5	74.9	108.0	B	
		76.7	85.0	121.5	B	
MAC21	1,152 x 870	68.7	75.1	100.0	B	
MSXGA	1,280 x 960	60.0	60.0	108.0	B	
SXGA	1,280 x 1,024	64.0	60.0	108.0	B	
		80.0	75.0	135.0	B	
		91.1	85.0	157.5	B	
SXGA+	1,400 x 1,050	64.0	60.0	108.0	B	
		65.1	60.0	122.4	B	
UXGA60	1,440 x 900	75.0	60.0	162.0	B	
WXGA	1,600 x 1,200	47.8	59.9	79.5	A	
		49.7	59.8	83.5	A	
WXGA+	1,440 x 900	55.9	59.9	106.5	A	

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

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

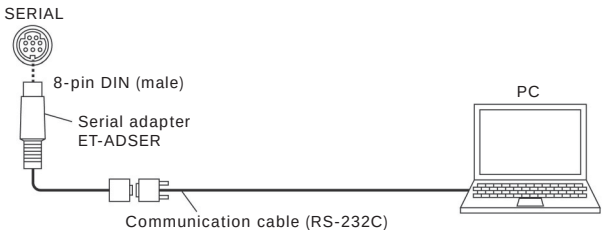
AA Maximum picture quality can be obtained.

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

B Signals are compressed by the image processing circuit before picture is projected.

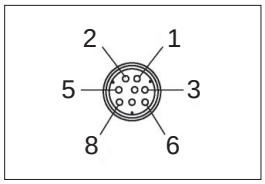
Serial connector

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.



CAUTIION
Be sure to see that an optional serial adapter ET-ADSER and a RS-232C communication cable match the PC to be connected.

Pin assignments and signal names



Mini DIN 8-pin

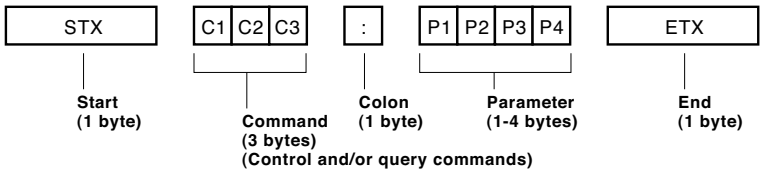
No.	Signal name	Description	No.	Signal name	Description
1	–	Connected internally	5	TXD	Send data
2	–	Connected internally	6	–	Connected internally
3	RXD	Receive data	7	–	NC
4	GND	Ground	8	–	NC

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

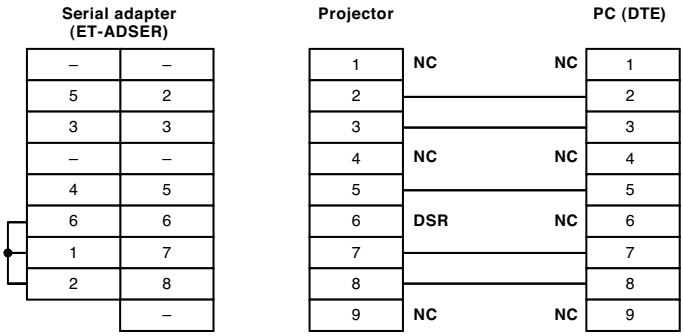
Basic format

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.



CAUTIION
When sending multiple commands, be sure to send the next command after receiving a response from the projector.

Cable specifications



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

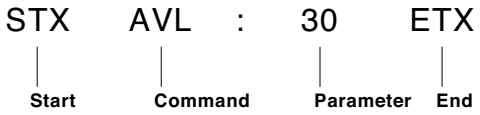
Parameter format

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, 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
<lamp power>	1	0 = economy, 1 = normal
<color temp>	1	0 = low, 1 = standard, 2 = high

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.

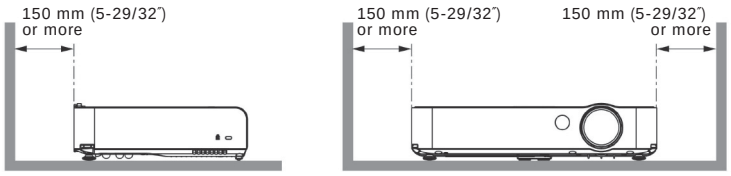


NOTE: When sending commands without parameters, a colon (:) is not necessary.

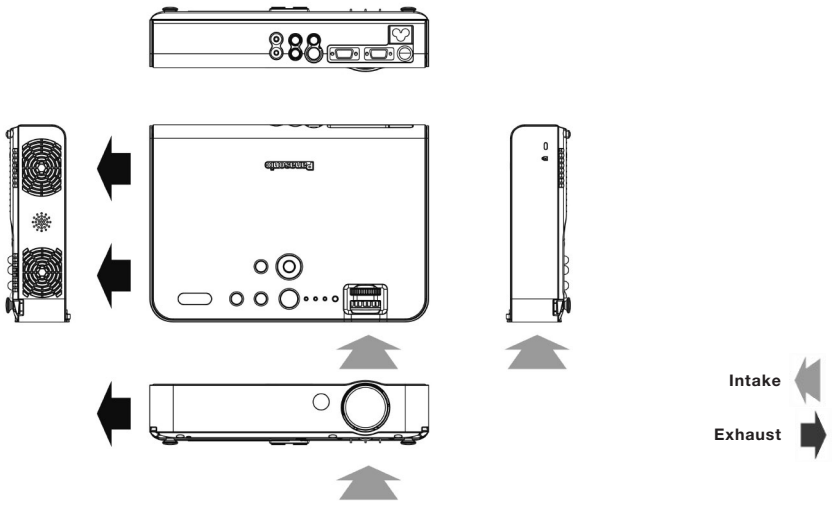
Notes on Projector Placement and Operation:

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 an unobstructed space of 150 mm (5-29/32″) 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.



Direction of Air Intake and 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.