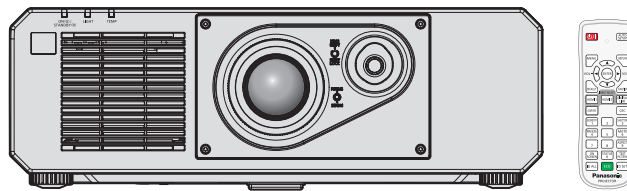


Operating Instructions Functional Manual

DLP™ Projector Commercial Use

Model No. **PT-FRQ60**
PT-FRQ50



Thank you for purchasing this Panasonic product.

- This manual is common to all the models regardless of suffixes of the Model No.
 - for Taiwan
BT: Black model
 - for India
BD: Black model
 - for other countries or regions
B: Black model W: White model
- Before operating this product, please read the instructions carefully and save this manual for future use.
- Before using this product, be sure to read “Read this first!” (➔ pages 5 to 15).

4K^{*}
PROFESSIONAL

* Resolution is 3 840 x 2 160 dots
(with QUAD PIXEL DRIVE)



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Read this first!

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.
This device is not intended for use in the direct field of view at visual display workplaces. To avoid incommoding reflexions at visual display workplaces this device must not be placed in the direct field of view.
The equipment is not intended for used at a video workstation in compliance BildscharbV.

The sound pressure level at the operator position is equal or less than 70 dB (A) according to ISO 7779.

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.

WARNING:

This equipment is compliant with Class A of CISPR32.
In a residential environment this equipment may cause radio interference.

(for Taiwan)

WARNING:

This equipment complies with the Class A standard of CNS13438.
This is Class A information technology equipment that may cause radio frequency interference when used in a residential environment, in which the user will be required to take certain appropriate countermeasures.

CAUTION:

To assure continued compliance, follow the attached installation instructions. This includes using the provided power cord and shielded interface cables when connecting to computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

This is a device to project images onto a screen, etc., and is not intended for use as indoor lighting in a domestic environment.

Directive 2009/125/EC

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

WARNING: RISK OF ELECTRIC SHOCK. DON'T OPEN.



Indicated on the projector



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Read this first!

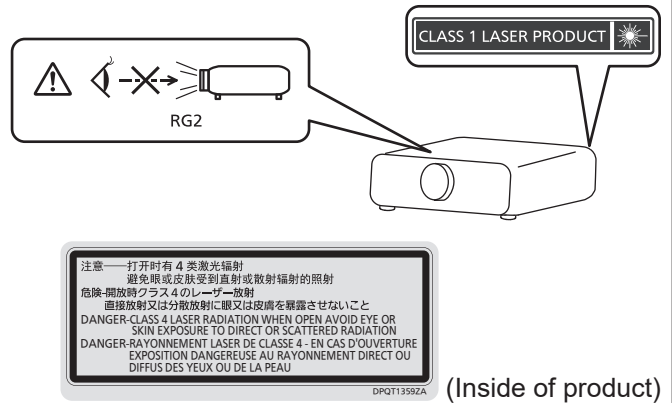
WARNING: Do not look at the light emitted from the lens while the projector is being used.
As with any bright source, do not stare into the direct beam, RG2 IEC 62471-5:2015.



Indicated on the projector

Notice on laser

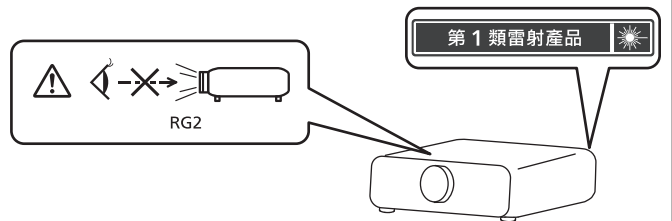
This projector is the Class 1 laser product that complies with IEC/EN 60825-1:2014.



(Inside of product)

Notice on laser (for Taiwan)

This projector is the Class 1 laser product that complies with IEC/EN 60825-1:2014.



CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

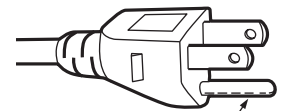
CAUTION (North/Middle/South America)

Power Supply: This Projector is designed to operate on 100 V - 240 V, 50 Hz/60 Hz AC, house current only.

CAUTION: The AC power cord which is supplied with the projector as an accessory can only be used for power supplies up to 125 V. If you need to use higher voltages than this, you will need to obtain a separate 250 V power cord. If you use the accessory cord in such situations, fire may result.

CAUTION (North/Middle/South America/Taiwan)

This equipment is equipped with a three-pin grounding-type power plug. Do not remove the grounding pin on the power plug. This plug will only fit a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician. Do not defeat the purpose of the grounding plug.



Do not remove

WARNING (USA and Canada)

- Not for use in a computer room as defined in the Standard for the Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.
- For permanently connected equipment, a readily accessible disconnect device shall be incorporated in the building installation wiring.
- For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.

NOTIFICATION (Canada)

This class A digital apparatus complies with Canadian ICES-003.

For USA-California Only

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply.

See www.dtsc.ca.gov/hazardouswaste/perchlorate

For Australia Only

WARNING: THIS PRODUCT CONTAINS A COIN BATTERY



Keep coin battery out of the reach of infants and small children whether the battery is new or used. Severe or fatal injuries can occur within 2 hours of ingestion. Seek medical attention immediately.



FCC NOTICE (USA)

Supplier's Declaration of Conformity

Model Number: PT-FRQ60W / PT-FRQ60B / PT-FRQ50W / PT-FRQ50B
Trade Name: Panasonic
Responsible Party: Panasonic Corporation of North America
Address: Two Riverfront Plaza, Newark, NJ 07102-5490
General Contact: <http://www.panasonic.com/support>
Projector Contact: <https://panasonic.net/cns/projector/>

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Warning:

To assure continued compliance, follow the attached installation instructions. This includes using the provided power cord and shielded interface cables when connecting to computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

IMPORTANT: THE MOLDED PLUG

FOR YOUR SAFETY, PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a molded three pin mains plug for your safety and convenience. A 13 amp fuse is fitted in this plug. Should the fuse need to be replaced, please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced. If you lose the fuse cover, the plug must not be used until a replacement cover is obtained. A replacement fuse cover can be purchased from an Authorized Service Center.

If the fitted molded plug is unsuitable for the mains socket in your home, then the fuse should be removed and the plug cut off and disposed of safely. There is a danger of severe electrical shock if the cut off plug is inserted into any 13 amp socket.


If a new plug is to be fitted, please observe the wiring code as shown below.
If in any doubt, please consult a qualified electrician.

WARNING: THIS APPLIANCE MUST BE EARTHED.

IMPORTANT: The wires in this mains lead are colored in accordance with the following code:

- Green - and - Yellow: Earth
- Blue: Neutral
- Brown: Live

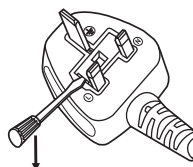
As the colors of the wire in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.

The wire which is colored GREEN - AND - YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the Earth symbol  or colored GREEN or GREEN - AND - YELLOW.

The wire which is colored BLUE must be connected to the terminal in the plug which is marked with the letter N or colored BLACK.

The wire which is colored BROWN must be connected to the terminal in the plug which is marked with the letter L or colored RED.

How to replace the fuse: Open the fuse compartment with a screwdriver and replace the fuse.



English	<p>Manufactured by: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importer: Panasonic Connect Europe GmbH</p> <p>Authorized Representative in EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Germany</p> <p>Importer for UK: Panasonic Connect UK, a branch of Panasonic Connect Europe GmbH, Maxis 2, Western Road, Bracknell, Berkshire, RG12 1RT</p>	UK CA
Français	<p>Fabriqué par: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japon</p> <p>Importateur: Panasonic Connect Europe GmbH</p> <p>Représentant autorisé dans l'UE: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Allemagne</p>	

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Deutsch	<p>Hergestellt von: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importeur: Panasonic Connect Europe GmbH</p> <p>Vertretungsberechtigter in der EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Deutschland</p>
Italiano	<p>Fabbricato da: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Giappone</p> <p>Importatore: Panasonic Connect Europe GmbH</p> <p>Rappresentante autorizzato nell'UE: Panasonic Testing Centre Winsbergring 15, 22525 Amburgo, Germania</p>
Български	<p>Производител: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Япония</p> <p>Вносител: Panasonic Connect Europe GmbH</p> <p>Упълномощен представител в ЕС: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Германия</p>
Čeština	<p>Vyrobil: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonsko</p> <p>Dovozce: Panasonic Connect Europe GmbH</p> <p>Oprávněný zástupce v EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburk, Německo</p>
Dansk	<p>Fremstillet af: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importør: Panasonic Connect Europe GmbH</p> <p>Autoriseret repræsentant i EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Tyskland</p>
Eesti	<p>Tootja: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Jaapan</p> <p>Maaletooja: Panasonic Connect Europe GmbH</p> <p>Volitatud esindaja ELis: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Saksamaa</p>
Ελληνικά	<p>Κατασκευάστηκε από: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Ιαπωνία</p> <p>Εισαγωγέας: Panasonic Connect Europe GmbH</p> <p>Εξουσιοδοτημένος αντιπρόσωπος στην ΕΕ: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Γερμανία</p>
Hrvatski	<p>Proizvodi: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Uvoznik: Panasonic Connect Europe GmbH</p> <p>Ovlašteni zastupnik u EU-u: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Njemačka</p>
Latviešu	<p>Ražotājs: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japāna</p> <p>Importētājs: Panasonic Connect Europe GmbH</p> <p>Oficiālais pārstāvis ES: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Vācija</p>
Lietuvių	<p>Gamintojas: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonija</p> <p>Importuotojas: Panasonic Connect Europe GmbH</p> <p>Įgaliojasis atstovas ES: Panasonic Testing Centre Winsbergring 15, 22525 Hamburgas, Vokietija</p>

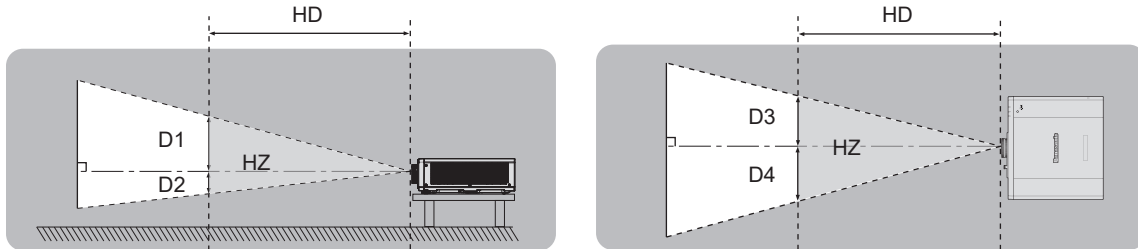
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Nederlands	<p>Geproduceerd door: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importeur: Panasonic Connect Europe GmbH</p> <p>Bevoegde vertegenwoordiger in de EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Duitsland</p>
Norsk	<p>Produsert av: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importør: Panasonic Connect Europe GmbH</p> <p>Autorisert representant i EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Tyskland</p>
Polski	<p>Wyprodukowano przez: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonia</p> <p>Importer: Panasonic Connect Europe GmbH</p> <p>Upoważniony przedstawiciel w UE: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Niemcy</p>
Português	<p>Fabricado por: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japão</p> <p>Importador: Panasonic Connect Europe GmbH</p> <p>Representante Autorizado na UE: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Alemanha</p>
Română	<p>Fabricat de: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonia</p> <p>Importator: Panasonic Connect Europe GmbH</p> <p>Reprezentant autorizat în UE: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Germania</p>
Slovenčina	<p>Výrobca: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonsko</p> <p>Dovozca: Panasonic Connect Europe GmbH</p> <p>Autorizovaný zástupca v EÚ: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Nemecko</p>
Slovenščina	<p>Proizvajaja: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonska</p> <p>Uvoznik: Panasonic Connect Europe GmbH</p> <p>Pooblaščenji zastopnik v EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Nemčija</p>
Suomi	<p>Valmistaja: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japani</p> <p>Maahantuoja: Panasonic Connect Europe GmbH</p> <p>Valtuutettu edustaja EU:ssa: Panasonic Testing Centre Winsbergring 15, 22525 Hampuri, Saksa</p>
Svenska	<p>Tillverkad av: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japan</p> <p>Importör: Panasonic Connect Europe GmbH</p> <p>Auktoriserad representant i EU: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Tyskland</p>
Türkçe	<p>Tarafından Üretilmiştir: Panasonic Connect Co., Ltd. 4-1-62 Minoshima, Hakata-ku, Fukuoka 812-8531, Japonya</p> <p>İthalatçı: Panasonic Connect Europe GmbH</p> <p>AB Yetkili Temsilcisi: Panasonic Testing Centre Winsbergring 15, 22525 Hamburg, Almanya</p>

■ Hazard distance (IEC 62471-5:2015)

The distance from the projection lens surface, at which the emission reaches the Accessible Emission Limit (AEL) of risk group 2, is known as the hazard distance (HD) or safety distance. The area where the emission exceeds the Accessible Emission Limit of risk group 2 is called the hazard zone (HZ).

Within the hazard zone, never look into the light projected from the projector. The eyes may be damaged by direct irradiation even if you look at the light just for a moment. If you are outside the hazard zone, it is considered to be safe in all circumstances except deliberately staring into the light projected from the projector.



■ Risk group

The projector is categorized as risk group 2 when the hazard distance is 1 m (39-3/8") or less. It is categorized as risk group 3 when the hazard distance exceeds 1 m (39-3/8"), and it will be for professional use instead of consumer use.

In the case of risk group 3, there is a possibility of damaging the eyes by direct irradiation when looking into the projection light from inside the hazard zone even for a moment.

In the case of risk group 2, safe use without damaging the eyes is possible in all circumstances except deliberately staring into the light projected from the projector.

This projector is categorized as risk group 2.

WARNING:

■ POWER

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

Continued use of the projector in these conditions will result in fire or electric shock, or will cause visual impairment.

- 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 Authorized Service Center 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 power cord or the power plug.

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

- Do not damage the power cord, 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 Authorized Service Center to carry out any repairs to the power cord that might be necessary.

Do not use anything other than the provided power cord.

Failure to observe this will result in electric shocks or fire. Please note that if you do not use the provided power cord to ground the device on the side of the outlet, this may result in electric shocks.

Completely insert the power plug into the wall outlet and the power connector into the projector terminal.

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

- Do not use plugs which are damaged or wall outlets which are coming loose from the wall.

Do not handle the power plug and power connector with wet hands.

Failure to observe this will result in electric shocks.

Do not overload the wall outlet.

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

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

Failure to observe this will cause a fire.

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

Pull the power plug out from the wall outlet and wipe it with a dry cloth regularly.

■ ON USE/INSTALLATION

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.

Using the projector under such conditions will result in fire, electric shocks or deterioration of components. Oil may also cause deterioration of plastics and the projector installed to the ceiling etc. could fall.

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 install the projector in a location where people pass through.

People may bump into the projector or trip on the power cord, which may result in fire, electric shock, or injury.

Do not cover the intake/exhaust vents or place anything within 500 mm (19-11/16") of them.

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.
- Do not place the projector on cloth or papers, as these materials could be drawn into the intake vent.

Do not look at or place your skin into the light emitted from the lens while the projector is being used.

Do not enter the projection luminous flux using an optical device (such as magnifier or mirror).

Doing so can cause burns or loss of sight.

- Strong light is emitted from the projector's lens. Do not look at 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 switch off the main power when you are away from the projector.

WARNING:

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 Authorized Service Center.

Do not allow metal objects, flammable objects, or liquids to enter inside of the projector. Do not allow the projector to get wet.

Doing so may cause short circuits or overheating, and result in fire, electric shock, or malfunction of the projector.

- Do not place containers of liquid or metal objects near the projector.
- If liquid enters inside of the projector, consult your dealer.
- Particular attention must be paid to children.

Use the ceiling mount bracket specified by Panasonic Connect Co., Ltd.

Using the ceiling mount bracket other than the specified one will result in falling accidents.

- Attach the supplied safety cable to the ceiling mount bracket to prevent the projector from falling down.

Installation work such as mounting the projector on the ceiling 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.

■ 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.
- Do not charge dry cell batteries.
- Do not disassemble 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 or carry 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.

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 allow children to reach the batteries.

Accidentally swallowing them can cause physical harm.

- If swallowed, seek medical advice immediately.

Remove the depleted batteries from the remote control promptly.

- Leaving them in the unit may result in fluid leakage, overheating, or explosion of the batteries.

CAUTION:

■ POWER

When disconnecting the power cord, be sure to hold the power plug and power connector.

If the power cord 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 power plug from the wall outlet.

Failure to do so may result in fire or electric shock.

Disconnect the power plug from the wall outlet before carrying out any cleaning.

Failure to do so may result in electric shock.

CAUTION:

■ **ON USE/INSTALLATION**

Do not place 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.

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 heaters.

Do not install the projector in a location where salt pollution or corrosive gas may occur.

Doing so may result in falling due to corrosion. Also, it may result in malfunctions.

Do not stand in front of the lens while the projector is being used.

Doing so can cause damage and burns to clothing.

- Strong light is emitted from the projector's lens.

Do not place objects in front of the lens while the projector is being used.

Do not block the projection by placing an object in front of the projection lens.

Doing so can cause fire, damage to an object, or malfunction of the projector.

- Strong light is emitted from the projector's lens.

Never plug headphones and earphones into <AUDIO OUT> terminal.

Excessive sound pressure from headphones and earphones can cause hearing loss.

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.

When mounting the projector on the ceiling, keep mounting screws and power cord from contact with metal parts inside the ceiling.

Contact with metal parts inside the ceiling can cause electric shocks.

■ **ACCESSORIES**

When not using the projector for an extended period of time, remove the batteries from the remote control.

Failure to observe this will cause the batteries to leak, overheat, catch fire or explode, which may result in fire or contamination of surrounding area.

■ **MAINTENANCE**

Ask your dealer about cleaning inside the projector every 20 000 hours of usage as an estimated duration.

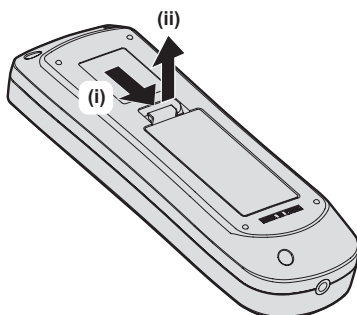
Continuous use while dust is accumulated inside the projector may result in fire.

- For cleaning fee, ask your dealer.

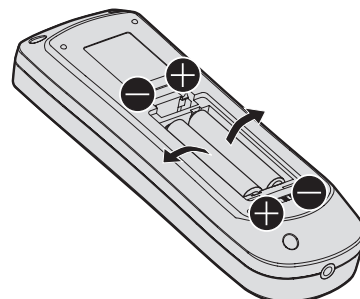
To remove the battery

Remote Control Battery

1. Press the guide and lift the cover.



2. Remove the batteries.



Brazil Only Brasil Apenas

■ Manuseio de baterias usadas

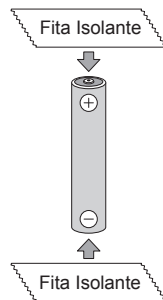


BRASIL

Após o uso, as pilhas e/ou baterias deverão ser entregues ao estabelecimento comercial ou rede de assistência técnica autorizada.

Cobrir os terminais positivo (+) e negativo (-) com uma fita isolante adesiva, antes de depositar numa caixa destinada para o recolhimento. O contato entre partes metálicas pode causar vazamentos, gerar calor, romper a blindagem e produzir fogo. (Fig. 1)

Fig. 1
Como isolar os terminais

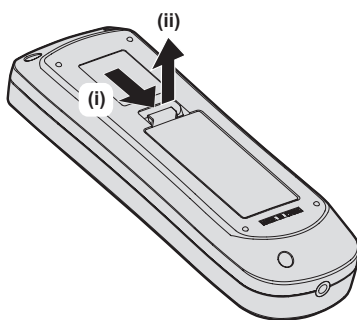


Não desmonte, não remova o invólucro, nem amasse a bateria. O gás liberado pela bateria pode irritar a garganta, danificar o lacre do invólucro ou o vazamento provocar calor, ruptura da blindagem e produzir fogo devido ao curto circuito dos terminais. Não incinere nem aqueça as baterias, elas não podem ficar expostas a temperaturas superiores a 100 °C (212 °F). O gás liberado pela bateria pode irritar a garganta, danificar o lacre do invólucro ou o vazamento provocar calor, ruptura da blindagem e produzir fogo devido ao curto circuito dos terminais provocado internamente.

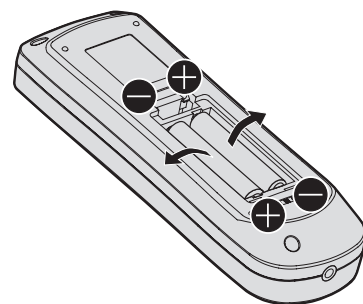
Evite o contato com o líquido que vazar das baterias. Caso isto ocorra, lave bem a parte afetada com bastante água. Caso haja irritação, consulte um médico.

■ Remoção das baterias

1. Pressione a guia e levante a tampa.



2. Remova as baterias.



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Please note that the ® and ™ symbols are not specified in this manual.

Software information regarding this product

This product incorporates the following software:

- (1) the software developed independently by or for Panasonic Connect Co., Ltd.,
- (2) the software owned by third party and licensed to Panasonic Connect Co., Ltd.,
- (3) the software licensed under the GNU General Public License, Version 2.0 (GPL V2.0),
- (4) the software licensed under the GNU LESSER General Public License, Version 2.1 (LGPL V2.1), and/or
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The software categorized as (3) - (5) are distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

For details, refer to the license terms and conditions of each open source software.

The open source software license is stored in the firmware of this product, and can be downloaded by accessing this projector using the web browser. For details, refer to “Using the web control function” (➡ page 154).

At least three (3) years from delivery of this product, Panasonic Connect Co., Ltd. will give to any third party who contacts us at the contact information provided below, for a charge no more than our cost of physically performing source code distribution, a complete machine-readable copy of the corresponding source code covered under GPL V2.0, LGPL V2.1 or the other licenses with the obligation to do so, as well as the respective copyright notice thereof.

Contact Information: oss-cd-request@gg.jp.panasonic.com

■ Illustrations in this manual

- Illustrations of the projector, menu screen (OSD), and other parts may vary from the actual product.
- Illustrations displayed on the computer screen may differ depending on the computer type and its operating system.
- Illustrations of the projector with the power cord attached are only examples. The shape of the supplied power cords varies depending on the country where you purchased the product.

■ Reference pages

- Reference pages in this manual are indicated as (➡ page 00).

■ Term

- In this manual, the “Wireless remote control unit” accessory is referred to as “Remote control”.

Features of the Projector

High image quality and fast response

- With the unique QUAD PIXEL DRIVE technology, smooth display of high-definition 4K images is realized, in addition to the high luminance of 6 000 lm^{*1*2} and the high contrast of 20 000:1^{*3} while maintaining the compact size. Moreover, with the 4x speed 240 Hz drive^{*4} that enables fast response, smooth and highly expressive projection is achieved even for fast-moving images.

*1 When [PICTURE MODE] is set to [DYNAMIC], [DAYLIGHT VIEW] is set to [OFF], [DYNAMIC CONTRAST] is set to [OFF], and [LIGHT OUTPUT] is set to [100%].

*2 PT-FRQ60: 6 000 lm
PT-FRQ50: 5 200 lm

*3 When [PICTURE MODE] is set to [DYNAMIC], [OPERATING MODE] is set to [NORMAL] and [DYNAMIC CONTRAST] is set to [1].

*4 Only for <HDMI IN 1> and <HDMI IN 2> terminals. Supports signals up to 1080/240p. Supports 4K signals up to 60 Hz.

Flexible setup and high extensibility

- With the operation noise level as low as 28 dB^{*1*2}, 2x zoom lens and lens shift function, and 360° installation utilizing the characteristics of solid-state light source, flexible installation is achieved for most settings. The projector is equipped with abundant terminals, including CEC-compatible HDMI terminals, and a USB terminal supporting power supply (DC 5 V, 2 A) and allowing wireless LAN connection with the optional wireless module attached.

*1 When [OPERATING MODE] is set to [QUIET].

*2 PT-FRQ50: 28 dB
PT-FRQ60: 31 dB

Long life and high reliability

- The maintenance cost for long-term operation is reduced by the unique light source cooling control technology and improvement of the dust resistance.

Quick Steps

For details, refer to the corresponding pages.

1. **Set up the projector.**
(⇒ page 33)



2. **Connect with external devices.**
(⇒ page 37)



3. **Connect the power cord.**
(⇒ page 42)



4. **Switch on the projector.**
(⇒ page 43)



5. **Make initial settings.**
(⇒ page 44)
 - Take this step when you switch on the power for the first time after purchasing the projector.



6. **Select the input signal.**
(⇒ page 52)



7. **Adjust the image.**
(⇒ page 53)

Chapter 1 Preparation

This chapter describes things you need to know or check before using the projector.

Precautions for use

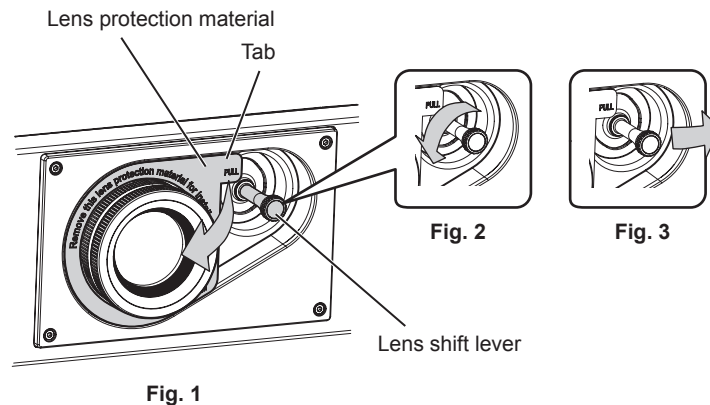
Intended use of the product

The product is intended to project still/moving image signals from video equipment and computers onto a screen.

Lens protection material

Lens protection material is attached to the product at the time of purchase to protect the projection lens from the vibration during transport. Remove the lens protection material before use.

■ Removing the lens protection material



- 1) Turn the lens shift lever counterclockwise, and release the fixing. (Fig. 2)
- 2) Hold the tab of the lens protection material and remove the lens protection material by pulling in the direction of the arrow. (Fig. 1)
 - Move the lens shift lever to right when it is difficult to remove the lens protection material. (Fig. 3)

Cautions when transporting

- When transporting the projector, hold it securely by its bottom and avoid excessive vibration and impacts. They may damage the internal components and result in malfunctions.
- Do not transport the projector with the adjustable feet extended. Doing so may damage the adjustable feet.
- Do not move or transport the projector with the wireless module (Model No.: AJ-WM50 Series) of the optional accessories attached. Doing so may damage the wireless module.

Cautions when installing

■ Do not set up the projector outdoors.

The projector is designed for indoor use only.

■ Do not set up the projector in the following locations.

- Places where vibration and impacts occur such as in a car or vehicle: Doing so may cause damage to internal components or malfunction.
- Location close to sea or where corrosive gas may occur: The projector may fall due to corrosion. Also, failure to do so may shorten the life of the components and result in malfunction.
- Near the exhaust of an air conditioner: Depending on the conditions of use, the screen may fluctuate in rare cases due to the heated air from the exhaust vent or the hot or cooled air from the air conditioner. Make sure that the exhaust from the projector or other equipment, or the air from the air conditioner does not blow toward the front of the projector.
- Places with sharp temperature fluctuations such as near lights (studio lamps): Doing so may shorten the life of the light source, or result in deformation of the projector due to heat, which may cause malfunctions.
Follow the operating environment temperature of the projector.
- Near high-voltage power lines or near motors: Doing so may interfere with the operation of the projector.
- Places where there is high-power laser equipment: Directing a laser beam onto the projection lens surface causes damage to the DLP chips.

■ **Ask a qualified technician or your dealer for the installation work such as installing to a ceiling.**

To ensure projector performance and security, ask a qualified technician or your dealer when installing the projector in a method other than the floor installation or when installing the projector in a high place.

■ **Ask a qualified technician or your dealer to install the cable wiring for DIGITAL LINK connection.**

Image and sound may be disrupted if cable transmission characteristics cannot be obtained due to inadequate installation.

■ **The projector may not work properly due to strong radio wave from the broadcast station or the radio.**

If there is any facility or equipment which outputs strong radio waves near the installation location, install the projector at a location sufficiently far from the source of the radio waves. Or, wrap the LAN cable connected to the <DIGITAL LINK/LAN> terminal using a piece of metal foil or a metal pipe which is grounded at both ends.

■ **Focus adjustment**

The high clarity projection lens is thermally affected by the light from the light source, making the focus unstable in the period just after switching on the power. It is recommended that images be projected continuously for at least 30 minutes before the focus is adjusted.

■ **Do not install the projector at an altitude of 4 200 m (13 780') or higher above sea level.**

■ **Do not use the projector in a location that the ambient temperature exceeds 45 °C (113 °F).**

Using the projector in a location where the altitude is too high or the ambient temperature is too high may reduce the life of the components or result in malfunctions.

Upper limit of the operating environment temperature varies depending on the altitude above sea level.

When using the projector at an altitude between 0 m (0') and 1 400 m (4 593') above sea level:

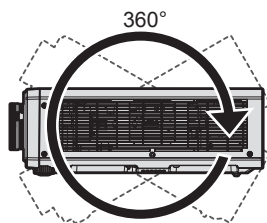
0 °C (32 °F) to 45 °C (113 °F)

When using the projector at an altitude between 1 400 m (4 593') and 4 200 m (13 780') above sea level:

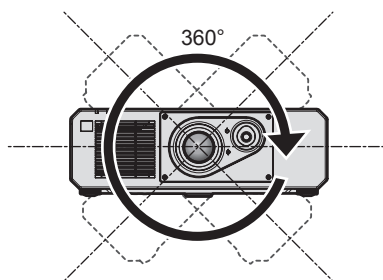
0 °C (32 °F) to 40 °C (104 °F)

Do not use the projector in a location where the ambient temperature exceeds 40 °C (104 °F) regardless of the altitude when the optional Wireless Module (Model No.: AJ-WM50 Series) is attached to the projector.

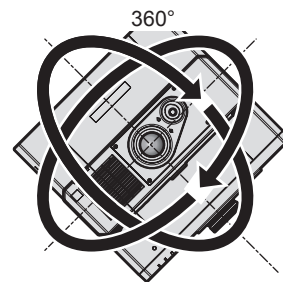
■ **Projection in all 360° direction is possible.**



360° vertically



360° horizontally



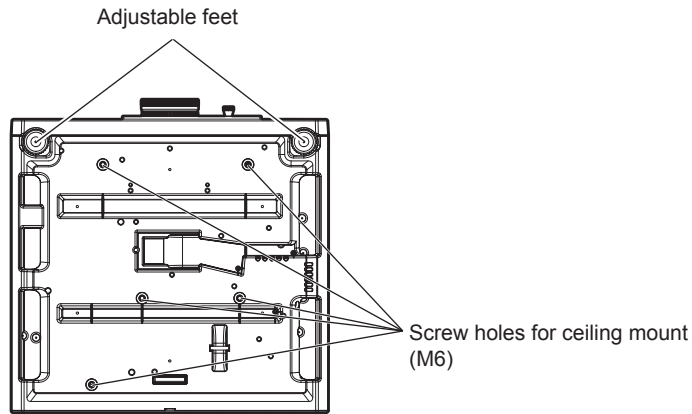
360° tilted
(combination of vertical and horizontal)

Cautions when setting up the projector

- Use the adjustable feet only for the floor standing installation and for adjusting the angle. Using them for other purposes may damage the projector.
- When installing the projector with a method other than the floor installation using the adjustable feet or the ceiling installation using the ceiling mount bracket, use the five screw holes for ceiling mount (as shown in the figure) to fix the projector to the mount.

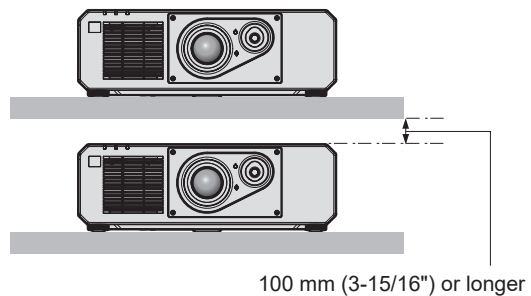
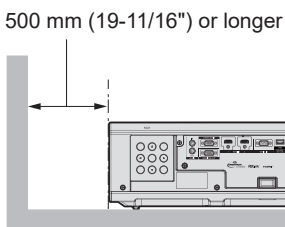
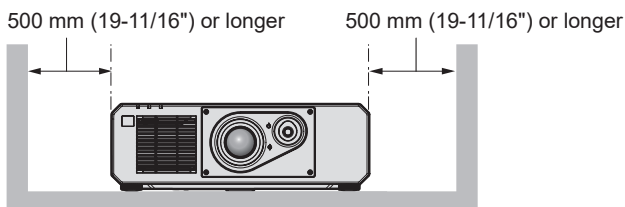
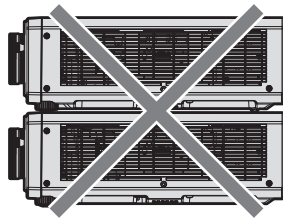
In such case, make sure that there is no clearance between the screw holes for ceiling mount on the projector bottom and the setting surface by inserting spacers (metallic) between them.

- Use a torque screwdriver or Allen torque wrench to tighten the fixing screws to their specified tightening torques. Do not use electric screwdrivers or impact screwdrivers.
(Screw diameter: M6, tapping depth inside the projector: 15 mm (19/32"), torque: 4 ± 0.5 N·m)



Positions of screw holes for ceiling mount and adjustable feet

- Do not stack projectors on top of each other.
- Do not use the projector supporting it by the top.
- Do not block the intake and exhaust vents of the projector.
- Prevent hot and cool air from the air conditioning system to blow directly to the intake and exhaust vents of the projector.



- Do not install the projector in a confined space.
When installing the projector in a confined space, provide air conditioning or ventilation separately. Exhaust heat may accumulate when the ventilation is not enough, triggering the protection circuit of the projector.
- Panasonic Connect Co., Ltd. takes no responsibility for any damage to the product caused by an inappropriate choice of location for installing the projector, even if the warranty period of the product has not expired.

Security

When using this product, take safety measures against the following incidents.

- Personal information being leaked via this product

- Unauthorized operation of this product by a malicious third party
- Interfering or stopping of this product by a malicious third party

Take sufficient security measures.

- Make your password difficult to guess as much as possible.
- Change your password periodically.
- Panasonic Connect Co., Ltd. or its affiliate companies will never ask for your password directly. Do not divulge your password in case you receive such inquiries.
- The connecting network must be secured by a firewall, etc.

■ Security when using the wireless LAN product

The advantage of a wireless LAN is that information can be exchanged between a computer or other such equipment and a wireless access point using radio waves, instead of using a LAN cable, as long as you are within range for radio transmissions.

On the other hand, because the radio wave can travel through an obstacle (such as a wall) and is accessible from anywhere within a given range, following problems may occur if security setting is insufficient.

- Transmitted data may be intercepted

A malicious third party may intentionally intercept radio waves and monitor the following transmitted data.

- Personal information such as your ID, password, credit card number
- Content of an Email

- Illegally accessed

A malicious third party may access your personal or corporate network without authorization and engage in the following types of behavior.

- Retrieve personal and/or secret information (information leak)
- Spread false information by impersonating a particular person (spoofing)
- Overwrite intercepted communications and issue false data (tampering)
- Spread harmful software such as a computer virus and crash your data and/or system (system crash)

Since most wireless LAN adapters or access points are equipped with security features to take care of these problems, you can reduce the possibility of these problems occurring when using this product by making the appropriate security settings for the wireless LAN device.

Some wireless LAN devices may not be set for security immediately after purchase. To decrease the possibility of occurrence of security problems, be sure to make all security related settings according to the operation instructions supplied with each wireless LAN device before using a wireless LAN device.

Depending on the specifications of the wireless LAN, a malicious third party may be able to break security settings by special means.

Panasonic Connect Co., Ltd. asks customers to thoroughly understand the risk of using this product without making security settings, and recommends that the customers make security settings at their own discretion and responsibility.

Notes regarding the wireless LAN

Radio wave in the 2.4 GHz band is used when the wireless LAN connection function of the projector is used. The license of wireless station is not required, but understand the following when using.

To use the wireless LAN function with the projector, it is necessary to attach the optional Wireless Module (Model No.: AJ-WM50 Series).

■ Do not use close to other wireless devices.

Following devices may be using radio wave in the same bandwidth as the projector. Using the projector close to these devices may cause the communication to be disabled or the communication speed to slow down due to interference of radio wave.

- Microwave oven, etc.
- Industrial, scientific, or medical devices, etc.
- In-plant wireless station for identifying moving vehicles used in the manufacturing lines at a plant
- Specified low power wireless station

■ Do not use cell phone, television, or radio as much as possible close to the projector.

Cell phone, television, or radio is using radio wave with different bandwidth from the projector, so there is no effect on the wireless LAN communication or the send/receive on these devices. However, noise may occur in the audio or video due to the radio wave from the projector.

■ **Radio wave for wireless LAN communication does not go through the reinforcing bars, metal, or concrete.**

The projector can communicate through wall or floor made of wood or glass (excluding the glass with metal mesh embedded), but it cannot communicate through wall or floor made of reinforcing bars, metal, or concrete.

■ **Do not use the projector as much as possible in a location where static electricity is generated.**

The communication via wireless LAN or wired LAN may be prone to disruption when the projector is used in a location where static electricity or noise is generated.

There is a rare case that the LAN connection may not be established due to static electricity or noise, so in such case, turn off the projector, remove the source of problematic static electricity or noise, and turn the projector back on.

QUAD PIXEL DRIVE

“QUAD PIXEL DRIVE” is a technology unique to Panasonic Connect Co., Ltd. that will enhance the resolution of the projected image with the signal processing for the high resolution of up to 3 840 x 2 160 dots and quadrupling the resolution by shifting the image pixels in horizontal and vertical directions. A 4K image is displayed by this QUAD PIXEL DRIVE technology.

DIGITAL LINK

“DIGITAL LINK” is a technology to transmit the video, audio, Ethernet, and serial control signals using a twisted pair cable by adding unique functions by Panasonic Connect Co., Ltd. to the HDBaseT™ communication standard formulated by HDBaseT Alliance.

This projector supports the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) and peripheral devices by other manufacturers (twisted-pair-cable transmitters such as the “XTP transmitter” of Extron Electronics) that use the same HDBaseT™ standard. For the devices of other manufacturers that the operation has been verified with this projector, visit the website (<https://panasonic.net/cns/projector/>). Note that the verification for devices of other manufacturers has been made for the items set by Panasonic Connect Co., Ltd., and not all the operations have been verified. For operation or performance problems caused by the devices of other manufacturers, contact the respective manufacturers.

Art-Net

“Art-Net” is an Ethernet communication protocol based on the TCP/IP protocol.

By using the DMX controller and the application software, illumination and stage system can be controlled. Art-Net is made based on DMX512 communication protocol.

Application software supported by the projector

The projector supports following application software. For details or downloading application software other than the “Geometric & Setup Management Software”, visit the website (<https://panasonic.net/cns/projector/>).

● **Logo Transfer Software**

This application software transfers the original image, such as company logo, which is projected at the start, to the projector.

● **Multi Monitoring & Control Software**

This application software monitors and controls the multiple display devices (projector and flat panel display) connected to an intranet.

● **Early Warning Software**

This plug-in software monitors the status of the display devices and their peripherals within an intranet, and notifies of abnormality of such equipment and detects the signs of possible abnormality. “Early Warning Software” is preinstalled in the “Multi Monitoring & Control Software”. To use the early warning function of this plug-in software, install “Multi Monitoring & Control Software” in the PC to be used. By enabling the early warning function, it will notify of the approximate time to replace the consumables for the display devices, to clean each part of the display devices, and to replace the components of the display devices, allowing to execute maintenance in advance.

The early warning function can be used by registering maximum of 2048 display devices free of charge for 90 days after installing the “Multi Monitoring & Control Software” into a PC. To continuously use after the 90 days, it is necessary to purchase the license of “Early Warning Software” (ET-SWA100 Series) and perform

the activation. Also, depending on the type of license, the number of display devices that can be registered for monitoring varies. For details, refer to the Operating Instructions of “Multi Monitoring & Control Software”.

● Geometric & Setup Management Software (Geometry Manager Pro)

This application software performs detailed corrections and adjustments such as the geometric adjustment which cannot be covered by the projector settings in real-time. Also, the geometric adjustment and edge blending matching the shape of the screen using a camera, and the adjustment of color and luminance can be automatically performed with simple steps. Some functions may be limited depending on the model. For the latest information, please visit the PASS^{*1} website.

“Geometric & Setup Management Software” can be downloaded from the website (<https://panasonic.net/cns/projector/pass/>). It is necessary to register and login to PASS to download.

^{*1} PASS: Panasonic Professional Display and Projector Technical Support Website
For details, visit the website (<https://panasonic.net/cns/projector/pass/>).

Storage

To store the projector, store in a dry room.

Disposal

To dispose of the product, ask your local authorities or dealer for correct methods of disposal. Also, dispose of the product without disassembling.

Cautions on use

■ To get a good picture quality

In order to view a beautiful image in higher contrast, prepare an appropriate environment. 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.

■ Do not touch the surface of the projection lens with your bare hands.

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

■ DLP chips

- The DLP chips are precision-made. Note that in rare cases, pixels of high precision could be missing or always lit. Such a phenomenon does not indicate malfunction.
- Directing a high-power laser beam onto the projection lens surface can damage the DLP chips.

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

Doing so may shorten the life of internal components or result in malfunctions.

■ Light source

The light source of the projector uses laser diode, and has the following characteristics.

- Depending on the operating environment temperature, the luminance of the light source will decrease. The higher the temperature becomes, the more the luminance of the light source decreases.
- The luminance of the light source will decrease by duration of usage.

If brightness is noticeably reduced and the light source does not turn on, ask your dealer to clean inside the projector or replace the light source unit.

■ Computer and external device connections

When connecting a computer or an external device, read this manual carefully regarding the use of power cords and shielded cables as well.

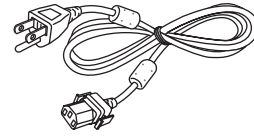
Accessories

Make sure that the following accessories are provided with your projector. Numbers enclosed in < > show the number of accessories.

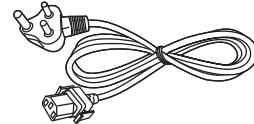
Wireless remote control unit <1>
(N2QAYA000232)



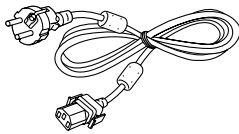
(TXFSX01RWDZ)



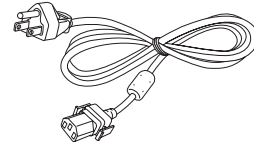
For India
(1JP1FRZ50BD)



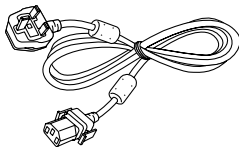
Power cord
(TXFSX01RXQZ)



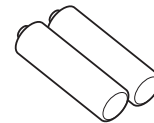
For Taiwan
(1JP1FRZ50BT)



(TXFSX01RXRZ)



AAA/R03 or AAA/LR03 battery <2>



(For remote control unit)

Attention

- After unpacking the projector, discard the power cord cap and packaging material properly.
- Do not use the supplied power cord for devices other than this projector.
- For missing accessories, consult your dealer.
- Store small parts in an appropriate manner, and keep them away from small children.

Note

- The type and number of the supplied power cords vary depending on the country or region where you purchased the product.
- The part numbers of accessories are subject to change without prior notice.

Optional accessories

Optional accessories (product name)	Model No.
Ceiling Mount Bracket	ET-PKD120H (for High Ceilings) ET-PKD120S (for Low Ceilings) ET-PKD130B (Projector Mount Bracket)
Wireless Module*1	AJ-WM50 Series*2
Early Warning Software (Basic license/3-year license)	ET-SWA100 Series*3
Digital Interface Box	ET-YFB100G
DIGITAL LINK Switcher	ET-YFB200G

*1 The availability of this product varies depending on the country. For details, contact your dealer.

*2 The suffix of the Model No. differs depending on the country.

Example of the Model No. with suffix for AJ-WM50 Series:

AJ-WM50E, AJ-WM50G1, AJ-WM50G2, AJ-WM50GAN, AJ-WM50GPX, AJ-WM50P

*3 The suffix of the Model No. differs according to the license type.

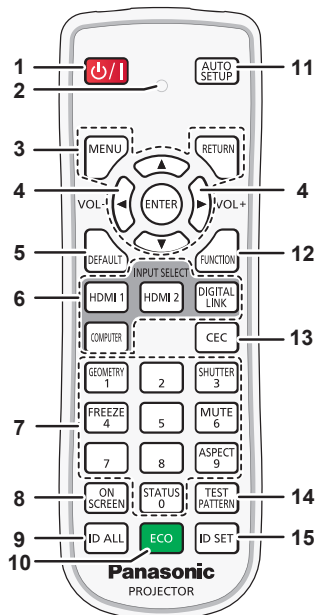
Note

- Use the Wireless Module (Model No.: AJ-WM50 Series) in an environment of 0 °C (32 °F) to 40 °C (104 °F), including when it is attached to the projector.
- The model numbers of optional accessories are subject to change without prior notice.
- The optional accessories compatible with the projector may be added or changed without prior notice.
For the latest information, visit the website (<https://panasonic.net/cns/projector/>).

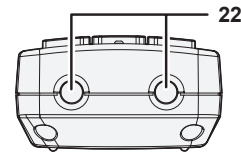
About your projector

Remote control

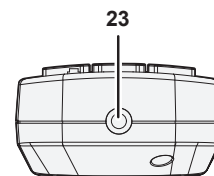
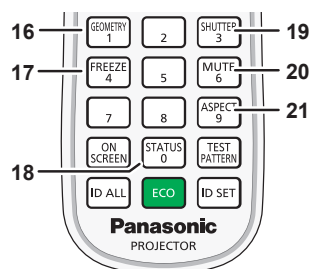
■ Front



■ Top



■ Bottom



1 Power <⏻/⏻> button

(⏻: Standby, |: Power on)

Sets the projector to the state where the projector is turned off (standby mode) when the <MAIN POWER> switch on the projector is set to <ON> and in projection mode.

Sets the projector to projection mode when the power is switched off (standby mode).

2 Remote control indicator

Blinks if any button in the remote control is pressed.

3 <MENU> button/<RETURN> button/<ENTER> button/▲▼◀▶ buttons

Used to navigate through the menu screen. (➡ page 63)

▲▼◀▶ buttons are also used to enter the password in [SECURITY] or enter characters.

4 <VOL- > button/<VOL+ > button

Adjusts the volume of audio output. (➡ page 57)

5 <DEFAULT> button

Resets the content of the sub-menu to the factory default. (➡ page 64)

6 Input selection buttons (<HDMI 1>, <HDMI 2>, <DIGITAL LINK>, <COMPUTER>)

Switches the input signal to project. (➡ page 52)

7 Number (<0> - <9>) buttons

Used for entering an ID number or a password in a multiple projector environment.

8 <ON SCREEN> button

Switches the on-screen display function on (display) or off (hide). (➡ page 57)

9 <ID ALL> button

Used to simultaneously control all the projectors with a single remote control in a multiple projector environment. (➡ page 31)

10 <ECO> button

Displays the setting screen relating to ECO management. (➡ pages 60, 106)

11 <AUTO SETUP> button

Automatically adjusts the image display position and signal level while projecting the image.

[PROGRESS] is displayed while in automatic adjustment. (➡ page 57)

12 <FUNCTION> button

Assigns a frequently used operation as a shortcut button. (➡ page 59)

13 <CEC> button

Displays the HDMI-CEC operation screen. (➡ page 125)

14 <TEST PATTERN> button

Displays the test pattern. (➡ page 59)

15 <ID SET> button

Sets the ID number of the remote control in a multiple projector environment. (➡ page 31)

16 <GEOMETRY> button

Used to correct the distortion of the projected image. (➡ pages 58, 78)

17 <FREEZE> button

Used when pausing the image and turning off the audio. (➡ page 57)

18 <STATUS> button

Displays the projector information.

19 <SHUTTER> button

Used when temporarily turning off the image and audio. (➡ page 56)

20 <MUTE> button

Used when temporarily turning off the audio. (➡ page 56)

21 <ASPECT> button

Switches the aspect ratio of the image. (➡ page 59)

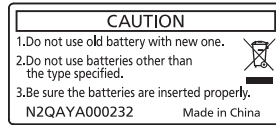
22 Remote control signal transmitter

23 (Not available with this projector)

Attention

- Do not drop the remote control.
- Avoid contact with liquids or moisture.
- Do not attempt to modify or disassemble the remote control.
- Observe the following instructions that are indicated on the caution label at the back of the remote control:
 - Do not use old battery with new one.
 - Do not use batteries other than the type specified.
 - Be sure the batteries are inserted properly.

For other instructions, read the instructions related to batteries that are described in "Read this first!".



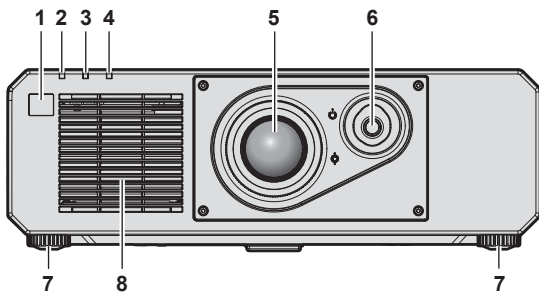
Caution label at the back of the remote control

Note

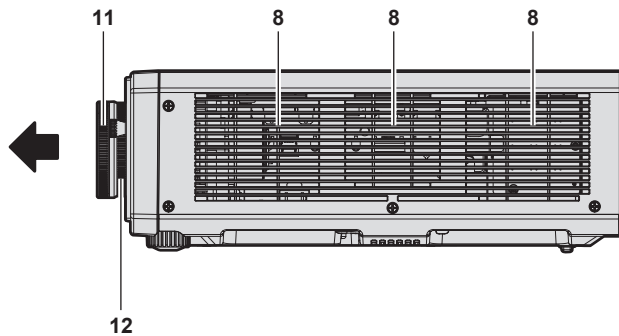
- When operating the remote control by directly pointing at the remote control signal receiver of the projector, operate the remote control within a distance approximately 30 m (98'5") from the remote control signal receiver. The remote control can control at angles of up to $\pm 30^\circ$ vertically and horizontally, but the effective control range may be reduced.
- If there are any obstacles between the remote control and the remote control signal receiver, the remote control may not operate properly.
- The signal will be reflected off the screen. However, the operating range may be limited from light reflection loss due to the screen material.
- If the remote control signal receiver directly receives strong light, such as fluorescent light, the remote control may not operate properly. Use it in a place distant from the light source.
- The power indicator <ON (G)/STANDBY (R)> will blink if the projector receives a remote control signal.

Projector body

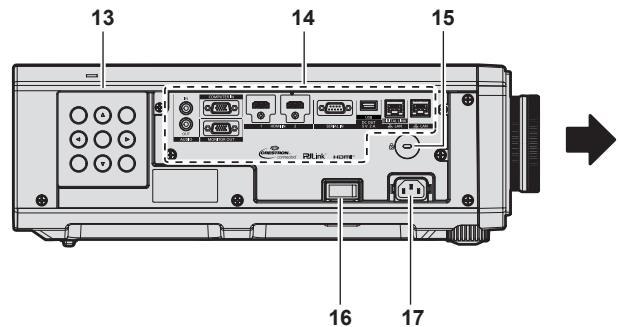
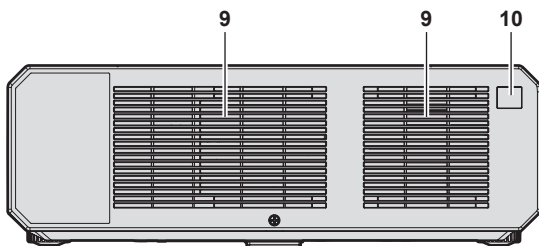
■ Front



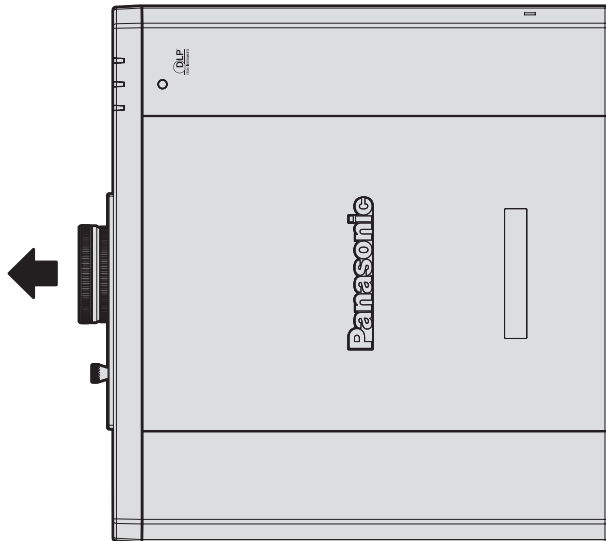
■ Side



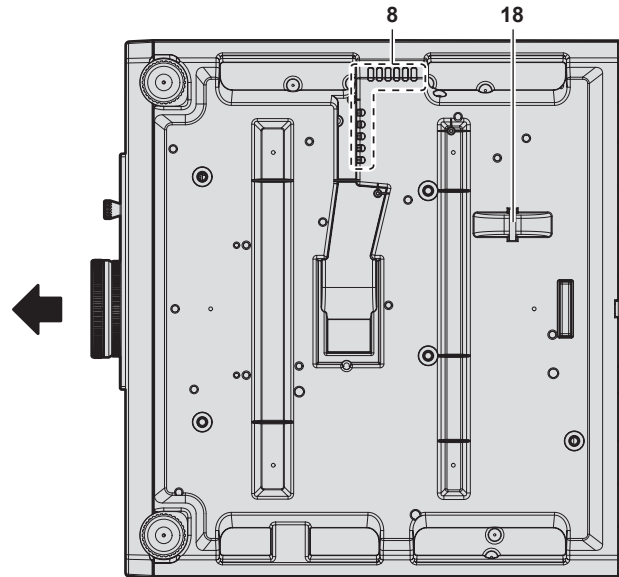
■ Rear



■ Top



■ Bottom



← : Projection direction

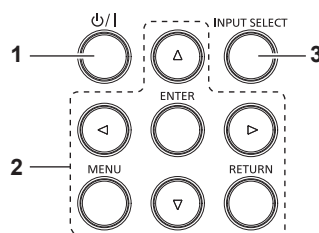
- 1 Remote control signal receiver (front)
- 2 Power indicator <ON (G)/STANDBY (R)>
Indicates the status of the power.
- 3 Light source indicator <LIGHT>
Indicates the status of the light source.
- 4 Temperature indicator <TEMP>
Indicates the internal temperature status.
- 5 Projection lens
- 6 Lens shift lever
Adjusts the projection position.
- 7 Adjustable feet
Adjusts the projection angle.
- 8 Intake vent
- 9 Exhaust vent
- 10 Remote control signal receiver (rear)

- 11 Focus ring
Adjusts the focus.
- 12 Zoom ring
Adjusts the zoom.
- 13 Control panel (⇒ page 29)
- 14 Connecting terminals (⇒ page 30)
- 15 Security slot
This security slot is compatible with the Kensington security cables.
- 16 <MAIN POWER> switch
Turns on/off the main power.
- 17 <AC IN> terminal
Connect the supplied power cord.
- 18 Burglar hook port
Attaches a burglar prevention cable, etc.

Attention

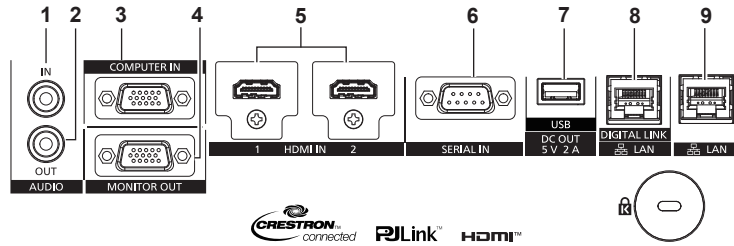
- Do not block the intake and exhaust vents of the projector.

■ Control panel



- 1 Power <⏻/⏻> button
(⏻: Standby, ⏻: Power on)
Sets the projector to the state where the projector is turned off (standby mode) when the <MAIN POWER> switch on the projector is set to <ON> and in projection mode.
Sets the projector to projection mode when the power is switched off (standby mode).
- 2 <MENU> button/<RETURN> button/<ENTER> button/▲▼◀▶ buttons
Used to navigate through the menu screen.
Also used to enter a password in the [SECURITY] menu or enter characters.
- 3 <INPUT SELECT> button
Switches the input signal to project. (⇒ page 53)

■ Connecting terminals



- | | |
|---|---|
| <p>1 <AUDIO IN> terminal
This is a terminal to input audio signal.</p> <p>2 <AUDIO OUT> terminal
This is a terminal to output the audio signal input to the projector.</p> <p>3 <COMPUTER IN> terminal
This is a terminal to input the RGB signal or YC_BC_R/YP_BP_R signal.</p> <p>4 <MONITOR OUT> terminal
This terminal can output the RGB signal or YC_BC_R/YP_BP_R signal input from the <COMPUTER IN> terminal to an external device.</p> <p>5 <HDMI IN 1> terminal/<HDMI IN 2> terminal
This is a terminal to input the HDMI signal.</p> <p>6 <SERIAL IN> terminal
This is the RS-232C compatible terminal to externally control the projector by connecting a computer.</p> | <p>7 <USB (DC OUT)> terminal
This is a terminal to connect the USB memory when using the data cloning function or firmware update function. (➡ pages 179, 185)
This is also the terminal to connect the optional Wireless Module (Model No.: AJ-WM50 Series) when the projector is connected via wireless LAN. (➡ page 151)
This terminal is also used for power supply. (DC 5 V, maximum 2 A)</p> <p>8 <DIGITAL LINK/LAN> terminal
This is a terminal to connect a device that transmits image signal or audio signal via the LAN terminal. Also, this is the LAN terminal to connect to the network.</p> <p>9 <LAN> terminal
This is the LAN terminal to connect to the network.</p> |
|---|---|

Attention

- When a LAN cable is directly connected to the projector, the network connection must be made indoors.
- To transmit the Ethernet and serial control signals using the <DIGITAL LINK/LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [DIGITAL LINK] or [LAN & DIGITAL LINK].
- To transmit the Ethernet signal using the <LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [LAN] or [LAN & DIGITAL LINK].
- The <DIGITAL LINK/LAN> terminal and the <LAN> terminal are connected inside of the projector when the [NETWORK] menu → [ETHERNET TYPE] is set to [LAN & DIGITAL LINK]. Do not directly connect the <DIGITAL LINK/LAN> terminal and the <LAN> terminal using LAN cable. Construct the system so that it is not connected to the same network via the peripherals such as the switching hub or the twisted-pair-cable transmitter.
- When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [NORMAL], the <USB (DC OUT)> terminal can supply power even in standby state. If set to [ECO], the <USB (DC OUT)> terminal can not supply power in standby state.
- When an external device exceeding the rating (DC 5 V, maximum 2 A) is connected to the <USB (DC OUT)> terminal, an error is detected and the power supply will be stopped. At this time, disconnect the external device, cut off the power of the projector and then reconnect the power plug to the outlet.

Preparing the remote control

Inserting and removing the batteries

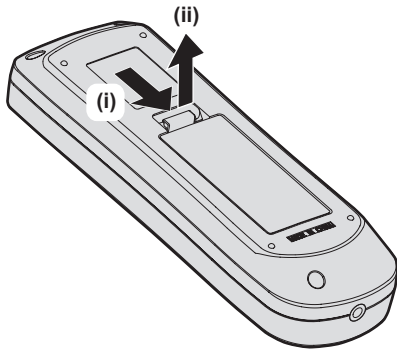


Fig. 1

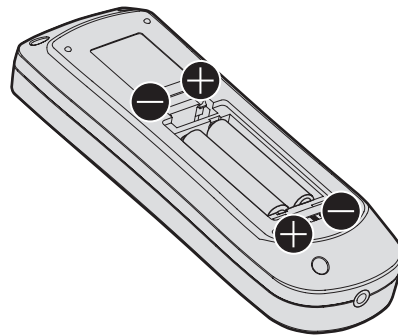


Fig. 2

- 1) Open the cover. (Fig. 1)
- 2) Insert the batteries and close the cover (insert the **−** side first). (Fig. 2)
 - When removing the batteries, perform the steps in reverse order.

When using the multiple projectors

When you use the multiple projectors together, you can operate all the projectors simultaneously or each projector individually using single remote control, if a unique ID number is assigned to each projector.

When using the projectors by setting the ID numbers, set the ID number of the projector body after initial settings have been completed. Then, set the ID number of the remote control. For initial settings, refer to “When the initial setting screen is displayed” (➔ page 44).

The factory default ID number of the projector (projector body and remote control) is set to [ALL], so you can use it as it is. Set the ID numbers of the projector body and remote control as necessary.

For details on setting the ID number of the remote control, refer to “Setting ID number of the remote control” (➔ page 60).

Note

- Set the ID number of the projector body from the [PROJECTOR SETUP] menu → [PROJECTOR ID].

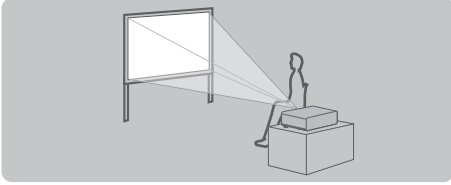
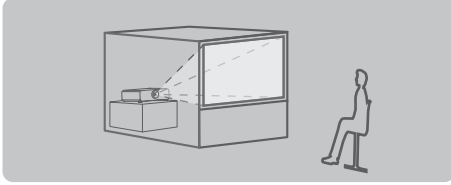
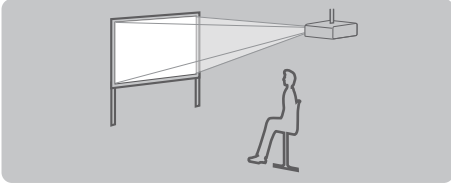
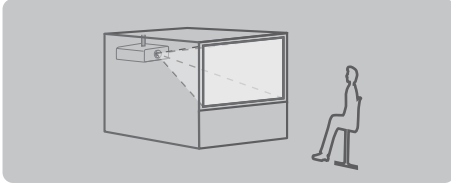
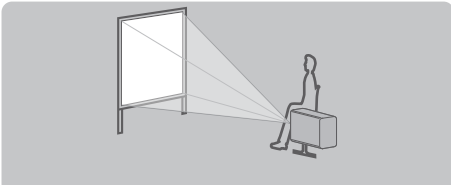
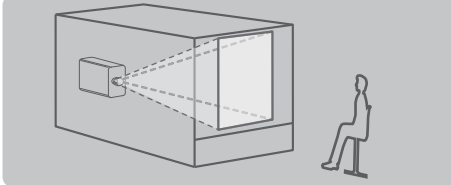
Chapter 2 **Getting Started**

This chapter describes things you need to do before using the projector such as the setup and connections.

Setting up

Installation mode

The installation modes of the projector are as follows. Set [FRONT/REAR]/[FLOOR/CEILING] in the [PROJECTOR SETUP] menu → [PROJECTION METHOD] (▶ page 105) depending on the installation mode.

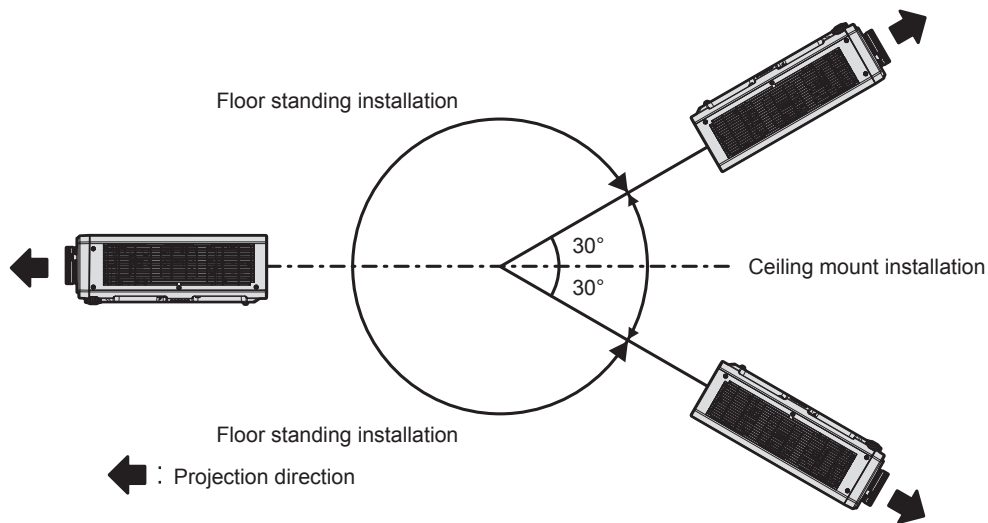
Setting on a desk/floor and projecting forward 		Setting on a desk/floor and projecting from rear (Using the translucent screen) 	
Menu item	Setting value	Menu item	Setting value
[FRONT/REAR]	[FRONT]	[FRONT/REAR]	[REAR]
[FLOOR/CEILING]	[AUTO] or [FLOOR]	[FLOOR/CEILING]	[AUTO] or [FLOOR]
Mounting on the ceiling and projecting forward 		Mounting on the ceiling and projecting from rear (Using the translucent screen) 	
Menu item	Setting value	Menu item	Setting value
[FRONT/REAR]	[FRONT]	[FRONT/REAR]	[REAR]
[FLOOR/CEILING]	[AUTO] or [CEILING]	[FLOOR/CEILING]	[AUTO] or [CEILING]
Portrait setting and projecting forward 		Portrait setting and projecting from rear (Using the translucent screen) 	
Menu item	Setting value	Menu item	Setting value
[FRONT/REAR]	[FRONT]	[FRONT/REAR]	[REAR]
[FLOOR/CEILING]	Set in accordance with the image to project.	[FLOOR/CEILING]	Set in accordance with the image to project.

Note

- In the portrait setting, the on-screen menu is displayed sideways. To display the on-screen menu vertically, go to the [DISPLAY OPTION] menu → [ON-SCREEN DISPLAY] (▶ page 99) and change the [OSD ROTATION] setting.
- The projector has a built-in angle sensor. The attitude of the projector is automatically detected by setting [FLOOR/CEILING] to [AUTO] in the [PROJECTOR SETUP] menu → [PROJECTION METHOD].

■ Angle sensor

The range of the installation attitude that is detected by the angle sensor built-in the projector is as follows.



Parts for installation (optional)

The projector can be installed on the ceiling by combining the optional Ceiling Mount Bracket (Model No.: ET-PKD120H (for High Ceilings), ET-PKD120S (for Low Ceilings)) and Ceiling Mount Bracket (Model No.: ET-PKD130B (Projector Mount Bracket)).

- Be sure to use the Ceiling Mount Bracket specified for this projector.
- Refer to the Installation Instructions of the Ceiling Mount Bracket when installing and setting up the projector.

Attention

- To ensure projector performance and security, installation of the Ceiling Mount Bracket must be carried out by your dealer or a qualified technician.

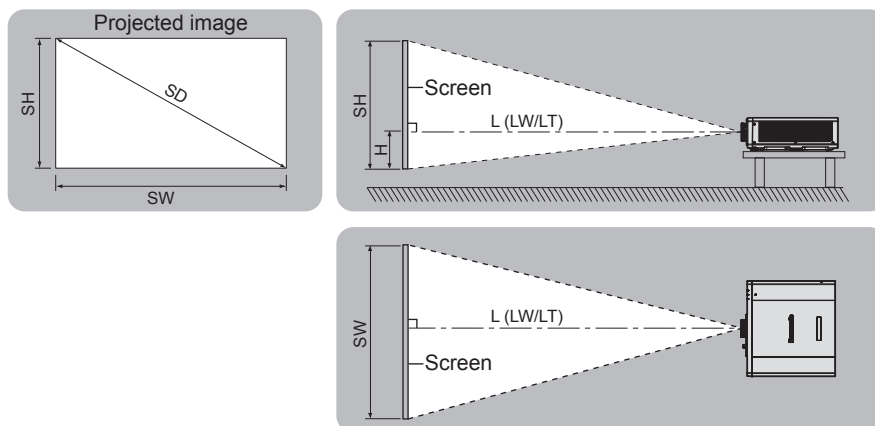
Projected image and throw distance

Install the projector referring to the projected image size, projection distance, etc.

Attention

- Before setting up, read "Precautions for use" (➔ page 19).
- Do not use the projector and the high-powered laser equipment in the same room. The DLP chips can be damaged if a laser beam hits the projection lens surface.

Figure of projected image and throw distance



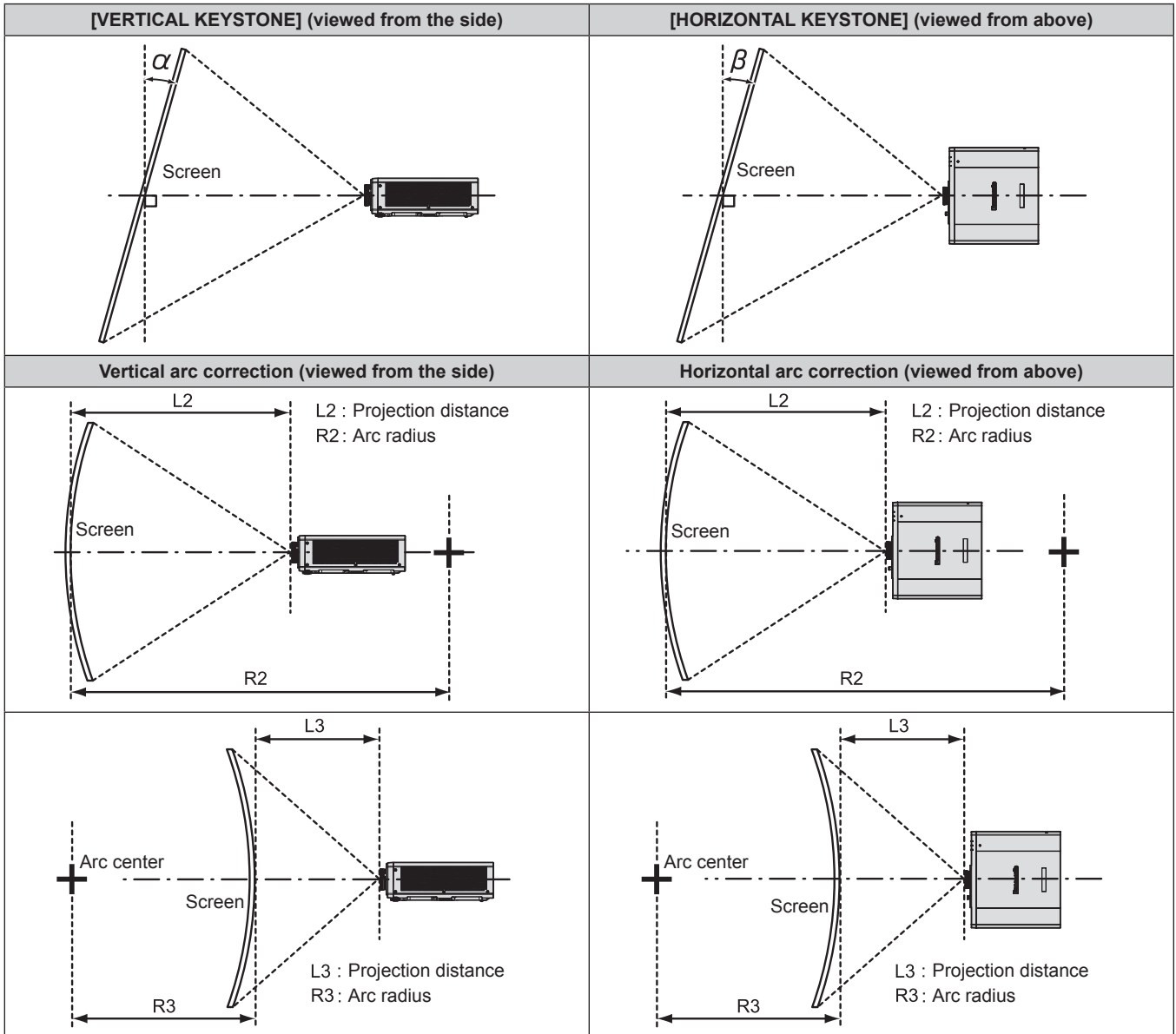
Note

- This illustration is prepared on the assumption that the projected image size and position have been aligned to fit full in the screen.
- This illustration is not in accurate scale.

L (LW/LT) ^{*1}	Projection distance
SH	Projected image height
SW	Projected image width
H	Distance from the lens center to the bottom edge of the projected image
SD	Projected image size

*1 LW: Minimum projection distance
 LT: Maximum projection distance

[GEOMETRY] projection range



Only [KEYSTONE] used		[KEYSTONE] and [CURVED CORRECTION] used together				Only [CURVED CORRECTION] used	
Vertical keystone correction angle α (°)	Horizontal keystone correction angle β (°)	Vertical keystone correction angle α (°)	Horizontal keystone correction angle β (°)	Min. value of R2/L2	Min. value of R3/L3	Min. value of R2/L2	Min. value of R3/L3
±40	±20	±20	±15	0.9	1.7	0.5	1.0

Note

- When [GEOMETRY] is used, the focus of the entire screen may be lost as correction increases.
- Make the curved screen a circular arc shape with one part of a perfect circle removed.

Projection distance

A ±5 % error in listed projection distances may occur.

When [GEOMETRY] is used, distance is corrected to become smaller than the specified image size.

(Unit: m)

Projected image size Diagonal (SD)	Aspect ratio 16:9			Aspect ratio 16:10			Aspect ratio 4:3		
	Projection distance (L)		Height position (H)	Projection distance (L)		Height position (H)	Projection distance (L)		Height position (H)
	Min. (LW)	Max. (LT)		Min. (LW)	Max. (LT)		Min. (LW)	Max. (LT)	
1.02 (40")	1.26	2.57	-0.10 - 0.49	1.36	2.78	-0.11 - 0.49	1.55	3.15	-0.13 - 0.60
1.27 (50")	1.59	3.22	-0.13 - 0.61	1.72	3.49	-0.14 - 0.61	1.95	3.95	-0.16 - 0.75
1.52 (60")	1.91	3.88	-0.16 - 0.73	2.07	4.19	-0.17 - 0.73	2.35	4.75	-0.19 - 0.90
1.78 (70")	2.24	4.53	-0.18 - 0.85	2.43	4.90	-0.20 - 0.85	2.75	5.55	-0.22 - 1.05
2.03 (80")	2.57	5.18	-0.21 - 0.98	2.78	5.60	-0.23 - 0.98	3.16	6.35	-0.26 - 1.19
2.29 (90")	2.90	5.83	-0.24 - 1.10	3.14	6.31	-0.25 - 1.10	3.56	7.15	-0.29 - 1.34
2.54 (100")	3.22	6.49	-0.26 - 1.22	3.49	7.02	-0.28 - 1.22	3.96	7.95	-0.32 - 1.49
3.05 (120")	3.88	7.79	-0.31 - 1.46	4.20	8.43	-0.34 - 1.46	4.76	9.54	-0.38 - 1.79
3.81 (150")	4.86	9.75	-0.39 - 1.83	5.26	10.54	-0.42 - 1.83	5.96	11.94	-0.48 - 2.24
5.08 (200")	6.50	13.01	-0.52 - 2.44	7.03	14.07	-0.57 - 2.44	7.97	15.93	-0.64 - 2.99
6.35 (250")	8.14	16.28	-0.65 - 3.05	8.81	17.60	-0.71 - 3.05	9.98	19.93	-0.80 - 3.73
7.62 (300")	9.78	19.54	-0.78 - 3.66	10.58	21.13	-0.85 - 3.66	11.98	23.92	-0.96 - 4.48

Formula for calculating the projection distance

To use a projected image size not listed in this manual, check the projected image size SD (m) and use the respective formula to calculate the value.

The unit of all the formulae is m. (Values obtained by the following calculation formulae contain a slight error.)

When calculating the value using image size designation (value in inches), multiply the value in inches by 0.0254 and substitute it into SD in the formula.

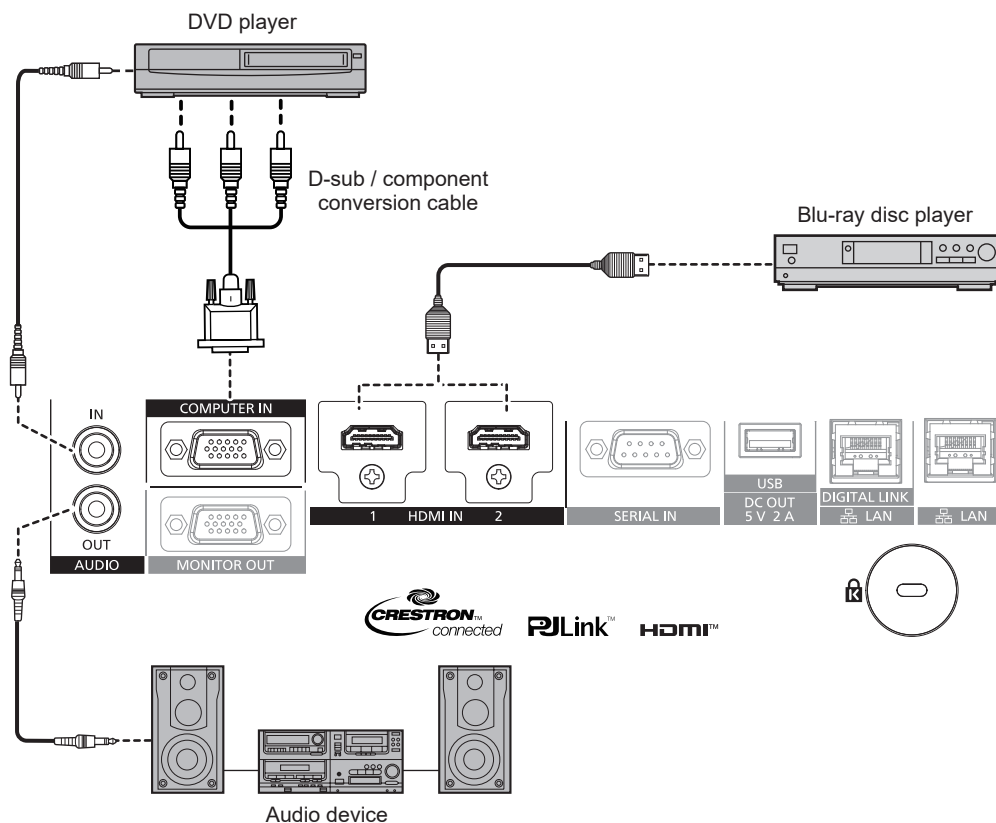
	Aspect ratio 16:9	Aspect ratio 16:10	Aspect ratio 4:3
Projected image size Height (SH)	= SD x 0.490	= SD x 0.530	= SD x 0.6
Projected image size Width (SW)	= SD x 0.872	= SD x 0.848	= SD x 0.8
Minimum projection distance (LW)	= 1.2906 × SD - 0.0534	= 1.3952 × SD - 0.0534	= 1.5795 × SD - 0.0534
Maximum projection distance (LT)	= 2.5693 × SD - 0.0398	= 2.7776 × SD - 0.0398	= 3.1444 × SD - 0.0398

Connecting

Before connecting

- Before connecting, carefully read the operating instructions for the external device to be connected.
- Turn off the power of all devices before connecting cables.
- Observe the following when connecting cables. Failure to do so may result in malfunctions.
 - When connecting a cable to a device connected to the projector or the projector itself, touch any nearby metallic objects to eliminate static electricity from your body before performing work.
 - Do not use unnecessarily long cables to connect a device to the projector or to the projector body. The longer the cable, the more susceptible to noise it becomes. Since using a cable while it is wound makes it act like an antenna, it is more susceptible to noise.
 - When connecting cables, connect GND first, then insert the connecting terminal of the connecting device in a straight manner.
- Acquire any connection cable necessary to connect the external device to the system that is neither supplied with the device nor available as an option.
- If image signals from video equipment contain too much jitter, the images on the screen may wobble. In this case, a time base corrector (TBC) must be connected.
- If synchronization signals output from computers or video equipment are disrupted due to changes in the video output setting or other reasons, colors of projected images may be temporarily disrupted.
- Some computer models or graphics cards are not compatible with the projector.
- Connect using an extension device, etc., when installing the projector away from the video equipment. The projector may not display the image properly when it is connected directly using a long cable.
- For details of the types of image signals that can be used with the projector, refer to “List of compatible signals” (➔ page 215).

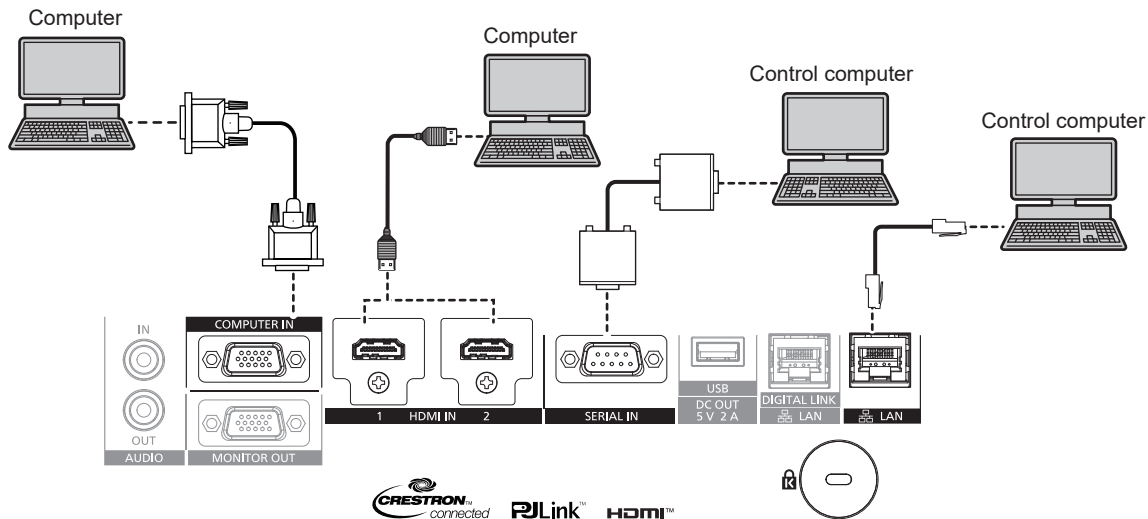
Connecting example: AV equipment



Note

- Switching of the setting in the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] → [EDID SELECT] may be required depending on the connected external device when HDMI signal is input.
- For the HDMI cable, use an HDMI High Speed cable that conforms to the HDMI standards. However, when the following 4K image signal exceeding the supported transmission speed of the HDMI High Speed cable is to be input, use the HDMI cable supporting the high speed transmission of 18 Gbps such as the one with Premium HDMI cable authentication.
 - An image signal with high specification color depth and gradation such as 3840 x 2160/60p 4:2:2/36-bit or 3840 x 2160/60p 4:4:4/24-bit Images may be disrupted or may not be projected when an image signal exceeding the supported transmission speed of the HDMI cable is input.
- The <HDMI IN 1>/<HDMI IN 2> terminals can be connected to an external device with the DVI-D terminal by using an HDMI/DVI conversion cable. However, this may not function properly for some external devices, and image may not be projected.

Connecting example: Computers



Attention

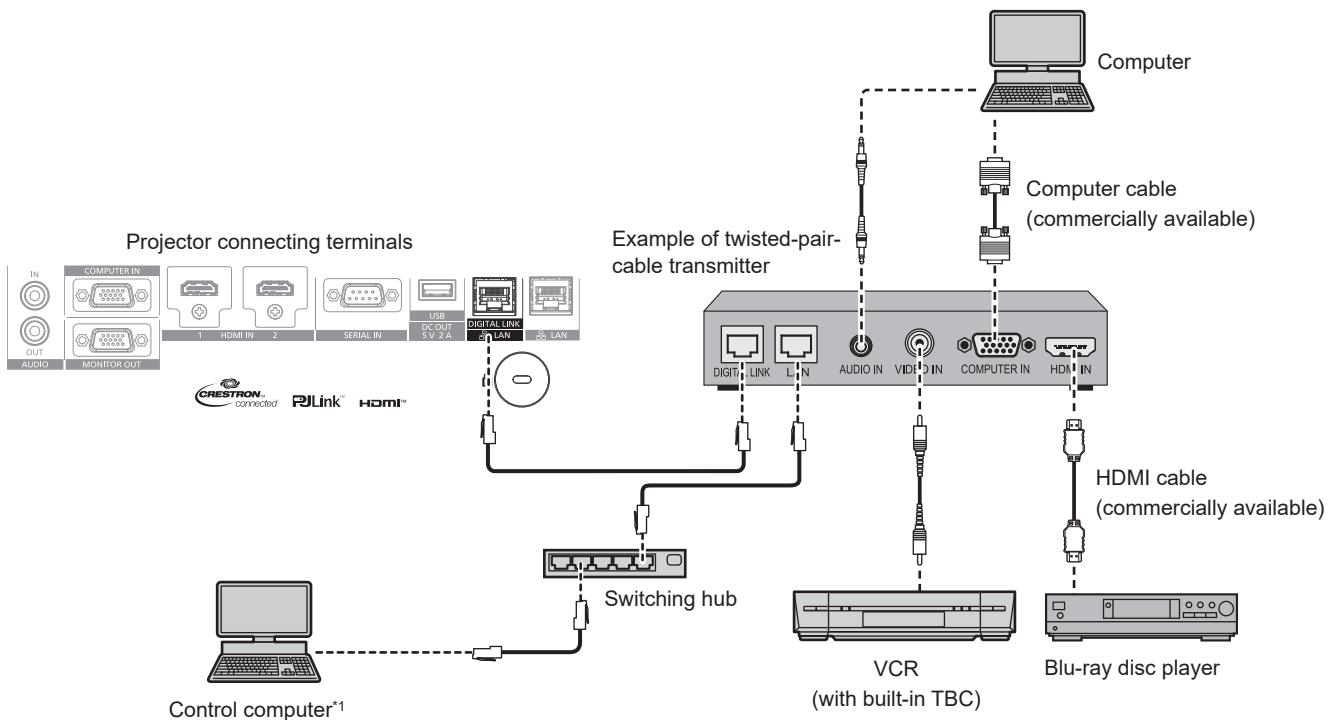
- When connecting the projector to a computer or an external device, use the power cord supplied with each device and commercially available shielded cables.

Note

- Switching of the setting in the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] → [EDID SELECT] may be required depending on the connected external device when HDMI signal is input.
- For the HDMI cable, use an HDMI High Speed cable that conforms to the HDMI standards. However, when the following 4K image signal exceeding the supported transmission speed of the HDMI High Speed cable is to be input, use the HDMI cable supporting the high speed transmission of 18 Gbps such as the one with Premium HDMI cable authentication.
 - An image signal with high specification color depth and gradation such as 3840 x 2160/60p 4:2:2/36-bit or 3840 x 2160/60p 4:4:4/24-bit Images may be disrupted or may not be projected when an image signal exceeding the supported transmission speed of the HDMI cable is input.
- The <HDMI IN 1>/<HDMI IN 2> terminals can be connected to an external device with the DVI-D terminal by using an HDMI/DVI conversion cable. However, this may not function properly for some external devices, and image may not be projected.
- If you operate the projector using the computer with the resume feature (last memory), you may have to reset the resume feature to operate the projector.

Connecting example using DIGITAL LINK

Twisted-pair-cable transmitter based on the communication standard HDBaseT™ such as the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) uses the twisted pair cable to transmit input images, audio, Ethernet, and serial control signal, and the projector can input such digital signal to the <DIGITAL LINK/LAN> terminal.



*1 Control target is the projector or the twisted-pair-cable transmitter. The control itself may not be possible depending on the twisted-pair-cable transmitter. Check the operating instructions of the device to be connected.

Attention

- Always use one of the following when connecting a VCR.
 - A VCR with built-in time base corrector (TBC)
 - A time base corrector (TBC) between the projector and the VCR
- If nonstandard burst signals are connected, the image may be distorted. In such case, connect the time base corrector (TBC) between the projector and the external devices.
- Ask a qualified technician or your dealer to install the cable wiring between the twisted-pair-cable transmitter and the projector. Image may be disrupted if cable transmission characteristics cannot be obtained due to inadequate installation.
- For the LAN cable between the twisted-pair-cable transmitter and the projector, use a cable that meets the following criteria:
 - Conforming to CAT5e or higher standards
 - Shielded type (including connectors)
 - Straight-through
 - Single wire
 - Diameter of the cable core is same or larger than AWG24 (AWG24, AWG23, etc.)
- When laying cables between the twisted-pair-cable transmitter and the projector, confirm that cable characteristics are compatible with CAT5e or higher using tools such as a cable tester or cable analyzer. When a relay connector is used, include it in the measurement.
- Do not use a switching hub between the twisted-pair-cable transmitter and the projector.
- When connecting to the projector using a twisted-pair-cable transmitter (receiver) of other manufacturers, do not place another twisted-pair-cable transmitter between the twisted-pair-cable transmitter of other manufacturers and the projector. This may cause image to be disrupted.
- To transmit the Ethernet and serial control signals using the <DIGITAL LINK/LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [DIGITAL LINK] or [LAN & DIGITAL LINK].
- To transmit the Ethernet signal using the <LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [LAN] or [LAN & DIGITAL LINK].
- The <DIGITAL LINK/LAN> terminal and the <LAN> terminal are connected inside of the projector when the [NETWORK] menu → [ETHERNET TYPE] is set to [LAN & DIGITAL LINK]. Do not directly connect the <DIGITAL LINK/LAN> terminal and the <LAN> terminal using a LAN cable. Construct the system so that it is not connected to the same network via the peripherals such as the switching hub or the twisted-pair-cable transmitter.
- Do not pull cables forcefully. Also, do not bend or fold cables unnecessarily.
- To reduce the effects of noise as much as possible, stretch out the cables between the twisted-pair-cable transmitter and the projector without any loops.
- Lay the cables between the twisted-pair-cable transmitter and the projector away from other cables, particularly power cables.
- When laying multiple cables, run them side by side along the shortest distance possible without bundling them together.
- After laying the cables, go to the [NETWORK] menu → [DIGITAL LINK] → [DIGITAL LINK STATUS] and confirm that the value of [SIGNAL QUALITY] is displayed in green which indicates normal quality. (➡ page 137)

Note

- Switching of the setting in the [DISPLAY OPTION] menu → [DIGITAL LINK IN] → [EDID SELECT] may be required depending on the connected external device when DIGITAL LINK signal is input.
- For the HDMI cable, use an HDMI High Speed cable that conforms to the HDMI standards. If a cable that does not conform to the HDMI standards is used, images may be interrupted or may not be projected.
- The optional Digital Interface Box (Model No.: ET-YFB100G) and the optional DIGITAL LINK Switcher (Model No.: ET-YFB200G) do not support the input and output of the 4K image signal.
- The maximum transmission distance between the twisted-pair-cable transmitter and the projector is 100 m (328'1") for the signal with resolution of 1 920 x 1 200 dots or less. For the signal with the resolution exceeding 1 920 x 1 200 dots, the maximum transmission distance will be 50 m (164'1"). It is possible to transmit up to 150 m (492'2") if the twisted-pair-cable transmitter supports the long-reach communication method. However, the signal that the projector can receive is only up to 1080/60p (1 920 x 1 080 dots, dot clock frequency 148.5 MHz) for the long-reach communication method. If this distance is exceeded, image may be disrupted or a malfunction may occur in LAN communication. Please note that Panasonic Connect Co., Ltd. does not support the use of the projector outside the maximum transmission distance. When connecting with the long reach, image signal or distance that can be transmitted may be restricted, depending on the specification of the twisted-pair-cable transmitter.
- For twisted-pair-cable transmitters of other manufacturers of which the operation has been verified with the projector, visit the website (<https://panasonic.net/cns/projector/>). Note that the verification for devices of other manufacturers has been made for the items set by Panasonic Connect Co., Ltd., and not all the operations have been verified. For operation or performance problems caused by the devices of other manufacturers, contact the respective manufacturers.

Chapter 3 Basic Operations

This chapter describes basic operations to start with.

Switching on/off the projector

Connecting the power cord

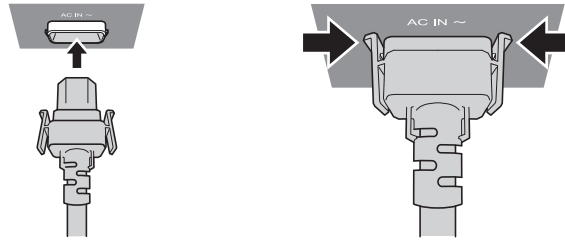
Make sure that the supplied power cord is securely fixed to the <AC IN> terminal of the projector to prevent it from being removed easily.

Confirm that the <MAIN POWER> switch is on the <OFF> side before connecting the supplied power cord to the projector.

Use the power cord matching with the power supply voltage and the shape of the outlet.

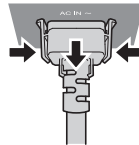
For details of power cord handling, refer to “Read this first!” (➡ page 5).

How to attach the power cord



- 1) Check the shapes of the <AC IN> terminal on the side of the projector and the power cord connector, and insert the connector completely in the correct direction (until you hear the side tabs click in place).

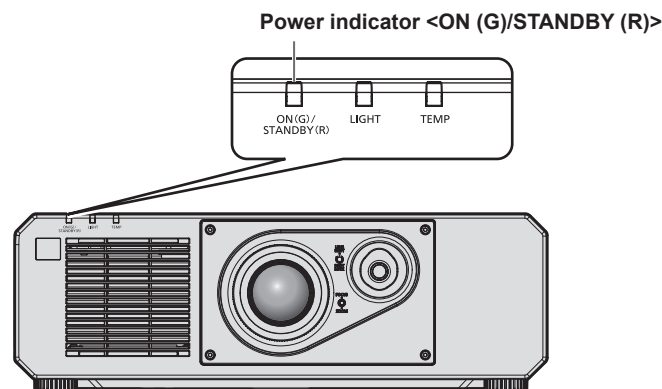
How to remove the power cord



- 1) Confirm that the <MAIN POWER> switch on the side of the projector is on the <OFF> side, and remove the power plug from the outlet.
- 2) Remove the power cord connector from the <AC IN> terminal of the projector while pressing the side tabs.

Power indicator

Indicate the status of the power. Check the status of the power indicator <ON (G)/STANDBY (R)> before operating the projector.

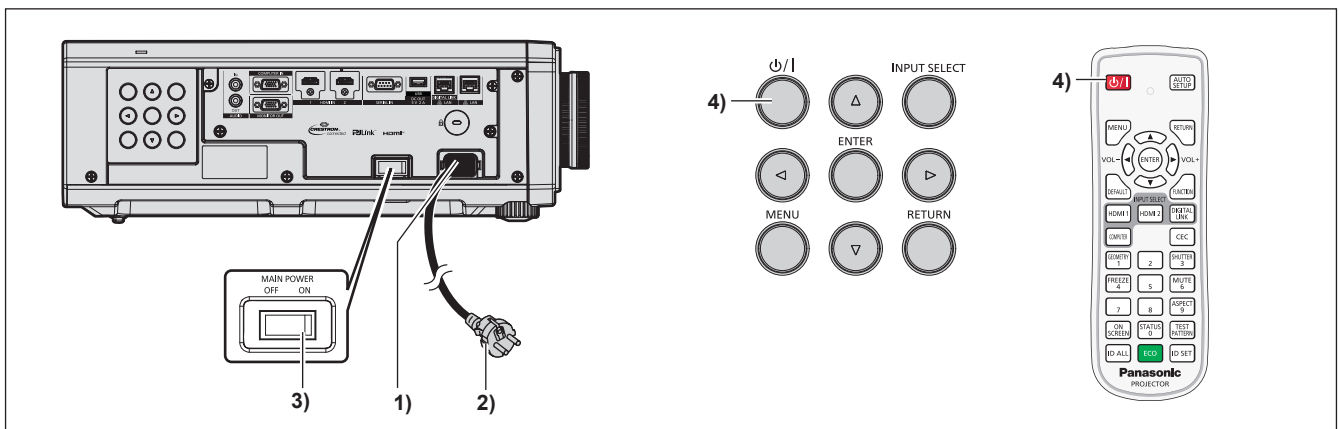


Indicator status		Projector status
Off		The main power is switched off.
Red	Lit	<p>The power is switched off. (standby mode) Projection will start when the power <⏻/ > button is pressed.</p> <ul style="list-style-type: none"> The setting of the projector is as follows. <ul style="list-style-type: none"> The [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] is set to [OFF] The [PROJECTOR SETUP] menu → [AUDIO SETTING] → [IN STANDBY MODE] is set to [OFF] The projector may not operate when the light source indicator <LIGHT> or the temperature indicator <TEMP> is blinking. (➔ page 193)
	Blinking	<p>The power is switched off. (standby mode) Projection will start when the power <⏻/ > button is pressed.</p> <ul style="list-style-type: none"> The projector is in one of the following states. <ul style="list-style-type: none"> The [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] is set to [ON] The [PROJECTOR SETUP] menu → [AUDIO SETTING] → [IN STANDBY MODE] is set to [ON] The output image corresponding to the projected image from the projector is being checked by the web control function. For details, refer to “[Remote preview lite] page” (➔ page 157). The indicator will change to a red light when the specified time has elapsed after the projector enters the standby mode if the projector is set as following. However, the indicator will not change to a red light while the output image is being checked by the web control function. The specified time is a time set in the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] → [VALID PERIOD]. <ul style="list-style-type: none"> The [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] is set to [ON] The [PROJECTOR SETUP] menu → [AUDIO SETTING] → [IN STANDBY MODE] is set to [OFF] The projector may not operate when the light source indicator <LIGHT> or the temperature indicator <TEMP> is blinking. (➔ page 193)
Green	Lit	Projecting.
Orange	Lit	The projector is preparing to switch off the projector. The power is switched off after a while. (Changes to the standby mode.)

Note

- While the power indicator <ON (G)/STANDBY (R)> lights orange, the fan is running to cool the projector.
- For approximately five seconds after the projector is turned off, the indicator does not light up even if the power is turned on. Turn on the power again after the power indicator <ON (G)/STANDBY (R)> lights/blinks red.
- The projector consumes power even in standby mode (power indicator <ON (G)/STANDBY (R)> lights/blinks red). Refer to “Maximum power consumption” (➔ page 213) for the power consumption.
- The power indicator <ON (G)/STANDBY (R)> will blink if the projector receives a remote control signal.
- The power indicator <ON (G)/STANDBY (R)> will blink green slowly while the shutter function is in use (shutter: closed), or while the function of the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [POWER MANAGEMENT] → [NO SIGNAL LIGHTS-OUT] is operating and the light source is turned off.

Switching on the projector



- 1) Connect the power cord to the projector.
- 2) Connect the power plug to an outlet.
- 3) Press the <ON> side of the <MAIN POWER> switch to turn on the power.
 - The power indicator <ON (G)/STANDBY (R)> lights/blinks red, and the projector enters the standby mode.

4) Press the power <ON/OFF> button.

- The power indicator <ON (G)/STANDBY (R)> lights green and the image is soon projected on the screen.

Note

- A warm-up period of up to approximately five minutes may be necessary until an image is displayed when the projector is switched on at around 0 °C (32 °F).
The temperature indicator <TEMP> lights red during the warm-up period. When the warm-up is completed, the temperature indicator <TEMP> turns off and the projection starts. Refer to “When an indicator lights up” (➔ page 193) for the indicator status display.
- If the operating environment temperature is low and warm-up takes more than five minutes, the projector will judge that a problem has occurred and the power will automatically be set to standby mode. In such case, increase the operating environment temperature to 0 °C (32 °F) or higher, turn off the main power, and then turn on the power again.
- When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [ECO], it takes longer for the projection to start after the power is turned on, compared to when set to [NORMAL].
- When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] is set to [ON], and the power is turned on before the specified time elapses after the projector enters the standby mode, an image will be projected approximately one second after the power is turned on.
The specified time is a time set in the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] → [VALID PERIOD].
- If the power is turned on while the output image is being checked by the web control function, the image will be projected approximately one second after the power is turned on.
- When the power is turned on or an input signal is switched, you may here a high-frequency driving sound. This is not a malfunction.
- If the power was turned off at the previous use by pressing the <OFF> side of the <MAIN POWER> switch or by using the breaker directly while projecting, the power indicator <ON (G)/STANDBY (R)> lights green and an image is projected after a while when the power is turned on by pressing the <ON> side of the <MAIN POWER> switch or by turning the breaker on with the power plug connected to the outlet. This applies only when the [PROJECTOR SETUP] menu → [INITIAL STARTUP] is set to [LAST MEMORY].

When the initial setting screen is displayed

When the projector is switched on for the first time after purchase, as well as when the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET] is executed, the [INITIAL SETTING] screen is displayed followed by the [ADMINISTRATOR ACCOUNT] screen after projection starts. When the [PROJECTOR SETUP] menu → [INITIALIZE] → [NETWORK/E-MAIL ONLY] is executed, the [ADMINISTRATOR ACCOUNT] screen is displayed after projection starts. Set them according to the circumstances.

In other occasions, you can change the settings by menu operations.

If you press the <MENU> button while the [INITIAL SETTING] screen is displayed, you can go back to the previous screen.

Same operation is available by pressing the <RETURN> button.

Note

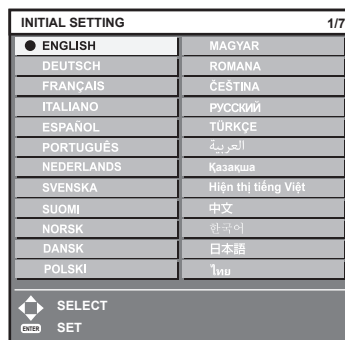
- It may be necessary to adjust with the focus ring and the zoom ring on the lens section of the projector to clearly display the menu screen when using the projector for the first time.
Refer to “Adjusting the image” (➔ page 53) for details.

Initial setting (display language)

Select the language to show on the screen.

After completed the initial setting, you can change the display language from the [DISPLAY LANGUAGE] menu.

1) Press ▲▼◀▶ to select the display language.



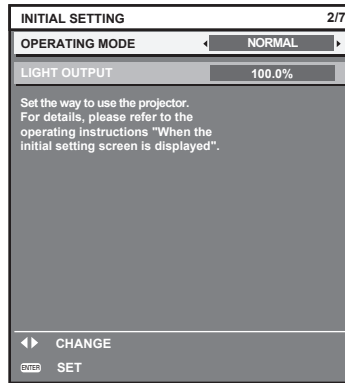
2) Press the <ENTER> button to proceed to the initial setting.

Initial setting (operation setting)

Set the items for the operating method depending on the projector's application and duration of usage.

After completed the initial setting, you can change the settings of each item from the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE]. If you change the settings while using the projector, the duration until the brightness decreases to half may shorten or the brightness may decrease.

This initial setting (operation setting) is prepared to complete the settings simply at once during the installation when the operation of the projector is predetermined. This cannot set all the items regarding the operation setting. When the detailed setting is required or setting change is required, ask the person responsible for this projector (such as a person in charge of equipment or operation).



Note

- For the relationship between the brightness and the runtime, refer to "Relationship between brightness and runtime" (➔ page 46).

1) Press ▲▼ to select [OPERATING MODE].

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[NORMAL]	Set this item to prioritize the brightness. [LIGHT OUTPUT] is 100 %, and the estimated runtime is approximately 20 000 hours*1.
[ECO]	The brightness will decrease compared to [NORMAL], but set this item to prioritize the life of the light source. [LIGHT OUTPUT] is 80 %, and the estimated runtime is approximately 24 000 hours*1.
[QUIET]	The brightness will decrease compared to [NORMAL], but set this item to prioritize the operation with low noise. [LIGHT OUTPUT] is 80 %, and the estimated runtime is approximately 20 000 hours*1.
[USER]	Set [LIGHT OUTPUT] as desired.

*1 Estimated runtime is the time until the brightness decreases to approximately half of the time of delivery when the projector is used with the [PICTURE] menu → [DYNAMIC CONTRAST] set to [2] and under environment of 0.15 mg/m³ dust.
The value of runtime is just an estimate, and is not the warranty period.

- Proceed to Step 3) when [USER] is selected.

3) Press ▲▼ to select [LIGHT OUTPUT].

4) Press ◀▶ to adjust.

Operation	Adjustment		Range of adjustment
	Brightness	Runtime	
Press ▶.	The screen becomes brighter.	The runtime becomes shorter.	20 % - 100 %
Press ◀.	The screen becomes darker.	The runtime becomes longer.	

5) Press the <ENTER> button to proceed to the initial setting.

Relationship between brightness and runtime

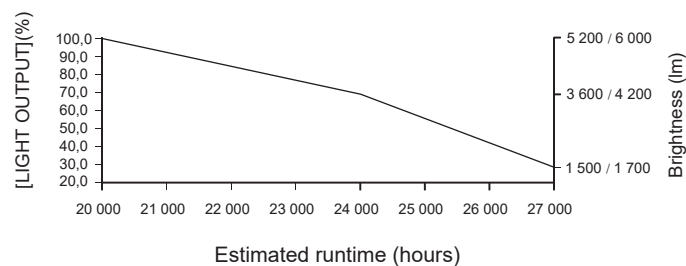
The projector can be operated with arbitrary brightness and runtime by setting [LIGHT OUTPUT] to desired setting.

The relationship between the [LIGHT OUTPUT] setting, brightness, and the estimated runtime is as follows. Make the initial setting (operation setting) depending on the desired brightness of the projected image and runtime.

The values of the brightness and the runtime are just an estimate, and the graph indicating the relationship is just an example. Also, these do not indicate the warranty period.

[LIGHT OUTPUT] (%)	Brightness (lm)		Estimated runtime*1 (hour)
	PT-FRQ60	PT-FRQ50	
100.0	6 000	5 200	20 000
69.5	4 200	3 600	24 000
29.0	1 700	1 500	27 000

*1 Estimated runtime is the time until the brightness decreases to approximately half of the time of delivery when the projector is used with the [PICTURE] menu → [DYNAMIC CONTRAST] set to [2] and under environment of 0.15 mg/m³ dust.



Note

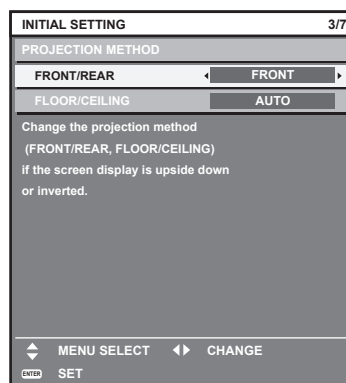
- Under influences of characteristics of each light source, conditions of use, installation environment, etc., the runtime may be shorter than the estimation.
- If the runtime exceeds 20 000 hours, replacement of the components inside the projector may be required. Consult your dealer for details.
- After completed the initial setting, the wider the combination of luminance and runtime becomes by setting the [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [BRIGHTNESS CONTROL SETUP] → [CONSTANT MODE] to [AUTO] or [PC]. Refer to the [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] for details.

Initial setting (installation setting)

Set [FRONT/REAR] and [FLOOR/CEILING] in [PROJECTION METHOD] depending on the installation mode. Refer to “Installation mode” (➔ page 33) for details.

After completed the initial setting, you can change the setting from the [PROJECTOR SETUP] menu → [PROJECTION METHOD].

1) Press ◀▶ to switch the setting.

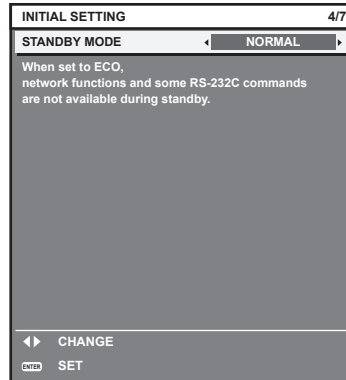


2) Press the <ENTER> button to proceed to the initial setting.

Initial setting (standby mode)

Set the operation mode during standby. The factory default setting is [NORMAL], which allows you to use the network function during standby. To keep power consumption low during standby, set this item to [ECO]. After completed the initial setting, you can change the setting from the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE].

1) Press ◀▶ to switch the setting.



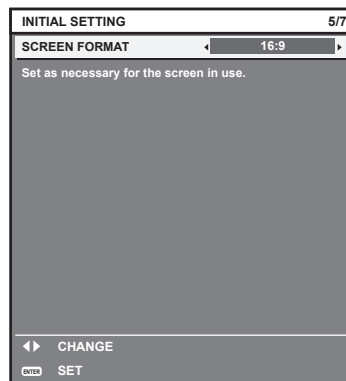
2) Press the <ENTER> button to proceed to the initial setting.

Initial setting (screen setting)

Set the screen format (aspect ratio) and display position of the image. After completed the initial setting, you can change the settings of each item from the [DISPLAY OPTION] menu → [SCREEN SETTING].

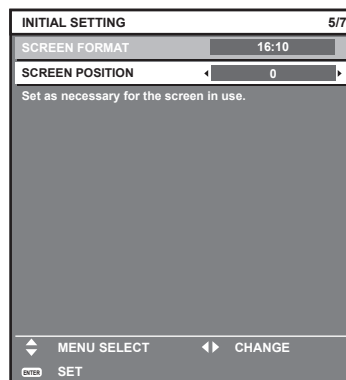
1) Press ◀▶ to switch the setting.

- The setting will change each time you press the button.
- Proceed to Step 4) when [16:9] is selected.



2) Press ▲▼ to select [SCREEN POSITION].

3) Press ◀▶ to adjust.



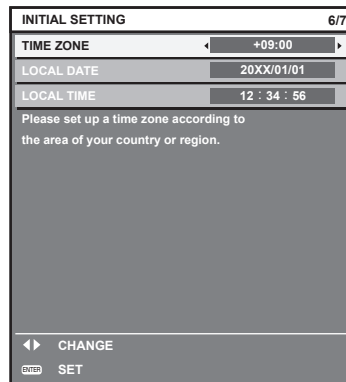
4) Press the <ENTER> button to proceed to the initial setting.

Initial setting (time zone)

Set [TIME ZONE] in accordance with the country or region where you use the projector.

After completed the initial setting, you can change the setting from the [PROJECTOR SETUP] menu → [DATE AND TIME]. The current settings are displayed in [LOCAL DATE] and [LOCAL TIME].

1) Press ◀▶ to switch the setting.



2) Press the <ENTER> button to proceed to the initial setting.

Note

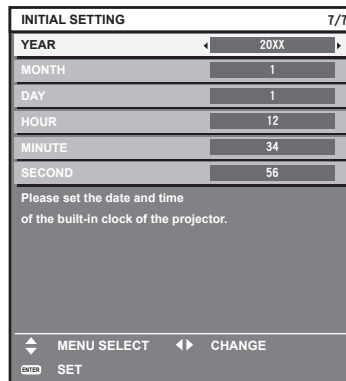
- In the factory default setting, the time zone of the projector is set to +09:00 (Japan and Korea Standard Time). Change the setting of the [PROJECTOR SETUP] menu → [DATE AND TIME] → [TIME ZONE] to the time zone of the region where you use the projector.

Initial setting (date and time)

Set the local date and time. After completed the initial setting, you can change the setting from the [PROJECTOR SETUP] menu → [DATE AND TIME].

To set the date and time automatically, refer to “Setting the date and time automatically” (➡ page 117).

1) Press ▲▼ to select an item.



2) Press ◀▶ to switch the setting.

3) Press the <ENTER> button.

- Confirm the setting value and complete the initial setting.

When the administrator account setting screen is displayed

When the projector is switched on for the first time after purchase, as well as when the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET] is executed, the [ADMINISTRATOR ACCOUNT] screen is displayed following the [INITIAL SETTING] screen after projection starts.

When the [PROJECTOR SETUP] menu → [INITIALIZE] → [NETWORK/E-MAIL ONLY] is executed, the [ADMINISTRATOR ACCOUNT] screen is displayed after projection starts.

To use the network function of this projector, set the user name and password of the administrator account. You can also set it later from the [NETWORK] menu → [ADMINISTRATOR ACCOUNT].

[PASSWORD POLICY]

Displays the policies about the password for the administrator account.

- 1) Press ▲▼ to select [PASSWORD POLICY], and press the <ENTER> button.
 - The [PASSWORD POLICY] screen is displayed.
 - Pressing the <MENU> button can return to the [ADMINISTRATOR ACCOUNT] screen.

Setting the administrator account

Set the user name and password of the administrator account.

- 1) Press ▲▼ to select [USER NAME], and press the <ENTER> button.
 - The [USER NAME] screen is displayed.
 - The factory default setting of user name is "dispadmin".
- 2) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Up to 16 characters can be entered.
- 3) After entering the user name, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 4) Press ▲▼ to select [PASSWORD], and press the <ENTER> button.
 - The [PASSWORD] screen is displayed.
- 5) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Up to 16 characters can be entered.
 - The password cannot be blank.

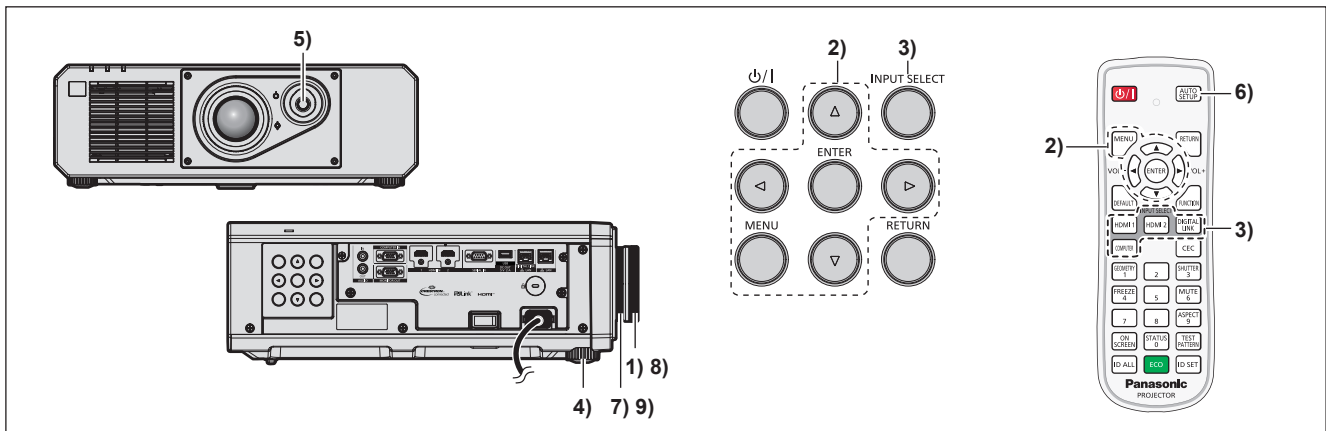
- 6) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 7) Press ▲▼ to select [PASSWORD CONFIRM], and press the <ENTER> button.
 - The [PASSWORD CONFIRM] screen is displayed.
- 8) Enter the password entered in Step 5).
- 9) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 10) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 11) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- For restrictions on character strings that can be set for password, refer to [PASSWORD POLICY] (➔ page 49).
- By pressing the <MENU> button while the [ADMINISTRATOR ACCOUNT] screen is displayed, you can proceed to the next operation without setting an administrator account password, but the network function of this projector cannot be used. To use the web control function or the communication control (including operation with application software) via LAN, set a password.
- If you press the <MENU> button while the [ADMINISTRATOR ACCOUNT] screen is displayed, the [ADMINISTRATOR ACCOUNT] screen will not be displayed the next time the power is turned on. To use the network function, set a password in the [NETWORK] menu → [ADMINISTRATOR ACCOUNT].
- The user name and password of the administrator account can also be changed on the "[Set up password] page (for administrator account)" (➔ page 176) of the web control screen.
- The user name and password of the standard user account without administrator rights can be set on the "[Set up password] page (for administrator account)" (➔ page 176) of the web control screen.

Making adjustments and selections

It is recommended that images be projected continuously for at least 30 minutes before the focus is adjusted.



- 1) Turn the focus ring to roughly adjust the focus of the projected image. (➔ page 53)
- 2) Change the setting of the [PROJECTOR SETUP] menu → [PROJECTION METHOD] depending on the installation mode. (➔ page 33)
 - Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.
- 3) Select the input by pressing the input selection button on the remote control or the control panel.
 - The buttons that can be used on the remote control or the control panel are as follows.

Remote control:
 <HDMI 1> button, <HDMI 2> button, <DIGITAL LINK> button, <COMPUTER> button

Control panel:
 <INPUT SELECT> button

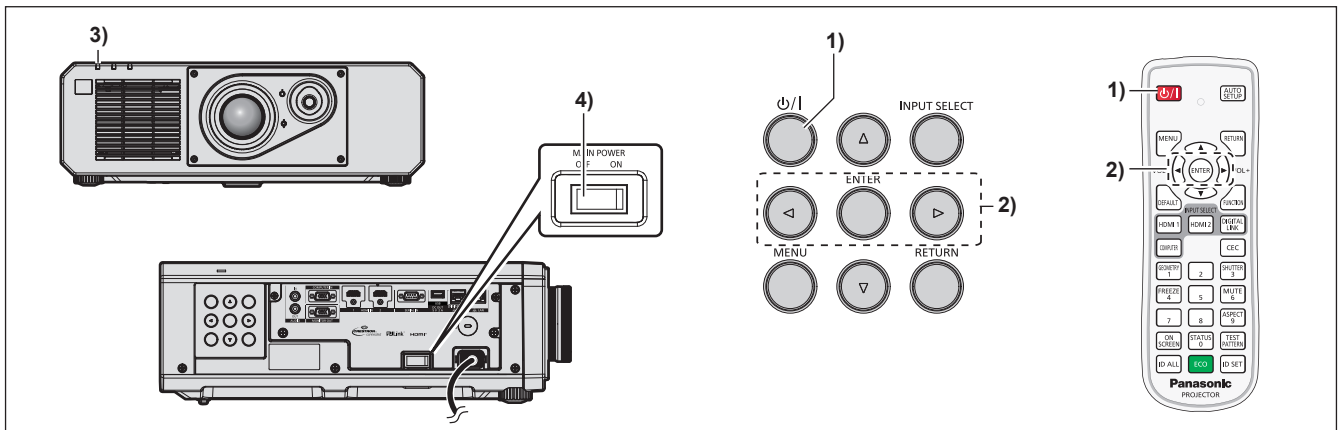
 - For details of operation for input selection, refer to “Selecting the input signal” (➔ page 52).
- 4) Adjust the front, back and sideways tilt of the projector with the adjustable feet. (➔ page 54)
- 5) Adjust the position of the projected image by operating the lens shift lever.

- 6) If the input signal is the analog RGB signal or the HDMI signal, press the <AUTO SETUP> button.
- 7) Turn the zoom ring to adjust the size of the projected image to match the screen.
- 8) Adjust the focus again with the focus ring.
- 9) Adjust the zoom again with the zoom ring to adjust the size of the projected image to match the screen.

Note

- When the projector is switched on for the first time after purchase, or when the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET] is executed, the [INITIAL SETTING] screen is displayed after the projection starts, followed by the [ADMINISTRATOR ACCOUNT] screen. If the [PROJECTOR SETUP] menu → [INITIALIZE] → [NETWORK/E-MAIL ONLY] is executed, the [ADMINISTRATOR ACCOUNT] screen is displayed after the projection starts. For details, refer to “When the initial setting screen is displayed” (➔ page 44), “When the administrator account setting screen is displayed” (➔ page 49).

Switching off the projector



- 1) Press the power <ϕ/|> button.
 - The [POWER OFF(STANDBY)] confirmation screen is displayed.
- 2) Press ◀▶ to select [OK], and press the <ENTER> button.
(Or press the power <ϕ/|> button again.)
 - Projection of the image will stop, and the power indicator <ON (G)/STANDBY (R)> on the projector body lights orange. (The fan keeps running.)
- 3) Wait for a few seconds until the power indicator <ON (G)/STANDBY (R)> of the projector body lights/blinks red.
- 4) Press the <OFF> side of the <MAIN POWER> switch to turn off the power.

Note

- For approximately five seconds after the projector is turned off, the indicator does not light up even if the power is turned on.
- Even when the power <ϕ/|> button is pressed and the projector is switched off, the projector consumes power if the main power of the projector is on.
When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [ECO], use of some functions is restricted, but the power consumption during standby mode can be conserved.
- While projecting, the power can be turned off by pressing the <OFF> side of the <MAIN POWER> switch, or by directly using the breaker under conditions where the <MAIN POWER> switch of the projector cannot be switched off/on easily such as while installing on the ceiling. However, the settings or adjustments performed right before the power is turned off may not be reflected.

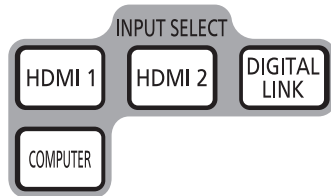
Projecting

Check the external device connection (➡ page 37) and the power cord connection (➡ page 42), and turn on the power (➡ page 43) to start projection. Select the image to project, and adjust appearance of the projected image.

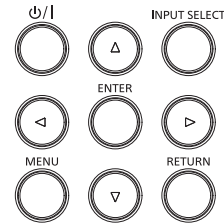
Selecting the input signal

The input of the image to project can be switched. Method to switch the input is as follows.

- Press the input selection button on the remote control and directly specify the input to project.
- Press the <INPUT SELECT> button on the control panel to display the input selection screen, and select the input to project from the list.



Remote control



Control panel

Switching the input directly with the remote control

The input for projection can be switched by directly specifying it with the input selection button on the remote control.

- 1) Press the input selection button (<HDMI 1>, <HDMI 2>, <DIGITAL LINK>, <COMPUTER>).

<HDMI 1>	Switches the input to HDMI1. The image of the signal input to the <HDMI IN 1> terminal is projected.
<HDMI 2>	Switches the input to HDMI2. The image of the signal input to the <HDMI IN 2> terminal is projected.
<DIGITAL LINK>	Switches the input to DIGITAL LINK. The image of the signal input to the <DIGITAL LINK/LAN> terminal is projected.
<COMPUTER>	Switches the input to COMPUTER. The image of the signal input to the <COMPUTER IN> terminal is projected.

Attention

- Images may not be projected properly depending on the external device, or the Blu-ray disc or DVD disc, to be played back.
Set the [PICTURE] menu → [SYSTEM SELECTOR].
- Confirm the aspect ratio of the projection screen and the image, and switch to an optimum aspect ratio from the [POSITION] menu → [ASPECT].

Note

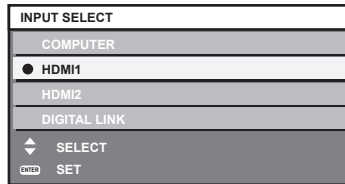
- When the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the <DIGITAL LINK/LAN> terminal, the input on the DIGITAL LINK output supported device changes each time the <DIGITAL LINK> button is pressed. The input can also be changed using the RS-232C control command.
For twisted-pair-cable transmitters of other manufacturers, switch the input on the projector to DIGITAL LINK, and then switch the input on the twisted-pair-cable transmitter.

Switching the input by displaying the input selection screen

The input for projection can be selected by displaying the input selection screen using the <INPUT SELECT> button on the control panel.

1) Press the <INPUT SELECT> button on the control panel.

- The input selection screen is displayed.



2) Press ▲▼ to select the input for projection, and press the <ENTER> button.

Note

- The input can also be switched by pressing the <INPUT SELECT> button while the input selection screen is displayed. The input will switch each time you press the <INPUT SELECT> button.
- If the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the projector, the input selection menu for the DIGITAL LINK output supported device is displayed when the <ENTER> button is pressed while the DIGITAL LINK input is selected in the input selection screen.
- If the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the projector, the DIGITAL LINK logo and the input name selected in the DIGITAL LINK output supported device are displayed in the display section of the [DIGITAL LINK] in the input selection screen.

Adjusting the image

Adjust the position, size, and focus of the projected image.

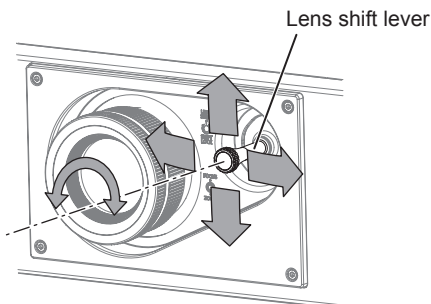


Fig. 1

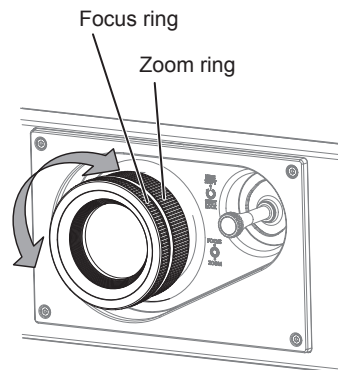


Fig. 2

1) Adjust the projection angle.

- Install the projector on a flat surface so that the front of the projector is parallel to the screen surface, making the projected image rectangular.
- If the projector is tilted downward than the screen, extend the adjustable feet so that the projected image becomes rectangular.
- Refer to “Adjusting adjustable feet” (➡ page 54) for details.

2) Turn the lens shift lever counterclockwise and release the fixing of the lens shift lever.

3) Adjust the lens shift. (Fig. 1)

- Adjust the position of the projected image by operating the lens shift lever.
- Refer to “Lens shift range” (➡ page 54) for details.

4) Turn the lens shift lever clockwise to fix.

5) Adjust the zoom and the focus. (Fig. 2)

- Adjust the size of the projected image by turning the zoom ring.
- Adjust the focus by turning the focus ring.

Note

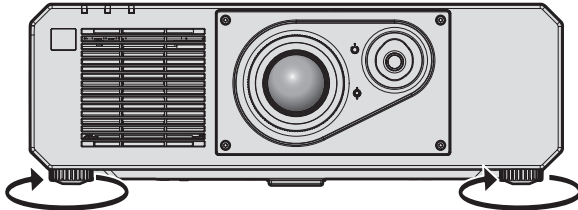
- It is recommended that images be projected continuously for at least 30 minutes before the focus is adjusted.
- Since the projected image size will change when the focus ring is turned, fine adjust the projected image size again by turning the zoom ring.
- Perform the [POSITION] menu → [GEOMETRY] when the projected image is distorted.

Adjusting adjustable feet

Install the projector on a flat surface so that the front of the projector is parallel to the screen surface and the projection screen is rectangular.

If the screen is tilted downward, extend the front adjustable feet so that the projected image becomes rectangular. The adjustable feet can also be used to adjust the projector to be level when it is tilted in the horizontal direction.

Adjustable feet can be extended by turning them as shown in the figure. Turning them in the opposite direction will return them to the original position.



Maximum adjustable range

Adjustable feet: 35 mm (1-3/8") each

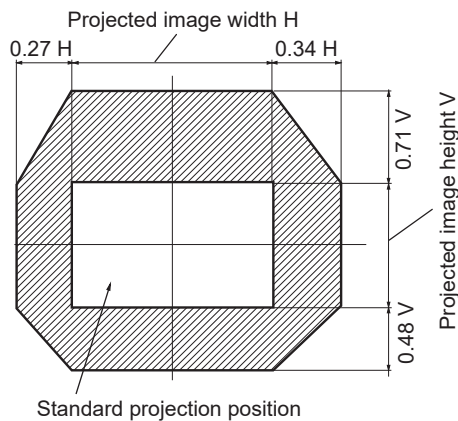
Attention

- Be careful not to block the intake/exhaust vents with your hands or any objects when adjusting the adjustable feet while the light source is on. (➔ page 28)

Lens shift range

The projection position can be adjusted within the lens shift range based on the position of the projected image in the standard projection position.

Following illustration indicates the lens shift range when the projector is installed on desk/floor.



Note

- Optimal image can be achieved by installing the projector squarely in front of the screen and adjusting the lens shift lever to center.

Using the USB memory

This projector supports the attachment of the USB memory. Attach the USB memory to the <USB (DC OUT)> terminal when using the data cloning function, the firmware update function, etc.

Note

- For the data cloning function, refer to the [PROJECTOR SETUP] menu → [DATA CLONING] (▶ page 124).
- For the firmware update function, refer to the [PROJECTOR SETUP] menu → [FIRMWARE UPDATE] (▶ page 128).

Notes on use

Observe following.

- Do not disassemble or modify the USB memory.
- Do not apply strong impact on the USB memory.
- Do not pour liquid such as water or get it wet.
- Do not place foreign object into the terminal section.
- Do not touch the metal terminal with hand or metal.
- Do not leave the USB memory in a place with high humidity or dust.
- Do not leave the USB memory in a place where static electricity or electromagnetic radiation is generated.
- Store the USB memory appropriately in a location that small children cannot reach.
- Immediately remove the USB memory from the projector when smoke or odor is noticed, and contact the manufacturer.
- Do not remove the USB memory from the projector while reading or writing the data.

USB memory that can be used with the projector

This projector supports the commercially available USB 2.0 compatible USB memory formatted in FAT16 or FAT32.

- Only the single partition structure is supported.

Attaching the USB memory

- 1) Insert the USB memory all the way in to the <USB (DC OUT)> terminal.

Attention

- Take care of the orientation of the terminal when inserting the USB memory so that it will not get damaged.
- Do not use a USB extension cable or a USB hub, and directly insert the USB memory into the <USB (DC OUT)> terminal of the projector.

Note

- The USB memory can be attached even when the projector is turned on.

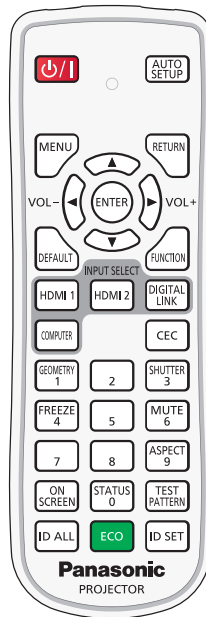
Removing the USB memory

- 1) Remove the USB memory after confirming that the indicator on the USB memory is not blinking.

Attention

- The blinking of the indicator of the USB memory attached to the projector is indicating that the projector is accessing (reading or writing) the USB memory. Do not remove the USB memory from the projector when the indicator is blinking.
- The access status to the USB memory cannot be confirmed when a USB memory without the monitoring function such as indicator is used. In such case, remove the USB memory after waiting for one of the following.
 - Turn off the projector.
 - When using the data cloning function, confirm that the saving or loading of the data to/from the USB memory is completed in the menu screen.
 - When using the firmware update function, wait until the projector automatically goes into standby after the update has started.

Operating with the remote control



Using the shutter function

If the projector is not used for a certain period of time during the meeting intermission, for example, it is possible to turn off the image and audio temporarily.

SHUTTER 3 button

- 1) **Press the <SHUTTER> button.**
 - The image and audio disappear.
- 2) **Press the <SHUTTER> button again.**
 - The image and audio reappear.

Note

- The power indicator <ON (G)/STANDBY (R)> will blink green slowly while the shutter function is in use (shutter: closed).
- The fade-in/fade-out time of the image can be set by the [DISPLAY OPTION] menu → [SHUTTER SETTING].
- To output audio while the shutter function is in use (shutter: closed), set the [PROJECTOR SETUP] menu → [AUDIO SETTING] (▶ page 120) → [IN SHUTTER] to [ON].
- The projector does not have a built-in speaker. Audio is output from the external audio system connected to the <AUDIO OUT> terminal.
- The light source may be lit dimly due to warm up when the shutter function is used in the operating environment temperature of around 0 °C (32 °F).

Using the mute function

Audio can be temporarily turned off.

MUTE 6 button

- 1) **Press the <MUTE> button.**
 - The audio is muted.
- 2) **Press the <MUTE> button again.**
 - The audio is turned on.

Adjusting the volume

Adjust the volume of audio output.



- 1) Press the <VOL-> button/<VOL+> button on the remote control.

<VOL+>	Increases the volume.
<VOL->	Decreases the volume.

Note

- This operation can be also performed using ◀▶ on the control panel.

Using the freeze function

The projected image can be paused and audio can be turned off regardless of the playback of the external device.



- 1) Press the <FREEZE> button.
 - The image freezes and audio is muted.
- 2) Press the <FREEZE> button again.
 - Freezing of the image is canceled and audio is turned on.

Note

- [FREEZE] is displayed on the screen when video is paused.
- When freezing of the moving image is canceled, the image may disappear or be disrupted temporarily.

Using the on-screen display function

Turn off the on-screen display function (no display) when you do not wish the viewers to see the on-screen display, such as the menu or the input terminal name.



- 1) Press the <ON SCREEN> button.
 - The on-screen display disappears.
- 2) Press the <ON SCREEN> button again.
 - The on-screen display appears.

Note

- If you press the <MENU> button on the control panel for at least three seconds while the on-screen display is off (hidden), the on-screen display is turned on.

Using the automatic setup function

The image position when the HDMI signal is input, or the resolution, clock phase, and image position when the analog RGB signal is input can be adjusted automatically. (Analog RGB signal is a signal structured with dots just like the computer signal.)

It is recommended to input an image with bright white borders at the edges and high-contrast black and white characters when the automatic adjustment is being performed.

Avoid using images that include halftones or gradation, such as photographs and computer graphics.

**AUTO
SETUP** button

1) Press the <AUTO SETUP> button.

- [COMPLETE] is displayed when it has completed without any problem.

Note

- The clock phase may shift even if it has completed without any incident. In such a case, adjust the [POSITION] menu → [CLOCK PHASE] (➡ page 78).
- If an image with blurred edges or a dark image is input, [INCOMPLETE] may appear or adjustment may not be performed properly even when [COMPLETE] appears. In such a case, adjust the following settings.
 - [ADVANCED MENU] menu → [INPUT RESOLUTION] (➡ page 85)
 - [POSITION] menu → [CLOCK PHASE] (➡ page 78)
 - [POSITION] menu → [SHIFT] (➡ page 76)
- Adjust special signals according to the [DISPLAY OPTION] menu → [AUTO SETUP] (➡ page 92).
- Automatic adjustment may not be possible depending on the computer model.
- Automatic adjustment may not be possible for the synchronization signal for composite sync or SYNC ON GREEN.
- Images may be disrupted for a few seconds during execution of the automatic setup, but it is not a malfunction.
- Adjustment is required for each input signal.
- Automatic setup can be canceled by pressing the <MENU> button while the automatic setup is being executed.
- Even if a signal possible to perform the automatic setup is being input, it may not be able to adjust correctly if the automatic setup function is used while the moving image is being input. [INCOMPLETE] may be displayed, or the adjustment may not be completed correctly even if [COMPLETE] is displayed.

Using the geometric adjustment function

You can correct various types of distortion in a projected image.

Unique image processing technology enables projection of a square image on a special screen shape.

The projected image can be made to look more natural by making topical correction as necessary.

**GEOMETRY
1** button

1) Press the <GEOMETRY> button.

- The [GEOMETRY] screen is displayed.

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Disables the geometric adjustment function.
[KEystone]	Adjusts any trapezoidal distortion in the projected image.
[CORNER CORRECTION]	Adjusts any distortion in the four corners of the projected image.
[CURVED CORRECTION]	Adjusts any curved distortion in the projected image.

- Proceed to Step 3) when anything other than [OFF] is selected.

3) Press the <ENTER> button.

- The [GEOMETRY:KEystone] screen, the [GEOMETRY:CORNER CORRECTION] screen, or the [GEOMETRY:CURVED CORRECTION] screen is displayed.

Note

- Refer to the [POSITION] menu → [GEOMETRY] (➡ page 78) for details.

Switching the image aspect ratio

Switch the image aspect ratio according to the input.



1) Press the <ASPECT> button.

- The setting will change each time you press the button.

Note

- Refer to the [POSITION] menu → [ASPECT] (➔ page 76) for details.

Using the function button

By assigning the following functions to the <FUNCTION> button, it can be used as a simplified shortcut button. [SUB MEMORY], [SYSTEM SELECTOR], [DAYLIGHT VIEW], [FREEZE], [WAVEFORM MONITOR], [ASPECT], [PROJECTION METHOD], [GEOMETRY], [OSD POSITION]



1) Press the <FUNCTION> button.

Note

- Assignment of the function is performed from the [PROJECTOR SETUP] menu → [FUNCTION BUTTON] (➔ page 119).

Displaying internal test pattern

The projector has eight types of internal test patterns to check the condition of the projector body. To display test patterns, perform the following steps.



1) Press the <TEST PATTERN> button.

2) Press ◀▶ to select the test pattern.

Note

- Test patterns can also be displayed using the menu operation. Refer to "[TEST PATTERN] menu" (➔ page 129) for details.
- Settings of position, size, and other factors will not be reflected in test patterns. Make sure to display the input signal before performing various adjustments.




Using the status function

Display the status of the projector.



1) Press the <STATUS> button.

- The [STATUS] screen is displayed.

STATUS		1/4
PROJECTOR TYPE	PT-FRQ50	
SERIAL NUMBER	SN1234567	
PROJECTOR RUNTIME	10h	
LIGHT RUNTIME	2h	
CONTINUOUS LIGHTING TIME	1h 23m	
MAIN/SUB VERSION	1.00 / 1.00	
INTAKE AIR TEMP.	25°C/77°F	
OPTICS MODULE TEMP.	29°C/84°F	
EXHAUST AIR TEMP.	28°C/82°F	
LIGHT TEMP. 1	34°C/93°F	
LIGHT TEMP. 2	36°C/96°F	
SELF TEST	NO ERRORS	
 E-MAIL/USB		
 CHANGE		EXIT

Note

- The projector status can also be displayed using the menu operation. Refer to the [PROJECTOR SETUP] menu → [STATUS] (➔ page 122) for details.

Using the ECO management function

Display the setting screen relating to ECO management.



- 1) Press the <ECO> button.

Note

- Refer to the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] (➔ page 106) for details.

Using the HDMI-CEC function

Display the HDMI-CEC operation screen.



- 1) Press the <CEC> button.
 - The HDMI-CEC operation screen is displayed.

Note

- Refer to the [PROJECTOR SETUP] menu → [HDMI CEC] (➔ page 125) for details.

Setting ID number of the remote control

When you use the multiple projectors together, you can operate all the projectors simultaneously or each projector individually using a single remote control, if a unique ID number is assigned to each projector.

After setting the ID number of the projector, set same ID number on the remote control.

The factory default ID number of the projector is set to [ALL]. When using a single projector, press the <ID ALL> button on the remote control. Also, you can control a projector by pressing the <ID ALL> button on the remote control even if you do not know the projector ID.



- 1) Press the <ID SET> button on the remote control.
- 2) Within five seconds, press and set the one-digit or two-digit ID number set on the projector body using the number (<0> - <9>) buttons.
 - If you press the <ID ALL> button, you can control the projectors regardless of the ID number setting of the projector body.

Attention

- Since the ID number of the remote control can be set without the projector body, do not press the <ID SET> button on the remote control carelessly. If the <ID SET> button is pressed and no number (<0> - <9>) buttons are pressed within five seconds, the ID number returns to its original value before the <ID SET> button was pressed.
- The ID number set on the remote control will be stored unless it is set again. However, it will be erased if the remote control is left with dead batteries. Set the same ID number again when the batteries are replaced.

Note

- When the ID number of the remote control is set to [0], you can control the projector regardless of the ID number setting of the projector body, as same as when [ALL] is set.
- Set the ID number of the projector body from the [PROJECTOR SETUP] menu → [PROJECTOR ID].

Chapter 4 Settings

This chapter describes the settings and adjustments you can make using the on-screen menu.

Menu navigation

The on-screen menu (Menu) is used to perform various settings and adjustments of the projector.

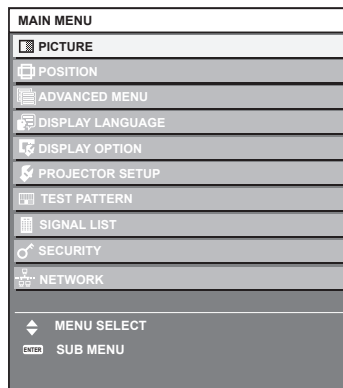
Navigating through the menu

Operating procedure

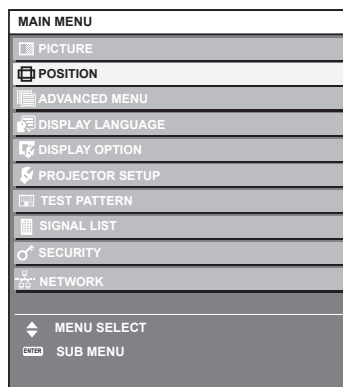


button

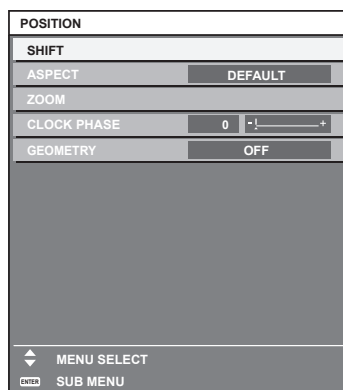
- 1) Press the <MENU> button on the remote control or control panel.
 - The [MAIN MENU] screen is displayed.



- 2) Press ▲▼ to select an item from the main menu.
 - The selected item is highlighted in yellow.

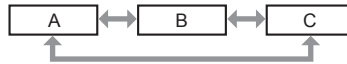


- 3) Press the <ENTER> button.
 - The sub-menu items of the selected main menu are displayed.



4) Press ▲▼ to select a sub-menu, and press ◀▶ or the <ENTER> button to change or adjust settings.

- Some items will switch in order as follows each time you press ◀▶.



- For some items, press ◀▶ to display an individual adjustment screen with a bar scale as shown below.



Note

- Pressing the <MENU> button while the menu screen is displayed returns to the previous menu. Same operation is available by pressing the <RETURN> button.
- Some items or functions may not be adjusted or used for certain signals to be input to the projector. When the items cannot be adjusted or used, the items in the menu screen are shown in black characters, and they cannot be adjusted or set. If the item in the menu screen is displayed in black characters and the item cannot be adjusted or set, the factor causing it is displayed by pressing the <ENTER> button while the corresponding menu is selected.
- Some items can be adjusted even if signals are not input.
- Individual adjustment screen is cleared automatically if no operation is performed for approximately five seconds.
- For menu items, refer to “Main menu” (➔ page 65) and “Sub-menu” (➔ page 65).
- The cursor color depends on the setting in the [DISPLAY OPTION] menu → [ON-SCREEN DISPLAY] → [OSD COLOR]. The selected item is displayed with the yellow cursor by the factory default.
- In the portrait setting, the on-screen menu is displayed sideways. To display the on-screen menu vertically, change the setting of the [DISPLAY OPTION] menu → [ON-SCREEN DISPLAY] → [OSD ROTATION].

Resetting adjustment values to the factory default

If the <DEFAULT> button on the remote control is pressed, the values adjusted in the menu items are restored to the factory default settings.

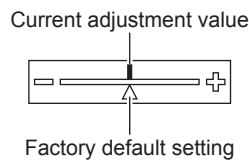


1) Press the <DEFAULT> button on the remote control.



Note











- You cannot reset all the settings to the factory default at a time.
- To reset all the settings adjusted in the sub-menu item to the factory default one at a time, execute the [PROJECTOR SETUP] menu → [INITIALIZE].
- Some items cannot be reset to the factory default settings even when the <DEFAULT> button on the remote control is pressed. Adjust those items individually.
- The triangular mark under the bar scale in the individual adjustment screen indicates the factory default setting. The position of the triangular mark varies according to the selected input signals.



Main menu

The following items are in the main menu.

When a main menu item is selected, the screen changes to a sub-menu selection screen.

Main menu item		Page
	[PICTURE]	68
	[POSITION]	76
	[ADVANCED MENU]	84
	[DISPLAY LANGUAGE]	89
	[DISPLAY OPTION]	90
	[PROJECTOR SETUP]	105
	[TEST PATTERN]	129
	[SIGNAL LIST]	130
	[SECURITY]	133
	[NETWORK]	136

Sub-menu

The sub-menu of the selected main menu item is displayed, and you can set and adjust items in the sub-menu.

[PICTURE]

Sub-menu item	Factory default	Page
[PICTURE MODE]	[GRAPHIC] ^{*1}	68
[CONTRAST]	[0]	68
[BRIGHTNESS]	[0]	68
[COLOR]	[0]	69
[TINT]	[0]	69
[COLOR TEMPERATURE]	[DEFAULT] ^{*2}	69
[WHITE GAIN]	[+10]	71
[GAMMA]	[DEFAULT]	71
[DAYLIGHT VIEW]	[OFF] ^{*2}	72
[SHARPNESS]	[+6] ^{*2}	73
[NOISE REDUCTION]	[OFF] ^{*2}	73
[DYNAMIC CONTRAST]	[OFF] ^{*2}	73
[COLOR SPACE]	[NATIVE] ^{*2}	74
[SYSTEM SELECTOR]	[AUTO] ^{*1}	74

*1 Depends on the signal input.

*2 Depends on the [PICTURE MODE].

[POSITION]

Sub-menu item	Factory default	Page
[SHIFT]	—	76
[ASPECT]	[DEFAULT]	76
[ZOOM]	—	77
[CLOCK PHASE]	[0] ^{*1}	78
[GEOMETRY]	[OFF]	78

*1 Depends on the signal input.

[ADVANCED MENU] 

Sub-menu item	Factory default	Page
[DIGITAL CINEMA REALITY]	[AUTO]	84
[BLANKING]	—	84
[INPUT RESOLUTION]	—	85
[CLAMP POSITION]	[24] ^{*1}	85
[EDGE BLENDING]	[OFF]	85
[FRAME RESPONSE]	[NORMAL]	87
[RASTER POSITION]	—	88

*1 Depends on the signal input.

Note

- The factory default setting varies depending on the selected input terminal.

[DISPLAY LANGUAGE] 

Details (➔ page 89)

[DISPLAY OPTION] 

Sub-menu item	Factory default	Page
[COLOR MATCHING]	[OFF]	90
[COLOR CORRECTION]	[OFF]	91
[SCREEN SETTING]	—	91
[AUTO SIGNAL]	[OFF]	92
[AUTO SETUP]	—	92
[COMPUTER IN]	—	93
[HDMI1 IN]	—	94
[HDMI2 IN]	—	94
[DIGITAL LINK IN]	—	96
[ON-SCREEN DISPLAY]	—	99
[BACK COLOR]	[BLUE]	101
[STARTUP LOGO]	[DEFAULT LOGO]	101
[UNIFORMITY]	—	101
[SHUTTER SETTING]	—	102
[FREEZE]	—	103
[WAVEFORM MONITOR]	[OFF]	103
[CUT OFF]	—	104

[PROJECTOR SETUP] 

Sub-menu item	Factory default	Page
[PROJECTOR ID]	[ALL]	105
[PROJECTION METHOD]	—	105
[ECO MANAGEMENT]	—	106
[BRIGHTNESS CONTROL]	—	109
[INITIAL STARTUP]	[LAST MEMORY]	115
[STARTUP INPUT SELECT]	[LAST USED]	116
[DATE AND TIME]	—	116
[SCHEDULE]	[OFF]	117
[RS-232C]	—	119
[FUNCTION BUTTON]	—	119
[AUDIO SETTING]	—	120
[STATUS]	—	122
[DATA CLONING]	—	124

Sub-menu item	Factory default	Page
[SAVE ALL USER DATA]	—	124
[LOAD ALL USER DATA]	—	124
[HDMI CEC]	[ON]	125
[INITIALIZE]	—	127
[FIRMWARE UPDATE]	—	128
[SERVICE PASSWORD]	—	128

[TEST PATTERN] 

Details (➔ page 129)

[SIGNAL LIST] 

Details (➔ page 130)

[SECURITY] 

Sub-menu item	Factory default	Page
[SECURITY PASSWORD]	[OFF]	133
[SECURITY PASSWORD CHANGE]	—	133
[CONTROL DEVICE SETUP]	—	134
[CONTROL DEVICE PASSWORD CHANGE]	—	135

[NETWORK] 

Sub-menu item	Factory default	Page
[ETHERNET TYPE]	[LAN]	136
[DIGITAL LINK]	—	136
[WIRED LAN]	—	138
[WIRELESS LAN] ^{*1}	[ENABLE]	138
[PROJECTOR NAME]	—	139
[NETWORK STATUS]	—	139
[ADMINISTRATOR ACCOUNT]	—	140
[NETWORK SECURITY]	—	142
[NETWORK CONTROL]	—	143
[PJLink]	—	143
[Art-Net]	—	145

*1 [WIRELESS LAN] cannot be set if the optional Wireless Module (Model No.: AJ-WM50 Series) is not attached to the <USB (DC OUT)> terminal.

Note

- Some items may not be adjusted or used for certain signal formats to be input to the projector.
When the items cannot be adjusted or used, the items in the menu screen are shown in black characters, and they cannot be adjusted or set.
- Sub-menu items and factory default settings vary depending on the selected input terminal.

[PICTURE] menu

On the menu screen, select [PICTURE] from the main menu, and select an item from the sub-menu. Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[PICTURE MODE]

You can switch to the desired picture mode suitable for the image source and the environment in which the projector is used.

- 1) Press ▲▼ to select [PICTURE MODE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [PICTURE MODE] individual adjustment screen is displayed.
- 3) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[STANDARD]	The image becomes suitable for video images in general.
[CINEMA]	The image becomes suitable for movie contents.
[NATURAL]	The image becomes suitable for using in a relatively dark environment.
[REC709]	The image becomes Rec.709 compliant when the setting other than [PICTURE MODE] is set to the factory default.
[DICOM SIM.]	The image becomes similar to that of DICOM Part 14 Grayscale Standard.
[DYNAMIC]	The light output is maximized for use in bright areas.
[GRAPHIC]	The image becomes suitable for input from the personal computer.

Note

- The factory default picture mode is [GRAPHIC] for computer signal input and [STANDARD] for video signal input.
- Rec.709 is an abbreviation of “ITU-R Recommendation BT.709” and is a color standard of high-vision broadcasting.
- DICOM is an abbreviation of “Digital Imaging and COmmunication in Medicine” and is a standard for medical imaging devices. Although the DICOM name is used, the projector is not a medical device, and display images should not be used for medical purposes such as diagnosis.

[CONTRAST]

You can adjust the contrast of the colors.

- 1) Press ▲▼ to select [CONTRAST].
- 2) Press ◀▶ or the <ENTER> button.
 - The [CONTRAST] individual adjustment screen is displayed.
- 3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	The screen becomes brighter.	-31 - +31
Press ◀.	The screen becomes darker.	

Attention

- Adjust the [PICTURE] menu → [BRIGHTNESS] first when you need to adjust the black level.

[BRIGHTNESS]

You can adjust the dark (black) part of the projected image.

- 1) Press ▲▼ to select [BRIGHTNESS].
- 2) Press ◀▶ or the <ENTER> button.
 - The [BRIGHTNESS] individual adjustment screen is displayed.
- 3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Increases the brightness of the dark (black) parts of the screen.	-31 - +31
Press ◀.	Reduces the brightness of the dark (black) parts of the screen.	

[COLOR]

You can adjust the color saturation of the projected image.

- 1) Press ▲▼ to select [COLOR].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR] individual adjustment screen is displayed.
- 3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Deepens colors.	-31 - +31
Press ◀.	Weakens colors.	

[TINT]

You can adjust the skin tone in the projected image.

- 1) Press ▲▼ to select [TINT].
- 2) Press ◀▶ or the <ENTER> button.
 - The [TINT] individual adjustment screen is displayed.
- 3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Adjusts skin tone toward greenish color.	-31 - +31
Press ◀.	Adjusts skin tone toward reddish purple.	

[COLOR TEMPERATURE]

You can switch the color temperature if the white areas of the projected image are bluish or reddish.

Adjusting with color temperature

- 1) Press ▲▼ to select [COLOR TEMPERATURE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR TEMPERATURE] individual adjustment screen is displayed.
- 3) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Factory default setting.
[USER1]	Adjusts white balance as desired. Refer to "Adjusting desired white balance" (▶ page 69) for details.
[USER2]	
[3200K] - [13000K]	Sets the value in increments of 100 K. Select an item so that images become natural.

Note

- [DEFAULT] cannot be selected when the [PICTURE] menu → [PICTURE MODE] is set to [DICOM SIM].
- The item is fixed to [USER1] when the [DISPLAY OPTION] menu → [COLOR MATCHING] is set to anything other than [OFF].
- The color temperature numerical values are estimates.

Adjusting desired white balance

- 1) Press ▲▼ to select [COLOR TEMPERATURE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR TEMPERATURE] individual adjustment screen is displayed.
- 3) Press ◀▶ to select [USER1] or [USER2].

- 4) Press the <ENTER> button.
 - The [COLOR TEMPERATURE] screen is displayed.
- 5) Press ▲▼ to select [WHITE BALANCE].
- 6) Press the <ENTER> button.
 - The [WHITE BALANCE] screen is displayed.
- 7) Press ▲▼ to select [WHITE BALANCE HIGH] or [WHITE BALANCE LOW].
- 8) Press the <ENTER> button.
 - The [WHITE BALANCE HIGH] screen or the [WHITE BALANCE LOW] screen is displayed.
- 9) Press ▲▼ to select [RED], [GREEN], or [BLUE].
- 10) Press ◀▶ to adjust the level.

Item	Operation	Adjustment	Range of adjustment
[RED]	Press ▶.	Deepens red.	[WHITE BALANCE HIGH]: 0 - +255 (factory default is +255) [WHITE BALANCE LOW]: -127 - +127 (factory default is 0)
	Press ◀.	Weakens red.	
[GREEN]	Press ▶.	Deepens green.	
	Press ◀.	Weakens green.	
[BLUE]	Press ▶.	Deepens blue.	
	Press ◀.	Weakens blue.	

Note

- Adjust [COLOR TEMPERATURE] correctly. All colors will not be displayed properly unless adequate adjustment is made. If the adjustment does not look suitable, you can press the <DEFAULT> button on the remote control to return the setting for the selected item only to the factory default setting.

Adjusting to desired white balance based on existing color temperature settings

- 1) Press ▲▼ to select [COLOR TEMPERATURE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR TEMPERATURE] individual adjustment screen is displayed.
- 3) Press ◀▶ to select anything other than [DEFAULT], [USER1], or [USER2].
- 4) Press the <ENTER> button.
 - The [CHANGE TO *****] screen is displayed.
- 5) Press ▲▼ to select [USER1] or [USER2].
- 6) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 7) Press ◀▶ to select [OK], and press the <ENTER> button.
 - The [USER1] or [USER2] data is overwritten.
 - The data is not overwritten when [CANCEL] is selected with ◀▶ and the <ENTER> button is pressed.
 - The [WHITE BALANCE HIGH] screen is displayed.
- 8) Press ▲▼ to select [RED], [GREEN], or [BLUE].
- 9) Press ◀▶ to adjust the level.

Note

- Adjust [COLOR TEMPERATURE] correctly. All colors will not be displayed properly unless adequate adjustment is made. If the adjustment does not look suitable, you can press the <DEFAULT> button on the remote control to return the setting for the selected item only to the factory default setting.
- When color temperature has been changed, the colors before and after the change will differ slightly.

Changing the name of [USER1] or [USER2]

- 1) Press ▲▼ to select [COLOR TEMPERATURE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR TEMPERATURE] individual adjustment screen is displayed.
- 3) Press ◀▶ to select [USER1] or [USER2].
- 4) Press the <ENTER> button.
 - The [COLOR TEMPERATURE] screen is displayed.
- 5) Press ▲▼ to select [COLOR TEMPERATURE NAME CHANGE].
- 6) Press the <ENTER> button.
 - The [COLOR TEMPERATURE NAME CHANGE] screen is displayed.
- 7) Press ▲▼◀▶ to select the text, and press the <ENTER> button to enter the text.
- 8) Press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The name set to color temperature is changed.

Note

- The display of [USER1] or [USER2] is also changed when the name is changed.

[WHITE GAIN]

Adjust the brightness of the white part of the image.

- 1) Press ▲▼ to select [WHITE GAIN].
- 2) Press ◀▶ or the <ENTER> button.
 - The [WHITE GAIN] individual adjustment screen is displayed.
- 3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Brightness of the white part gets stronger.	0 - +10
Press ◀.	The image becomes more natural.	

[GAMMA]

You can switch gamma mode.

- 1) Press ▲▼ to select [GAMMA].
- 2) Press ◀▶ or the <ENTER> button.
 - The [GAMMA] individual adjustment screen is displayed.
- 3) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Gamma mode unique to this projector.
[USER]	Uses the gamma data registered by the user. (Registration requires separate software. Consult your dealer.)
[HDR ST2084-500]	Gamma mode compliant with SMPTE ST 2084 that assumes a highest luminance of 500 cd/m ² and supports HDR (High Dynamic Range).
[HDR ST2084-1000]	Gamma mode compliant with SMPTE ST 2084 that assumes a highest luminance of 1 000 cd/m ² and supports HDR (High Dynamic Range).
[HDR HLG]	Gamma mode compliant with ITU-R BT.2100 (HLG: Hybrid Log Gamma system) that supports HDR (High Dynamic Range).
[1.8]	Set so that images become as you like.
[2.0]	
[2.2]	

Note

- In the following cases, the gamma mode is automatically set based on the InfoFrame information while displaying the image with the InfoFrame information added, so the gamma mode cannot be selected. If the information necessary for supporting HDR (High Dynamic Range) is not included in the InfoFrame information added to the displayed image signal, it will follow the [GAMMA] setting.
 - When the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] → [AUTO GAMMA SELECT] is set to [ENABLE], and the HDMI input is selected
 - When the [DISPLAY OPTION] menu → [DIGITAL LINK IN] → [AUTO GAMMA SELECT] is set to [ENABLE], and the DIGITAL LINK input is selected

Setting [HDR HLG SYSTEM GAMMA]

Set the system gamma to be applied to the [USER] and [HDR HLG] gamma modes. This system gamma is defined by the ITU-R BT.2100 standard.

- 1) Press **▲▼** to select [GAMMA].
- 2) Press **◀▶** or the <ENTER> button.
 - The [GAMMA] individual adjustment screen is displayed.
- 3) Press **◀▶** to select [USER] or [HDR HLG], and press the <ENTER> button.
 - The [GAMMA] screen is displayed.
 - When [HDR HLG] is selected, proceed to Step 5).
- 4) Press **▲▼** to select [HDR HLG SYSTEM GAMMA].
- 5) Press **◀▶** to switch the item.
 - The items will switch each time you press the button.
 - [1.00] - [1.62] can be set in increments of 0.01.

Changing the name of [USER]

- 1) Press **▲▼** to select [GAMMA].
- 2) Press **◀▶** or the <ENTER> button.
 - The [GAMMA] individual adjustment screen is displayed.
- 3) Press **◀▶** to select [USER].
- 4) Press the <ENTER> button.
 - The [GAMMA] screen is displayed.
- 5) Press **▲▼** to select [GAMMA NAME CHANGE].
- 6) Press the <ENTER> button.
 - The [GAMMA NAME CHANGE] screen is displayed.
- 7) Press **▲▼◀▶** to select the text, and press the <ENTER> button to enter the text.
- 8) Press **▲▼◀▶** to select [OK], and press the <ENTER> button.
 - The selected gamma name is changed.

Note

- When a name is changed, display of [USER] is also changed.

[DAYLIGHT VIEW]

You can correct the image to the optimal vividness even if it is projected under a bright light.

- 1) Press **▲▼** to select [DAYLIGHT VIEW].
- 2) Press **◀▶** or the <ENTER> button.
 - The [DAYLIGHT VIEW] individual adjustment screen is displayed.

3) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	No correction.
[1]	Corrects the image to weaken vividness.
[2]	Corrects the image to medium vividness.
[3]	Corrects the image to high vividness.

[SHARPNESS]

You can adjust the sharpness of the projected image.

1) Press ▲▼ to select [SHARPNESS].

2) Press ◀▶ or the <ENTER> button.

- The [SHARPNESS] individual adjustment screen is displayed.

3) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Contours become sharper.	0 - +15
Press ◀.	Contours become softer.	

Note

- If you press ▶ while the adjustment value is [+15], the value will become [0]. If you press ◀ while the adjustment value is [0], the value will become [+15].

[NOISE REDUCTION]

You can reduce noises when the input image is degraded and noise is occurring in the image signal.

1) Press ▲▼ to select [NOISE REDUCTION].

2) Press ◀▶ or the <ENTER> button.

- The [NOISE REDUCTION] individual adjustment screen is displayed.

3) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	No correction.
[1]	Slightly corrects the noise.
[2]	Moderately corrects the noise.
[3]	Strongly corrects the noise.

Attention

- When this is set for an input signal with less noise, the image may look different from the original image. In such a case, set it to [OFF].

Note

- In the following cases, the [NOISE REDUCTION] function is disabled.
 - When a signal with the resolution of 2 560 x 1 600, 3 840 x 2 160, or 4 096 x 2 160 is input
 - When [EDGE BLENDING] is set to anything other than [OFF]

[DYNAMIC CONTRAST]

Light adjustment of the light source and signal compensation are performed automatically according to the image to make the contrast optimum for the image.

1) Press ▲▼ to select [DYNAMIC CONTRAST].

2) Press ◀▶ or the <ENTER> button.

- The [DYNAMIC CONTRAST] individual adjustment screen is displayed.

3) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Disables the dynamic contrast function.
[1]	Adjusts the light source and compensates signals to a small extent.
[2]	Adjusts the light source and compensates signals to a large extent.

Note

- The brightness control function and the dynamic contrast function will operate simultaneously, but the dynamic contrast function will not operate while measuring the brightness and the color.

[COLOR SPACE]

Set the color space used for the color representation of the image.

- 1) Press ▲▼ to select [COLOR SPACE].
- 2) Press ◀▶ or the <ENTER> button.
 - The [COLOR SPACE] individual adjustment screen is displayed.
- 3) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[NATIVE]	Displays the image with a color space unique to this projector.
[ITU-709]	Displays the image with a color space compliant with the ITU-R BT.709 standard.
[DCI-P3 emu.]	Displays the image with a color space close to DCI-P3.
[ITU-2020 emu.]	Displays the image with a color space close to the ITU-R BT.2020 standard.

Note

- DCI-P3 is the specifications of the digital cinema color region defined by the Digital Cinema Initiatives (DCI).
- In the following cases, the color space is automatically set based on the InfoFrame information while displaying the image with the InfoFrame information added, so the [COLOR SPACE] cannot be set. If the information necessary for supporting HDR (High Dynamic Range) is not included in the InfoFrame information added to the displayed image signal, it will follow the [COLOR SPACE] setting.
 - When the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] → [AUTO COLOR SPACE SELECT] is set to [ENABLE], and the HDMI input is selected
 - When the [DISPLAY OPTION] menu → [DIGITAL LINK IN] → [AUTO COLOR SPACE SELECT] is set to [ENABLE], and the DIGITAL LINK input is selected

[SYSTEM SELECTOR]

The projector will automatically detect the input signal, but you can set the system method manually when an unstable signal is input. Set the system method matching the input signal.

- 1) Press ▲▼ to select [SYSTEM SELECTOR].
- 2) Press the <ENTER> button.
- 3) Press ▲▼ to select a system format.
 - Available system formats vary depending on the input signal.

Terminal	System format	
<COMPUTER IN> terminal	576/50p signal	Select [RGB] or [YCbCr].
	640 x 480/60 or 480/60p signal	Select [640x480/60], [480/60p YCbCr], or [480/60p RGB].
	Other video signals	Select [RGB] or [YPbPr].
<HDMI IN 1> terminal, <HDMI IN 2> terminal, <DIGITAL LINK/LAN> terminal	480/60p, or 576/50p signal	Select [AUTO], [RGB], or [YCbCr].
	Other video signals	Select [AUTO], [RGB], or [YPbPr].

- 4) Press the <ENTER> button.

Note

- For details of the types of image signals that can be used with the projector, refer to “List of compatible signals” (➔ page 215).
- This may not function properly for some connected external devices.

sRGB-compliant video

sRGB is an international standard (IEC61966-2-1) for color reproduction defined by IEC (International Electrotechnical Commission).

Set according to the following steps to reproduce more faithful, sRGB compliant colors.

- 1) **Set [COLOR MATCHING] to [OFF].**
 - Refer to [COLOR MATCHING] (➔ page 90).
- 2) **Display the [PICTURE] menu.**
 - Refer to “[PICTURE] menu” (➔ page 68).
- 3) **Press ▲▼ to select [PICTURE MODE].**
- 4) **Press ◀▶ to set [REC709].**
- 5) **Press ▲▼ to select [GAMMA].**
- 6) **Press ◀▶ or the <ENTER> button.**
 - The [GAMMA] individual adjustment screen is displayed.
- 7) **Press ◀▶ to select [2.2].**
- 8) **Press ▲▼ to select [COLOR].**
- 9) **Press the <DEFAULT> button on the remote control to set the factory default setting.**
- 10) **Follow Steps 8) to 9) to set [TINT], [COLOR TEMPERATURE], [WHITE GAIN], and [DAYLIGHT VIEW] to the factory default settings.**

Note

- sRGB is available for RGB signal input only.

[POSITION] menu

On the menu screen, select [POSITION] from the main menu, and select an item from the sub-menu. Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

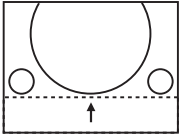
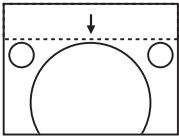
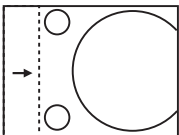
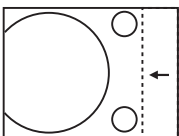
Note

- When the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the <DIGITAL LINK/LAN> terminal, adjust the shift, aspect, and clock phase from the menu of DIGITAL LINK output supported device at first.

[SHIFT]

Move the image position vertically or horizontally if the image projected on the screen is still out of position even when the positions of the projector and screen are correct.

- Press ▲▼ to select [SHIFT].
- Press the <ENTER> button.
 - The [SHIFT] screen is displayed.
- Press ▲▼◀▶ to adjust the position.

Orientation	Operation	Adjustment
Vertical (up and down) adjustment	Press ▲.	The image position moves up. 
	Press ▼.	The image position moves down. 
Horizontal (right and left) adjustment	Press ▶.	The image position moves to the right. 
	Press ◀.	The image position moves to the left. 

Note

- For the portrait setting, image position is moved horizontally when “Vertical (up and down) adjustment” is made. Image position is moved vertically when “Horizontal (right and left) adjustment” is made.
- [SHIFT] cannot be adjusted when the image of 1080/120p or 1920 x 1080/240 is projected.
- [SHIFT] cannot be adjusted when YP_BP_R/YC_BC_R signal of 4:2:0 format is input to the <HDMI IN 1> terminal, <HDMI IN 2> terminal or <DIGITAL LINK/LAN> terminal.

[ASPECT]

You can switch the aspect ratio of the image.

The aspect ratio is switched within the screen range selected in the [DISPLAY OPTION] menu → [SCREEN SETTING] → [SCREEN FORMAT]. Set [SCREEN FORMAT] first. (➔ page 91)

- Press ▲▼ to select [ASPECT].
- Press ◀▶ or the <ENTER> button.
 - The [ASPECT] individual adjustment screen is displayed.
- Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Displays images without changing the aspect ratio of the input signals.
[16:9]	Displays images with the aspect ratio converted to 16:9 when standard signals are input* ¹ . When wide-screen signals are input* ² , the images are displayed without changing the aspect ratio.
[4:3]	Displays images without changing the aspect ratio when standard signals are input* ¹ . When wide-screen signals are input* ² , the images are reduced to be displayed without changing input aspect ratio so that the images will fit in the 4:3 screen.
[H FIT]	Displays images using the entire width of the screen range selected in [SCREEN FORMAT]. When signals have the aspect ratio vertically longer than the screen aspect ratio selected in [SCREEN FORMAT], the images are displayed with the top and bottom parts cut off.
[V FIT]	Displays images using the entire height of the screen range selected in [SCREEN FORMAT]. When signals have the aspect ratio horizontally longer than the aspect ratio of the screen selected in [SCREEN FORMAT], the images are displayed with the right and left parts cut off.
[HV FIT]	Displays images in the entire screen range selected in [SCREEN FORMAT]. When the aspect ratio of the input signals differs from that of the screen range, the images are displayed with the aspect ratio converted to that of the screen selected in [SCREEN FORMAT].

*¹ Standard signals are input signals with an aspect ratio of 4:3 or 5:4.

*² Wide-screen signals are input signals with an aspect ratio of 16:10, 16:9, 15:9 or 15:10.

Note

- If an aspect ratio which is different from the aspect ratio for the input signals is selected, the images will appear differently from the originals. Be careful of this when selecting the aspect ratio.
- If using the projector in places such as cafes or hotels to display programs for a commercial purpose or for public presentation, note that adjusting the aspect ratio or using the zoom function to change the screen images may be an infringement of the rights of the original copyright owner for that program under copyright protection laws. Take care when using a function of the projector such as the aspect ratio adjustment and zoom function.
- If conventional (normal) 4:3 images which are not wide-screen images are displayed on a wide screen, the edges of the images may not be visible or they may become distorted. Such images should be viewed as with an aspect ratio of 4:3 in the original format intended by the creator of the images.
- [ASPECT] cannot be adjusted when the image of 1080/120p or 1920 x 1080/240 is projected.

[ZOOM]

You can adjust the image size.

The adjustments in [ZOOM] will differ depending on the setting of the [POSITION] menu → [ASPECT].

When [ASPECT] is set to anything other than [DEFAULT]

- 1) Press ▲▼ to select [ZOOM].
- 2) Press the <ENTER> button.
 - The [ZOOM] screen is displayed.
- 3) Press ▲▼ to select [INTERLOCKED].
- 4) Press ◀▶ to switch the item.

[OFF]	Sets the [VERTICAL] and [HORIZONTAL] zoom ratio.
[ON]	Uses [BOTH] to set zoom ratio. Image can be enlarged or reduced vertically and horizontally at the same magnification.

- 5) Press ▲▼ to select [VERTICAL] or [HORIZONTAL].
 - If [ON] is selected, select [BOTH].
- 6) Press ◀▶ to adjust.

When [ASPECT] is set to [DEFAULT]

- 1) Press ▲▼ to select [ZOOM].
- 2) Press the <ENTER> button.
 - The [ZOOM] screen is displayed.
- 3) Press ▲▼ to select [MODE].
- 4) Press ◀▶ to switch the item.

[INTERNAL]	Enlarges the size within the aspect range set with [SCREEN FORMAT].
[FULL]	Enlarges or reduces the size using the entire display area set with [SCREEN FORMAT].

5) Press ▲▼ to select [INTERLOCKED].

6) Press ◀▶ to switch the item.

[OFF]	Sets the [VERTICAL] and [HORIZONTAL] zoom ratio.
[ON]	Uses [BOTH] to set zoom ratio. Image can be enlarged or reduced vertically and horizontally at the same magnification.

7) Press ▲▼ to select [VERTICAL] or [HORIZONTAL].

- If [ON] is selected, select [BOTH].

8) Press ◀▶ to adjust.

Note

- When the [POSITION] menu → [ASPECT] is set to anything other than [DEFAULT], [MODE] is not displayed.
- [ZOOM] cannot be adjusted when the image of 1080/120p or 1920 x 1080/240 is projected.
- [ZOOM] cannot be adjusted when YP_BPr/YC_BCr signal of 4:2:0 format is input to the <HDMI IN 1> terminal, <HDMI IN 2> terminal or <DIGITAL LINK/LAN> terminal.

[CLOCK PHASE]

You can adjust the image to achieve an optimal image when there is a flickering image or smeared outlines.

1) Press ▲▼ to select [CLOCK PHASE].

2) Press ◀▶ or the <ENTER> button.

- The [CLOCK PHASE] individual adjustment screen is displayed.

3) Press ◀▶ to adjust.

- Adjustment value will change between [0] and [+31]. Adjust the image so that the amount of interference is at a minimum.

Note

- Adjustment may not be possible depending on the signal.
- There may be no optimal value if the output from the input computer is unstable.
- There may be no optimal value when the total dot number is shifted.
- [CLOCK PHASE] can be adjusted when YC_BCr/YP_BPr signal or analog RGB signal is input to the <COMPUTER IN> terminal.
- [CLOCK PHASE] cannot be adjusted when a digital signal is input.
- The adjustment value will change to [0] when ▶ is pressed while it was at [+31]. Also, the adjustment value will change to [+31] when ◀ is pressed while it was at [0].

[GEOMETRY]

You can correct various types of distortion in a projected image.

Unique image processing technology enables projection of a square image on a special screen shape.

The projected image can be made to look more natural by making topical correction as necessary.

1) Press ▲▼ to select [GEOMETRY].

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

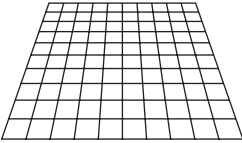
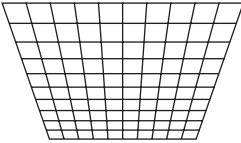
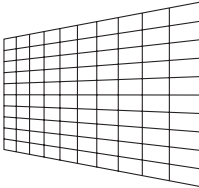
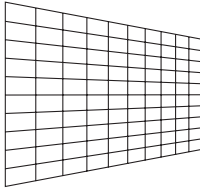
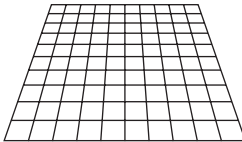
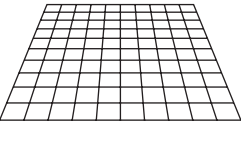
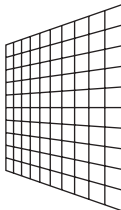

[OFF]	Does not perform geometric adjustment.
[KEystone]	Adjusts any trapezoidal distortion in the projected image.
[CORNER CORRECTION]	Adjusts any distortion in the four corners of the projected image.
[CURVED CORRECTION]	Adjusts any curved distortion in the projected image.

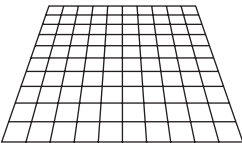
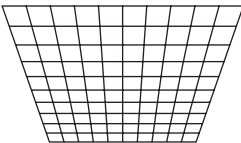
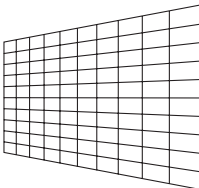
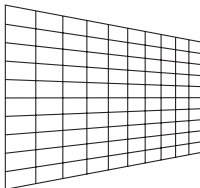
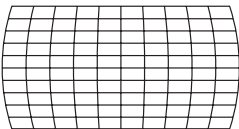
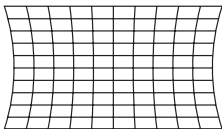
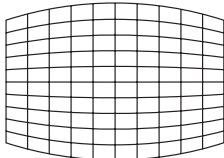
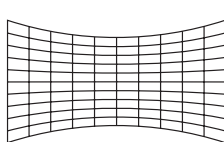
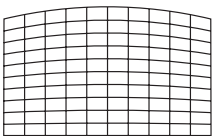
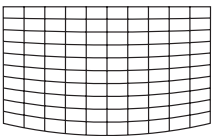
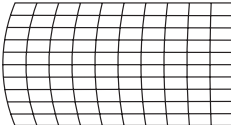
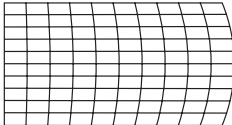
Note

- The menu, logo, or waveform monitor display may run off the screen when [GEOMETRY] is set.
- The edge blending adjustment may not be performed correctly depending on the environment when using the [ADVANCED MENU] menu → [EDGE BLENDING] and [GEOMETRY] simultaneously.
- The image may disappear for a moment or may be disrupted while performing adjustment, but it is not a malfunction.
- When [GEOMETRY] is used, the image may not be displayed correctly if adjustment increases.

Setting [KEYSTONE] or [CURVED CORRECTION]

- 1) Press ▲▼ to select [GEOMETRY].
- 2) Press ◀▶ to select [KEYSTONE] or [CURVED CORRECTION].
- 3) Press the <ENTER> button.
 - The [GEOMETRY:KEYSTONE] or [GEOMETRY:CURVED CORRECTION] screen is displayed.
- 4) Press ▲▼ to select the item to adjust.
- 5) Press ◀▶ to adjust.

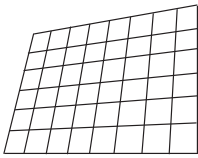
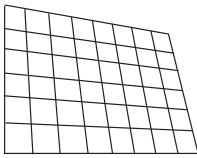
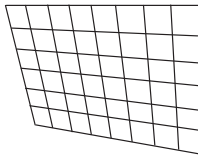
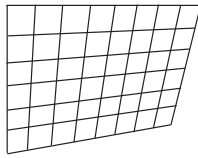
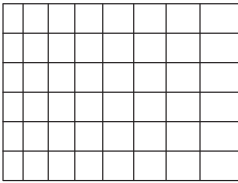
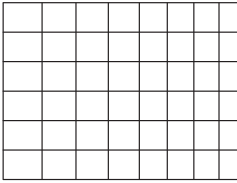
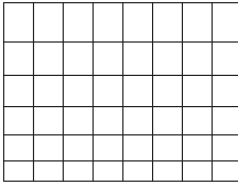
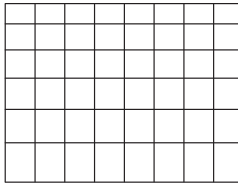
[KEYSTONE]	
<p>[LENS THROW RATIO] Set the throw ratio. Select the value close to the actual projection distance divided by projected image width here.</p>	
<p>[VERTICAL KEYSTONE]</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>[HORIZONTAL KEYSTONE]</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>[VERTICAL BALANCE]</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Adjust the setting according to the lens shift range in the vertical direction.</p>	<p>[HORIZONTAL BALANCE]</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Adjust the setting according to the lens shift range in the horizontal direction.</p>
<p>[FREE GRID] Finer adjustment is possible by selecting the points or lines to be corrected. For details of operation, refer to “Adjusting distortion with [FREE GRID]” (➡ page 81).</p>	

[CURVED CORRECTION]	
<p>[LENS THROW RATIO] Set the throw ratio. Select the value close to the actual projection distance divided by projected image width here.</p>	
<p>[VERTICAL KEYSTONE]</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>[HORIZONTAL KEYSTONE]</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>[VERTICAL ARC]</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>[HORIZONTAL ARC]</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>[VERTICAL BALANCE]</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>[HORIZONTAL BALANCE]</p> <div style="display: flex; justify-content: space-around;">   </div>

[CURVED CORRECTION]
[MAINTAIN ASPECT RATIO] Select [ON] to correct while keeping the aspect ratio.
[FREE GRID] Finer adjustment is possible by selecting the points or lines to be corrected. For details of operation, refer to “Adjusting distortion with [FREE GRID]” (➡ page 81).

Setting [CORNER CORRECTION]

- 1) Press ▲▼ to select [GEOMETRY].
- 2) Press ◀▶ to select [CORNER CORRECTION].
- 3) Press the <ENTER> button.
 - The [GEOMETRY:CORNER CORRECTION] screen is displayed.
- 4) Press ▲▼ to select the item to adjust, and press the <ENTER> button.
 - When [LINEARITY] is selected, press ◀▶ to select either adjustment method ([AUTO] or [MANUAL]).
 Select [AUTO] normally.
 For details of operation when [MANUAL] is selected, refer to “Adjusting to desired linearity” (➡ page 80).
- 5) Press ▲▼◀▶ to adjust.

[CORNER CORRECTION]			
[UPPER LEFT] 	[UPPER RIGHT] 	[LOWER LEFT] 	[LOWER RIGHT] 
[LINEARITY] Horizontal direction		Vertical direction	
			
[FREE GRID] Finer adjustment is possible by selecting the points or lines to be corrected. For details of operation, refer to “Adjusting distortion with [FREE GRID]” (➡ page 81).			

Adjusting to desired linearity

- 1) Press ▲▼ to select [GEOMETRY].
- 2) Press ◀▶ to select [CORNER CORRECTION].
- 3) Press the <ENTER> button.
 - The [GEOMETRY:CORNER CORRECTION] screen is displayed.
- 4) Press ▲▼ to select [LINEARITY].
- 5) Press ◀▶ to select [MANUAL].
- 6) Press the <ENTER> button.
 - The [LINEARITY] screen is displayed.
- 7) Press ▲▼◀▶ to adjust.

Adjusting distortion with [FREE GRID]

- 1) Press ▲▼ to select [GEOMETRY].
- 2) Press ◀▶ to select an item other than [OFF].
- 3) Press the <ENTER> button.
 - The screen for the selected item is displayed.
- 4) Press ▲▼ to select [FREE GRID].
- 5) Press ◀▶ to select an item.
 - The items will switch each time you press the button.

[OFF]	Disables the adjustment to be performed with [FREE GRID].
[ON]	Enables the adjustment to be performed with [FREE GRID].

- Proceed to Step 6) when [ON] is selected.
- 6) Press the <ENTER> button.
 - The [FREE GRID] screen is displayed.
 - 7) Press ▲▼ to select [GRID RESOLUTION].
 - 8) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[2x2]	Performs the adjustment using the pattern of the outer border (there are two lines each vertically and horizontally as a grid line).
[4x4]	Performs the adjustment using the grid pattern divided into three in the horizontal direction and also in the vertical direction.
[8x8]	Performs the adjustment using the grid pattern divided into seven in the horizontal direction and also in the vertical direction. (Factory default setting)
[16x16]	Performs the adjustment using the grid pattern divided into 15 in the horizontal direction and also in the vertical direction.

- 9) Press ▲▼ to select [CONTROL POINTS].
- 10) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[POINT]	Select this item when adjusting by selecting one intersection from the intersections on the grid lines.
[HORIZONTAL LINE]	Select this item when selecting all the intersections on one horizontal grid line, and adjusting them simultaneously.
[VERTICAL LINE]	Select this item when selecting all the intersections on one vertical grid line, and adjusting them simultaneously.

- 11) Press ▲▼ to select [GRID WIDTH].
- 12) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[1] - [10]	Select the width of the grid line. It can be set between 1 line to 10 lines. (Factory default setting: [5])
------------	--

- 13) Press ▲▼ to select [GRID COLOR].
- 14) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[WHITE]	
[BLACK]	
[RED]	
[GREEN]	Displays the pattern of the selected color. (Factory default setting: [RED])
[BLUE]	
[CYAN]	
[MAGENTA]	
[YELLOW]	
[OFF]	Does not display the pattern.

15) Press ▲▼ to select [CONTROL POINTS COLOR].

16) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[WHITE]	
[BLACK]	
[RED]	
[GREEN]	Select the color of the marker that indicates the control point. The marker that indicates the control point is displayed in the control point selection mode and adjustment mode. (Factory default setting: [WHITE])
[BLUE]	
[CYAN]	
[MAGENTA]	
[YELLOW]	

17) Press ▲▼ to select [EXECUTE].

18) Press the <ENTER> button.

- The screen switches to the control point selection mode.

19) Press ▲▼◀▶ to select the control point.

- Move the marker over the intersection of the grid lines to adjust.
- When [HORIZONTAL LINE] is selected in Step 10), press ▲▼ to select the control point.
- When [VERTICAL LINE] is selected in Step 10), press ◀▶ to select the control point.

20) Press the <ENTER> button.

- The control point is confirmed, and the screen switches to the adjustment mode.

21) Press ▲▼◀▶ to adjust the position of the control point.

- To continuously adjust the position of the other intersection, press the <MENU> button or the <ENTER> button to return to Step 19).
- Pressing the <MENU> button twice allows to reselect [GRID RESOLUTION], [CONTROL POINTS], [GRID WIDTH], [GRID COLOR], and [CONTROL POINTS COLOR].

Note

- The contents adjusted in [FREE GRID] are saved as individual correction data for [KEYSTONE], [CORNER CORRECTION], [CURVED CORRECTION].
- Even if [GRID RESOLUTION] or [CONTROL POINTS] is reselected, the correction data adjusted before the reselection is maintained.
- By selecting more narrow grid pattern with [GRID RESOLUTION], the range of effect of the control point position adjustment will be smaller. To perform topical fine adjustment, it is recommended to adjust by setting [GRID RESOLUTION] to [16x16].
- The image may not be displayed correctly if adjustment of the control point position increases.
- The settings of [GRID RESOLUTION], [CONTROL POINTS], [GRID WIDTH], [GRID COLOR], and [CONTROL POINTS COLOR] are synchronized with the setting items under each item of [KEYSTONE], [CORNER CORRECTION] and [CURVED CORRECTION].

Initializing adjustments for [FREE GRID]

Initialize the correction data adjusted with [FREE GRID] and restore the factory default settings (the state where no correction is performed). Simultaneously the settings of [GRID RESOLUTION], [CONTROL POINTS], [GRID WIDTH], [GRID COLOR], and [CONTROL POINTS COLOR] are restored to the factory default settings.

1) Press ▲▼ to select [GEOMETRY].

2) Press ◀▶ to select the item to initialize its correction data in [FREE GRID].

- 3) Press the <ENTER> button.
 - The screen for the selected item is displayed.
- 4) Press ▲▼ to select [FREE GRID].
- 5) Press ◀▶ to select [ON].
- 6) Press the <ENTER> button.
 - The [FREE GRID] screen is displayed.
- 7) Press ▲▼ to select [INITIALIZE].
- 8) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 9) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- Each correction data for [KEystone], [CORNER CORRECTION] and [CURVED CORRECTION] cannot be initialized at once.
To initialize all the correction data, select each item and execute [INITIALIZE] individually.
- When the projector is initialized by one of the following methods, all data in [FREE GRID] are initialized.
 - When initialized by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - When initialized by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]

[ADVANCED MENU] menu

On the menu screen, select [ADVANCED MENU] from the main menu, and select an item from the sub-menu.

Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[DIGITAL CINEMA REALITY]

The picture quality is enhanced by raising the vertical resolution higher performing the cinema processing when interlaced video signal is input.

- 1) Press ▲▼ to select [DIGITAL CINEMA REALITY].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[AUTO]	Automatically detects the signal and performs the cinema processing. (Factory default setting)	
[OFF]	Does not perform cinema processing.	
[30p FIXED]	When 60 Hz vertical scanning frequency signals are input	Performs forced cinema processing (2:2 pulldown).
[25p FIXED]	When 50 Hz vertical scanning frequency signals are input	

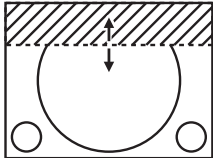
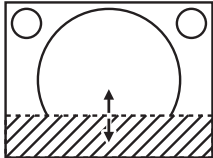
Note

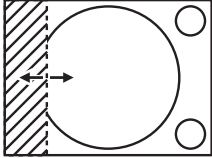
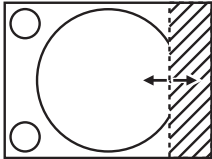
- In [DIGITAL CINEMA REALITY], the picture quality will degrade when a signal other than the 2:2 pulldown is set as [25p FIXED] or [30p FIXED]. (Vertical resolution will degrade.)
- When the [ADVANCED MENU] menu → [FRAME RESPONSE] is set to [FAST], [DIGITAL CINEMA REALITY] cannot be set.

[BLANKING]

Adjust the blanking width if there is a noise at the edge of the screen or the image is slightly running out from the screen.

- 1) Press ▲▼ to select [BLANKING].
- 2) Press the <ENTER> button.
 - The [BLANKING] adjustment screen is displayed.
- 3) Press ▲▼ to select [UPPER], [LOWER], [LEFT], or [RIGHT].
 - When [CUSTOM MASKING] is selected and set to anything other than [OFF] ([PC-1], [PC-2], [PC-3]), the blanking width can be adjusted to arbitrary shape using a computer and the masking function of the “Geometric & Setup Management Software”. Up to three adjustment data can be saved.
- 4) Press ◀▶ to adjust the blanking width.

Blanking correction	Item	Operation	Adjustment	Range of adjustment	
Top of the screen	[UPPER]	Press ◀.	The blanking zone moves upward.		Top and bottom 0 - 1079
		Press ▶.	The blanking zone moves downward.		
Bottom of the screen	[LOWER]	Press ▶.	The blanking zone moves upward.		
		Press ◀.	The blanking zone moves downward.		

Blanking correction	Item	Operation	Adjustment	Range of adjustment	
Left side of the screen	[LEFT]	Press ►.	The blanking zone moves to the right.		Left and right 0 - 1919
		Press ◀.	The blanking zone moves to the left.		
Right side of the screen	[RIGHT]	Press ◀.	The blanking zone moves to the right.		
		Press ►.	The blanking zone moves to the left.		

Note

- The upper limit of the adjustment range may be restricted so that the entire projected image is not covered by blanking width.
- When inputting certain high resolution signals, the [CUSTOM MASKING] setting in [BLANKING] is disabled, and the masking function in the “Geometric & Setup Management Software” cannot be used.
- “Geometric & Setup Management Software” can be downloaded from the website (<https://panasonic.net/cns/projector/pass/>). It is necessary to register and login to PASS to download.

[INPUT RESOLUTION]

You can adjust the image to achieve an optimal image when there is a flickering image or smeared outlines.

- 1) Press ▲▼ to select [INPUT RESOLUTION].
- 2) Press the <ENTER> button.
 - The [INPUT RESOLUTION] screen is displayed.
- 3) Press ▲▼ to select [DISPLAY DOTS], [TOTAL LINES], or [DISPLAY LINES], and press ◀▶ to adjust each item.
 - Values corresponding to the signal being input are displayed automatically for each item. Increase or decrease the displayed values and adjust to the optimal point while viewing the screen if there are vertical stripes or sections are missing from the screen.

Note

- Previously mentioned vertical banding will not occur with all white signal input.
- Image may be disrupted during automatic adjustment, but this is not a malfunction.
- [INPUT RESOLUTION] can be adjusted only when an RGB signal is input to the <COMPUTER IN> terminal.
- Adjustment may not be possible depending on the signal.

[CLAMP POSITION]

You can adjust the optimal point when the black part of the image is blunt or it has turned green.

- 1) Press ▲▼ to select [CLAMP POSITION].
- 2) Press ◀▶ to adjust.

Status	Rough guide for optimal value	Range of adjustment
The black part is blunt.	The point where bluntness of the black part improves the most is the optimal value.	1 - 255
The black part is green.	The point where the green part becomes black, and the bluntness has improved is the optimal value.	

Note

- [CLAMP POSITION] can be adjusted only when a signal is input to the <COMPUTER IN> terminal.
- Adjustment may not be possible depending on the signal.

[EDGE BLENDING]

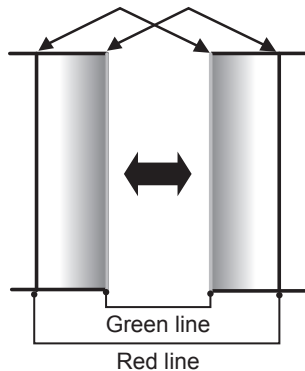
The edge blending function allows multiple images to be seamlessly overlapped by using the inclination of the brightness at the overlapped area.

- 1) Press ▲▼ to select [EDGE BLENDING].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Sets the edge blending function to off.
[ON]	Use the setting value preset in the projector for the inclination of the edge blending area.
[USER]	Use the user-setting value for the inclination of the edge blending area. (Configuration/registration requires separate software. Consult your dealer.)

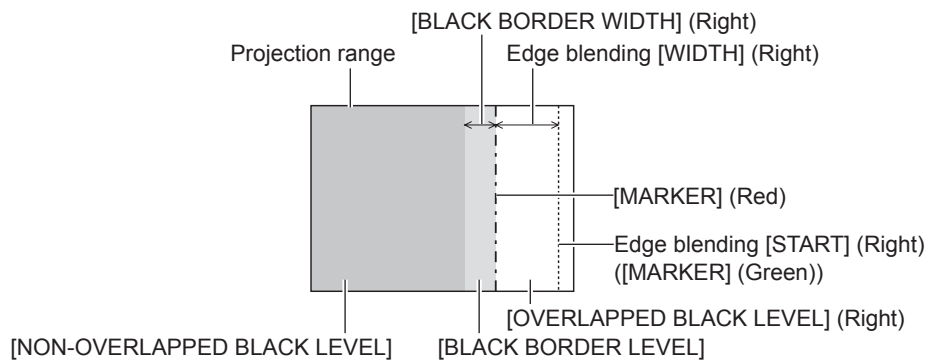
- Proceed to Step 3) when anything other than [OFF] is selected.
- 3) Press the <ENTER> button.
 - The [EDGE BLENDING] screen is displayed.
 - 4) Press ▲▼ to specify the location to be corrected.
 - When joining at top: Set [UPPER] to [ON]
 - When joining at bottom: Set [LOWER] to [ON]
 - When joining at left: Set [LEFT] to [ON]
 - When joining at right: Set [RIGHT] to [ON]
 - 5) Press ◀▶ to switch to [ON].
 - 6) Press ▲▼ to select [START] or [WIDTH].
 - 7) Press ◀▶ to adjust the starting position or correction width.
 - 8) Press ▲▼ to select [MARKER].
 - 9) Press ◀▶ to switch to [ON].
 - A marker for image position adjustment is displayed. The position where the red and green lines overlap for the projectors to be joined will be the optimal point. Make sure to set the correction width for the projectors to be joined with the same value. Optimal joining is not possible with projectors that have different correction widths.

The optimal point is the point at which these lines overlap.



- 10) Press ▲▼ to select [BRIGHTNESS ADJUST].
- 11) Press the <ENTER> button.
 - The [BRIGHTNESS ADJUST] screen is displayed.
 - By setting [AUTO TESTPATTERN] to [ON] on the [EDGE BLENDING] screen, the black test pattern is displayed when you enter the [BRIGHTNESS ADJUST] screen.
- 12) Press ▲▼ to select [NON-OVERLAPPED BLACK LEVEL].
- 13) Press the <ENTER> button.
 - The [NON-OVERLAPPED BLACK LEVEL] screen is displayed.
 - [RED], [GREEN], and [BLUE] can be adjusted individually if [INTERLOCKED] is set to [OFF].
- 14) Press ▲▼ to select an item, and press ◀▶ to adjust the setting.
 - Once the adjustment is completed, press the <MENU> button to return to the [BRIGHTNESS ADJUST] screen.

- 15) Press ▲▼ to select [UPPER], [LOWER], [LEFT], or [RIGHT] in [BLACK BORDER WIDTH].
- 16) Press ◀▶ to set the region (width) of the [BLACK BORDER WIDTH] adjustment.
- 17) Press ▲▼ to select [UPPER KEystone AREA], [LOWER KEystone AREA], [LEFT KEystone AREA], or [RIGHT KEystone AREA].
- 18) Press ◀▶ to adjust the tilt of the border between [NON-OVERLAPPED BLACK LEVEL] and [BLACK BORDER LEVEL].
- 19) Press ▲▼ to select [BLACK BORDER LEVEL].
- 20) Press the <ENTER> button.
 - The [BLACK BORDER LEVEL] screen is displayed.
 - [RED], [GREEN], and [BLUE] can be adjusted individually if [INTERLOCKED] is set to [OFF].
- 21) Press ▲▼ to select an item, and press ◀▶ to adjust the setting.
 - Once the adjustment is completed, press the <MENU> button to return to the [BRIGHTNESS ADJUST] screen.
- 22) Press ▲▼ to select [UPPER], [LOWER], [LEFT], or [RIGHT] for [OVERLAPPED BLACK LEVEL].
- 23) Press the <ENTER> button.
 - The [OVERLAPPED BLACK LEVEL] screen is displayed.
 - [RED], [GREEN], and [BLUE] can be adjusted individually if [INTERLOCKED] is set to [OFF].
- 24) Press ▲▼ to select an item, and press ◀▶ to adjust the setting.



Note

- [BRIGHTNESS ADJUST] is a function that makes the increased brightness in black level of the overlapping image area difficult to notice when [EDGE BLENDING] is used to structure a multi-display screen. The optimal point of correction is set by adjusting [NON-OVERLAPPED BLACK LEVEL] so the black level of the overlapping image area will be the same level as the non-overlapping area. If the border area of the part where the image is overlapping and the non-overlapping part gets brighter after adjusting [NON-OVERLAPPED BLACK LEVEL], adjust the width of the top, bottom, left, or right. Adjust [BLACK BORDER LEVEL] when the width adjustment makes only the border area darker.
- The joining part may look discontinuous depending on the position you are looking from when a screen with high gain or rear screen is used.
- When structuring a multi-display screen using both horizontal and vertical edge blending, adjust [OVERLAPPED BLACK LEVEL] first before making adjustments in Step 12). Adjustment method is same as the procedure of [NON-OVERLAPPED BLACK LEVEL].
- If only horizontal or vertical edge blending is used, set all items in [OVERLAPPED BLACK LEVEL] to 0.
- The [AUTO TESTPATTERN] setting will change in conjunction with the setting in the [DISPLAY OPTION] menu → [COLOR MATCHING] → [AUTO TESTPATTERN].
- The tilt adjustment of the border between [NON-OVERLAPPED BLACK LEVEL] and [BLACK BORDER LEVEL] is a function to perform edge blending together with the adjustment in [GEOMETRY] (▶ page 78). If the area of [NON-OVERLAPPED BLACK LEVEL] is tilted by correcting the keystone distortion with the [POSITION] menu → [GEOMETRY] → [KEystone], perform Steps 17) and 18) to adjust the tilt and adjust the edge blending according to the shape of [NON-OVERLAPPED BLACK LEVEL].
- It is not recommended to use the edge blending function when the image of 1080/120p or 1920 x 1080/240 is projected.

[FRAME RESPONSE]

Set image frame delay.

- 1) Press ▲▼ to select [FRAME RESPONSE].

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[NORMAL]	Standard setting.
[FAST]	Simplifies the image processing to reduce image frame delay.

Note

- When [FAST] is set, the picture quality deteriorates. The [ADVANCED MENU] menu → [DIGITAL CINEMA REALITY] cannot be set.
- [FRAME RESPONSE] cannot be adjusted when the image of 1080/120p or 1920 x 1080/240 is projected.

[RASTER POSITION]

This will allow the position of the image to move within the display area arbitrarily when the input image is not using the whole display area.

1) Press ▲▼ to select [RASTER POSITION].

2) Press the <ENTER> button.

- The [RASTER POSITION] screen is displayed.

3) Press ▲▼◀▶ to adjust the position.

[DISPLAY LANGUAGE] menu

On the menu screen, select [DISPLAY LANGUAGE] from the main menu, and display the sub-menu. Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

Changing the display language

You can select the language of the on-screen display.

- 1) Press ▲▼◀▶ to select the display language and press the <ENTER> button.

DISPLAY LANGUAGE	
● ENGLISH	MAGYAR
DEUTSCH	ROMANA
FRANÇAIS	CESTINA
ITALIANO	РУССКИЙ
ESPAÑOL	TÜRKÇE
PORTUGUÊS	العربية
NEDERLANDS	Қазақша
SVENSKA	Hiện thị tiếng Việt
SUOMI	中文
NORSK	한국어
DANSK	日本語
POLSKI	ไทย
SELECT <small>ENTER</small> SET	

- Various menus, settings, adjustment screens, control button names, etc., are displayed in the selected language.
- The language can be switched to English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish, Finnish, Norwegian, Danish, Polish, Hungarian, Romanian, Czech, Russian, Turkish, Arabic, Kazakh, Vietnamese, Chinese, Korean, Japanese, and Thai.

Note

- The on-screen display language is set to English in the factory default setting or when the projector is initialized by one of the following methods.
 - When initialized by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - When initialized by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]

[DISPLAY OPTION] menu

On the menu screen, select [DISPLAY OPTION] from the main menu, and select an item from the sub-menu.

Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[COLOR MATCHING]

Correct the color difference between projectors when using multiple projectors simultaneously.

Adjusting the color matching as desired

- 1) Press ▲▼ to select [COLOR MATCHING].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Color matching adjustment is not carried out.
[3COLORS]	Adjusts the three colors [RED], [GREEN], or [BLUE].
[7COLORS]	Adjusts the seven colors [RED], [GREEN], [BLUE], [CYAN], [MAGENTA], [YELLOW], or [WHITE].
[MEASURED]	Refer to “Adjusting the color matching using a colorimeter” (➔ page 91) for details about this mode.

- 3) Select [3COLORS] or [7COLORS], and press the <ENTER> button.
 - The [3COLORS] or [7COLORS] screen is displayed.
- 4) Press ▲▼ to select [RED], [GREEN], [BLUE], or [WHITE] ([RED], [GREEN], [BLUE], [CYAN], [MAGENTA], [YELLOW], or [WHITE] when [7COLORS] is selected).
- 5) Press the <ENTER> button.
 - The [3COLORS:RED], [3COLORS:GREEN], [3COLORS:BLUE], or [3COLORS:WHITE] screen is displayed.
When [7COLORS] is selected, the [7COLORS:RED], [7COLORS:GREEN], [7COLORS:BLUE], [7COLORS:CYAN], [7COLORS:MAGENTA], [7COLORS:YELLOW], or [7COLORS:WHITE] screen is displayed.
 - By setting [AUTO TESTPATTERN] to [ON], the test pattern for the selected color is displayed.
- 6) Press ▲▼ to select [RED], [GREEN], or [BLUE].
 - Only [GAIN] can be adjusted when [WHITE] is selected for [3COLORS].
- 7) Press ◀▶ to adjust.
 - The adjustment value will change between 0*1 and 2 048.

*1 The lower limit varies depending on the color to be adjusted.

Note

- Operation when correcting the adjustment color
When the correction color same as the adjustment color is changed: The luminance of the adjustment color changes.
When correction color red is changed: Red is added to or subtracted from the adjustment color.
When correction color green is changed: Green is added to or subtracted from the adjustment color.
When correction color blue is changed: Blue is added to or subtracted from the adjustment color.
- Since advanced skills are necessary for the adjustment, this adjustment should be carried out by a person who is familiar with the projector or by a service person.
- When the <DEFAULT> button on the remote control is pressed, the selected adjustment item will return to the factory default value for the current picture mode.
- When this item is set to anything other than [OFF], the [DISPLAY OPTION] menu → [COLOR CORRECTION] is fixed to [OFF], and the [PICTURE] menu → [COLOR TEMPERATURE] is fixed to [USER1].

Adjusting the color matching using a colorimeter

Use a colorimeter that can measure chromaticity coordinates and luminance to change the colors [RED], [GREEN], [BLUE], [CYAN], [MAGENTA], [YELLOW], or [WHITE] to desired colors.

- 1) Press ▲▼ to select [COLOR MATCHING].
- 2) Press ◀▶ to select [MEASURED].
- 3) Press the <ENTER> button.
 - The [MEASURED MODE] screen is displayed.
- 4) Press ▲▼ to select [MEASURED DATA].
- 5) Press the <ENTER> button.
 - The [MEASURED DATA] screen is displayed.
- 6) Measure the current luminance (Y) and the chromaticity coordinates (x, y) using the colorimeter.
- 7) Press ▲▼ to select a color, and press ◀▶ to adjust the setting.
 - Set [AUTO TESTPATTERN] to [ON] to display a test pattern of selected colors.
- 8) Once all the input is completed, press the <MENU> button.
 - The [MEASURED MODE] screen is displayed.
- 9) Press ▲▼ to select [TARGET DATA].
- 10) Press the <ENTER> button.
 - The [TARGET DATA] screen is displayed.
- 11) Press ▲▼ to select a color and press ◀▶ to input coordinates for desired colors.
 - By setting [AUTO TESTPATTERN] to [ON], the test pattern for the selected color is displayed.
- 12) Once all the input is completed, press the <MENU> button.

Note

- Colors are not displayed properly when target data is a color outside the region of this projector.
- Set the [AUTO TESTPATTERN] to [ON] to automatically display a test pattern for use in adjusting the selected adjustment colors.
- The [AUTO TESTPATTERN] setting will change in conjunction with the setting in the [ADVANCED MENU] menu → [EDGE BLENDING] → [ON]/[USER] → [AUTO TESTPATTERN].
- When using a colorimeter or similar instrument to take measurement, measure the colors displayed in [AUTO TESTPATTERN].
- A difference in the color coordinates of target data and measurement value obtained from an instrument may occur for certain instrument and measurement environment used.

[COLOR CORRECTION]

Colors can be adjusted and registered for each input signal format.

- 1) Press ▲▼ to select [COLOR CORRECTION].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Standard setting.
[USER]	For each signal format of RGB signal and YCbCr/YPbPr signal, six colors of red, green, blue, cyan, magenta, and yellow can be adjusted and registered. Press the <ENTER> button and set the details. Adjustment is possible within the range of -31 to +31.

[SCREEN SETTING]

Set the screen size.

Correct to the optimum image position for the set screen when the aspect ratio of a projected image is changed. Set as necessary for the screen in use.

- 1) Press ▲▼ to select [SCREEN SETTING].
- 2) Press the <ENTER> button.
 - The [SCREEN SETTING] screen is displayed.

- 3) Press ▲▼ to select [SCREEN FORMAT].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[16:9]	Sets the screen format to 16:9.
[16:10]	Sets the screen format to 16:10.
[4:3]	Sets the screen format to 4:3.

- Proceed to Step 5) when [4:3] or [16:10] is selected.
- 5) Press ▲▼ to select [SCREEN POSITION].
 - 6) Press ◀▶ to adjust [SCREEN POSITION].

Note

- [SCREEN POSITION] cannot be selected or adjusted when [SCREEN FORMAT] is set to [16:9].

[AUTO SIGNAL]

Set whether to execute automatic setup of signals automatically.

The screen display position or signal level can be adjusted automatically without pressing the <AUTO SETUP> button on the remote control on each occasion if you input unregistered signals frequently at meetings, etc.

- 1) Press ▲▼ to select [AUTO SIGNAL].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Sets the auto signal function to off.
[ON]	Executes automatic setup automatically when images are changed to unregistered signals during projection.

[AUTO SETUP]

Set this when adjusting a special signal or horizontally long (such as 16:9) signal.

Setting with [MODE]

- 1) Press ▲▼ to select [AUTO SETUP].
- 2) Press the <ENTER> button.
 - The [AUTO SETUP] screen is displayed.
- 3) Press ▲▼ to select [MODE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Standard setting.
[WIDE]	Select this item when an image aspect ratio is a wide-screen signal, which does not meet the [DEFAULT] setting.
[USER]	Select this when receiving a signal with a special horizontal resolution (number of display dots).

- Proceed to Step 7) when [DEFAULT] or [WIDE] is selected.
 - Proceed to Step 5) when [USER] is selected.
- 5) Press ▲▼ to select [DISPLAY DOTS], and press ◀▶ to match [DISPLAY DOTS] to the horizontal resolution of the signal source.
 - 6) Press ▲▼ to select [MODE].
 - 7) Press the <ENTER> button.
 - Automatic adjustment is executed. [PROGRESS] is displayed while in automatic adjustment. When completed, the screen returns to the [AUTO SETUP] screen.

Note

- Automatic setup of signal can be executed when analog RGB signal consisting of dots such as computer signal, or HDMI signal is being input.

Adjusting position automatically

- 1) Press ▲▼ to select [AUTO SETUP].
- 2) Press the <ENTER> button.
 - The [AUTO SETUP] screen is displayed.
- 3) Press ▲▼ to select [POSITION ADJUST].
- 4) Press ◀▶ to switch the item.

[ON]	Adjust the screen position and size when automatic setup is executed.
[OFF]	Does not perform automatic adjustment.

Adjusting signal level automatically

- 1) Press ▲▼ to select [AUTO SETUP].
- 2) Press the <ENTER> button.
 - The [AUTO SETUP] screen is displayed.
- 3) Press ▲▼ to select [SIGNAL LEVEL ADJUST].
- 4) Press ◀▶ to switch the item.

[OFF]	Does not perform automatic adjustment.
[ON]	Adjusts black level (the [PICTURE] menu → [BRIGHTNESS]) and white level (the [PICTURE] menu → [CONTRAST]) when automatic setup is executed.

Note

- [SIGNAL LEVEL ADJUST] may not function properly unless a still image containing clear blacks and whites is input.

[COMPUTER IN]

Set the <COMPUTER IN> terminal.

Setting [EDID MODE] in [COMPUTER IN]

- 1) Press ▲▼ to select [COMPUTER IN].
- 2) Press the <ENTER> button.
 - The [COMPUTER IN] screen is displayed.
- 3) Press ▲▼ to select [EDID MODE].
- 4) Press the <ENTER> button.
 - The [EDID MODE] screen is displayed.
- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Standard setting.
[USER]	Sets the [RESOLUTION] and [VERTICAL SCAN FREQUENCY] items as EDID.

- Proceed to Step 10) when [DEFAULT] is selected.
- 6) Press the <ENTER> button.
 - The [RESOLUTION] screen is displayed.
 - 7) Press ▲▼◀▶ to select [RESOLUTION].
 - Select [1024x768p], [1280x720p], [1280x800p], [1280x1024p], [1366x768p], [1400x1050p], [1440x900p], [1600x900p], [1600x1200p], [1680x1050p], [1920x1080p], [1920x1080i], or [1920x1200p].

- 8) Press the <ENTER> button.
 - The [VERTICAL SCAN FREQUENCY] screen is displayed.
- 9) Press ◀▶ to select [VERTICAL SCAN FREQUENCY].
 - Select [60Hz], [50Hz], [30Hz], [25Hz], or [24Hz] when [1920x1080p] is selected for [RESOLUTION].
 - Select [60Hz], [50Hz], or [48Hz] when [1920x1080i] is selected for [RESOLUTION].
 - Select [60Hz] or [50Hz] when anything other than following is selected for [RESOLUTION].
 - [1920x1080p], [1920x1080i]
- 10) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 11) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- The settings in [RESOLUTION] and [VERTICAL SCAN FREQUENCY] are displayed in [EDID STATUS].
- Setting of the resolution and the vertical scanning frequency may be necessary on the computer or video device in use.
- The computer, video device, or projector in use may require the power to be turned off and on again after setting.
- The output with the set resolution or vertical scanning frequency may not be possible depending on the computer or video device in use.

[HDMI1 IN] / [HDMI2 IN]

Set this item in accordance with the image signal input to the <HDMI IN 1> terminal or the <HDMI IN 2> terminal.

Setting [SIGNAL LEVEL] in [HDMI1 IN] or [HDMI2 IN]

- 1) Press ▲▼ to select [HDMI1 IN] or [HDMI2 IN].
- 2) Press the <ENTER> button.
 - The [HDMI1 IN] screen or the [HDMI2 IN] screen is displayed.
- 3) Press ▲▼ to select [SIGNAL LEVEL].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[AUTO]	Automatically sets the signal level.
[64-940]	Select this item when the signal output from the HDMI terminal of the external device (such as a Blu-ray disc player) is input to the <HDMI IN 1> terminal or the <HDMI IN 2> terminal.
[0-1023]	Select this item when the signal output from the DVI-D terminal of the external device (such as a computer) is input to the <HDMI IN 1> terminal or the <HDMI IN 2> terminal using a conversion cable, etc. Select this item also when the signal output from the HDMI terminal of a computer, etc., is input to the <HDMI IN 1> terminal or the <HDMI IN 2> terminal.

Note

- The optimal setting varies depending on the output setting of the connected external device. Refer to the operating instructions of the external device regarding the output of the external device.
- The HDMI signal level is displayed for 30 bits of input.

Setting [AUTO GAMMA SELECT] in [HDMI1 IN] or [HDMI2 IN]

Set this item when the gamma mode is to be automatically set based on the InfoFrame information added to the image signal.

- 1) Press ▲▼ to select [HDMI1 IN] or [HDMI2 IN].
- 2) Press the <ENTER> button.
 - The [HDMI1 IN] screen or the [HDMI2 IN] screen is displayed.
- 3) Press ▲▼ to select [AUTO GAMMA SELECT].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ENABLE]	Select this item when the gamma mode is to be automatically set to the one compatible with HDR (High Dynamic Range) based on the InfoFrame information added to the image signal. In such case, the [PICTURE] menu → [GAMMA] is set to [HDR ST2084-500], [HDR ST2084-1000], or [HDR HLG].
[DISABLE]	Select this item when the gamma mode is not to be automatically set and to specify the gamma mode with the [PICTURE] menu → [GAMMA].

Note

- Even if [AUTO GAMMA SELECT] is set to [ENABLE], when the information required for the HDR (High Dynamic Range) support is not included in the InfoFrame information added to the displayed image signal, the gamma mode is not automatically set and follows the setting in the [PICTURE] menu → [GAMMA].

Setting [AUTO COLOR SPACE SELECT] in [HDMI1 IN] or [HDMI2 IN]

Set this item when the color space is to be automatically set based on the InfoFrame information added to the image signal.

- 1) Press ▲▼ to select [HDMI1 IN] or [HDMI2 IN].
- 2) Press the <ENTER> button.
 - The [HDMI1 IN] screen or the [HDMI2 IN] screen is displayed.
- 3) Press ▲▼ to select [AUTO COLOR SPACE SELECT].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ENABLE]	Select this item when the color space is to be automatically set to the one compatible with HDR (High Dynamic Range) based on the InfoFrame information added to the image signal. In such case, the [PICTURE] menu → [COLOR SPACE] is set to [ITU-2020 emu.].
[DISABLE]	Select this item when the color space is not to be automatically set and to specify the color space with the [PICTURE] menu → [COLOR SPACE].

Note

- Even if [AUTO COLOR SPACE SELECT] is set to [ENABLE], when the information required for the HDR (High Dynamic Range) support is not included in the InfoFrame information added to the displayed image signal, the color space is not automatically set and follows the setting in the [PICTURE] menu → [COLOR SPACE].

Setting [EDID SELECT] in [HDMI1 IN] or [HDMI2 IN]

- 1) Press ▲▼ to select [HDMI1 IN] or [HDMI2 IN].
- 2) Press the <ENTER> button.
 - The [HDMI1 IN] screen or the [HDMI2 IN] screen is displayed.
- 3) Press ▲▼ to select [EDID SELECT].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[4K/60p/HDR]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 60 Hz). This is EDID supporting HDR (High Dynamic Range).
[4K/60p/SDR]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 60 Hz). This is EDID supporting SDR (Standard Dynamic Range). This does not support HDR (High Dynamic Range).
[4K/30p]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 30 Hz).
[2K]	Switches to EDID corresponding to the 2K image signal (maximum 1 920 x 1 200 dots) or lower.

Note

- Switch the setting to [4K/30p] when proper image is not projected while [EDID SELECT] is set to [4K/60p/HDR] or [4K/60p/SDR] and the 4K image signal is input.
- Switch the setting to [2K] when proper image is not projected while [EDID SELECT] is set to [4K/60p/HDR], [4K/60p/SDR], or [4K/30p] and the 2K image signal or lower is input.
- For details of the signal described in EDID of [4K/60p/HDR], [4K/60p/SDR], [4K/30p], or [2K], refer to “List of plug and play compatible signals” (➡ page 216).

Setting [EDID MODE] in [HDMI1 IN] or [HDMI2 IN]

- 1) Press ▲▼ to select [HDMI1 IN] or [HDMI2 IN].
- 2) Press the <ENTER> button.
 - The [HDMI1 IN] screen or the [HDMI2 IN] screen is displayed.
- 3) Press ▲▼ to select [EDID MODE].
- 4) Press the <ENTER> button.
 - The [HDMI1] screen or the [HDMI2] screen is displayed.
- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Standard setting.
[USER]	Set the [RESOLUTION] and [VERTICAL SCAN FREQUENCY] items as EDID.

- Proceed to Step 10) when [DEFAULT] is selected.
- 6) Press the <ENTER> button.
 - The [RESOLUTION] screen is displayed.
 - 7) Press ▲▼◀▶ to select [RESOLUTION].
 - Select [1024x768p], [1280x720p], [1280x800p], [1280x1024p], [1366x768p], [1400x1050p], [1440x900p], [1600x900p], [1600x1200p], [1680x1050p], [1920x1080p], [1920x1080i], [1920x1200p], or [2560x1600p].
 - 8) Press the <ENTER> button.
 - The [VERTICAL SCAN FREQUENCY] screen is displayed.
 - 9) Press ◀▶ to select [VERTICAL SCAN FREQUENCY].
 - Select [240Hz], [120Hz], [60Hz], [50Hz], [30Hz], [25Hz], or [24Hz] when [1920x1080p] is selected for [RESOLUTION].
 - Select [60Hz], [50Hz], or [48Hz] when [1920x1080i] is selected for [RESOLUTION].
 - Select [60Hz] or [50Hz] when anything other than following is selected for [RESOLUTION].
 - [1920x1080p], [1920x1080i]
 - 10) Press the <ENTER> button.
 - The confirmation screen is displayed.
 - 11) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- The settings in [RESOLUTION] and [VERTICAL SCAN FREQUENCY] are displayed in [EDID STATUS].
- Setting of the resolution and the vertical scanning frequency may be necessary on the computer or video device in use.
- The computer, video device, or projector in use may require the power to be turned off and on again after setting.
- The output with the set resolution or vertical scanning frequency may not be possible depending on the computer or video device in use.

[DIGITAL LINK IN]

Set this item in accordance with the image signal input to the <DIGITAL LINK/LAN> terminal.

Setting [SIGNAL LEVEL] in [DIGITAL LINK IN]

- 1) Press ▲▼ to select [DIGITAL LINK IN].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK IN] screen is displayed.
- 3) Press ▲▼ to select [SIGNAL LEVEL].

4) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[AUTO]	Automatically sets the signal level.
[64-940]	Select this item when the signal output from the HDMI terminal of an external device (Blu-ray disc player, etc.) is input to the <DIGITAL LINK/LAN> terminal via a twisted-pair-cable transmitter.
[0-1023]	Select this item when the signal output from the DVI-D terminal or HDMI terminal of an external device (such as a computer) is input to the <DIGITAL LINK/LAN> terminal via a twisted-pair-cable transmitter.

Note

- The optimal setting varies depending on the output setting of the connected external device. Refer to the operating instructions of the external device regarding the output of the external device.
- The signal level is displayed for 30 bits of input.

Setting [AUTO GAMMA SELECT] in [DIGITAL LINK IN]

Set this item when the gamma mode is to be automatically set based on the InfoFrame information added to the image signal.

1) Press ▲▼ to select [DIGITAL LINK IN].

2) Press the <ENTER> button.

- The [DIGITAL LINK IN] screen is displayed.

3) Press ▲▼ to select [AUTO GAMMA SELECT].

4) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[ENABLE]	Select this item when the gamma mode is to be automatically set to the one compatible with HDR (High Dynamic Range) based on the InfoFrame information added to the image signal. In such case, the [PICTURE] menu → [GAMMA] is set to [HDR ST2084-500], [HDR ST2084-1000], or [HDR HLG].
[DISABLE]	Select this item when the gamma mode is not to be automatically set and to specify the gamma mode with the [PICTURE] menu → [GAMMA].

Note

- Even if [AUTO GAMMA SELECT] is set to [ENABLE], when the information required for the HDR (High Dynamic Range) support is not included in the InfoFrame information added to the displayed image signal, the gamma mode is not automatically set and follows the setting in the [PICTURE] menu → [GAMMA].

Setting [AUTO COLOR SPACE SELECT] in [DIGITAL LINK IN]

Set this item when the color space is to be automatically set based on the InfoFrame information added to the image signal.

1) Press ▲▼ to select [DIGITAL LINK IN].

2) Press the <ENTER> button.

- The [DIGITAL LINK IN] screen is displayed.

3) Press ▲▼ to select [AUTO COLOR SPACE SELECT].

4) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[ENABLE]	Select this item when the color space is to be automatically set to the one compatible with HDR (High Dynamic Range) based on the InfoFrame information added to the image signal. In such case, the [PICTURE] menu → [COLOR SPACE] is set to [ITU-2020 emu.].
[DISABLE]	Select this item when the color space is not to be automatically set and to specify the color space with the [PICTURE] menu → [COLOR SPACE].

Note

- Even if [AUTO COLOR SPACE SELECT] is set to [ENABLE], when the information required for the HDR (High Dynamic Range) support is not included in the InfoFrame information added to the displayed image signal, the color space is not automatically set and follows the setting in the [PICTURE] menu → [COLOR SPACE].

Setting [EDID SELECT] in [DIGITAL LINK IN]

- 1) Press ▲▼ to select [DIGITAL LINK IN].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK IN] screen is displayed.
- 3) Press ▲▼ to select [EDID SELECT].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[4K/30p/HDR]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 30 Hz). This is EDID supporting HDR (High Dynamic Range).
[4K/30p/SDR]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 30 Hz). This is EDID supporting SDR (Standard Dynamic Range). This does not support HDR (High Dynamic Range).
[2K]	Switches to EDID corresponding to the 2K image signal (maximum 1 920 x 1 200 dots) or lower.
[4K/60p]	Switches to EDID corresponding to the 4K image signal (maximum 4 096 x 2 160 dots, maximum vertical scanning frequency 60 Hz, and YP _B P _R 4:2:0 format only).

Note

- Switch the setting to [4K/30p/HDR] or [4K/30p/SDR] when proper image is not projected while [EDID SELECT] is set to [4K/60p] and the 4K image signal is input.
- Switch the setting to [2K] when proper image is not projected while [EDID SELECT] is set to [4K/60p], [4K/30p/HDR], or [4K/30p/SDR] and the 2K image signal or lower is input.
- For details of the signal described in EDID of [4K/60p], [4K/30p/HDR], [4K/30p/SDR], or [2K], refer to "List of plug and play compatible signals" (➔ page 216).

Setting [EDID MODE] in [DIGITAL LINK IN]

- 1) Press ▲▼ to select [DIGITAL LINK IN].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK IN] screen is displayed.
- 3) Press ▲▼ to select [EDID MODE].
- 4) Press the <ENTER> button.
 - The [DIGITAL LINK] screen is displayed.
- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT]	Standard setting.
[USER]	Sets the [RESOLUTION] and [VERTICAL SCAN FREQUENCY] items as EDID.

- Proceed to Step 10) when [DEFAULT] is selected.
- 6) Press the <ENTER> button.
 - The [RESOLUTION] screen is displayed.
 - 7) Press ▲▼◀▶ to select [RESOLUTION].
 - Select [1024x768p], [1280x720p], [1280x800p], [1280x1024p], [1366x768p], [1400x1050p], [1440x900p], [1600x900p], [1600x1200p], [1680x1050p], [1920x1080p], [1920x1080i], [1920x1200p], or [2560x1600p].
 - 8) Press the <ENTER> button.
 - The [VERTICAL SCAN FREQUENCY] screen is displayed.
 - 9) Press ◀▶ to select [VERTICAL SCAN FREQUENCY].
 - Select [120Hz], [60Hz], [50Hz], [30Hz], [25Hz], or [24Hz] when [1920x1080p] is selected for [RESOLUTION].
 - Select [60Hz], [50Hz], or [48Hz] when [1920x1080i] is selected for [RESOLUTION].
 - Select [60Hz] or [50Hz] when anything other than following is selected for [RESOLUTION].
 - [1920x1080p], [1920x1080i]

10) Press the <ENTER> button.

- The confirmation screen is displayed.

11) Press ◀▶ to select [OK], and press the <ENTER> button.**Note**

- The settings in [RESOLUTION] and [VERTICAL SCAN FREQUENCY] are displayed in [EDID STATUS].
- Setting of the resolution and the vertical scanning frequency may be necessary on the computer or video device in use.
- The computer, video device, or projector in use may require the power to be turned off and on again after setting.
- The output with the set resolution or vertical scanning frequency may not be possible depending on the computer or video device in use.

[ON-SCREEN DISPLAY]

Set the on-screen display.

Setting [OSD POSITION]

Set the position of the menu screen (OSD).

1) Press ▲▼ to select [ON-SCREEN DISPLAY].**2) Press the <ENTER> button.**

- The [ON-SCREEN DISPLAY] screen is displayed.

3) Press ▲▼ to select [OSD POSITION].**4) Press ◀▶ to switch the item.**

- The items will switch each time you press the button.

[2]	Sets to the center left of the screen.
[3]	Sets to the bottom left of the screen.
[4]	Sets to the top center of the screen.
[5]	Sets to the center of the screen.
[6]	Sets to the bottom center of the screen.
[7]	Sets to the upper right of the screen.
[8]	Sets to the center right of the screen.
[9]	Sets to the bottom right of the screen.
[1]	Sets to the upper left of the screen.

Setting [OSD ROTATION]

Set the orientation of the menu screen (OSD).

1) Press ▲▼ to select [ON-SCREEN DISPLAY].**2) Press the <ENTER> button.**

- The [ON-SCREEN DISPLAY] screen is displayed.

3) Press ▲▼ to select [OSD ROTATION].**4) Press ◀▶ to switch the item.**

- The items will switch each time you press the button.

[OFF]	Does not rotate the screen.
[CLOCKWISE]	Rotates the screen by 90° clockwise.
[COUNTERCLOCKWISE]	Rotates the screen by 90° counterclockwise.

Setting [OSD COLOR]

Set the color of the menu screen (OSD).

1) Press ▲▼ to select [ON-SCREEN DISPLAY].**2) Press the <ENTER> button.**

- The [ON-SCREEN DISPLAY] screen is displayed.

- 3) Press ▲▼ to select [OSD COLOR].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[1]	Sets to yellow.
[2]	Sets to blue.
[3]	Sets to white.
[4]	Sets to green.
[5]	Sets to peach.
[6]	Sets to brown.

Setting [OSD MEMORY]

Set hold for the position of the menu screen (OSD) cursor.

- 1) Press ▲▼ to select [ON-SCREEN DISPLAY].
- 2) Press the <ENTER> button.
 - The [ON-SCREEN DISPLAY] screen is displayed.
- 3) Press ▲▼ to select [OSD MEMORY].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ON]	Holds the cursor position.
[OFF]	Does not hold the cursor position.

Note

- Even if [ON] is set, the cursor position is not maintained when the power is turned off.

Setting [INPUT GUIDE]

Set whether to display the input guide in the position set in [OSD POSITION].

The input guide is the screen to display the information such as currently selected input terminal name, signal name, memory number.

- 1) Press ▲▼ to select [ON-SCREEN DISPLAY].
- 2) Press the <ENTER> button.
 - The [ON-SCREEN DISPLAY] screen is displayed.
- 3) Press ▲▼ to select [INPUT GUIDE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ON]	Displays the input guide.
[OFF]	Hides the input guide.

Setting [WARNING MESSAGE]

Set the display/hide of the warning message.

- 1) Press ▲▼ to select [ON-SCREEN DISPLAY].
- 2) Press the <ENTER> button.
 - The [ON-SCREEN DISPLAY] screen is displayed.
- 3) Press ▲▼ to select [WARNING MESSAGE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ON]	Displays the warning message.
[OFF]	Hides the warning message.

Note

- If [OFF] is set, the warning message will not be displayed on the projected image even when warning condition such as [TEMPERATURE WARNING] is detected while using the projector. Also, the following countdown message is not displayed: the message until the power is turned off after the no signal lights-out function is executed; the message until the light source is turned off after the no signal lights-out function is executed

[BACK COLOR]

Set the display of the projected screen when there is no signal input.

- 1) Press ▲▼ to select [BACK COLOR].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[BLUE]	Displays the entire projection area in blue.
[BLACK]	Displays the entire projection area in black.
[DEFAULT LOGO]	Displays the Panasonic logo.
[USER LOGO]	Displays the image registered by the user.

Note

- To create and register the [USER LOGO] image, use "Logo Transfer Software". The software can be downloaded from the website (<https://panasonic.net/cns/projector/>). When transferring logos via the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G), setting for "NO SIGNAL SLEEP" of the DIGITAL LINK output supported device should be set to "OFF" to avoid interruption of communication.

[STARTUP LOGO]

Set the logo display when the power is turned on.

- 1) Press ▲▼ to select [STARTUP LOGO].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DEFAULT LOGO]	Displays the Panasonic logo.
[USER LOGO]	Displays the image registered by the user.
[NONE]	Disables the startup logo display.

Note

- When [USER LOGO] is selected, the display of the startup logo will be kept for approximately 15 seconds.
- To create and register the [USER LOGO] image, use "Logo Transfer Software". The software can be downloaded from the website (<https://panasonic.net/cns/projector/>). When transferring logos via the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G), setting for "NO SIGNAL SLEEP" of the DIGITAL LINK output supported device should be set to "OFF" to avoid interruption of communication.
- If the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] is set to [ON], the startup logo is not displayed when projection starts before the specified time elapses after the projector enters the standby mode. The specified time is a time set in the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP] → [VALID PERIOD].

[UNIFORMITY]

Correct the brightness unevenness and color unevenness of the whole image.

Setting [GRADIENT CORRECTION]

Correction is performed in vertical and horizontal directions to approach the even condition when unevenness in one direction is occurring throughout the whole image.

- 1) Press ▲▼ to select [UNIFORMITY].
- 2) Press the <ENTER> button.
 - The [UNIFORMITY] screen is displayed.

- 3) Press ▲▼ to select [WHITE], [RED], [GREEN], or [BLUE].
- 4) Press ◀▶ to adjust the level.

Item	Operation	Adjustment	Range of adjustment
[VERTICAL]	Press ▶.	The lower-side color becomes pale, or the upper-side color becomes dark.	-127 - +127
	Press ◀.	The upper-side color becomes pale, or the lower-side color becomes dark.	
[HORIZONTAL]	Press ▶.	The left-side color becomes pale, or the right-side color becomes dark.	
	Press ◀.	The right-side color becomes pale, or the left-side color becomes dark.	

[SHUTTER SETTING]

Set the operation of the shutter function.

Setting [FADE-IN] or [FADE-OUT]

- 1) Press ▲▼ to select [SHUTTER SETTING].
- 2) Press the <ENTER> button.
 - The [SHUTTER SETTING] screen is displayed.
- 3) Press ▲▼ to select [FADE-IN] or [FADE-OUT].
- 4) Press ◀▶ to switch the item.

Item	Adjustment
[FADE-IN] [FADE-OUT]	[OFF] Does not set fade-in or fade-out.
	[0.5s] - [10.0s] Sets the fade-in or fade-out time. Select an item from [0.5s] - [4.0s], [5.0s], [7.0s], or [10.0s]. [0.5s] - [4.0s] can be selected in increments of 0.5.

Note

- If the <SHUTTER> button on the remote control is pressed during fade-in or fade-out, the fade operation is canceled.
- Fade-in/fade-out is not performed on the audio. Audio is output or paused linked to the operation of the shutter function.

Setting [STARTUP]

Automatically enable/disable the shutter function (shutter: closed/open) when the power is turned on.

- 1) Press ▲▼ to select [SHUTTER SETTING].
- 2) Press the <ENTER> button.
 - The [SHUTTER SETTING] screen is displayed.
- 3) Press ▲▼ to select [STARTUP].
- 4) Press ◀▶ to switch the item.

[OPEN]	The projector goes into projection mode with the shutter function disabled (shutter: opened) when the power is turned on.
[CLOSE]	The projector goes into projection mode with the shutter function enabled (shutter: closed) when the power is turned on.

Using the shutter function

Image and audio are turned off when the projector is not used for a specific time.

- 1) Press ▲▼ to select [SHUTTER SETTING].
- 2) Press the <ENTER> button.
 - The [SHUTTER SETTING] screen is displayed.
- 3) Press ▲▼ to select [SHUTTER].

4) Press the <ENTER> button.

- Press the <MENU> button to cancel the function.

Note

- The power indicator <ON (G)/STANDBY (R)> will blink green slowly while the shutter function is in use (shutter: closed).
- To output audio while the shutter function is in use (shutter: closed), set the [PROJECTOR SETUP] menu → [AUDIO SETTING] → [IN SHUTTER] to [ON].

[FREEZE]

The projected image is paused and audio is turned off regardless of the playback of the external device.

1) Press ▲▼ to select [FREEZE].

2) Press the <ENTER> button.

- Press the <MENU> button to release.

Note

- [FREEZE] is displayed on the screen when video is paused.

[WAVEFORM MONITOR]

Use the input signals from a connected external device to display in a waveform. Check whether video output (luminance) signal level is within the recommended range for the projector and adjust.

1) Press ▲▼ to select [WAVEFORM MONITOR].

2) Press ◀▶ to switch the item.

[OFF]	Does not display the waveform monitor.
[ON]	Displays the waveform monitor.

3) Press the <MENU> button two times to clear.

4) Press ▲▼ to select any horizontal line.

5) Press the <ENTER> button to switch the Select line to either luminance, red, green, or blue.

- Line selection items switch each time the <ENTER> is pressed only when the waveform monitor is displayed.

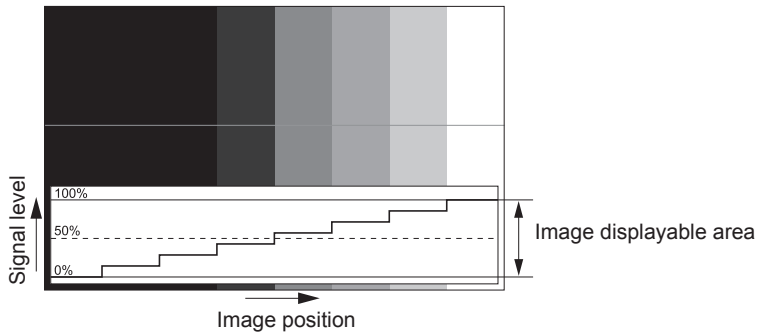
“Select line (luminance)”	Displayed in white waveform.
“Select line (red)”	Displayed in red waveform.
“Select line (green)”	Displayed in green waveform.
“Select line (blue)”	Displayed in blue waveform.

Note

- Setting is also available from the [PROJECTOR SETUP] menu → [FUNCTION BUTTON].
- The waveform monitor is not displayed when on-screen display is hidden (off).
- If [EDGE BLENDING] is set to anything other than [OFF], the [WAVEFORM MONITOR] menu cannot be set and the waveform monitor function is disabled.

Adjusting the waveform

Project the luminance adjustment signal of a commercial test disk (0 % (0 IRE or 7.5 IRE) – 100 % (100 IRE)) and adjust.



- 1) Select “Select line (luminance)” on the waveform monitor.
- 2) Adjust black level.
 - Adjust the black level 0 % of the image signal to the 0 % position of the waveform monitor using the [PICTURE] menu → [BRIGHTNESS].
- 3) Adjust white level.
 - Adjust the white level 100 % of the image signal to the 100 % position of the waveform monitor using the [PICTURE] menu → [CONTRAST].

Adjusting red, green, and blue

- 1) Set [COLOR TEMPERATURE] to [USER 1] or [USER 2]. (➡ page 69)
- 2) Select “Select line (red)” on the waveform monitor.
- 3) Adjust dark red areas.
 - Use [RED] in [WHITE BALANCE LOW] to adjust the black level 0 % of the image signal to the 0 % position of the waveform monitor.
- 4) Adjust bright red areas.
 - Use [RED] in [WHITE BALANCE HIGH] to adjust the white level 100 % of the image signal to the 100 % position of the waveform monitor.
- 5) Use the procedure for [RED] to adjust [GREEN] and [BLUE].

Note

- Confirm that the [SIGNAL LEVEL] setting of the input signal is correct before adjusting the black level. Check the [SIGNAL LEVEL] setting from the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] / [DIGITAL LINK IN] → [SIGNAL LEVEL].
- When [SCREEN SETTING] → [SCREEN FORMAT] is set to [16:10] or [4:3], the signal outside the display area is displayed as a waveform in the waveform monitor with the signal level 0 %.
- When the [PICTURE] menu → [GAMMA] is set to anything other than [2.2], the gradation for gray-scale becomes non-linear, and the display in the waveform monitor will change.

[CUT OFF]

Each red, green, and blue color component can be removed.

- 1) Press ▲▼ to select [CUT OFF].
- 2) Press the <ENTER> button.
 - The [CUT OFF] screen is displayed.
- 3) Press ▲▼ to select [RED], [GREEN], or [BLUE].
- 4) Press ◀▶ to switch the item.

[OFF]	Disables cutoff.
[ON]	Enables cutoff.

Note

- When input is switched or a signal is switched, the cutoff setting returns to its original setting (off).

[PROJECTOR SETUP] menu

On the menu screen, select [PROJECTOR SETUP] from the main menu, and select an item from the sub-menu.

Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[PROJECTOR ID]

The projector has an ID number setting function that can be used when multiple projectors are used side by side to enable simultaneous control or individual control via a single remote control.

- 1) Press ▲▼ to select [PROJECTOR ID].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ALL]	Select this item when controlling projectors without specifying an ID number.
[1] - [64]	Select this item when specifying an ID number to control individual projector.

Note

- To specify an ID number for individual control, the ID number of a remote control must match the ID number of the projector.
- When the ID number is set to [ALL], the projector will operate regardless of the ID number specified during remote control or computer control.
If multiple projectors are set up side by side with IDs set to [ALL], they cannot be controlled separately from the projectors with other ID numbers.
- Refer to “Setting ID number of the remote control” (➔ page 60) for how to set the ID number on the remote control.

[PROJECTION METHOD]

Set the projection method in accordance with the installation status of the projector.

Change the [FRONT/REAR] setting when the screen display is inverted.

Change the [FLOOR/CEILING] setting when the screen display is upside down.

Setting [FRONT/REAR]

- 1) Press ▲▼ to select [PROJECTION METHOD].
- 2) Press the <ENTER> button.
 - The [PROJECTION METHOD] screen is displayed.
- 3) Press ▲▼ to select [FRONT/REAR].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[FRONT]	Select this item when installing the projector in front of the screen.
[REAR]	Select this item when installing behind the screen (using translucent screen).

Setting [FLOOR/CEILING]

- 1) Press ▲▼ to select [PROJECTION METHOD].
- 2) Press the <ENTER> button.
 - The [PROJECTION METHOD] screen is displayed.
- 3) Press ▲▼ to select [FLOOR/CEILING].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[AUTO]	Automatically detects the attitude of the projector by the built-in angle sensor. Set [AUTO] normally.
[FLOOR]	Select this item when installing the projector on a desk, etc.
[CEILING]	Select this item when installing the projector using the Ceiling Mount Bracket (optional). Projected image is inverted upside down.

Note

- Refer to “Angle sensor” (➔ page 34) for details on the range of the installation attitude that can be detected by the built-in angle sensor.

[ECO MANAGEMENT]

Set the operation method of the projector.

The settings are reflected when “Initial setting (operation setting)” (➔ page 45) in the [INITIAL SETTING] screen is already set.

If you change the settings while using the projector, the duration until the brightness decreases to half may shorten or the brightness may decrease.

Setting [OPERATING MODE]

- 1) Press ▲▼ to select [ECO MANAGEMENT].
- 2) Press the <ENTER> button.
 - The [ECO MANAGEMENT] screen is displayed.
- 3) Press ▲▼ to select [OPERATING MODE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[NORMAL]	Set this item to prioritize the brightness. [LIGHT OUTPUT] is 100 %, and the estimated runtime is approximately 20 000 hours*1.
[ECO]	The brightness will decrease compared to [NORMAL], but set this item to prioritize the life of the light source. [LIGHT OUTPUT] is 80 %, and the estimated runtime is approximately 24 000 hours*1.
[QUIET]	The brightness will decrease compared to [NORMAL], but set this item to prioritize the operation with low noise. [LIGHT OUTPUT] is 80 %, and the estimated runtime is approximately 20 000 hours*1.
[USER]	Set [LIGHT OUTPUT] as desired.

*1 Estimated runtime is the time until the brightness decreases to approximately half of the time of delivery when the projector is used with the [PICTURE] menu → [DYNAMIC CONTRAST] set to [2] and under environment of 0.15 mg/m³ dust. The value of runtime is just an estimate, and is not the warranty period.

- Proceed to Step 5) when [USER] is selected.

- 5) Press ▲▼ to select [LIGHT OUTPUT].
- 6) Press ◀▶ to adjust.

Operation	Adjustment		Range of adjustment
	Brightness	Runtime (estimate)	
Press ▶.	The screen becomes brighter.	The runtime becomes shorter.	20 % - 100 %
Press ◀.	The screen becomes darker.	The runtime becomes longer.	

Note

- When [USER] is selected, the uniformity of brightness between multiple screens can be maintained by adjusting [LIGHT OUTPUT] of each projector when a multi-display screen is structure with multiple projectors.
- If the runtime exceeds 20 000 hours, replacement of the components inside the projector may be required. Consult your dealer for details.

Interrelation of brightness and runtime

The projector can be operated at arbitrary brightness and duration of use by combining the settings of [LIGHT OUTPUT], and [CONSTANT MODE] in [BRIGHTNESS CONTROL SETUP].

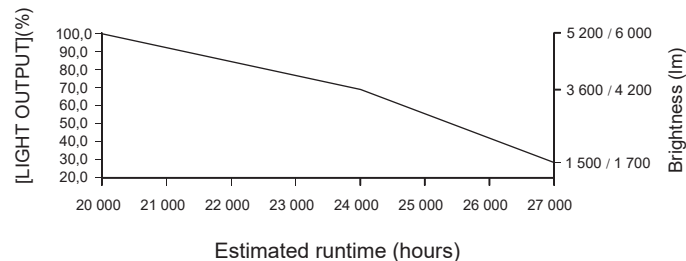
The relationship between the [LIGHT OUTPUT] setting, brightness, and the estimated runtime is as follows. Make the setting depending on the desired brightness of the projected image and runtime.

The values of the brightness and the runtime are just an estimate, and the graph indicating the relationship is just an example. Also, these do not indicate the warranty period.

• When [CONSTANT MODE] is set to [OFF]

[LIGHT OUTPUT] (%)	Brightness (lm)		Estimated runtime*1 (hour)
	PT-FRQ60	PT-FRQ50	
100.0	6 000	5 200	20 000
69.5	4 200	3 600	24 000
29.0	1 700	1 500	27 000

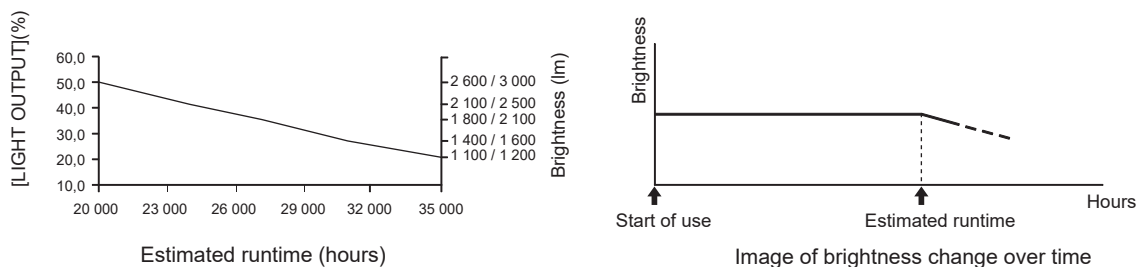
*1 Estimated runtime is the time until the brightness decreases to approximately half of the time of delivery when the projector is used with the [PICTURE] menu → [DYNAMIC CONTRAST] set to [2] and under environment of 0.15 mg/m³ dust.



• When [CONSTANT MODE] is set to [AUTO] or [PC]

[LIGHT OUTPUT] (%)	Brightness (lm)		Estimated runtime*1 (hour)
	PT-FRQ60	PT-FRQ50	
50.0	3 000	2 600	20 000
41.1	2 500	2 100	24 000
35.0	2 100	1 800	27 000
27.4	1 600	1 400	31 000
20.7	1 200	1 100	35 000

*1 Estimated runtime is the time the brightness is maintained constant when the projector is used with the [PICTURE] menu → [DYNAMIC CONTRAST] set to [2] and under environment of 0.15 mg/m³ dust. The brightness will gradually decrease after exceeding this time.



Note

- Under influences of characteristics of each light source, conditions of use, installation environment, etc., the runtime may be shorter than the estimation.
- If the runtime exceeds 20 000 hours, replacement of the components inside the projector may be required. Consult your dealer for details.

Setting [POWER MANAGEMENT]

Set the function to save power consumption when there is no input signal.

[NO SIGNAL LIGHTS-OUT]

This is a function to automatically turn off the light source of the projector when there is no input signal for specific period. The time until the light source is turned off can be set.

- 1) Press ▲▼ to select [ECO MANAGEMENT].
- 2) Press the <ENTER> button.
 - The [ECO MANAGEMENT] screen is displayed.
- 3) Press ▲▼ to select [POWER MANAGEMENT].

- 4) Press the <ENTER> button.
 - The [POWER MANAGEMENT] screen is displayed.
- 5) Press ▲▼ to select [NO SIGNAL LIGHTS-OUT].
- 6) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DISABLE]	Disables the no signal lights-out function.
[10SEC.] - [5MIN.]	Turns off the light source when there is no input signal for the preset period. Select [10SEC.], [20SEC.], [30SEC.], [1MIN.], [2MIN.], [3MIN.], or [5MIN.].

Note

- The fan will rotate to cool the projector while the no signal lights-out function is operating and the light source is turned off. Also, the power indicator <ON (G)/STANDBY (R)> blinks slowly in green.
- When [NO SIGNAL LIGHTS-OUT] is set to anything other than [DISABLE], the following are the conditions to turn the light source back on again from the condition that the light source has turned off by this function.
 - When the signal is input
 - When on-screen display such as menu screen (OSD) or input guide, a test pattern, or a warning message is displayed
 - When the power <⏻/> button is pressed
 - When the operation to disable the shutter function (shutter: opened) is performed, such as pressing the <SHUTTER> button
 - When the operating environment temperature is around 0 °C (32 °F) and the light source is forced to turn on due to warm-up
- The no signal lights-out function is disabled in following cases.
 - When [BACK COLOR] is set to [DEFAULT LOGO] or [USER LOGO], and the Panasonic logo or the image registered by the user is displayed in the projected image

[NO SIGNAL SHUT-OFF]

This is a function to automatically set the power of the projector to standby mode when there is no input signal for specific period. The time before switching to standby can be set.

- 1) Press ▲▼ to select [ECO MANAGEMENT].
- 2) Press the <ENTER> button.
 - The [ECO MANAGEMENT] screen is displayed.
- 3) Press ▲▼ to select [POWER MANAGEMENT].
- 4) Press the <ENTER> button.
 - The [POWER MANAGEMENT] screen is displayed.
- 5) Press ▲▼ to select [NO SIGNAL SHUT-OFF].
- 6) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DISABLE]	Disables the no signal shut-off function.
[10MIN.] - [90MIN.]	Sets the time in increments of 10 minutes.

Setting [STANDBY MODE]

Set the power consumption during standby and whether to enable the [QUICK STARTUP] function.

- 1) Press ▲▼ to select [ECO MANAGEMENT].
- 2) Press the <ENTER> button.
 - The [ECO MANAGEMENT] screen is displayed.
- 3) Press ▲▼ to select [STANDBY MODE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[NORMAL]	Select this item when using the network function during standby.
[ECO]	Select this item to reduce power consumption during standby.

- Proceed to Step 5) when [NORMAL] is selected.

- 5) Press ▲▼ to select [QUICK STARTUP].

6) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Disables the [QUICK STARTUP] function.
[ON]	Enables the [QUICK STARTUP] function until the specified time set in [VALID PERIOD] elapses after the projector enters the standby mode. The time until the projection starts after the power is turned on will be reduced during the period when the [QUICK STARTUP] function is valid.

- Proceed to Step 7) when [ON] is selected.

7) Press the <ENTER> button.

- The [QUICK STARTUP] screen is displayed.

8) Press ◀▶ to switch [VALID PERIOD].

- The items will switch each time you press the button.

[30MIN.]	Sets the time until the [QUICK STARTUP] function is disabled after the projector enters the standby mode. Select a desired valid period.
[60MIN.]	
[90MIN.]	

Note

- When [STANDBY MODE] is set to [NORMAL], the network function can be used during standby.
- When [STANDBY MODE] is set to [NORMAL], the <USB (DC OUT)> terminal can supply power even in standby state. If set to [ECO], the <USB (DC OUT)> terminal can not supply power in standby state.
- When [STANDBY MODE] is set to [ECO], the network function and the audio output function cannot be used during standby. Also, some RS-232C commands cannot be used.
- When [STANDBY MODE] is set to [ECO], it takes longer for the projection to start after the power is turned on, compared to when set to [NORMAL].
- [STANDBY MODE] is fixed to [NORMAL] when the [PROJECTOR SETUP] menu → [SCHEDULE] is set to [ON].
- [QUICK STARTUP] cannot be set when [STANDBY MODE] is set to [ECO].
- When [QUICK STARTUP] is set to [ON], the power consumption during standby becomes high during the period when the [QUICK STARTUP] function is valid.
- If [QUICK STARTUP] is set to [ON], the [QUICK STARTUP] function is disabled when the time set in [VALID PERIOD] elapses after the projector enters the standby mode. The startup time and power consumption will be the same as when [QUICK STARTUP] is set to [OFF].
- When [QUICK STARTUP] is set to [ON], the power indicator <ON (G)/STANDBY (R)> blinks red while in the standby mode during the period when the [QUICK STARTUP] function is valid. When [IN STANDBY MODE] in [AUDIO SETTING] is set to [OFF], the power indicator <ON (G)/STANDBY (R)> will change to a red light when the specified time set in [VALID PERIOD] elapses after the projector enters the standby mode.
- When [QUICK STARTUP] is set to [ON], the period when the [QUICK STARTUP] function is valid will be added as the projector runtime.

[BRIGHTNESS CONTROL]

The projector is equipped with a brightness sensor to measure brightness and color of the light source, and corrects brightness and white balance of the projected image according to the changes in brightness and color of the light source.

By using this function, in such a condition that multiple screens are configured using multiple projectors, you can reduce changes in overall brightness and white balance of the multiple screens due to aging of the light source and suppress variation in brightness and white balance to preserve uniformity.

Set the administrator accounts (user name and password) of all linked projectors to the same setting when performing brightness control of multiple projectors in synchronization.

Setting [BRIGHTNESS CONTROL SETUP]

Set the operation of the brightness control function.

- 1) Press ▲▼ to select [BRIGHTNESS CONTROL].
- 2) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL] screen is displayed.
- 3) Press ▲▼ to select [BRIGHTNESS CONTROL SETUP].
- 4) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL SETUP] screen is displayed.
- 5) Press ▲▼ to select [CONSTANT MODE].

6) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Does not perform automatic correction of the brightness and white balance.
[AUTO]	Performs automatic correction to maintain the brightness and white balance based on the measurement result of the brightness sensor.
[PC]	Synchronizes nine or more projectors using a computer and “Multi Monitoring & Control Software” ^{*1} .

*1 “Multi Monitoring & Control Software” can be downloaded from the website (<https://panasonic.net/cns/projector/>).

- When [OFF] is selected, proceed to Step 9).
- When [PC] is selected, proceed to Step 11).

7) Press ▲▼ to select [LINK].

8) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Performs automatic correction by this projector alone without synchronizing with other projectors. The duration that the constant brightness is kept will become longer by setting the value of [LIGHT OUTPUT] smaller.
[GROUP A] [GROUP B] [GROUP C] [GROUP D]	Performs automatic correction by synchronizing multiple projectors. Up to four groups (A to D) can be set within the same subnet by using the network function. You can register and synchronize up to eight projectors in one group.

- Proceed to Step 11) when [AUTO] is selected in Step 6).

9) Press ▲▼ to select [STARTUP CALIBRATION].

10) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Does not measure the brightness and color of the light source when the power is turned on.
[ON]	Measures the brightness and color of the light source by the brightness sensor after the power is turned on and the light source is illuminated.

11) Press ▲▼ to select [REGULAR CALIBRATION].

12) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[OFF]	Does not measure the brightness and color of the light source periodically.
[ON]	Measures the brightness and color of the light source by the brightness sensor at the time specified by [CALIBRATION TIME].

- Proceed to Step 17) when [OFF] is selected.

13) Press ▲▼ to select [CALIBRATION TIME].

14) Press the <ENTER> button.

- The projector is in the adjustment mode (the time is blinking).

15) Press ◀▶ to select “hour” or “minute”, and press ▲▼ or the number (<0> - <9>) buttons to set a time.

- Selecting “hour” allows setting of only the hour in increments of one hour, and selecting “minute” allows setting of only the minute in increments of one minute between 00 and 59.

16) Press the <ENTER> button.

- [CALIBRATION TIME] is set.

17) Press ▲▼ to select [CALIBRATION MESSAGE].

18) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[ON]	Displays the time to complete the measurement while the brightness and color of the light source are measured by the brightness sensor.
[OFF]	Does not display a message during the measurement.

19) Press ▲▼ to select [APPLY].

20) Press the <ENTER> button.

- When [CONSTANT MODE] is set to anything other than [OFF] and the <ENTER> button is pressed in following cases, the brightness and color of the light source at that time is set as the correction target for the brightness and white balance of the screen, and the automatic correction will start.
 - When [CONSTANT MODE] is set to anything other than [OFF] for the first time after purchasing the projector
 - When [CONSTANT MODE] is set to anything other than [OFF] for the first time after executing the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
- When [CONSTANT MODE] was previously set to anything other than [OFF], and the correction target for the brightness and the white balance is already set, pressing the <ENTER> button displays the confirmation screen. Proceed to Step 21).
- When [LINK] is set to [GROUP A] to [GROUP D] and the <ENTER> button is pressed, the group name is displayed on the screens of the projectors that have been set as the same group.



21) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[YES]	Maintains the previously set brightness and white balance as the correction target.
[NO]	Reconfigures the current brightness and color of the light source as the correction target of the brightness and white balance of the screen.

22) Press the <ENTER> button.

- Starts the automatic correction.

Note

- When [CONSTANT MODE] is set to [AUTO] or [PC], keep the shutter function disabled (shutter: opened) for at least two minutes, since the brightness sensor will measure the brightness and color of the light source after the [BRIGHTNESS CONTROL SETUP] setting has been completed.
- If the projector operates with [CONSTANT MODE] set to [AUTO] or [PC], measurement of the brightness and color may not be possible when the shutter function is enabled (shutter: closed) within 10 minutes after turning on the light source. If the measurement was not possible, correction of the brightness is performed approximately two minutes after the shutter function is disabled (shutter: opened).
- If the projector is operating with [CONSTANT MODE] set to [AUTO] or [PC], the brightness and color of the light source do not stabilize for approximately eight minutes after the light source is turned on. Therefore, the brightness and color of the light source will be automatically measured after approximately eight minutes have elapsed after the light source is turned on. A correction is made based on this measurement result so that the brightness and color for the image will be the same as the standard brightness and color when adjusted with the brightness control.
- If the projector is operating with [CONSTANT MODE] set to [AUTO] or [PC], the items of [OPERATING MODE] and [LIGHT OUTPUT] cannot be changed.
- The variation in brightness may increase due to dust accumulating on the lens, screen, or inside the projector, depending on the installation environment of the projector.
- When the variation in brightness has increased due to aging of the light source, or when you replaced the light source, readjust the brightness control.
- When the projector is used continuously for more than 24 hours, set [REGULAR CALIBRATION] to [ON]. If it is not set, correction will not be performed automatically.
- The brightness control function and the dynamic contrast function will operate simultaneously, but the dynamic contrast function will not operate while measuring the brightness and color of the light source with the brightness sensor.
- The setting of each item in [BRIGHTNESS CONTROL SETUP] will be reflected by selecting [APPLY] and pressing the <ENTER> button.
- The [STARTUP CALIBRATION] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [STARTUP CALIBRATION]
- The [REGULAR CALIBRATION] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [REGULAR CALIBRATION]
- The [CALIBRATION TIME] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [CALIBRATION TIME]
- The [CALIBRATION MESSAGE] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [CALIBRATION MESSAGE]

Displaying [BRIGHTNESS CONTROL STATUS]

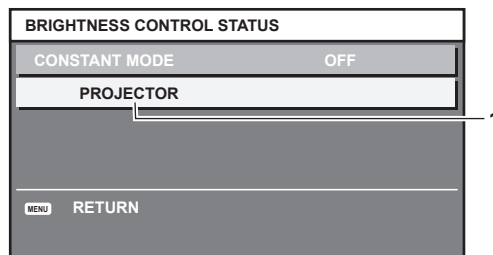
Display the brightness control status.

- 1) Press ▲▼ to select [BRIGHTNESS CONTROL].
- 2) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL] screen is displayed.
- 3) Press ▲▼ to select [BRIGHTNESS CONTROL STATUS].
- 4) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL STATUS] screen is displayed.

[BRIGHTNESS CONTROL STATUS] screen display example

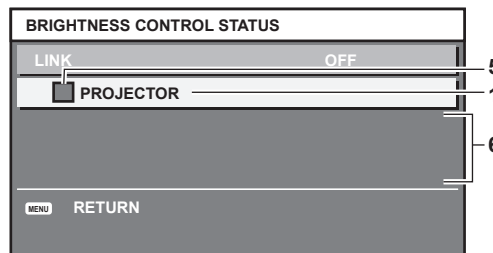
When [CONSTANT MODE] is set to [OFF]

The screen shows the status that the brightness control is disabled.



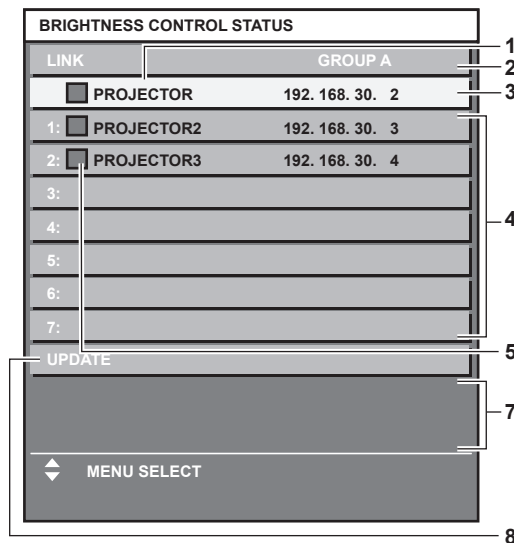
When [CONSTANT MODE] is set to [AUTO], and [LINK] is set to [OFF]

The screen shows the status of the brightness control in one projector.

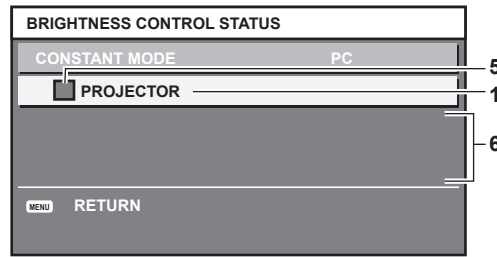


When [CONSTANT MODE] is set to [AUTO], and [LINK] is set to [GROUP A] through [GROUP D]

The screen shows the status of the brightness control of synchronized projectors (up to eight units), including the projector being controlled through the on-screen menu.



When [CONSTANT MODE] is set to [PC]



- 1 Display the name of the projector.
- 2 Display the synchronized group.
- 3 Display the IP address of the projector.
- 4 Display the names and IP addresses of projectors in same group detected over the network.
- 5 Display the status by color.
Green: There is an allowance for brightness correction.
Yellow: There is little allowance for brightness correction.
Red: There is a brightness control error.
- 6 Display error detailed messages.
- 7 Display error messages.
When the message [Failed to apply BRIGHTNESS CONTROL to some projectors.] appears, it means that synchronization with the projector displayed in red has failed.
Press ▲▼ to select the projector displayed in red, and press the <ENTER> button to display the error details.
- 8 Update to the latest status information.

■ Error details

Error message	Measures to take
[Exceed maximum number of projectors.]	<ul style="list-style-type: none"> • Limit the number of projectors in one group to eight. • To synchronize nine or more projectors, use a PC and the dedicated software "Multi Monitoring & Control Software"^{*1}.
[Please check the COMMAND CONTROL setting.]	<ul style="list-style-type: none"> • Set the password of the administrator account. • Set [NETWORK CONTROL] → [COMMAND CONTROL] to [ON] for the projector in error. • Set [NETWORK CONTROL] → [COMMAND PORT] of all projectors to be linked to the same value.
[Please check the USER NAME and PASSWORD in the COMMAND CONTROL setting.]	<ul style="list-style-type: none"> • Set the same administrator account (user name and password) for all linked projectors.
[Cannot apply BRIGHTNESS CONTROL. Please check projector status.]	<ul style="list-style-type: none"> • The projector is in standby. Switch on the power.
[Brightness Sensor Error]	<ul style="list-style-type: none"> • There is a problem with the brightness sensor. If problems persist even after switching on the power, consult your dealer.

*1 "Multi Monitoring & Control Software" can be downloaded from the website (<https://panasonic.net/cns/projector/>).

Note

- If the synchronized projectors are not displayed in the list, check the following:
 - Are there devices with the same IP address on the network?
 - Are LAN cables connected correctly? (➡ page 149)
 - Are the subnets of the projectors the same?
 - Are the same [LINK] settings applied to a group?
- Refer to [PROJECTOR NAME] (➡ page 139) or "[Network config] page" (➡ page 162) on how to change the projector name.

Setting [STARTUP CALIBRATION]

Set whether to measure the brightness and color of the light source when the power is turned on.

- 1) Press ▲▼ to select [BRIGHTNESS CONTROL].
- 2) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL] screen is displayed.
- 3) Press ▲▼ to select [STARTUP CALIBRATION].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Does not measure the brightness and color of the light source when the power is turned on.
[ON]	Measures the brightness and color of the light source by the brightness sensor after the power is turned on and the light source is illuminated.

Note

- The [STARTUP CALIBRATION] setting will be reflected at the time when the item is switched using ◀▶.
- The [STARTUP CALIBRATION] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [BRIGHTNESS CONTROL SETUP] → [STARTUP CALIBRATION]

Setting [REGULAR CALIBRATION]

Set whether to measure the brightness and color of the light source at a specified time.

- 1) Press ▲▼ to select [BRIGHTNESS CONTROL].
- 2) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL] screen is displayed.
- 3) Press ▲▼ to select [REGULAR CALIBRATION].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Does not measure the brightness and color of the light source periodically.
[ON]	Measures the brightness and color of the light source by the brightness sensor at the time specified by [CALIBRATION TIME].

- Proceed to Step 5) when [ON] is selected.
- 5) Press ▲▼ to select [CALIBRATION TIME].
 - 6) Press the <ENTER> button.
 - The projector is in the adjustment mode (the time is blinking).
 - 7) Press ◀▶ to select “hour” or “minute”, and press ▲▼ or the number (<0> - <9>) buttons to set a time.
 - Selecting “hour” allows setting of only the hour in increments of one hour, and selecting “minute” allows setting of only the minute in increments of one minute between 00 and 59.
 - 8) Press the <ENTER> button.
 - [CALIBRATION TIME] is set.

Note

- The [REGULAR CALIBRATION] setting will be reflected at the time when the item is switched using ◀▶.
- The [CALIBRATION TIME] setting will be reflected at the time when you enter the time and then press the <ENTER> button.
- The [REGULAR CALIBRATION] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [BRIGHTNESS CONTROL SETUP] → [REGULAR CALIBRATION]
- The [CALIBRATION TIME] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [BRIGHTNESS CONTROL SETUP] → [CALIBRATION TIME]

Setting [CALIBRATION MESSAGE]

Set whether to display the time to complete the measurement while the brightness and color of the light source are measured.

- 1) Press ▲▼ to select [BRIGHTNESS CONTROL].
- 2) Press the <ENTER> button.
 - The [BRIGHTNESS CONTROL] screen is displayed.
- 3) Press ▲▼ to select [CALIBRATION MESSAGE].

4) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[ON]	Displays the time to complete the measurement while the brightness and color of the light source are measured by the brightness sensor.
[OFF]	Does not display a message during the measurement.

Note

- The [CALIBRATION MESSAGE] setting will be reflected at the time when the item is switched using ◀▶.
- The [CALIBRATION MESSAGE] setting item is common with the following menu item.
 - The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL] → [BRIGHTNESS CONTROL SETUP] → [CALIBRATION MESSAGE]

Brightness control adjustment procedure example

The steps exemplify an adjustment to link the brightness and white balance of eight projectors connected in a network.

- 1) Connect all projectors to the switching hub using LAN cables. (⇒ page 149)
- 2) Switch on all projectors and start projection.
- 3) Set [CONSTANT MODE] of [BRIGHTNESS CONTROL SETUP] to [OFF], and select [APPLY], and then press the <ENTER> button.
- 4) Set [OPERATING MODE] of each projector to the same setting. (⇒ page 106)
- 5) Set the administrator account, [SUBNET MASK], and [IP ADDRESS] of each projector.
 - Set the administrator account (user name and password) of all linked projectors to the same setting.
 - To be able to communicate over the network, set the same value in [SUBNET MASK] for all projectors and set a different value in [IP ADDRESS] for each projector.
- 6) Wait for at least eight minutes after projection has started until the light source brightness becomes steady.
- 7) Set all items in the [PICTURE] menu of all projectors to the same values.
- 8) Adjust [COLOR MATCHING] to match colors.
- 9) Display the internal test pattern “All white” in all projectors.
- 10) Set [LIGHT OUTPUT] of all projectors to 100 % or the maximum value that can be set.
 - Depending on the [OPERATING MODE] settings, [LIGHT OUTPUT] may not be able to be set to 100 %.
- 11) Set [LIGHT OUTPUT] of the projector with the least brightness to 90 % or 10 % lower than the maximum value that can be set.
- 12) Adjust [LIGHT OUTPUT] of each projector.
 - Adjust [LIGHT OUTPUT] of all the other projectors so that the brightness will be the same as the projector with the least brightness.
- 13) Set [CONSTANT MODE] of [BRIGHTNESS CONTROL SETUP] to [AUTO], and [LINK] to [GROUP A] in all projectors.
- 14) Select [APPLY] of [BRIGHTNESS CONTROL SETUP] and press the <ENTER> button in all projectors.
 - Automatic correction by the brightness control function starts.

Note

- Automatic correction is performed whenever the light source lights up by switching on/off the projector, etc.
- When the variation in brightness or color has increased due to aging of the light source, or when the light source is replaced, reset [BRIGHTNESS CONTROL SETUP].

[INITIAL STARTUP]

Set the startup method when the <MAIN POWER> switch is set to <ON>.

- 1) Press ▲▼ to select [INITIAL STARTUP].

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[LAST MEMORY]	Starts up the projector in the condition before the <MAIN POWER> switch is set to <OFF>.
[STANDBY]	Starts up the projector in standby.
[ON]	Starts projecting immediately.

[STARTUP INPUT SELECT]

Set the input when the projector is switched on to start projection.

1) Press ▲▼ to select [STARTUP INPUT SELECT].

2) Press the <ENTER> button.

- The [STARTUP INPUT SELECT] screen is displayed.

3) Press ▲▼◀▶ to select the input, and press the <ENTER> button.

[LAST USED]	Keeps the input selected last.
[COMPUTER]	Sets the input to COMPUTER.
[HDMI1]	Sets the input to HDMI1.
[HDMI2]	Sets the input to HDMI2.
[DIGITAL LINK]	Sets the input to DIGITAL LINK.
[INPUT1] - [INPUT10]*1	Sets the input to DIGITAL LINK, and switches the input of the DIGITAL LINK output supported device to the specified input.

*1 When the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the projector, its input name is automatically reflected from [INPUT1] to [INPUT10]. When an item that does not reflect the input name is selected, it will be disabled.

[DATE AND TIME]

Set the time zone, date, and time of the built-in clock of the projector.

Setting the time zone

1) Press ▲▼ to select [DATE AND TIME].

2) Press the <ENTER> button.

- The [DATE AND TIME] screen is displayed.

3) Press ▲▼ to select [TIME ZONE].

4) Press ◀▶ to switch [TIME ZONE].

Note

- The [TIME ZONE] setting is reset to the factory default setting when the projector is initialized by one of the following methods. However, the date and time based on the local date and time setting (Coordinated Universal Time, UTC, Universal Time, Coordinated) will be maintained without being initialized.
 - When initialized by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - When initialized by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]

Setting the date and time manually

1) Press ▲▼ to select [DATE AND TIME].

- 2) Press the <ENTER> button.
 - The [DATE AND TIME] screen is displayed.
- 3) Press ▲▼ to select [ADJUST CLOCK].
- 4) Press the <ENTER> button.
 - The [ADJUST CLOCK] screen is displayed.
- 5) Press ▲▼ to select an item, and press ◀▶ to set the local date and time.
- 6) Press ▲▼ to select [APPLY], and press the <ENTER> button.
 - The setting of the date and time will be completed.

Note

- The replacement of the battery inside the projector is required when the time goes out of alignment right after correcting the time. Consult your dealer.

Setting the date and time automatically

To set the date and time automatically, the projector must be connected to the network.

- 1) Press ▲▼ to select [DATE AND TIME].
- 2) Press the <ENTER> button.
 - The [DATE AND TIME] screen is displayed.
- 3) Press ▲▼ to select [ADJUST CLOCK].
- 4) Press the <ENTER> button.
 - The [ADJUST CLOCK] screen is displayed.
- 5) Press ▲▼ to select [NTP SYNCHRONIZATION], and press ◀▶ to change the setting to [ON].
- 6) Press ▲▼ to select [APPLY], and press the <ENTER> button.
 - The setting of the date and time will be completed.

Note

- If synchronization with the NTP server fails just after [NTP SYNCHRONIZATION] is set to [ON], [NTP SYNCHRONIZATION] will return to [OFF]. If [NTP SYNCHRONIZATION] is set to [ON] while the NTP server is not set, [NTP SYNCHRONIZATION] will return to [OFF].
- Access the projector via a web browser to set the NTP server. Refer to “[Adjust clock] page” (➔ page 164) for details.

[SCHEDULE]

Set the command execution schedule for each day of the week.

Enabling/disabling the schedule function

- 1) Press ▲▼ to select [SCHEDULE].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Disables the schedule function.
[ON]	Enables the schedule function. Refer to “How to assign a program” (➔ page 117) or “How to set a program” (➔ page 118) for how to set the schedule.

Note

- The [STANDBY MODE] setting will be forced to [NORMAL] when the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [ECO], and [SCHEDULE] is set to [ON]. Changing the setting to [ECO] is not available. The [STANDBY MODE] setting will not change back even when [SCHEDULE] is set to [OFF] in this condition.

How to assign a program

- 1) Press ▲▼ to select [SCHEDULE].
- 2) Press ◀▶ to select [ON], and press the <ENTER> button.
 - The [SCHEDULE] screen is displayed.

3) Select and assign a program to each day of week.

- Press ▲▼ to select the day of week, and press ◀▶ to select a program number.
- You can set the program from No.1 to No.7. “- -” indicates that the program number has not been set.

How to set a program

Set up to 16 commands to each program.

1) Press ▲▼ to select [SCHEDULE].

2) Press ◀▶ to select [ON], and press the <ENTER> button.

- The [SCHEDULE] screen is displayed.

3) Press ▲▼ to select [PROGRAM EDIT].

4) Press ◀▶ to select a program number, and press the <ENTER> button.

5) Press ▲▼ to select a command number, and press the <ENTER> button.

- You can change the page using ◀▶.

6) Press ▲▼◀▶ to select [TIME], and press the <ENTER> button.

- The projector is in the adjustment mode (the time is blinking).

7) Press ◀▶ to select “hour” or “minute”, and press ▲▼ or the number (<0> - <9>) buttons to set a time, and then press the <ENTER> button.

8) Press ▲▼◀▶ to select [COMMAND].

9) Press the <ENTER> button.

- The [COMMAND] detailed screen is displayed.

10) Press ▲▼ to select a [COMMAND].

- For [COMMAND] which requires detailed settings, the items of the detailed settings will switch each time you press ◀▶.
- When [INPUT] is selected, press the <ENTER> button, and then press ▲▼◀▶ to select the input to be set.

[COMMAND]	Detailed settings of [COMMAND]	Description
[POWER ON]	—	Switches on the projector.
[STANDBY]	—	Enters standby.
[QUICK STARTUP]	[ON]	Enables the function of the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP].
	[OFF]	Disables the function of the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [QUICK STARTUP].
[SHUTTER]	[OPEN]	Disables the shutter function (shutter: open).
	[CLOSE]	Enables the shutter function (shutter: closed).
[INPUT]	[COMPUTER]	Switches the input to COMPUTER.
	[HDMI1]	Switches the input to HDMI1.
	[HDMI2]	Switches the input to HDMI2.
	[DIGITAL LINK]	Switches the input to DIGITAL LINK.
	[INPUT1] - [INPUT10]*1	Switches the input to DIGITAL LINK, and switches the input of the DIGITAL LINK output supported device to the specified input.
[OPERATING MODE]	[NORMAL]	Prioritizes luminance.
	[ECO]	Controls the power to increase the life of the light source although the luminance is lower than that of [NORMAL].
	[QUIET]	Prioritizes the operation with less noise although the luminance is lower than that of [NORMAL].
	[USER]	Controls the power with the setting set in [USER].
[IN STANDBY MODE(AUDIO)]	[OFF]	Stops the audio output during standby.
	[ON]	Outputs the audio during standby.
[VOLUME]	[0] - [63]	Sets the volume.

*1 When the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the projector, its input name is automatically reflected from [INPUT1] to [INPUT10]. When an item that does not reflect the input name is selected, it will be disabled.

11) Press the <ENTER> button.

- The command is fixed and ● is displayed at the left of the selected command.
- After the command is fixed, press the <MENU> button to close the detailed setting screen.

12) Press ▲▼◀▶ to select [STORE], and press the <ENTER> button.

Note

- To delete a command that has been already set, press the <DEFAULT> button on the remote control while the screen in Step 5) is displayed, or select [DELETE] at the screen in Step 6) and press the <ENTER> button.
- If multiple commands have been set for the same time, they are executed in chronological order starting from the smallest command number.
- The operating time will be the local time. (➔ page 116)
- If an operation is executed with the remote control or control panel of the projector or with a control command before the command set in [SCHEDULE] is executed, the command set with the schedule function may not be executed.

[RS-232C]

Set the communication condition of the <SERIAL IN> terminal. Refer to “<SERIAL IN> terminal” (➔ page 207).

1) Press ▲▼ to select [RS-232C].

2) Press the <ENTER> button.

- The [RS-232C] screen is displayed.

3) Press ▲▼ to select [INPUT SELECT].

4) Press ◀▶ to switch the item.

[PROJECTOR]	Performs the RS-232C communication with the <SERIAL IN> terminal of the projector.
[DIGITAL LINK]	Performs the RS-232C communication via the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) and the <DIGITAL LINK/LAN> terminal.

5) Press ▲▼ to select [BAUDRATE].

6) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[9600]	Select the proper speed.
[19200]	
[38400]	

7) Press ▲▼ to select [PARITY].

8) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[NONE]	Select the parity condition.
[EVEN]	
[ODD]	

Note

- When [INPUT SELECT] is set to [DIGITAL LINK], communication using that serial terminal is available only when the corresponding device (such as the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G)) is connected to the <DIGITAL LINK/LAN> terminal.
- When transferring logos via the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G), setting for “NO SIGNAL SLEEP” of the DIGITAL LINK output supported device should be set to “OFF” to avoid interruption of communication.
- The input communication speed is fixed to 9 600 bps when [INPUT SELECT] is set to [DIGITAL LINK].

[FUNCTION BUTTON]

Set the function of the <FUNCTION> button on the remote control.

1) Press ▲▼ to select [FUNCTION BUTTON].

2) Press the <ENTER> button.

- The [FUNCTION BUTTON] screen is displayed.

3) Press ▲▼ to select a function.

[DISABLE]	Disables the <FUNCTION> button.
[SUB MEMORY]	Displays the sub memory list. (➔ page 132)
[SYSTEM SELECTOR]	Switches the [SYSTEM SELECTOR] setting. (➔ page 74)
[DAYLIGHT VIEW]	Switches the [DAYLIGHT VIEW] setting. (➔ page 72)
[FREEZE]	Temporarily pauses the image. (➔ page 103)
[WAVEFORM MONITOR]	Displays the waveform of the input signal. (➔ page 103)
[ASPECT]	Switches the aspect ratio of the image. (➔ page 76)
[PROJECTION METHOD]	Switches the [PROJECTION METHOD] setting. (➔ page 105)
[GEOMETRY]	Switches the [GEOMETRY] setting. (➔ page 78)
[OSD POSITION]	Switches the [OSD POSITION] setting. (➔ page 99)

4) Press the <ENTER> button.

Note

- The [FUNCTION BUTTON] screen can also be displayed by holding down the <FUNCTION> button on the remote control.

[AUDIO SETTING]

Set audio functions in detail.

Adjusting the volume

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select [VOLUME].
- 4) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Increases the volume.	0 - 63
Press ◀.	Decreases the volume.	

Adjusting the left to right audio balance

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select [BALANCE].
- 4) Press ◀▶ to adjust the level.

Operation	Adjustment	Range of adjustment
Press ▶.	Increases the volume on the right.	L16 - R16
Press ◀.	Increases the volume on the left.	

Setting audio output in the standby mode

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select [IN STANDBY MODE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	No audio is output during standby.
[ON]	Audio is output during standby.

Note

- No audio is output in the standby mode when the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [ECO].

Setting audio output while using the shutter function

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select [IN SHUTTER].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	No audio is output while using the shutter function (shutter: closed).
[ON]	Audio is output while using the shutter function (shutter: closed).

Setting mute mode

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select [MUTE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Audio is output.
[ON]	No audio is output.

Setting audio input from a connected device

- 1) Press ▲▼ to select [AUDIO SETTING].
- 2) Press the <ENTER> button.
 - The [AUDIO SETTING] screen is displayed.
- 3) Press ▲▼ to select item to set in [AUDIO IN SELECT].

[COMPUTER]	Sets the audio to output when COMPUTER is input.
[HDMI1]	Sets the audio to output when HDMI1 is input.
[HDMI2]	Sets the audio to output when HDMI2 is input.
[DIGITAL LINK]	Sets the audio to output when DIGITAL LINK is input.

- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.
 - The item is fixed to [AUDIO IN] when [COMPUTER] is selected.

[AUDIO IN]	Audio connected to the <AUDIO IN> terminal is output during projection of image from the set input terminal.
[HDMI1 AUDIO IN]* ¹	Audio input to HDMI1 is output.
[HDMI2 AUDIO IN]* ²	Audio input to HDMI2 is output.
[DIGITAL LINK AUDIO IN]* ³	Audio input to DIGITAL LINK is output.

*1 Only when the input signal is HDMI1
 *2 Only when the input signal is HDMI2
 *3 Only when the input signal is DIGITAL LINK

[STATUS]

Display the status of the projector.

- 1) Press ▲▼ to select [STATUS].
- 2) Press the <ENTER> button.
 - The [STATUS] screen is displayed.
- 3) Press ◀▶ to switch the pages.
 - The page will change each time you press the button.

[PROJECTOR TYPE]	Displays the projector type of the projector.	
[SERIAL NUMBER]	Displays the serial number of the projector.	
[PROJECTOR RUNTIME]	Displays the runtime of the projector.	
[LIGHT RUNTIME]	Displays the runtime of the light source.	
[CONTINUOUS LIGHTING TIME]	Displays the elapsed time from when the light source is illuminated. The elapsed time after the illumination of the light source can be confirmed when adjusting the focus. The elapsed time is reset when the light source is temporarily turned off such as using the shutter function.	
[MAIN/SUB VERSION]	Displays the main and sub versions of the firmware of the projector.	
[INTAKE AIR TEMP.] ^{*1}	Displays the status of the intake air temperature of the projector.	
[OPTICS MODULE TEMP.] ^{*1}	Displays the status of the internal temperature of the projector.	
[EXHAUST AIR TEMP.] ^{*1}	Displays the status of the exhaust air temperature of the projector.	
[LIGHT TEMP. 1.] ^{*1}	Displays the temperature status for the front block of the light source (on the lens side).	
[LIGHT TEMP. 2.] ^{*1}	Displays the temperature status for the rear block of the light source (on the exhaust vent side).	
[SELF TEST]	Displays the self-diagnosis information.	
[INPUT]	Displays the input terminal currently selected.	
[SIGNAL NAME]	Displays the input signal name.	
[MEMORY NO.]	Displays the memory number of the input signal.	
[NUMBER OF REGISTERED SIGNAL]	Displays the number of registered signals.	
[COOLING CONDITION]	Displays the set cooling conditions.	
[ATMOSPHERIC PRESSURE]	Displays the atmospheric pressure.	
[ON COUNT]	[POWER ON TIMES]	Displays the number of times the power is turned on.
[SIGNAL INFORMATION]	[INPUT]	Displays the input terminal used for the projected image.
	[SIGNAL FORMAT]	Displays the format of the input signal.
	[SAMPLING]	Displays the sampling information of the input signal.
	[SIGNAL LEVEL]	Displays the signal level of the input signal.
	[GAMMA]	Displays the [GAMMA] setting.
	[COLOR SPACE]	Displays the [COLOR SPACE] setting.

*1 The temperature status is indicated with text color (green/yellow/red) and bar scale. Use the projector within the range that the indication is green.

■ [DETAILED INFORMATION]

[INPUT]	Displays the input terminal used for the projected image.
[SIGNAL FORMAT]	Displays the format of the input signal.
[SIGNAL FREQUENCY]	Displays the frequency of the input signal.
[SYNC. STATE]	Displays the sync polarity of the input signal.
[V.SYNC WIDTH]	Displays the vertical sync signal pulse width of the input signal.
[SCAN TYPE]	Displays the scan type of the input signal.
[TOTAL DOTS]	Displays the total dot count of the input signal.
[DISPLAY DOTS]	Displays the number of input signal display dots.

[TOTAL LINES]	Displays the total line count of the input signal.
[DISPLAY LINES]	Displays the number of input signal display lines.
[SAMPLING]	Displays the sampling information and the color format of the input signal.
[SIGNAL LEVEL]	Displays the signal level of the input signal.
[COLORIMETRY]	Displays the color gamut information of the input signal. The content of display is as follows. [ITU-2020]: When the color gamut is compliant with ITU-R BT.2020 standard [ITU-709]: When the color gamut is compliant with ITU-R BT.709 standard [SMPTE 170M]: When the color gamut is compliant with SMPTE 170M standard [---]: When there is no signal, when the color gamut information is not included in the InfoFrame information, or when the color gamut information other than [ITU-2020], [ITU-709], or [SMPTE 170M] is included
[HDCP STATUS]	Displays the HDCP status of the input signal. The content of display is as follows. [HDCP2.X]: When protected with HDCP 2.2 or HDCP 2.3 [HDCP1.X]: When protected with HDCP 1.X [NONE]: When not protected with HDCP [---]: When there is no signal

■ [CONTENT INFORMATION]

[EOTF]	Displays EOTF (Electro-Optical Transfer Function) out of the InfoFrame information added to the input signal.	
[MASTERING DISPLAY COLOR VOLUME]	[RED]	Displays the chromaticity coordinates for the primary color red out of the InfoFrame information added to the input signal.
	[GREEN]	Displays the chromaticity coordinates for the primary color green out of the InfoFrame information added to the input signal.
	[BLUE]	Displays the chromaticity coordinates for the primary color blue out of the InfoFrame information added to the input signal.
	[WHITE]	Displays the chromaticity coordinates for the white point out of the InfoFrame information added to the input signal.
	[MAX LUMINANCE]	Displays the maximum brightness out of the InfoFrame information added to the input signal.
	[MIN LUMINANCE]	Displays the minimum brightness out of the InfoFrame information added to the input signal.
[CONTENT LIGHT LEVEL]	[MaxCLL]	Displays MaxCLL (Maximum Content Light Level) out of the InfoFrame information added to the input signal.
	[MaxFALL]	Displays MaxFALL (Maximum Frame Average Light Level) out of the InfoFrame information added to the input signal.

Note

- If you press the <ENTER> button while displaying [SIGNAL INFORMATION] in the page 4/4 of the [STATUS] screen, the [DETAILED INFORMATION] screen can be displayed to view the detailed information of the input signal. Information for multiple input signals may be displayed depending on the projected image. Press ◀▶ to switch pages.
- While the [DETAILED INFORMATION] screen is displayed, press the <ENTER> button to display the [CONTENT INFORMATION] screen, and the contents of the InfoFrame information added to the input signal can be displayed.
- There are items that are displayed or not displayed in [SIGNAL INFORMATION], [DETAILED INFORMATION], and [CONTENT INFORMATION] depending on the setting and the signal being input.
- If any abnormality has occurred on the projector, press the <DEFAULT> button while the [STATUS] screen is displayed to check the details of the error information.
- For details on the contents displayed in [SELF TEST], refer to “Self-diagnosis display” (➡ page 197).

Sending status content via E-mail

The status content can be sent to the E-mail address (up to two addresses) set in “[E-mail set up] page” (➡ page 173).

- 1) Press the <ENTER> button while the 1/4 to 3/4 page of the [STATUS] screen is displayed.
 - The selection screen is displayed.
- 2) Press ▲▼ to select [SEND E-MAIL].
- 3) Press the <ENTER> button.
 - The [SELECT E-MAIL ADDRESS] screen is displayed.
- 4) Press ▲▼ to select the destination.

- 5) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 6) Press ◀▶ to select [OK], and press the <ENTER> button.
 - The status content is sent.

Saving status content in USB memory

The status content can be saved in a USB memory attached to the <USB (DC OUT)> terminal.

- 1) Press the <ENTER> button while the 1/4 to 3/4 page of the [STATUS] screen is displayed.
 - The selection screen is displayed.
- 2) Press ▲▼ to select [SAVE TO USB MEMORY].
- 3) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 4) Press ◀▶ to select [OK], and press the <ENTER> button.
 - The status content is saved.

[DATA CLONING]

Perform the operation of the data cloning function. Data such as the settings and adjustment values of the projector can be copied to multiple projectors via LAN or using the USB memory.

For details of operation, refer to “Using the data cloning function” (➡ page 179).

[SAVE ALL USER DATA]

Save the various setting values as a backup in the built-in memory of the projector.

- 1) Press ▲▼ to select [SAVE ALL USER DATA].
- 2) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 3) Enter a security password and press the <ENTER> button.
- 4) When the confirmation screen is displayed, press ◀▶ to select [OK], and press the <ENTER> button.
 - [PROGRESS] is displayed while saving data.

Note

- Data set from the computer application is not included in [SAVE ALL USER DATA].
- The data saved by executing [SAVE ALL USER DATA] is not deleted even if the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET] is executed.

[LOAD ALL USER DATA]

Load the various setting values saved as a backup in the built-in memory of the projector.

- 1) Press ▲▼ to select [LOAD ALL USER DATA].
- 2) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 3) Enter a security password and press the <ENTER> button.
- 4) When the confirmation screen is displayed, press ◀▶ to select [OK], and press the <ENTER> button.

Note

- The projector enters the standby mode to reflect the setting values when [LOAD ALL USER DATA] is executed.
- Data registered from a computer is not included in [LOAD ALL USER DATA].

[HDMI CEC]

Sets the CEC (Consumer Electronics Control) function of HDMI.

CEC is a function that is realized by exchanging device control signals with external devices connected with an HDMI cable. Using the remote control of the projector, it is possible to operate the CEC-compatible external device (hereinafter referred to as "CEC-compatible device") and to control the power on/off link status between the projector and the CEC-compatible device.

For details on how to use the CEC function, refer to "Using HDMI-CEC function" (➔ page 183).

- 1) Press ▲▼ to select [HDMI CEC].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[ON]	Enables the CEC function.
[OFF]	Disables the CEC function.

Operating a CEC-compatible device

Operate the CEC-compatible device connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal.

[HDMI-CEC OPERATION] can be operated when HDMI1 input or HDMI2 input is selected. Switch to the input that is corresponding to the CEC-compatible device you want to operate in advance.

- 1) Press ▲▼ to select [HDMI CEC].
- 2) Press ◀▶ to select [ON].
- 3) Press the <ENTER> button.
 - The [HDMI CEC] screen is displayed.
- 4) Press ▲▼ to select [HDMI 1] or [HDMI 2].
 - Select the input corresponding to the CEC-compatible device you want to operate.
 - Proceed to Step 6) when the device to operate is displayed.
- 5) Press ◀▶ to switch the item.
 - The devices will switch when multiple CEC-compatible devices are connected to one input.
 - Select the device to operate.
- 6) Press ▲▼ to select [HDMI-CEC OPERATION].
- 7) Press the <ENTER> button.
 - The HDMI-CEC operation screen is displayed.
- 8) Select the item displayed on the HDMI-CEC operation screen to operate the device.
 - Refer to the "Using HDMI-CEC function" (➔ page 183) for the operation details.

Note

- If no CEC-compatible device is connected to <HDMI IN 1> or <HDMI IN 2> terminal, there is no device displayed at [HDMI 1] or [HDMI 2] and [----] is displayed.
- To exit the HDMI-CEC operation screen, press the <RETURN> button or <MENU> button.

Changing the menu code

The menu code that calls up the operation menu of the CEC-compatible device varies depending on the device manufacturer. If you cannot call up the operation menu of a CEC-compatible device from the HDMI-CEC operation screen, change the menu code setting.

- 1) Press ▲▼ to select [HDMI CEC].
- 2) Press ◀▶ to select [ON].
- 3) Press the <ENTER> button.
 - The [HDMI CEC] screen is displayed.
- 4) Press ▲▼ to select [MENU CODE].

- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.
 - Select the menu code from [1] to [6].

Setting the link control

Make settings for the link control between the projector and CEC-compatible devices.

[PROJECTOR -> DEVICE]

Set the link control from the projector to the CEC-compatible device.

- 1) Press ▲▼ to select [HDMI CEC].
- 2) Press ◀▶ to select [ON].
- 3) Press the <ENTER> button.
 - The [HDMI CEC] screen is displayed.
- 4) Press ▲▼ to select [PROJECTOR -> DEVICE].
- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DISABLE]	Disables the power link control from the projector to the CEC-compatible device. Select this when you do not want the power status of the CEC-compatible device to link with the power status of the projector.
[POWER OFF]	Enables power-off link control. When you turn off the power of the projector and put it in standby mode, all CEC-compatible devices connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal will enter standby mode. Power-on link control is disabled.
[POWER ON/OFF]	Enables power-on link control and power-off link control. If you turn on the projector and start projection with the HDMI1 input or HDMI2 input selected, the CEC-compatible device connected to the selected input will turn on. When you turn off the projector and put it in standby mode, all CEC-compatible devices connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal will enter standby mode.

[DEVICE -> PROJECTOR]

Set the link control from the CEC-compatible device to the projector.

- 1) Press ▲▼ to select [HDMI CEC].
- 2) Press ◀▶ to select [ON].
- 3) Press the <ENTER> button.
 - The [HDMI CEC] screen is displayed.
- 4) Press ▲▼ to select [DEVICE -> PROJECTOR].
- 5) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[DISABLE]	Disables the power link control from the CEC-compatible device to the projector. Select this when you do not want the power status of the projector to link with the power status of the CEC-compatible device.
[POWER ON]	Enables power-on link control. While the projector is in standby, if the CEC-compatible device connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal is turned on or starts playing, the projector turns on, starts projection, and switches to the input that the linked CEC-compatible device is connected. While the projector is turned on, if the CEC-compatible device starts playing, the projector switches to the input that the CEC-compatible device is connected. Power-off link control is disabled.
[POWER ON/OFF]	Enables power-on link control and power-off link control. While the projector is in standby, if the CEC-compatible device connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal is turned on or starts playing, the projector turns on, starts projection, and switches to the input that the linked CEC-compatible device is connected. While the projector is turned on, if the CEC-compatible device starts playing, the projector switches to the input that the CEC-compatible device is connected. When the CEC-compatible device connected to the selected input is turned off, the projector enters standby mode.

Note

- If the CEC-compatible device does not support CEC 1.4, it may not support the link control described in the manual.
- Depending on the connected CEC-compatible device, the link control may not operate normally.

[INITIALIZE]

Return various setting values to their factory default settings.

- 1) Press ▲▼ to select [INITIALIZE].
- 2) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 3) Enter a security password and press the <ENTER> button.
 - The [INITIALIZE] screen is displayed.
- 4) Press ▲▼ to select an item to initialize.

[USER SETTINGS]	The user data to return to factory default settings can be selected arbitrarily. The projector goes into the standby status after executing [INITIALIZE]. For details of operation, refer to “Initializing the settings by selecting the items” (➡ page 127).
[REGISTERED SIGNAL ONLY]	Deletes all the signals registered in [SIGNAL LIST]. All the setting values saved for each registered signal are also deleted.
[NETWORK/E-MAIL ONLY]	Returns all the setting items under the [NETWORK] menu and all the setting items under the operation page in the [Detailed set up] page and the Crestron Connected of the web control screen to the factory default settings. <ul style="list-style-type: none"> • The items of [Time Zone], [Date], and [Time] in the [Adjust clock] page of the web control screen do not return to the factory default settings. • The information such as the self-signed certificate already created in the [Certificate] page of the web control screen or the server certificate already installed is not deleted.
[LOGO IMAGE ONLY]	Deletes the image registered in [USER LOGO].
[UNIFORMITY ONLY]	Sets the setting of the [DISPLAY OPTION] menu → [UNIFORMITY] to the factory default setting.
[FACTORY RESET]	Returns all the user data settings to the factory default settings. The projector goes into the standby status after executing [FACTORY RESET].

- Proceed to Step 5) when anything other than [USER SETTINGS] is selected.

- 5) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 6) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE]. Initial password as the factory default: ▲▶▼◀▲▶▼◀
- To delete only a part of a registered signal, delete it following “Deleting the registered signal” (➡ page 130).
- To return the setting of [Time Zone] in the [Adjust clock] page of the web control screen and the setting of the [PROJECTOR SETUP] menu → [DATE AND TIME] → [TIME ZONE] to the factory default settings, initialize them by one of the following methods.
 - Initializing by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - Initializing by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]
- The self-signed certificate already created in the [Certificate] page of the web control screen or the information of the server certificate already installed can be deleted in the web control screen.
- If initialized by selecting [FACTORY RESET], the [INITIAL SETTING] screen is displayed when the projection is started the next time.

Initializing the settings by selecting the items

- 1) Press ▲▼ to select [INITIALIZE].
- 2) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 3) Enter a security password and press the <ENTER> button.
 - The [INITIALIZE] screen is displayed.
- 4) Press ▲▼ to select [USER SETTINGS].
- 5) Press the <ENTER> button.
 - The [USER SETTINGS] screen is displayed.

6) Press ▲▼ to select an item.

[OPERATING MODE]	The [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE] is initialized.
[STANDBY MODE]	The [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is initialized.
[REGISTERED SIGNAL]	All the signals registered in [SIGNAL LIST] are initialized.
[NETWORK/E-MAIL]	All the setting items under the [NETWORK] menu and all the setting items under the operation page in the [Detailed set up] page and the Crestron Connected of the web control screen are initialized. <ul style="list-style-type: none"> • The items of [Time Zone], [Date], and [Time] in the web control screen are not initialized. • The information such as the self-signed certificate already created in the [Certificate] page of the web control screen or the server certificate already installed is not initialized.
[LOGO IMAGE]	Image registered in [USER LOGO] is initialized.
[UNIFORMITY]	The [DISPLAY OPTION] menu → [UNIFORMITY] is initialized.
[OTHER USER SETTING]	The user data other than mentioned above are initialized.

7) Press ◀▶ to switch the setting.

- The items will switch each time you press the button.

[KEEP]	Does not return to the factory default settings and maintains the current settings when initialization is executed by [USER SETTINGS].
[INITIALIZE]	Returns to the factory default settings when initialization is executed by [USER SETTINGS].

- Repeat Steps 6) to 7) until the desired initialization items are set.

8) Press ▲▼ to select [INITIALIZE].

9) Press the <ENTER> button.

- The confirmation screen is displayed.

10) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- To return the setting of [Time Zone] in the [Adjust clock] page of the web control screen and the setting of the [PROJECTOR SETUP] menu → [DATE AND TIME] → [TIME ZONE] to the factory default settings, initialize them by one of the following methods.
 - Initializing by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - Initializing by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]

[FIRMWARE UPDATE]

Rewriting of the firmware is possible by using a USB memory.

For details of operation, refer to “Updating the firmware using the USB memory” (➔ page 189).

[SERVICE PASSWORD]

This function is used by a service person.

[TEST PATTERN] menu

On the menu screen, select [TEST PATTERN] from the main menu.

Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[TEST PATTERN]

Display the test pattern built-in to the projector.

Settings of position, size, and other factors will not be reflected in test patterns. Make sure to display the input signal before performing various adjustments.

1) Press ◀▶ to switch the [TEST PATTERN] item.

- The items will switch each time you press the button.

Menu screen + All white	Displays a test pattern with the menu screen. Select a desired test pattern.
Menu screen + All black	
Menu screen + Window	
Menu screen + Window (inversion)	
Menu screen + Color bar (vertical)	
Menu screen + Color bar (horizontal)	
Menu screen + 16:9/4:3 aspect frame	
Menu screen + Focus	
Menu screen + Input screen	Displays the menu screen and input signal. Internal test patterns are not displayed.

Note

- Press the <ON SCREEN> button on the remote control while the test pattern is displayed to hide the menu screen.

Changing color of the focus test pattern

The color can be changed when the “Menu screen + Focus” test pattern is displayed.

1) Press ◀▶ to select the “Menu screen + Focus” test pattern.

2) Press the <ENTER> button.

- The [TEST PATTERN COLOR] screen is displayed.

3) Press ▲▼ to select a color, and press the <ENTER> button.

- The color of the focus test pattern will be changed to the selected color.

Note

- The [TEST PATTERN COLOR] setting returns to [WHITE] when the projector is switched off.
- Colors of the test patterns other than focus test patterns cannot be changed.

[SIGNAL LIST] menu

On the menu screen, select [SIGNAL LIST] from the main menu.

Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

■ Registered signal details

Memory number: A1 (1-2)

Sub memory number

When the address number (A1, A2, ... L7, L8) signal is registered

- A name can be set for each sub memory (➔ page 132).

Registering new signals

After a new signal is input and the <MENU> button on the remote control or the control panel is pressed, the registration is completed and the [MAIN MENU] screen is displayed.

Note

- Up to 96 signals, including sub memories, can be registered to the projector.
- There are 12 pages (eight memories of A through L, with eight memories possible on each page) for memory numbers, and the signal is registered to the lowest number that is available. If there is no available memory number it will be overwritten from the oldest signal.
- The name to be registered is automatically determined by the input signal.
- If a menu is being displayed, the new signals will be registered at the instant they are input.

Renaming the registered signal

Registered signals can be renamed.

- 1) Press ▲▼◀▶ to select the signal of which name is to be changed.
- 2) Press the <ENTER> button.
 - The [REGISTERED SIGNAL STATUS] screen is displayed.
 - The memory number, input terminal, input signal name, frequency, synch polarity, etc., are displayed.
 - Press the <MENU> button to return to the [SIGNAL LIST] screen.
- 3) Press the <ENTER> button.
 - The [REGISTERED SIGNAL SETUP] screen is displayed.
- 4) Press ▲▼ to select [SIGNAL NAME CHANGE].
- 5) Press the <ENTER> button.
 - The [SIGNAL NAME CHANGE] screen is displayed.
- 6) Press ▲▼◀▶ to select the text, and press the <ENTER> button to enter the text.
- 7) After the name is changed, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The registration is completed and the [REGISTERED SIGNAL SETUP] screen returns.
 - When pressing ▲▼◀▶ to select [CANCEL] and pressing the <ENTER> button, the changed signal name will not be registered and an automatically registered signal name will be used.

Deleting the registered signal

Registered signals can be deleted.

- 1) Press ▲▼◀▶ to select the signal to delete.
- 2) Press the <DEFAULT> button on the remote control.
 - The [REGISTERED SIGNAL DELETE] screen is displayed.
 - To cancel the deletion, press the <MENU> button to return to the [REGISTERED SIGNAL LIST] screen.
- 3) Press the <ENTER> button.
 - The selected signal will be deleted.

Note

- A registered signal can also be deleted from [REGISTERED SIGNAL DELETE] on the [REGISTERED SIGNAL SETUP] screen.

Protecting the registered signal

- 1) Press **▲▼◀▶** to select the signal to protect.
- 2) Press the **<ENTER>** button.
 - The [REGISTERED SIGNAL STATUS] screen is displayed.
- 3) Press the **<ENTER>** button.
 - The [REGISTERED SIGNAL SETUP] screen is displayed.
- 4) Press **▲▼** to select [LOCK].
- 5) Press **◀▶** to switch the item.
 - The items will switch each time you press the button.

[OFF]	The signal is not protected.
[ON]	The signal is protected.

- A lock icon is displayed at the right of the [SIGNAL LIST] screen when [LOCK] is set to [ON].

**Note**

- When [LOCK] is set to [ON], signal deletion, image adjustment, and automatic setup are not available. To perform these operations, set [LOCK] to [OFF].
- A signal can be registered to the sub memory even if it is protected.
- Even a protected signal will be deleted if [INITIALIZE] is executed.

Expanding signal lock-in range

- 1) Press **▲▼◀▶** to select the signal to set.
- 2) Press the **<ENTER>** button.
 - The [REGISTERED SIGNAL STATUS] screen is displayed.
- 3) Press the **<ENTER>** button.
 - The [REGISTERED SIGNAL SETUP] screen is displayed.
- 4) Press **▲▼** to select [LOCK-IN RANGE].
- 5) Press **◀▶** to switch the item.
 - The items will switch each time you press the button.

[NARROW]	Select this item usually.
[WIDE]	Widens the lock-in range.

- An expansion icon is displayed at the right of the [SIGNAL LIST] screen when [LOCK-IN RANGE] is set to [WIDE].

**Note**

- Switch the range where the signal to be input is determined to be the same signal as the already registered signal.
- To prioritize the determination that a signal is the same as the already registered signal, set this function to [WIDE].
- Use in cases such as when the synchronizing frequency of a signal to be input has changed slightly, or multiple signal lists are registered.
- When [WIDE] is set, the image may be distorted because a signal is recognized as the same even if its synchronizing frequency varies slightly.
- When a signal to be input corresponds to multiple signals set in [WIDE], a registered signal with a high memory number receives priority. Example: a signal to be input that corresponds to memory numbers A2, A4 and B1 will be determined to be B1.
- When a registration signal is deleted, the settings are also deleted.
- In an environment where multiple types of signals are input to the same terminal, signals are sometimes not determined correctly when the setting is set to [WIDE].

Sub memory

The projector has a sub memory function that can register the multiple image adjustment data, even if it is recognized as the same signal by the frequency or format of the synchronization signal source.

Use this function when you need to switch the aspect or adjust the picture quality such as the white balance while using the same signal source. The sub memory includes all the data that can be adjusted for each signal, such as the image aspect ratio and data adjusted in the [PICTURE] menu (items such as [CONTRAST] and [BRIGHTNESS]).

Registering to the sub memory

- 1) **While in the normal screen (where no menu is displayed), press ▲▼.**
 - The sub memory registration screen is displayed if the sub memory is not registered. Proceed to Step 3).
 - A list of sub memories registered to the signal currently input is displayed.
 - The <FUNCTION> button on the remote control can be used instead of ▲▼ when [SUB MEMORY] is selected from the [PROJECTOR SETUP] menu → [FUNCTION BUTTON].
- 2) **Press ▲▼◀▶ to select the sub memory number to register in [SUB MEMORY LIST].**
- 3) **Press the <ENTER> button.**
 - The [SIGNAL NAME CHANGE] screen is displayed.
- 4) **Press ▲▼◀▶ to select [OK], and press the <ENTER> button.**
 - To rename the registered signal, follow the procedure in Steps 6) and 7) in “Renaming the registered signal” (⇒ page 130).

Switching to the sub memory

- 1) **While in the normal screen (where no menu is displayed), press ▲▼.**
 - A list of sub memories registered to the signal currently input is displayed.
- 2) **Press ▲▼◀▶ to select the signal to switch in [SUB MEMORY LIST].**
- 3) **Press the <ENTER> button.**
 - This switches to the signal selected in Step 2).

Deleting the sub memory

- 1) **While in the normal screen (where no menu is displayed), press ▲▼.**
 - The [SUB MEMORY LIST] screen is displayed.
- 2) **Press ▲▼◀▶ to select the sub memory to be deleted, and press the <DEFAULT> button on the remote control.**
 - The [REGISTERED SIGNAL DELETE] screen is displayed.
 - To cancel the deletion, press the <MENU> button to return to the [SUB MEMORY LIST] screen.
- 3) **Press the <ENTER> button.**
 - The selected sub memory will be deleted.

[SECURITY] menu

On the menu screen, select [SECURITY] from the main menu, and select an item from the sub-menu. Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

- When the projector is used for the first time
Initial password: Press ▲▶▼◀◀▶▼◀ in order, and press the <ENTER> button.

Attention

- When you select the [SECURITY] menu and press the <ENTER> button, entering a password is prompted. Enter the preset password and then continue operations of the [SECURITY] menu.
- When the password has been changed previously, enter the changed password, and press the <ENTER> button.

Note

- The entered password is displayed with * marks on the screen.
- An error message is displayed on the screen when the entered password is incorrect. Re-enter the correct password.

[SECURITY PASSWORD]

Display the [SECURITY PASSWORD] screen when the power is turned on with the <MAIN POWER> switch set to the <OFF> side. When the entered password is incorrect, the operation will be restricted to the power <⏻/|> button.

- 1) Press ▲▼ to select [SECURITY PASSWORD].
- 2) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Disables the security password entry.
[ON]	Enables the security password entry.

Note

- The item is set to [OFF] by the factory default setting, or after initialized by one of the following methods. Set it to [ON] as necessary.
 - When initialized by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - When initialized by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]
- Change the password periodically that is hard to guess.
- The security password is enabled after setting [SECURITY PASSWORD] to [ON] and turning the <MAIN POWER> switch to <OFF>.

[SECURITY PASSWORD CHANGE]

Change the security password.

- 1) Press ▲▼ to select [SECURITY PASSWORD CHANGE].
- 2) Press the <ENTER> button.
 - The [SECURITY PASSWORD CHANGE] screen is displayed.
- 3) Press ▲▼◀▶ and the number (<0> - <9>) buttons to set the password.
 - Up to eight button operations can be set.
- 4) Press the <ENTER> button.
- 5) Re-enter the password for the confirmation.
- 6) Press the <ENTER> button.

Note

- The entered password is displayed with * marks on the screen.
- When numerical values are used for the security password, the security password is required to be initialized if the remote control is lost. Consult your dealer for the method of initialization.

[CONTROL DEVICE SETUP]

Enable/disable the button operations on the control panel and the remote control.

- 1) Press ▲▼ to select [CONTROL DEVICE SETUP].
- 2) Press the <ENTER> button.
 - The [CONTROL DEVICE SETUP] screen is displayed.
- 3) Press ▲▼ to select [CONTROL PANEL] or [REMOTE CONTROL].

[CONTROL PANEL]	Sets the limitation on the control from the control panel.
[REMOTE CONTROL]	Sets the limitation on the control from the remote control.

- 4) Press the <ENTER> button.
 - The [CONTROL PANEL] screen or the [REMOTE CONTROL] screen is displayed.
- 5) Press ▲▼ to select [CONTROL PANEL] or [REMOTE CONTROL].
- 6) Press ◀▶ to switch the item.
 - You can set the operation restriction from the control panel or the remote control.

[ENABLE]	Enables all button operations.
[DISABLE]	Disables all button operations.
[USER]	Operation of all buttons can be enabled/disabled separately. Refer to “Enabling/disabling any button” (➔ page 134) for details.

- 7) Press ▲▼ to select [APPLY], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 8) Press ◀▶ to select [OK], and press the <ENTER> button.

Enabling/disabling any button

- 1) Press ▲▼ to select [CONTROL DEVICE SETUP].
- 2) Press the <ENTER> button.
 - The [CONTROL DEVICE SETUP] screen is displayed.
- 3) Press ▲▼ to select [CONTROL PANEL] or [REMOTE CONTROL].
- 4) Press the <ENTER> button.
 - The [CONTROL PANEL] screen or the [REMOTE CONTROL] screen is displayed.
- 5) Press ▲▼ to select [CONTROL PANEL] or [REMOTE CONTROL].
- 6) Press ◀▶ to switch [USER].
- 7) Press ▲▼ to select the button item to set.
 - When [INPUT SELECT BUTTON] is selected in [REMOTE CONTROL], press the <ENTER> button, and then press ▲▼ to select the button to set.

	Buttons that can be set	
	[CONTROL PANEL]	[REMOTE CONTROL]
[POWER BUTTON]	Power <⏻/ >button	
[INPUT SELECT BUTTON]	<INPUT SELECT> button	<COMPUTER> button, <HDMI 1> button, <HDMI 2> button, <DIGITAL LINK> button
[MENU BUTTON]	<MENU> button	
[AUTO SETUP BUTTON]	—	<AUTO SETUP> button
[SHUTTER BUTTON]	—	<SHUTTER> button
[ON SCREEN BUTTON]	—	<ON SCREEN> button
[OTHER BUTTON]	▲▼◀▶, <ENTER> button	Buttons not listed above

8) Press ◀▶ to switch the item.

[ENABLE]	Enables button operations.
[DISABLE]	Disables button operations.

9) Press ▲▼ to select [APPLY], and press the <ENTER> button.

- The confirmation screen is displayed.

10) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- When a button operation is performed on the device set to [DISABLE], the [CONTROL DEVICE PASSWORD] screen is displayed. Enter the control device password.
- The [CONTROL DEVICE PASSWORD] screen will disappear when there is no operation for approx. 10 seconds.
- If the operations of both [CONTROL PANEL] and [REMOTE CONTROL] are set to [DISABLE], the projector cannot be turned off (cannot enter standby).
- When the setting has completed, the menu screen will disappear. To operate continuously, press the <MENU> button to display the main menu.
- Even when you set button operations on the remote control disabled, operations of the <ID SET> and <ID ALL> buttons on the remote control are kept enabled.

[CONTROL DEVICE PASSWORD CHANGE]

The control device password can be changed.

1) Press ▲▼ to select [CONTROL DEVICE PASSWORD CHANGE].

2) Press the <ENTER> button.

- The [CONTROL DEVICE PASSWORD CHANGE] screen is displayed.

3) Press ▲▼◀▶ to select the text, and press the <ENTER> button to enter the text.

4) Press ▲▼◀▶ to select [OK], and press the <ENTER> button.

- To cancel, select [CANCEL].

Attention

- The initial password is "AAAA" by the factory default setting, or after initialized by one of the following methods.
 - When initialized by selecting the [PROJECTOR SETUP] menu → [INITIALIZE] → [FACTORY RESET]
 - When initialized by setting the [PROJECTOR SETUP] menu → [INITIALIZE] → [USER SETTINGS] → [OTHER USER SETTING] to [INITIALIZE]
- Change the password periodically that is hard to guess.
- To initialize your password, consult your distributor.

[NETWORK] menu

On the menu screen, select [NETWORK] from the main menu, and select an item from the sub-menu. Refer to “Navigating through the menu” (➔ page 63) for the operation of the menu screen.

[ETHERNET TYPE]

Set the path for transmitting the Ethernet signal.

- 1) Press ▲▼ to select [ETHERNET TYPE].
- 2) Press the <ENTER> button.
 - The [ETHERNET TYPE] screen is displayed.
- 3) Press ▲▼ to switch the item.
 - The items will switch each time you press the button.

[LAN]	Select this item when using only the <LAN> terminal to transmit the Ethernet signal.
[DIGITAL LINK]	Select this item when using only the <DIGITAL LINK/LAN> terminal to transmit the Ethernet signal.
[LAN & DIGITAL LINK]	Select this item when using the <DIGITAL LINK/LAN> terminal and the <LAN> terminal to transmit the Ethernet signal.

- 4) Press the <ENTER> button.

Note

- When [ETHERNET TYPE] is set to [LAN], the Ethernet and serial control signals cannot be transmitted via the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) connected to the <DIGITAL LINK/LAN> terminal.
- When [ETHERNET TYPE] is set to [LAN & DIGITAL LINK], the <DIGITAL LINK/LAN> terminal and the <LAN> terminal are connected inside the projector. Do not directly connect the <DIGITAL LINK/LAN> terminal and the <LAN> terminal using a LAN cable. Construct the system so that it is not connected to the same network via the peripherals such as the switching hub or the twisted-pair-cable transmitter.

[DIGITAL LINK]

Make settings and operations related to DIGITAL LINK.

[DIGITAL LINK MODE]

Switch the communication method of the <DIGITAL LINK/LAN> terminal of the projector.

- 1) Press ▲▼ to select [DIGITAL LINK].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK] screen is displayed.
- 3) Press ▲▼ to select [DIGITAL LINK MODE].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[AUTO]	Switches the communication method automatically to DIGITAL LINK, long reach, or Ethernet.
[DIGITAL LINK]	Fixes the communication method to DIGITAL LINK.
[LONG REACH]	Fixes the communication method to long reach.
[ETHERNET]	Fixes the communication method to Ethernet.

Possible communication modes

- ✓: Communication possible
- : Communication not possible

Setting		Communication possible			
		Video transfer (100 m (328'1"))	Video transfer (150 m (492'2"))	Ethernet	RS-232C
[AUTO]	For DIGITAL LINK	✓	—	✓	✓
	For long reach	—	✓	✓	✓
	For Ethernet	—	—	✓ ^{*1}	—
[DIGITAL LINK]		✓	—	✓	✓
[LONG REACH]		—	✓	✓	✓
[ETHERNET]		—	—	✓ ^{*1}	—

*1 Communication via a twisted-pair-cable transmitter is not available. Connect the projector to the network directly.

Note

- For the signal with the resolution of 1 920 x 1 200 dots or less, the maximum transmission distance is 100 m (328'1") when connected with the DIGITAL LINK communication method. For the signal with the resolution exceeding 1 920 x 1 200 dots, the maximum transmission distance is 50 m (164'1").
- The maximum transmission distance when connected with the long-reach communication method is 150 m (492'2"). In this case, the signal that the projector can receive is only up to 1080/60p (1 920 x 1 080 dots, dot clock frequency 148.5 MHz).
- If the communication method of the twist-pair-cable transmitter is set to long reach, the projector will connect with long-reach communication method when the item is set to [AUTO]. To connect with the optional DIGITAL LINK Switcher (Model No.: ET-YFB200G) with the long-reach communication method, set the item to [LONG REACH].
- Even when the item is set to [LONG REACH], connection will not be made correctly if the twist-pair-cable transmitter is not supporting the long-reach communication method.

[DIGITAL LINK STATUS]

Display the DIGITAL LINK connection environment.

- 1) Press ▲▼ to select [DIGITAL LINK].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK] screen is displayed.
- 3) Press ▲▼ to select [DIGITAL LINK STATUS].
- 4) Press the <ENTER> button.
 - The [DIGITAL LINK STATUS] screen is displayed.

[LINK STATUS]	The content of display is as follows. [DIGITAL LINK]: Communicating in the DIGITAL LINK method. [LONG REACH]: Communicating in the long reach method. [ETHERNET]: Communicating in the Ethernet method. [NO LINK]: Communication is not established.
[HDCP STATUS]	One of [NO SIGNAL], [OFF], or [ON] is displayed. The content of display is as follows. [HDCP2.X]: When protected with HDCP 2.2 or HDCP 2.3 [HDCP1.X]: When protected with HDCP 1.X [NONE]: When not protected with HDCP [---]: When there is no signal
[SIGNAL QUALITY]	[SIGNAL QUALITY] is a numerical value of the amount of error, and the display color changes to green, yellow, or red depending on that value. Check the signal quality level while receiving a signal from the twisted-pair-cable transmitter. <ul style="list-style-type: none"> • [MAX]/[MIN]: Maximum/minimum value of the amount of error • Green (–12 dB or lower) → normal signal quality level. • Yellow (–11 to –8 dB) → caution level that noise may appear on the screen. • Red (–7 dB or higher) → abnormal level with interrupted synchronization and receiving not possible.

[DIGITAL LINK MENU]

When the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) is connected to the <DIGITAL LINK/LAN> terminal, the main menu of the connected DIGITAL LINK output supported device is displayed. Refer to the Operating Instructions of the DIGITAL LINK output supported device for details.

Note

- [DIGITAL LINK MENU] cannot be selected when the [NETWORK] menu → [DIGITAL LINK] → [EXTRON XTP] is set to [ON].

[EXTRON XTP]

Make connection setting for the "XTP transmitter" of Extron Electronics.

- 1) Press ▲▼ to select [DIGITAL LINK].
- 2) Press the <ENTER> button.
 - The [DIGITAL LINK] screen is displayed.
- 3) Press ▲▼ to select [EXTRON XTP].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Select this item when connecting the optional DIGITAL LINK output supported device (Model No.: ET-YFB100G, ET-YFB200G) to the <DIGITAL LINK/LAN> terminal.
[ON]	Select this item when connecting the "XTP transmitter" of Extron Electronics to the <DIGITAL LINK/LAN> terminal.

Note

- For details of the "XTP transmitter", visit the website of Extron Electronics.
URL <http://www.extron.com/>

[WIRED LAN]

Perform the connection setting to use the wired LAN.

- 1) Press ▲▼ to select [WIRED LAN].
- 2) Press the <ENTER> button.
 - The [WIRED LAN] screen is displayed.
- 3) Press ▲▼ to select an item, and change the settings according to the operation instructions of the menu.

[DHCP]	[ON]	If a DHCP server exists in the network where the projector is to be connected, obtains the IP address automatically.
	[OFF]	If a DHCP server does not exist in the network where the projector is to be connected, set [IP ADDRESS], [SUBNET MASK], and [DEFAULT GATEWAY].
[IP ADDRESS]	Enter the IP address when a DHCP server is not used.	
[SUBNET MASK]	Enter the subnet mask when a DHCP server is not used.	
[DEFAULT GATEWAY]	Enter the default gateway address when a DHCP server is not used.	

- 4) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 5) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- When using a DHCP server, confirm that the DHCP server is running.
- Consult your network administrator regarding the IP address, subnet mask, and default gateway.
- The network setting is common for the <LAN> terminal and the <DIGITAL LINK/LAN> terminal.
- [WIRED LAN] cannot be selected when the [NETWORK] menu → [Art-Net] → [Art-Net SETUP] is set to [ON(2.X.X.X)] or [ON(10.X.X.X)].
- Wired LAN and wireless LAN cannot be used in the same segment.

[WIRELESS LAN]

Set the connection method of wireless LAN and its details.

- To use the wireless LAN function with the projector, it is necessary to attach the optional Wireless Module (Model No.: AJ-WM50 Series) to the <USB (DC OUT)> terminal.

- 1) Press ▲▼ to select [WIRELESS LAN].

2) Press ◀▶ to switch the item.

- The items will switch each time you press the button.

[ENABLE]	Select this item when the wireless LAN is to be used. A device such as a smartphone can be directly connected to the projector even if a wireless LAN access point is not set up separately because the projector is used as a simplified access point. For setting procedure of the connection key, refer to "Setting the connection key" (➔ page 139).
[DISABLE]	Select this item when the wireless LAN is not to be used.

Note

- [WIRELESS LAN] cannot be set if the optional Wireless Module (Model No.: AJ-WM50 Series) is not attached to the <USB (DC OUT)> terminal.
- Maximum number of devices that can be connected simultaneously to the projector via wireless LAN is four devices.

Setting the connection key

- 1) Press ▲▼ to select [WIRELESS LAN].
- 2) Press ◀▶ to select [ENABLE].
- 3) Press the <ENTER> button.
 - The [WIRELESS LAN] screen is displayed.
- 4) Press ▲▼ to select [KEY].
- 5) Press the <ENTER> button.
 - The [KEY] screen is displayed.
- 6) Press ▲▼◀▶ to select the text, and press the <ENTER> button to enter the text.
 - The character string that can be registered as the connection key is as follows.
 - 8 to 15 single-byte alphanumeric characters
- 7) After entering the connection key, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
- 8) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 9) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- The factory default setting of the connection key is "spjcxxxx". xxxx is the four digit number assigned for each product.

[PROJECTOR NAME]

Change the projector name. Enter the host name if it is required to use a DHCP server.

- 1) Press ▲▼ to select [PROJECTOR NAME].
- 2) Press the <ENTER> button.
 - The [PROJECTOR NAME CHANGE] screen is displayed.
- 3) Press ▲▼◀▶ to select the text, and press the <ENTER> button to enter the text.
 - Up to 12 characters can be entered.
- 4) After entering the projector name, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - To cancel, select [CANCEL].

Note

- The factory default setting of the projector name is "NAMExxxx". xxxx is the four digit number assigned for each product.

[NETWORK STATUS]

Display the network information of the projector.

- 1) Press ▲▼ to select [NETWORK STATUS].

- 2) Press the <ENTER> button.
 - The [NETWORK STATUS] screen is displayed.
- 3) Press ◀▶ to switch the display screen.
 - The page will change each time you press the button.
[WIRED LAN] (page 1/3), [WIRELESS LAN] (page 2/3), [WIRELESS LAN] (page 3/3)

[WIRED LAN]	[DHCP]	Displays the status of use of the DHCP server.
	[IP ADDRESS]	Displays the [IP ADDRESS].
	[SUBNET MASK]	Displays the [SUBNET MASK].
	[DEFAULT GATEWAY]	Displays the [DEFAULT GATEWAY].
	[DNS1]	Displays the address of the preferred DNS server.
	[DNS2]	Displays the address of the alternate DNS server.
	[MAC ADDRESS]	Displays the [MAC ADDRESS] of wired LAN.
[WIRELESS LAN]	[SSID]	Displays the string of SSID.
	[KEY]	Displays the connection key. Displays/hides the connection key by pressing the <ENTER> button.
	[AUTHENTICATION]	Displays the user authentication method.
	[ENCRYPTION]	Displays the encryption method.
	[IP ADDRESS]	Displays the [IP ADDRESS].
	[SUBNET MASK]	Displays the [SUBNET MASK].
	[MAC ADDRESS]	Displays the [MAC ADDRESS] of wireless LAN.

Note

- The [WIRELESS LAN] page in [NETWORK STATUS] screen is not displayed in following cases.
 - When the optional Wireless Module (Model No.: AJ-WM50 Series) is not attached to the <USB (DC OUT)> terminal
 - When the [NETWORK] menu → [WIRELESS LAN] is set to [DISABLE]
- A QR code, which makes connection setting with a smartphone easier, is displayed in [WIRELESS LAN] (page 2/3). To directly connect a smartphone to the projector using the QR code, refer to “Using the QR code” (▶ page 152).

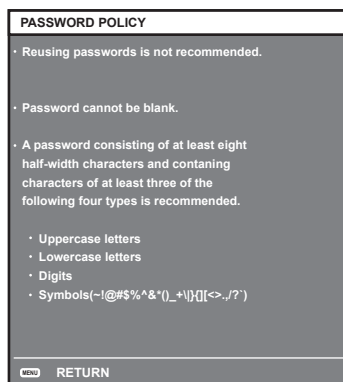
[ADMINISTRATOR ACCOUNT]

Set the user name and password of the administrator account.

[PASSWORD POLICY]

Display the policies about the password for the administrator account.

- 1) Press ▲▼ to select [ADMINISTRATOR ACCOUNT].
- 2) Press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 3) Press ▲▼ to select [PASSWORD POLICY], and press the <ENTER> button.
 - The [PASSWORD POLICY] screen is displayed.



Setting the administrator account for the first time

Set the user name and password of the administrator account.

- 1) Press ▲▼ to select [ADMINISTRATOR ACCOUNT].
- 2) Press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 3) Press ▲▼ to select [USER NAME], and press the <ENTER> button.
 - The [USER NAME] screen is displayed.
 - The factory default setting of user name is "dispadmin".
- 4) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Up to 16 characters can be entered.
- 5) After entering the user name, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 6) Press ▲▼ to select [PASSWORD], and press the <ENTER> button.
 - The [PASSWORD] screen is displayed.
- 7) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Up to 16 characters can be entered.
 - The password cannot be blank.
- 8) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 9) Press ▲▼ to select [PASSWORD CONFIRM], and press the <ENTER> button.
 - The [PASSWORD CONFIRM] screen is displayed.
- 10) Enter the password entered in Step 7).
- 11) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 12) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 13) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- For restrictions on character strings that can be set for password, refer to [PASSWORD POLICY] (▶ page 140) .
- If the password of the administrator account has not been set, that is, if it is left blank, the network function of this projector cannot be used. Set a password before using the web control function or the communication control (including operation with application software) via LAN.
- The user name and password of a standard user account without administrator rights can be set on the "[Set up password] page (for administrator account)" (▶ page 177) of the web control screen.

Changing settings of the administrator account

Change the user name and password of the administrator account.

- 1) Press ▲▼ to select [ADMINISTRATOR ACCOUNT].
- 2) Press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 3) Press ▲▼ to select [USER NAME] under [CURRENT], and press the <ENTER> button.
 - The [USER NAME] screen is displayed.
- 4) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Enter the current user name.
- 5) After entering the user name, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 6) Press ▲▼ to select [PASSWORD] under [CURRENT], and press the <ENTER> button.
 - The [PASSWORD] screen is displayed.

- 7) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Enter the current password.
- 8) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 9) Press ▲▼ to select [USER NAME] under [NEW], and press the <ENTER> button.
 - The [USER NAME] screen is displayed.
- 10) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Enter a new user name.
 - Enter the current user name if you do not want to change it.
 - Up to 16 characters can be entered.
- 11) After entering the user name, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 12) Press ▲▼ to select [PASSWORD] under [NEW], and press the <ENTER> button.
 - The [PASSWORD] screen is displayed.
- 13) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Enter a new password.
 - Up to 16 characters can be entered.
 - Enter the current password if you do not want to change it.
- 14) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 15) Press ▲▼ to select [PASSWORD CONFIRM] under [NEW], and press the <ENTER> button.
 - The [PASSWORD CONFIRM] screen is displayed.
- 16) Enter the password entered in Step 13).
- 17) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [ADMINISTRATOR ACCOUNT] screen is displayed.
- 18) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 19) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- For restrictions on character strings that can be set for password, refer to [PASSWORD POLICY] (➔ page 140).
- The user name and password of the administrator account can also be changed on the "[Set up password] page (for administrator account)" (➔ page 177) of the web control screen.
- The user name and password of a standard user account without administrator rights can be set on the "[Set up password] page (for administrator account)" (➔ page 176) of the web control screen.

[NETWORK SECURITY]

Make settings to protect the projector from external attacks via LAN and unauthorized use.

Setting the password of the administrator account (➔ page 140) is required for using the network function of the projector.

[COMMAND PROTECT]

Make settings for the connection authentication when using the command control function.

- 1) Press ▲▼ to select [NETWORK SECURITY].
- 2) Press the <ENTER> button.
 - The [NETWORK SECURITY] screen is displayed.
- 3) Press ◀▶ to switch the [COMMAND PROTECT] setting.

[ENABLE]	Connect to the projector in protected mode. The user name and password of the administrator account are required for the connection authentication.
[DISABLE]	Connect to the projector in non-protected mode. Connection authentication is not performed.

- The confirmation screen is displayed once the setting is switched.
- 4) Press ◀▶ to select [OK], and press the <ENTER> button.
 - The [COMMAND PROTECT] screen is displayed.
 - 5) Press ▲▼ to select [PASSWORD], and press the <ENTER> button.
 - The [PASSWORD] screen is displayed.
 - 6) Press ▲▼◀▶ to select a character, and press the <ENTER> button.
 - Enter the password of the administrator account.
 - 7) After entering the password, press ▲▼◀▶ to select [OK], and press the <ENTER> button.
 - The [COMMAND PROTECT] screen is displayed.
 - 8) Press ▲▼◀▶ to select [OK], and press the <ENTER> button.

Note

- When [COMMAND PROTECT] is set to [DISABLE], connection authentication is not performed, making it vulnerable to threats on the network. Be aware of the risks before making settings.
- For details on how to use the command control function, refer to "Control commands via LAN". (➔ page 204)

[NETWORK CONTROL]

Set the network control of this projector.

Setting the password of the administrator account (➔ page 140) is required for using the network function of the projector.

- 1) Press ▲▼ to select [NETWORK CONTROL].
- 2) Press the <ENTER> button.
 - The [NETWORK CONTROL] screen is displayed.
- 3) Press ▲▼ to select an item, and press ◀▶ to change the setting.

[WEB CONTROL]	Set to [ON] to control with the web browser.
[COMMAND CONTROL]	Set to [ON] to control with the control command format (➔ page 209) for the <SERIAL IN> terminal. Refer to "Control commands via LAN" (➔ page 204).
[COMMAND PORT]	Set the port number used for command control.
[Crestron Connected(TM)]	Set to [ON] to control with Crestron Connected of Crestron Electronics, Inc.
[AMX D.D.]	Set to [ON] to control with the controller of AMX Corporation. Setting this function to [ON] enables detection through "AMX Device Discovery". For details, visit the website of AMX Corporation. URL http://www.amx.com/

- 4) Press ▲▼ to select [STORE], and press the <ENTER> button.
 - The confirmation screen is displayed.
- 5) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- If the password of the administrator account has not been set, that is, if it is left blank, the network function of this projector cannot be used. Set a password before using the web control function or the communication control (including operation with application software) via LAN.

[PJLink]

Set the PJLink function to control and monitor the projector using the PJLink protocol.

Setting the password of the administrator account (➔ page 140) is required for using the PJLink function of the projector.

Note

- If the password of the administrator account has not been set, that is, if it is left blank, the network function of this projector cannot be used. Set a password before using the web control function or the communication control (including operation with application software) via LAN.

[PJLink PASSWORD]

Set the password for security authentication which is required when connecting to the projector.

- 1) Press **▲▼** to select [PJLink].
- 2) Press the **<ENTER>** button.
 - The [PJLink] screen is displayed.
- 3) Press **▲▼** to select [PJLink PASSWORD], and press the **<ENTER>** button.
 - The [PJLink PASSWORD] screen is displayed.
- 4) Press **▲▼** to select [PASSWORD] under [CURRENT], and press the **<ENTER>** button.
 - The [PASSWORD] screen is displayed.
- 5) Press **▲▼◀▶** to select a character, and press the **<ENTER>** button.
 - Enter the current password.
 - The factory default setting of password is blank.
- 6) After entering the password, press **▲▼◀▶** to select [OK], and press the **<ENTER>** button.
 - The [PJLink PASSWORD] screen is displayed.
- 7) Press **▲▼** to select [PASSWORD] under [NEW], and press the **<ENTER>** button.
 - The [PASSWORD] screen is displayed.
- 8) Press **▲▼◀▶** to select a character, and press the **<ENTER>** button.
 - Enter a new password.
 - Up to 32 alphanumeric characters can be entered.
- 9) After entering the password, press **▲▼◀▶** to select [OK], and press the **<ENTER>** button.
 - The [PJLink PASSWORD] screen is displayed.
- 10) Press **▲▼** to select [PASSWORD CONFIRM], and press the **<ENTER>** button.
 - The [PASSWORD CONFIRM] screen is displayed.
- 11) Enter the password entered in Step 8).
- 12) After entering the password, press **▲▼◀▶** to select [OK], and press the **<ENTER>** button.
 - The [PJLink PASSWORD] screen is displayed.
- 13) Press **▲▼** to select [STORE], and press the **<ENTER>** button.
 - The confirmation screen is displayed.
- 14) Press **◀▶** to select [OK], and press the **<ENTER>** button.

Note

- The PJLink password can also be changed on the "[Set up password] page (for administrator account)" (➔ page 176) of the web control screen.

[PJLink CONTROL]

Set to enable or disable the PJLink protocol control function.

- 1) Press **▲▼** to select [PJLink].
- 2) Press the **<ENTER>** button.
 - The [PJLink] screen is displayed.
- 3) Press **▲▼** to select [PJLink CONTROL].
- 4) Press **◀▶** to switch the item.
 - The items will switch each time you press the button.

[ON]	Enables PJLink protocol control function.
[OFF]	Disables PJLink protocol control function.

[PJLink NOTIFICATION]

Set to enable or disable the PJLink notification function.

- 1) Press ▲▼ to select [PJLink].
- 2) Press the <ENTER> button.
 - The [PJLink] screen is displayed.
- 3) Press ▲▼ to select [PJLink NOTIFICATION].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Disables the PJLink notification function.
[ON]	Enables the PJLink notification function.

- If [ON] is selected, proceed to Step 5).
- 5) Press ▲▼ to select [NOTIFIED IP ADDRESS 1] or [NOTIFIED IP ADDRESS 2].
 - Enter the IP address of the computer to notify the status of the projector.

[Art-Net]

Set the Art-Net function.

Setting the password of the administrator account (➔ page 140) is required for using the Art-Net function of the projector.

Note

- If the password of the administrator account has not been set, that is, if it is left blank, the network function of this projector cannot be used. Set a password before using the web control function or the communication control (including operation with application software) via LAN.

[Art-Net SETUP]

Make settings to use the Art-Net function.

- 1) Press ▲▼ to select [Art-Net].
- 2) Press the <ENTER> button.
 - The [Art-Net] screen is displayed.
- 3) Press ▲▼ to select [Art-Net SETUP].
- 4) Press ◀▶ to switch the item.
 - The items will switch each time you press the button.

[OFF]	Disables the Art-Net function.
[ON(2.X.X.X)]	Enables the Art-Net function and sets the IP address to 2.X.X.X.
[ON(10.X.X.X)]	Enables the Art-Net function and sets the IP address to 10.X.X.X.
[ON(MANUAL)]	Enables the Art-Net function and uses the IP address set in [WIRED LAN].

- Proceed to Step 5) when anything other than [OFF] is selected.
- 5) Press the <ENTER> button.
 - The [Art-Net SETUP] screen is displayed.
 - 6) Press ▲▼ to select an item, and press ◀▶ to switch the setting.

[NET]	Enter [NET] to be used when the projector processes Art-Net.
[SUB NET]	Enter [SUB NET] to be used when the projector processes Art-Net.
[UNIVERSE]	Enter [UNIVERSE] to be used when the projector processes Art-Net.
[START ADDRESS]	Enter [START ADDRESS] to be used when the projector processes Art-Net.

7) Press ▲▼ to select [STORE], and press the <ENTER> button.

- The confirmation screen is displayed.

8) Press ◀▶ to select [OK], and press the <ENTER> button.

Note

- If [ON(2.X.X.X)] or [ON(10.X.X.X)] is selected, IP address is calculated and set automatically.
- The network setting is common for the <LAN> terminal and the <DIGITAL LINK/LAN> terminal.

[Art-Net CHANNEL SETTING]

Set the assignment of the channel.

For the channel definitions used for controlling the projector with the Art-Net function, refer to “Using Art-Net function” (➔ page 200).

1) Press ▲▼ to select [Art-Net].

2) Press the <ENTER> button.

- The [Art-Net] screen is displayed.

3) Press ▲▼ to select [Art-Net CHANNEL SETTING].

4) Press ◀▶ to switch the item.

[2]	Uses the channel assignment in standard setting.
[USER]	Changes the channel assignment.
[1]	Uses the channel assignment with DZ21K series compatible. DZ21K series: DZ21K series, DS20K series, DW17K series, DZ16K series

- Proceed to Step 6) when anything other than [USER] is selected. The function assigned to the channel is displayed by pressing the <ENTER> button.
- Proceed to Step 5) when [USER] is selected.

5) Press the <ENTER> button.

- The [CHANNEL SETUP] screen is displayed.

6) Press ▲▼ to select the channel to set, and press ◀▶ to switch the item.

[LIGHT OUTPUT]	Adjusts the amount of light.
[INPUT SELECT]	Switches the input.
[POWER]	Controls the power status.
[SHUTTER]	Controls the shutter function.
[FADE-IN]	Sets the fade-in time.
[FADE-OUT]	Sets the fade-out time.
[GEOMETRY]	Performs geometric adjustment.
[CUSTOM MASKING]	Performs geometric adjustment using a computer.
[FREEZE]	Freezes the projected image, and turns off the audio.
[COLOR]	Adjusts the color saturation.
[TINT]	Adjusts the tint.
[RASTER PATTERN]	Displays the raster pattern.
[AUDIO VOLUME]	Adjusts the volume.
[ENABLE / DISABLE]	Enables/disables the control of the projector with the Art-Net function.
[NONE]	No definition

- The setting can be also made by pressing ▲▼ to select the channel, pressing the <ENTER> button to display the item list, pressing ▲▼◀▶ to select the item, and pressing the <ENTER> button.
- Same item cannot be set for multiple channels, except for [NONE].

[Art-Net STATUS]

Display the content of control assigned to each channel and the received data of that channel.

1) Press ▲▼ to select [Art-Net].

- 2) **Press the <ENTER> button.**
 - The **[Art-Net]** screen is displayed.
- 3) **Press ▲▼ to select [Art-Net STATUS].**
- 4) **Press the <ENTER> button.**
 - The **[Art-Net STATUS]** screen is displayed

Chapter 5 Operations

This chapter describes how to use each function.

Network connection

The projector is equipped with the network function, and following is possible by connecting to a computer.

- **Web control**

Setting, adjustment, and displaying status of the projector are possible by accessing the projector from a computer.

Refer to “Using the web control function” (➔ page 154) for details.

- **Multi Monitoring & Control Software**

“Multi Monitoring & Control Software”, a software application to monitor and control multiple display devices (projector or flat panel display) connected to intranet, can be used.

Plug-in software “Early Warning Software”, which monitors the status of the display devices and their peripherals within an intranet, and notifies of abnormality of such equipment and detects the signs of possible abnormality, can also be used.

For details, visit the website (<https://panasonic.net/cns/projector/>).

- **PJLink**

Operation or status query of the projector can be performed from a computer using the PJLink protocol.

Refer to “Using the PJLink function” (➔ page 199) for details.

- **Art-Net**

Setting of the projector can be operated by the DMX controller or application software using the Art-Net protocol.

Refer to “Using Art-Net function” (➔ page 200) for details.

- **Command control**

Operation or status query of the projector can be performed from a computer using the control command.

Refer to “Control commands via LAN” (➔ page 204) for details.

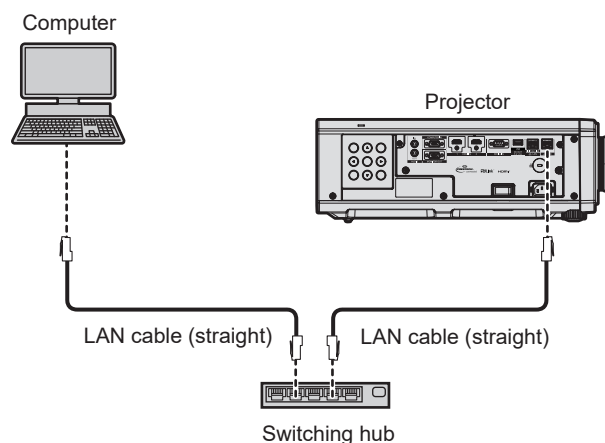
Note

- Setting the password of the administrator account (➔ page 140) is required for using the network function of the projector. If the password of the administrator account has not been set, that is, if it is left blank, the network function of this projector cannot be used. Set a password before using the web control function or the communication control (including operation with application software) via LAN.

Connecting via wired LAN

This projector can receive the Ethernet signal from the twisted-pair-cable transmitter via the LAN cable.

Example of general network connection



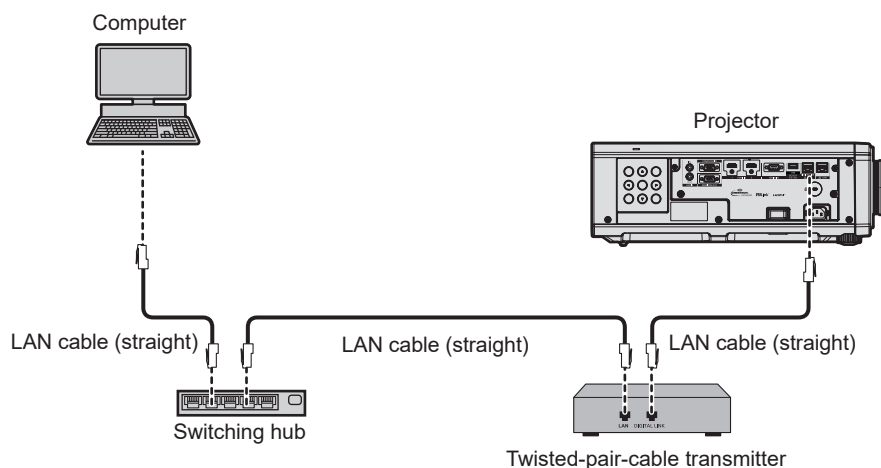
Attention

- When a LAN cable is directly connected to the projector, the network connection must be made indoors.

Note

- A LAN cable is required to use the network function.
- Use a straight or crossover LAN cable that is compatible with CAT5 or higher. Either the straight or the crossover cable, or both cables can be used depending on the system configuration. Consult your network administrator. The projector will determine the type of the cable (straight or crossover) automatically.
- Use a LAN cable of 100 m (328'1") or shorter.

Example of network connections via a twisted-pair-cable transmitter



Attention

- When a LAN cable is directly connected to the projector, the network connection must be made indoors.

Note

- For the LAN cable between the twisted-pair-cable transmitter and the projector, use a cable that meets the following criteria:
 - Conforming to CAT5e or higher standards
 - Shielded type (including connectors)
 - Straight-through
 - Single wire
 - Diameter of the cable core is same or larger than AWG24 (AWG24, AWG23, etc.)
- The maximum transmission distance between the twisted-pair-cable transmitter and the projector is 100 m (328'1") for the signal with resolution of 1 920 x 1 200 dots or less. For the signal with the resolution exceeding 1 920 x 1 200 dots, the maximum transmission distance is 50 m (164'1"). It is possible to transmit up to 150 m (492'2") if the twisted-pair-cable transmitter supports the long-reach communication method. However, the signal that the projector can receive is only up to 1080/60p (1 920 x 1 080 dots, dot clock frequency 148.5 MHz) for the long-reach communication method. If these distances are exceeded, image may be disrupted or a malfunction may occur in LAN communication.
- When laying cables between the twisted-pair-cable transmitter and the projector, confirm that cable characteristics are compatible with CAT5e or higher using tools such as a cable tester or cable analyzer. When a relay connector is used, include it in the measurement.
- Do not use a switching hub between the twisted-pair-cable transmitter and the projector.
- To transmit the Ethernet and serial control signals using the <DIGITAL LINK/LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [DIGITAL LINK] or [LAN & DIGITAL LINK].
- To transmit the Ethernet signal using the <LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [LAN] or [LAN & DIGITAL LINK].
- The <DIGITAL LINK/LAN> terminal and the <LAN> terminal are connected inside of the projector when the [NETWORK] menu → [ETHERNET TYPE] is set to [LAN & DIGITAL LINK]. Do not directly connect the <DIGITAL LINK/LAN> terminal and the <LAN> terminal using a LAN cable. Construct the system so that it is not connected to the same network via the peripherals such as the switching hub or the twisted-pair-cable transmitter.
- Do not pull cables forcefully. Also, do not bend or fold cables unnecessarily.
- To reduce the effects of noise as much as possible, stretch out the cables between the twisted-pair-cable transmitter and the projector without any loops.
- Lay the cables between the twisted-pair-cable transmitter and the projector away from other cables, particularly power cables.
- When laying multiple cables, run them side by side along the shortest distance possible without bundling them together.
- After laying the cables, go to the [NETWORK] menu → [DIGITAL LINK] → [DIGITAL LINK STATUS] and confirm that the value of [SIGNAL QUALITY] is displayed in green which indicates normal quality.
- For twisted-pair-cable transmitters of other manufacturers of which the operation has been verified with the projector, visit the website (<https://panasonic.net/cns/projector/>). Note that the verification for devices of other manufacturers has been made for the items set by Panasonic Connect Co., Ltd., and not all the operations have been verified. For operation or performance problems caused by the devices of other manufacturers, contact the respective manufacturers.

Setting the projector

- 1) Connect the projector to a computer using a LAN cable.
- 2) Turn on the power of the projector.
- 3) Press the <MENU> button to open the [NETWORK] menu from the main menu.
 - The [NETWORK] screen is displayed.

- 4) Press ▲▼ to select [WIRED LAN], and press the <ENTER> button.
 - The [WIRED LAN] screen is displayed.
- 5) Perform the [WIRED LAN] setting.
 - Refer to [WIRED LAN] (➡ page 138) for details.

Note

- To connect to an existing network, perform after consulting your network administrator.

■ Factory default setting

- Following setting has been made as a factory default.

[DHCP]	OFF
[IP ADDRESS]	192.168.0.8
[SUBNET MASK]	255.255.255.0
[DEFAULT GATEWAY]	192.168.0.1
[DNS1]/[DNS2]	None

Operating the computer

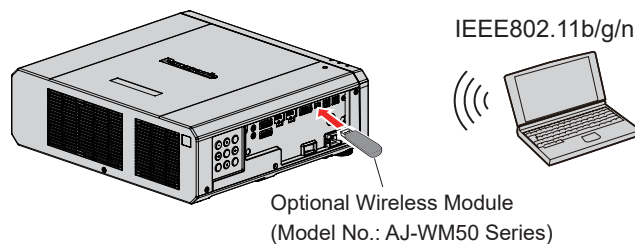
- 1) Turn on the power of the computer.
- 2) Perform the network setting following the instruction of your network administrator.
 - Operation from the computer is possible by configuring the network setting of the computer as follows if the projector is in the factory default setting.

[IP ADDRESS]	192.168.0.10
[SUBNET MASK]	255.255.255.0
[DEFAULT GATEWAY]	192.168.0.1

Connecting via wireless LAN

To use the wireless LAN function with the projector, it is necessary to attach the optional Wireless Module (Model No.: AJ-WM50 Series) to the <USB (DC OUT)> terminal.

Connecting example



Preparing and confirming the projector

- 1) Insert the optional Wireless Module (Model No.: AJ-WM50 Series) all the way into the <USB (DC OUT)> terminal.
- 2) Turn on the projector.
- 3) Press the <MENU> button to open the [NETWORK] menu from the main menu.
 - The [NETWORK] screen is displayed.
- 4) Press ▲▼ to select [WIRELESS LAN].
- 5) Press ◀▶ to set [ENABLE].
 - For details, refer to [WIRELESS LAN] (➡ page 138).
- 6) Press ▲▼ to select [NETWORK STATUS], and press the <ENTER> button.
 - The [NETWORK STATUS] screen is displayed.

7) Press ◀▶ to display [WIRELESS LAN] (page 2/3).

- Confirm [SSID] and [KEY].

Note

- [WIRELESS LAN] cannot be set if the optional Wireless Module (Model No.: AJ-WM50 Series) is not attached to the <USB (DC OUT)> terminal.
- Attach the Wireless Module to the <USB (DC OUT)> terminal directly without using a USB extension cable or USB hub.
- The indicator on the Wireless Module blinks in blue while the main power of the projector is turned on.
- If the indicator on the Wireless Module does not blink even when the projector is turned on, re-insert the Wireless Module into the <USB (DC OUT)> terminal.

Operating the computer

1) Turn on the computer.

2) Perform the network setting.

- Perform the network setting on the computer following the instruction of the network administrator so that it can be connected to the projector.

3) Connect the Wireless Module to the projector via wireless LAN.

- When connecting, confirm the [WIRELESS LAN] setting displayed in the [NETWORK STATUS] screen of the projector.

Using the QR code

A smartphone can be connected to the projector via wireless LAN just by reading the QR code that the projector displays with the camera on a smartphone.

■ **Compatible devices**

iPhone: iOS 11 or later

Android devices: Android 7.0 or later

Note

- A device supporting reading of a QR code and application software of the camera supporting reading of a QR code are required.
- For the devices that the operation has been verified with this projector, visit the website (<https://panasonic.net/cns/projector/>). Note that the verification for devices of other manufacturers has been made for the items set by Panasonic Connect Co., Ltd., and not all the operations have been verified. For operation or performance problems caused by the devices of other manufacturers, contact the respective manufacturers.

■ **Displaying the QR code in OSD**

The following is the operation of the projector when reading the QR code displayed in the on-screen menu (OSD).

1) Press the <MENU> button to open the [NETWORK] menu from the main menu.

- The [NETWORK] screen is displayed.

2) Press ▲▼ to select [NETWORK STATUS], and press the <ENTER> button.

- The [NETWORK STATUS] screen is displayed.

3) Press ◀▶ to switch the displayed screen and display [WIRELESS LAN] (page 2/3).

- The QR code is displayed.



Note

- The [WIRELESS LAN] page in [NETWORK STATUS] screen is not displayed in following cases.
 - When the optional Wireless Module (Model No.: AJ-WM50 Series) is not attached to the <USB (DC OUT)> terminal.
 - When the [NETWORK] menu → [WIRELESS LAN] is set to [DISABLE]

■ Operation of a smartphone

- 1) Start application software of the camera supporting reading of a QR code.
- 2) Read the QR code displayed in the OSD with the camera.
- 3) Tap the notification displayed on the smartphone screen.
 - Tap “Join” or “Connect” if a message to confirm the connection is displayed.
 - The smartphone will be connected to the projector via wireless LAN.

Using the web control function

Following operation is possible from a computer using the web control function.

- Setting and adjustment of the projector
- Display of the projector status
- Sending E-mail messages when there is a problem with the projector

The projector supports “Crestron Connected”, and the following application software of Crestron Electronics, Inc. can be used.

- Crestron Fusion

Note

- Communication with an E-mail server is required to use the E-mail function. Confirm that the E-mail can be used beforehand.
- “Crestron Connected” is a system of Crestron Electronics, Inc. that collectively manages and controls devices on multiple systems connected to a network using a computer.
- For details of “Crestron Connected”, visit the website of Crestron Electronics, Inc. (English only)
URL <https://www.crestron.com>

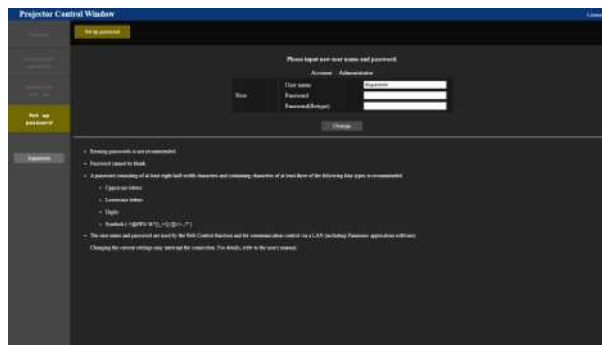
Computer that can be used for setting

To use the web control function, a web browser is required. Confirm that the web browser can be used in advance.

OS	Compatible browser
Windows	Internet Explorer 11.0, Microsoft Edge
Mac OS	Safari 11.0/12.0/13.0/14.0/15.0
iOS	Safari (version equipped with iOS 11, iOS 12, iOS 13, iOS 14 and iOS 15)
Android	Google Chrome (version equipped with Android 7.0/8.0/9.0/10.0/11.0/12.0)

Accessing from the web browser

- 1) Start up the web browser on the computer.
- 2) Enter the IP address set on the projector into the URL entry field of the web browser.
 - If the user name and password of the administrator account have been set on the initial setting screen (➔ page 49) or in the [NETWORK] menu → [ADMINISTRATOR ACCOUNT] (➔ page 140), proceed to Step 7).
 - The [Set up password] page is displayed if the administrator account has not been set.

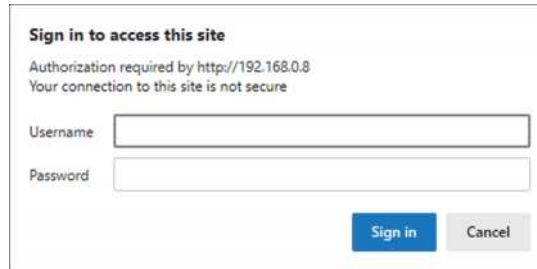


- 3) In [User name], enter the user name of the administrator account.
 - The factory default setting of user name is "dispadmin".
- 4) In [Password], enter the password of the administrator account.
 - The password cannot be blank.
 - A password consisting of at least eight single-byte characters is recommended.
 - A password consisting of at least three of the following four character types is recommended.
 - Uppercase letters
 - Lowercase letters
 - Digits
 - Symbols (~!@#\$%^&*()_+|\}][[<>.,/?')
- 5) In [Password(Retyp)], re-enter the password entered in Step 4).

6) Click [Change].

- Setting of the administrator account is completed.

7) Enter the user name and password on the displayed login screen.



- Enter the user name and password of the administrator account, or the user name and password of a standard user account without administrator rights.
- After logging in with the administrator account, set the user name and password of the standard user account using the [Set up password] page. For details, refer to “[Set up password] page (for administrator account)” (➡ page 176).

8) Click [Sign in] or [OK].

Attention

- The entry screen for the user name and password may be hidden by other window that is already opened. In such case, minimize the window in front to display the entry screen.

Note

- If you use a web browser to control the projector, set the [NETWORK] menu → [NETWORK CONTROL] → [WEB CONTROL] to [ON].
- Do not perform setting or control simultaneously by starting up multiple web browsers. Do not set or control the projector from multiple computers.
- Access will be locked for few minutes when an incorrect password is entered three times consecutively.
- Some items on the projector setting page use the JavaScript function of the web browser. Correct control may not be possible when the web browser is set not to use this function.
- If the screen for the web control is not displayed, consult your network administrator.
- While updating the screen for the web control, the screen may appear white for a moment, but it is not a malfunction.
- Click [License] at the top right of the [Set up password] page to display the download page of the open source software license.
- Screenshot of a computer
The size or the display of the screen may be different from this manual depending on the OS or the web browser, or the type of computer in use.

Rights for each account

The administrator account allows use of all functions. There is a limitation in the functions that can be used with the standard user account. Select the account depending on the purpose.

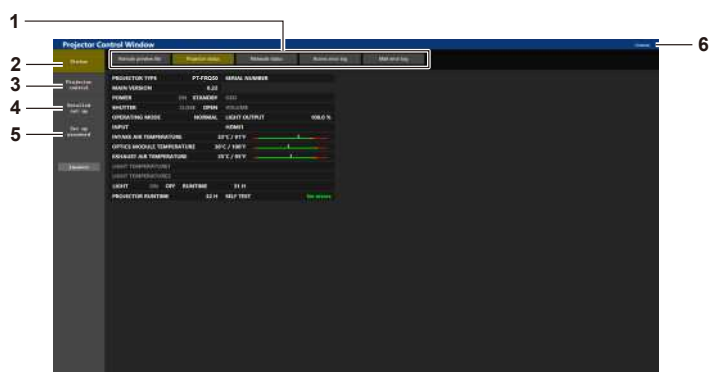
The function that has ✓ in the administrator / standard user column indicates that it can be operated with their respective accounts.

Item	Function	Administrator	Standard User	Page
[Status]	[Remote preview lite]	✓	✓ ^{*1}	157
	[Projector status]	✓	✓	159
	Error information page	✓	✓	160
	[Network status]	✓	✓	160
	[Access error log]	✓	—	160
	[Mail error log]	✓	—	161
[Projector control]	[Basic control]	✓	✓	161
	[Detail control]	✓	—	162
[Detailed set up]	[Network config]	✓	—	162
	[Adjust clock]	✓	—	164
	[Ping test]	✓	—	164
	[Certificate]	✓	—	165
	[HTTPS set up]	✓	—	170
	[Crestron Connected]	✓	—	171
	[E-mail set up]	✓	—	173
	[Authentication set up]	✓	—	174
	[User function set up]	✓	—	175
	[Status notification]	✓	—	175
	[Network security]	✓	—	176
[Set up password]	User name of [Administrator]	✓	—	177
	User name of [User]	✓	—	177
	Password of [Administrator]	✓	—	177
	Password of [User]	✓	✓	177, 178
	Password of [PJLink]	✓	—	178
[License] ^{*2}	License download page	✓	✓	178

*1 Available only when [Detailed set up] → [User function set up] → [Remote preview lite] is set to [Enable]. When [Disable] is set, the [Remote preview lite] page cannot be displayed or operated with the standard user account.

*2 Even if an administrator account is not set, the license can be downloaded from the [Set up password] page that is displayed when accessing the projector.

Descriptions of items



1 Page tab

Switches pages by clicking this item.

2 [Status]

The status of the projector is displayed by clicking this item.

3 [Projector control]

The [Projector control] page is displayed by clicking this item.

4 [Detailed set up]

The [Detailed set up] page is displayed by clicking this item.

5 [Set up password]

The [Set up password] page is displayed by clicking this item.

6 [License]

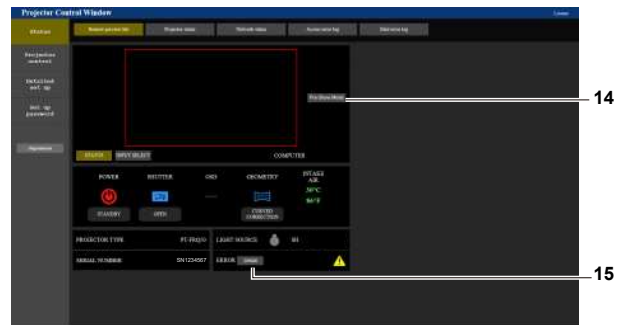
The download page of the open source software license is displayed by clicking this item.

[Status]

[Remote preview lite] page

The input image to the projector can be simply viewed on the web control screen.

Click [Status] → [Remote preview lite].





















- 1 **Preview window**
Simply displays the image corresponding to the input image to the projector.
Color of the outside border of the preview window indicates the projection status from the projector.
Red: Image from the projector is not projected.
Green: Image from the projector is being projected.
- 2 **[INPUT SELECT]**
Displays the operation menu for switching input.
For details, refer to “Switching the input” (➡ page 159).
- 3 **[STATUS]**
Displays the status of the projector.
- 4 **[SHUTTER]**
Displays the status of the shutter.
- 5 **[POWER]**
Displays the status of the power.
- 6 **[OSD]**
Displays the status of the on-screen display function.
- 7 **[PROJECTOR TYPE]**
Displays the type of the projector.
- 8 **[SERIAL NUMBER]**
Displays the serial number of the projector.
- 9 **Signal information**
Displays the signal information of the selected input.
- 10 **[INTAKE AIR]**
Displays the intake air temperature status.
- 11 **[GEOMETRY]**
Displays the setting of the [POSITION] menu → [GEOMETRY].
- 12 **[LIGHT SOURCE]**
Displays the illumination status (icon) and the runtime of the light source.
- 13 **[ERROR]**
Displays the occurrence status of error/warning in icon.
This will be blank if there is no occurrence of error/warning.
- 14 **[Pre-Show Mode]**
Switches the Pre-Show mode.
In the Pre-Show mode, the input image to the projector can be viewed without projecting even if the projector is in the standby status.
[Pre-Show Mode] is not displayed in the projection mode.
- 15 **[Detail]**
A button is displayed when there is an occurrence of error/warning.
Click “Error information page” (➡ page 160) to display.

Note

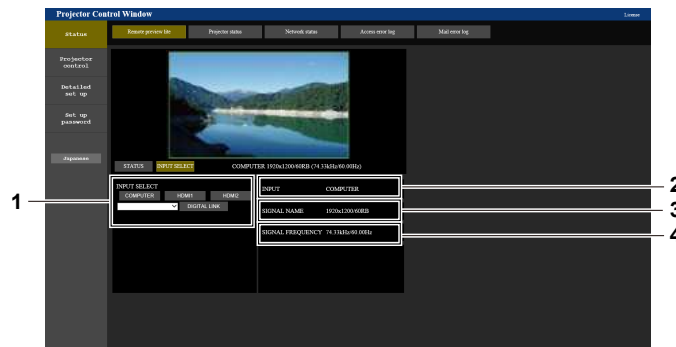
- The power indicator <ON (G)/STANDBY (R)> blinks in red in frequency of 2.95 seconds illuminating → 0.25 seconds off during the Pre-Show mode.
- The runtime in [PROJECTOR RUNTIME] continues to add up even if the projector is in the standby status while in the Pre-Show mode.
- In case of this projector, the input image to the projector can be displayed in the preview window in simplified manner even if [Detailed set up] → [HTTPS set up] → [Connection] is set to [HTTPS]. However, it may not be displayed depending on the web browser in use when the self-signed certificate is used as the security certificate to be used for the HTTPS communication.
- There are following restrictions on the image to be displayed in the preview window.
 - The adjustment results for each item in the [PICTURE] menu, [POSITION] menu, and [ADVANCED MENU] menu are not reflected. However, some of the items such as [CONTRAST], [BRIGHTNESS], or [SHIFT] are reflected.
 - When an image is projected with a different aspect ratio from the input image using [ASPECT] or [ZOOM], the image may be displayed with a different aspect ratio from the actual projected image.
 - The effects set in [BACK COLOR] or [STARTUP LOGO] are not reflected.
- The test pattern built-in to the projector is displayed in the preview window if it is being projected.

■ Status display icon

[POWER]		The power is switched off. (Standby status)
		In the projection mode
[SHUTTER]		The shutter function is enabled (shutter: closed).
		The shutter function is disabled (shutter: opened).
[OSD]		The on-screen display is set to on (display).
		The on-screen display is set to off (hide).
[GEOMETRY]		The [POSITION] menu → [GEOMETRY] is set to [OFF].
		The [POSITION] menu → [GEOMETRY] is set to [KEYSTONE].
		The [POSITION] menu → [GEOMETRY] is set to [CORNER CORRECTION].
		The [POSITION] menu → [GEOMETRY] is set to [CURVED CORRECTION].
[LIGHT SOURCE]		The light source is illuminated.
		The light source is not illuminated.
[ERROR]		The light source is in warning status.
		The light source is in error status.
		The temperature is in warning status.
		The temperature is in error status.
		A warning other than light source or temperature has occurred.
		An error other than light source or temperature has occurred.

Switching the input

Click [INPUT SELECT] in the [Remote preview lite] page.



- | | |
|---|--|
| <p>1 [INPUT SELECT]
Switches to the input to view the image.</p> <p>2 [INPUT]
Displays the input terminal currently selected.</p> | <p>3 [SIGNAL NAME]
Displays the input signal name.</p> <p>4 [SIGNAL FREQUENCY]
Displays the frequency of the input signal.</p> |
|---|--|

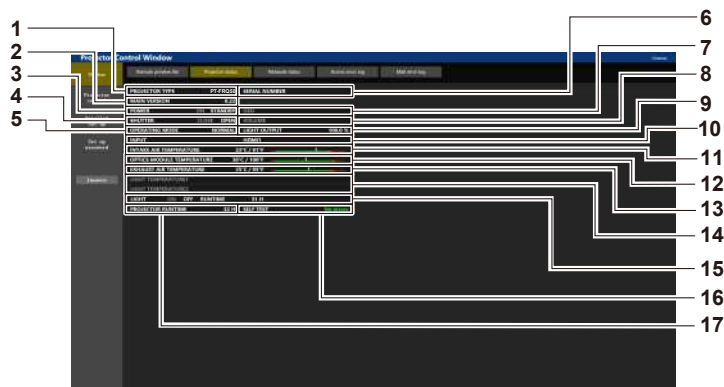
Note

- View the input image in the Pre-Show mode, and turn on the power in [Projector control] → [Basic control] page/[Detail control] page if there is no problem to project.

[Projector status] page

Click [Status] → [Projector status].

Display the status of the projector for the following items.

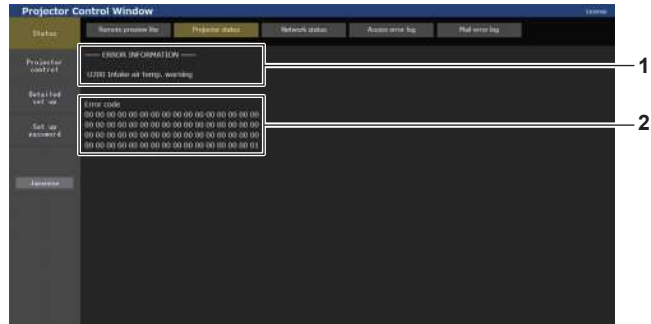


- | | |
|---|--|
| <p>1 [PROJECTOR TYPE]
Displays the type of the projector.</p> <p>2 [MAIN VERSION]
Displays the firmware version of the projector.</p> <p>3 [POWER]
Displays the status of the power.</p> <p>4 [SHUTTER]
Displays the status of the shutter function ([CLOSE]: Enabled (closed), [OPEN]: Disabled (open)).</p> <p>5 [OPERATING MODE]
Displays the setting status of [OPERATING MODE].</p> <p>6 [SERIAL NUMBER]
Displays the serial number of the projector.</p> <p>7 [OSD]
Displays the status of the on-screen display.</p> <p>8 [VOLUME]
Displays the volume status.</p> <p>9 [LIGHT OUTPUT]
Displays the setting status of [LIGHT OUTPUT].</p> | <p>10 [INPUT]
Displays the status of the selected input.</p> <p>11 [INTAKE AIR TEMPERATURE]
Displays the status of the intake air temperature of the projector.</p> <p>12 [OPTICS MODULE TEMPERATURE]
Displays the status of the internal temperature of the projector.</p> <p>13 [EXHAUST AIR TEMPERATURE]
Displays the status of the exhaust air temperature of the projector.</p> <p>14 [LIGHT TEMPERATURE1], [LIGHT TEMPERATURE2]
Displays the temperature status of the light source.</p> <p>15 [LIGHT]
Displays the lighting status and runtime of the light source.</p> <p>16 [SELF TEST]
Displays the self-diagnosis information.</p> <p>17 [PROJECTOR RUNTIME]
Displays the runtime of the projector.</p> |
|---|--|

Error information page

When [Error (Detail)] or [Warning (Detail)] is displayed in the [SELF TEST] display field of the [Projector status] screen, click it to display the content of the error/warning.

- The projector may go into the standby status to protect the projector depending on the contents of the error.



1 Display of error information

Displays the alphanumeric symbols and content of errors/warnings that occur.
Refer to “Self-diagnosis display” (➔ page 197) for the display details.

2 Error code

[Network status] page

Click [Status] → [Network status].

The current network setting status is displayed.



1 [WIRED LAN]

Displays the settings of wired LAN.



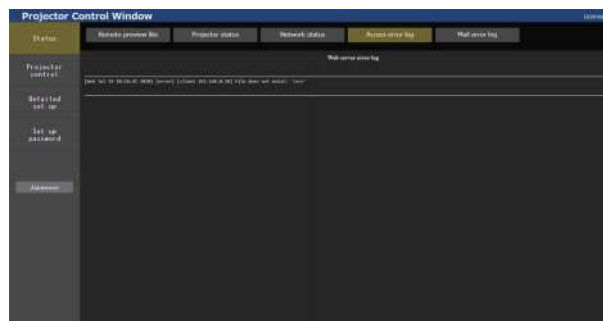
2 [WIRELESS LAN]

Displays the settings of wireless LAN when the optional Wireless Module (Model No.: AJ-WM50 Series) is attached.

[Access error log] page

Click [Status] → [Access error log].

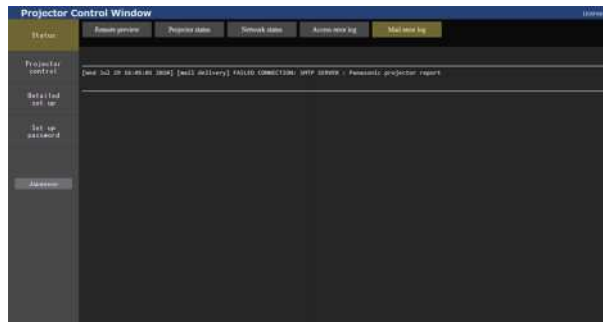
The error log on the web server is displayed such as access to the pages that do not exist or access with unauthorized user names or passwords.



[Mail error log] page

Click [Status] → [Mail error log].

E-mail error log is displayed if periodic E-mail sending has failed.



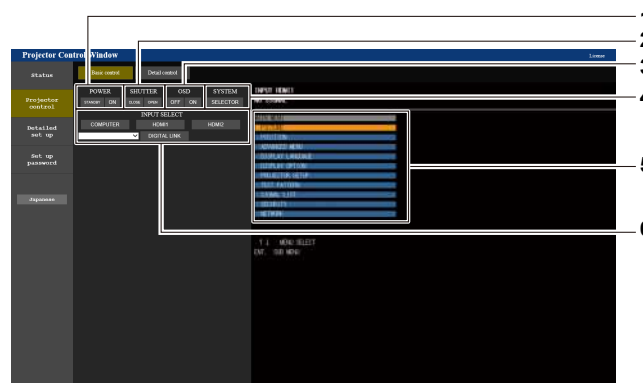
Note

- [Access error log] and [Mail error log] display the recent few thousand accesses/requests. All information may not be displayed when many accesses/requests are made at once.
- Logs in [Access error log] and [Mail error log] are deleted from the oldest when exceeding a certain amount.
- Check [Access error log] and [Mail error log] periodically.

[Projector control]

[Basic control] page

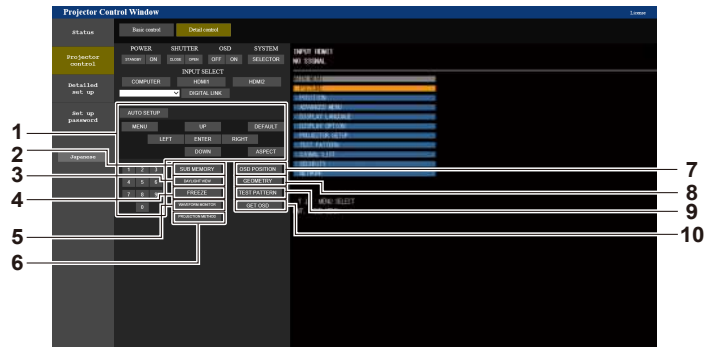
Click [Projector control] → [Basic control].



- [POWER]**
Turns off/on the power.
- [SHUTTER]**
Switches the status of the shutter. ([CLOSE]: Shutter function enabled; [OPEN]: Shutter function disabled)
- [OSD]**
Switches the status of the on-screen display function. ([OFF]: Hide; [ON]: Display)
- [SYSTEM]**
Switches the system method.
- On-screen display of the projector**
Displays the same items as shown on the on-screen display of the projector. You can check or change the settings of the menus. It is displayed even if the on-screen display function is set to off (hide).
- [INPUT SELECT]**
Switches the input signal.

[Detail control] page

Click [Projector control] → [Detail control].



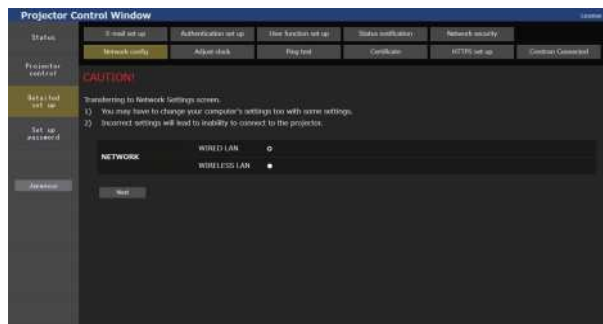
- | | |
|---|---|
| <p>1 Control of the projector
The projector is controlled by clicking the buttons in the same way as the buttons on the remote control. After control, the on-screen display of the projector at the right of the control page is updated.</p> <p>2 [SUB MEMORY]
Switches the sub memory.</p> <p>3 [DAYLIGHT VIEW]
Switches the day light view setting.</p> <p>4 [FREEZE]
Temporarily pauses the image.</p> <p>5 [WAVEFORM MONITOR]
Displays the waveform of the input signal.</p> | <p>6 [PROJECTION METHOD]
Switches the setting of the projection method.</p> <p>7 [OSD POSITION]
Switches the OSD position setting.</p> <p>8 [GEOMETRY]
Switches the geometric adjustment setting.</p> <p>9 [TEST PATTERN]
Displays the test pattern.
Click the test pattern to display in the projected image from the patterns displayed on the right side of the control page.
The display of the test pattern disappears if [Exit] is clicked.</p> <p>10 [GET OSD]
Updates the on-screen display of the projector at the right of the control page.</p> |
|---|---|

[Detailed set up]

[Network config] page

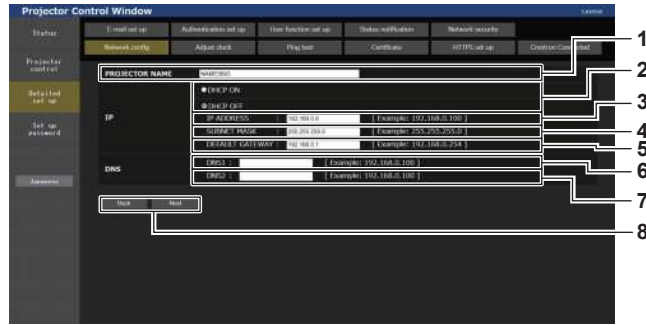
Click [Detailed set up] → [Network config].

- 1) **Click [Network config].**
 - Click [Network config] to display the **[CAUTION!]** screen.



- 2) **Select the item to change the setting.**
 - The [WIRELESS LAN] setting can be selected only when the optional Wireless Module (Model No.: AJ-WM50 Series) is attached.
- 3) **Click [Next].**
 - The current settings are displayed.
- 4) **Click [Change].**
 - The setting change screen is displayed.

For wired LAN connection



- | | |
|---|--|
| <p>1 [PROJECTOR NAME]
Enter the name of the projector. Enter the host name if it is required when using a DHCP server etc.</p> <p>2 [DHCP ON], [DHCP OFF]
To enable the DHCP client function, set to [DHCP ON].</p> <p>3 [IP ADDRESS]
Enter the IP address when not using a DHCP server.</p> <p>4 [SUBNET MASK]
Enter the subnet mask when not using a DHCP server.</p> <p>5 [DEFAULT GATEWAY]
Enter the default gateway address when not using a DHCP server.</p> <p>6 [DNS1]
Enter the DNS1 server address.
Permissible characters for the entry of DNS1 server address (primary):
Numbers (0 - 9), period (.)
(Example: 192.168.0.253)</p> | <p>7 [DNS2]
Enter the DNS2 server address.
Available characters for the entry of DNS2 server address (secondary):
Numbers (0 - 9), period (.)
(Example: 192.168.0.254)</p> <p>8 [Back], [Next]
Click [Back] to return to the original screen. Click [Next] to display the setting confirmation screen. Click [Submit] to update the setting.</p> |
|---|--|

Note

- When you use the “Forward” and “Back” functions of your browser, a warning message “Page has Expired” may appear. In that case, click [Network config] again since the following operation will not be guaranteed.
- Changing LAN settings while connected to the LAN may cause the connection to disconnect.

For wireless LAN connection

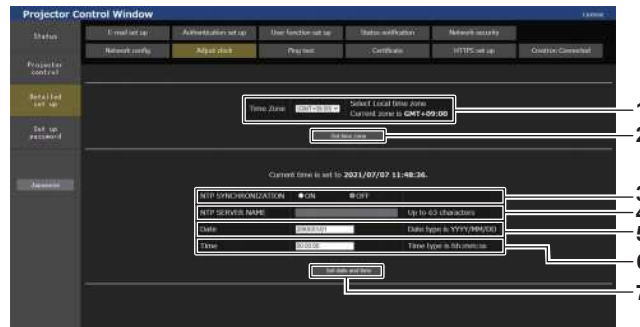
(Available only when the Wireless Module is attached to the projector)



- | | |
|--|--|
| <p>1 [KEY]
Sets the connection key.
Enter 8 to 15 characters of single-byte alphanumeric.</p> | <p>2 [Back], [Next]
Click [Back] to return to the original screen. Click [Next] to display the setting confirmation screen. Click [Submit] to update the setting.</p> |
|--|--|

[Adjust clock] page

Click [Detailed set up] → [Adjust clock].



- | | |
|--|---|
| <ol style="list-style-type: none"> 1 [Time Zone]
Select the time zone. 2 [Set time zone]
Updates the time zone setting. 3 [NTP SYNCHRONIZATION]
Set [ON] when adjusting the date and time automatically. 4 [NTP SERVER NAME]
Enter the IP address or server name of the NTP server when you set to adjust the date and time manually.
(To enter the server name, the DNS server needs to be set up.) | <ol style="list-style-type: none"> 5 [Date]
Enter the date to change when [NTP SYNCHRONIZATION] is set to [OFF]. 6 [Time]
Enter the time to change when [NTP SYNCHRONIZATION] is set to [OFF]. 7 [Submit]
Updates the date and time settings. |
|--|---|

Note

- The replacement of the battery inside the projector is required when the time goes out of alignment right after correcting the time. Consult your dealer.

[Ping test] page

Check whether the network is connected to the E-mail server, POP server, DNS server, etc.

Click [Detailed set up] → [Ping test].



```

PING 192.168.0.8 (192.168.0.8) 56(84) bytes of data.
 64 bytes from 192.168.0.8: icmp_seq=1 ttl=64 time=0.071 ms
 64 bytes from 192.168.0.8: icmp_seq=2 ttl=64 time=0.065 ms
 64 bytes from 192.168.0.8: icmp_seq=3 ttl=64 time=0.074 ms
 64 bytes from 192.168.0.8: icmp_seq=4 ttl=64 time=0.071 ms

--- 192.168.0.8 ping statistics ---
 4 packets transmitted, 4 received, 0% packet loss, time 2998ms
 rtt min/avg/max/mdev = 0.065/0.070/0.074/0.006 ms
    
```

```

PING 192.168.0.99 (192.168.0.99) 56(84) bytes of data.
From 192.168.0.8 icmp_seq=1 Destination Host Unreachable
From 192.168.0.8 icmp_seq=2 Destination Host Unreachable
From 192.168.0.8 icmp_seq=3 Destination Host Unreachable
From 192.168.0.8 icmp_seq=4 Destination Host Unreachable

--- 192.168.0.99 ping statistics ---
 4 packets transmitted, 0 received, 100% packet loss, time 3003ms
 pipe 3
    
```

- 1 **[Input IP address]**
Enter the IP address of the server to be tested.
- 2 **[Submit]**
Executes the connection test.
- 3 **Example of display when the connection has succeeded**
- 4 **Example of display when the connection has failed**

[Certificate] page

To perform the HTTPS communication or use the control system or application software of Crestron Electronics, Inc., it is necessary to install the certificate for authentication into the projector. Click [Detailed set up] → [Certificate].



1 [CRT Key generate]

Generates the CRT (Certificate) key.
The page to generate the CRT key is displayed by clicking [Execute].
For details, refer to “Generating the CRT key” (➡ page 166).

2 [Self-signed Certificate]

[Generate]:
Generates the self-signed certificate by the projector.
The page to generate the self-signed certificate is displayed by clicking [Execute].
For details, refer to “Generating the self-signed certificate” (➡ page 169).

- [Information]:**
Displays the status of the self-signed certificate.
- **[Not generated]:** Self-signed certificate is not generated.
 - **[(host name)]:** Self-signed certificate is generated and valid. The host name registered in the self-signed certificate is displayed.
 - **[Invalid (Reason: Server Certificate installed)]:** The server certificate is valid, so the generated self-signed certificate is invalid.

Information of the generated self-signed certificate is displayed by clicking [Confirm].
The generated self-signed certificate can be deleted by clicking [Delete].
For details, refer to “Confirming the information of the self-signed certificate” (➡ page 170).

3 [Server Certificate]

[Generate Certificate Signing Request]:
Generates signing request (Certificate Signing Request).
The page to generate the signing request is displayed by clicking [Execute].
For details, refer to “Generating the signing request” (➡ page 168).

[Server Certificate install]/[Intermediate Certificate install]:
Installs the server certificate and the intermediate certificate.
The certificate is installed into the projector by specifying the certificate file and clicking [Execute].
For details, refer to “Installing the certificate” (➡ page 168).

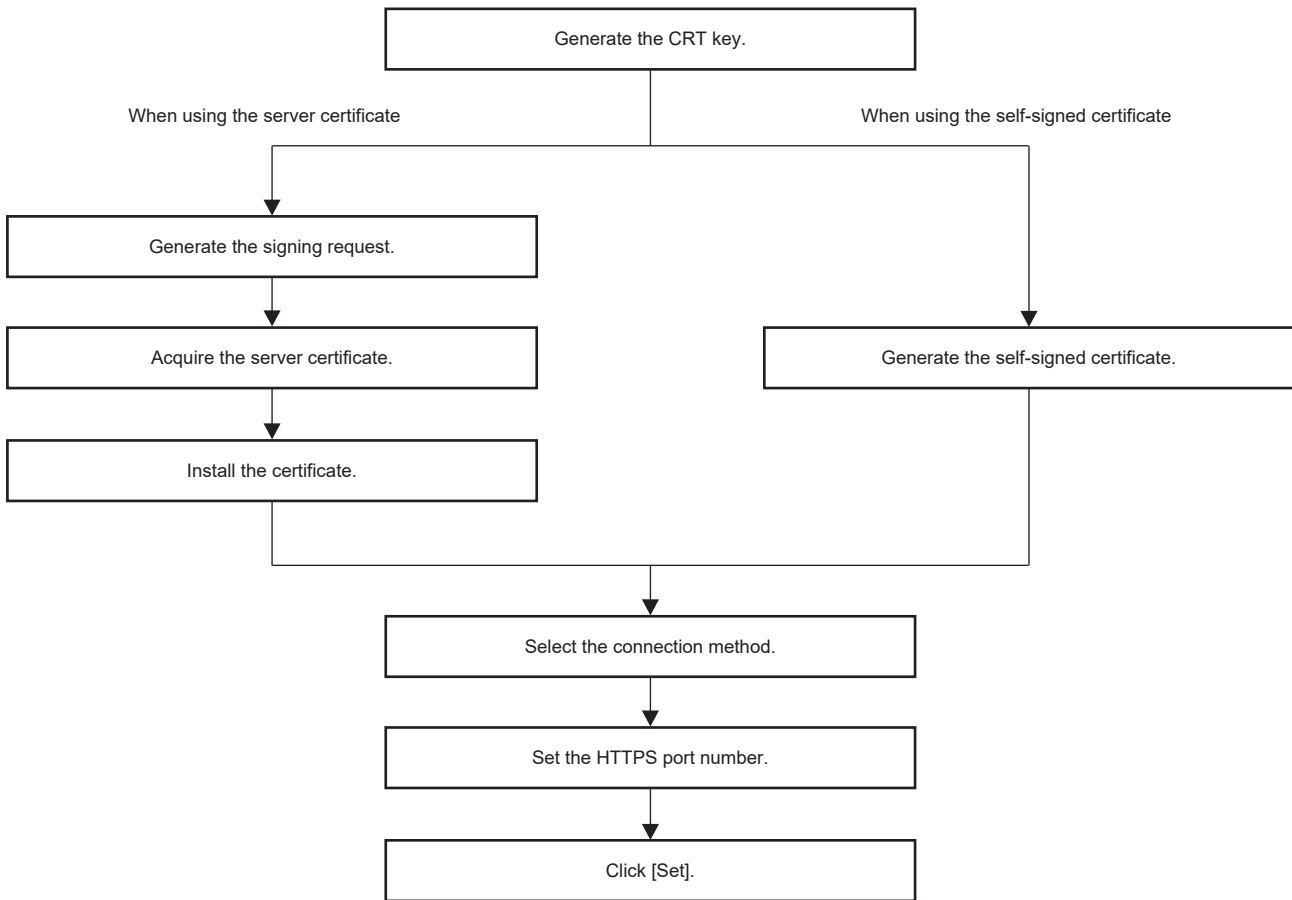
- [Information]:**
Displays the status of the server certificate.
- **[Invalid]:** The server certificate is not installed. Or, the current CRT key is different from the CRT key used for requesting the installed server certificate.
 - **[(host name)]:** The server certificate is installed and valid. The host name registered in the server certificate is displayed.
 - **[Expired]:** Valid period of the server certificate has expired. The host name registered in the server certificate is displayed when the server certificate is installed and valid.
- Information of the installed server certificate is displayed by clicking [Confirm].
The installed server certificate and the intermediate certificate can be deleted by clicking [Delete].
For details, refer to “Confirming the information of the server certificate” (➡ page 169).

Note

- Installation operation of the certificate may not be possible depending on the computer or web browser in use.

■ Flow for setting

The flow for setting differs depending on which certificate is to be used as the security certificate, either the server certificate or the self-signed certificate.



Note

- When using the server certificate, the procedure from application to the certification organization to issuing of the server certificate is required to be performed between the customer and the certification organization. For the application method, etc., contact the certification organization.

Generating the CRT key

Generate the CRT key used for encryption with the RSA (Rivest-Shamir-Adleman cryptosystem) public key encryption method. CRT key is a type of the private key.

1) Click [Certificate] → [CRT Key generate] → [Execute].

- The page to generate the CRT key is displayed.



2) Click [Execute].

- When generating the CRT key for the first time, the following message is displayed after the CRT is generated. Proceed to Step 4).
“CRT key - Generated”
- When generating the CRT key for the second time or later, the following message is displayed.
“The CRT key will be generated. In updating the CRT key, the Server Certificate corresponds to the current CRT key will become unavailable. Continue?”

3) Click [OK].

- CRT key will be generated and the following message will be displayed.
“CRT key - Generated”

4) Click [OK].

- Clicking [Certificate] → [CRT Key generate] → [Execute] again can confirm the key length and generation date and time of the current CRT key with the [RSA key size] and [Last modified] of [Current CRT key] at the upper row of the CRT key generation page.

Note

- [Not generated] displayed in [Last modified] indicates that the CRT has not been generated.
- [RSA key size] is fixed to [2048bit]. The server certificate may not be issued depending on the certification organization to apply if the key length is 2048-bit.
- Generation of the CRT key may take up to approximately two minutes.
- When the CRT key is updated, apply for the server certificate or generate the self-signed certificate again using that CRT key. A certificate linked to the CRT key is required.
- Previously generated CRT key information is saved even if the CRT key is updated. To return to the previous CRT key, refer to “Cancelling the update of the CRT key” (➡ page 167).

Cancelling the update of the CRT key

It is possible to return to the previously generated CRT key only once even if the CRT key is updated.

1) Click [Certificate] → [CRT Key generate] → [Execute].

- The page to generate the CRT key is displayed.



2) Click [History].

- Following contents are displayed.



3) Confirm [RSA key size] and [Last modified] of the CRT key to restore.

4) Click [Apply].

- Following confirmation message is displayed.
“The previous CRT key will be loaded. Please generate Self-signed Certificate or install the Server Certificate corresponds to the CRT key. Continue?”

5) Click [OK].

- Previously generated CRT key is reflected as the current CRT key.

Note

- When returned to the previously generated CRT key, a certificate linked to that CRT key is required.

Generating the signing request

When using the server certificate issued by the certification organization as a security certificate, generate a signing request necessary for application of issuing to the certification organization. Generate the signing request after generating the CRT key.

1) Click **[Certificate]** → **[Generate Certificate Signing Request]** → **[Execute]**.

- The page to generate the signing request is displayed.



2) Enter the information required for application.

- The details of each item are as follows. Enter the information following the requirement of the certification organization to apply.

Item	Details	Character length limit
[Common Name]	Enter the projector name or the IP address set in the projector.	64 characters
[Country]	Enter the country code defined in ISO 3166-1 alpha-2 (two upper case alphabets).	—
[State]	Enter the State, etc.	128 characters
[Locality]	Enter the locality.	128 characters
[Organization]	Enter the organization name.	64 characters
[Organization Unit]	Enter the organization unit name.	64 characters
[CRT key]	[RSA key size]	The key length of the current CRT key is displayed.
	[Last modified]	The generation date and time of the current CRT key is displayed.

3) Click **[OK]**.

- The signing request file is generated. Enter a file name and save the file in the desired folder.

4) Enter a file name and click **[Save]**.

- The file for signing request is saved in the specified folder.

Note

- The characters that can be input are as follows.
 - Single-byte numbers: 0 to 9
 - Single-byte alphabets: A to Z, a to z
 - Single-byte symbols: - . _ , + / ()
- The signing request generated by the projector is PEM format (file extension: pem).
- Apply issuing of the server certificate to the certification organization using the saved signing request file (PEM format).

Installing the certificate

Install the server certificate and the intermediate certificate issued by the certification organization into the projector.

1) Click **[Certificate]** → **[Server Certificate install]** → **[Browse]**.

- A dialog to select the file is displayed.

2) Select the server certificate file and click **[Open]**.

- If the intermediate certificate is issued from the certification organization together with the server certificate, proceed to Step 3).
- If only the server certificate is issued from the certification organization, proceed to Step 5).

3) Click **[Browse]** in **[Intermediate Certificate install]**.

- A dialog to select the file is displayed.

4) Select the intermediate certificate file and click **[Open]**.

5) Click [Execute].

- The server certificate and the intermediate certificate are installed into the projector.

6) Click [OK].

Note

- To confirm the information of the installed server certificate, refer to “Confirming the information of the server certificate” (➡ page 169).

Confirming the information of the server certificate

Confirm the information of the server certificate installed in the projector.

1) Click [Certificate] → [Server Certificate] → [Information] → [Confirm].

- The information of the installed server certificate is displayed. The details of each item are as follows.

Item	Details
[Common Name]	The projector name or the IP address is displayed.
[Country]	The country code defined in ISO 3166-1 alpha-2 (two upper case alphabets) is displayed.
[State]	The State, etc. is displayed.
[Locality]	The locality is displayed.
[Organization]	The organization name is displayed.
[Organization Unit]	The organization unit name is not displayed. It is displayed as an asterisk.
[Not Before]	Displays the date and time that the self-signed certificate was issued.
[Not After]	Displays the date and time that the self-signed certificate will expire.
[CRT key]	[RSA key size] The key length of the CRT key is displayed.
	[Last modified] The generation date and time of the CRT key is displayed.

Note

- The installed server certificate and the intermediate certificate can be deleted by clicking [Certificate] → [Server Certificate] → [Delete]. However, it cannot be deleted when [HTTPS set up] → [Connection] is set to [HTTPS]. Delete it after changing the setting to perform the HTTP communication.
To delete the server certificate within the valid period, confirm that the certificate file used for installing is available on hand. It will be necessary when installing the server certificate again.

Generating the self-signed certificate

When the server certificate issued by the certification organization is not to be used as the security certificate, it is possible to use the self-signed certificate generated in the projector. Generate the self-signed certificate after generating the CRT key.

1) Click [Certificate] → [Self-signed Certificate] → [Generate] → [Execute].

- The page to generate the self-signed certificate is displayed.



2) Enter the information required for generation.

- The details of each item are as follows.

Item	Details		Character length limit
[Common Name]	Enter the projector name or the IP address set in the projector.		64 characters
[Country]	Enter the country code defined in ISO 3166-1 alpha-2 (two upper case alphabets).		—
[State]	Enter the State, etc.		128 characters
[Locality]	Enter the locality.		128 characters
[Organization]	Enter the organization name.		64 characters
[Organization Unit]	Enter the organization unit name.		64 characters
[CRT key]	[RSA key size]	The key length of the current CRT key is displayed.	—
	[Last modified]	The generation date and time of the current CRT key is displayed.	—

3) Click [OK].

- Self-signed certificate is generated.

Note

- The characters that can be input are as follows.
 - Single-byte numbers: 0 to 9
 - Single-byte alphabets: A to Z, a to z
 - Single-byte symbols: - . _ , + / ()

Confirming the information of the self-signed certificate

Confirm the information of the self-signed certificate generated by the projector.

1) Click [Certificate] → [Self-signed Certificate] → [Information] → [Confirm].

- The information of the generated self-signed certificate is displayed. The details of each item are as follows.

Item	Details	
[Common Name]	The projector name or the IP address is displayed.	
[Country]	The country code defined in ISO 3166-1 alpha-2 (two upper case alphabets) is displayed.	
[State]	The State, etc. is displayed.	
[Locality]	The locality is displayed.	
[Organization]	The organization name is displayed.	
[Organization Unit]	The organization unit name is displayed.	
[Not Before]	Displays the date and time that the self-signed certificate was issued.	
[Not After]	Displays the date and time that the self-signed certificate will expire (local time corresponding to 23:59, December 31, 2035 in Greenwich Mean Time).	
[CRT key]	[RSA key size]	The key length of the CRT key is displayed.
	[Last modified]	The generation date and time of the CRT key is displayed.

Note

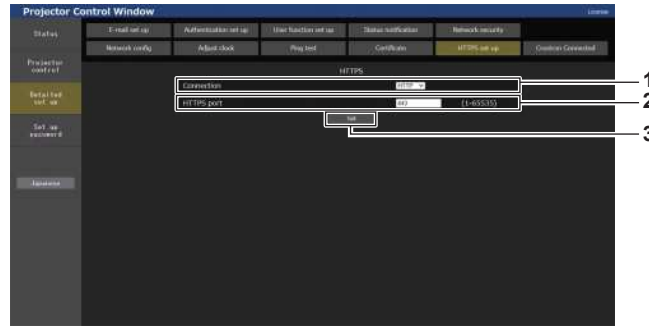
- The generated self-signed certificate can be deleted by clicking [Certificate] → [Self-signed Certificate] → [Delete]. However, it cannot be deleted when [HTTPS set up] → [Connection] is set to [HTTPS]. Delete it after changing the setting to perform the HTTP communication.

[HTTPS set up] page

Set this page when HTTPS (Hypertext Transfer Protocol Secure) communication encrypted with the SSL/TLS protocol is to be performed between the computer and the projector while the web control function is used.

Click [Detailed set up] → [HTTPS set up].

To perform the HTTPS communication, it is necessary to install the certificate for authentication into the projector in advance. For details of installing the certificate, refer to “[Certificate] page” (➡ page 165).



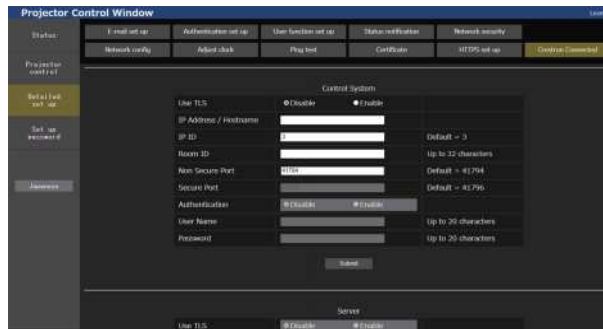
- | | |
|--|--|
| <p>1 [Connection]
Sets the connection method to the projector.</p> <ul style="list-style-type: none"> • [HTTP]: Uses the HTTP communication. (Factory default setting) • [HTTPS]: Uses the HTTPS communication. | <p>2 [HTTPS port]
Sets the port number to be used with the HTTPS communication.
Allowed port number: 1 to 65535
Factory default setting: 443</p> <p>3 [Set]
Enables the setting.</p> |
|--|--|

Note

- When the [Connection] setting is changed from [HTTPS] to [HTTP], the screen may not be displayed when the operation or update of the web control screen is performed. In such case, delete the cache of the web browser.

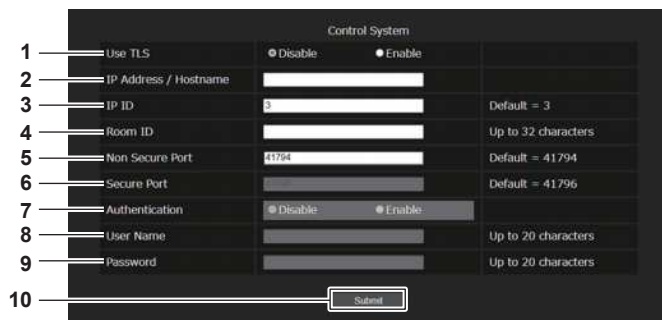
[Crestron Connected] page

Set the information required for connecting the control system of Crestron Electronics, Inc. to the projector, and the information to monitor/control the projector using the control system of Crestron Electronics, Inc. Click [Detailed set up] → [Crestron Connected].



■ **[Control System]**

Configure the setting for the control system required to connect to the projector as a client.



- | | |
|--|---|
| <p>1 [Use TLS]
Sets the secure communication.
[Disable]:
Performs the unsecured communication.
[Enable]:
Performs the secure communication using TLS (Transport Layer Security).</p> <p>2 [IP Address / Hostname]
Enter the IP address or the host name of the connection destination.</p> | <p>3 [IP ID]
Sets the IP ID used to determine the projector on the network. (A number up to four digits)
Default value: 3</p> <p>4 [Room ID]
Sets the Room ID used to determine the projector on the network. (Up to 32 half-width characters)</p> <p>5 [Non Secure Port]
Sets the port number to be used with the unsecured communication.
Default value: 41794</p> |
|--|---|

- 6 **[Secure Port]**
Sets the port number to be used with the secure communication.
Default value: 41796
- 7 **[Authentication]**
Select the authentication with the connection destination used with the secure communication.
[Disable]:
Does not perform the connection authentication.
[Enable]:
Performs the connection authentication.
- 8 **[User Name]**
Enter the user name used for the connection authentication. (Up to 20 half-width characters)
- 9 **[Password]**
Enter the password used for the connection authentication. (Up to 20 half-width characters)
- 10 **[Submit]**
Updates the [Control System] setting.

Note

- When [Use TLS] is set to [Disable], [Authentication] is fixed to [Disable], and [Secure Port] cannot be set.

■ **[Server]**

Configure the setting required to access the projector assigned to a server using the control system.



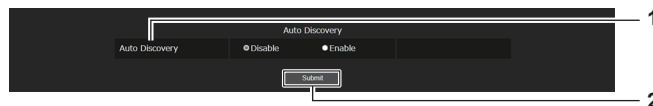
- 1 **[Use TLS]**
Sets the secure communication.
[Disable]:
Performs the unsecured communication.
[Enable]:
Performs the secure communication using TLS (Transport Layer Security).
- 2 **[IP ID]**
Sets the IP ID used to determine the projector on the network. (A number up to four digits)
- 3 **[Non Secure Port]**
Sets the port number to be used with the unsecured communication.
Default value: 41794
- 4 **[Secure Port]**
Sets the port number to be used with the secure communication.
Default value: 41796
- 5 **[Authentication]**
Select the authentication with the connection destination used with the secure communication.
[Disable]:
Does not perform the connection authentication.
[Enable]:
Performs the connection authentication.
- 6 **[User Name]**
Enter the user name used for the connection authentication. (Up to 20 half-width characters)
- 7 **[Password]**
Enter the password used for the connection authentication. (Up to 20 half-width characters)
- 8 **[Crestron Fusion in the Cloud (FITC)]**
Sets whether to use the Fusion server in the Cloud.
[Disable]:
Does not use the Fusion server in the Cloud.
[Enable]:
Uses the Fusion server in the Cloud.
- 9 **[FITC URL]**
Enter the URL of the Fusion server in the Cloud.
- 10 **[Submit]**
Updates the [Server] setting.

Note

- [Use TLS] will be fixed to [Disable] if neither the server certificate nor the self-signed certificate is installed.
- When [Use TLS] is set to [Disable], [Authentication] is fixed to [Disable], and [Secure Port] cannot be set.
- When [Crestron Fusion in the Cloud (FITC)] is set to [Disable], [FITC URL] cannot be entered.

■ **[Auto Discovery]**

Set the standby process against the search protocol of the control system and the application software.



1 [Auto Discovery]

[Disable]:

Disables the standby process.

[Enable]:

Enables the standby process and enables the automatic detection of the projector.

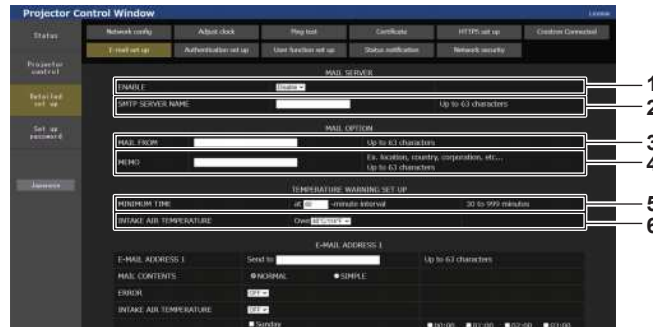
2 [Submit]

Update the [Auto Discovery] setting

[E-mail set up] page

E-mail can be sent to preset E-mail addresses (up to two addresses) periodically or when an error or problem has occurred.

Click [Detailed set up] → [E-mail set up].



1 [ENABLE]

Select [ENABLE] to use the E-mail function.

2 [SMTP SERVER NAME]

Enter the IP address or the server name of the E-mail server (SMTP). To enter the server name, the DNS server needs to be set up.

3 [MAIL FROM]

Enter the E-mail address of the projector. (Up to 63 characters in single byte)

4 [MEMO]

Enter information such as the location of the projector that notifies the sender of the E-mail. (Up to 63 characters in single byte)

5 [MINIMUM TIME]

Change the minimum interval for the temperature warning E-mail. The default value is 60 minutes. In this case, another E-mail will not be sent for 60 minutes after sending the temperature warning E-mail even if it reaches the warning temperature.

6 [INTAKE AIR TEMPERATURE]

Change the temperature setting for the temperature warning mail. A temperature warning E-mail is sent when the temperature exceeds this value.



7 [E-MAIL ADDRESS 1], [E-MAIL ADDRESS 2]

Enter the E-mail address to be sent. Leave [E-MAIL ADDRESS 2] blank when two E-mail addresses are not to be used.

8 Settings of the conditions to send E-mail

Select the conditions to send E-mail.

[MAIL CONTENTS]:

Select either [NORMAL] or [SIMPLE].

- [NORMAL]: Select this item when sending detailed information including the status of the projector.
- [SIMPLE]: Select this item when sending minimal information such as error information.



[ERROR]:

Send an E-mail when an error occurred in the self-diagnosis.

[INTAKE AIR TEMPERATURE]:

Send an E-mail when the intake air temperature has reached the value set at the above field.

[PERIODIC REPORT]:

Place a check mark on this to send an E-mail periodically. It will be sent on the days and time with the check mark.

9 [Submit]

Update the settings.

[Authentication set up] page

Set the authentication items when POP authentication or SMTP authentication is necessary to send an E-mail. Click [Detailed set up] → [Authentication set up].



- | | |
|--|---|
| <p>1 [Auth]
Select the authentication method specified by your Internet service provider.</p> <p>2 [SMTP Auth]
Set when the SMTP authentication is selected.</p> <p>3 [POP server name]
Enter the POP server name.
Allowed characters:
Alphanumerics (A - Z, a - z, 0 - 9)
Minus sign (-) and period (.)</p> <p>4 [User name]
Enter the user name for the POP server or the SMTP server.</p> | <p>5 [Password]
Enter the password for the POP server or the SMTP server.</p> <p>6 [SMTP server port]
Enter the port number of the SMTP server.
(Normally 25)</p> <p>7 [POP server port]
Enter the port number of the POP server.
(Normally 110)</p> <p>8 [Submit]
Update the settings.</p> |
|--|---|

Contents of E-mail sent

Example of the E-mail sent when E-mail is set

The following E-mail is sent when the E-mail settings have been established.

- Example: When [MAIL CONTENTS] is set to [SIMPLE] in the [E-mail set up] page

```

==== Panasonic projector report(CONFIGURE) ====
Projector Type      : PT-FRQ50
Serial No          : SN1234567

----- E-mail setup data -----
TEMPERATURE WARNING SETUP
MINIMUM TIME       at [ 60] minutes interval
INTAKE AIR TEMPERATURE Over [ 46 degC / 114 degF ]

ERROR              [ OFF ]
INTAKE AIR TEMPERATURE [ OFF ]

PERIODIC REPORT
Sunday [ OFF ] Monday [ OFF ] Tuesday [ OFF ] Wednesday [ OFF ]
Thursday [ OFF ] Friday [ OFF ] Saturday [ OFF ]

00:00 [ OFF ] 01:00 [ OFF ] 02:00 [ OFF ] 03:00 [ OFF ]
04:00 [ OFF ] 05:00 [ OFF ] 06:00 [ OFF ] 07:00 [ OFF ]
08:00 [ OFF ] 09:00 [ OFF ] 10:00 [ OFF ] 11:00 [ OFF ]
12:00 [ OFF ] 13:00 [ OFF ] 14:00 [ OFF ] 15:00 [ OFF ]
16:00 [ OFF ] 17:00 [ OFF ] 18:00 [ OFF ] 19:00 [ OFF ]
20:00 [ OFF ] 21:00 [ OFF ] 22:00 [ OFF ] 23:00 [ OFF ]

----- Wired network configuration -----
DHCP Client ON
IP address 192.168.0.101
MAC address BC:AD:01:80:AA:05

----- Error information -----
SELF TEST      : ERROR
F121 VCM com. error

Wed Dec 01 09:20:44 2021

----- Memo -----
    
```

Example of the E-mail sent for an error

The following E-mail is sent when an error has occurred.

- Example: When [MAIL CONTENTS] is set to [SIMPLE] in the [E-mail set up] page

```

==== Panasonic projector report(ERROR) ====
Projector Type      : PT-FRQ50
Serial No          : SN1234567

----- Wired network configuration -----
DHCP Client        : ON
IP address         : 192.168.0.101
MAC address        : BC:AD:01:80:AA:05

----- Error information -----
SELF TEST          : ERROR
F 121 VCM com. error
H012 Exhaust air temp. sensor error

Wed Dec 01 09:21:36 2021

----- Memo -----
    
```

[User function set up] page

Set the function limitation for the user rights.

Click [Detailed set up] → [User function set up].

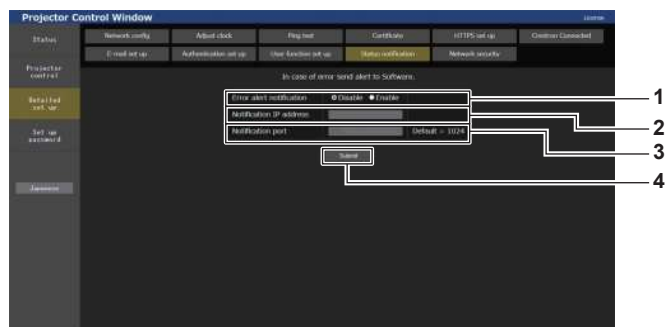


- 1 **[Remote preview lite]**
To disable the remote preview lite function with the user rights, set [Disable].
- 2 **[Submit]**
Updates the setting.

[Status notification] page

Set the push notification function. A push notification of updated information is sent to the application software linked to the projector, such as the “Multi Monitoring & Control Software”, when there is a change in status, such as occurrence of an error in the projector.

Click [Detailed set up] → [Status notification].



- 1 **[Error alert notification]**
Set to [ENABLE] to use the push notification function.
- 2 **[Notification IP address]**
Enter the IP address of the notification destination.
- 3 **[Notification port]**
Enter the port number of the notification destination.
- 4 **[Submit]**
Updates the setting.

[Network security] page

Make settings to protect the projector from external attacks via LAN and unauthorized use.
Click [Detailed set up] → [Network security].



1 [COMMAND PROTECT]

Make settings for the connection authentication when using the command control function.

[DISABLE]: Connect to the projector in non-protected mode. Connection authentication is not performed.

[ENABLE]: Connect to the projector in protected mode.

The user name and password of the administrator account are required for the connection authentication.

2 [Submit]

Updates the setting.

If you click [Submit] with [DISABLE] selected in [COMMAND PROTECT], a confirmation screen will be displayed. Click [OK] on the confirmation screen to update the settings.

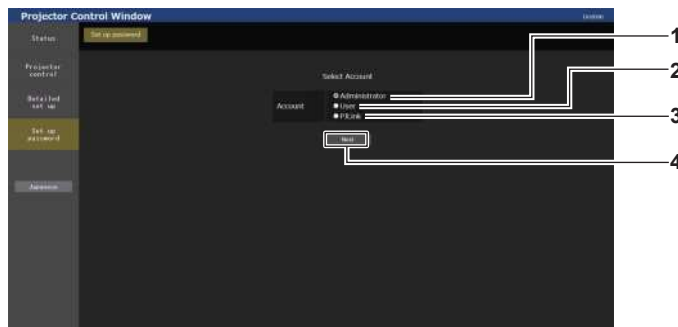
Note

- When [COMMAND PROTECT] is set to [DISABLE], connection authentication is not performed, making it vulnerable to threats on the network. Be aware of the risks before making settings.
- For details on how to use the command control function, refer to "Control commands via LAN". (➔ page 204)

[Set up password]

[Set up password] page (for administrator account)

Click [Set up password].



1 [Administrator]

Used to change the setting of the administrator account.

2 [User]

Used to change the setting of the standard user account.

3 [PJLink]

Used to change the setting of the PJLink account.

4 [Next]

Used to change the setting of the password.

[Administrator]

The user name and password of the administrator account can be set.



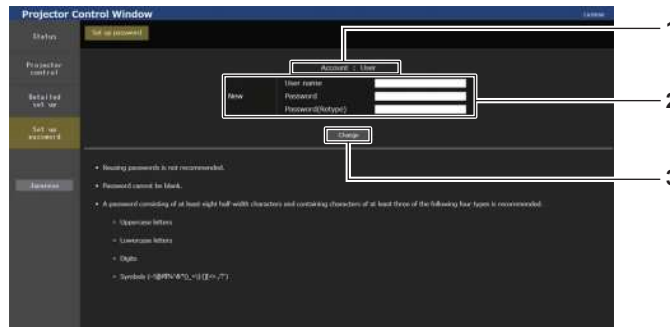
- | | |
|---|--|
| <p>1 [Account]
Displays the account to change.</p> <p>2 [Current]
[User name]:
Enter the user name before the change.
[Password]:
Enter the current password.</p> | <p>3 [New]
[User name]:
Enter the desired new user name. (Up to 16 characters in single byte)
[Password]:
Enter the desired new password. (Up to 16 characters in single byte)
[Password(Retype)]:
Enter the desired new password again.</p> <p>4 [Change]
Determines the change of password.</p> |
|---|--|

Note

- To change the setting of the administrator account, entry of [User name] and [Password] in [Current] is required.
- When the projector is already registered in application software (such as “Multi Monitoring & Control Software”) which uses the communication control via LAN, communication with the projector will become impossible if the user name or password for [Administrator] is changed. If the user name or password for [Administrator] is changed, update the registration information of the application software in use.

[User]

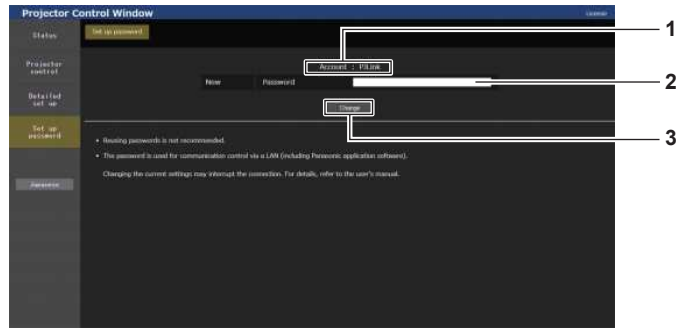
The user name and password of the standard user account can be set.



- | | |
|--|---|
| <p>1 [Account]
Displays the account to change.</p> <p>2 [New]
[User name]:
Enter the desired new user name. (Up to 16 characters in single byte)
[Password]:
Enter the desired new password. (Up to 16 characters in single byte)
[Password(Retype)]:
Enter the desired new password again.</p> | <p>3 [Change]
Determines the change of password.</p> |
|--|---|

[PJLink]

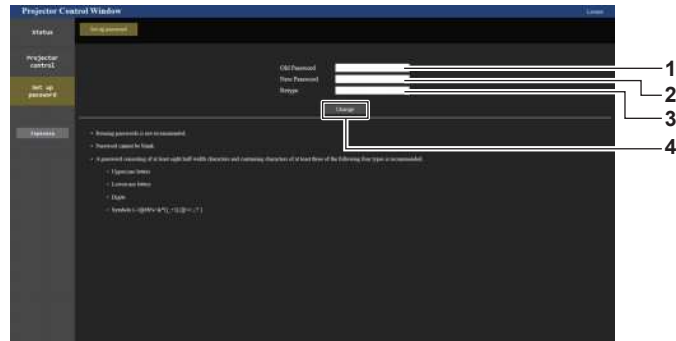
The password of the PJLink account can be changed.



- | | |
|--|---|
| <p>1 [Account]
Displays the account to change.</p> <p>2 [New Password]:
Enter the desired new password. (Up to 32 characters in single byte)</p> | <p>3 [Change]
Determines the change of password.</p> |
|--|---|

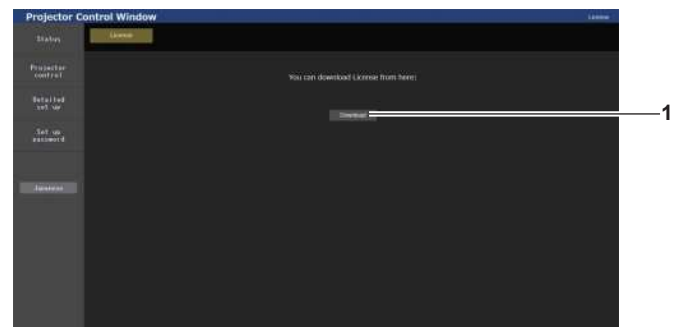
[Set up password] (for standard user account)

The password of the standard user account can be changed.



- | | |
|--|--|
| <p>1 [Old Password]
Enter the current password.</p> <p>2 [New Password]
Enter the desired new password. (Up to 16 characters in single byte)</p> | <p>3 [Retype]
Enter the desired new password again.</p> <p>4 [Change]
Determines the change of password.</p> |
|--|--|

License download page



- 1 **[Download]**
The license for the open source software used in the projector is downloaded by clicking this item. Specify the destination to save and download the license.

Note

- Provided license is a text file, and it is saved in the firmware of the projector in zip format compressed file.
File name: License.zip

Using the data cloning function

Perform the operation of the data cloning function. Data such as the settings and adjustment values of the projector can be copied to multiple projectors via LAN or using the USB memory.

■ Data that cannot be copied

The following settings cannot be copied. Set these in each projector.

- The [PROJECTOR SETUP] menu → [PROJECTOR ID]
- The [PROJECTOR SETUP] menu → [BRIGHTNESS CONTROL]
- The [PROJECTOR SETUP] menu → [DATE AND TIME] → [ADJUST CLOCK]
- The [PROJECTOR SETUP] menu → [DATA CLONING] → [LAN] → [WRITE PROTECT]
- The [SECURITY] menu → [SECURITY PASSWORD]
- The [SECURITY] menu → [CONTROL DEVICE SETUP]
- The [NETWORK] menu → [WIRED LAN]
- The [NETWORK] menu → [WIRELESS LAN]
- The [NETWORK] menu → [PROJECTOR NAME]
- The [NETWORK] menu → [NETWORK SECURITY]
- Security password
- Control device password
- Password set in “[Set up password] page (for administrator account)” (➔ page 176) of the web control screen
- Information of the CRT key and the self-signed certificate generated in “[Certificate] page” (➔ page 165) of the web control screen, information of the installed server certificate
- “[Network security] page” (➔ page 176) in the web control screen
- “[E-mail set up] page” (➔ page 173) in the web control screen
- “[Authentication set up] page” (➔ page 174) in the web control screen
- “[Crestron Connected] page” (➔ page 171) in the web control screen

■ Supported device

- Commercially available USB memory is supported.
The USB memory with a security function is not supported.
- Only the cards formatted in FAT16 or FAT32 can be used.
- Only the single partition structure is supported.

Note

- The data cloning function will not operate when the models of the projectors are different. For example, data of PT-FRQ50 can be copied to other PT-FRQ50 projectors, but it can not be copied to PT-FRQ60. Data cloning is limited to the same model.

Copying the data to another projector via LAN

Make the following settings on the projector of the copy destination in advance. For details, refer to “Setting [WRITE PROTECT]” (➔ page 180).

- The [PROJECTOR SETUP] menu → [DATA CLONING] → [LAN] → [WRITE PROTECT] → [OFF]

Note

- To use the network function with the projector, it is necessary to set the password of the administrator account. (➔ page 141)
When a password is not set for the administrator account (when blank), the network function of the projector cannot be used. To copy the data via LAN, set the passwords for the copy source projector and the copy destination projector.

- 1) **Connect all projectors to a switching hub using LAN cables.** (➔ page 149)
- 2) **Turn on all the projectors.**
- 3) **Press ▲▼ to select [DATA CLONING] on the copy source projector.**
- 4) **Press the <ENTER> button.**
 - The [SECURITY PASSWORD] screen is displayed.
- 5) **Enter a security password and press the <ENTER> button.**
 - The [DATA CLONING] screen is displayed.
- 6) **Press ▲▼ to select [LAN].**

- 7) **Press the <ENTER> button.**
 - The [LAN DATA CLONING] screen is displayed.
- 8) **Press ▲▼ to select [SELECT PROJECTOR].**
- 9) **Press the <ENTER> button.**
 - The projectors in the same subnet are displayed as a list.
- 10) **Press ▲▼ to select the copy destination projector.**
- 11) **Press the <ENTER> button.**
 - To select multiple projectors, repeat Steps 10) to 11).
- 12) **Press the <DEFAULT> button on the remote control.**
 - The confirmation screen is displayed.
- 13) **Press ◀▶ to select [OK], and press the <ENTER> button.**
 - Copy of the data between the projectors is started.
Once the copy is completed, results are displayed as a list in the [LAN DATA CLONING] screen.
Meanings of the marks displayed in the list are as follows.
 - Green: Data copy has succeeded.
 - Red: Data copy has failed. Confirm the connection of the LAN cable and power status of the copy destination projector.
 - Data is copied to the copy destination projector in the standby mode.
If the copy destination projector is in the projection mode, the LAN data cloning request message is displayed, and then the copy destination projector automatically shifts to the standby mode to start copy of data.
- 14) **Turn on the copy destination projector.**
 - The copied content is reflected to the projector.

Note

- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE].
Initial password of the factory default setting: ▲▶▼◀▶▶▼◀
- The light source indicator <LIGHT> and the temperature indicator <TEMP> of the copy destination projector blink while copying the data.
Confirm that the blinking of the indicators stops, and then turn on the projector.

Setting [WRITE PROTECT]

Set if the copy of data via LAN is permitted or not.

- 1) **Press ▲▼ to select [DATA CLONING] on the copy destination projector.**
- 2) **Press the <ENTER> button.**
 - The [SECURITY PASSWORD] screen is displayed.
- 3) **Enter a security password and press the <ENTER> button.**
 - The [DATA CLONING] screen is displayed.
- 4) **Press ▲▼ to select [LAN].**
- 5) **Press the <ENTER> button.**
 - The [LAN DATA CLONING] screen is displayed.
- 6) **Press ▲▼ to select [WRITE PROTECT].**
- 7) **Press ◀▶ to switch the item.**
 - The items will switch each time you press the button.

[OFF]	Permits operations of [DATA CLONING] from another projector via LAN.
[ON]	Does not permit the operations of [DATA CLONING] from another projector via LAN. • Data copy will not be possible when [ON] is set. When it is not necessary to copy data, set [ON] so that the data is not changed by mistake.

Note

- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE].
Initial password of the factory default setting: ▲▶▼◀▶▼◀

Copying the data to another projector using USB**Copying projector data to USB memory**

- 1) Insert the USB memory into the <USB (DC OUT)> terminal.
- 2) Press ▲▼ to select [DATA CLONING].
- 3) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 4) Enter a security password and press the <ENTER> button.
 - The [DATA CLONING] screen is displayed.
- 5) Press ▲▼ to select [USB MEMORY].
- 6) Press the <ENTER> button.
 - The [SELECT COPY TYPE] screen is displayed.
- 7) Press ▲▼ to select [PROJECTOR -> USB MEMORY].
- 8) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 9) Press ◀▶ to select [OK], and press the <ENTER> button.
 - Copying of data to the USB memory is started.
Once the copying of data is completed, [Data copy finished.] is displayed.
- 10) Once the copying of the data is completed, disconnect the USB memory from the <USB (DC OUT)> terminal.

Note

- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE].
Initial password of the factory default setting: awsqawsq
- For the USB memory that can be used with the projector and handling of the memory, refer to "Using the USB memory" (▶ page 55).
- An error message is displayed when saving or reading data to/from the USB memory has failed.

Copying data in the USB memory to the projector

- 1) Insert the USB memory into the <USB (DC OUT)> terminal.
- 2) Press ▲▼ to select [DATA CLONING].
- 3) Press the <ENTER> button.
 - The [SECURITY PASSWORD] screen is displayed.
- 4) Enter a security password and press the <ENTER> button.
 - The [DATA CLONING] screen is displayed.
- 5) Press ▲▼ to select [USB MEMORY].
- 6) Press the <ENTER> button.
 - The [SELECT COPY TYPE] screen is displayed.
- 7) Press ▲▼ to select [USB MEMORY -> PROJECTOR].
- 8) Press the <ENTER> button.
 - The confirmation screen is displayed.
- 9) Press ◀▶ to select [OK], and press the <ENTER> button.
 - The projector automatically enters standby state and starts copying data from the USB memory to the projector.

- 10) Once the copying of the data is completed, disconnect the USB memory from the <USB (DC OUT)> terminal.
- 11) Turn on the power of the projector.
 - The copied content is reflected to the projector.

Note

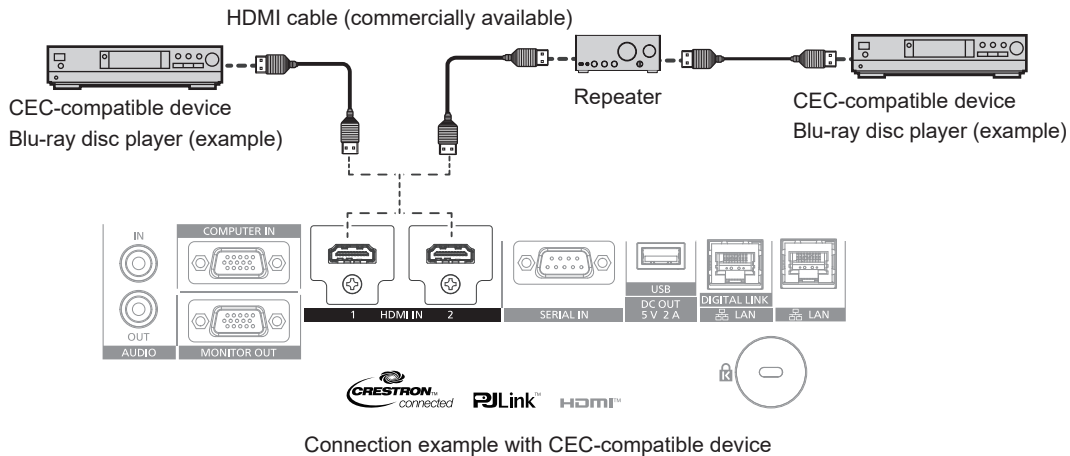
- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE].
Initial password of the factory default setting: ▲▶▼◀▲▶▼◀
- The light source indicator <LIGHT> and the temperature indicator <TEMP> of the copy destination projector blink while copying the data. Confirm that the blinking of the indicators stops, and then turn on the projector.

Using HDMI-CEC function

HDMI-CEC function allows the basic operation of CEC-compatible device with the projector remote control or the link control between the projector and CEC-compatible device.

Connecting a CEC-compatible device

Connect a CEC-compatible device to the <HDMI IN 1> terminal or <HDMI IN 2> terminal.



Setting the projector and CEC-compatible device

Before using the HDMI-CEC function, you need to configure the settings on the projector and the CEC-compatible device.

- CEC-compatible device: enable the HDMI-CEC function.
- Projector: Set the [PROJECTOR SETUP] menu → [HDMI CEC] to [ON]. (➔ page 125)

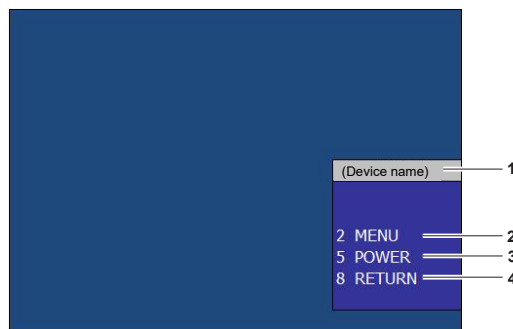
Note

- After switching on the CEC-compatible device, switch on the projector and select HDMI1 input or HDMI2 input, then check that the image from the CEC-compatible device is projected correctly.

Operating the CEC-compatible device with the projector remote control

You can operate the device using the projector remote control by calling up the operation menu of the CEC-compatible device from the HDMI-CEC operation screen. Use the number buttons (<2>, <5>, <8>) on the remote control to select the operation item on the HDMI-CEC operation screen.

About the HDMI-CEC operation screen, refer to “Operating a CEC-compatible device” (➔ page 125).



HDMI-CEC operation screen

- | | |
|--|--|
| <p>1 Displays the device name to be operated.</p> <p>2 [MENU]
Call up the operation menu of the CEC-compatible device.</p> | <p>3 [POWER]
Switch on/off the device.</p> <p>4 [RETURN]
Returns the operation menu of the CEC-compatible device to the previous screen.</p> |
|--|--|

Note

- If the operation menu of the CEC-compatible device cannot be called up from the HDMI-CEC operation screen, change the menu code setting. For the operation details, refer to “Changing the menu code” (➔ page 125).

- If you cannot operate the operation menu of a CEC-compatible device, try setting the [PROJECTOR SETUP] menu → [HDMI CEC] to [OFF] and [ON] again. It may be improved.

Menu operation of CEC-compatible device

When the setting menu of the CEC-compatible device is displayed, you can use the ▲▼◀▶ buttons and <ENTER> button of the remote control to operate the menu.

About the link control

By setting the [PROJECTOR SETUP] menu → [HDMI CEC] → [PROJECTOR -> DEVICE] / [DEVICE -> PROJECTOR] to a setting other than [DISABLE], the following link operations can be achieved.

The link control setting of [PROJECTOR -> DEVICE]

■ When the setting is [POWER OFF] or [POWER ON / OFF]

- If the projector is switched off, all connected CEC-compatible devices are switched off.

■ When the setting is [POWER ON / OFF]

- If the input channel is HDMI1 or HDMI2 when the projector is switched on and starts projection, then the CEC-compatible devices connected to the <HDMI IN 1> terminal or <HDMI IN 2> terminal are switched on upon startup of the projector.

The link control setting of [DEVICE -> PROJECTOR]

■ When the setting is [POWER ON] or [POWER ON / OFF]

- While the projector is in standby, if the CEC-compatible device is turned on, the projector turns on and switches to the input that the CEC-compatible device is connected.
- While the projector is in standby, if the CEC-compatible device starts playing, the projector turns on and switches to the input that the CEC-compatible device is connected.
- While the projector is turned on, if the CEC-compatible device starts playing, the projector switches to the input that the CEC-compatible device is connected.

■ When the setting is [POWER ON / OFF]

- When the CEC-compatible device connected to the selected input (HDMI1 or HDMI2) is switched off, the projector enters standby mode.

Note

- Depending on the status of the device, such as when the projector or the CEC-compatible device is starting up, the link control may not operate normally.
- If the CEC-compatible device does not support CEC 1.4, it may not support the link control described in the manual.
- Depending on the connected CEC-compatible device, the link control may not operate normally.

Updating the firmware

The firmware of the projector can be updated via LAN or using a USB memory.

Check the website (<https://panasonic.net/cns/projector/pass/>) for availability of the firmware that can be updated. Customer can update the firmware if a newer version than the current firmware version is published.

It is necessary to register and log in to PASS^{*1} to confirm the availability of the firmware that can be updated or to download the firmware.

*1 PASS: Panasonic Professional Display and Projector Technical Support Website
For details, visit the website (<https://panasonic.net/cns/projector/pass/>).

■ Firmware that can be updated

- Main version

■ How to confirm the firmware version

Current firmware version can be confirmed by pressing the <STATUS> button on the remote control and displaying the [STATUS] screen.

The firmware version can also be confirmed in the [PROJECTOR SETUP] menu → [STATUS].

STATUS		1/4
PROJECTOR TYPE	PT-FRQ50	
SERIAL NUMBER	SN1234567	
PROJECTOR RUNTIME	10h	
LIGHT RUNTIME	2h	
CONTINUOUS LIGHTING TIME	1h 23m	
MAIN/SUB VERSION	1.00 / 1.00	
INTAKE AIR TEMP.	25°C/77°F	
OPTICS MODULE TEMP.	29°C/84°F	
EXHAUST AIR TEMP.	28°C/82°F	
LIGHT TEMP. 1	34°C/93°F	
LIGHT TEMP. 2	36°C/96°F	
SELF TEST	NO ERRORS	
E-MAIL/USB		
CHANGE EXIT		

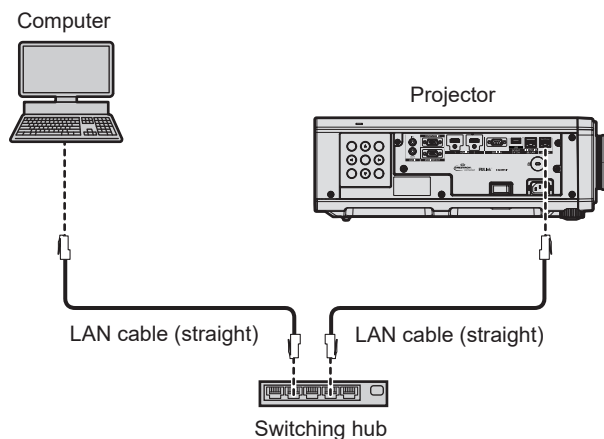
Main version

Note

- A LAN cable is required to connect to the network via wired LAN.

Updating the firmware via LAN

Example of network connection



Attention

- When a LAN cable is directly connected to the projector, the network connection must be made indoors.

Note

- A LAN cable is required to connect to the network via wired LAN.
- Connect a LAN cable to the <LAN> terminal or the <DIGITAL LINK/LAN> terminal of the projector.
- To connect to the network using the <LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [LAN] or [LAN & DIGITAL LINK].

- To connect to the network using the <DIGITAL LINK/LAN> terminal, set the [NETWORK] menu → [ETHERNET TYPE] to [DIGITAL LINK] or [LAN & DIGITAL LINK].
- The <DIGITAL LINK/LAN> terminal and the <LAN> terminal are connected inside of the projector when the [NETWORK] menu → [ETHERNET TYPE] is set to [LAN & DIGITAL LINK]. Do not directly connect the <DIGITAL LINK/LAN> terminal and the <LAN> terminal using a LAN cable. Construct the system so that it is not connected to the same network via the peripherals such as the switching hub or the twisted-pair-cable transmitter.
- Use a straight or crossover LAN cable that is compatible with CAT5 or higher for the LAN cable to connect to the <LAN> terminal. Either the straight or the crossover cable, or both cables can be used depending on the system configuration. Consult your network administrator. The projector will determine the type of the cable (straight or crossover) automatically.
- Use a LAN cable of 100 m (328'1") or shorter as the LAN cable to connect to the <LAN> terminal.
- For the LAN cable between the twisted-pair-cable transmitter and the projector, use a cable that meets the following criteria:
 - Conforming to CAT5e or higher standards
 - Shielded type (including connectors)
 - Straight-through
 - Single wire
 - Diameter of the cable core is same or larger than AWG24 (AWG24, AWG23, etc.)
- The maximum transmission distance between the twisted-pair-cable transmitter and the projector is normally 100 m (328'1"). It is possible to transmit up to 150 m (492'2") if the twisted-pair-cable transmitter supports the long-reach communication method.
- Do not use a switching hub between the twisted-pair-cable transmitter and the projector.

Computer used for updating the firmware

Prepare a computer compatible with the following OS and equipped with a LAN terminal.

- Microsoft Windows 10
 - Windows 10 Pro 32 bit/64 bit, Windows 10 32 bit/64 bit
- Microsoft Windows 8.1
 - Windows 8.1 Pro 32 bit/64 bit, Windows 8.1 32 bit/64 bit

Note

- The operation is not guaranteed when used in an environment outside the conditions described in this section, or when a home-made computer is used.
- This does not guarantee the operation on all computers even if it is used in the environment fulfilling the conditions described in this section.
- Connection with the projector or the data transfer of the firmware may fail in following cases. If it has failed, change the software setting or change the [Power Options] setting in Windows OS, and try the update again.
 - When security software such as firewall or the utility software for the LAN adapter is installed
 - When other software has started up or operating
 - When the computer has gone into sleep/pause status

Acquiring the firmware

Download the firmware update tool for this projector (compressed file in zip format) from the website (<https://panasonic.net/cns/projector/pass/>).

- File name (example): FirmUpdateTool_FRQ50_101.zip
(Update tool for the PT-FRQ50 series with main version 1.01)

Confirming the setting of the projector

Confirm the setting of the projector to be updated in advance.

- Whether the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] is set to [NORMAL]
- The [NETWORK] menu → [NETWORK CONTROL] → [COMMAND PORT]
- The [NETWORK] menu → [NETWORK STATUS] → [WIRED LAN]
 - [DHCP]
 - [IP ADDRESS]
 - [SUBNET MASK]
 - [DEFAULT GATEWAY]
- User name and password of the administrator account

Confirming the computer setting

Confirm the network setting of the computer to be used for update, and make it possible to connect with the projector to be updated via network.

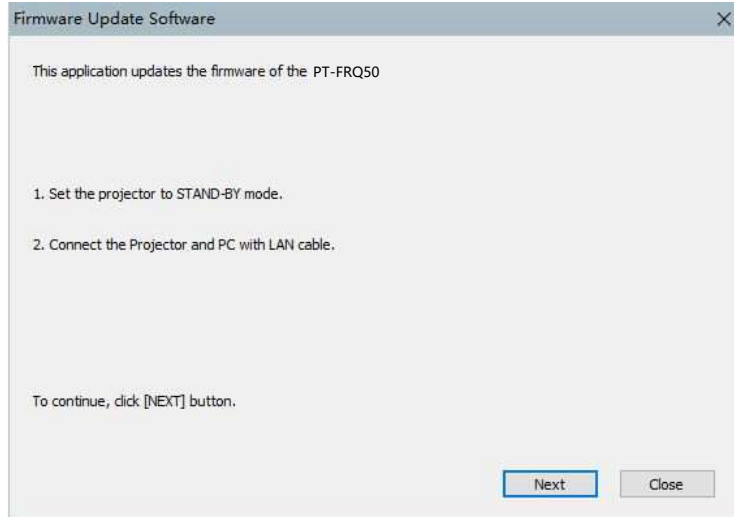
Updating the firmware

1) Extract the compressed file downloaded from the website.

- The firmware update tool (executable file in exe format) is generated.
File name (example): FirmUpdateTool_FRQ50_101.exe

2) **Double-click the executable file generated by extracting.**

- The update tool is started up, and the confirmation screen is displayed.



3) **Confirm the status of the projector.**

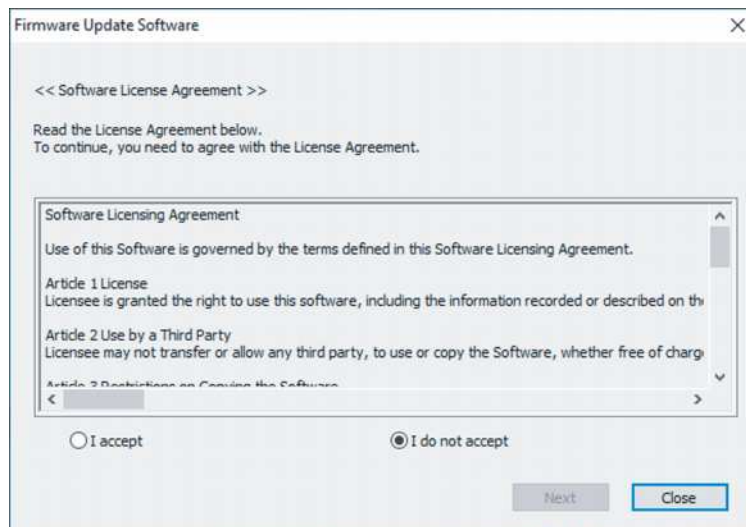
- Confirm that the projector to be updated is in the standby mode.

4) **Confirm the connection status.**

- Confirm that the projector to be updated and the computer to be used for update are correctly connected via LAN.

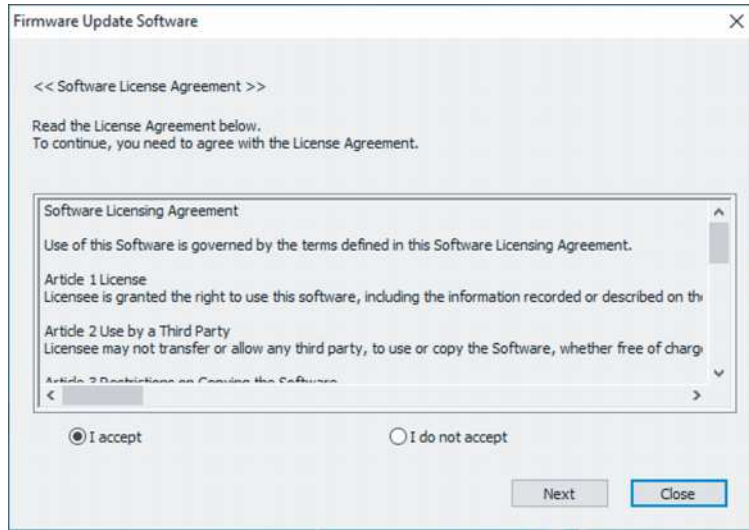
5) **Click [Next].**

- The license agreement screen is displayed.
- Confirm the content of the license agreement.



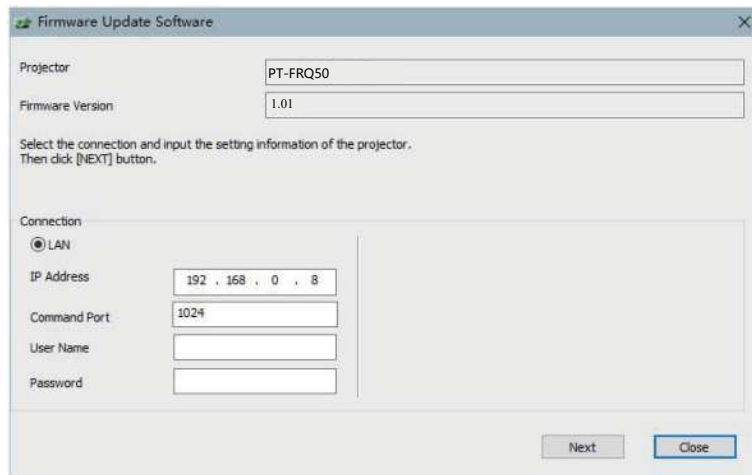
- The update tool will end by clicking [Close].

6) **Select [I accept].**



7) Click [Next].

- The connection setting screen is displayed.



8) Enter the setting details of the projector.

- Enter the details set in the projector to be updated.

Item	Details
[IP Address]	The [NETWORK] menu → [NETWORK STATUS] → [WIRED LAN] → [IP ADDRESS]
[Command Port]	The [NETWORK] menu → [NETWORK CONTROL] → [COMMAND PORT]
[User Name]	The user name of the administrator account
[Password]	The password of the administrator account

9) Click [Next].

- The update confirmation screen is displayed.



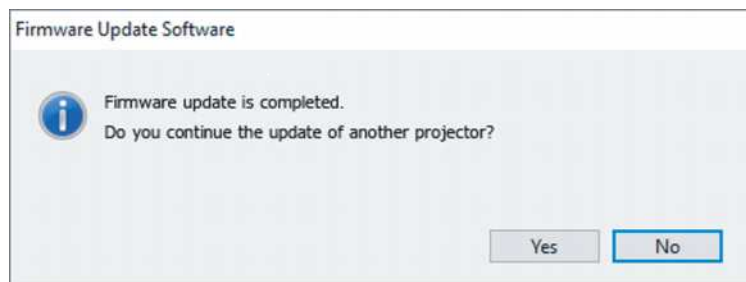
10) Click [Start].

- Update is started.
- The temperature indicator <TEMP> and the light source indicator <LIGHT> on the projector blink red alternately while updating.
- Elapsed time and rough progress can be confirmed in the update status display screen. The required time is approximately 15 minutes.



11) Confirm the completion of the update.

- Once the update is completed, the completion confirmation screen is displayed.



- To continue to update the firmware of another projector, click [Yes]. The connection setting screen in Step 7) is displayed.
- To end the update tool, click [No].

12) Confirm the firmware version.

- Turn on the power of the projector and confirm the firmware version in the [STATUS] screen.

Attention

- Do not disconnect the main power of the projector or disconnect the LAN cable while updating.

Note

- In following cases, turn the power of the projector off and on and perform the update from the beginning.
 - When the update does not complete after 60 minutes or more have elapsed
 - When the power of the projector or the computer has turned off due to power outage, etc., during the update

Updating the firmware using the USB memory

Supported device

- Commercially available USB memory is supported.
 - The USB memory with a security function is not supported.
- Only the cards formatted in FAT16 or FAT32 can be used.
- Only the single partition structure is supported.

Acquiring the firmware

Download the firmware data for this projector (compressed file in zip format) from the website ([https:// panasonic.net/cns/projector/pass/](https://panasonic.net/cns/projector/pass/)).

- File name (example): FRQ50_USER_101.zip
(Firmware data for PT-FRQ50 series with main version 1.01)

Preparing the USB memory

Prepare the USB memory to be used for update.

- 1) **Extract the compressed file downloaded from the website.**
 - The firmware data (file in rom format) is generated.
File name (example): FRQ50_USER_101.rom
- 2) **Save the firmware data generated by extracting into the USB memory.**
 - Save in the root directory of the formatted USB memory.

Note

- Delete everything other than the firmware data to be used for update from the USB memory.
- For the handling of the USB memory, refer to “Using the USB memory” (➔ page 55).

Operating the OSD to update the firmware

- 1) **Insert the USB memory with the firmware data saved into the <USB (DC OUT)> terminal of the projector.**
- 2) **Turn on the power of the projector.**
- 3) **Press the <MENU> button on the remote control or control panel.**
 - The [MAIN MENU] screen is displayed.
- 4) **Press ▲▼ to select [PROJECTOR SETUP].**
- 5) **Press the <ENTER> button.**
 - The [PROJECTOR SETUP] screen is displayed.
- 6) **Press ▲▼ to select [FIRMWARE UPDATE].**
- 7) **Press the <ENTER> button.**
 - The [SECURITY PASSWORD] screen is displayed.
- 8) **Enter a security password and press the <ENTER> button.**
 - The [FIRMWARE UPDATE] screen is displayed.
- 9) **Press ◀▶ to select [OK], and press the <ENTER> button.**
 - Update is started.
 - The projector goes into the standby mode once the update is started, and the light source indicator <LIGHT> and the temperature indicator <TEMP> blink in red alternately.
- 10) **Confirm the firmware version.**
 - Update is completed when the light source indicator <LIGHT> and the temperature indicator <TEMP> stop blinking and turn off.
 - Turn on the power of the projector and confirm the firmware version in the [STATUS] screen.

Attention

- Do not disconnect the main power supply of the projector while updating.

Note

- In following cases, turn the power of the projector off and on and perform the update from the beginning.
 - When the update does not complete after 60 minutes or more have elapsed
 - When the power of the projector has turned off due to power outage, etc., during the update

Update in standby mode

Rewriting of the firmware can be performed by operating the buttons on the control panel even if the projector is in the standby mode.

Set the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] to [NORMAL] in advance. If [ECO] is set, the firmware cannot be updated in standby mode.

- 1) **Insert the USB memory with the firmware data saved into the <USB (DC OUT)> terminal of the projector.**
- 2) **Confirm that the projector is in the standby mode.**
- 3) **Press in order of ▲▲▼▼ on the control panel, and press the <ENTER> button.**
 - The projector will go into the update ready state.
 - Once the projector goes into the update ready state, the power indicator <ON (G)/STANDBY (R)> will turn off, and the light source indicator <LIGHT> and the temperature indicator <TEMP> will light up in red.
- 4) **Enter the security password and press the <ENTER> button.**
 - Update is started.
 - Once the update is started, the power indicator <ON (G)/STANDBY (R)> will light up in red, and the light source indicator <LIGHT> and the temperature indicator <TEMP> will blink in red alternately.
 - Update is completed when the light source indicator <LIGHT> and the temperature indicator <TEMP> stop blinking and turn off.

Attention

- Do not disconnect the main power supply of the projector while updating.

Note

- The security password is the password set in the [SECURITY] menu → [SECURITY PASSWORD CHANGE].
Initial password of the factory default setting: ▲►▼◄▲►▼◄
- In following cases, turn the power of the projector off and on and perform the update from the beginning.
 - When the update does not complete after 60 minutes or more have elapsed
 - When the power of the projector has turned off due to power outage, etc., during the update
- If the security password is not entered for approximately 60 seconds in the update ready state, the update ready state will be canceled and the projector will go into standby mode.

Chapter 6 Maintenance

This chapter describes inspection methods when there are problems, and maintenance methods.

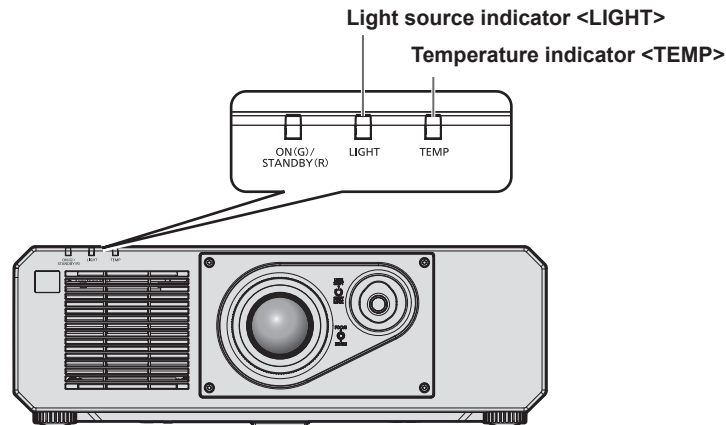
Light source/temperature indicators

When an indicator lights up

If a problem occurs inside the projector, the light source indicator <LIGHT> or the temperature indicator <TEMP> will inform you by lighting or blinking. Check the status of the indicators and take following measures.

Attention

- When switching off the projector to deal with problems, make sure to follow the procedure in “Switching off the projector” (➔ page 51).



Light source indicator <LIGHT>

Indicator status	Lighting red	Blinking red (3 times)
Status	Some of the elements of the light source are defective and the light output has decreased.	The light source does not light up, or the light source turns off while the projector is in use.
Cause	—	
Solution	<ul style="list-style-type: none"> Turn the <MAIN POWER> switch to <OFF> (➔ page 51), and turn on the power again. 	

Note

- If the light source indicator <LIGHT> continues to light or blink even after the measure is taken, set the <MAIN POWER> switch to <OFF>, and ask your dealer for repair.
- The light source indicator <LIGHT> lights green while the projector is in projection mode if there is no notification by lighting or blinking red.

Temperature indicator <TEMP>

Indicator status	Lighting red		Blinking red (2 times)	Blinking red (3 times)
Status	Warm-up status	Internal temperature is high (warning).	Internal temperature is high (standby status).	The cooling fan has stopped.
Cause	<ul style="list-style-type: none"> Did you turn on the power when the temperature was low (around 0 °C (32 °F))? 	<ul style="list-style-type: none"> Is the intake/exhaust vent blocked? Is the room temperature high? 		—
Solution	<ul style="list-style-type: none"> Wait at least five minutes in the current status. Use the projector in an appropriate operating environment temperature^{*1}. 	<ul style="list-style-type: none"> Remove any objects that are blocking the intake/exhaust vent. Use the projector in an appropriate operating environment temperature^{*1}. Do not use the projector at an altitude of 4 200 m (13 780') or higher above sea level^{*2}. 		<ul style="list-style-type: none"> Turn the <MAIN POWER> switch to <OFF> (➔ page 51), and consult your dealer.

*1 The operating environment temperature of the projector differs depending on the altitude or the setting of the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE]. Refer to “Operating temperature” (➔ page 212) for details.

*2 When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE] is set to [ECO] or [QUIET], the projector cannot be used at an altitude of 2 700 m (8 858') or higher above sea level.

Note

- If the temperature indicator <TEMP> is still lit or blinking after taking the measures, ask your dealer for repair.

Maintenance

Before maintaining the projector

- Make sure to turn off the power before performing the maintenance of the projector. (➔ pages 42, 51)
- When switching off the projector, make sure to follow the procedures in “Switching off the projector” (➔ page 51).

Maintenance

Outer case

Wipe off dirt and dust with a soft, dry cloth.

- If the dirt is persistent, soak the cloth with water and wring it thoroughly before wiping. Dry off the projector with a dry cloth.
- Do not use benzene, thinner, or rubbing alcohol, other solvents, or household cleaners. Doing so may deteriorate the outer case.
- When using chemically treated dust cloths, follow the instructions written on its packaging.

Lens front surface

Wipe off dirt and dust from the front surface of the lens with a soft clean cloth.

- Do not use a cloth that is fluffy, dusty, or soaked with oil/water.
- Since the lens is fragile, do not use excessive force when wiping the lens.

Attention

- The lens may become damaged by hitting with a hard object or by wiping the front surface of the lens with excessive force. Handle with care.

Note

- Dust may accumulate around the intake/exhaust vent depending on the environment and operating condition when used in an environment with excessive dust. This may adversely affect the ventilation, cooling, and heat dissipation inside the projector, thus causing reduced brightness.

Troubleshooting

Review the following points. For details, see the corresponding pages.

Problems	Points to be checked	Page
Power does not turn on.	• Is the power plug firmly inserted into the outlet?	—
	• Is the <MAIN POWER> switch set to <OFF>?	51
	• Is the wall outlet supplying electricity?	—
	• Have the circuit breakers tripped?	—
	• Is the light source indicator <LIGHT> blinking?	193
	• Is the temperature indicator <TEMP> lit or blinking?	193
No image appears.	• Are connections to external devices correctly performed?	37
	• Is the input selection setting correct?	52
	• Is the [BRIGHTNESS] adjustment setting at a minimum?	68
	• Is the external device that is connected to the projector working properly?	—
	• Is the shutter function in use?	56, 102
	• If the power indicator <ON (G)/STANDBY (R)> is blinking red, consult your dealer.	—
Image is fuzzy.	• Is the lens focus set correctly?	53
	• Is the projection distance appropriate?	34
	• Is the lens dirty?	24
	• Is the projector installed perpendicular to the screen?	—
Color is pale or grayish.	• Are [COLOR] and [TINT] adjusted correctly?	69
	• Is the external device connected to the projector adjusted correctly?	37
	• Is the computer cable damaged?	—
No audio.	• Is the external device connected correctly to the audio input terminal?	30
	• Is the mute function used?	56, 121
	• Is [AUDIO IN SELECT] in [AUDIO SETTING] correctly set?	121
Remote control does not respond.	• Are the batteries depleted?	—
	• Is the polarity of the batteries set correctly?	31
	• Are there any obstructions between the remote control and the remote control signal receiver of the projector?	27
	• Is the remote control being used beyond its effective operation range?	27
	• Are other forms of light, such as fluorescent light, affecting the projection?	27
	• Is the [REMOTE CONTROL] setting in [CONTROL DEVICE SETUP] set to [DISABLE]?	134
• Is the ID number setting operation correct?	60	
Menu screen does not appear.	• Is the on-screen display function turned off (hidden)?	57
Buttons on the control panel do not operate.	• Is the [CONTROL PANEL] setting in [CONTROL DEVICE SETUP] set to [DISABLE]?	134
Image does not display correctly.	• Is [SYSTEM SELECTOR] set properly?	74
	• Are the settings for [COMPUTER IN], [HDMI1 IN], [HDMI2 IN], and [DIGITAL LINK IN] made correctly?	93
	• Is there a problem with the external device to output images?	—
	• Is a signal which is not compatible with the projector being input?	215
Image from a computer does not appear.	• Is the cable too long?	—
	• Is the external video output on the laptop computer set correctly? (Ex.: The external output settings may be switched by pressing the "Fn" + "F3" keys or the "Fn" + "F10" keys simultaneously. This will differ depending on the model of the computer. Refer to the user manual provided with your computer.)	—
Image output from DVI-D of the computer does not appear.	• It may get improved by replacing the HDMI/DVI-D conversion cable.	—
	• It may get improved by updating the graphic accelerator driver of the computer to the latest version.	—
	• It may get improved by rebooting the computer after setting the [DISPLAY OPTION] menu → [HDMI1 IN] / [HDMI2 IN] → [EDID SELECT] to [2K].	95

Problems	Points to be checked	Page
Video from HDMI compatible device does not appear or it appears jumbled.	• Is the HDMI cable connected securely?	37
	• Turn the power of the projector and the external device off and on.	—
	• Is a signal which is not compatible with the projector being input?	215
Cannot control the projector with Art-Net.	• Are the connections between the twisted-pair-cable transmitter and an external device, and between the twisted-pair-cable transmitter and projector correctly done?	—
	• Is [Art-Net SETUP] set to other than [OFF]?	145
	• Are [NET], [SUB NET], [UNIVERSE], and [START ADDRESS] set correctly?	145
The DIGITAL LINK input image is not displayed.	• Is the cable compatible to the condition of the projector used?	39
	• Are the connections between the twisted-pair-cable transmitter and an external device, and between the twisted-pair-cable transmitter and projector correctly done?	—
	• Is [DIGITAL LINK MODE] set to [AUTO], [DIGITAL LINK], or [LONG REACH]? Is it set to [ETHERNET]?	136
	• Is a signal which is not compatible with a twisted-pair-cable transmitter being input?	—
Operation noise became loud.	If the temperature inside the projector becomes high, the speed of the internal cooling fan increases automatically and the operation noise becomes loud. If the internal temperature reaches the abnormal value, the indicators will light up or blink.	193
	• Is the ambient temperature high?	20, 212
	• Are the intake/exhaust vents blocked?	21

Attention

- If problems persist even after checking the preceding points, consult your dealer.

Self-diagnosis display

When an error or a warning occurs, a symbol for that is displayed in [SELF TEST] of the [PROJECTOR SETUP] menu → [STATUS].

The following list shows the alphanumeric symbol that is displayed when an error or a warning has occurred and its details. Confirm “Action number”, and follow the measure in “Measure for error and warning” (➔ page 197).

Error/warning alphanumeric symbol	Error/warning alphanumeric symbol content	Action number
U200	Intake air temperature warning	1
U201	Exhaust air temperature warning	2
U202 - U204	Other high temperature warnings	2
U280	Low temperature warning	3
U300	Intake air temperature error	1
U301	Exhaust air temperature error	2
U302 - U304	Other high temperature errors	2
U380	Low temperature error	3
F015	Luminance sensor error	5
F016	Angle sensor error	5
F017	QUAD PIXEL DRIVE unit error	5
F018	Air pressure sensor error	5
F061	Light source driver communication error	5
F086	Color wheel error	5
F111	Phosphor wheel error	5
F200 - F207	Fan warning	5
F300 - F307	Fan error	5
F400, F450, F500	Light source error	5
H001	Battery replacement for the internal clock	4
H011, H012, H013, H014, H016	Temperature sensor error	5

Note

- The self-diagnosis display and the details of the malfunction may be different.
- For errors and warnings that are not described in the table, consult your dealer.

■ Measure for error and warning

Action number	Measure
1	The operating environment temperature is too high. Use the projector in an appropriate operating environment temperature*1.
2	The operating environment temperature is too high, or the exhaust vent may be blocked. Use the projector in an appropriate operating environment temperature*1. Or remove any objects that are blocking the exhaust vent.
3	The operating environment temperature is too low. Use the projector in an appropriate operating environment temperature*1.
4	Battery replacement is required. Consult your dealer.
5	If the display does not clear after switching the main power off and on, consult your dealer.

*1 For the operating environment temperature of the projector, refer to “Operating temperature” (➔ page 212).

Chapter 7 Appendix

This chapter describes specifications and after-sales service for the projector.

Technical information

Using the PJLink function

The network function of this projector supports the PJLink class 1 and class 2, and the PJLink protocol can be used to perform projector setting and projector status query operations from a computer.

Note

- Setting the password of the administrator account (➔ page 140) is required for using the PJLink function of the projector.

PJLink commands

The following table lists the PJLink commands supported by the projector.

- x characters in tables are non-specific characters.

Class	Command	Control details	Parameter/ response string	Remark		
1	POWR	Power supply control	0 1	Standby Power on		
1	POWR?	Power supply status query	0 1 2	Standby Power on Preparing for switching off the projector		
1, 2	INPT	Input selection	11 31	COMPUTER HDMI1		
	INPT?	Input selection query	32 33	HDMI2 DIGITAL LINK		
1	AVMT	Shutter control/audio output control	10 11 20 21 30 31	Shutter function disabled (shutter: open), mute function disabled Shutter function enabled (shutter: closed), mute function disabled Shutter function disabled (shutter: open), mute function disabled Shutter function disabled (shutter: open), mute function enabled (muted) Shutter function disabled (shutter: open), mute function disabled Shutter function enabled (shutter: closed), mute function enabled (muted)		
	AVMT?	Shutter status query/ audio output status query	30 31	Shutter function disabled (shutter: open), mute function disabled Shutter function enabled (shutter: closed), mute function enabled (muted)		
1	ERST?	Error status query	xxxxxx	1st byte	Indicates fan errors, and returns 0 or 2.	<ul style="list-style-type: none"> • 0 = No error is detected • 1 = Warning • 2 = Error
				2nd byte	Indicates light source errors, and returns 0 or 2.	
				3rd byte	Indicates temperature errors, and returns 0 - 2.	
				4th byte	Returns 0.	
				5th byte	Returns 0.	
				6th byte	Indicates other errors, and returns 0 - 2.	
1	LAMP?	Light source status query	AAAA X	AAAA: Light source runtime X: 0 = Light source off, 1 = Light source on		
1, 2	INST?	Input selection list query	11 31 32 33	—		
1	NAME?	Projector name query	xxxxxxxx	Returns the name set in the [NETWORK] menu → [PROJECTOR NAME].		
1	INF1?	Manufacturer name query	Panasonic	Returns manufacturer name.		
1	INF2?	Model name query	PT-FRQ50 PT-FRQ50D PT-FRQ50T PT-FRQ60 PT-FRQ60D PT-FRQ60T	Returns model name.		

Class	Command	Control details	Parameter/ response string	Remark
1	INF0?	Other information queries	xxxxx	Returns the main version of the firmware.
1	CLSS?	Class information query	2	Returns class for PJLink.
2	SNUM ?	Serial number query	xxxxxxxxx	Returns serial number.
2	SVER ?	Software version query	xxxxxxxxx	Returns version number.
2	INNM?	Input terminal name query	11 / COMPUTER 31 / HDMI1 32 / HDMI2 33 / DIGITAL LINK	Returns input terminal name.
2	IRES ?	Input signal resolution query	AAAAxBBBB	AAAA: Horizontal resolution BBBB: Vertical resolution
2	RRES ?	Recommended resolution query	3840 x 2160 1920 x 1080	Returns display resolution. 3840 x 2160: with QUAD PIXEL DRIVE 1920 x 1080: without QUAD PIXEL DRIVE
2	SVOL	Volume control	0 1	Decrease the volume. Increases the volume.
2	FREZ	Freeze control	0	Freeze clear
	FREZ ?	Freeze status query	1	Freeze (stop)
2	POWR	Cooling notification	0	Notifies when the power is turned off.
		Warmup notification	1	Notifies when the power is turned on.
2	ERST	Error notification	xxxxxx	Notifies when an error occurs.
2	LKUP	Link up notification	xx:xx:xx:xx:xx:xx	Notifies the MAC address when the PJLink communication becomes possible.
2	INPT	Input switch completion notification	11 31 32 33	COMPUTER HDMI1 HDMI2 DIGITAL LINK
2	SRCH	Projector search	ACKN=xx:xx:xx:xx:xx:xx	The projector connected to the same network that can communicate with PJLink will respond with its MAC address.

PJLink security authentication

A PJLink password for security authentication is required for PJLink command communication.

The PJLink password can be set from the [NETWORK] menu → [PJLink] → [PJLink PASSWORD] (➡ page 144) or from the [Set up password] page (➡ page 176) of the web control screen.

When using the PJLink commands without security authentication, set the PJLink password to blank. The factory default setting of PJLink password is blank.

- For specifications related to PJLink, visit the website of Japan Business Machine and Information System Industries Association.

URL <http://pjlink.jbmia.or.jp/english/>

Using Art-Net function

Since the network function of the projector supports the Art-Net function, you can control the projector settings with the DMX controller and application software using the Art-Net protocol.

Note

- Setting the password of the administrator account (➡ page 140) is required for using the Art-Net function of the projector.

Channel definition

The following table lists the channel definitions used for controlling the projector with the Art-Net function. Channel settings can be switched using the [NETWORK] menu → [Art-Net] → [Art-Net CHANNEL SETTING] (➡ page 146).

The control details assigned to each channel are listed in the following table.

- Channel assignment for [USER] is in factory default setting. Assignment can be changed.

Channel	Control details		
	[2]	[USER]	[1]
CHANNEL1	LIGHT OUTPUT	LIGHT OUTPUT	SHUTTER
CHANNEL2	INPUT SELECT	INPUT SELECT	INPUT SELECT
CHANNEL3	NONE	NONE	NONE
CHANNEL4	NONE	NONE	NONE
CHANNEL5	NONE	NONE	POWER
CHANNEL6	NONE	NONE	LIGHT OUTPUT
CHANNEL7	NONE	NONE	ENABLE / DISABLE
CHANNEL8	POWER	POWER	FADE-IN
CHANNEL9	GEOMETRY	GEOMETRY	FADE-OUT
CHANNEL10	CUSTOM MASKING	CUSTOM MASKING	CUSTOM MASKING
CHANNEL11	ENABLE / DISABLE	ENABLE / DISABLE	GEOMETRY
CHANNEL12	NONE	NONE	NONE

Control details

■ LIGHT OUTPUT

This can be set in 256 steps between 100 % and 0 %.

Performance	Parameter	Default value
100 %	0	0
...	...	
0 %	255	

■ INPUT SELECT (when [Art-Net CHANNEL SETTING] is set to [1])

Performance	Parameter	Default value
No operation	0-39	0
HDMI1	40-47	
DIGITAL LINK	48-55	
No operation	56-255	

■ INPUT SELECT (when [Art-Net CHANNEL SETTING] is set to [2] or [USER])

Performance	Parameter	Default value
No operation	0-7	0
COMPUTER	8-15	
No operation	16-31	
HDMI1	32-39	
DIGITAL LINK	40-47	
No operation	48-71	
HDMI2	72-79	
No operation	80-255	

■ POWER

Performance	Parameter	Default value
Standby	0-63	128
No operation	64-191	
Power on	192-255	

■ SHUTTER

Performance	Parameter	Default value
SHUTTER: Open, mute clear	0-63	128
No operation	64-191	
SHUTTER: Closed, mute	192-255	

■ FADE-IN, FADE-OUT (when [Art-Net CHANNEL SETTING] is set to [1])

Operate together with SHUTTER.

Performance	Parameter	Default value
OFF	0-15	255
0.5s	16-31	
1.0s	32-47	
1.5s	48-63	
2.0s	64-79	
2.5s	80-95	
3.0s	96-111	
3.5s	112-127	
4.0s	128-143	
5.0s	144-159	
7.0s	160-175	
10.0s	176-191	
No operation	192-255	

■ GEOMETRY

Performance	Parameter	Default value
OFF	0-15	255
KEystone	16-31	
CURVED CORRECTION	32-47	
No operation	48-95	
CORNER CORRECTION	96-111	
No operation	112-255	

■ CUSTOM MASKING

Performance	Parameter	Default value
OFF	0-31	255
PC-1	32-63	
PC-2	64-95	
PC-3	96-127	
No operation	128-255	

■ FREEZE

Performance	Parameter	Default value
No operation	0-31	128
OFF	32-95	
No operation	96-159	
ON	160-223	
No operation	224-255	

■ COLOR, TINT

Performance	Parameter	Default value
No operation	0-31	0
Factory default setting	32-63	
-31	64	
...	...	
0	128-129	
...	...	
+31	191	
No operation	192-255	

■ RASTER PATTERN

Performance	Parameter	Default value
No operation	0-15	0
OFF	16-31	
WHITE	32-47	
YELLOW	48-63	
CYAN	64-79	
GREEN	80-95	
MAGENTA	96-111	
RED	112-127	
BLUE	128-143	
BLACK	144-159	
USER LOGO	160-175	
No operation	176-255	

■ [AUDIO VOLUME]

Performance	Parameter	Default value
No operation	0-31	0
Factory default setting	32-63	
0	64-65	
...	...	
63	190-191	
No operation	192-255	

■ ENABLE / DISABLE

Operation for all channels is not accepted when set to “Disable”.

Performance	Parameter	Default value
Disable	0-127	0
Enable	128-255	

Note

- If the projector is operated using the remote control or the control panel, or by the control command while controlling the projector using the Art-Net function, the setting of the DMX controller or computer application may be different from the projector status. To reflect the controls

of all channels to the projector, set "ENABLE / DISABLE" of channel 11 to "Disable" and then back to "Enable".

- To create and register the USER LOGO image, use "Logo Transfer Software". The software can be downloaded from the website (<https://panasonic.net/cns/projector/>).

Control commands via LAN

The projector can be controlled via the <DIGITAL LINK/LAN> terminal or the <LAN> terminal by using the control command format via the <SERIAL IN> terminal.

For examples of the available commands, refer to "Control command" (➔ page 209).

Note

- Setting the password of the administrator account (➔ page 140) is required for sending and receiving the commands via LAN.

When connecting in protected mode

Connecting

This is the connection method when [NETWORK] menu → [NETWORK SECURITY] → [COMMAND PROTECT] is set to [ENABLE].

1) Obtain the IP address and port number (Initial set value = 1024) of the projector and request a connection to the projector.

- You can obtain both the IP address and the port number from the menu screen of the projector.

IP address	Obtain from the [NETWORK] menu → [NETWORK STATUS].
Port number	Obtain from the [NETWORK] menu → [NETWORK CONTROL] → [COMMAND PORT].

2) Check the response from the projector.

	Data section	Blank	Mode	Blank	Random number section	Termination symbol
Command example	"NTCONTROL" (ASCII string)	' '	'1'	' '	"zzzzzzzz" (ASCII code hex number)	(CR) 0x0d
Data length	9 bytes	1 byte	1 byte	1 byte	8 bytes	1 byte

- Mode: 1 = Protect mode
- Example: Response during protect mode (random number section is undefined value)
"NTCONTROL 1 23181e1e" (CR)

3) Generate a 32-byte hash value from the following data using MD5 algorithm.

- "xxxxxx:yyyyy:zzzzzzzz"

xxxxxx	User name of the administrator account
yyyyy	Password of the administrator account
zzzzzzzz	8-byte random number obtained in Step 2)

Command transmission method

Transmit using the following command formats.

■ Transmitted data

	Header			Data section	Termination symbol
Command example	Hash value "Connecting" (➔ page 204)	'0'	'0'	Control command (ASCII string)	(CR) 0x0d
Data length	32 bytes	1 byte	1 byte	Undefined length	1 byte

- Example: Transmission of power supply status acquisition command (hash value is calculated from the administrator account user name and password, and the acquired random number)
"dbdd2dabd3d4d68c5dd970ec0c29fa6400QPW" (CR)

■ Received data

	Header		Data section	Termination symbol
Command example	'0' 0x30	'0' 0x30	Control command (ASCII string)	(CR) 0x0d
Data length	1 byte	1 byte	Undefined length	1 byte

- Example: The projector is powered on "00001" (CR)

■ Error response

	String	Details	Termination symbol
Message	"ERR1"	Undefined control command	(CR) 0x0d
	"ERR2"	Out of parameter range	
	"ERR3"	Busy state or no-acceptable period	
	"ERR4"	Timeout or no-acceptable period	
	"ERR5"	Wrong data length	
	"ERRA"	Password mismatch	
Data length	4 bytes	—	1 byte

Note

- The projector will automatically disconnect the connection with the network right after sending the command. This is the specification based on the security view point to prevent unauthorized operation of this product by a malicious third party. To send commands continuously, execute the network connection request every time the command is to be sent. For details, refer to "Communication flow between server and client" (➔ page 206).

When connecting in non-protected mode

Connecting

This is the connection method when [NETWORK] menu → [NETWORK SECURITY] → [COMMAND PROTECT] is set to [DISABLE].

1) Obtain the IP address and port number (Initial set value = 1024) of the projector and request a connection to the projector.

- You can obtain both the IP address and the port number from the menu screen of the projector.

IP address	Obtain from the [NETWORK] menu → [NETWORK STATUS].
Port number	Obtain from the [NETWORK] menu → [NETWORK CONTROL] → [COMMAND PORT].

2) Check the response from the projector.

	Data section	Blank	Mode	Termination symbol
Command example	"NTCONTROL" (ASCII string)	' ' 0x20	'0' 0x30	(CR) 0x0d
Data length	9 bytes	1 byte	1 byte	1 byte

- Mode: 0 = non-protect mode
- Example: Response during non-protect mode "NTCONTROL 0" (CR)

Command transmission method

Transmit using the following command formats.

■ Transmitted data

	Header		Data section	Termination symbol
Command example	'0' 0x30	'0' 0x30	Control command (ASCII string)	(CR) 0x0d
Data length	1 byte	1 byte	Undefined length	1 byte

- Example: Transmission of power supply status acquisition command
"00QPW" (CR)

■ Received data

	Header		Data section	Termination symbol
Command example	'0' 0x30	'0' 0x30	Control command (ASCII string)	(CR) 0x0d
Data length	1 byte	1 byte	Undefined length	1 byte

- Example: The projector is in standby status
"00000" (CR)

■ Error response

	String	Details	Termination symbol
Message	"ERR1"	Undefined control command	(CR) 0x0d
	"ERR2"	Out of parameter range	
	"ERR3"	Busy state or no-acceptable period	
	"ERR4"	Timeout or no-acceptable period	
	"ERR5"	Wrong data length	
Data length	4 bytes	—	1 byte

Note

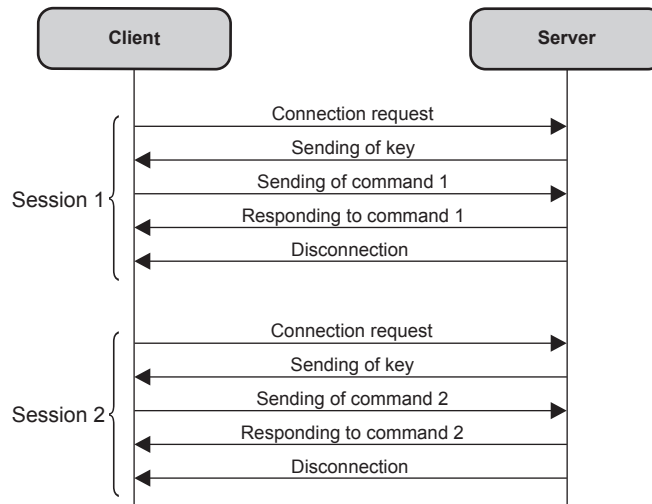
- The projector will automatically disconnect the connection with the network right after sending the command. This is the specification based on the security view point to prevent unauthorized operation of this product by a malicious third party. To send commands continuously, execute the network connection request every time the command is to be sent. For details, refer to "Communication flow between server and client" (➔ page 206).

Communication flow between server and client

To send/receive a command via LAN, refer to the communication flow indicated below.

Server: Projector

Client: Control device such as a computer

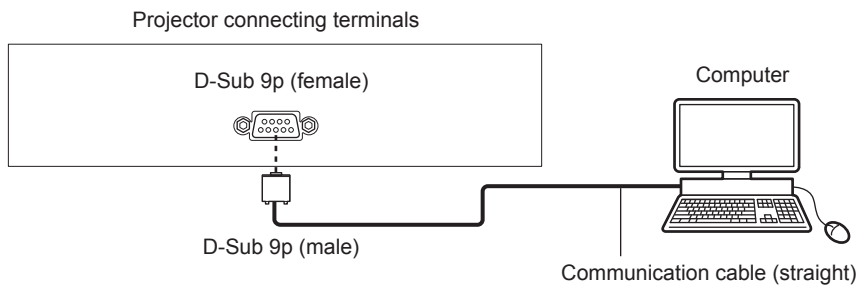


<SERIAL IN> terminal

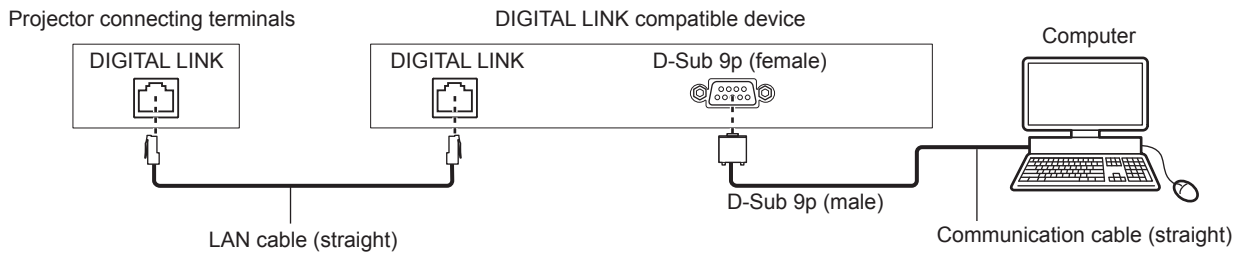
The <SERIAL IN> terminal of the projector conforms with RS-232C so that the projector can be connected to and controlled from a computer.

Connection

When connecting directly



When connecting using DIGITAL LINK compatible device



Note

- The destination of [RS-232C] (➔ page 119) must be set according to the connection method.
- When connecting using a DIGITAL LINK compatible device, set the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [STANDBY MODE] to [NORMAL] to control the projector in the standby mode.
When [STANDBY MODE] is set to [ECO], the projector cannot be control during standby.

Pin assignments and signal names

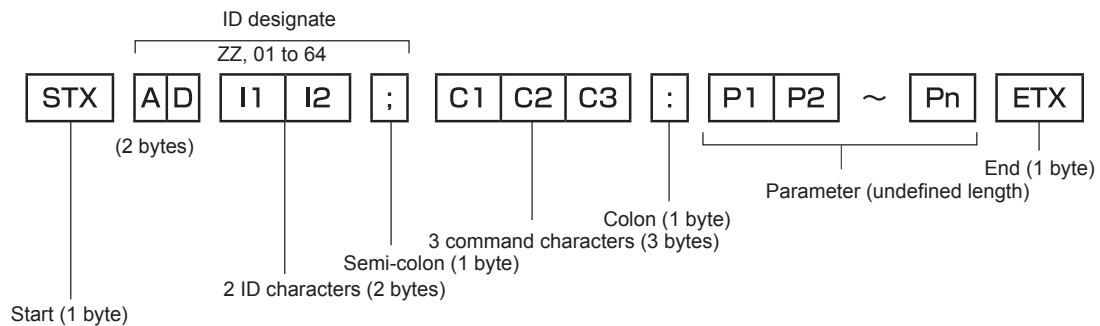
D-Sub 9-pin (female) Outside view	Pin No.	Signal name	Details
	(1)	—	NC
	(2)	TXD	Transmitted data
	(3)	RXD	Received data
	(4)	—	NC
	(5)	GND	Earth
	(6)	—	NC
	(7)	CTS	Connected internally
	(8)	RTS	
	(9)	—	NC

Communication conditions (Factory default)

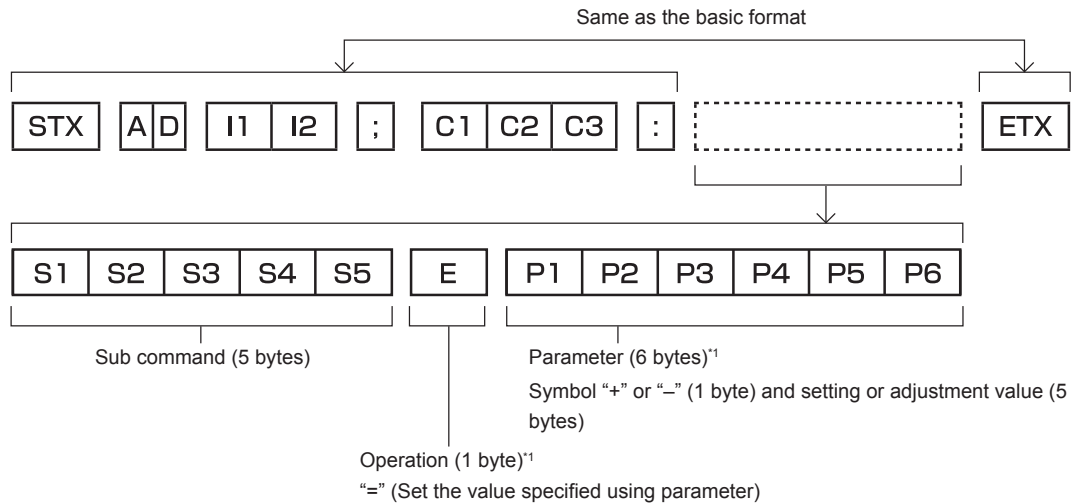
Signal level	RS-232C-compliant
Sync. method	Asynchronous
Baud rate	9 600 bps
Parity	None
Character length	8 bits
Stop bit	1 bit
X parameter	None
S parameter	None

Basic format

Transmission from the computer starts with STX, then the ID, command, parameter, and ETX are sent in this order. Add parameters according to the details of control.



Basic format (has subcommands)



*1 When transmitting a command which does not need a parameter, an operation (E) and parameter are not necessary.

Attention

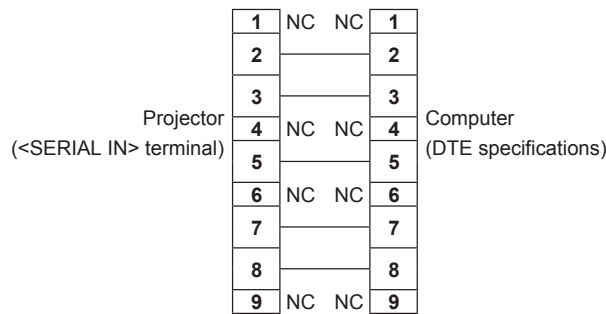
- If a command is sent after the light source starts lighting, there may be a delay in response or the command may not be executed. Try sending or receiving any command after 60 seconds.
- When transmitting multiple commands, be sure to wait until 0.5 seconds has elapsed after receiving the response from the projector before sending the next command. When transmitting a command which does not need a parameter, a colon (:) is not necessary.

Note

- If a command cannot be executed, the "ER401" response is sent from the projector to the computer.
- If an invalid parameter is sent, the "ER402" response is sent from the projector to the computer.
- ID transmission in RS-232C supports ZZ (ALL) and 01 to 64.
- If a command is sent with an ID designated, a response will be sent to the computer only in the following cases.
 - It matches the projector ID
 - ID is designated as ALL and [RESPONSE(ID ALL)] is set to [ON]
- STX and ETX are character codes. STX shown in hexadecimal is 02, and ETX shown in hexadecimal is 03.

Cable specification

When connected to a computer



Control command

The following table lists the commands that can be used to control the projector using a computer.

■ **Projector control command**

Command	Details	Parameter/response string	Remark (parameter)
PON	Power on	—	To check if the power is on, use the "Power query" command.
POF	Power standby		
QPW	Power query	000 001	STANDBY Power on

Command	Details	Parameter/response string	Remark (parameter)
IIS	Switching the input signal	RG1 HD1 HD2 DL1	COMPUTER HDMI1 HDMI2 DIGITAL LINK
OSH	Shutter control	0	OPEN
QSH	Shutter status query	1	CLOSE
VSE	Aspect ratio switch	0 1 2	DEFAULT 4:3 16:9
QSE	Aspect ratio settings query	6 9 10	HV FIT H FIT V FIT
OCS	Sub memory switch	01 - 96	Sub memory number
QSB	Sub memory status query		

<COMPUTER IN> terminal pin assignment and signal name

Outside view	Pin No.	Signal name	Pin No.	Signal name
	(1)	R/P _R	(9)	+5 V
	(2)	G/Y	(10)	GND
	(3)	B/P _B	(11)	GND
	(4)	—	(12)	DDC data
	(5)	GND	(13)	SYNC/HD
	(6)	GND	(14)	VD
	(7)	GND	(15)	DDC clock
	(8)	GND		

<MONITOR OUT> terminal pin assignment and signal name

Outside view	Pin No.	Signal name	Pin No.	Signal name
	(1)	R/P _R	(9)	—
	(2)	G/Y	(10)	GND
	(3)	B/P _B	(11)	GND
	(4)	—	(12)	—
	(5)	GND	(13)	SYNC/HD
	(6)	GND	(14)	VD
	(7)	GND	(15)	—
	(8)	GND		

Specifications

The specifications of the projector are as follows.

Display system		DLP chip x 1, DLP projection system	
Display device	Size of effective display area	16.5 mm (0.65") (aspect ratio 16:9)	
	Number of pixels	2 073 600 pixels (1 920 x 1 080 dots)	without QUAD PIXEL DRIVE*1
8 294 400 pixels (3 840 x 2 160 dots)		with QUAD PIXEL DRIVE	
Projection lens	Supplied projection lens	Throw ratio: 1.5 to 2.9:1 F = 2.0 to 3.4 f = 21.5 mm to 43.0 mm	
	Zoom	Manual	
	Focus	Manual	
	Lens shift	Manual (Horizontal/Vertical)	
	Changeable lens	No	
Light source		Laser diode	
Screen size		1.02 m (40") to 7.62 m (300")	
Light output ²	PT-FRQ60	6 000 lm	when [PICTURE MODE] is set to [DYNAMIC], [DAYLIGHT VIEW] is set to [OFF], [DYNAMIC CONTRAST] is set to [OFF], and [LIGHT OUTPUT] is set to [100%]
	PT-FRQ50	5 200 lm	
	PT-FRQ60	4 800 lm	when [PICTURE MODE] is set to [DYNAMIC], [DAYLIGHT VIEW] is set to [OFF], [DYNAMIC CONTRAST] is set to [OFF], and [LIGHT OUTPUT] is set to [80%]
	PT-FRQ50	4 100 lm	
Contrast ratio ²		20 000:1	when [PICTURE MODE] is set to [DYNAMIC], [OPERATING MODE] is set to [NORMAL] and [DYNAMIC CONTRAST] is set to [1]
Center to corner zone ratio ²		90%	
Displayable scanning frequency	Horizontal	27 kHz to 291.6 kHz	
	Vertical	24 Hz to 240 Hz	
Input compatibility	HDMI signal input	Video signal resolution: 480/60p, 576/50p to 4 096 x 2 160/60p Computer signal resolution: 640 x 480 to 2 560 x 1 600 (non-interlace) Dot clock frequency: 25 MHz to 594 MHz	
	DIGITAL LINK signal input	Video signal resolution: 480/60p, 576/50p to 4 096 x 2 160/60p Computer signal resolution: 640 x 480 to 2 560 x 1 600 (non-interlace) Dot clock frequency: 25 MHz to 297 MHz	
	COMPUTER signal input	Video signal resolution: 480/60p, 576/50p to 1 920 x 1 080/60p Computer signal resolution: 640 x 480 to 1 920 x 1 200 (non-interlace) Dot clock frequency: 25 MHz to 162 MHz	

*1 Image cannot be displayed with this resolution when the input signal is in resolution other than 1 080/120p and 1 920 x 1 080/240.

*2 Measurement, measuring conditions, and method of notation all comply with ISO/IEC 21118:2020 international standards.

Connecting terminals	<HDMI IN 1> terminal <HDMI IN 2> terminal	HDMI x 2, HDCP 2.3 compatible, Deep Color compatible Audio signal Linear PCM (sampling frequency: 48 kHz/44.1 kHz/32 kHz)	
	<DIGITAL LINK/LAN> terminal	RJ-45 x 1, for network and DIGITAL LINK connections (HDBaseT™ compliant), PLink (class 2) compatible, 100Base-TX, Art-Net compatible, HDCP 2.3 compatible, Deep Color compatible	
	<LAN> terminal	RJ-45 x 1, for network connection, PLink (class 2) compatible, 10Base-T/100Base-TX, Art-Net compatible	
	<COMPUTER IN> terminal	High-density D-Sub 15 p (female) x 1 RGB signal 0.7 V [p-p] 75 Ω (SYNC ON GREEN: 1.0 V [p-p] 75 Ω) SYNC/HD TTL high impedance, automatic positive/negative polarity compatible VD TTL high impedance, automatic positive/negative polarity compatible YPbPr signal Y: 1.0 V [p-p] including synchronization signal, PbPr: 0.7 V [p-p] 75 Ω	
	<MONITOR OUT> terminal	High-density D-Sub 15 p (female) x 1 RGB signal 0.7 V [p-p] 75 Ω (SYNC ON GREEN: 1.0 V [p-p] 75 Ω) SYNC/HD TTL high impedance, positive/negative polarity VD TTL high impedance, positive/negative polarity YPbPr signal Y: 1.0 V [p-p] including synchronization signal, PbPr: 0.7 V [p-p] 75 Ω	
	<AUDIO IN> terminal	M3 stereo mini jack x 1, 0.5 V [rms], input impedance 22 kΩ or more	
	<AUDIO OUT> terminal	M3 stereo mini jack x 1, 0 V [rms] to 2.0 V [rms] (variable), output impedance 2.2 kΩ or lower	
	<SERIAL IN> terminal	D-Sub 9 p x 1, RS-232C compliant, for computer control	
<USB (DC OUT)> terminal	USB connector (type A) x 1, for connecting the optional Wireless Module (Model No.: AJ-WM50 Series), for connecting USB memory, for power supply (DC 5 V, maximum 2 A)		
Acoustic noise*1	PT-FRQ60	36 dB	When [OPERATING MODE] is set to [NORMAL] or [ECO]
	PT-FRQ50	35 dB	
	PT-FRQ60	31 dB	When [OPERATING MODE] is set to [QUIET]
	PT-FRQ50	28 dB	
Operating environment	Operating temperature	0 °C (32 °F) to 45 °C (113 °F)*2*3*4	
	Operating humidity	10 % to 80 % (no condensation)	
Operation position	[FLOOR/CEILING], [FRONT/REAR]		

*1 Measurement, measuring conditions, and method of notation all comply with ISO/IEC 21118:2020 international standards.

*2 The operating environment temperature should be between 0 °C (32 °F) and 40 °C (104 °F) if the projector is used at an altitude between 1 400 m (4 593') and 4 200 m (13 780') above sea level. When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE] is set to [ECO] or [QUIET], the projector cannot be used at an altitude of 2 700 m (8 858') or higher above sea level.

*3 The operating environment temperature should be between 0 °C (32 °F) and 40 °C (104 °F) when the optional Wireless Module (Model No.: AJ-WM50 Series) is attached.

*4 When the operating environment temperature exceeds the following value, the light output may be reduced to protect the projector.

- When using the projector at an altitude lower than 1 400 m (4 593') above sea level:
 - PT-FRQ50: 33 °C (91 °F)
 - PT-FRQ60: 31 °C (88 °F)
- When using the projector at an altitude between 1 400 m (4 593') and 2 700 m (8 858') above sea level:
 - PT-FRQ50: 29 °C (84 °F)
 - PT-FRQ60: 27 °C (81 °F)
- When using the projector at an altitude between 2 700 m (8 858') and 4 200 m (13 780') above sea level: 25 °C (77 °F)

Chapter 7 Appendix — Specifications

Power requirements		110 V ~ (110 V alternating current), 60 Hz (for Taiwan)	
		100 V - 240 V ~ (100 V - 240 V alternating current), 50 Hz/60 Hz (for other countries and regions)	
Rated current		PT-FRQ60	5.0 A (for Taiwan)
			5.5 A - 2.4 A (for other countries and regions)
		PT-FRQ50	4.7 A (for Taiwan)
			5.0 A - 2.2 A (for other countries and regions)
Maximum power consumption		PT-FRQ60	505 W
		PT-FRQ50	480 W
Standby mode power consumption		Approx. 0.5 W	
		Approx. 15 W	
		Approx. 35 W	
		PT-FRQ60	Approx. 95 W
		PT-FRQ50	Approx. 80 W
Standard outside dimensions		Width	
		498 mm (19-5/8")	
		Height	
		168 mm (6-5/8") (with the feet at shortest position)	
		164 mm (6-15/32") (excluding the feet and protrusions)	
		Depth	
		492 mm (19-3/8") (including the lens)	
Weight^{*1}		PT-FRQ60	Approx. 16.4 kg (36.16 lbs.)
		PT-FRQ50	Approx. 16.1 kg (35.49 lbs.)
Outer case		Materials	
		Molded plastic	
		Color	
		Black model	Black
		White model	White
Power cord length		For Taiwan: 2.0 m (78-3/4") For other countries and regions: 3.0 m (118-1/8")	
Laser Classification		Laser Class	
		Class 1 (IEC/EN 60825-1:2014)	
		Risk Group	
		Risk group 2 (IEC 62471-5:2015)	
Wireless LAN^{*2}		Compliance standards	
		IEEE802.11b/g/n	
		Transmission method	
		DSSS, OFDM	
		Frequency range (Channel)	
		2 412 MHz to 2 462 MHz (1 to 11ch)	
		Data transfer speed (Standard value)	
		IEEE802.11n Up to 144 Mbps	
		IEEE802.11g Up to 54 Mbps	
		IEEE802.11b Up to 11 Mbps	
		Encryption method	
		WPA2-PSK(AES)	
Remote control		Power requirements	
		DC 3 V (AAA/R03/LR03 battery x 2)	
		Operating range	
		Within approx. 30 m (98'5") (when operated directly in front of signal receiver)	
		Weight	
		102 g (3.6 ozs.) (including batteries)	
		Outside dimensions	
		Width: 48 mm (1-7/8"), Height: 145 mm (5-23/32"), Depth: 27 mm (1-1/16")	

*1 Average value. Weight varies for each product.

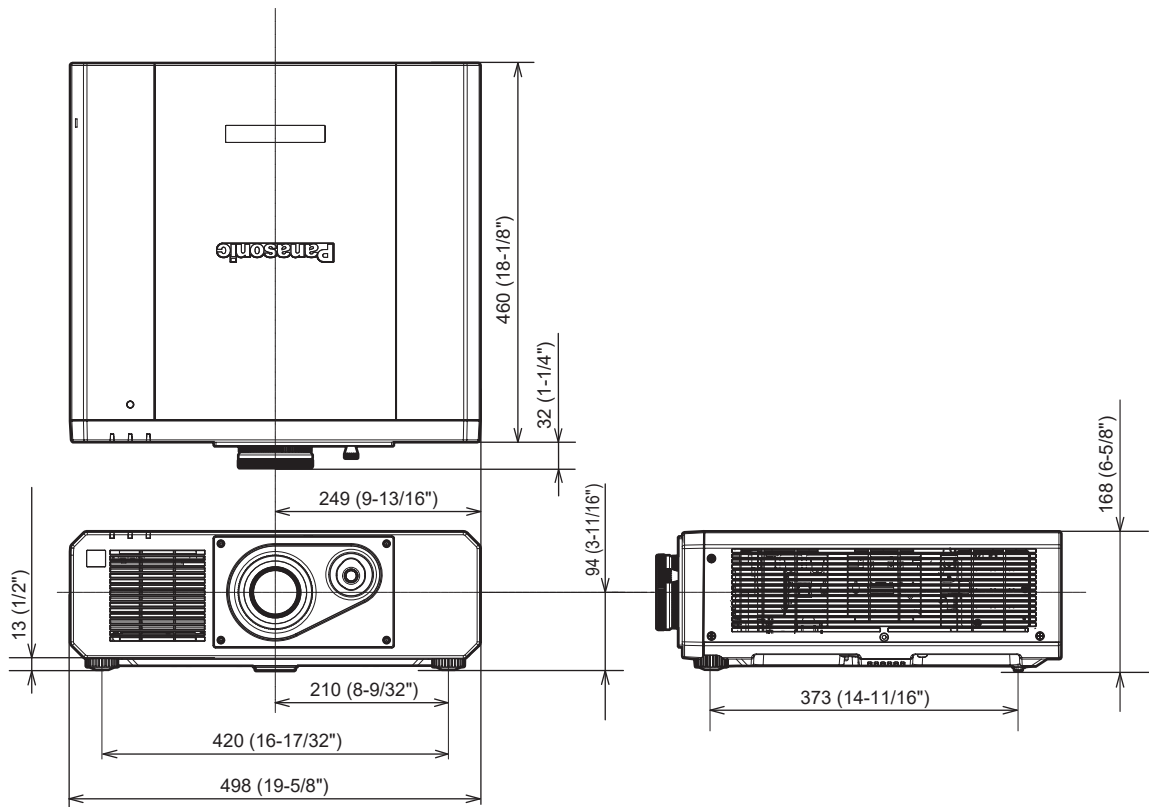
*2 To use the wireless LAN function with the projector, it is necessary to attach the optional Wireless Module (Model No.: AJ-WM50 Series).

Note

- The model numbers of accessories and optional accessories are subject to change without prior notice.

Dimensions

Unit: mm (inch)



* Actual dimensions may differ depending on the product.

List of compatible signals

The following table specifies the image signals that the projector can project.

This projector supports the signal with ✓ in the compatible signal column.

• The content of the signal type column is as follows.

- V: Video signal
- C: Computer signal

Signal type	Signal name (SIGNAL FORMAT)	Resolution (Dots)	Scanning freq.		Dot clock freq. (MHz)	Compatible signal		
			Horizontal (kHz)	Vertical (Hz)		COMPUTER	HDMI	DIGITAL LINK
V	480/60p	720 x 480	31.5	59.9	27.0	✓	✓	✓
	576/50p	720 x 576	31.3	50.0	27.0	✓	✓	✓
	720/60p	1 280 x 720	45.0	60.0 ^{*1}	74.3	✓	✓	✓
	720/50p	1 280 x 720	37.5	50.0	74.3	✓	✓	✓
	1080/60i	1 920 x 1 080i	33.8	60.0 ^{*1}	74.3	✓	✓	✓
	1080/50i	1 920 x 1 080i	28.1	50.0	74.3	✓	✓	✓
	1080/24p	1 920 x 1 080	27.0	24.0 ^{*1}	74.3	✓	✓	✓
	1080/24sF	1 920 x 1 080i	27.0	48.0 ^{*1}	74.3	✓	✓	✓
	1080/25p	1 920 x 1 080	28.1	25.0	74.3	✓	✓	✓
	1080/30p	1 920 x 1 080	33.8	30.0 ^{*1}	74.3	✓	✓	✓
	1080/60p	1 920 x 1 080	67.5	60.0 ^{*1}	148.5	✓	✓	✓
	1080/50p	1 920 x 1 080	56.3	50.0	148.5	✓	✓	✓
	1080/120p	1 920 x 1 080	135.0	120.0 ^{*1}	297.0	—	✓	✓
	3840 x 2160/24p	3 840 x 2 160	54.0	24.0 ^{*1}	297.0	—	✓	✓
	3840 x 2160/25p	3 840 x 2 160	56.3	25.0	297.0	—	✓	✓
	3840 x 2160/30p	3 840 x 2 160	67.5	30.0 ^{*1}	297.0	—	✓	✓
	3840 x 2160/60p	3 840 x 2 160	135.0	60.0 ^{*1}	297.0	—	✓ ^{*2}	✓ ^{*2}
		3 840 x 2 160	135.0	60.0 ^{*1}	594.0	—	✓	—
	3840 x 2160/50p	3 840 x 2 160	112.5	50.0	297.0	—	✓ ^{*2}	✓ ^{*2}
		3 840 x 2 160	112.5	50.0	594.0	—	✓	—
	4096 x 2160/24p	4 096 x 2 160	54.0	24.0 ^{*1}	297.0	—	✓	✓
	4096 x 2160/25p	4 096 x 2 160	56.3	25.0	297.0	—	✓	✓
	4096 x 2160/30p	4 096 x 2 160	67.5	30.0 ^{*1}	297.0	—	✓	✓
	4096 x 2160/60p	4 096 x 2 160	135.0	60.0 ^{*1}	297.0	—	✓ ^{*2}	✓ ^{*2}
		4 096 x 2 160	135.0	60.0 ^{*1}	594.0	—	✓	—
	4096 x 2160/50p	4 096 x 2 160	112.5	50.0	297.0	—	✓ ^{*2}	✓ ^{*2}
		4 096 x 2 160	112.5	50.0	594.0	—	✓	—

Signal type	Signal name (SIGNAL FORMAT)	Resolution (Dots)	Scanning freq.		Dot clock freq. (MHz)	Compatible signal		
			Horizontal (kHz)	Vertical (Hz)		COMPUTER	HDMI	DIGITAL LINK
C	640 x 480/60	640 x 480	31.5	59.9	25.2	✓	✓	✓
	1024 x 768/50	1 024 x 768	39.6	50.0	51.9	✓	✓	✓
	1024 x 768/60	1 024 x 768	48.4	60.0	65.0	✓	✓	✓
	1280 x 800/50	1 280 x 800	41.3	50.0	68.0	✓	✓	✓
	1280 x 800/60	1 280 x 800	49.7	59.8	83.5	✓	✓	✓
	1280 x 1024/50	1 280 x 1 024	52.4	50.0	88.0	✓	✓	✓
	1280 x 1024/60	1 280 x 1 024	64.0	60.0	108.0	✓	✓	✓
	1366 x 768/50	1 366 x 768	39.6	49.9	69.0	✓	✓	✓
	1366 x 768/60	1 366 x 768	47.7	59.8	85.5	✓	✓	✓
	1400 x 1050/50	1 400 x 1 050	54.1	50.0	99.9	✓	✓	✓
	1400 x 1050/60	1 400 x 1 050	65.2	60.0	122.6	✓	✓	✓
	1440 x 900/50	1 440 x 900	46.3	49.9	86.8	✓	✓	✓
	1440 x 900/60	1 440 x 900	55.9	59.9	106.5	✓	✓	✓
	1600 x 900/50	1 600 x 900	46.4	49.9	96.5	✓	✓	✓
	1600 x 900/60	1 600 x 900	55.9	60.0	119.0	✓	✓	✓
	1600 x 1200/50	1 600 x 1 200	61.8	49.9	131.5	✓	✓	✓
	1600 x 1200/60	1 600 x 1 200	75.0	60.0	162.0	✓	✓	✓
	1680 x 1050/50	1 680 x 1 050	54.1	50.0	119.5	✓	✓	✓
	1680 x 1050/60	1 680 x 1 050	65.3	60.0	146.3	✓	✓	✓
	1920 x 1080/240	1 920 x 1 080	291.6	240.0	583.2	—	✓	—
1920 x 1200/50	1 920 x 1 200	61.8	49.9	158.3	✓	✓	✓	
1920 x 1200/60RB	1 920 x 1 200 ³	74.0	60.0	154.0	✓	✓	✓	
2560 x 1600/50	2 560 x 1 600	82.4	50.0	286.0	—	✓	✓	
2560 x 1600/60	2 560 x 1 600 ³	98.7	60.0	268.5	—	✓	✓	

*1 The signal with 1/1.001x vertical scanning frequency is also supported.

*2 YPbPr 4:2:0 format only

*3 VESA CVT-RB (Reduced Blanking)-compliant

Note

- A signal with a different resolution is converted to the number of display dots. The number of display dots is as follows.
 - 3 840 x 2 160
 However, when the input signal is 1 080/120p or 1 920 x 1 080/240, the number of display dots is as follows.
 - 1 920 x 1 080
- The “i” at the end of the resolution indicates an interlaced signal.
- When interlaced signals are connected, flickering may occur on the projected image.
- When the DIGITAL LINK connection is made with the long-reach communication method, the signal that the projector can receive is up to 1080/60p (1 920 x 1 080 dots, dot clock frequency 148.5 MHz).
- Even if it is the signal listed in the list of compatible signals, it may not be displayed by the projector if the image signal is recorded in a special format.

List of plug and play compatible signals

The following table specifies the image signals compatible with plug and play.

Signal with ✓ in the plug and play compatible signal column is the signal described in the EDID (extended display identification data) of the projector. For the signal without ✓ in the plug and play compatible signal column, the resolution may not be selected on the computer even if the projector is supporting it.

Signal name (SIGNAL FORMAT)	Resolution (Dots)	Scanning freq.		Dot clock freq. (MHz)	Plug and play compatible signal						
		Horizontal (kHz)	Vertical (Hz)		COMPUTER	HDMI			DIGITAL LINK		
						4K/60P ^{*1}	4K/30P	2K	4K/60P	4K/30P ^{*2}	2K
480/60p	720 x 480	31.5	59.9	27.0	—	✓	✓	✓	✓	✓	✓
576/50p	720 x 576	31.3	50.0	27.0	—	✓	✓	✓	✓	✓	✓
720/60p	1 280 x 720	45.0	60.0	74.3	—	✓	✓	✓	✓	✓	✓
720/50p	1 280 x 720	37.5	50.0	74.3	—	✓	✓	✓	✓	✓	✓
1080/60i	1 920 x 1 080i	33.8	60.0	74.3	—	✓	✓	✓	✓	✓	✓
1080/50i	1 920 x 1 080i	28.1	50.0	74.3	—	✓	✓	✓	✓	✓	✓
1080/24p	1 920 x 1 080	27.0	24.0	74.3	—	✓	✓	✓	✓	✓	✓

Chapter 7 Appendix — Specifications

Signal name (SIGNAL FORMAT)	Resolution (Dots)	Scanning freq.		Dot clock freq. (MHz)	Plug and play compatible signal						
		Horizontal (kHz)	Vertical (Hz)		COMPUTER	HDMI			DIGITAL LINK		
						4K/60P ^{*1}	4K/30P	2K	4K/60P	4K/30P ^{*2}	2K
1080/24sF	1 920 x 1 080i	27.0	48.0	74.3	—	—	—	—	—	—	—
1080/25p	1 920 x 1 080	28.1	25.0	74.3	—	✓	✓	✓	✓	✓	✓
1080/30p	1 920 x 1 080	33.8	30.0	74.3	—	✓	✓	✓	✓	✓	✓
1080/60p	1 920 x 1 080	67.5	60.0	148.5	—	✓	✓	✓	✓	✓	✓
1080/50p	1 920 x 1 080	56.3	50.0	148.5	—	✓	✓	✓	✓	✓	✓
1080/120p	1 920 x 1 080	135.0	120.0	297.0	—	✓	✓	—	✓	✓	—
3840 x 2160/24p	3 840 x 2 160	54.0	24.0	297.0	—	✓	✓	—	✓	✓	—
3840 x 2160/25p	3 840 x 2 160	56.3	25.0	297.0	—	✓	✓	—	✓	✓	—
3840 x 2160/30p	3 840 x 2 160	67.5	30.0	297.0	—	✓	✓	—	✓	✓	—
3840 x 2160/60p	3 840 x 2 160	135.0	60.0	297.0	—	✓ ^{*3}	—	—	✓ ^{*3}	—	—
	3 840 x 2 160	135.0	60.0	594.0	—	✓	—	—	—	—	—
3840 x 2160/50p	3 840 x 2 160	112.5	50.0	297.0	—	✓ ^{*3}	—	—	✓ ^{*3}	—	—
	3 840 x 2 160	112.5	50.0	594.0	—	✓	—	—	—	—	—
4096 x 2160/24p	4 096 x 2 160	54.0	24.0	297.0	—	✓	✓	—	✓	✓	—
4096 x 2160/25p	4 096 x 2 160	56.3	25.0	297.0	—	✓	✓	—	✓	✓	—
4096 x 2160/30p	4 096 x 2 160	67.5	30.0	297.0	—	✓	✓	—	✓	✓	—
4096 x 2160/60p	4 096 x 2 160	135.0	60.0	297.0	—	✓ ^{*3}	—	—	✓ ^{*3}	—	—
	4 096 x 2 160	135.0	60.0	594.0	—	✓	—	—	—	—	—
4096 x 2160/50p	4 096 x 2 160	112.5	50.0	297.0	—	✓ ^{*3}	—	—	✓ ^{*3}	—	—
	4 096 x 2 160	112.5	50.0	594.0	—	✓	—	—	—	—	—
640 x 480/60	640 x 480	31.5	59.9	25.2	✓	✓	✓	✓	✓	✓	✓
1024 x 768/50	1 024 x 768	39.6	50.0	51.9	—	—	—	—	—	—	—
1024 x 768/60	1 024 x 768	48.4	60.0	65.0	✓	✓	✓	✓	✓	✓	✓
1280 x 800/50	1 280 x 800	41.3	50.0	68.0	—	—	—	—	—	—	—
1280 x 800/60	1 280 x 800	49.7	59.8	83.5	—	—	—	—	—	—	—
1280 x 1024/50	1 280 x 1 024	52.4	50.0	88.0	—	—	—	—	—	—	—
1280 x 1024/60	1 280 x 1 024	64.0	60.0	108.0	—	—	—	—	—	—	—
1366 x 768/50	1 366 x 768	39.6	49.9	69.0	—	—	—	—	—	—	—
1366 x 768/60	1 366 x 768	47.7	59.8	85.5	—	—	—	—	—	—	—
1400 x 1050/50	1 400 x 1 050	54.1	50.0	99.9	—	—	—	—	—	—	—
1400 x 1050/60	1 400 x 1 050	65.2	60.0	122.6	✓	✓	✓	✓	✓	✓	✓
1440 x 900/50	1 440 x 900	46.3	49.9	86.8	—	—	—	—	—	—	—
1440 x 900/60	1 440 x 900	55.9	59.9	106.5	—	—	—	—	—	—	—
1600 x 900/50	1 600 x 900	46.4	49.9	96.5	—	—	—	—	—	—	—
1600 x 900/60	1 600 x 900	55.9	60.0	119.0	✓	✓	✓	✓	✓	✓	✓
1600 x 1200/50	1 600 x 1 200	61.8	49.9	131.5	—	—	—	—	—	—	—
1600 x 1200/60	1 600 x 1 200	75.0	60.0	162.0	✓	✓	✓	✓	✓	✓	✓
1680 x 1050/50	1 680 x 1 050	54.1	50.0	119.5	—	—	—	—	—	—	—
1680 x 1050/60	1 680 x 1 050	65.3	60.0	146.3	—	—	—	—	—	—	—
1920 x 1080/240	1 920 x 1 080	291.6	240.0	583.2	—	✓	—	—	—	—	—
1920 x 1200/50	1 920 x 1 200	61.8	49.9	158.3	—	—	—	—	—	—	—
1920 x 1200/60RB	1 920 x 1 200 ^{*4}	74.0	60.0	154.0	✓	✓	✓	✓	✓	✓	✓
2560 x 1600/50	2 560 x 1 600	82.4	50.0	286.0	—	—	—	—	—	—	—
2560 x 1600/60	2 560 x 1 600 ^{*4}	98.7	60.0	268.5	—	—	—	—	—	—	—

*1 4K/60p indicates 4K/60p/HDR and 4K/60p/SDR.

*2 4K/30p indicates 4K/30p/HDR and 4K/30p/SDR.

*3 YPbPr 4:2:0 format only

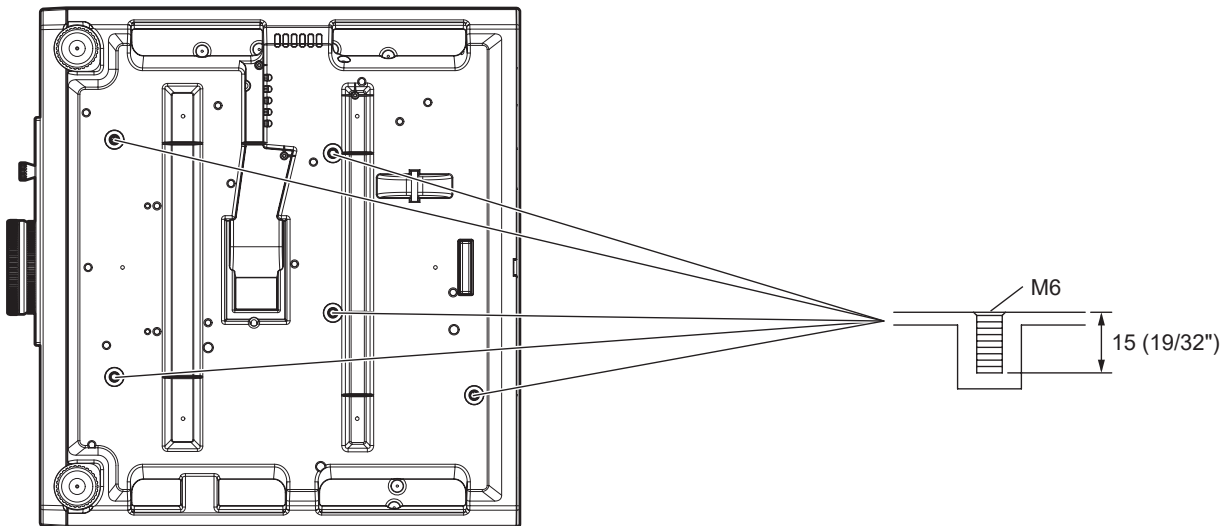
*4 VESA CVT-RB (Reduced Blanking)-compliant

Precautions for attaching the Ceiling Mount Bracket

- When installing the projector to a ceiling, be sure to use the specified optional Ceiling Mount Bracket (Model No.: ET-PKD120H (for High Ceilings), ET-PKD120S (for Low Ceilings), ET-PKD130B (Projector Mount Bracket)). The Ceiling Mount Bracket (Model No.: ET-PKD120H (for High Ceilings), ET-PKD120S (for Low Ceilings)) is used in combination with the Ceiling Mount Bracket (Model No.: ET-PKD130B (Projector Mount Bracket)).
- Attach the drop-prevention set that comes with the Ceiling Mount Bracket to the projector. If you need the drop-prevention set (Service Model No.: TTRA0214) is necessary, consult your dealer.
- Ask a qualified technician to do the installation work such as mounting the projector on the ceiling.
- Panasonic Connect Co., Ltd. takes no responsibility for any damage to the projector resulting from use of the Ceiling Mount Bracket not manufactured by Panasonic Connect Co., Ltd. or the inappropriate choice of location for installing the Ceiling Mount Bracket, even if the warranty period of the projector has not expired.
- Unused products must be removed promptly by a qualified technician.
- Use a torque screwdriver or Allen torque wrench to tighten bolts to their specified tightening torques. Do not use electric screwdrivers or impact screwdrivers.
(Screw tightening torque: $4 \pm 0.5 \text{ N}\cdot\text{m}$)
- Read the Installation Instructions of the Ceiling Mount Bracket for details.
- The model numbers of accessories and optional accessories are subject to change without prior notice.

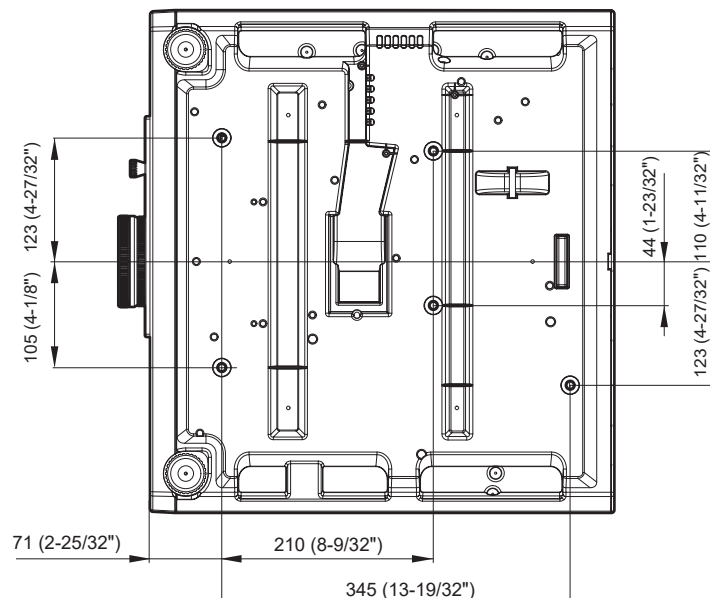
■ Specification for the screw holes to fix the projector (projector bottom view)

Unit: mm (inch)



■ Dimensions for the screw holes to fix the projector (projector bottom view)

Unit: mm (inch)



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Disposal of Old Equipment and Batteries Only for European Union and countries with recycling systems



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must 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.



By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.

For more information about collection and recycling, please contact your local authority. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.



Note for the battery symbol (bottom symbol)

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.

Product Information (for Turkey only)

AEEE Yönetmeliğine Uygundur

Panasonic Connect Co., Ltd.

Web Site : <https://panasonic.net/cns/projector/>
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Panasonic Connect North America

Two Riverfront Plaza, Newark, NJ 07102
TEL: (877) 803 - 8492

Panasonic Canada Inc.

5770 Ambler Drive, Mississauga, Ontario L4W 2T3
TEL: (905) 624 - 5010

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