



USA's primary source for projector lamps
myprojectorlamps

PROJECTOR OWNER'S MANUAL

Dukane

8917H

Need a replacement lamp for this projector?

www.myprojectorlamps.com

Original manufacturer manual, provided unmodified as a courtesy of MyProjectorLamps.com.
All trademarks belong to their respective owners.

Projector

Dukane 8917H

User's Manual (concise)

ENGLISH

Thank you for purchasing this projector.

⚠ WARNING ► Before using this product, be sure to read all manuals for this product. See "Using the CD manual" (📖 12) to read the manuals in the CD. After reading them, store them in a safe place for future reference.

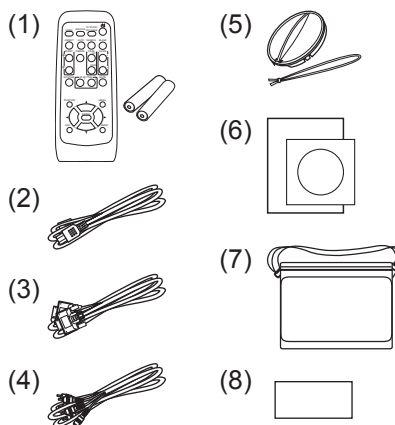
Contents

Contents of package..... 1	Displaying the picture 7
Preparations 2	Turning off the power 8
Fastening the lens cover 2	Replacing the lamp 9
Loading batteries into the remote control 2	Cleaning and replacing the air filter .. 11
Arrangement 3	Using the CD manual 12
Connecting your devices 4	Regulatory notices 13
Connecting power supply 5	Specifications 15
Turning on the power 5	Warranty and after-service 16
Adjusting the projector's elevator 6	

Contents of package

Your projector should come with the items shown below. Check that all the items are included. Require of your dealer immediately if any items are missing.

- (1) Remote control with two AA batteries
- (2) Power cord
- (3) RGB cable
- (4) Audio/Video cable
- (5) Lens cover and Strap
- (6) User's manuals (Book x1, CD x1)
- (7) Soft case
- (8) Security label



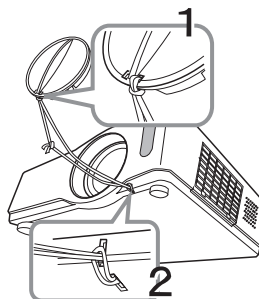
NOTE • Keep the original packing materials for future reshipment. Be sure to use the original packing materials when moving the projector. Use special caution for the lens.

Preparations

Fastening the lens cover

To avoid losing the lens cover, please fasten the lens cover to the projector using the enclosed strap.

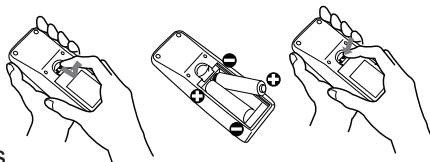
1. Fix the strap to the strap hole of the lens cover.
Thread one end of the strap through the strap hole of the lens cover and make the loop at the end, and let the other end of the strap through the loop. Not have a knot in the strap at either end.
2. Fix the strap to the strap hole of the projector. Thread the other end of the strap through the strap hole of the projector and make the loop there. Let the lens cover with the one end of strap through the loop.



Loading batteries into the remote control

Please insert the batteries into the remote control before using it. If the remote control starts to malfunction, try to replace the batteries. If you will not use the remote control for long period, remove the batteries from the remote control and store them in a safe place.

1. Holding the hook part of the battery cover, remove it.
2. Align and insert the two AA batteries (HITACHI MAXELL, Part No.LR6 or R6P) according to their plus and minus terminals as indicated in the remote control.
3. Replace the battery cover in the direction of the arrow and snap it back into place.



⚠ WARNING ► Always handle the batteries with care and use them only as directed. Improper use may result in battery explosion, cracking or leakage, which could result in fire, injury and/or pollution of the surrounding environment.

- Be sure to use only the batteries specified. Do not use batteries of different types at the same time. Do not mix a new battery with used one.
- Make sure the plus and minus terminals are correctly aligned when loading a battery.
- Keep a battery away from children and pets.
- Do not recharge, short circuit, solder or disassemble a battery.
- Do not place a battery in a fire or water. Keep batteries in a dark, cool and dry place.
- If you observe battery leakage, wipe out the leakage and then replace a battery. If the leakage adheres to your body or clothes, rinse well with water immediately.
- Obey the local laws on disposing the battery.

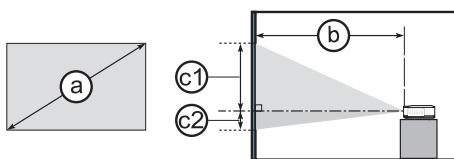
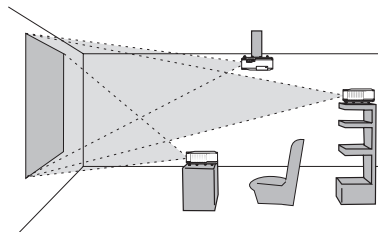
Arrangement

Refer to the illustrations and tables below to determine screen size and projection distance.

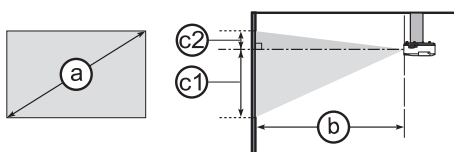
The values shown in the table are calculated for a full size screen: 1280×800

- (a) Screen size (diagonal)
- (b) Projection distance ($\pm 10\%$)
- (c1), (c2) Screen height ($\pm 10\%$)

On a horizontal surface



Suspended from the ceiling



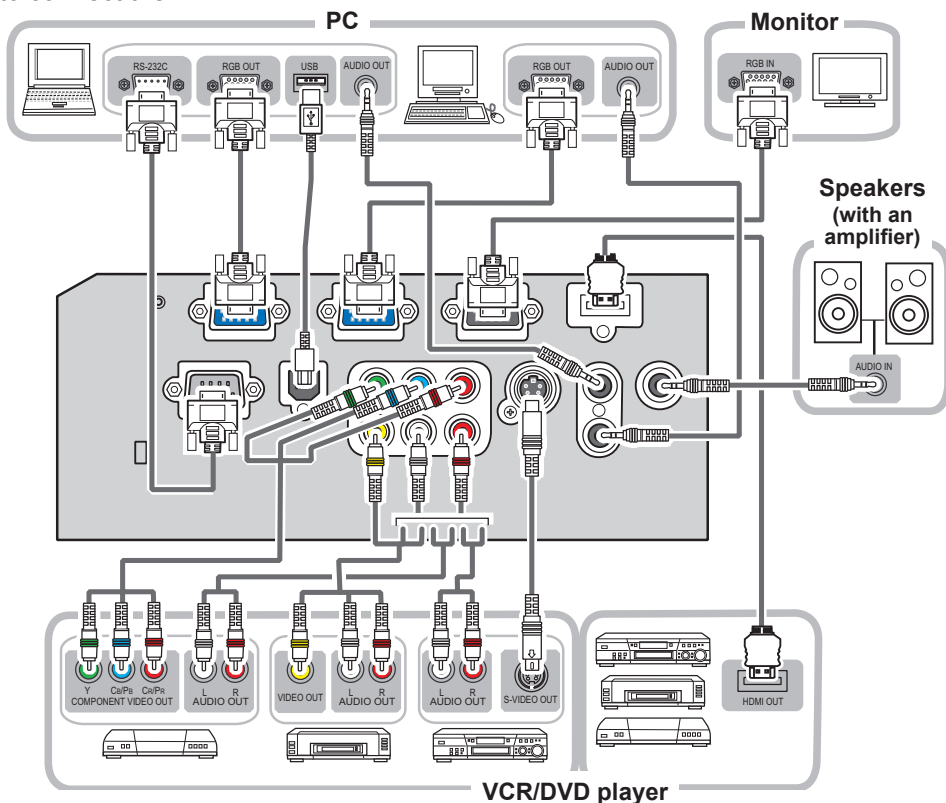
- Keep a space of 30 cm or more between the sides of the projector and other objects such as walls.
- Consult with your dealer before a special installation such as suspending from a ceiling.

(a) Screen size (diagonal)		16 : 10 screen								4 : 3 screen							
		(b) Projection distance				(c1) Screen height		(c2) Screen height		(b) Projection distance				(c1) Screen height		(c2) Screen height	
		min.		max.						min.		max.					
type (inch)	m	m	inch	m	inch	cm	inch	cm	inch	m	inch	m	inch	cm	inch	cm	inch
30	0.8	0.9	36	1.1	44	40	16	1	0	1.1	41	1.3	50	45	18	1	0
40	1.0	1.2	49	1.5	59	53	21	1	0	1.4	56	1.7	67	60	24	1	0
50	1.3	1.6	61	1.9	74	66	26	1	1	1.8	70	2.1	84	75	31	2	1
60	1.5	1.9	74	2.3	89	79	31	2	1	2.1	84	2.6	101	90	37	2	1
70	1.8	2.2	86	2.6	104	92	36	2	1	2.5	98	3.0	118	105	43	2	1
80	2.0	2.5	99	3.0	119	106	42	2	1	2.8	112	3.4	135	119	49	2	1
90	2.3	2.8	111	3.4	134	119	47	2	1	3.2	126	3.9	152	134	55	3	1
100	2.5	3.1	124	3.8	149	132	52	3	1	3.6	140	4.3	169	149	61	3	1
120	3.0	3.8	149	4.5	179	158	62	3	1	4.3	169	5.1	203	179	74	4	1
150	3.8	4.7	186	5.7	224	198	78	4	2	5.4	211	6.4	254	224	92	5	2
200	5.1	6.3	249	7.6	299	264	104	5	2	7.2	282	8.6	338	299	123	6	2
250	6.4	7.9	311	9.5	374	330	130	7	3	9.0	352	10.8	423	373	153	8	3
300	7.6	9.5	374	11.4	449	396	156	8	3	10.7	423	12.9	508	448	184	9	4

- ⚠ WARNING** ► Install the projector in a stable horizontal position.
 ► Place the projector in a cool place, and ensure that there is sufficient ventilation.
 ► Do not place the projector anywhere where it may get wet.
⚠ CAUTION ► Avoid placing the projector in smoky, humid or dusty place.
 ► Position the projector to prevent light from directly hitting the projector's remote sensor.

Connecting your devices

Be sure to read the manuals for devices before connecting them to the projector. Make sure that all the devices are suitable to be connected with this product, and prepare the cables required to connect. Please refer to the following illustrations to connect them.



⚠ WARNING ► Do not disassemble or modify the projector and accessories.

► Be careful not to damage the cables, and do not use damaged cables.

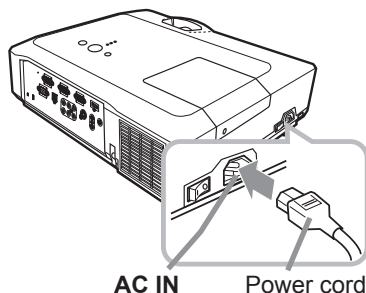
⚠ CAUTION ► Turn off all devices and unplug their power cords prior to connecting them to projector. Connecting a live device to the projector may generate extremely loud noises or other abnormalities that may result in malfunction or damage to the device and the projector.

► Use appropriate accessory or designated cables. Ask your dealer about non-accessory cables which may be required a specific length or a ferrite core by the regulations. For cables with a core only at one end, connect the end with the core to the projector.

► Make sure that devices are connected to the correct ports. An incorrect connection may result in malfunction or damage to the device and the projector.

Connecting power supply

1. Put the connector of the power cord into the **AC IN** (AC inlet) of the projector.
2. Firmly plug the power cord's plug into the outlet.



ENGLISH

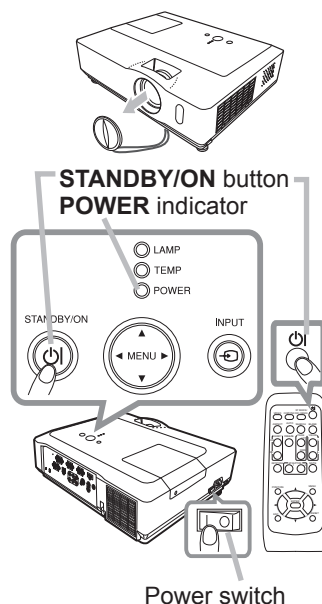
⚠ WARNING ► Please use extra caution when connecting the power cord, as incorrect or faulty connections may result in fire and/or electrical shock.

- Only use the power cord that came with the projector. If it is damaged, consult your dealer to get a new one.
- Only plug the power cord into an outlet whose voltage is matched to the power cord. The power outlet should be close to the projector and easily accessible. Remove the power cord for complete separation.
- Never modify the power cord.

Turning on the power

1. Make sure that the power cord is firmly and correctly connected to the projector and the outlet.
2. Remove the lens cover, and set the power switch to the ON position (marked "I").
3. Press the **STANDBY/ON** button on the projector or the remote control.

The projection lamp will light up and the **POWER** indicator will begin blinking in green. When the power is completely on, the indicator will stop blinking and light in steady green.



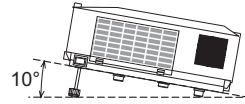
⚠ WARNING ► A strong light is emitted when the projector's power is on. Do not look into the lens of the projector or look inside of the projector through any of the projector's openings.

NOTE • Please power on the projector prior to the connected devices.

- When the AUTO ON of the OPTION menu is set to the TURN ON, and the power was turned off by the power switch last time, turning the power switch on makes the projection lamp light on without pushing the **STANDBY/ON** button. For more information, please see the "Operating Guide" in the CD.

Adjusting the projector's elevator

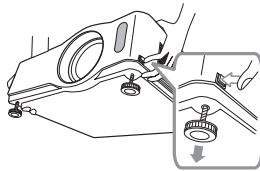
When the place to put the projector is slightly uneven to the left or right, use the elevator feet to place the projector horizontally.



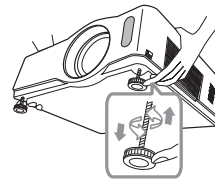
Using the feet can also tilt the projector in order to project at a suitable angle to the screen, elevating the front side of the projector within 10 degrees.

This projector has 2 elevator feet and 2 elevator buttons. An elevator foot is adjustable while pushing the elevator button on the same side as it.

1. Holding the projector, push the elevator buttons to loose the elevator feet.
2. Position the front side of the projector to the desired height.
3. Release the elevator buttons in order to lock the elevator feet.
4. After making sure that the elevator feet are locked, put the projector down gently.
5. If necessary, the elevator feet can be manually twisted to make more precise adjustments. Hold the projector when twisting the feet.



To loose an elevator foot, push the elevator button on the same side as it.

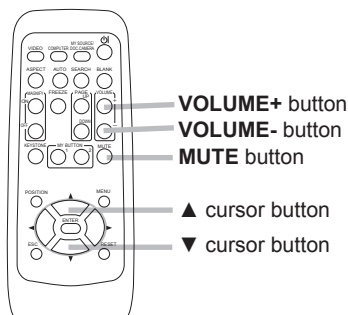
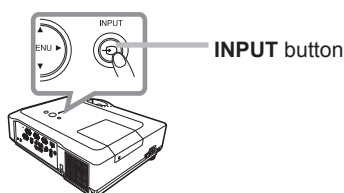
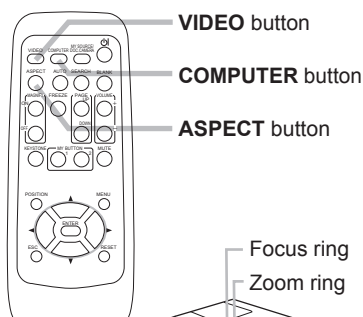
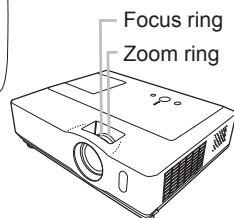


To finely adjust, twist the foot.

⚠ CAUTION ► Do not handle the elevator buttons without holding the projector, since the projector may drop down.
► Do not tilt the projector other than elevating its front within 10 degrees using the adjuster feet. A tilt of the projector exceeding the restriction could cause malfunction or shortening the lifetime of consumables, or the projector itself.

Displaying the picture

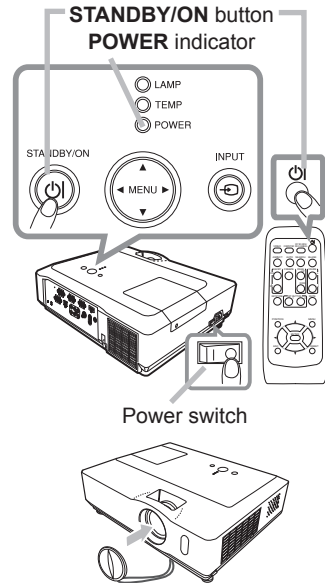
1. Activate your signal source. Turn the signal source on, and make it send the signal to the projector.
2. Use the **VOLUME +/VOLUME -** buttons to adjust the volume.
To have the projector silent, press the **MUTE** button on the remote control.
3. Press the **INPUT** button on the projector.
Each time you press the button, the projector switches its input port in turn. You can also use the remote control to select an input signal. Press the **VIDEO** button for selecting an input signal from the **COMPONENT (Y, Cb/Pb, Cr/Pr)**, **VIDEO** or **S-VIDEO** port, or the **COMPUTER** button for selecting an input signal from the **COMPUTER IN1**, **COMPUTER IN2** or **HDMI** port.
4. Press the **ASPECT** button on the remote control. Each time you press the button, the projector switches the mode for aspect ratio in turn.
5. Use the zoom ring to adjust the screen size.
6. Use the focus ring to focus the picture.



NOTE • The **ASPECT** button does not work when no proper signal is inputted.
• For the details of how to adjust the picture, please see the “Operating Guide” in the CD.

Turning off the power

1. Press the **STANDBY/ON** button on the projector or the remote control.
The message "Power off?" will appear on the screen for about 5 seconds.
2. Press the **STANDBY/ON** button again while the message appears.
The projector lamp will go off, and the **POWER** indicator will begin blinking in orange. Then the **POWER** indicator will stop blinking and light in steady orange when the lamp cooling is complete.
3. Make sure that the **POWER** indicator lights in steady orange, and set the power switch to the OFF position (marked "O"). Attach the lens cover.
Do not turn the projector on for about 10 minutes or more after turning it off. Turning the projector on again too soon could shorten the lifetime of some consumable parts of the projector.



⚠ WARNING ► Do not touch around the lamp cover and the exhaust vents during use or just after use, since it is too hot.
► Remove the power cord for complete separation. The power outlet should be close to the projector and easily accessible.

NOTE • Please power off the projector after any connected devices are powered off.
• This projector has the AUTO OFF function that can make the projector turn off automatically. For more information, please see the "Operating Guide" in the CD.

Replacing the lamp

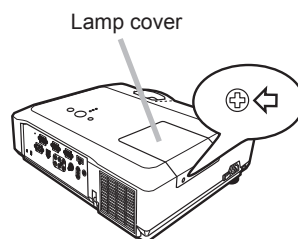
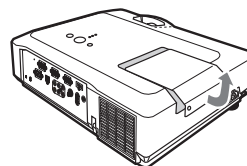
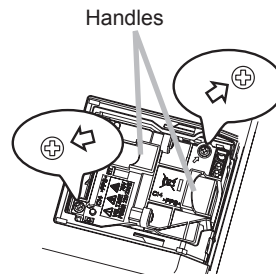
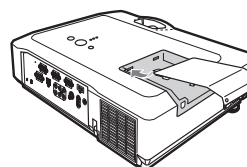
A lamp has finite product life. Using the lamp for long periods of time could cause the pictures darker or the color tone poor. Note that each lamp has a different lifetime, and some may burst or burn out soon after you start using them. Preparation of a new lamp and early replacement are recommended. To prepare a new lamp, make contact with your dealer and tell the lamp type number.

Type number : 456-8755H

1. Turn the projector off, and unplug the power cord.
Allow the projector to cool for at least 45 minutes.
2. Prepare a new lamp. If the projector is mounted on a ceiling, or if the lamp has broken, also ask the dealer to replace the lamp.

In case of replacement by yourself, follow the following procedure.

3. Loosen the screw (marked by arrow) of the lamp cover and then slide and lift the lamp cover to the side to remove it.
4. Loosen the 2 screws (marked by arrow) of the lamp, and slowly pick up the lamp by the handles.
5. Insert the new lamp, and retighten firmly the 2 screws of the lamp that are loosened in the previous process to lock it in place.
6. While putting the interlocking parts of the lamp cover and the projector together, slide the lamp cover back in place. Then firmly fasten the screw of the lamp cover.
7. Turn the projector on and reset the lamp time using the LAMP TIME item in the OPTION menu.
 - (1) Press the **MENU** button to display a menu.
 - (2) Point at the Go to Advanced Menu ... in the menu using the ▼/▲ button, then press the ► button.
 - (3) Point at the OPTION in the left column of the menu using the ▼/▲ button, then press the ► button.
 - (4) Point at the LAMP TIME using the ▼/▲ button, then press the ► button. A dialog will appear.
 - (5) Press the ▲ button to select RESET on the dialog. It performs resetting the lamp time.



⚠ CAUTION ► Do not touch any inner space of the projector, while the lamp is taken out.

NOTE • Please reset the lamp time only when you have replaced the lamp, for a suitable indication about the lamp.

⚠ HIGH VOLTAGE ⚠ HIGH TEMPERATURE ⚠ HIGH PRESSURE

⚠ WARNING ► The projector uses a high-pressure mercury glass lamp. The lamp can break with a loud bang, or burn out, if jolted or scratched, handled while hot, or worn over time. Note that each lamp has a different lifetime, and some may burst or burn out soon after you start using them. In addition, when the bulb bursts, it is possible for shards of glass to fly into the lamp housing, and for gas containing mercury to escape from the projector's vent holes.

► **About disposal of a lamp:** This product contains a mercury lamp; do not put it in a trash. Dispose of it in accordance with environmental laws.

- For lamp recycling, go to www.lamprecycle.org (in the US).
- For product disposal, consult your local government agency or www.eiae.org (in the US) or www.epsc.ca (in Canada).

For more information, ask your dealer.



Disconnect
the plug
from the
power
outlet

- If the lamp should break (it will make a loud bang when it does), unplug the power cord from the outlet, and make sure to request a replacement lamp from your local dealer. Note that shards of glass could damage the projector's internals, or cause injury during handling, so please do not try to clean the projector or replace the lamp yourself.
- If the lamp should break (it will make a loud bang when it does), ventilate the room well, and make sure not to breathe the gas that comes out of the projector vents, or get it in your eyes or mouth.
- Before replacing the lamp, turn the projector off and unplug the power cord, then wait at least 45 minutes for the lamp to cool sufficiently. Handling the lamp while hot can cause burns, as well as damaging the lamp.



- Never unscrew except the appointed (marked by an arrow) screws.
- Do not open the lamp cover while the projector is suspended from a ceiling. This is dangerous, since if the lamp's bulb has broken, the shards will fall out when the cover is opened. In addition, working in high places is dangerous, so ask your local dealer to have the lamp replaced even if the bulb is not broken.
- Do not use the projector with the lamp cover removed. At the lamp replacing, make sure that the screws are screwed in firmly. Loose screws could result in damage or injury.



- Use only the lamp of the specified type.
- If the lamp breaks soon after the first time it is used, it is possible that there are electrical problems elsewhere besides the lamp. If this happens, consult your local dealer or a service representative.
- Handle with care: jolting or scratching could cause the lamp bulb to burst during use.
- Using the lamp for long periods of time, could cause it dark, not to light up or to burst. When the pictures appear dark, or when the color tone is poor, please replace the lamp as soon as possible. Do not use old (used) lamps; this is a cause of breakage.

Cleaning and replacing the air filter

Please check and clean the air filter periodically. When the indicators or a message prompts you to clean the air filter, comply with it as soon as possible. The air filter has two kinds of filters inside. Replace the filters when they are damaged or too soiled. To prepare the new filters, make contact with your dealer and tell the following type number.

Type number : MU05611

When you replace the lamp, please replace the air filter.

An air filter of specified type will come together with a replacement lamp for this projector.

1. Turn the projector off, and unplug the power cord. Allow the projector to sufficiently cool down.
2. Use a vacuum cleaner on and around the filter cover.
3. Pull the filter cover knobs while lifting it, to take the filter unit off.
4. Use a vacuum cleaner for the filter vent of the projector and both sides of the filter unit.

If the filters are damaged or too soiled, replace them according to the following procedure number 5 to 7. Otherwise, please jump to the procedure number 8.

5. Pull the filter frame's knob up while holding the filter cover to remove the filter frame, then take the filters out.
6. Set new filters where former filters were. Put the larger meshed filter into a filter cover first. Then put the finer meshed filter on the larger meshed one.
7. Put the filter frame back where it was.
8. Put the filter unit back into the projector.
9. Turn the projector on and reset the filter time using the FILTER TIME item in the EASY MENU.

- (1) Press the **MENU** button to display a menu.
- (2) Point at the FILTER TIME using the ▼/▲ button, then press the ► button. A dialog will appear.
- (3) Press the ▲ button to select RESET on the dialog. It performs resetting the filter time.

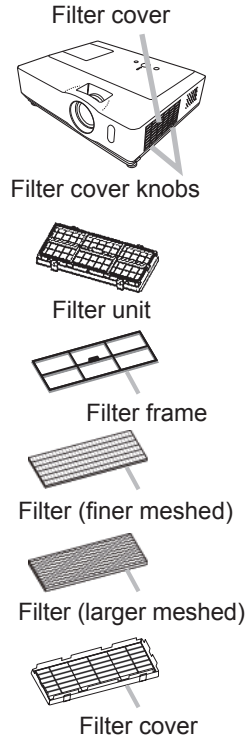
⚠ WARNING ► Before taking care of the air filter, make sure the power cable is not plugged in, then allow the projector to cool sufficiently.

► Use only the air filter of the specified type. Do not use the projector without the air filter or the filter cover. It could result in a fire or malfunction to the projector.

► Clean the air filter periodically. If the air filter becomes clogged by dust or the like, internal temperatures rise and could cause a fire, a burn or malfunction to the projector.

NOTE • Please reset the filter time only when you have cleaned or replaced the air filter, for a suitable indication about the air filter.

• The projector may display the message such as “CHECK THE AIR FLOW” or turn off the projector, to prevent the internal heat level rising.



Using the CD manual

The other manuals for this product are written into the included CD-ROM titled "User's Manual (detailed)". Before using the CD-ROM, please read the following to ensure the proper use.

■ System requirements

The system for using the CD-ROM requires the following.

Windows®:	OS:Microsoft® Windows® 98, Windows® 98SE, Windows NT®4.0, Windows® Me, Windows® 2000/Windows® XP or later CPU:Pentium® processor 133MHz / Memory:32MB or more
Macintosh®:	OS:Mac OS® 10.2 or later CPU:PowerPC® / Memory:32MB or more
CD-ROM drive:	4x CD-ROM drive
Display:	256 color / 640x480 dots resolution
Applications:	Microsoft® Internet Explorer®4.0 and Adobe® Acrobat® Reader® 4.0 or later

■ How to use the CD

1. Insert CD into PC's CD-ROM drive.

Windows®:	In a while, Web browser automatically starts. Start up window comes up.
Macintosh®:	(1) Double-click on the "Projectors" icon appeared on the desktop screen. (2) When "main.html" file is clicked, Web browser will start and Initial window will appear.

2. Click the model name of your projector first, and then click language you want from the displayed list. The User's manual (detailed) will open.

⚠ CAUTION ► Only use the CD-ROM in a computer CD drive. The CD-ROM is designed for PC use only. NEVER INSERT THE CD-ROM INTO A NON-COMPUTER CD PLAYER! Inserting the CD-ROM into an incompatible CD drive may produce a loud noise, which in turn MAY RESULT IN EAR AND SPEAKER DAMAGE!

- After using CD-ROM, please put it into CD case and keep it. Please keep the CD neither in direct sunlight nor in a high temperature and high humidity environment.

NOTE • The information in the CD-ROM is subject to change without notice.

- No responsibility is taken for any obstacle and defect to hardware and software of your PC as a result of the use of the CD-ROM.
- All or Any part of the information in the CD-ROM must not be copied, reproduced or republished without notice to our company.

Regulatory notices

Declaration of Conformity

Trade name	HITACHI
Model Number	CP-WX410
Responsible Party	Hitachi Home Electronics (America), Inc.
Address	900 Hitachi way, Chula Vista, CA 91914-3556 U.S.A.
Telephone Number	+1 -800-225-1741

ENGLISH

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.

FCC Statement warning

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

INSTRUCTIONS TO USERS: This equipment complies with the requirements of FCC (Federal Communication Commission) equipment provided that the following conditions are met. Some cables have to be used with the core set. Use the accessory cable or a designated-type cable for the connection. For cables that have a core only at one end, connect the core to the projector.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For the Customers in CANADA

NOTICE: This Class B digital apparatus complies with Canadian ICES-003.

(continued on next page)

Regulatory notices (continued)

Information for users applicable in European Union countries

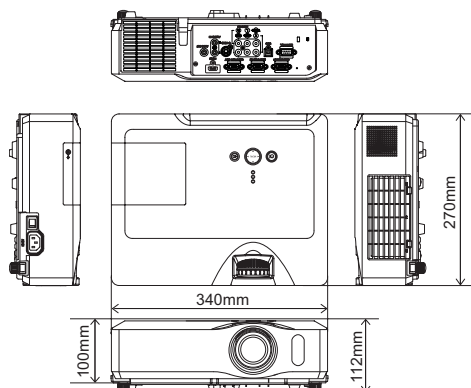


This symbol on the product or on its packaging means that your electrical and electronic equipment should be disposed at the end of life separately from your household wastes. There are separate collection systems for recycling in EU. For more information, please contact the local authority or the dealer where you purchased the product.

Specifications

Item		Specification
Product name		Liquid crystal projector
Liquid Crystal Panel	Panel size	1.5cm (0.59 type)
	Drive system	TFT active matrix
	Pixels	1,024,000 pixels (1280 horizontal x 800 vertical)
Lens		Zoom lens, F = 1.6 ~ 1.8, f = 18.9~ 22.6 mm (approximately)
Lamp		230W UHB
Speaker		10W x 1
Power supply		AC 100-120V/3.5A, AC220-240V/1.5A
Power consumption		320W
Temperature range		5 ~ 35°C (Operating)
Size		340 (W) x 100 (H) x 270 (D) mm * Not including protruding parts. Please refer to the following figure.
Weight (mass)		approx. 3.5 kg
Ports		Computer input port COMPUTER IN1D-sub 15 pin mini x1 COMPUTER IN2D-sub 15 pin mini x1 Computer output port MONITOR OUTD-sub 15 pin mini x1 Video input port Y, Cb/Pb, Cr/Pr (Component video) RCA x3 S-VIDEO mini DIN 4 pin x1 VIDEO RCA x1 HDMI input port HDMIHDMI connector x1 Audio input/output port AUDIO IN1Stereo mini x1 AUDIO IN2Stereo mini x1 AUDIO IN3 RCA x2 AUDIO OUTStereo mini x1 Others USBUSB-B x1 CONTROL D-sub 9 pin x1
Optional parts		Lamp: 456-8755H Air filter: MU05611 * For more information, please consult your dealer.

ENGLISH



Warranty and after-service

If an abnormal operation (such as smoke, strange odor or excessive sound) should occur, stop using the projector immediately. Otherwise if a problem occurs with the projector, first refer to the "Troubleshooting" of the "Operating Guide" in the CD and run through the suggested checks.

If this does not resolve the problem, please consult your dealer or service company. They will tell you what warranty condition is applied.

Please check the following web address where you may find the latest information for this projector.

<http://www.dukcorp.com/audiovisual>

NOTE • The information in this manual is subject to change without notice.

- The manufacturer assumes no responsibility for any errors that may appear in this manual.
- The reproduction, transfer or copy of all or any part of this document is not permitted without express written consent.

Trademark acknowledgment

- Mac, Macintosh and Mac OS are registered trademarks of Apple Inc.
- Pentium is a registered trademark of Intel Corp.
- Adobe and Acrobat, Reader are registered trademarks of Adobe Systems Incorporated.
- Microsoft and Internet explorer, Windows, Windows NT are registered trademarks of Microsoft Corporation.
- PowerPC is a registered trademark of International Business Machines Corporation.
- HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

All other trademarks are the properties of their respective owners.