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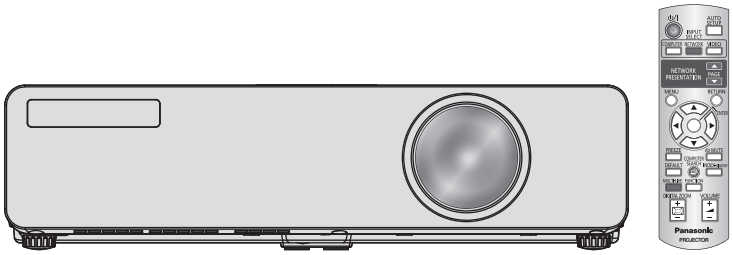
The following projector manual has not been modified or altered in any way.

Panasonic

Operating Instructions

LCD Projector Commercial Use

Model No. **PT-LB90NTE**
PT-LB90E
PT-LB78VE
PT-LB75VE



Thank you for purchasing a Panasonic Projector.

■ Before operating this product, please read the instructions carefully, and save this manual for future use.
Before using your projector, be sure to read "Precautions with regard to safety" (pages 8 - 12).

TQBJ0303-1

ENGLISH

Important Safety Notice

Dear Panasonic Customer:

This instruction booklet provides all the necessary operating information that you might require. We hope it will help you to get the most out of your new product, and that you will be pleased with your Panasonic LCD projector. The serial number of your product may be found on its bottom. You should note it in the space provided below and retain this booklet in case service is required.

Model number: PT-LB90NTE/PT-LB90E/PT-LB78VE/PT-LB75VE

Serial number:

WARNING: THIS APPARATUS MUST BE EARTHED.

WARNING: **To prevent damage which may result in fire or shock hazard, do not expose this appliance to rain or moisture.**

Machine Noise Information Ordinance 3. GSGV, January 18, 1991: The sound pressure level at the operator position is equal or less than 70 dB (A) according to ISO7779.

WARNING:

1. Remove the plug from the mains socket when this unit is not in use for a prolonged period of time.
2. To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.
3. Do not remove the earthing pin on the mains plug. This apparatus is equipped with a three prong earthing-type mains plug. This plug will only fit an earthing-type mains socket. This is a safety feature. If you are unable to insert the plug into the mains socket, contact an electrician. Do not defeat the purpose of the earthing plug.

CAUTION: To assure continued compliance, follow the attached installation instructions, which includes using the provided mains lead and shielded interface cables when connecting to computer or peripheral device. Any unauthorised changes or modifications to this equipment will void the user's authority to operate.

Pursuant to at the directive 2004/108/EC, article 9(2)
Pursuant to at the directive 2005/32/EC amended by 2008/28/EC, article 14
Panasonic Testing Centre
Panasonic Service Europe, a division of Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, F.R. Germany



Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.
By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.



For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union



If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

Cd

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.



Environment care information for users in China

This symbol is only valid in China.

Important Safety Notice

Declaration of Conformity

Declaration of Conformity (DoC)
This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Customers can download a copy of the original DoC for this product from our DoC server: http://www.doc.panasonic.de

Contact in the EU: Panasonic Services Europe, a Division of Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, F.R.Germany

This product is intended to be used in the following countries.

Austria, Belgium, Bulgaria, Czech, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Slovak, Spain, Sweden, Switzerland & UK

Konformitätserklärung (KE)
Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.

Kunden können eine Kopie der Original-KE für dieses Produkt von unserem KE-Server herunterladen: http://www.doc.panasonic.de

Kontaktadresse in der EG: Panasonic Services Europe, a Division of Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, F.R.Germany

Dieses Produkt ist für den Einsatz in den folgenden Ländern vorgesehen.

Österreich, Belgien, Bulgarien, Tschechische Republik, Zypern, Dänemark, Estland, Finnland, Frankreich, Deutschland, Griechenland, Ungarn, Island, Irland, Italien, Lettland, Litauen, Luxemburg, Malta, Niederlande, Norwegen, Polen, Portugal, Rumänien, Slowenien, Slowakei, Spanien, Schweden, Schweiz und Großbritannien

Déclaration de Conformité (DC**)**
Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.

Les clients peuvent télécharger une copie de la DC originale pour ce produit à partir de notre serveur DC: http://www.doc.panasonic.de

Coordonnées dans l'UE : Panasonic Services Europe, a Division of Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, F.R.Germany

Ce produit est conçu pour l'utilisation dans les pays suivants.

Autriche, Belgique, Bulgarie, République Tchéquie, Chypre, Danemark, Estonie, Finlande, France, Allemagne, Grèce, Hongrie, Islande, Irlande, Italie, Lettonie, Lituanie, Luxembourg, Malte, Pays-Bas, Norvège, Pologne, Portugal, Roumanie, Slovénie, Slovaquie, Espagne, Suède, Suisse et Royaume-Uni

Declaración de conformidad (DC)
Este equipo cumple con los requisitos esenciales asi como con otras disposiciones de la Directiva 1999/5/CE.

El cliente puede descargar una copia de la DC original de este producto desde nuestro servidor DC: http://www.doc.panasonic.de

Contacto en la U.E.: Panasonic Services Europe, a Division of Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, F.R.Germany

Este producto ha sido desarrollado para el uso en los siguientes países.

Austria, Bélgica, Bulgaria, República Checa, Chipre, Dinamarca, Estonia, Finlandia, Francia, Alemania, Grecia, Hungría, Islandia, Irlanda, Italia, Letonia, Lituania, Luxemburgo, Malta, Holanda, Noruega, Polonia, Portugal, Rumania, Eslovenia, Eslovaquia, España, Suecia, Suiza y el Reino Unido

Dichiarazione di conformità (DoC)
Questo apparato é conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/CE.

I clienti possono scaricare la copia del DoC originale per questo prodotto dal nostro server DoC: http://www.doc.panasonic.de

Contatto nella EU: Panasonic Services Europe, a Division of Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, F.R.Germany

I prodotti sono stati prodotti per l'uso nei seguenti paesi.

Austria, Belgio, Bulgaria, Repubblica Ceca, Cipro, Danimarca, Estonia, Finlandia, Francia, Germania, Grecia, Irlanda, Islanda, Italia, Lettonia, Lituania, Lussembugo, Malta, Olanda, Norvegia, Polonia, Portogallo, Romania, Regno Unito, Slovenia, Slovacchia, Spagna, Svezia, Svizzera, Ungheria

България
Това устройство отговаря на съществените изисквания и останалите приложими разпоредби на Директива 1999/5/ЕО.

Česky
Toto zařízení je v souladu se základními požadavky a ostatními odpovídajícími ustanoveními Směrnice 1999/5/EC.

Dansk
Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EF.

Eesti
See seade vastab direktiivi 1999/5/EÜ olulistele nõuetele ja teistele asjakohastele sätetele.

Ελληνική
Αυτός ο εξοπλισμός είναι σε συμμόρφωση με τις ουσιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/EC.

Íslenska
Þetta tæki er samkvæmt grunnkröfum og öðrum viðeigandi ákvæðum Tilskipunar 1999/5/EC.

Latviski
Šī iekārta atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

Lietuvių
Šis įrenginys tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas.

Nederlands
Dit apparaat voldoet aan de essentiele eisen en andere van toepassing zijnde bepalingen van de Richtlijn 1999/5/EC.

Malti
Dan l-apparat huwa konformi mal-ħtiġiet essenzjali u l-provedimenti l-oħra rilevanti tad-Direttiva 1999/5/EC.

Magyar
Ez a készülék teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.

Norsk
Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EF.

Polski
Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE: 1999/5/EC.

Português
Este equipamento está em conformidade com os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.

România
Acest echipament este conform cu cerinţele de bază şi celelalte prevederi relevante ale Directivei 1999/5/CE.

Slovensko
Ta naprava je skladna z bistvenimi zahtevami in ostalimi relevantnimi pogoji Direktive 1999/5/EC.

Slovensky
Toto zariadenie je v zhode so základnými poiadavkami a inými príslušnými nariadeniami direktív: 1999/5/EC.

Suomi
Tämä laite täyttää direktiivin 1999/5/EY olennaiset vaatimukset ja on siinä asetettujen muiden laitetta koskevien määräysten mukainen.

Svenska
Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

User logo display function

You can project your unique image such as your company's logo when projection starts.
(➡page 38)

FUNCTION button

You can assign almost all the items on the on-screen menu to the **FUNCTION** button of the remote control and control panel.
You can display the frequently used functions by pressing the **FUNCTION** button.
(➡page 28, 43)

Standby power reduction

The standby power is highly reduced from the previous model.

Approx. 4.0 W (PT-LB80NTE)

⬇

Approx. 0.9 W (PT-LB90NTE)
(Standby mode: In "ECO")

■ Quick steps

For details, see the corresponding pages.

1. **Set up your projector. (➡page 17)**

⬇

2. **Connect with other devices. (➡page 19)**

⬇

3. **Connect the mains lead. (➡page 21)**

⬇

4. **Switch on the projector. (➡page 23)**

⬇

5. **Select the input signal. (➡page 25)**

⬇

6. **Adjust the image. (➡page 25)**

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Precautions with regard to safety

WARNING

■ POWER

The mains socket or the circuit breaker shall be installed near the equipment and shall be easily accessible when problems occur. If the followings problems occur, cut off the power supply immediately.

Continued use of the projector in these conditions will result in fire or electric shock.

- If foreign objects or water get inside the projector, cut off the power supply.
- If the projector is dropped or the cabinet is broken, cut off the power supply.
- If you notice smoke, strange smells or noise coming from the projector, cut off the power supply.

Please contact an Authorised Service Centre for repairs, and do not attempt to repair the projector yourself.

During a thunderstorm, do not touch the projector or the cable.

Electric shocks can result.

Do not do anything that might damage the mains lead or the mains plug.

If the mains lead is used while damaged, electric shocks, short-circuits or fire will result.

- Do not damage the mains lead, make any modifications to it, place it near any hot objects, bend it excessively, twist it, pull it, place heavy objects on top of it or wrap it into a bundle.

Ask an Authorised Service Centre to carry out any repairs to the mains lead that might be necessary.

Insert the mains plug securely into the mains socket.

If the plug is not inserted correctly, electric shocks or overheating will result.

- Do not use anything other than the provided mains lead.
- Do not use plugs which are damaged or mains sockets which are coming loose from the wall.

Clean the mains plug regularly to prevent it from becoming covered in dust.

Failure to observe this will cause a fire.

- If dust builds up on the mains plug, the resulting humidity can damage the insulation.
- If not using the projector for an extended period of time, pull the mains plug out from the mains socket.

Pull the mains plug out from the mains socket and wipe it with a dry cloth regularly.

Do not handle the mains plug with wet hands.

Failure to observe this will result in electric shocks.

Do not overload the mains socket.

If the power supply is overloaded (ex., by using too many adapters), overheating may occur and fire will result.

■ ON USE/INSTALLATION

Do not place liquid containers on top of the projector.

If water spills onto the projector or gets inside it, fire or electric shocks will result.

If any water gets inside the projector, contact an Authorised Service Centre.

Do not place the projector on soft materials such as carpets or sponge mats.

Doing so will cause the projector to overheat, which can cause burns, fire or damage to the projector.

Do not set up the projector in humid or dusty places or in places where the projector may come into contact with oily smoke or steam, ex a bathroom.

Using the projector under such conditions will result in fire, electric shocks or components deterioration. Components deterioration (such as ceiling mount brackets) may cause the projector which is mounted on the ceiling to fall down.

Do not install this projector in a place which is not strong enough to take the full weight of the projector or on top of a surface which is sloped or unstable.

Failure to observe this will cause projector to fall down or tip over the projector, and severe injury or damage could result.

Do not place another projector or other heavy objects on top of the projector.

Failure to observe this will cause the projector to become unbalanced and fall, which could result in damage or injury. The projector will be damaged or deformed.

Installation work (such as ceiling suspension) should only be carried out by a qualified technician.

If installation is not carried out and secured correctly it can cause injury or accidents, such as electric shocks.

- Do not use anything other than an Authorised ceiling mount bracket.

Do not cover the air inlet port or the air outlet port.

Doing so will cause the projector to overheat, which can cause fire or damage to the projector.

- Do not place the projector in narrow, badly ventilated places such as closets or bookshelves.
- Do not place the projector on cloth or papers, as these materials could be drawn into the air inlet port.

Do not place your hands or other objects close to the air outlet port.

Doing so will cause burns or damage your hands or other objects.

- Heated air comes out of the air outlet port. Do not place your hands or face, or objects which cannot withstand heat close to this port.

Do not look into or touch the lights emitted from the lens while the projector is being used.

Doing so can cause burns or loss of sight.

- Strong light is emitted from the projector's lens. Do not look or place your hands directly into this light.
- Be especially careful not to let young children look into the lens. In addition, turn off the power and disconnect the mains plug when you are away from the projector.

Do not insert any foreign objects into the projector.

Doing so will cause fire or electric shocks.

- Do not insert any metal objects or flammable objects into the projector or drop them onto the projector.

Never attempt to remodel or disassemble the projector.

High voltages can cause fire or electric shocks.
For any inspection, adjustment and repair work, please contact an Authorised Service Centre.

■ ACCESSORIES

Do not use or handle the batteries improperly, and refer to the following.

Failure to observe this will cause burns, batteries to leak, overheat, explode or catch fire.

- Do not use unspecified batteries.
- Use manganese batteries or alkaline batteries but not rechargeable batteries.
- Do not dissemble dry cell batteries.
- Do not heat the batteries or place them into water or fire.
- Do not allow the + and – terminals of the batteries to come into contact with metallic objects such as necklaces or hairpins.
- Do not store batteries together with metallic objects.
- Store the batteries in a plastic bag and keep them away from metallic objects.
- Make sure the polarities (+ and –) are correct when inserting the batteries.
- Do not use a new battery together with an old battery or mix different types of batteries.
- Do not use batteries with the outer cover peeling away or removed.
- Remove the empty batteries from the remote control at once.
- Insulate the battery using tape or something similar before disposal.

Do not allow children to reach the batteries.

- The battery can cause death by suffocation if swallowed.
- If swallowed, seek medical advice immediately.

If the battery fluid leaks, do not touch it with bare hands, and take the following measures if necessary.

- Battery fluid on your skin or clothing could result in skin inflammation or injury.
  Rinse with clean water and seek medical advice immediately.
- Battery fluid coming in contact with your eyes could result in loss of sight.
  In this case, do not rub your eyes. Rinse with clean water and seek medical advice immediately.

Do not disassemble the lamp unit.

If the lamp breaks, it could cause injury.

Lamp replacement

The lamp has high internal pressure. If improperly handled, an explosion and severe injury or accidents will result.

- Replacement of the lamp should be carried out by a qualified technician.
- The lamp can easily explode if struck against hard objects or dropped.
- Before replacing the lamp, be sure to disconnect the mains plug from the mains socket.
  Electric shocks or explosions can result if this is not done.
- When replacing the lamp, allow it to cool for at least one hour before handling it otherwise it can cause burns.

Do not allow infants or pets to touch the remote control unit.

- Keep the remote control unit out of the reach of infants and pets after using it.

CAUTION

■ POWER

When disconnecting the mains lead, hold the plug, not the lead.

If the mains lead itself is pulled, the lead will become damaged, and fire, short-circuits or serious electric shocks will result.

When not using the projector for an extended period of time, disconnect the mains plug from the mains socket and remove the batteries from the remote control.

Disconnect the mains plug from the mains socket before carrying out any cleaning.

Electric shocks can result if this is not done.

■ ON USE/INSTALLATION

Do not put your weight on this projector.

You could fall or the projector could break, and injury will result.

- Be especially careful not to let young children stand or sit on the projector.

Do not place the projector in extremely hot locations.

Doing so will cause the outer casing or internal components to deteriorate, or result in fire.

- Take particular care in locations exposed to direct sunlight or near stoves.

Always disconnect all cables before moving the projector.

Moving the projector with cables still attached can damage the cables, which will cause fire or electric shocks to occur.

■ ACCESSORIES

Do not use the old lamp unit.

If used it could cause lamp explosion.

If the lamp has broken, ventilate the room immediately. Do not touch or bring your face close to the broken pieces.

Failure to observe this will cause the user to absorb the gas which was released when the lamp broke and which contains nearly the same amount of mercury as fluorescent lamps, and the broken pieces will cause injury.

If you believe that you have absorbed the gas or that the gas has got into your eyes or mouth, seek medical advice immediately.

Ask your dealer about replacing the lamp unit and check the inside of the projector.

Do not use projectors with the adjustable feet or lens cover removed.

If this not observed, the sets will not operate correctly or accidents will result.

Cautions when transporting

When transporting the projector, the adjuster legs must be housed and do not hold them. Please securely hold only its bottom and none of its other parts or surfaces as this will result in malfunctions.

When transporting, keep the projector in the provided carrying bag.

- Face the lens of the projector in an upward direction and put it gently into the carrying bag.
- Do not put anything other than the projector and its accessories in the carrying bag.

Cautions when installing

■ Do not use under the following conditions.

- **Do not set up the projector outdoors.**
  The projector is designed for indoor use only.
- **Avoid setting up in places which are subject to vibration or shocks.**
  If the projector is installed in a place where vibrations are transmitted or mounted in a car or a vessel, vibrations or impacts will result in damage to the internal parts, causing failure. Install the product in a place free from vibrations and impacts.
- **Avoid setting up in places which are subject to sudden temperature changes, such as near an air conditioner or lighting equipment.**
  Failure to observe this will result in malfunctions or the lamp life will be shortened.
  See “TEMP indicator” on page 48.
- **Avoid setting up in places which are near high-voltage power lines or near motors.**
  The product will be exposed to interference if it is installed in the vicinity of high-voltage electrical power lines or power sources.
- **Do not install the projector at elevations higher than 2 700 m (8 858 ft) above sea level.**
  If using this projector at high elevations 1 400 - 2 700 m (4 593 - 8 858 ft) above sea level, set the **HIGH ALTITUDE MODE** to **ON**.
  Failure to observe this will result in malfunctions or the lamp life or life of other components will be shortened.

■ Be sure to ask a specialised technician when installing the product to a ceiling.

If the product is to be installed hanging from the ceiling, purchase an optional hanging attachment (Model No. ET-PKB80). Please call a specialised technician or contact an Authorised Service Centre for installation.

■ Lens Focus

Do not adjust the lens focus in the initial period after switching the projector on. The high clarity projector lens is thermally affected by the light from the light source, making the focus unstable in the period just after switching on. Please allow a warm-up time of at least 30 minutes before adjusting the lens focus.

Cautions on use

■ In order to get the picture quality

Draw curtains or blinds over windows and turn off any lights near the screen to prevent outside light or light from indoor lamps from shining onto the screen.
Depending on where the projector is used, air exhaust vents or the warm air from air conditioning can cause a shimmering effect on the screen. For this reason, take care not to shield the air exhaust vents and consider the direction of the air flowing from air conditioning.

■ Do not touch the surface of the projector lens cover with your bare hand.

If the surface of the lens becomes dirty from fingerprints or anything else, this will be magnified and projected onto the screen.

■ Do not move the projector while it is operating or subject it to vibration or impact.

The service life of its internal components will be shortened.

■ The projector has a high pressure mercury lamp that is characterised as follows:

- The brightness of the lamp will decrease over time.
- The lamp may explode or shorten the lamp life by shocks or chipping damage.
- In rare cases, it may burst shortly after the first use.
- The possibility of its bursting increases when the lamp is used beyond the replacement time.
- If the lamp bursts, gas inside the lamp is released in the form of smoke.
- The life of a mercury lamp varies according to the individual difference or conditions of use.
- In particular, turning the power on and off frequently and/or repeatedly as well as continuous use for 10 hours will greatly affect the life cycle. Provide a lamp for replacement in advance.

■ Connection to external device

When connecting the projector to a computer or external device, use the mains lead supplied with the corresponding device and a commercially available shielded interface cable.

■ Optical components

It may be necessary to replace the optical components such as Liquid crystal panels and Polarizing plates in less than 1 year if using the projector in a high temperature environment or in a very dusty, oily smoke or tobacco smoke environment. For more details, please contact your dealer.

■ Liquid crystal panel

The Liquid crystal panels are precision-made. Note that in rare cases, pixels of high precision could be missing or always lit, but this is not a malfunction.
Do not project the same image for long periods of time, as this may remain as an afterimage on the liquid crystal panel. Display the white screen test pattern for more than an hour to remove it. See “TEST PATTERN” on page 44.

Security

■ Take safety measures against following incidents.

- Personal information being leaked via this product.
- Unauthorised operation of this product by a malicious third party.
- Interfering or stopping of this product by a malicious third party.

■ Security instruction

- The connecting network must be secured by firewall or others.
- Change your password regularly.
- Do not use a password that is simple to guess.
- Panasonic and its affiliate companies would never directly inquire about your password.
- Do not share your password with the general public.
- Set a password, and place restrictions on the users who can log in.

Cleaning and maintenance

■ Ask an Authorised Service Centre to clean the inside of the projector at least once a year.

If dust is left to build up inside the projector without being cleaned out, it can result in fire or problems with operation. It is a good idea to clean the inside of the projector before the season when humid weather arrives.
Ask your nearest Authorised Service Centre to clean the projector when required.
Please discuss with the Authorised Service Centre regarding cleaning costs.

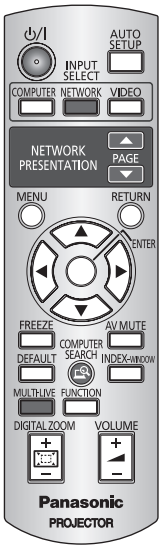
Disposal

When discarding this product, please contact your local authorities or dealer and ask for the correct method of disposal.

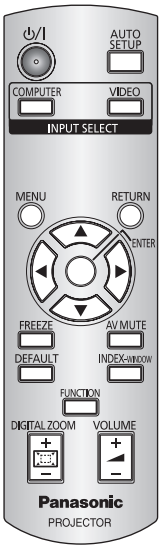
Accessories

Make sure the following accessories are provided with your projector.

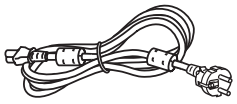
Remote control for PT-LB90NTE (×1) (N2QAYB000436)



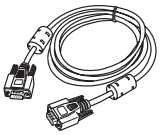
Remote control for PT-LB90E/LB78VE/ LB75VE (×1) (N2QAYB000262)



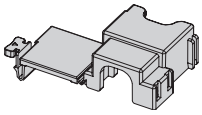
Mains lead (×1) (K2CM3DR00004)



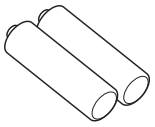
RGB signal cable (×1) 1.8 m (5'10") (K1HA15DA0002)



Power cord secure lock (×1) (TTRA0185)



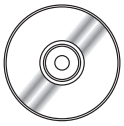
R6 size batteries for Remote control (×2)



Carrying bag (×1) (TPEP021)



CD-ROM (×1) (TXFQB02VKJ2)



(PT-LB90NTE only)

Note

- The protectors for enclosed products, such as a plug cover or foam cartons, must be treated properly.
- Contact to an Authorised Service Centre for lost accessories.

Read this first

When you start the projection for the first time or after the projector is initialised (➡page 44), the **LANGUAGE** menu and the **INITIAL SETTING** menu will be displayed.
Set those menus according to the usage conditions and environment.

The setting can be changed by navigating through the ON SCREEN MENU.

■ LANGUAGE

Select the required language setting. (➡page 37)

1) Press ▲▼◄►buttons of the remote control or control panel on the projector to highlight the required language.



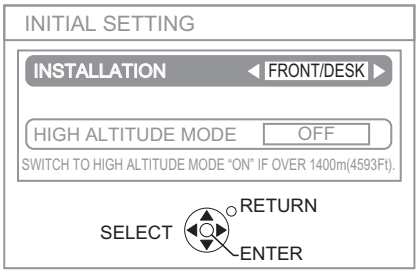
2) Press the ENTER button to proceed to the next INITIAL SETTING menu.

■ INITIAL SETTING

Select the required setting of **INSTALLATION** and **HIGH ALTITUDE MODE**.

1) Press ▲▼buttons to select the required menu.

2) Press ◄►buttons to change the settings of INSTALLATION or HIGH ALTITUDE MODE.



- INSTALLATION (➡page 18, 41)

FRONT/ DESK	Setting on a desk/floor and projecting from front
FRONT/ CEILING	Mounting in the ceiling with a ceiling mount bracket (sold separately) and projecting from front
REAR/ DESK	Setting on a desk/floor and projecting from rear (Translucent screen is required)
REAR/ CEILING	Mounting in the ceiling with a ceiling mount bracket (sold separately) and projecting from rear (Translucent screen is required)

- HIGH ALTITUDE MODE (➡page 10, 41)

OFF	For use in normal environment
ON	For use at high altitude (above 1 400 m (4 593 ft))

3) Press the ENTER button to finish.

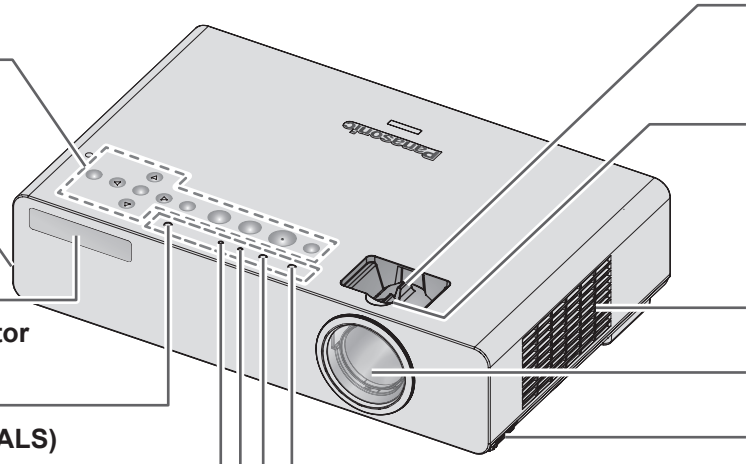
Remarks

- To return to the **LANGUAGE** menu, press the **RETURN** button in the **INITIAL SETTING** menu.

About Your Projector

Projector body

Top and front view



Control panel

Adjuster button (➡page 18)

Remote control signal receptor

Ambient Luminance Sensor (ALS)

Zoom ring
Adjust the projection size.
(➡page 25)

Focus ring
Adjust the focus.
(➡page 25)

Air intake port

Lens cover

Adjuster button (➡page 18)

TEMP indicator
Indicates the temperature status.
(➡page 48)

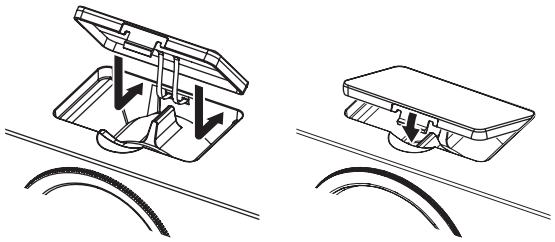
LAMP indicator
Indicates the lamp unit status.
(➡page 48)

POWER indicator
Indicates the power supply status.
(➡page 22)

POWER LOCK indicator
Indicates the locking status of the **POWER** button.
(➡page 22)

Zoom-Focus ring cover

Cover the zoom and focus rings to protect from dust.



Note

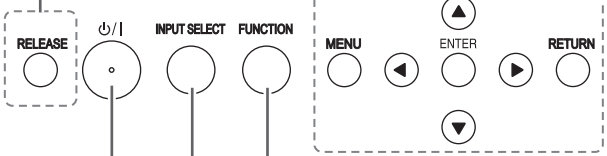
- Do not use other than a provided mains lead.
- Do not cover the ventilation openings of the air intake port or air outlet port.
- After adjusting the zoom and focus, be sure to close the Zoom-Focus ring cover to protect from dust.
- Do not apply extreme force on the Zoom-Focus ring cover.

Control panel

RELEASE button
Press to release the locked **POWER** button when turning on the projector.
(➡page 23)

POWER button
Switch between standby mode and projection mode.
(➡page 23)

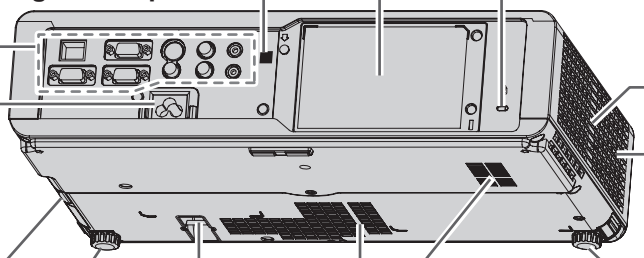
INPUT SELECT button
Switch to cycle through the input method.
(➡page 26)



▲▼◄►/MENU/ ENTER/RETURN
(➡page 29)

FUNCTION button
Assign a useful function for a shortcut.
(➡page 28, 43)

Back and bottom view



Security lock
Attach the commercial shackle lock, manufactured by Kensington, to protect your projector. Compatible with the Kensington MicroSaver Security System.

Lamp unit compartment
(➡page 51)

Remote control signal receptor

Terminals

AC IN
Connect the mains lead to supply electronic power to the projector.
(➡page 21)

Air filter compartment
(➡page 49)

Front leg adjusters and leg adjuster buttons
Adjust the projection angle.
(➡page 18, 25)

Burglar hook port
Attach a commercial burglar prevention cable.

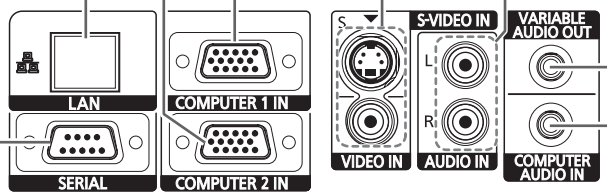
Air intake port

Speaker

Air outlet port
Heated air comes out of this opening.

Front leg adjusters and leg adjuster buttons
Adjust the projection angle.
(➡page 18, 25)

Terminals



COMPUTER1 IN
COMPUTER2 IN
Connect a computer or YP_BP_R signal cable.
(➡page 20)

LAN
Connect a network cable.
(PT-LB90NTE only)
(➡page 56)

SERIAL
Connect a computer to control the projector operation.
(➡page 20, 55)

S-VIDEO/VIDEO IN
Connect a S-VIDEO signal cable or an RCA composite video cable.
(➡page 19)

AUDIO IN
Connect audio cables for inputting audio signal corresponding to **VIDEO IN**, **S-VIDEO IN**.
(➡page 19)

VARIABLE AUDIO OUT
Connect an audio cable for outputting audio signals to the connected equipment.
(➡page 19, 20)

COMPUTER AUDIO IN
Connect audio cables for inputting audio signals corresponding to **COMPUTER1 IN** and/or **COMPUTER2 IN**.
(➡page 20)

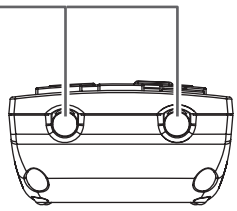
Note

- Do not place your hands or other objects close to the air outlet port as this may cause damage or injury.
- Heated air comes out of the air outlet port. Do not place your hands or face, or objects which cannot withstand heat close to this port.

Remote control

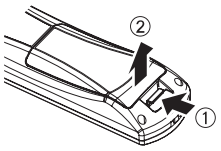
Top view

Remote control signal emitters

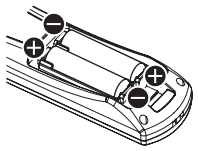


Battery compartment

Press the tab and lift up the cover.



Insert the batteries according to the polarity diagram indicated inside.



Front view

POWER button
Switch between stand-by mode and projection mode.
(➡page 23, 24)

Switch the required input signal button to select.
(The **NETWORK** button is only for PT-LB90NTE)
(See CD-ROM contents.)
(➡page 26)

Display the main menu.
(➡page 30)

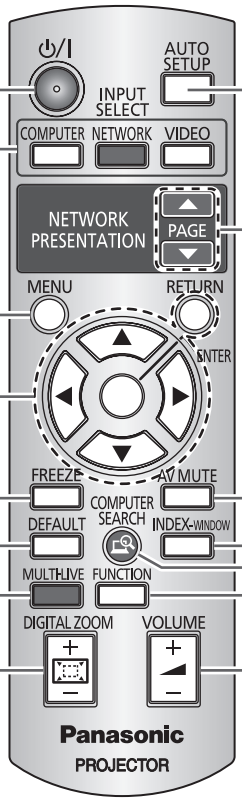
Navigate through the menus with the ▲▼◄►buttons, and activate the menu item with **ENTER** button.
(➡page 29)

Capture the projected image as a frozen picture.
(➡page 26)

Reset some of the settings to the factory default settings.
(➡page 27)

The **MULTI-LIVE** button is only for PT-LB90NTE.
(See CD-ROM contents.)

Control to change the scale by means of digital zoom.
(➡page 28)



Detect the input signal and the setting of **SHIFT**, **DOT CLOCK** and **CLOCK PHASE** in **POSITION** menu will be adjusted automatically for **COMPUTER** signals.
(➡page 27)

The **PAGE** buttons are only for PT-LB90NTE.
(See CD-ROM contents.)

Turn off the projection temporarily.
(➡page 26)

Display the frozen image while the display of subsequent images continues.
(➡page 27)

The **COMPUTER SEARCH** button is only for PT-LB90NTE.
(See CD-ROM contents.)

Assign a useful function for a shortcut.
(➡page 28, 43)

Control to adjust the volume of the speaker.
(➡page 27)



Attaching a hand strap
You can attach a favourite strap onto the remote control.

Note

- Do not drop the remote control.
- Avoid contact with liquids or moisture.
- Do not attempt to modify or disassemble the remote control.
- Do not mix old and new batteries or batteries of different types.
  Use only manganese batteries or alkaline batteries with the remote control.
- Do not swing the strapped remote control.

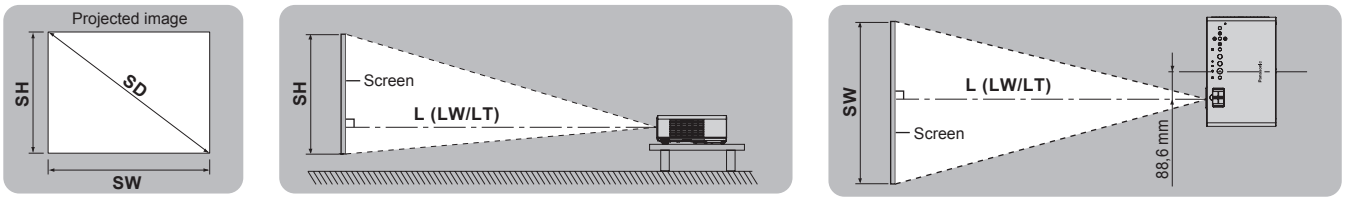
Remarks

- Do not let strong light shine onto the signal receptor.
  The remote control may malfunction under strong light such as fluorescent.
- You can operate the projector with the remote control within the remote range of 15 m (49'2"), approximately ±30 ° vertically and horizontally.
- If there are any obstacles between the remote control emitter and the remote control signal receptor, the remote control may not operate correctly.
  The operating range may differ due to the screen material, and this function may not be effective with a translucent screen.

Setting up

Screen size and throw distance

You can adjust the projection size with 1.2× zoom lens. Calculate and define the throw distance as follows.



(All measurements below are approximate and may differ slightly from the actual measurements.)

Projection size	For 4:3 aspect ratio		For 16:9 aspect ratio	
Screen diagonal (SD)	Minimum distance (LW)	Maximum distance (LT)	Minimum distance (LW)	Maximum distance (LT)
0.84 m (33")	—	1.1 m (3' 7")	—	1.2 m (3' 11")
1.02 m (40")	1.1 m (3' 7")	1.4 m (4' 7")	1.3 m (4' 3")	1.5 m (4' 11")
1.27 m (50")	1.4 m (4' 7")	1.7 m (5' 6")	1.6 m (5' 3")	1.9 m (6' 2")
1.52 m (60")	1.7 m (5' 6")	2.1 m (6' 10")	1.9 m (6' 2")	2.3 m (7' 6")
1.78 m (70")	2.0 m (6' 6")	2.4 m (7' 10")	2.2 m (7' 2")	2.6 m (8' 6")
2.03 m (80")	2.3 m (7' 6")	2.8 m (9' 2")	2.5 m (8' 2")	3.0 m (9' 10")
2.29 m (90")	2.6 m (8' 6")	3.1 m (10' 2")	2.8 m (9' 2")	3.4 m (11' 1")
2.54 m (100")	2.9 m (9' 6")	3.5 m (11' 5")	3.2 m (10' 6")	3.8 m (12' 5")
3.05 m (120")	3.5 m (11' 5")	4.2 m (13' 9")	3.8 m (12' 5")	4.6 m (15' 1")
3.81 m (150")	4.3 m (14' 1")	5.2 m (17' 0")	4.7 m (15' 5")	5.7 m (18' 8")
5.08 m (200")	5.8 m (19' 0")	7.0 m (22' 11")	6.3 m (20' 8")	7.6 m (24' 11")
6.35 m (250")	7.3 m (23' 11")	8.7 m (28' 6")	7.9 m (25' 11")	9.5 m (31' 2")
7.62 m (300")	8.7 m (28' 6")	10.5 m (34' 5")	9.5 m (31' 2")	11.4 m (37' 4")

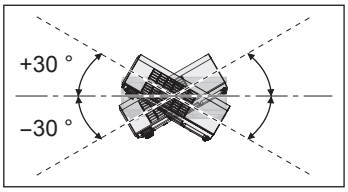
You can calculate more detailed screen dimensions from the screen diagonal.
The results below are approximate and may differ slightly from the actual measurements.

If the projection size is SD,

	For 4:3 aspect ratio	For 16:9 aspect ratio
Screen height (SH)	= SD (m) × 0.0152	= SD (m) × 0.0125
Screen width (SW)	= SD (m) × 0.0203	= SD (m) × 0.0221
Minimum distance (LW)	= 0.0292 × SD (m) – 0.036	= 0.0318 × SD (m) – 0.022
Maximum distance (LT)	= 0.0351 × SD (m) – 0.044	= 0.0383 × SD (m) – 0.046

Note

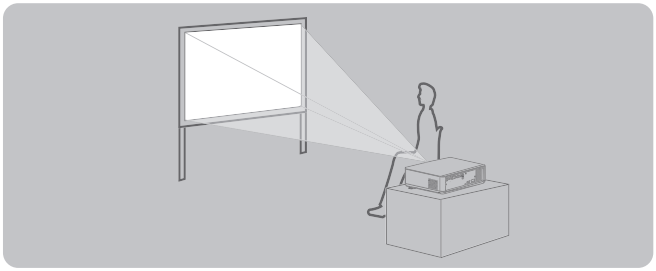
- For the best quality of the projection image, install a screen where sunlight or room light does not shine directly onto the screen. Close window shades or curtains to block the light and turn off the lamps.
- Do not use the projector at a raised or a horizontally tilted position. Doing so may cause malfunction of the projector.
  You can tilt the projector body approximately ±30 ° vertically and ±10 ° horizontally.
  Overtilting may result in shortening the component's life.
- Do not cover the air outlet port and air intake ports or place anything within 50 cm (20") of them as this may cause damage or injury.



Projection method

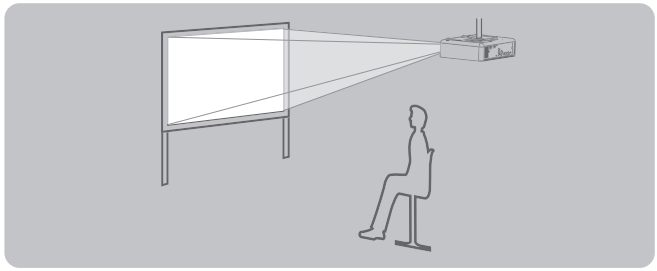
You can use the projector with any of the following 4 projection methods. To set the desired method in the projector, see “INSTALLATION” on page 41.

■ Setting on a desk/floor and projecting from front



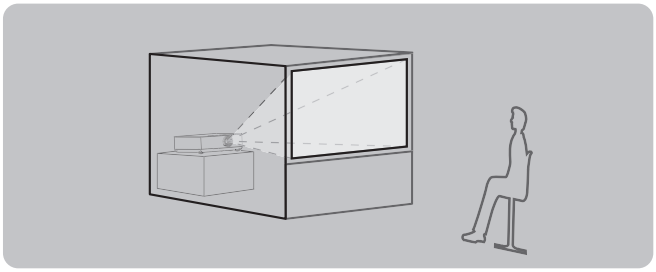
Menu	Method
INSTALLATION	FRONT/DESK

■ Mounting in the ceiling and projecting from front



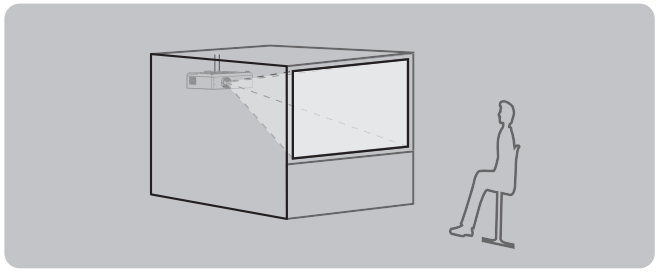
Menu	Method
INSTALLATION	FRONT/CEILING

■ Setting on a desk/floor and projecting from rear (Using translucent screen)



Menu	Method
INSTALLATION	REAR/DESK

■ Mounting in the ceiling and projecting from rear (Using translucent screen)



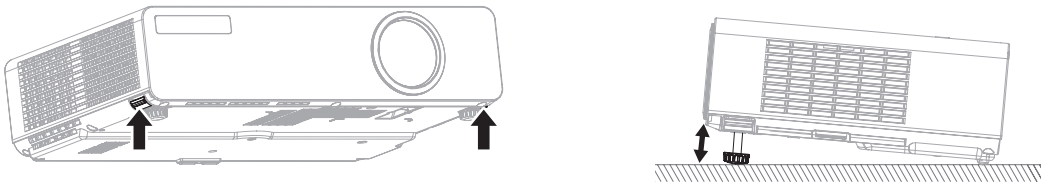
Menu	Method
INSTALLATION	REAR/CEILING

Remarks

- When mounting the projector in the ceiling, the optional ceiling mount bracket (ET-PKB80) is required.

Front leg adjusters and throwing angle

You can adjust the projection angle in the vertical direction by pressing the leg adjuster buttons. (➡page 25)



Note

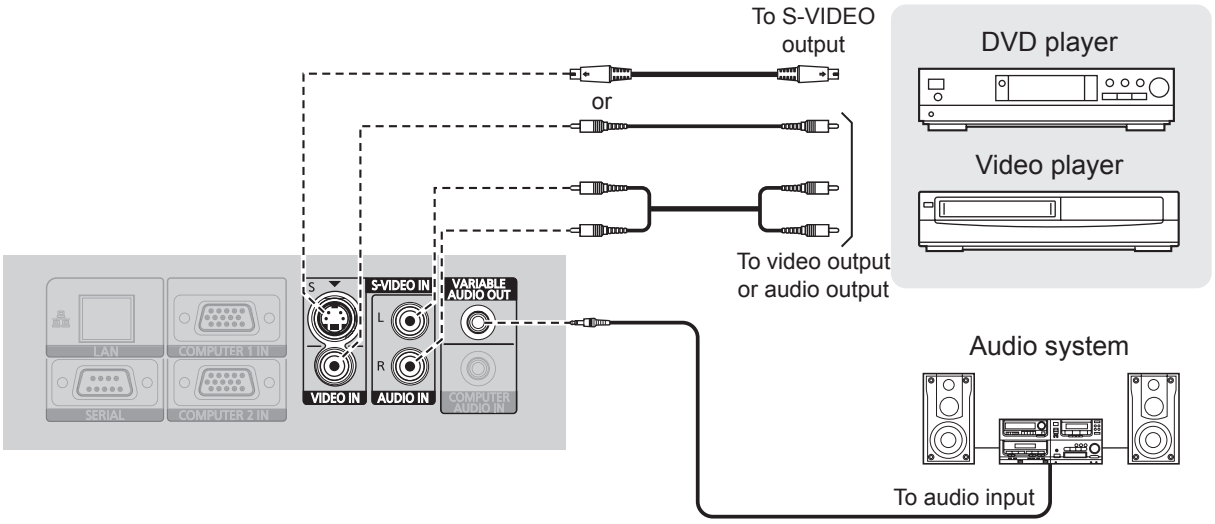
- Heated air comes out of the air exhaust port. Do not touch the air exhaust port directly.
- If keystone distortion occurs, see “KEYSTONE” on page 34.

Connections

Before connecting to the projector

- Read and follow the operating instructions of each peripheral device.
- The peripheral devices must be turned off.
- One RGB cable is provided with the projector. If necessary, prepare commercial connecting cables that match with the projector and each peripheral device terminal.
- If the input signal is affected by signal jitter, the projected image may have poor image quality and timebase correction is effective.
- Confirm the type of video signals, see “List of compatible signals”. (➡page 54)

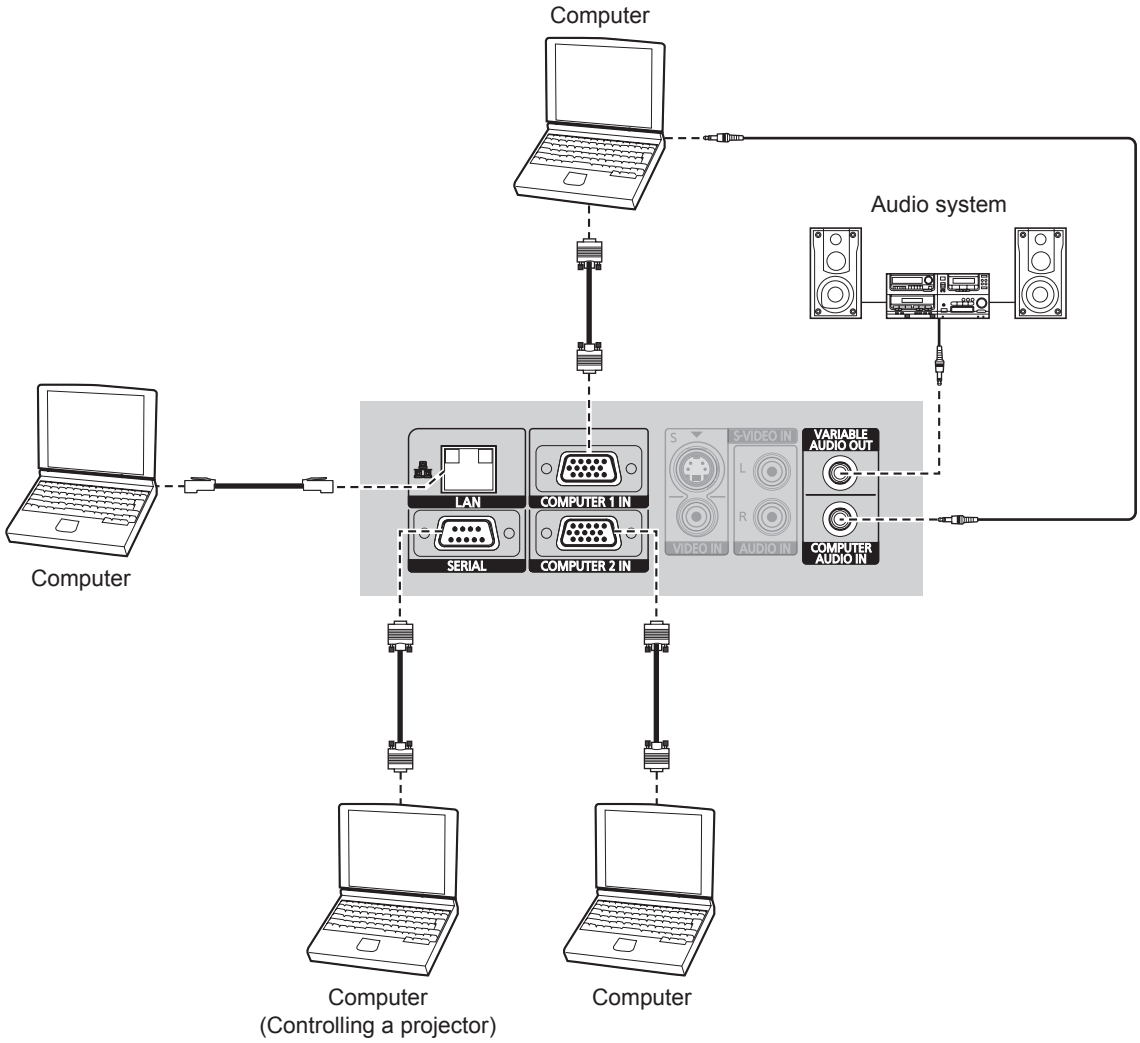
Connecting example: AV equipment



Remarks

- When you connect more than one AV equipment, switch the audio connection manually.
- Various connecting cables are not provided with the projector. If necessary, prepare commercial connecting cables that match with the projector and each peripheral device terminal.

Connecting example: Computers



Note

- When connecting the RGB signal cable, be sure to securely tighten the fixing screws on the D-Sub (15-pin) mains socket.

Remarks

- For the network connection between the projector and computers, see the CD-ROM contents provided . (PT-LB90NTE only)
- When you connect more than one computer, switch the computer connection manually.
- One RGB cable is provided with the projector. If necessary, prepare commercial connecting cables that match with the projector and each peripheral device terminals.

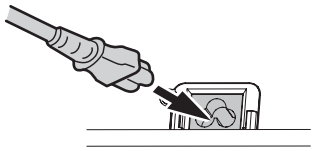
Switching the projector on/off

Mains lead

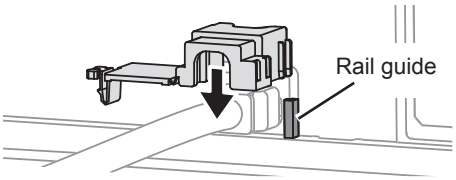
Be sure to fix the mains lead to the projector with the provided "Power cord secure lock" to prevent the mains lead from coming off.
Connect the provided mains lead securely.
For details, see "Precautions with regard to safety". (➡pages 8 - 12)

■ Connecting

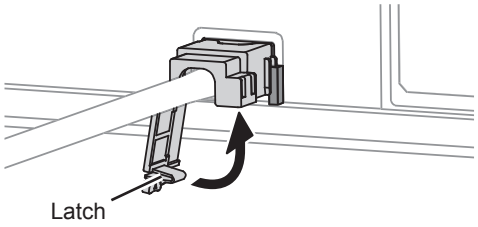
1) Make sure the shape of the mains plug and the AC IN terminal on the back of the projector match, then push the plug all the way in.



2) Align the side of the power cord secure lock with the side guide rail of the AC IN terminal of the projector and slide it in.



3) Place the latch to the latch catcher and press until it clicks.

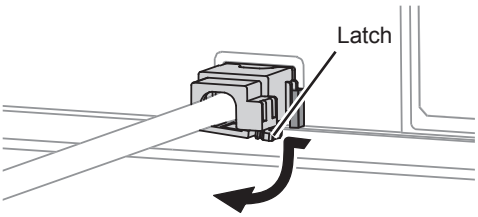


4) Connect the mains lead to a mains socket.

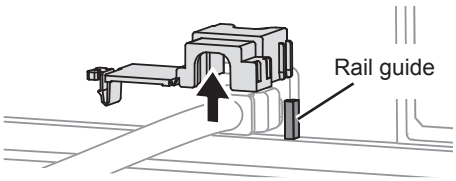
■ Disconnecting

1) Unplug the mains lead from the mains socket.

2) Depress the latch and slide the cover off.



3) Slide the power cord secure lock up along the side guide rail and remove.



4) Hold the plug and unplug the mains lead from the AC IN terminal on the back of the projector.

■ Direct power off function

You can switch off the electric power supply any time by unplugging the mains plug from the mains socket or by switching off the main power. The internal lamp cooling fan keeps operating by the internal power supply, and stops automatically when cooled enough.

Note

- Do not put the projector into the carrying bag with the **POWER** indicator lit.

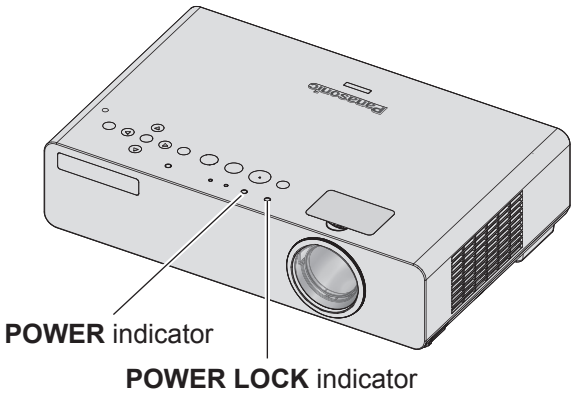
■ Direct power on function

If INITIAL START UP in the PROJECTOR SETUP menu is set to ON, connect the mains lead to a mains socket and the projection will start even when the control panel is disabled or the POWER button is locked. (➡page 41)

Switching the projector on/off

POWER and POWER LOCK indicators

The **POWER** indicator informs you of the status of the power and the **POWER LOCK** indicator shows the status of the **RELEASE** button. When the **TEMP** indicators are flashing, the **POWER** and **POWER LOCK** indicators will light red and you cannot switch the projector on.



■ POWER LOCK indicator status

Indicator status		Status
No illumination or flashing		● No power is supplied. ● The **RELEASE** button is pressed and the **POWER** button is unlocked while the power is on.
Red	Lit	The **POWER** button is locked.
	Flashing	Pressing the locked **POWER** button.

■ POWER indicator status

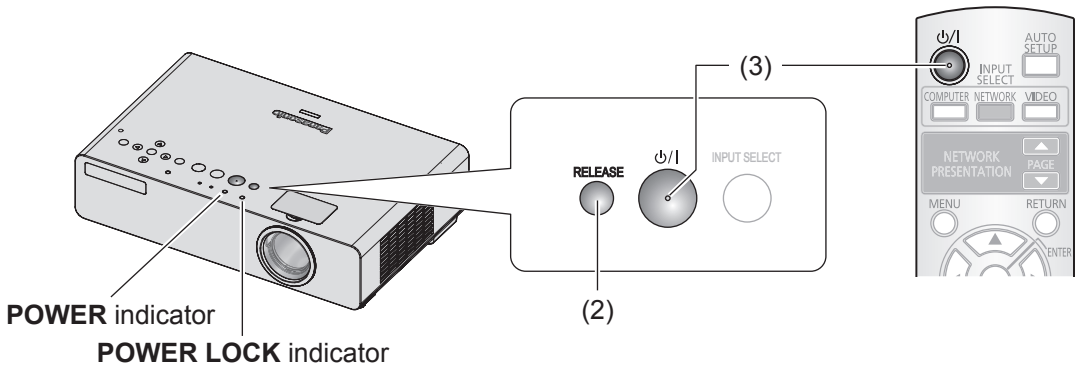
Indicator status		Status
No illumination or flashing		No power is supplied and the internal cooling fan is not operating.
Red	Lit	The power is turned off (when **STANDBY MODE** is set to **ECO**). If the **POWER** button is pressed, projection starts.
	Flashing	The power is turned off (when **STANDBY MODE** is set to **NORMAL**).
Green	Flashing	The power is on and preparing for projection.
	Lit	The projector is projecting.
Orange	Lit	No power supply and the internal fan is cooling the lamp by internal power supply.
	Flashing	The power is switched on again while cooling the lamp and recovering to the projection mode. Recovery may take a while.

Remarks

- When the power is turned off, the internal fan is cooling the lamp by internal power supply.
- The power is switched on again while cooling the lamp and recovering to the projection mode. Recovery may take a while.
- Even while the power is turned off (when **STANDBY MODE** is set to **ECO**, the **POWER** indicator is lit in red), power of about 0.9 W is consumed.

Switching on the projector

Before switching on the projector, make sure the mains lead and all the other devices are connected correctly. (➡page 19)



1) Connect the mains lead. (➡page 21)
The **POWER LOCK** indicator and **POWER** indicator light in red.

2) Press the RELEASE button to unlock the POWER button.
The **POWER LOCK** indicator goes off.
- When operating with the remote control, you do not need to press the **RELEASE** button.

3) Press the POWER button.
The **POWER** button beeps once.
- You can turn **ON** or **OFF** the beeping sound that occurs when you press the **POWER** button by menu setting. (➡page 43)
- The **POWER** indicator flashes in green several times, then the **POWER** indicator lights up and the **STARTUP LOGO** is displayed. See “STARTUP LOGO” in the “DISPLAY OPTION” menu. (➡page 38)

Note

- Operating the control panel buttons with covered hand, such as plastered or gloved, may result in operating errors.

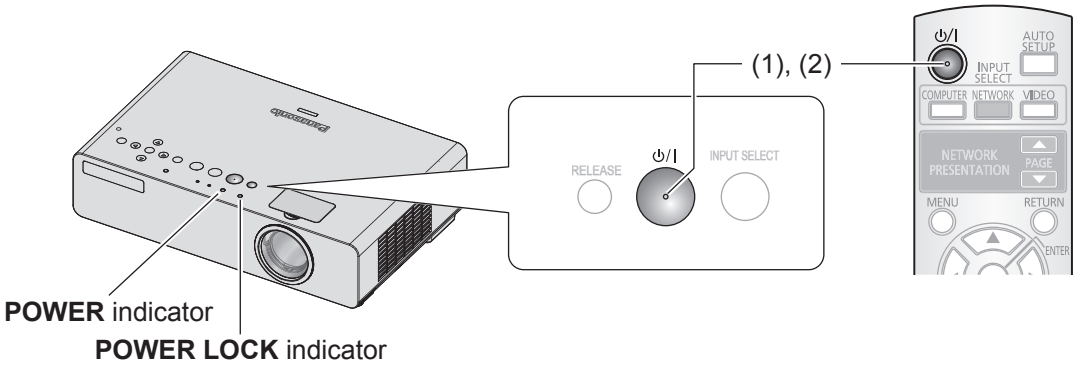
Remarks

- Confirm that **CONTROL PANEL** (when operating with the projector body) or **REMOTE CONTROLLER** (when operating with the remote control) under **CONTROL DEVICE SETUP** in the **SECURITY** menu is set to **ENABLE**. (➡page 46)
- The projector does not operate when the **POWER** button of the projector body is pressed while it is locked.
- If the **POWER** button is not being pressed in 10 seconds after the **RELEASE** button is pressed, the **POWER LOCK** indicator lights in red and the **POWER** button remains locked. Press the **RELEASE** button again to unlock.
- When starting up the projector, some small rattling or tinkling sound may be heard. Those are normal and will not affect the performance of the projector.
- When the internal cooling fan is operating, some operational sound may be heard. The loudness of the operational sound depends on the external temperature.
- If **INITIAL START UP** in the **PROJECTOR SETUP** menu is set to **ON**, the projector starts projecting when the mains lead is connected to a mains socket. (➡page 41)
- If the projector is switched on again while the internal cooling fan is still operating by the internal power supply, the display may flicker for the characteristics of the lamp. Those are normal and will not affect the performance of the projector.

Switching the projector on/off

Switching off the projector

When operating the projector, check the status of the **POWER** indicator. (➡page 22)



1) Press the POWER button.

The confirmation screen will be displayed.

- Without any operation for 10 seconds or press any button other than the **POWER** button, the confirmation screen will go off and return to the projection.

2) Press the POWER button again.

The lamp goes off, the operational sound (beep) sounds, and projection stops.

- The cooling fan continues its rotation and **POWER** indicator lights in orange. Wait until the **POWER LOCK** indicator and **POWER** indicator turn into red.
- If **STANDBY MODE** is set to **NORMAL**, the **POWER** indicator flashes in red. (➡page 42)
- You can set to **ON** or **OFF** the beeping sound that occurs when the **POWER** button is in operation in **AUDIO SETTING**.
  (➡page 43)

3) After the POWER LOCK indicator and POWER indicator light in red, disconnect the mains plug from the mains socket. (➡page 21)

- For urgency, you may disconnect the mains plug immediately since the **DIRECT POWER OFF** function is installed.

Remarks

- Confirm that **CONTROL PANEL** (when operating with the projector body) or **REMOTE CONTROLLER** (when operating with the remote control) under **CONTROL DEVICE SETUP** in the **SECURITY** menu is set to **ENABLE**. (➡page 46)
- You can switch off the power by pressing the **POWER** button for 0.5 seconds or more.

Projecting an image

Confirm the connections of the peripheral devices (➡page 19, 20) and mains lead (➡page 21). Switch on the power (➡page 23) and the projector starts projecting. Select the input signal and adjust the image.

Selecting the input signal

1) Switch on the connected devices.

When playing a connected DVD player, if **SIGNAL SEARCH** in the **DISPLAY OPTION** menu is set to **ON**, the input signal is detected and projected automatically when the projector is switched on. (➡page 39)

- Set the **INPUT GUIDE** under the **ON-SCREEN DISPLAY** in the **DISPLAY OPTION** menu to **DETAILED**. If the projector cannot detect any input signal, the Computer connection guidance will display. (➡page 38)

2) Select an input signal.

The image selected with the **INPUT SELECT** button is projected. (➡page 26)

Note

- Change the setting of the **PICTURE** menu according to the connected device and DVD, video tape, etc., to be played. (➡page 33)
- Confirm the aspect ratio of the screen and image. Select the optimum aspect ratio. (➡page 35)

Positioning the image

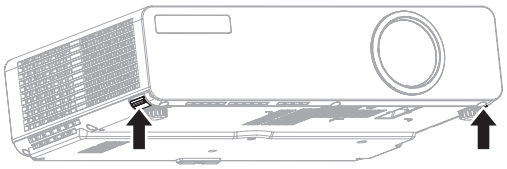
When setting up the projector for the first time or setting up at a new place, you must perform the following operations.

1) Adjust the vertical angle of the projector.

- Place the projector at the right angle from the screen.

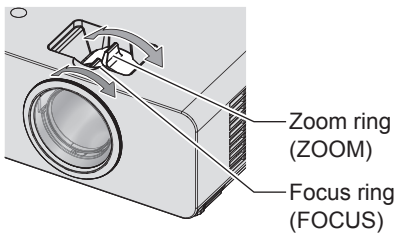


- Press the adjuster buttons and adjust the vertical projection angle. Then, adjust the projected image to the centre of the screen.



2) Adjust the projection size and focus.

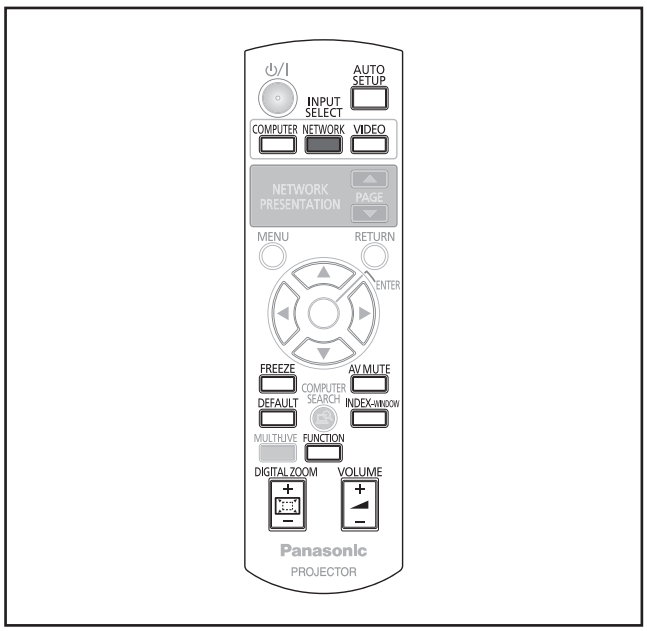
- Remove the Zoom-Focus ring cover (➡page 14) and turn the zoom and focus rings to adjust the projected image. After adjusting, be sure to install the Zoom-Focus ring cover to protect from dust.



Remarks

- When you adjust the zoom after adjusting the focus, you may need to adjust the focus of the image again.
- If keystone distortion occurs, see “KEYSTONE”. (➡page 34)

Remote control operation



Capturing an image

You can freeze the projected image and stop the sound temporarily, regardless of the playing condition of the connected device.

Press FREEZE **button.**

Press the **FREEZE** button again to escape.

Stopping the projection temporarily

You can stop the projection and audio sound through the projector temporarily.

Press AV MUTE **button.**

Press the **AV MUTE** button again to escape.

Switching the input signal

You can switch the input signal corresponding to the computer to be projected.

■ COMPUTER

Press COMPUTER **button.**

Press the **COMPUTER** button to cycle through the options.

COMPUTER1	Signal input to **COMPUTER1 IN** terminal
COMPUTER2	Signal input to **COMPUTER2 IN** terminal

■ NETWORK (PT-LB90NTE only)

Press NETWORK **button.**

NETWORK	Signal transmitted by “Wireless Manager” from computer through network (➡page 47)

■ VIDEO

Press VIDEO **button.**

Press the **VIDEO** button to cycle through the options.

S-VIDEO	Signal input to **S-VIDEO IN** terminal
VIDEO	Signal input to **VIDEO IN** terminal

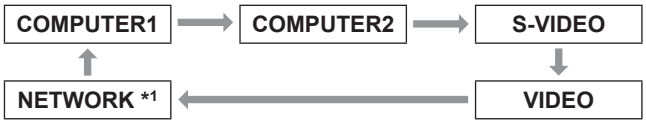
If **INPUT GUIDE** under the **ON-SCREEN DISPLAY** in the **DISPLAY OPTION** menu is set to **DETAILED** (➡page 38), you can confirm the selected input terminal in the graphical input terminal guide at the upper right of the screen. (Highlighted in yellow is the selected terminal.)
You can change the input with ▲▼◄► buttons.
It may take some time to change the image after the input signal is switched.

Note

- Input a compatible signal shown in the “List of compatible signals”. (➡page 54)

Remarks

- For the input terminals, see “Connections”. (➡page 19)
- If no operation is performed, the input guide disappears automatically.
- If the **INPUT SELECT** button on the control panel is pressed, the input is switched in the following order. (➡page 14)

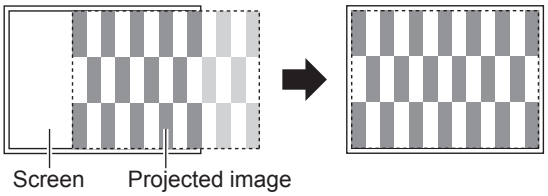


*1: PT-LB90NTE only

Setting up the image position automatically

When a RGB signal is input, the projector adjusts the **SHIFT**, **DOT CLOCK** and **CLOCK PHASE** automatically.

Press AUTO SETUP **button.**



Remarks

- The **SIGNAL SEARCH** operation is also performed. (When **SIGNAL SEARCH** is set to **ON**) (➡page 39)
- If the dot clock frequency is 108 MHz or higher, **DOT CLOCK** and **CLOCK PHASE** are not effective. (➡page 34)
- If the projected image is too dark or blurred around the edge, **AUTO SETUP** may stop the processing before completing the adjustment and return to the previous setting. Project a much clearer or lighter image and try again.

Resetting to the factory default settings

You can reset most of the customised settings to the factory default settings by pressing the **DEFAULT** button of the remote control.

Press DEFAULT **button.**

- For details, see “Menu Navigation - Navigating through the MENU - Resetting to the factory default settings”. (➡page 29)

Controlling the volume of the speaker

You can control the volume of the built-in speakers and output audio sound.

Press VOLUME + – **button.**

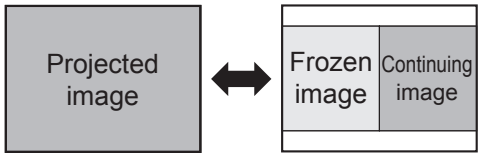
- **+ button: increases the volume**
- **– button: decreases the volume**

Projecting an image in INDEX-WINDOW mode

You can project an image split in 2 windows as an **INDEX WINDOW**. One is frozen and stored in memory, and displayed on the screen’s left side while displaying subsequent image continues on the right.

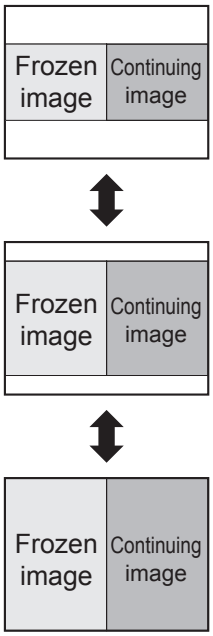
Press INDEX-WINDOW **button.**

Press the **RETURN** button to escape.
The image being projected when the **INDEX-WINDOW** button is pressed will be a frozen image.

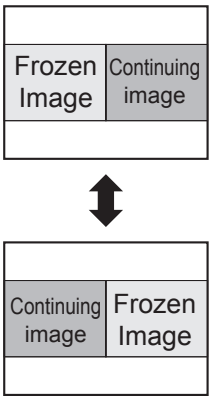


■ INDEX-WINDOW display

Press ▲▼ buttons to capture a new image and change the size in 3 ways.



In default, the frozen image is displayed on the left and the subsequent image is displayed on the right. Press ◄► buttons to switch the position.

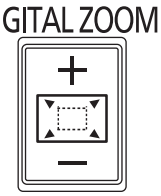


Remarks

- The aspect ratio of the image is changed and becomes vertically elongated.
- If you change the window size, the aspect ratio of the image is changed. (➡page 35)
- While in **INDEX-WINDOW** mode, press the **ENTER** button to capture a new image and the frozen image window will be updated in a moment.
- When capturing a quick moving picture, perform several times to get a stable picture.

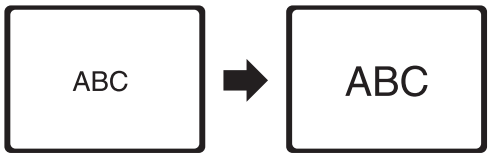
Enlarging the image

You can enlarge the projected image down to a centred area for emphasizing within the range of 1× to 2×.

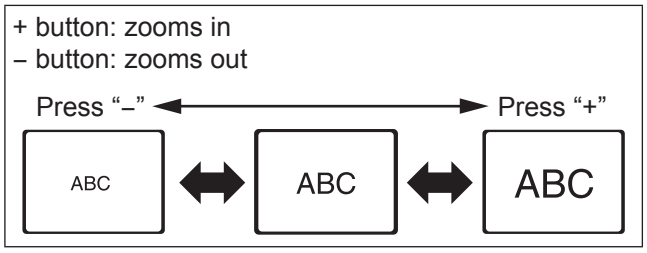
Press 

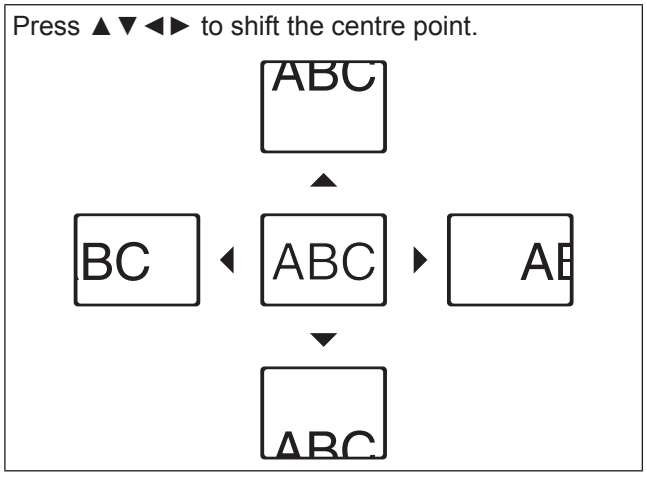
button.

Press the **RETURN** button to escape.



■ Button functions in digital zoom mode





Remarks

- When the **COMPUTER** signal is projected, the enlargement range will be changed to 1× to 3×. When **FRAME LOCK** in the **POSITION** menu is set to **ON**, the enlargement range is 1× to 2×. However, the enlargement range is 1× to 3× if **FRAME LOCK** is set to **OFF**. (➡page 36)
- When the input signal is changed while the **DIGITAL ZOOM** is activated, the **DIGITAL ZOOM** mode will be cancelled.
- While the **DIGITAL ZOOM** is activated, the **AUTO SETUP**, **FREEZE**, **DEFAULT**, **INDEX-WINDOW** and **FUNCTION** (except when **AV MUTE** is assigned) buttons are not available.

Using an assigned function

You can select a useful function from the list and assign it to the **FUNCTION** button for a short-cut.

Press 

button.

1) Press the MENU button of the control panel or remote control to display the on screen menu (main menu, sub-menu or detailed menu) .
For the menu operation, see “Navigating through the MENU”. (➡page 29)

2) Press and hold the FUNCTION button of the control panel or remote control for 3 seconds or more.

●When not using the FUNCTION button

1) Select DISABLE in this menu (FUNCTION BUTTON in the PROJECTOR SETUP menu).

2) Press the ENTER button.

3) Select OK.

4) Press the ENTER button.

Remarks

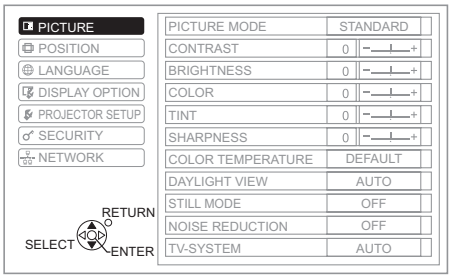
- For details, see “FUNCTION BUTTON” in the “PROJECTOR SETUP menu”. (➡page 43)

Menu Navigation

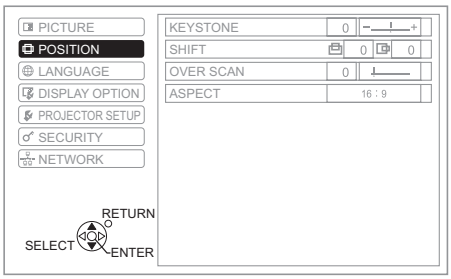
Navigating through the MENU

■ Operating procedure

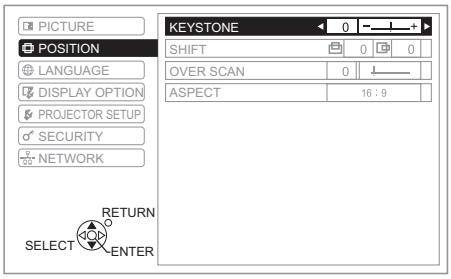
1) Press the MENU button.
The main menu is displayed.



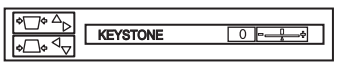
2) Press ▲▼ to scroll to the required main menu item and press the ENTER button to select.
Select the required menu item from the **PICTURE**, **POSITION**, **LANGUAGE**, **DISPLAY OPTION**, **PROJECTOR SETUP**, **SECURITY** and **NETWORK** *1 menu. The selected item is highlighted in orange and displays the sub-menu on the right.



3) Press the ENTER button.
You can select a sub-menu item.



4) Press ▲▼ buttons to scroll to the required sub-menu item and press ◄► buttons or the ENTER button to adjust.
The selected item is called up and the other menu items disappear from the screen.



If there is a lower level, the next level will be displayed.

*1: PT-LB90NTE only

Remarks

- Press the **MENU** or **RETURN** button to return to the previous menu. Press repeatedly to escape from the menu mode and return to the projection.
- Some items and functions may not be adjusted or available, depending on the selected input signals.
- Some settings are adjustable without any signals.
- Called up item will disappear after 5 seconds without any operation and return to the menu mode.
- For the sub-menu items, see “Sub-menu” in the “ON-SCREEN MENU”. (➡page 30)

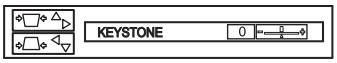
■ Resetting to the factory default settings.

You can reset most of the customised settings to the factory defaults by pressing the **DEFAULT** button of the remote control.

Press DEFAULT **button.**

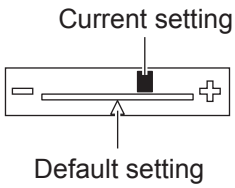
The operation depends on the screen displayed currently.

- While the sub-menu screen is displayed:
  The items of the sub-menu displayed currently are reset to the factory default settings.
- While the called up item screen is displayed:
  Only the item adjusted currently is reset to the factory default setting.



Remarks

- You cannot reset all the settings at a time to the factory default settings.
  To reset all the settings to the factory defaults, see “INITIALIZE ALL” in the “PROJECTOR SETUP menu”. (➡page 44)
- Some menu items are not available to reset by pressing the **DEFAULT** button. Adjust each menu item manually.
- The triangle mark under the bar indicates factory default setting and the square indicates the current setting.
  The triangle mark position varies by the selected input signals.



Settings

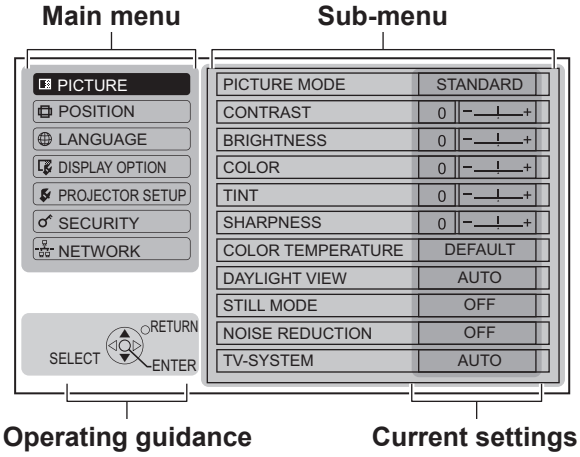
Menu Navigation

The menu system allows you to access functions which do not have their own dedicated buttons on the remote control. The menu options are structured and categorised. For the menu operation, see “Navigating through the MENU”. (➡page 29)

ON-SCREEN MENU

Press MENU **button.**

The **ON-SCREEN MENU** is displayed.
The **ON-SCREEN MENU** consists of the main menu and sub-menu.



The operating method of each menu is displayed.

Main menu

The main menu has the 7 options.
Select the required menu item and press **ENTER** to display the sub-menu.

	PICTURE
	POSITION
	LANGUAGE
	DISPLAY OPTION
	PROJECTOR SETUP
	SECURITY
	NETWORK (PT-LB90NTE only)

Sub-menu

Select the required sub-menu item and press **ENTER** to display the detailed menu.

PICTURE [ ]

- **S-VIDEO/VIDEO/RGB** (Moving image)/**YP_BP_R** signal is input *1

Sub-menu item	Default	Page
PICTURE MODE	**STANDARD**	32
CONTRAST	**0**	32
BRIGHTNESS	**0**	32
COLOR	**0**	32
TINT	**0**	32
SHARPNESS	**0**	32
COLOR TEMPERATURE	**DEFAULT**	32
DAYLIGHT VIEW	**AUTO**	33
STILL MODE *2	**OFF**	33
NOISE REDUCTION *2	**OFF**	33
TV-SYSTEM *2	**AUTO**	33
RGB/YP_BP_R *3	**AUTO**	33

*1: RGB moving images can be projected only when the following signals are input:
480i, 576i (RGB only), 480p, 576p, 1 080/60i, 1 080/50i, 720/60p, 720/50p
*2: Only when S-VIDEO/VIDEO signal is input.
*3: Only when RGB/YP_BP_R signal is input.

- When RGB (Still image)/network signal is input

Sub-menu item	Default	Page
PICTURE MODE	**DYNAMIC**	32
CONTRAST	**0**	32
BRIGHTNESS	**0**	32
SHARPNESS	**0**	32
WHITE BALANCE RED *1	**0**	32
WHITE BALANCE GREEN *1	**0**	32
WHITE BALANCE BLUE *1	**0**	32
COLOR TEMPERATURE	**DEFAULT**	32
DAYLIGHT VIEW	**AUTO**	33
RGB/YP_BP_R *2	**AUTO**	33

*1: Only when RGB signal is input.
*2: Only when RGB signal (VGA60) is input.

Remarks

- The factory default values vary depending on the **PICTURE MODE** setting.

Settings

■ POSITION [ ]

Sub-menu item	Default	Page
REALTIME KEYSTONE	ON	34
KEYSTONE	0	34
SHIFT *1	0	34
DOT CLOCK *1	0	34
CLOCK PHASE *1	0	34
OVER SCAN *1	0	35
ASPECT *1	16:9	35
FRAME LOCK *1	OFF	36

*1: The setting is active or deactive, depending on the input signal and the specific setting.

■ LANGUAGE [ ]

For details, see “LANGUAGE menu”. (➡page 37)

■ DISPLAY OPTION [ ]

Sub-menu item	Default	Page
ON-SCREEN DISPLAY	—	38
STARTUP LOGO	ON	38
AUTO SETUP	AUTO	39
SIGNAL SEARCH	ON	39
BACK COLOR	BLUE	39
WIDE MODE *1	AUTO	39
SXGA MODE *1	SXGA	39
OTHER FUNCTIONS	—	40

*1: The setting is active or deactive, depending on the input signal and the specific setting.

■ PROJECTOR SETUP [ ]

Sub-menu item	Default	Page
STATUS	—	41
NO SIGNAL SHUT-OFF	DISABLE	41
INITIAL START UP	LAST MEMORY	41
INSTALLATION	FRONT/DESK	41
HIGH ALTITUDE MODE	OFF	41
STANDBY MODE	ECO	42
LAMP POWER	NORMAL	42
LAMP RUNTIME	—	42
EMULATE	DEFAULT	42
FUNCTION BUTTON	STATUS	43
AUDIO SETTING	—	43
TEST PATTERN	—	44
INITIALIZE ALL	—	44

■ SECURITY [ ]

Sub-menu item	Default	Page
PASSWORD	OFF	45
PASSWORD CHANGE	—	45
TEXT DISPLAY	OFF	45
TEXT CHANGE	—	45
MENU LOCK	OFF	46
MENU LOCK PASSWORD	—	46
CONTROL DEVICE SETUP	—	46

■ NETWORK [ ] (PT-LB90NTE only)

For details, see “NETWORK menu”. (➡page 47)

Sub-menu item	Default
WIRED LAN	—
WIRELESS LAN	S-MAP
NAME CHANGE	—
PASSWORD	OFF
PASSWORD CHANGE	—
NETWORK CONTROL	ON
LIVE MODE CUT IN	OFF
COMPUTER SEARCH	—
MULTI-LIVE	—
STATUS	—
INITIALIZE	—

Remarks

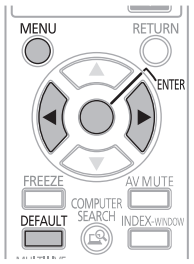
- Sub-menu items and the factory default settings vary according to the selected input signal.

PICTURE menu

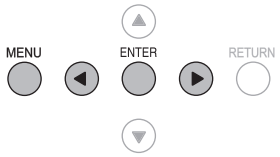
Navigating through the MENU (➡page 29), select PICTURE from the main menu and then select the required item from the sub-menu.

- Set the selected item with ◄►buttons.

Remote control



Control panel



PICTURE MODE

Depending on the projection environment, you can optimize the image projection.

Change setting ◄ ► **Change setting**

Press◄►buttons to cycle through the options.

STANDARD ⟷ **DYNAMIC**

NATURAL ⟷ **WHITE BOARD** ⟷ **BLACKBOARD**

STANDARD	Setting for general image
DYNAMIC	Setting for brightness and sharpness
BLACKBOARD	Setting for when projecting on a blackboard
WHITE BOARD	Setting for when projecting on a white board
NATURAL	Reproducing the original colour of the image

Remarks

- It may take a while until the selected mode is stabilised.

CONTRAST

You can adjust the contrast of the projected image.

Lower ◄ ► **Higher**

BRIGHTNESS

You can adjust the brightness of the projected image.

Darker ◄ ► **Brighter**

COLOR

You can adjust the colour saturation of the projected image. (Available with signals of **S-VIDEO/VIDEO**/**RGB** (Moving image)/**YP_BP_R** only)

Lighter ◄ ► **Darker**

TINT

You can adjust the skin tone in the projected image. (Available with signals of **S-VIDEO/VIDEO/RGB** (Moving image)/**YP_BP_R** only)

More reddish ◄ ► **More greenish**

SHARPNESS

You can adjust the sharpness of the projected image.

Less sharp ◄ ► **More sharp**

Remarks

- The adjustable range depends on the input signal.

WHITE BALANCE

You can adjust the white balance more properly in 3 colours temperature.
(Available with signal of RGB (Still image) only)

–1 ◄ ► **+1**

Press▲▼buttons to cycle through the options.

Advanced menu item	Default
WHITE BALANCE RED	**0**
WHITE BALANCE GREEN	**0**
WHITE BALANCE BLUE	**0**

COLOR TEMPERATURE

You can adjust the white balance of the projected image.

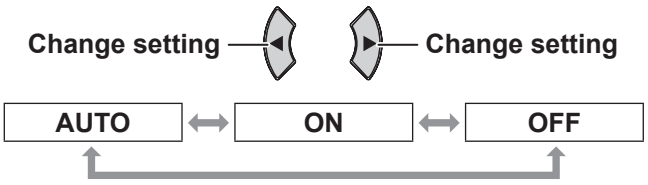
Change setting ◄ ► **Change setting**

DEFAULT ⟷ **HIGH** ⟷ **LOW**

DEFAULT	Balanced white
HIGH	More bluish
LOW	More reddish

DAYLIGHT VIEW

You can keep the projected image bright and vivid even in well-lit rooms where the ambient light sources cannot be controlled, such as when a door opens or when window coverings fail to block out sunlight.



AUTO	Automatic adjustment
ON	Active
OFF	Deactive

Remarks

- Do not cover the Ambient Luminance Sensor (**ALS**) of the projector. The **AUTO** mode may not operate normally.
- **AUTO** is not available when **INSTALLATION** in **PROJECTOR SETUP** menu is set to **REAR/DESK** or **REAR/CEILING**.

STILL MODE

You can reduce the vertical flicker when projecting a still image.
(Available with signals of **S-VIDEO/VIDEO** only)



OFF	Deactive
ON	Active

Note

- You must set to **OFF** when projecting a moving image.

NOISE REDUCTION

You can switch the automatic noise reduction system on/off.
(Available with signals of **S-VIDEO/VIDEO** only)



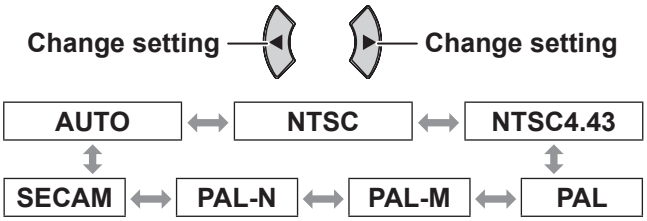
OFF	No noise reduction
ON	Automatic noise reduction

Note

- **NOISE REDUCTION** is set active when the selected input signal has less noise. Applying noise reduction may affect the image quality, if so, set to **OFF**.

TV-SYSTEM

When the video signal is changed, the setting switches automatically. You can switch the setting manually to match the video data.
(Available with signals of **S-VIDEO/VIDEO** only)



Note

- **AUTO** mode is selected by default.
- When the projector is not working properly in **AUTO** mode, change the setting according to each TV system type.

Remarks

- **AUTO** setting will automatically select the compatible signal from **NTSC/NTSC 4.43/PAL/PAL60/PAL-M/PAL-N/SECAM**.

RGB/YP_BP_R

AUTO mode is selected by default. If the image is not projected normally in the **AUTO** mode, select **RGB** or **YP_BP_R** according to the input signal.
The function becomes effective only when certain signals below are input.
(VGA60, 480i, 576i, 480p, 576p, 1 080/60i, 1 080/50i, 720/60p, 720/50p)
Select the signals to be input to the **COMPUTER1** and **COMPUTER2** IN terminal.



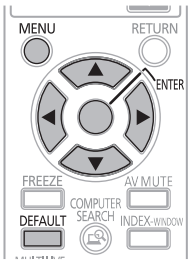
AUTO	Automatic adjustment
RGB	For RGB signals
YP_BP_R	For YP_BP_R signals

POSITION menu

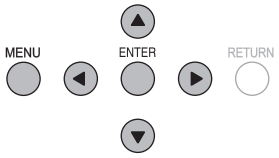
Navigating through the MENU (➡page 29), select POSITION from the main menu and then select the required item from the sub-menu.

- Set the selected item with ▲▼◄► buttons.

Remote control



Control panel



REALTIME KEYSTONE

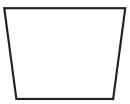
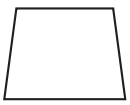
If the projector is aligned non-perpendicularly to the screen, or if the projection screen has an angled surface, the keystone will be corrected automatically.

Change setting ◄ ► **Change setting**

ON	Active
OFF	Deactive

KEYSTONE

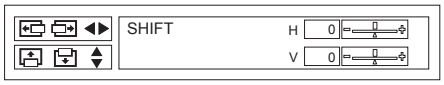
If you need to correct the angle of the projection even when the **REALTIME KEYSTONE** is activated, you can correct the keystone manually.

Image	Operation
	
	

Remarks

- You can correct the distortion ±30 ° from the plane. For a better quality image, installing the projector with a minimum of distortion is recommended.
- The distortion of the Main menu screen is not correctable.
- The result of the keystone correction will affect the aspect ratio and the size of the image.

SHIFT



Horizontal (H): Press ◄► buttons to move the image horizontally.
Vertical (V): Press ▲▼ buttons to move the image vertically.

Remarks

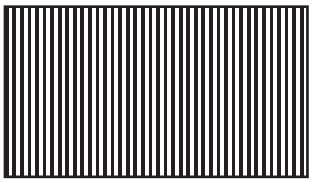
- The image cannot be moved while network signals are input.
- Press ◄►▲▼ buttons to move the image.

SHIFT V

(Available with signal of network only while **ASPECT** is set to **H FIT**)
Press ◄► buttons to move the image vertically.

DOT CLOCK

If you have interference patterns of the projected image, which is sometimes referred to as moire or noise, you can minimize it by pressing ◄► buttons to adjust the clock frequency.
(Available with signal of **RGB** (Still image) only).



Note

- **DOT CLOCK** needs to be adjusted before adjusting the **CLOCK PHASE**.

CLOCK PHASE

If you require further adjustment for the same reason as the **DOT CLOCK** adjustment, you can fine adjust the timing of the clock. (Available with signals of **RGB/ YP_BP_R** only)
Press ◄► buttons to adjust.

Remarks

- If the projecting signal's dot clock frequency is higher than 150 MHz, the adjustment of **DOT CLOCK** or **CLOCK PHASE** may not make a difference. See "List of compatible signals". (➡page 54)

Settings

OVER SCAN

Use this function when characters or pictures are cropped near the periphery of the projected image. (Available with signals of **S-VIDEO/VIDEO/RGB** (Moving image)/**YP_BP_R** only)



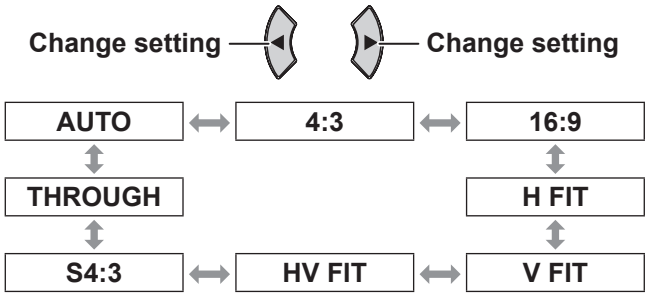
- Setting range: 0 to +3

Remarks

- **OVER SCAN** is not available when network signals are input.

ASPECT

You can switch the aspect ratio manually when needed. Selectable options vary according to input signal.



Remarks

- **AUTO** mode is displayed only when NTSC 480i signal is input.
- **THROUGH** mode is displayed only for certain signals.
- For the wide signal *2, the aspect ratio cycles through 16:9 ⇔ V FIT ⇔ HV FIT.

AUTO (Available with signal of NTSC 480i only)

The signal which contains an identifying signal will be detected and will automatically project the image in the most optimal aspect ratio.

4:3

When a standard signal *1 is input, it is projected in 4:3 aspect ratio.

- Input signal: XGA

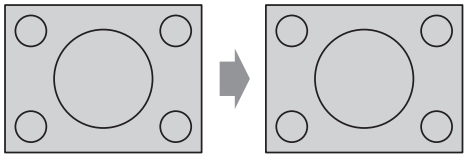


Image: ▭

16:9

When a standard signal *1 is input, it is projected in 16:9 aspect ratio.
When a wide signal *2 is input, it is projected in the current input aspect ratio.

- Input signal: 1 080/60i

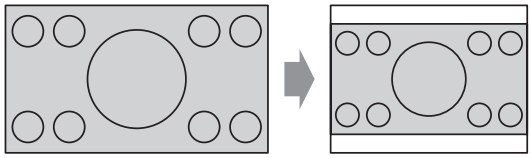


Image: ▭ Panel: ▭

H FIT

When a standard signal *1 is input, it is projected without changing the aspect ratio, using all the panel pixels in the horizontal direction and cropping the top and bottom of the image.

- Input signal: SXGA

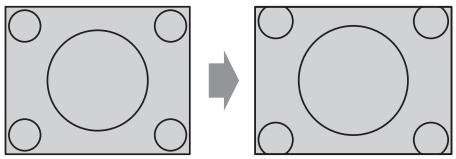


Image: ▭

V FIT

When a wide signal *2 is input, it is projected without changing the aspect ratio, using all the panel pixels in the vertical direction and cropping the right and left of the image.

- Input signal: 1 080/60i

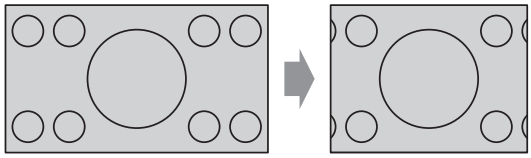


Image: ▭

HV FIT

The image is projected all over the panel pixels (screen). The input signal is projected at the aspect ratio of the panel (screen).

- Input signal: 1 080/60i

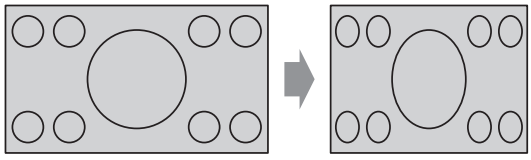


Image: ▭

*1: A standard signal has an aspect ratio of 4:3 or 5:4.
*2: A wide signal has an aspect ratio of 16:10, 16:9 or 15:9.

S4:3

When a standard signal *1 is input, the input signal will be sized down 75% and projected. **S4:3** mode is effective when projecting 4:3 image onto a 16:9 screen.

- Input signal: XGA

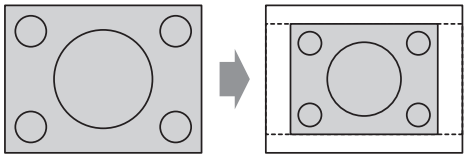


Image: Panel: Screen:

THROUGH

The image will be projected without any size adjustment.

- Input signal: NTSC

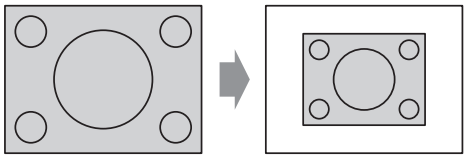


Image: Panel:

*1: A standard signal has an aspect ratio of 4:3 or 5:4.

Note

- If you project a 4:3 image onto a 16:9 screen, the image may distort or some portions may be cropped. Select an aspect ratio (4:3) which preserves the intention of the image creator.

Remarks

- The order of **ASPECT** types is defined not only by the input method but also by the input signals.
- If you project a copyrighted image enlarged or distorted by using **ASPECT** function in commercial use in a public place, such as a restaurant or hotel, you might infringe on the copyright of the creator which is protected by copyright law.

FRAME LOCK

If the projected image is degraded, you can activate **FRAME LOCK** for synchronisation. (Available with signals of **RGB** only)

Change setting **Change setting**

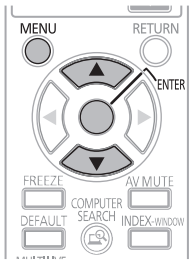
ON	Active
OFF	Deactive

LANGUAGE menu

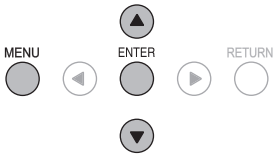
Navigating through the MENU (➡page 29), select LANGUAGE from the main menu and then display the sub-menu.

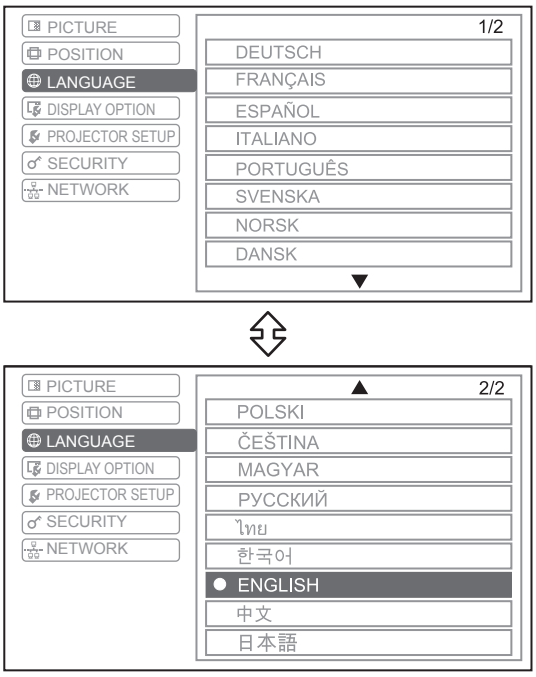
- Select the required language with ▲▼ buttons and press the **ENTER** button to set.

Remote control



Control panel





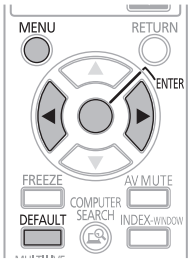
The set language is highlighted.

DISPLAY OPTION menu

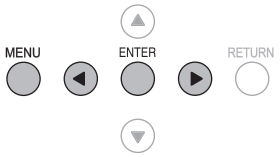
Navigating through the MENU (➡page 29), select DISPLAY OPTION from the main menu and then select the required item from the sub-menu.

- Set the selected item with ◄► buttons.

Remote control



Control panel



ON-SCREEN DISPLAY

You can set the on-screen display.

Change setting ◄ ► **Change setting**

INPUT GUIDE

When you change the input method, the guidance appears in the upper right corner of the screen. The following display methods are available.

DETAILED	Display the input method by graphic. The **INPUT GUIDE** will go out after 10 seconds without any operation.
OFF	Turn off the guidance.
SIMPLE	Display the input method by text. The **INPUT GUIDE** will go out after 5 seconds without any operation.

Remarks

- If you select the computer terminals which have no signals while **INPUT GUIDE** is set to **DETAILED**, the computer connection guidance will be displayed. If you want to turn off the guidance, select **SIMPLE** or **OFF**.

●Computer connection guidance

You can switch the signals which output from the **COMPUTER1/COMPUTER2** terminal by pressing the following computer key commands.

Manufacturer	Image output selection command
Panasonic NEC	Fn + F3
Acer HP SHARP TOSHIBA	Fn + F5
lenovo SONY	Fn + F7

Manufacturer	Image output selection command
DELL EPSON	Fn + F8
FUJITSU	Fn + F10
Apple	F7

Remarks

- The key commands are depending on the manufacturers. Please refer to the instructions which were provided with the computers for more detailed information.

OSD DESIGN

You can change the background of the on-screen menu (OSD).

TYPE1	Semi transparent black
TYPE2	Solid blue
TYPE3	Semi transparent dark blue

WARNING MESSAGE

You can choose to display or not to display the warning massages.

ON	Warning messages will be displayed
OFF	No display

Note

- When the **WARNING MESSAGE** is set to **OFF**, use the projector with utmost care due to the most of warning messages will not be displayed.

STARTUP LOGO

You can set to display the Panasonic logo, your own image or Pre-set letters, when starting up the projector.

Change setting ◄ ► **Change setting**

ON	Display “**Panasonic**” logo
TEXT	Display the original text
USER	Display the image registered by user
OFF	No display

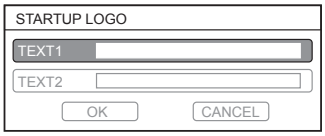
Remarks

- If **TEXT** is selected, the input letters are displayed when starting up the projector. You can display 2 lines of original text which contain up to 40 characters each.
- If **USER** is selected, the image transferred by the Logo Transfer Software is displayed when starting up the projector. (You can download the Logo Transfer Software from the Panasonic Projector website (http://panasonic.net/avc/projector/download/).)
- **STARTUP LOGO** will be displayed for 30 seconds.

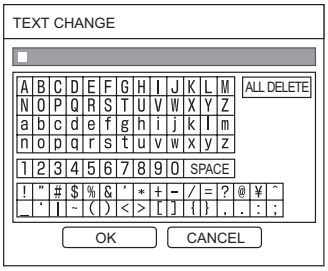
■ Editing the original text

1) Press ◄► buttons to select TEXT and press the ENTER button.

2) Press ▲▼ buttons to select the required line and press the ENTER button.
You can enter and edit the texts for the first line in **TEXT1** and the texts for the second line in **TEXT2**.



3) Press ▲▼◄► buttons to select the required character and press the ENTER button.
To delete all the entered characters, move the cursor to **ALL DELETE** and press the **ENTER** button. To delete a character, press the **DEFAULT** button or move the cursor to the required character then press the **DEFAULT** button.



4) Select OK and press the ENTER button to set the entered text in a box.

5) Select OK again and press the ENTER button.
Select **CANCEL** or press the **MENU/RETURN** button to return to the previous menu without setting.

AUTO SETUP

You can turn off the automatic **AUTO SETUP** adjustment system.

Change setting — **Change setting**

AUTO	When the projector detects a **COMPUTER** signal, automatically set the setting of **SHIFT**, **DOT CLOCK** and **CLOCK PHASE** in the **POSITION** menu.
BUTTON	Only when the **AUTO SETUP** button is pressed, automatically set the **SHIFT**, **DOT CLOCK** and **CLOCK PHASE** in **POSITION** menu for **COMPUTER** signals. (➡page 27)

SIGNAL SEARCH

You can turn off the auto signal detecting system.

Change setting — **Change setting**

ON	Detect the input signal from the terminals and project the image.
OFF	Deactive

Remarks

- **SIGNAL SEARCH** is not available when any input signal is projected.

BACK COLOR

You can choose a **BLUE** or **BLACK** screen for when the projector is idle.

Change setting — **Change setting**

BLUE	Display blue screen
BLACK	Display black screen

WIDE MODE

When projecting WIDE signals, switch to **ON** to display the image in well adjusted size (16:9, 16:10, 15:9).

Change setting — **Change setting**

AUTO	Automatic setting
OFF	For 4:3 signals
ON	For WIDE signals

SXGA MODE

Switch to the **SXGA** setting when inputting SXGA signal.

Change setting — **Change setting**

SXGA	For normal projection
SXGA+	For projection when image is cropped

OTHER FUNCTIONS

You can perform some of the remote control button operations from the sub-menu.

AUTO SETUP

For details, see “Setting up the image position automatically”. (➡page 27)

FREEZE

You can capture the projected image and see it as a still picture. While the image is frozen, the audio sound through the projector will stop.
Press the **RETURN** button to escape.

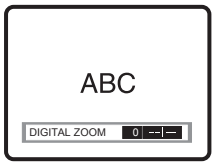
AV MUTE

If you will not be using the projector for some time, you can stop the projection and audio sound temporarily.
Press the **RETURN** button to escape.

INDEX-WINDOW

For details, see “INDEX-WINDOW display”. (➡page 27)

DIGITAL ZOOM



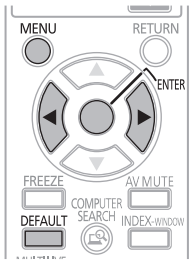
► button: zooms in
◄ button: zooms out
Press the **ENTER** button to select the enlargement range.
Press the **RETURN** button to escape.

PROJECTOR SETUP menu

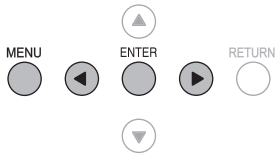
Navigating through the MENU (➡page 29), select PROJECTOR SETUP from the main menu and then select the required item from the sub-menu.

- Set the selected item with◄►buttons.

Remote control



Control panel



STATUS

You can check the using status of the projector.

SIGNAL

- NAME: Name of input signal
- FREQUENCY: Scanning frequency of input signal

RUNTIME

- PROJECTOR: Display current usage time of projector
- LAMP: Display current usage time of lamp

NO SIGNAL SHUT-OFF

If no image signal is input for the time set with the timer, the projector will enter into standby mode automatically.

Change setting ◄ ► **Change setting**

DISABLE	**NO SIGNAL SHUT-OFF** is disabled
15 - 60 MIN.	Timer can be set in intervals of 5 minutes

INITIAL START UP

You can set the starting method when the mains plug is connected to mains socket.

Change setting ◄ ► **Change setting**

LAST MEMORY	Projector starts from the last image before the mains plug was disconnected
STANDBY	Projector starts in the standby mode
ON	Projector starts immediately

INSTALLATION

When installing the projector, select the projection method according to the projector position. (➡page 18)

Change setting ◄ ► **Change setting**

FRONT/ DESK	Setting on a desk/floor and projecting from front
FRONT/ CEILING	Mounting in the ceiling with a ceiling mount bracket (sold separately) and projecting from front
REAR/DESK	Setting on a desk/floor and projecting from rear (Translucent screen is required)
REAR/CEILING	Mounting in the ceiling with a ceiling mount bracket (sold separately) and projecting from rear (Translucent screen is required)

HIGH ALTITUDE MODE

If you use the projector at high elevation, the **HIGH ALTITUDE MODE** setting need to be **ON** to set the fan speed high.

Change setting ◄ ► **Change setting**

OFF	For use in normal environment
ON	For use at high altitude

Remarks

- At 1 400 -2 700 m (4 593 - 8 858 ft) sea level, the setting must be **ON**.
- The loudness of fan noise depends on the **HIGH ALTITUDE MODE** setting.

STANDBY MODE

You can change the standby mode setting.



ECO	The standby power is reduced to 0.9 W to save power.
NORMAL	The power of the projector can be turned **ON** and the audio output can be set active from controlling the computer connected via a wired LAN or a wireless LAN in the **NORMAL** mode.

LAMP POWER

You can adjust the power of the lamp to save electricity, prolong the lamp life and reduce the noise.



NORMAL	When higher luminance is required
ECO	When lower luminance is sufficient

Remarks

- When no input signal is detected, this function is disabled.
- The **ECO** setting is recommended when higher luminance is not required such as in a small room.

LAMP RUNTIME

You can check how long the lamp has been used.

Note

- **LAMP RUNTIME** is a relevant matter for lamp replacement timing. See “Replacing the Lamp unit” (➡page 50).
- Check the lamp unit replacement time. (➡page 50)

Remarks

- If the lamp runtime has reached 2 800 hours, the red (time indicator) and grey marks appear alternately to notify you of the lamp replacement time.
- The lamp life varies with its condition of use (number of power-on times, etc.).

EMULATE

When the projector is controlled with a computer through serial input terminal, you can change the setting to use the former projector control commands.

1) Press the ENTER button.

2) Press ▲▼ buttons to select the required setting.

3) Press the ENTER button.

• **DEFAULT**	LB75 Series LB78 Series LB80 Series LB90 Series
D3500	D3500
D4000	D4000
D/W5K series	D5500 Series DW5000 Series D5600 Series DW5100 Series D5700 Series
D/W/Z6K series	D5000 Series D6000 Series DW6300 Series DZ6700 Series DZ6710 Series
L730	L520 Series L720 Series L730 Series
L780	L750 Series L780 Series
L735	L735 Series
L785	L785 Series
F/W series	F100 Series FW100 Series F200 Series F300 Series FW300 Series

FUNCTION BUTTON

You can select a useful function from the list and assign it to the **FUNCTION** button as a short-cut.

1) Press the MENU button of the control panel or remote control to display the on screen menu (main menu, sub-menu or detailed menu).
For the menu operation, see "Navigating through the MENU". (➡page 29)

2) Press and hold the FUNCTION button of the control panel or remote control for at least 3 seconds.

●When not using the FUNCTION button

1) Select DISABLE in this menu (FUNCTION BUTTON in the PROJECTOR SETUP menu).

2) Press the ENTER button.

3) Select OK.

4) Press the ENTER button.

Remarks

- After the setting is completed, the text colour and button colour will change.
- You can assign all the menu items, excluding the sub-menu of the **SECURITY** menu (**PASSWORD**, **PASSWORD CHANGE**, **TEXT DISPLAY**, **TEXT CHANGE**, **MENU LOCK**, **MENU LOCK PASSWORD** and **CONTROL DEVICE SETUP**).
- The displayed menu screen will disappear after 5 seconds without any operation, and the setting will be confirmed.

AUDIO SETTING

You can perform more detailed setting for Audio.

VOLUME

You can adjust the volume of the built-in monaural speaker and **VARIABLE AUDIO OUT** terminal.



BALANCE

You can adjust to hear the sound played equally through both right and left external stereo speakers, or shift the balance so more sound plays through the left or right side.



IN STANDBY MODE

You can turn ON or OFF the audio output in the standby mode.



OFF	Deactive
ON	Active

Remarks

- When **STANDBY MODE** is set to **ECO**, the audio output cannot be activated in the standby mode.

POWER BUTTON BEEP

You can set the operational sound (beep) heard when the power is turned off/on.



OFF	When the power is turned off/on *, the operational sound (beep) is not heard.
ON	When the power is turned off/on, the operational sound (beep) is heard.

*: The operational sound is heard when the button on the control panel is pressed after the power is connected.

AUDIO IN SELECT

You can select to connect the audio input of the devices connected to **COMPUTER1/COMPUTER2** to the **COMPUTER AUDIO IN** or **AUDIO IN** terminal.



AUDIO IN SELECT	
COMPUTER1 IN	Select **COM. AUDIO IN** or **AUDIO IN** terminal
COMPUTER2 IN	Select **COM. AUDIO IN** or **AUDIO IN** terminal

TEST PATTERN

You can use the 7 different test patterns to adjust the focus of the image. Press the **ENTER** button to display the test pattern.



Press the **MENU** or **RETURN** button to return to the **PROJECTOR SETUP** menu, or press repeatedly to escape the menu mode.

Remarks

- The initial screen is an all white pattern. Only when **TEST PATTERN** is assigned to the **FUNCTION** button, the lattice pattern will display in the initial screen.

INITIALIZE ALL

You can reset all of the customised settings in the **MENU** to the factory defaults.

- If the **ENTER** button is pressed in the **INITIALIZE ALL** menu, **INITIALIZE ALL** will display. Select **OK** and press the **ENTER** button, **NOW INITIALIZING...** is displayed. Then, **POWER OFF** is displayed. Select **OK** and turn off the power according to the instruction. (All other buttons are deactivated.)
- The **INITIAL SETTING** menu screen will display when the power is connected.
(➡page 13)

Remarks

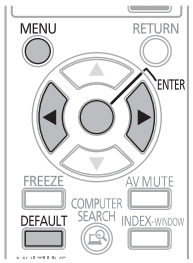
- The usage time of the projector, lamp runtime and the **NETWORK** settings are not initialised.
- When **PASSWORD** in **SECURITY** menu is activated, be sure to enter the correct password when initialised.
- After **INITIALIZE ALL** operation is completed, the password is reset to the factory default setting and **PASSWORD** setting is turned **OFF**.

SECURITY menu

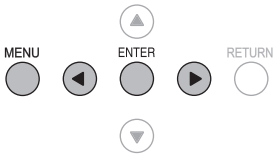
Navigating through the MENU (➡page 29), select SECURITY from the main menu and then select the required item from the sub-menu.

- When you apply to the **SECURITY** menu for the first time, you will be asked to perform the password operation. Input the initial password by pressing ▲►▼◄▲►▼◄ buttons in order and then press the **ENTER** button.
- Set the selected item with◄►buttons.

Remote control



Control panel



Note

- Perform the above operation after the **SECURITY** menu is displayed.
- If you have changed the password, input the new password and press the **ENTER** button.

PASSWORD

You can activate the security system and the password operation will be asked to perform when projecting mode started.

Change setting ◄ ► **Change setting**

OFF	Deactive
ON	Active

Remarks

- **PASSWORD** is set to **OFF** by default and when initialised.
- Change your password regularly. Do not use a simple password that is too easy to guess.
- Unless you perform the correct password operation, all of the button controls will be disabled except the **POWER** button.

PASSWORD CHANGE

You can change the password operation to your original.

1) Press▲▼◄►buttons to change the password.
(Up to eight button operations can be set.)

2) Press the ENTER button.

3) Input the password again and press the ENTER button.

Remarks

- The entered password operations will appear as asterisks in the box.
- If a series of button operation is incorrect, you will be asked to perform again.

TEXT DISPLAY

You can set your original text to display regularly at the bottom of the projected image while projecting.

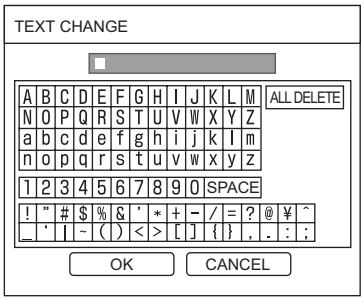
Change setting ◄ ► **Change setting**

OFF	Deactive
ON	Active

TEXT CHANGE

You can enter your original text to be displayed when **TEXT DISPLAY** is turned **ON**.

1) Press▲▼◄►buttons to select the required character and press the ENTER button.
(You can input up to 22 characters.)
To delete all the entered characters, move the cursor to **ALL DELETE** and press the **ENTER** button. To delete a character, press the **DEFAULT** button or move the cursor to the required character then press the **DEFAULT** button.



2) Press▲▼◄►buttons to select OK and press the ENTER button.
Select **CANCEL** or press the **MENU/RETURN** button to return to the previous menu without setting.

Settings

MENU LOCK

Press the **MENU** button to display the menu. You can lock or unlock the menu operation.

Change setting ◄ ► **Change setting**

OFF	Unlock the menu operation
ON	Lock the menu operation

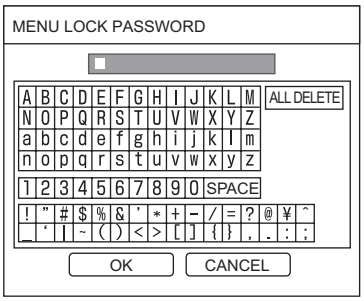
Remarks

- Once **MENU LOCK** is set to **ON**, you cannot use the **MENU** button unless you input the correct password.
- The **MENU LOCK** is set to **OFF** by default and when initialised.

MENU LOCK PASSWORD

When **MENU LOCK** is set to **ON**, you can set a **MENU LOCK PASSWORD**.

1) Press ▲▼◄► buttons to select the required character and press the ENTER button.
(You can input up to 16 characters.)
To delete all the entered characters, move the cursor to **ALL DELETE** and press the **ENTER** button. To delete a character, press the **DEFAULT** button or move the cursor to the required character then press the **DEFAULT** button.



2) Press ▲▼◄► buttons to select OK and press the ENTER button.
Select **CANCEL** or press the **MENU/RETURN** button to return to the previous menu without setting.

Remarks

- When using the projector for the first time or after **INITIALIZE ALL** operation is activated, the initial password is set as **AAAA**.
- Change your password regularly. Do not use a simple password that is too easy to guess.
- To reset the password to the initial password, see “MENU LOCK PASSWORD” (➡page 56).

CONTROL DEVICE SETUP

You can enable/disable the button operations of the control panel and remote control.

Change setting ◄ ► **Change setting**

■ CONTROL PANEL

ENABLE	Enable the button operations
DISABLE	Disable the button operations

■ REMOTE CONTROLLER

ENABLE	Enable the button operations
DISABLE	Disable the button operations

Remarks

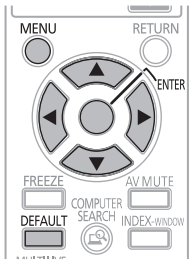
- If **DISABLE** is set, the confirmation screen appears. Select **OK** and press the **ENTER** button.
- If any button is pressed when **DISABLE** is set, the password screen appears.
  Input the password which is set in the **SECURITY** menu.
- The **PASSWORD** screen will be displayed for 10 seconds.
- If you set both **CONTROL PANEL** and **REMOTE CONTROLLER** to **DISABLE**, all the button operations of the control panel and remote control are disabled and you cannot turn off the power.
- In the standby mode, press and hold the **ENTER** button of the control panel and **MENU** button for at least 2 seconds. The buttons on the control panel are enabled.
  You can also enable the button operation by pressing and holding the **ENTER** button of the control panel and **MENU** button for at least 2 seconds while the projector is projecting.

NETWORK menu (PT-LB90NTE only)

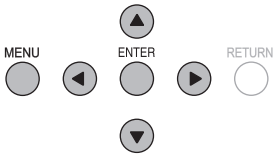
Navigating through the MENU (➡page 29), select NETWORK from the main menu and then select the required item from the sub-menu.

- Set the selected item with ◄► buttons.

Remote control



Control panel



Remarks

- These items are set for network connection with a computer. For details of the PJ Link and network, see “NETWORK operation manual” in the CD-ROM provided.

WIRED LAN

You can set a wired LAN.

WIRELESS LAN

You can set a wireless LAN.

NAME CHANGE

You can change the name of the projector.

INPUT PASSWORD

When checking the password for the network connection, you must turn this function **ON**.

PASSWORD CHANGE

You can change the password for the network connection.

NETWORK CONTROL

When controlling the projector with a computer on the network, you must turn this function **ON**.

LIVE MODE CUT IN

Set this function to **ON** to allow other users to connect to live mode while the projector is operating in the live mode of the network.

COMPUTER SEARCH

You can search for a computer on the network.

MULTI-LIVE

This function is available when a network input signal is detected.

STATUS

You can display the status of the network setting.

INITIALIZE

You can reset the settings of the network to the factory default settings.

Remarks

- When **PASSWORD** in the **SECURITY** menu is activated or the network setting is initialised, you will be required to input the password.

LAMP and TEMP Indicators

Managing the indicated problems

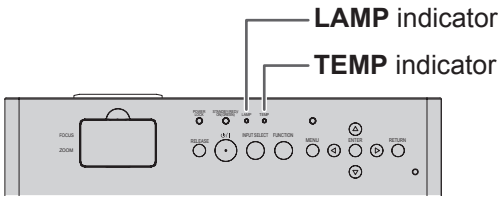
If a problem should occur with the projector, the **LAMP** and/or **TEMP** indicators will inform you.
Manage the indicated problems as follows.

Note

- When managing a problem, be sure to turn off the power as described in “Switching off the projector”. (➡page 24)

Remarks

- Confirm the power supply status by the **POWER** indicator. (➡page 22)



■ LAMP indicator

Indicator	● Illuminating red	● Flashing red		
Problem	**LAMP RUNTIME** has reached 2 800 hours.	**LAMP** circuit failure, abnormal function or the lamp unit is damaged.		
Cause	Lamp unit will run out soon and needs to be replaced.	The projector is switched on again too soon.	**LAMP** circuit failure, abnormal function.	Lamp unit is damaged.
Remedy	See “Replacing the Lamp unit”. (➡page 50)	Let the lamp unit cool down and turn on the projector after 90 seconds.	Switch off the projector (➡page 24) and contact an Authorised Service Centre.	See “Replacing the Lamp unit”. (➡page 50)

Remarks

- If the **LAMP** indicator still lights or flashes after the above remedy, contact an Authorised Service Centre.

■ TEMP indicator

Indicator	● Illuminating red while projecting and the alert will be displayed. ● Flashing red and power is turned off.			
Problem	The temperature inside and/or outside the projector is abnormally high. ● The projection may becomes darker than usual. ● The internal fan operational noise may be louder than usual.			
Cause	The air outlet port and air intake ports are covered.	The room temperature is too high.	The filter is excessively dirty and the ventilation is poor.	The projector is located at 1 400 - 2 700 m (4 593 - 8 858 ft).
Remedy	Remove the object(s) from the air outlet port and air intake ports or clear around the projector.	Reinstall the projector in temperature controlled place. (➡page 58)	Clean the filter in the proper method. (➡page 49)	Turn on the projector*1 and set the **HIGH ALTITUDE MODE** to **ON**. (➡page 41)

*1: The projector will perform 2 minutes with **OFF** setting at high elevation.

Remarks

- Take the above remedy, disconnect the mains plug, and then supply the power again. If the **TEMP** indicator still lights or flashes after the above remedy, contact an Authorised Service Centre.
- If the environment temperature in the projector rises, the fan speed increases and the sound becomes louder.

Care and Replacement

Before Care and Replacement

- Before cleaning, be sure to turn off the power and disconnect the mains plug from the mains socket. (➡page 21)
- Be sure to turn off the power as described in “Switching off the projector”. (➡page 24)

Cleaning the projector

Cabinet

Wipe off dirt and dust gently with a soft cloth.

- If it is difficult to remove the dirt, soak a cloth with water, wring the cloth well and then wipe the projector. Dry off the projector with dry cloth.
- Do not use petroleum benzine, thinner, any alcoholic solvent, kitchen detergents or chemical clothes. Failure to observe these may result in altered or damaged surfaces of the projector.

Lens cover

Make sure no dirt or dust remains on the surface of the lens cover glass. It will be enlarged and projected onto the screen.
Wipe off dirt and dust gently with a lint-free cloth. Do not wipe the lens cover with a cloth which has collected dust.

Note

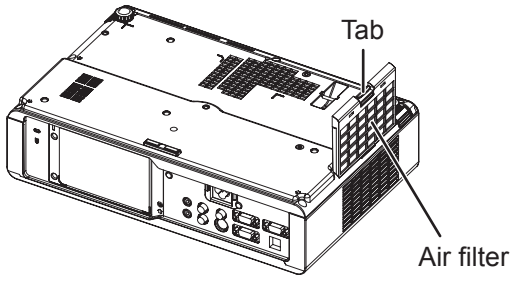
- Clean the lens cover with special care. Giving a shock may cause serious damage.

Air filter

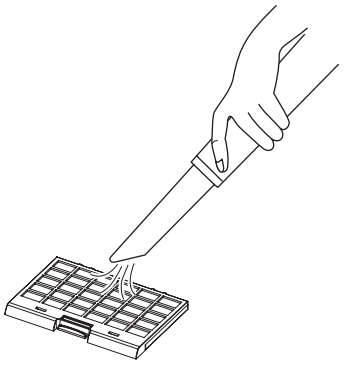
If the air filter is excessively dirty, the internal temperature of the projector increases, the **TEMP** indicator lights, and the power is turned off. If the power is turned off, the **TEMP** indicator flashes. Clean the air filter regularly every 100 hours of usage.

1) Turn the projector upside down and place it gently on a soft cloth.

- Place the projector softly so that it will not be damaged.
- Press the tab and slightly slide up the air filter to remove.



2) Clean the air filter.
Vacuum dirt and dust from the air filter.



3) Install the air filter.

Remarks

- Do not use the projector without attaching the air filter. Otherwise, it will suck in dirt and dust which can cause malfunction.

Replacing the Lamp unit

Air filter

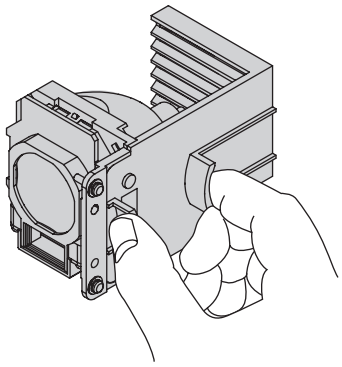
The air filter should be replaced when cleaning is ineffective and when replacing the lamp unit. A replacement air filter is provided with a replacement lamp unit (ET-LAB80). Contact an Authorised Service Centre for the optional air filter (TXFMZ01VKG7).

Lamp unit

The lamp unit, ET-LAB80 is consumable and you must replace it regularly. It is recommended that a qualified technician carry the lamp unit replacement and consult with an Authorised Service Centre.

Note on lamp unit replacement

- Handle the lamp unit with special care as it is a glass product. Dropping or giving it a shock may cause it to burst or to be damaged.
- If you wish to discard the used lamp, please contact your local authorities or dealer and ask for the correct method of disposal.
- Prepare a Phillips-head screwdriver.
- When replacing the lamp unit, be sure to hold it by the handle.
- Hold the lamp unit horizontally to prevent broken pieces from scattering. When the projector is mounted in the ceiling, do not work directly under the projector or put your face close to the projector, and pull out the lamp horizontally.



Note

- Prior to replacing the lamp unit, allow it to cool down to prevent the risk of burns, damage and other hazards.

Remarks

- Do not attempt replacement with an unauthorised lamp unit.

Lamp unit replacement time

When the lamp is consumed, the brightness may decrease over time. 3 000 hours of use is the replacing time as a rough guide, and that might be shortened by the usage conditions, characteristics of the lamp unit or environmental conditions. You can find the duration of usage time by checking **LAMP RUNTIME** in the **PROJECTOR SETUP** menu. Do not use a lamp unit over 3 000 hours. Failure to observe this may result in explosion of the lamp.

	ON-SCREEN DISPLAY REPLACE LAMP	**LAMP** indicator LAMP
2 800 hours	Displays “**REPLACE LAMP**” on the upper left of the screen for 30 seconds. If any button is pressed within 30 seconds, the message disappears.	Illuminates red, even in the standby mode.
3 000 hours	Displays “**REPLACE LAMP**” on the upper left of the screen, and it will stay until you respond. The power is turned off automatically in 10 minutes.	

Remarks

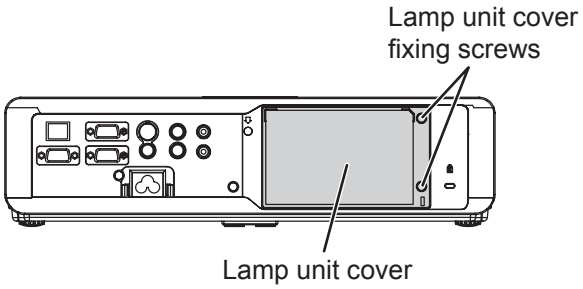
- The guide time, 3 000 hours, is a rough estimate based on certain conditions and is not a guaranteed time.

■ Lamp replacement procedure

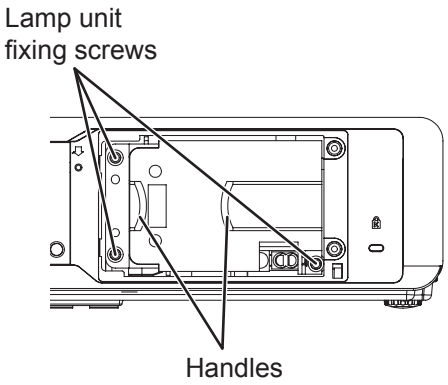
- When the projector is mounted in the ceiling, do not work directly under the projector or put your face close to the projector.
- Be sure to install the lamp unit and attach the lamp unit cover securely. If they are not installed securely, it may cause the protection circuit to operate so that the power cannot be turned on.

1) Disconnect the mains plug from the mains socket according to "Switching off the projector" (➡page 24), wait for at least 1 hour, and check if the lamp unit bottom is cooled.

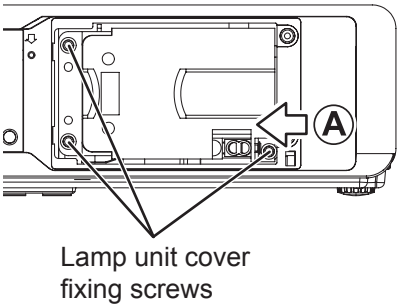
2) Use a Phillips-head screwdriver to loosen the 2 lamp unit cover fixing screws on the back of the projector until the screws turn loose, and remove the lamp unit cover.



3) Use a Phillips-head screwdriver to loosen the 3 lamp unit fixing screws. Pull the used lamp unit gently from the projector.



4) Press in the lamp unit until it clicks and make sure the unit is installed securely. Tighten the 3 lamp unit fixing screws securely with a Phillips-head screwdriver.
When inserting, in particular press the portion of Ⓐ securely.



5) Attach the lamp unit cover and tighten the 2 lamp unit cover fixing screws securely with a Phillips-head screwdriver.

6) Connect the mains lead to a mains socket.

7) Press the POWER button and the projection starts.

Remarks

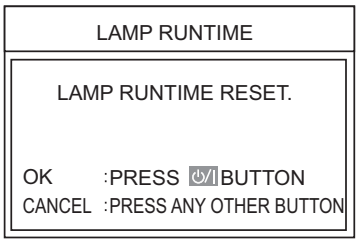
- If **INITIAL START UP** in the **PROJECTOR SETUP** menu is set to **ON**, the projector starts projecting when the mains lead is connected to a mains socket. (➡page 41)

8) Press the MENU button to display the main menu and press ▲▼ buttons to scroll to the PROJECTOR SETUP menu.

9) Press the ENTER button to select the PROJECTOR SETUP menu and press ▲▼ buttons to select LAMP RUNTIME.

10) Press and hold the ENTER button for approximately 3 seconds.

- The **LAMP RUNTIME** confirmation screen is displayed.



Note

- If any button other than the **POWER** button is pressed, the **LAMP RUNTIME** screen disappears and the lamp runtime is not reset. (Repeat from step 8 again).

11) Press the POWER button.

- After the lamp goes off, projection stops and the **POWER** button lights in red, then disconnect the mains plug.

12) The lamp runtime is reset to “0”.

Troubleshooting

Confirm the following problem and cause.
Should any problem persist, contact an Authorised Service Centre.

Problem	Cause	Page
Power does not turn on.	● The mains lead may not be connected securely.	21
	● No electric supply at the mains socket.	23
	● The circuit breakers have tripped.	—
	● **TEMP** or **LAMP** indicator is lit or flashes.	48
	● The lamp unit cover has not been securely installed.	51
	● The control buttons are **LOCKED**.	46
	● **CONTROL PANEL** in the **PROJECTOR SETUP** menu is invalidated.	46
No picture appears.	● The audio signal source may not be connected properly.	19, 20
	● The input selection setting may not be correct.	25
	● The **BRIGHTNESS** adjustment setting may be at the minimum setting.	32
	● The signal input source may not be operating properly.	—
	● The **AV MUTE** function may be in use.	26
The picture is fuzzy.	● The lens focus may not have been set correctly.	25
	● The projector may not be at the correct distance from the screen.	17
	● The lens may be dirty.	49
	● The projector may be tilted too much.	17
Colour is pale or grayish.	● **COLOR** or **TINT** adjustment may be incorrect.	32
	● The input source which is connected to the projector may not be adjusted correctly.	—
No sound can be heard from the internal speaker.	● The audio signal source may not be connected properly.	19, 20
	● The volume adjustment may be at the lowest possible setting.	27, 43
	● A cable may be connected to the **VARIABLE AUDIO OUT** terminal.	15
The remote control does not operate.	● The batteries may be weak.	—
	● The batteries may not have been inserted correctly.	16
	● The remote control signal receptor on the projector may be obstructed.	16
	● The remote control unit may be out of the operation range.	16
	● **REMOTE CONTROLLER** in the **PROJECTOR SETUP** menu is invalidated.	46
	● The remote control is under a strong light such as fluorescent.	16
The control buttons of the projector do not operate.	● **CONTROL PANEL** in the **PROJECTOR SETUP** menu is invalidated. (If you have a loss of the remote control while the **CONTROL PANEL** is invalidated, press and hold the **MENU** button for 2 seconds by pressing the **ENTER** button.)	46
The picture does not display correctly.	● The signal format (**TV-SYSTEM**, **RGB/YP$_B$P$_R$**) may not have been set correctly.	33
	● There may be a problem with the VCR or other signal source.	—
	● A signal which is not compatible with the projector is being input.	54
Picture from a computer does not appear.	● The RGB signal cable is too long. (Limit to 10 m (32'10").)	—
	● The external video output from a laptop computer may not be correct. (You may be able to change the external output settings by pressing the [Fn] + [F3] or [Fn] + [F10] keys simultaneously. The actual method varies depending on the type of computer; refer to the documentation provided with your computer for further details.)	38
The projector cannot be controlled through serial terminal.	● **EMULATE** in the **PROJECTOR SETUP** menu is not set correctly. (If you fail to select your product series, ask your dealer for repair.)	42

Note

● If the projector does not operate normally after the above remedies are taken, contact an Authorised Service Centre.

Technical Information

List of compatible signals

This projector can project the following image signals.

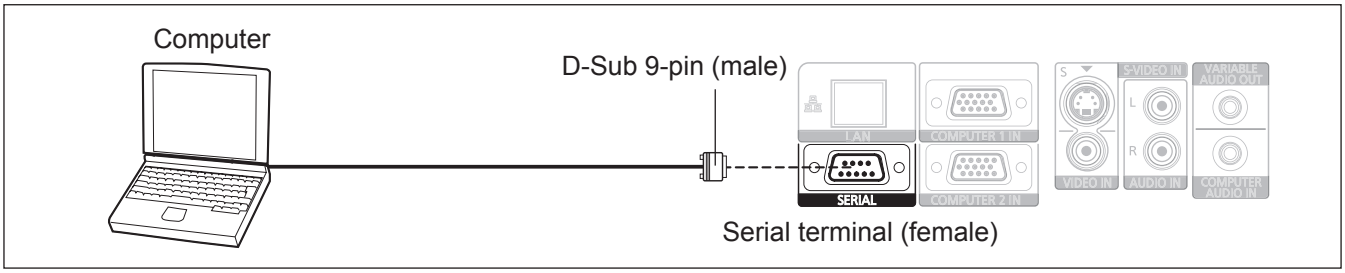
Mode	Display resolution (dots) *1	Scanning frequency		Dot clock frequency (MHz)	Picture quality *2	PnP availability *3	Terminals
		H (kHz)	V (Hz)				
NTSC/NTSC4.43/ PAL-M/PAL60	720 × 480i	15.7	59.9	—	A		VIDEO/S-VIDEO
PAL/PAL-N/SECAM	720 × 576i	15.6	50	—	A		
525i (480i)	720 × 480i	15.7	59.9	13.5	A		COMPUTER/ YP_BP_R
625i (576i)	720 × 576i	15.6	50	13.5	A		
525p (480p)	720 × 483	31.5	59.9	27	A		
625p (576p)	720 × 576	31.3	50	27	A		
1 125 (1 080)/60i	1 920 × 1 080i	33.8	60	74.3	A		
1 125 (1 080)/50i	1 920 × 1 080i	28.1	50	74.3	A		
750 (720)/60p	1 280 × 720	45	60	74.3	A		COMPUTER/ YP_BP_R
750 (720)/50p	1 280 × 720	37.5	50	74.3	A		
VESA	640 × 400	31.5	70.1	25.2	A		COMPUTER
	640 × 400	37.9	85.1	31.5	A		
VGA	640 × 480	31.5	59.9	25.2	A	○	
	640 × 480	35	66.7	30.2	A	○	
	640 × 480	37.9	72.8	31.5	A	○	
	640 × 480	37.5	75	31.5	A	○	
	640 × 480	43.3	85	36	A		
SVGA	800 × 600	35.2	56.3	36	A	○	
	800 × 600	37.9	60.3	40	A	○	
	800 × 600	48.1	72.2	50	A	○	
	800 × 600	46.9	75	49.5	A	○	
	800 × 600	53.7	85.1	56.3	A		
MAC	832 × 624	49.7	74.6	57.3	A	○	
XGA	1 024 × 768	39.6	50.1	51.9	AA		
	1 024 × 768	48.4	60	65	AA	○	
	1 024 × 768	56.5	70.1	75	AA	○	
	1 024 × 768	60	75	78.8	AA	○	
	1 024 × 768	68.7	85	94.5	AA		
MXGA	1 152 × 864	64	71.2	94.2	A	○	
	1 152 × 864	67.5	74.9	108	A		
	1 152 × 864	76.7	85	121.5	B		
MAC	1 152 × 870	68.7	75.1	100	A	○	
MSXGA	1 280 × 960	60	60	108	A	○	
SXGA	1 280 × 1 024	64	60	108	A		
	1 280 × 1 024	80	75	135	B	○	
	1 280 × 1 024	91.1	85	157.5	B		
SXGA60+	1 400 × 1 050	64	60	108	A		
	1 400 × 1 050	65.1	59.9	122.4	B	○	
UXGA	1 600 × 1 200	75	60	162	B	○	
WIDE750 (720)	1 280 × 720	44.8	59.9	74.5	A	○	
	1 280 × 720	37.1	49.8	60.5	A		
WXGA768	1 280 × 768	39.6	49.9	65.3	A		
	1 280 × 768	47.8	59.9	79.5	A	○	
WXGA800	1 280 × 800	41.3	50	68	A		
	1 280 × 800	49.1	60.2	69.1	A	○	
	1 280 × 800	49.7	59.8	83.5	A		
WXGA+	1 440 × 900	55.9	59.9	106.5	A	○	
WSXGA+	1 680 × 1 050	65.3	60	146.3	B	○	
WUXGA	1 920 × 1 200	74.6	59.9	193.3	B		

*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 : Some loss of data occurs to make projection easier.
*3: The signals marked with circles (○) can be applied by plug-and-play device.

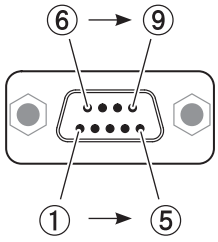
Serial terminal

The serial connector which is on the connector panel of the projector conforms to the RS-232C interface specifications, so that the projector can be controlled by a personal computer which is connected to this connector.

Connection



Pin assignments and signal names



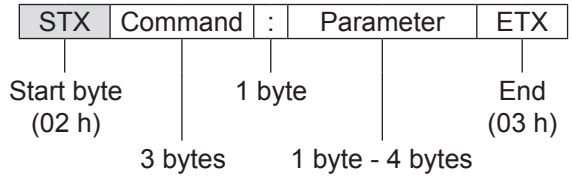
Pin No.	Signal name	Contents
①		NC
②	TXD	Transmitted data
③	RXD	Received data
④		NC
⑤	GND	Earth
⑥		NC
⑦	RTS	Connected internally
⑧	CTS	
⑨		NC

Communication settings

Signal level	RS-232C
Sync.method	Asynchronous
Baud rate	9 600 bps
Parity	None

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

Basic format



The data streaming from the computer will start with STX, and proceed to Command, Parameter and end with ETX.
You can add the required parameter.

Note

- The projector can not receive any command for 10 seconds after the lamp is switched on. Wait for 10 seconds before sending the command.
- If sending multiple commands, check if a response has been received from the projector for one command before sending the next command.
- When a command which does not require parameters to be sent, the colon (:) is not required.

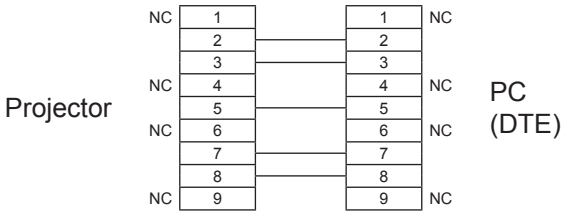
Remarks

- If an incorrect command is sent from the personal computer, the ER401 command will be sent from the projector to the personal computer.

Technical Information

Cable specifications

(When connected to a personal computer)



Control commands

The following commands are used for control of the projector with a computer.
(Operation commands)

Command	Control contents	Remarks
PON	Power on	● The PON command is ignored during lamp ON control. ● If a PON command is received while the cooling fan is operating after the lamp has switched off, the lamp is not turned back on again straight away in order to protect the lamp.
POF	Power off	
AVL	Volume	Parameter: 000 - 063 (Adjustment value 0 - 63)
IIS	Input	Parameter: VID = VIDEO SVD = S-VIDEO RG1 = COMPUTER 1 IN RG2 = COMPUTER 2 IN NWP = NETWORK (PT-LB90NTE only)
Q$S	Lamp condition query	Call back: 0 = Standby 1 = Lamp on control active 2 = Lamp on 3 = Lamp off control active
OSH	AV mute	Turning off the projection and sound temporarily. Send the command to switch between off and on. (➡page 26) Do not send the command consecutively. 0 = Off 1 = On

Remarks

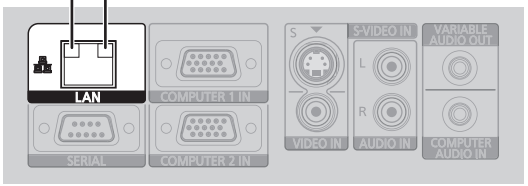
- If **STANDBY MODE** is set to **ECO**, only **PON** and **Q$S** command can be used in the standby mode.

LAN terminal

Name and function of LAN terminal

LINK lamp (Yellow)
10 Base-T/100 Base-TX
light up when connected.

ACT lamp (Green)
Flashing when data are transmitted or received.



Note

- Do not touch the LAN terminal or the metal part of the LAN cable.
  Otherwise, the static electricity may discharge from our hand (body) and thus cause a malfunction.

MENU LOCK PASSWORD

To initialize your password, consult your distributor.

Specifications

The specifications of this projector are as follows.

Power supply		AC 100 - 240 V 50 Hz/60 Hz
Power consumption		300 W During standby (when fan is stopped): Approx. 0.9 W
Amps		3.7 A - 1.5 A
LCD panel	**Panel size (diagonal)**	0.63 type (16.00 mm)
	Aspect ratio	4:3
	Display method	3 transparent LCD panels (RGB)
	Drive method	Active matrix method
	Pixels	786 432 (1 024 × 768) × 3 panels
Lens		Manual zoom (1.2×)/Manual focus F 1.65 - 1.93, f 18.53 mm - 22.18 mm
Lamp		UHM lamp (220 W)
Luminosity *1		3 500 lm (PT-LB90NTE/LB90E) 3 000 lm (PT-LB78VE) 2 600 lm (PT-LB75VE)
Scanning frequency *2 **(for RGB signal)**	**Horizontal scanning frequency**	15 kHz - 91 kHz
	Vertical scanning frequency	50 Hz - 85 Hz
	Dot clock frequency	Less than 110 MHz
COMPONENT (YP_BP_R) signals		525i (480i), 525p (480p), 625i (576i), 625p (576p), 750 (720)/60p, 750 (720)/50p, 1 125 (1 080)/60i, 1 125 (1 080)/50i
Colour system		7 (NTSC/NTSC4.43/PAL/PAL-M/PAL-N/PAL60/SECAM)
Projection size		33" - 300" (838.2 mm - 7 620 mm)
Optical axis		5:1 fixed
Throw distance		1.1 m - 11.4 m (3'7" - 37'4")
Screen aspect ratio		4:3
Installation		FRONT/DESK, FRONT/CEILING, REAR/DESK, REAR/CEILING (Menu selection method)
Speaker		1 piece 4 cm × 2 cm (1 5/8" × 3/4")
Max. useable volume output		1.0 W (Monaural)
Terminals	**S-VIDEO IN**	Single - line, Mini DIN 4p Y: 1.0 V [p-p], C: 0.286 V [p-p], 75 Ω
	VIDEO IN	Single - line, RCA pin jack 1.0 V [p-p], 75 Ω
	COMPUTER	Dual - line, D-Sub HD 15-pin (female) ● RGB input R.G.B.: 0.7 V [p-p], 75 Ω G-SYNC: 1.0 V [p-p], 75 Ω HD, VD/SYNC: TTL high impedance, automatic positive/negative polarity compatible ● YP_BP_R/YC_BC_R input Y: 1.0 V [p-p] (include sync), 75 Ω P_B/C_B, P_R/C_R: 0.7 V [p-p], 75 Ω
	AUDIO IN	Single - line, 0.5 V [rms], RCA pin jack × 2 (L-R)
	COMPUTER AUDIO IN	Single - line, 0.5 V [rms], M3 jack (Stereo MINI)
	VARIABLE AUDIO OUT	Single - line, M3 jack (Stereo MINI) Monitor output/stereo compatible 0 V [rms] - 2.0 V [rms] (variable)
	SERIAL	Single - line, D-Sub 9-pin RS-232C compatible
	LAN (RJ-45)	Single - line, 10Base-T/100Base-TX (PT-LB90NTE only)

*1: Measurement, measuring conditions and method of notation all comply with ISO21118 international standards.

*2: See “List of compatible signals” on page 54 for available signals.

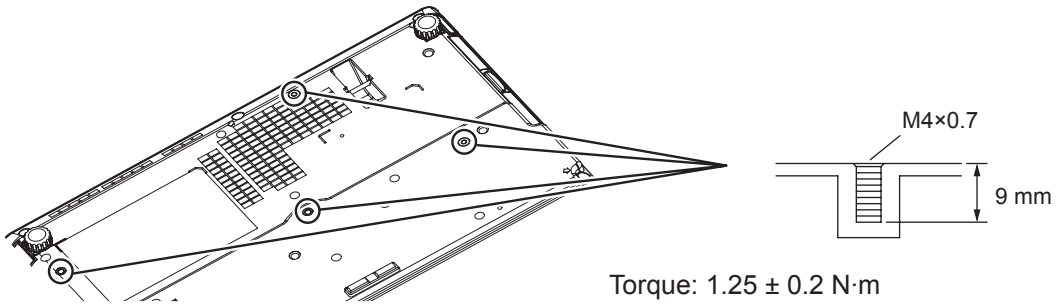
Specifications

Wireless LAN (PT-LB90NTE only)	**Compatible**	IEEE802.11 b/IEEE802.11 g (Wireless LAN standard protocol)
	Wireless channel	IEEE802.11 b/IEEE802.11 g: 1 - 13 channels
	Distance	Approx. 30 m (98'5") (depends on the usage environment)
Cabinet		Moulded plastic (PC+ABS)
Dimensions		● Width: 368 mm (14 1/2") ● Height: 88 mm (3 1/2") ● Length: 233 mm (9 1/8") (not including surface projection parts)
Weight		Approx. 2.96 kg (6.6 lbs.) *3
Operating environment		● Temperature: 0 °C - 40 °C (32 °F - 104 °F) When the HIGH ALTITUDE MODE (page 41) is set to ON: 0 °C - 35 °C (32 °F - 95 °F) ● Humidity: 20% - 80% (no condensation)
Certifications		EN60950-1, EN55022, EN61000-3-2, EN61000-3-3, EN55024
Remote control	**Power supply**	3 V DC (R6/LR6 battery × 2)
	Operating range	Approx. 15 m (49'2") (when operated directly in front of signal receptor)
	Weight	Approx. 117 g (4.2 ozs.) (including batteries)
	Dimensions	● Width: 48 mm (1 7/8") ● Length: 163 mm (6 3/8") ● Height: 24.5 mm (1") (not including surface projection parts)
Options	**Ceiling bracket**	ET-PKB80

*3: Average value. Each product has an individual variability in weight.

Ceiling mount bracket safeguards

- Installation work of the ceiling mount bracket should only be carried by a qualified technician.
- Even if it is during guaranteed period, the manufacturer is not responsible for any hazard or damage caused by using a ceiling mount bracket which is not purchased from an authorised distributors, or environmental conditions.
- Remove an unused ceiling mount bracket promptly.
- Make sure to use a torque driver and do not use an electrical screwdriver or an impact screwdriver.



Torque: 1.25 ± 0.2 N·m

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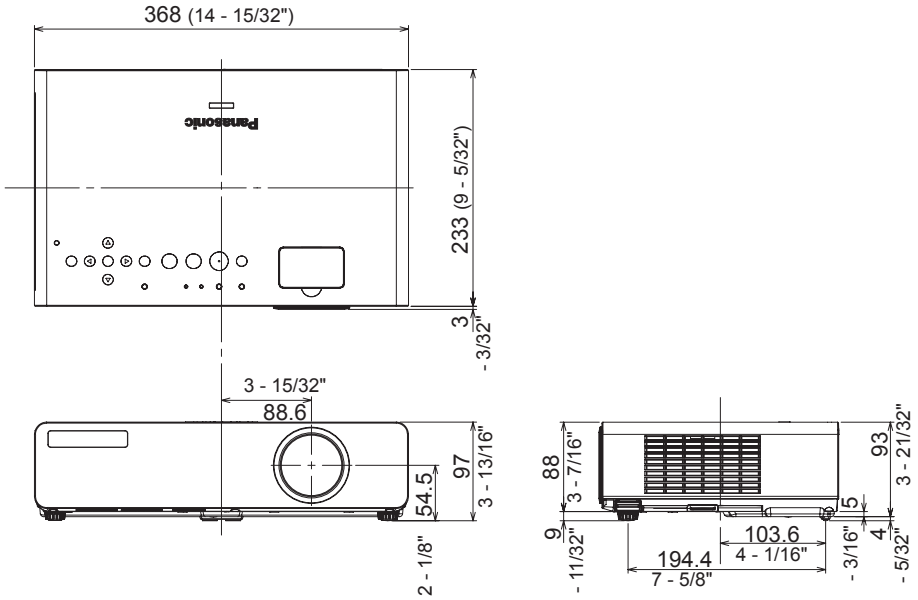
VOLUME 27

W

WHITE BALANCE 32
WIDE MODE 39

Dimensions

Unit: mm



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F1009-2109C
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