Panasonic

ideas for life

PT-**LB90** Series
LCD Projectors

PT-**LB90NT**U
PT-**LB90**U
PT-**LB78V**U

Versatile Performance
with
Eco in Mind

LB 90NT X6A

Bright, Easy-to-Use, Dust-Resistant Portable Projectors

The Panasonic LB90 Series is designed for people who want a projector with excellent basic performance and ease of use—in both portable and ceiling-mounted applications. This versatile series ensures solid performance with a **dust-resistant structure**, which minimizes any dust-related image degradation, and a low standby power consumption of 0.9 W[*1] to reduce environmental impact.

The PT-LB90NTU also features a **network function** that allows wireless/wired LAN configurations. Connecting the projector to a wireless LAN system further boosts the layout flexibility during presentations.

Wired LAN connection enables remote operation, which is especially **ideal for ceiling-mounted use**.

Multi Projector Monitoring and Control Software, which lets you monitor and control several Panasonic projectors from a single computer, is also available.

The compact body of the LB90 Series is filled with Panasonic projector technologies to meet needs of many kinds.

Choose the one that suits your needs

PT-**LB90NT**U
| 3500 lm | XGA | Network |

PT-**LB90**U
| 3500 lm | XGA |

PT-**LB78V**U
| 3000 lm | XGA |

*1 In Eco Standby mode, network functions such as Standby On via LAN are not available, and only certain commands can be received from RS-232C control.

Versatile Basic Performance

An Ecological Design with a Reliable Dust-Resistant Structure and Low Standby Power Consumption of 0.9 W[*1]

Touch Sensor Controls
Lens Cover
Zoom/Focus Ring Cover
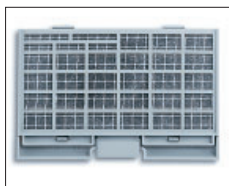Micro Cut Filter

Air out

Air In

Touch-sensor controls on the top.

Dust-Resistant Structure Minimizes Image Degradation

After a projector has been used for some time, dust particles that have entered the interior accumulate on the optical components and lower their performance. The LB90 Series prevents this with a unique dust-resistant structure. The LB90 Series has touch-sensor controls that eliminate the gaps around conventional buttons, and a lens cover. The design also incorporates a cover that protects the zoom/focus ring when not in use. These features combine to help reduce dust entry. And they all work together with the high-performance Micro Cut Filter, which effectively traps dust particles, to minimize brightness degradation.

A zoom/focus ring cover and lens cover.

Micro Cut Filter
This electrostatic filter uses an ion effect to attract and trap dust particles.

Daylight View 4 Offers Clear, Crisp Images Even in Bright Surroundings[*2]

Daylight View 4 measures the surrounding illumination with a built-in ambient light sensor, and corrects the image in real-time to project clear, crisp images even in brightly lit rooms. It improves perceived sharpness, brightness and contrast, and projects lifelike images with remarkable depth.

Daylight View 4

Simulated image with Daylight View 4 turned off.
Overall contrast appears lower, and images in dark areas cannot be seen.

Simulated image with Daylight View 4 turned on.
Even the details in shadows are clearly rendered. The sharpness, brightness and contrast of the entire screen are improved.

Low Standby Power Consumption of 0.9 W[*1]

The ecological design of the LB90 Series greatly reduces its environmental impact. In Eco Standby mode, power consumption is only 0.9 W[*2]. This reduction brings standby power consumption down to about 1/3 the level of previous Panasonic models[*3]. As examples of other environmental design features, no styrofoam is used in packing materials, no halogenated flame retardants are used in the cabinet, lead-free glass is used for the lens, and an Auto Off Timer switches the projector to Standby mode when no input signal is received for a preset time. The LB90 Series also complies with the standards of the RoHS Directive[*4].

Eco Information
- No styrofoam is used in packing materials.
- No halogenated flame retardants are used in the cabinet.
- Lead-free glass is used for the lens.
- An Auto Off Timer switches the projector to Standby mode when no input signal is received for a preset time.

*1 In Standby Eco mode, network functions such as Standby On via LAN are not available, and only certain commands can be received from RS-232C control.
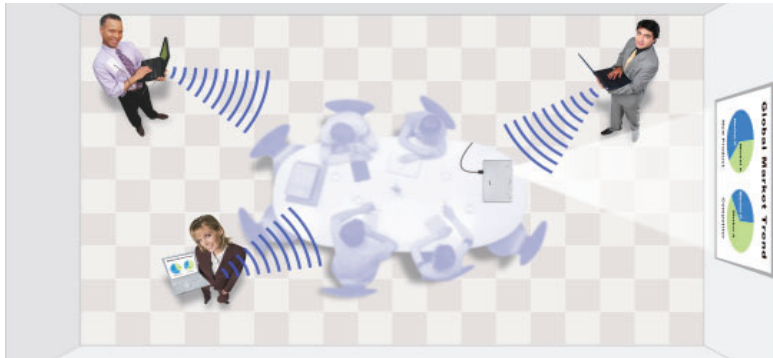*2 There is no actual change in the rated brightness or contrast ratio.
*3 Reduced from 3 W in the PT-LB80NTU to 0.9 W in the PT-LB90NTU.
*4 Restriction of the use of certain Hazardous Substances. The specified toxic substances used in the electrical and electronic equipment that is manufactured and distributed within Europe are controlled (the six substances are lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl esters (PBDE)), and all Panasonic projectors comply with the standards of the European RoHS Directive.

Wired/Wireless LAN Compatible Network Functions
(Only on the PT-LB90NTU)

Quick and Easy Set-Up for Flexible Presentations

The Wireless Manager ME5.5 application that is included with the projector makes it easy to send and display a computer screen when the PC and projector are connected to a wired or wireless*5 LAN system. You can also send audio*6 and video*7 files. The application is compatible with both Windows® and Macintosh, and can be used with a wide range of computers. Wireless Manager ME 5.5 operation can be controlled with the launcher that is displayed on the PC screen. Its graphic display further simplifies operation. When connected to a wireless LAN*5 system, you don't need to connect a VGA cable to the PC, so set-up is quick and easy, and the layout is highly flexible. You can also project several PC screens, so meetings with a large number of participants can proceed smoothly.

Launcher for Windows®

Launcher for Macintosh

• Multi-Live Mode
You can simultaneously display up to 16 computer screens, opening the door to a variety of new projector applications.

Four-Window Multi Style
This style displays up to four computer screens at a time. Great for ensuring that all members of a meeting are able to participate.
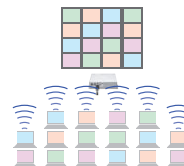
Four-Window Index Style
This one displays thumbnails of four computer screens. From it, you can display a full-size screen of any selected PC by wireless remote control. Ideal for presenter-led meetings.

16-Window Index Style
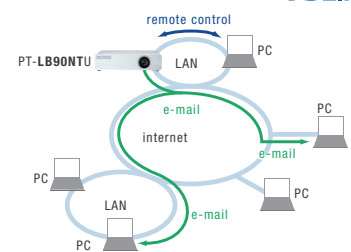This style displays thumbnails of 16 computer screens. Good for displaying a list of computers.

• Projector Signal Map (S-MAP)
The Projector Signal Map graphically displays all of the presently connectable projectors in three levels that indicate the strength of the wireless signals between the projectors and your computer. This lets you easily search for the projectors you want even when wireless projectors are being used in adjacent conference rooms or classrooms.

Easy Remote Operation
A Web browser on a computer connected through a wireless*5 or wired LAN system lets you remotely operate projectors and check their status. An e-mail messaging function can also notify you when a lamp needs replacement, and indicate the overall projector status. In addition, Multi Projector Monitoring and Control Software*8 is available for monitoring and controlling multiple Panasonic projectors from a single PC. The wired LAN terminal is compatible with PJLink™(Class1), an open protocol that is used by many manufacturers, to enable integrated control of systems that contain different brands of projectors.

Remote operation using a Web browser.

Basic concept of the Multi Projector Monitoring and Control Software.

Wireless Manager ME 5.5 system requirements	
OS	Microsoft® Windows® 2000 Professional SP4, Windows® XP Professional, Windows® XP Home Edition, Windows® XP Tablet PC Edition 2005, 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 (Tiger) and OS X 10.5 (Leopard) **NOTE: Some functions are not available with Windows Vista® and Mac**
Web browser	Windows®: Internet Explorer 6.0 or later Macintosh: Safari 2.0 or later
CPU	Windows®: Intel® Pentium® III or higher, or other compatible processor (1 GHz or higher is recommended.) Mac OS X: 1-GHz or higher PowerPC G4, or 1.8-GHz or higher Intel® Core™ processor
Memory	256 MB or more (512 MB or higher is recommended for Mac OS X)
Free hard disk space	60 MB or more
Hardware conditions	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.** For Mac OS, Built-in IEEE 802.11b/g wireless LAN adapter must be installed and running normally.
Wired LAN connector	RJ-45

*5 If your computer does not have a wireless LAN function, it will require a wireless LAN card. Only Macintosh computers with a built-in LAN function can be used.
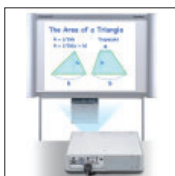*6 With Windows Vista® computers, it is necessary to log on to the administrator's account.
*7 DVD video, Blu-ray video and other content covered by DRM (Digital Rights Management) cannot be transmitted.
*8 Freeware. This software is available at **http://panasonic.net/avc/projector/download/**.

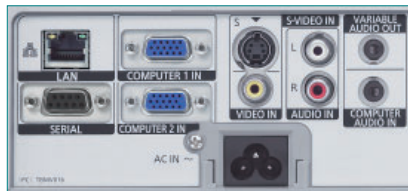# Handy Functions for a Variety of Applications

Convenient and Easy Functions for Portable Use

- The compact, lightweight body (approximately 2.96 kg (6.5 lbs)) makes it easy to move the projector from one classroom or conference room to another.
- With Speed Start, the image appears in about three seconds*[9] after you press the power button.
- Auto Setup automatically corrects the image position, dot clock and clock phase when the projector's input signal changes.
- Auto Signal Search automatically detects what kind of source is connected and begins projection.*[10]
- With Real-Time Keystone Correction, the projector automatically senses if you adjust its angle (in the vertical direction) during operation and instantly makes whatever keystone correction is necessary for optimal viewing.
- Whiteboard and Blackboard modes are convenient when projecting in rooms that don't have a screen.
- Direct Power Off uses accumulated power to keep the cooling fan operating until the lamp is cooled, so you can disconnect the power cable immediately after use.
- A soft carrying case with shoulder belt is supplied.

Convenient Functions for Ceiling-Mounted Use

- Versatile interfaces: Interfaces include two computer (RGB) inputs, a wired LAN terminal*[11], and a serial (RS-232C) terminal for external control. The serial terminal has an emulator function that lets you continue using existing control systems when replacing a previous Panasonic model. It is also possible to output audio during Standby mode. This is convenient when connecting an external audio system*[12] through the projector.

NOTE: The photo shows the rear terminals for the PT-LB90NTU.

- The lamp can be easily replaced from the rear panel without having to remove the projector from the ceiling mount bracket.
- Direct Power Off lets you turn off the room's main power switch without turning off the projector individually, so you can leave the room right after a meeting ends.

Effective Theft Prevention with the Startup Logo

You can change the default Panasonic start up logo to any logo you want. A new logo can be easily uploaded by connecting a computer to the LB90 Series through the LAN*[13] or serial connection by using the Logo Transfer Software*[14]. An abundance of other security measures are also included, such as a security anchor, a user password, a control panel lock, and text superimposing.

Security anchor
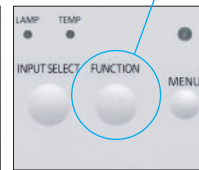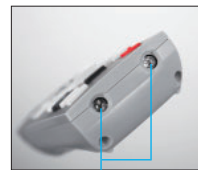
Quiet, 29dB*[15] Silent Design

This helps maintain people's attention on the discussion taking place or the screen image during quiet scenes.

Easy-to-Use Remote Control

The large buttons and long operating range of the wireless remote control make it easy to use. During Wireless Live mode on the PT-LB90NTU, you can also shift between Microsoft® PowerPoint® pages by remote control. Plus, a frequently used function can be assigned to the Function button (located on both the remote and the main unit) for instant recall.
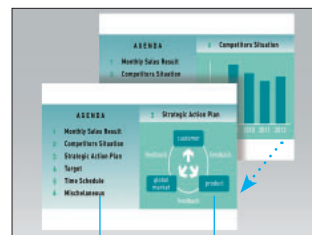
Function button

Two signal emitters extend the remote control range.

Function button on the main unit.

NOTE: The photo shows the remote control for the PT-LB90NTU.

Other Features

- Index Window*[16]: You can split the screen into two windows, right and left, and display a frozen (still) image in one and a real-time action image in the other.

A frozen image   A real-time action image

- Digital Zoom: Expands selected parts of the display up to three times their original size*[17].
- AV mute: Temporarily turns off both the image and the sound.
- Selectable 17-language on-screen menu.
- Built-in closed caption decoder

made in Japan — All LB90 Series projectors are carefully manufactured at the Panasonic factory in Japan, under strict quality control. This is another, very important advantage of a Panasonic projector.

Audio signal
LB90 Series
Video signal
Audio system
PC
DVD player

*9   With the Startup Logo function turned off.
*10 Searches for approximately 3 minutes after the power is turned on.
*11 Only on the PT-LB90NTU.
*12 Requires speakers and an audio amplifier.
*13 Only the PT-LB90NTU is compatible.
*14 If required, download at **http://panasonic.net/avc/projector/download/**. Uploadable still images are limited to 1024 X 768 pixel bitmap files. Also, the application will reduce the number of colors to 191.
*15 With the lamp power in Eco mode.
*16 Cannot be used during wireless projection.
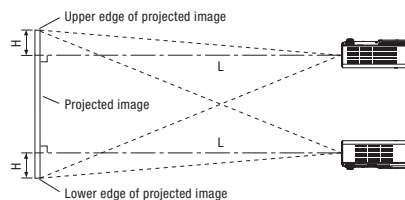*17 Up to two times their original size when using video/S-Video signal input.

Specifications (The specifications and design are subject to change without notice as product development proceeds.)

Models		PT-LB90NTU	PT-LB90U	PT-LB78VU
Power supply		100–240 V AC, 50/60 Hz		
Power consumption		300 W		
		(0.9 W*¹ in eco standby mode. 20 W in normal standby mode. 23 W in normal standby mode when set to audio monitor out and with fan stopped.)	(0.9 W*¹ in eco standby mode. 15 W in normal standby mode. 18 W in normal standby mode when set to audio monitor out and with fan stopped.)	
Optical system		Dichroic mirror separation/prism synthesis system		
LCD panel	Panel size	0.63″ (16 mm) diagonal, 4:3 aspect ratio		
	Display method	Transparent LCD panel (x 3, R/G/B)		
	Drive method	Active matrix		
	Pixels	786,432 pixels ((1,024 x 768) x 3 panels)		
Lens		Manual zoom (1:1–1:1.2), manual focus, F 1.65–1.93, f 18.53–22.18 mm		
Throw ratio		1.4–1.7:1		
Lamp		220 W UHM lamp (The lamp replacement cycle is 3,000 hours.)*²		
Projection size (diagonally)		33–300 inches (4:3 aspect ratio)		
Colors		Full color (16,777,216 colors)		
Brightness*³		3,500 lumens		3,000 lumens
Center-to-corner uniformity*³		85 %		
Contrast ratio*³		500:1 (full on /full off)		
Resolution (RGB)		1,024 x 768*⁴		
Scanning frequency	RGB	Horizontal: 15–91 kHz, Vertical: 50–85 Hz		
	YP_BP_R (YC_BC_R)	480i (525i): f$_H$ 15.75 kHz; f$_V$ 60 Hz 480p (525p): f$_H$ 31.5 kHz; f$_V$ 60 Hz	576i (625i): f$_H$ 15.63 kHz; f$_V$ 50 Hz 576p (625p): f$_H$ 31.25 kHz; f$_V$ 50 Hz	720p (750p): f$_H$ 45.00 kHz; f$_V$ 60 Hz 720p (750p): f$_H$ 37.50 kHz; f$_V$ 50 Hz 1080i (1125i): f$_H$ 33.75 kHz; f$_V$ 60 Hz 1080i (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		
Optical axis shift		5:1 (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		1.0 W (monaural) output power		
Terminals	COMPUTER 1 IN	D-sub HD 15-pin x 1 (RGB/YP_BP_R/YC_BC_R x 1)		
	COMPUTER 2 IN	D-sub HD 15-pin x 1 (RGB/YP_BP_R/YC_BC_R x 1)		
	VIDEO IN	RCA pin x 1 (Composite video x 1)		
	S-VIDEO IN	Mini DIN 4-pin x 1 (S-Video x 1)		
	AUDIO IN	RCA pin x 2 (L-R x 1 for VIDEO/S-VIDEO)		
	COMPUTER AUDIO IN	M3 x 1 (L-R x 1 for COMPUTER 1/COMPUTER 2)		
	VARIABLE AUDIO OUT	M3 x 1 (L-R x 1)		
	SERIAL	D-sub 9-pin x 1 (RS-232C)		
	LAN	RJ-45 x 1, compatible with PJLink™ (class 1), 10BASE-T/100BASE-TX	–	
Power cord length		2 m (6′7″)		
Cabinet material		Molded plastic (PC+ABS)		
Dimensions (W x H x D)		368 x 88 x 233 mm (14-1/2″ x 3-15/32″ x 9-3/16″)*⁵		
Weight*⁶		Approx. 2.96 kg (6.5 lbs.)		
Operation environment		Temperature: 0°–40°C (32°–104°F), Humidity: 20%–80% (no condensation)		
Wireless LAN	Standard	IEEE802.11b/g	–	
	Infrastructure mode	WPA-PSK (TKIP/AES), WPA2-PSK (TKIP/AES), 128/64-bit WEP	–	
	Ad-hoc mode	128/64-bit WEP	–	
Supplied accessories		Power cord, power cord secure lock, wireless remote control, batteries for remote control (AA type battery x 2), VGA cable, carrying bag		
		Wireless Manager ME 5.5 (CD-ROM)	–	

*1: In eco standby mode, network functions such as Standby On via LAN are not available, and only certain commands can be received from RS-232C control. *2: The above value is the maximum cycle for projector usage in which the lamp is turned on for 3.5 hours and then off for 30 minutes. The lamp replacement cycle will be shorter if the lamp is turned on more frequently or if it is kept on consecutively for a longer period of time. *3: Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards. *4: Input signals that exceed this resolution will be converted to 1,024 x 768 pixels. *5: Protruding parts not included. *6: Average value.
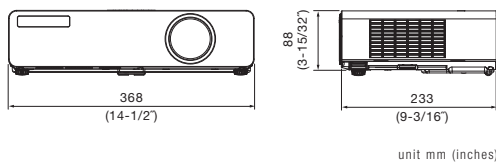
Projection Distance (Screen aspect ratio = 4:3)

Project 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 / 3.7′	0.08 m / 0.28′
1.02 m / 40″	1.1 m / 3.7′	1.4 m / 4.5′	0.10 m / 0.33′
1.52 m / 60″	1.7 m / 5.6′	2.1 m / 6.8′	0.15 m / 0.50′
2.03 m / 80″	2.3 m / 7.6′	2.8 m / 9.1′	0.20 m / 0.67′
2.54 m / 100″	2.9 m / 9.5′	3.5 m / 11.4′	0.25 m / 0.83′
3.81 m / 150″	4.3 m / 14.3′	5.2 m / 17.1′	0.38 m / 1.25′
5.08 m / 200″	5.8 m / 19.0′	7.0 m / 22.9′	0.51 m / 1.67′
7.62 m / 300″	8.7 m / 28.6′	10.5 m / 34.4′	0.76 m / 2.50′

Upper edge of projected image
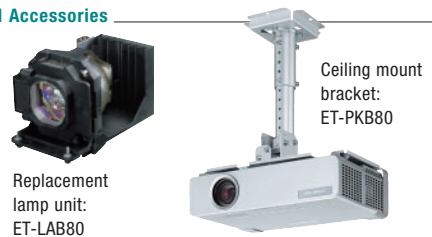
Projected image

L

L

Lower edge of projected image

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.

Dimensions

368 (14-1/2″)

88 (3-15/32″)

233 (9-3/16″)

unit mm (inches)

Optional Accessories

Replacement lamp unit: ET-LAB80

Ceiling mount bracket: ET-PKB80

Panasonic®

ISO 9001 — JQA-0443

ISO 14001 — JACO — EC98J2010

UKAS ENVIRONMENTAL MANAGEMENT 051

Factories of Systems Business Group have received ISO14001:2004 – the Environmental Management System certification. (Except for 3rd party's peripherals.)

All information included here is valid as of September 2009.

PT-LB90NTU1 Printed in Japan.