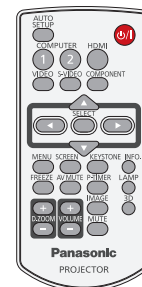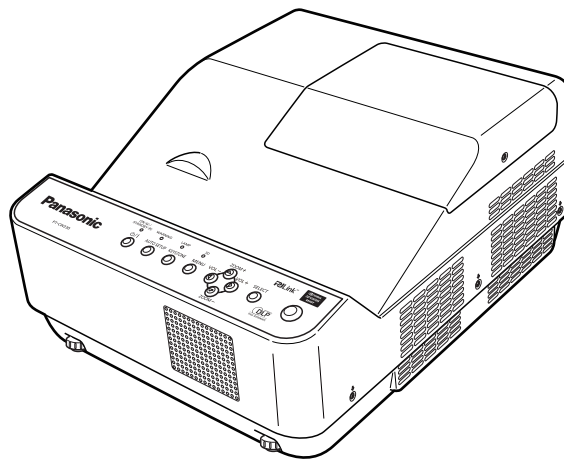# Panasonic®

Operating Instructions

Network Operations

DLP™ Projector | Commercial Use

Model No. **PT-CW230U/PT-CX200U**
PT-CW230E/PT-CX200E
PT-CW230EA/PT-CX200EA

■ This manual explains the network operation of the projector.
For information other than the network operation, such as the usage, inspection and replacement of parts, see "Operating Instructions - Projector Operations".

Contents

Notes

The illustrations and screenshots in this manual may be different from those on your computer.

Expressions used in this document

    Pages to reference within this document are indicated as (See page ○○), and pages to reference in the supplemental "Operating Instructions - Projector Operations" are indicated as (See [○○] of the Projector Operations).

Request Regarding Security

When using this product, security breaches of the type described below are conceivable.

- Leakage of your private information via this product
- Illegal operation of this product by a malicious third-party
- Harm to or cessation of operation of this product by a malicious third-party

Be sure to implement sufficient security measures.

- Set passwords, and limit the users that are permitted login access.
- Make sure the password is as hard to guess as possible.
- Change the password periodically.
- Panasonic Corporation and its affiliated companies never directly ask customers for their password. Do not give out your password even if directly asked by a third-party representing themselves as Panasonic Corporation.
- Always use on a network that has safety protection such as a firewall implemented.

What you can do

<WEB control> (See page 10)
The following operations are possible when using Web Browser.
- Setting and adjusting the projector
- Displaying the projector status
- Setting for message transmission

<PJLink> (See page 21)
Compatible with PJLink Class 1. The following operations can be performed from a computer when PJLink protocol is used.
- Setting the projector
- Querying the projector status

<Control commands>
(Refer to "Serial terminal" in "Technical Information" of the Projector Operation manual)
You can control the projector from a computer, using the control commands of the serial terminals.

Check your computer

Necessary environment for computers to be connected

- First, check your computer to see whether or not it has a wired LAN ✳ function.
  ✳"Glossary" (See page 24)
- Before connecting the projector to the computer, be sure to check the following settings.

■ **Wired LAN**

Check 1　**For LAN cable**

- Is the cable properly connected?
- Use shielded LAN cable (STP cable) that is compatible with category 5 or above.

Check 2　**Wired LAN settings**

<Computer with a built-in wired LAN function>
- Is your wired LAN switched on?

<Computer without a built-in wired LAN function>
- Is your wired LAN adapter properly recognized?
- Is your wired LAN adapter switched on?
- Install the wired LAN adapter driver beforehand.
  For details on how to install the driver, refer to the instructions accompanying the wired LAN adapter.

Check 3　**For Web Browser**

- Web Browser is necessary to use WEB control.
- Compatible OS : Windows XP/Windows Vista/Windows 7, Mac OS X v10.4/v10.5/v10.6/v10.7
- Compatible Web Browser : Internet Explorer 7.0/8.0/9.0, Safari 4.0/5.0 (Mac OS)

(Notes)

Do not touch the LAN terminal or the metal part of the LAN cable, the static electricity may discharge from our hands (body) causing a malfunction.
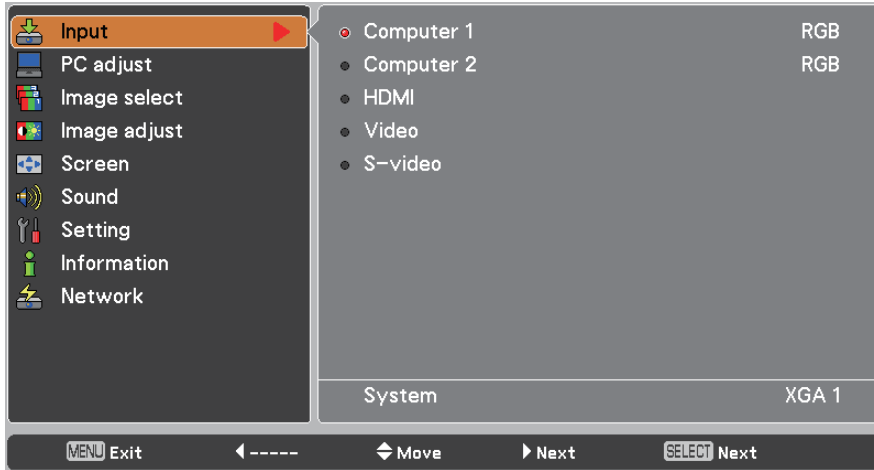
NETWORK menu

To connect the projector and the computer by changing the setting at the time of purchase, change the setting by displaying the menu with the following procedure.
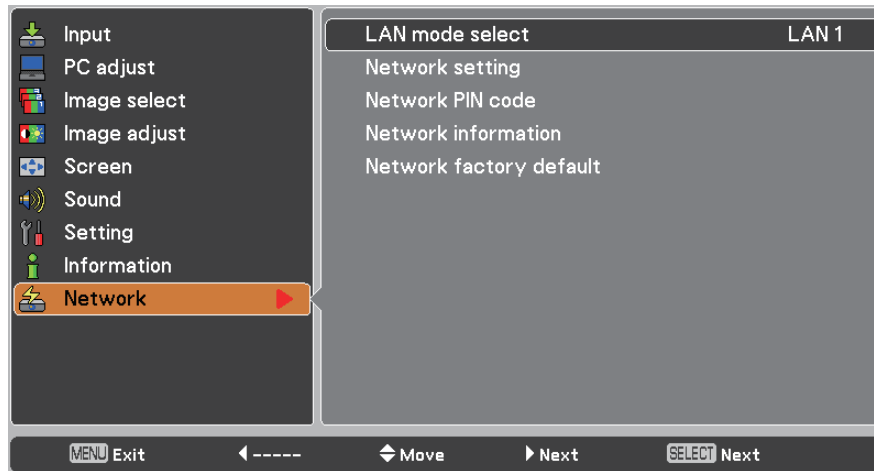
Displaying the NETWORK menu

1 **Press the <MENU> button on remote control.**

The main menu appears.

Input ▶	◉ Computer 1	RGB
PC adjust	● Computer 2	RGB
Image select	● HDMI	
Image adjust	● Video	
Screen	● S-video	
Sound		
Setting		
Information		
Network		
	System	XGA 1

MENU Exit ◀ ----- ◆ Move ▶ Next SELECT Next

2 **Select [Network] with the ▲▼ buttons.**

The network menu appears.

Input	LAN mode select LAN 1
PC adjust	Network setting
Image select	Network PIN code
Image adjust	Network information
Screen	Network factory default
Sound	
Setting	
Information	
Network ▶	

MENU Exit ◀ ----- ◆ Move ▶ Next SELECT Next

3 **Press the <SELECT> button.**
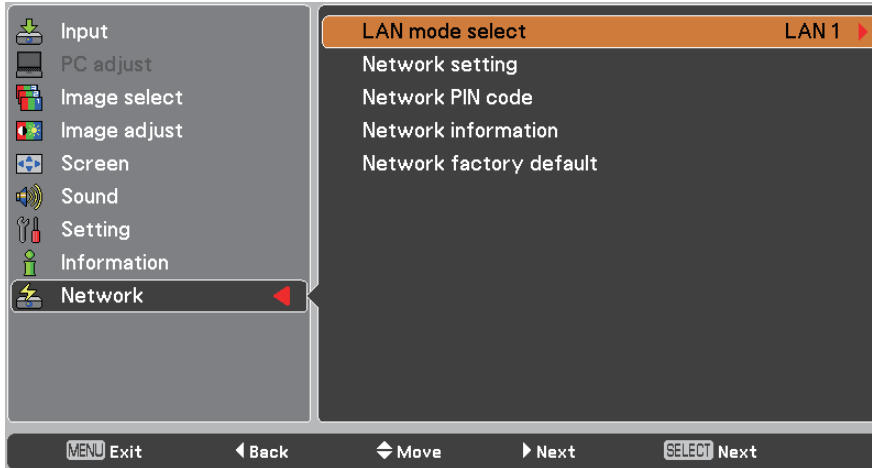
You can select the sub-menu item.

> **Note**
>
> Unavailable items on the menu screen are grayed out and cannot be selected.

NETWORK menu (continued)

LAN mode select

Set the Wired LAN network through the projector menu.

1 **Press ▲▼ to select [LAN mode select], and press <SELECT> button or the ► button.**

Input	LAN mode select	LAN 1 ►
PC adjust	Network setting	
Image select	Network PIN code	
Image adjust	Network information	
Screen	Network factory default	
Sound		
Setting		
Information		
Network ◄		

MENU Exit   ◄ Back   ⬍ Move   ▶ Next   SELECT Next

2 **Select similar LAN environment among LAN1, LAN2 and LAN3 with the ▲▼ buttons and press the <SELECT> button.**

NETWORK menu (continued)

Network setting

You can make detailed wired LAN settings.

1 **Press ▲▼ to select [Network setting], and press <SELECT> button.**

The detailed [Network setting] screen will be displayed.

Input	LAN mode select	LAN 1
PC adjust	Network setting	
Image select	Network PIN code	
Image adjust	Network information	
Screen	Network factory default	
Sound		
Setting		
Information		
Network	◄	

| MENU Exit | ◄ Back | ◆ Move | ► ----- | SELECT Next |

	LAN 1	Wired setting
DHCP	Off	
IP address	169 . 254 . 100 . 000	
Subnet	255 . 255 . 0 . 0	
Gateway	255 . 255 . 255 . 255	
DNS	255 . 255 . 255 . 255	
		Set Cancel

| MENU Exit | ◄ ----- | ◆ Adjust | ► ----- | SELECT Set |

2 **Press ▲▼ to select an item, and change the setting according to the instructions.**

DHCP ＊ **(DHCP client function)**	On: If a DHCP server exists in the network to which the projector is connected, the IP address will automatically be acquired. Off: If a DHCP server does not exist in the network to which the projector is connected, additionally set [IP address＊], [Subnet mask ＊] and [Gateway ＊].
IP address ＊ **(Display of IP address and setting)**	Enter the IP address if DHCP server is not used.
Subnet mask＊ **(Displaying and setting the subnet mask)**	If not using a DHCP server, enter the subnet mask.
Gateway ＊ **(Display of gateway address and setting)**	Enter the gateway address if DHCP server is not used.
DNS **(Display of Preferred DNS server address and setting)**	Enter the DNS server address if DHCP server is not used.

＊ "Glossary" (See page 24)

3 **Press ▲▼◄► to select [Set], and press <SELECT> button.**

Save the current network settings.

Notes

Before using the DHCP server, make sure the DHCP server is already functioning.
For details of IP address, subnet mask, gateway and DNS, ask the network administrator.

■ Default wired LAN settings

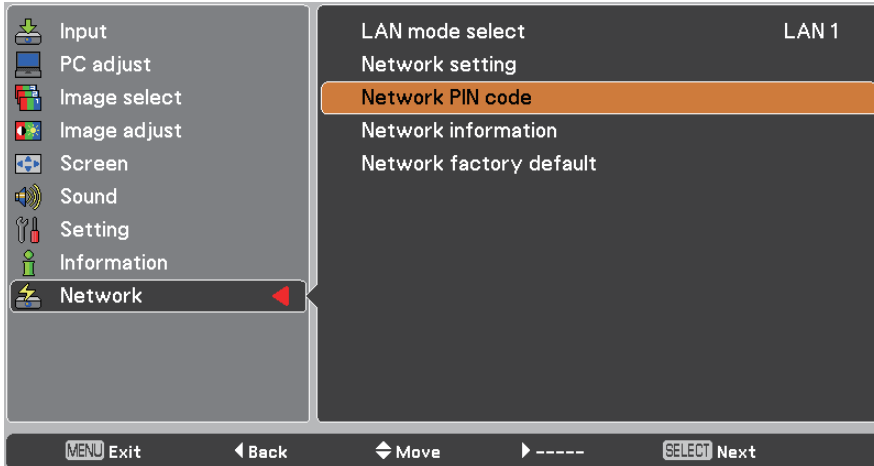The following settings are set before the projector leaves the factory.

| Parameter | SELECTED LAN | | |
	LAN 1	LAN 2	LAN 3
DHCP	OFF	ON	OFF
IP ADDRESS	169.254.100.100	192.168.100.100	192.168.100.100
SUBNET MASK	255.255.0.0	255.255.255.0	255.255.255.0
GATEWAY ADDRESS	255.255.255.255	255.255.255.255	255.255.255.255
DNS ADDRESS	255.255.255.255	255.255.255.255	255.255.255.255

NETWORK menu (continued)

Network PIN code

The Network PIN code is to restrict the access to the projector through the network.

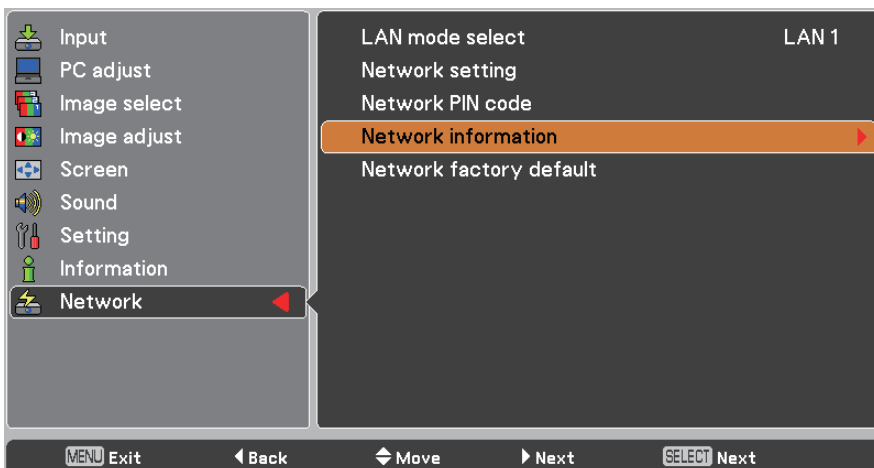**1** **Press ▲▼ to select [Network PIN code] and press <SELECT> button.**

Input	LAN mode select	LAN 1
PC adjust	Network setting	
Image select	Network PIN code	
Image adjust	Network information	
Screen	Network factory default	
Sound		
Setting		
Information		
Network ◄		

MENU Exit   ◄ Back   ◆ Move   ▶ -----   SELECT Next

2 **Set the figures with the ▲▼ buttons and move to the next items with the ◄►
buttons. Select [Set] and press the <SELECT> button to set.**

To cancel the preset [Network PIN code], select [Cancel].

Network information

This function shows the LAN setting environment of the currently selected projector.

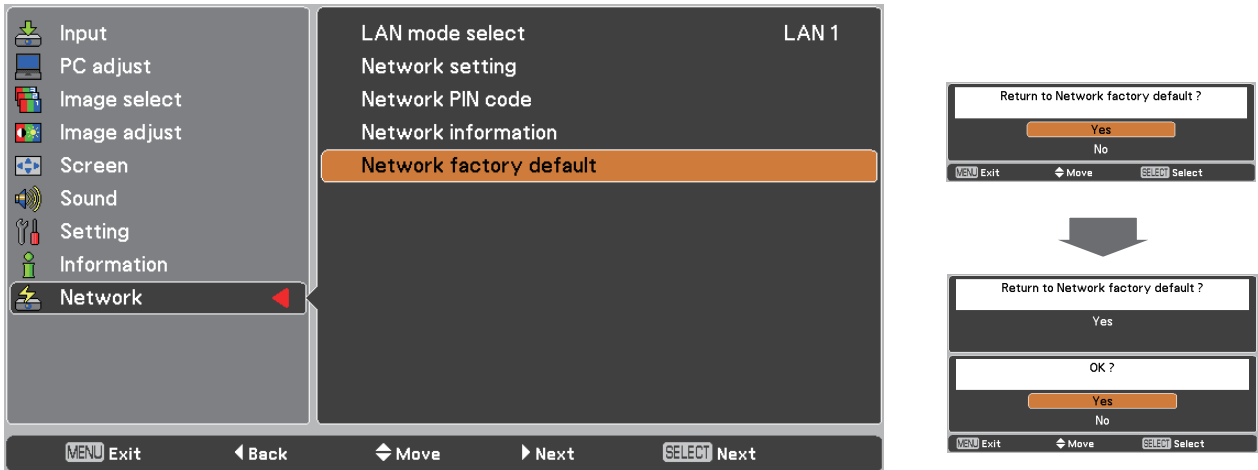**1** **Press ▲▼ to select [Network information].**

Input	LAN mode select	LAN 1
PC adjust	Network setting	
Image select	Network PIN code	
Image adjust	Network information	▶
Screen	Network factory default	
Sound		
Setting		
Information		
Network ◄		

MENU Exit   ◄ Back   ◆ Move   ▶ Next   SELECT Next

2 **Press <SELECT> button or the ► button to show the information of the current
projector status.**

8

NETWORK menu (continued)

Network factory default

You can reset the network setting to the factory default of the projector.

1 **Press ▲▼ to select [Network factory default], and press <SELECT> button.**

2 **A confirmation box appears and select [Yes] and then press <SELECT> button. Another confirmation box appears and select [Yes] and then press <SELECT> button.**

Input	LAN mode select	LAN 1
PC adjust	Network setting	
Image select	Network PIN code	
Image adjust	Network information	
Screen	**Network factory default**	
Sound		
Setting		
Information		
Network ◀		

MENU Exit   ◀ Back   ⬍ Move   ▶ Next   SELECT Next

Return to Network factory default ?
Yes
No
MENU Exit   ⬍ Move   SELECT Select

Return to Network factory default ?
Yes

OK ?
Yes
No
MENU Exit   ⬍ Move   SELECT Select

Connecting with Wired LAN

Computer operation

Connection can be made with wired LAN. However, confirm to your system administrator on network settings before changing any settings.

1 **Turn on the computer.**

2 **Make the network setting according to your system administrator.**

If the projector settings are the default settings (See page 7), the computer can be used with the following network settings.

DHCP	Off
IP address	169.254.100.101
Subnet mask	255.255.0.0
Default gateway	NONE
DNS	NONE

Using Web Browser

Accessing from the Web browser

1 **Activate the Web browser in the personal computer.**

2 **Enter the IP address set by the projector into the URL input field of the Web browser.**

3 **Enter your "User name" and "Password".**

The entering User Name must be "user" and it can not be changed.
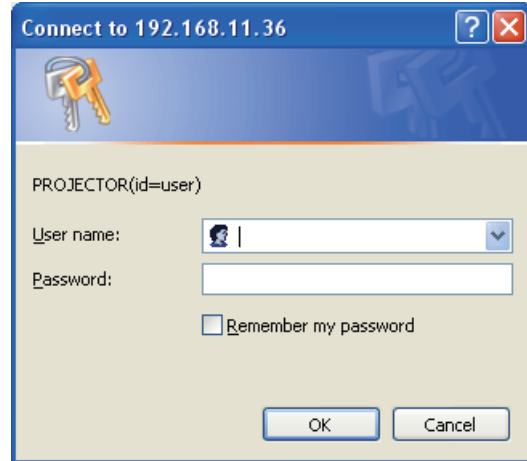
4 **Click [OK] to display the Initial setting page.**
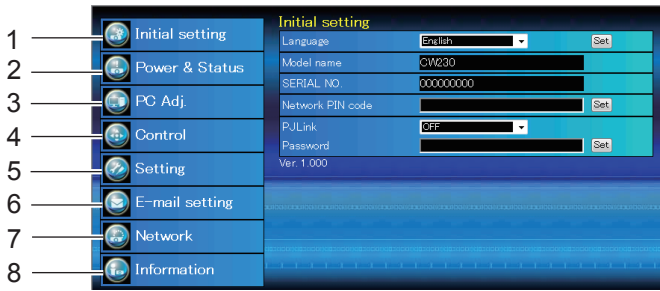
"Initial setting" page is displayed.
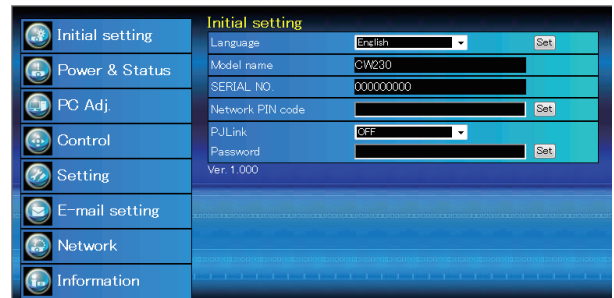
Notes
- Avoid activating two or more Web browser simultaneously to work out setting or control actions.
- Change the password first of all.
- There are some control items used with the JavaScript function in the setting pages. If the web browser is set not to use this JavaScript function, it may not control the projector properly.

Using Web Browser (continued)

■ Description of each item

1 **Initial setting button**
   Click this item to display the Initial setting page.
2 **Power & Status button**
   Click this item to display the Power & Status page.
3 **PC Adj. button**
   Click this item to display the PC Adj. page.
4 **Control button**
   Click this item to display the Control page.
5 **Setting button**
   Click this item to display the Setting page.

6 **E-mail setting button**
   Click this item to display the E-mail setting page.
7 **Network setting button**
   Click this item to display the Network setting page.
8 **Information button**
   Click this item to display the Information page.

Initial setting page

After installing the projector, perform the following basic initial setting.
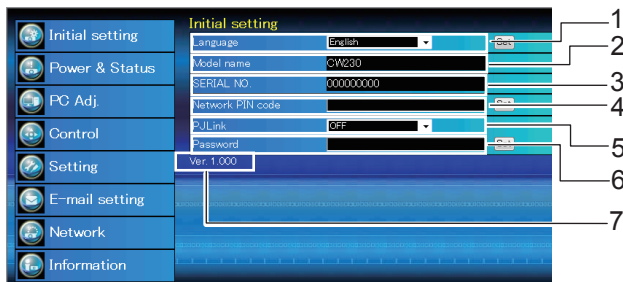
1 Switches display language on the setting page.
2 Indicates the model name of the projector.
3 Indicates the serial number of the projector.
4 Sets the Network PIN code to login the setting page.
5 Switches PJLink password authentication.
6 Password for PJLink function.
7 Displays the version of the firmware.

11

Using Web Browser (continued)

Power & Status page

By clicking "ON" or "Standby" button on the page, the power of the projector can be controlled.
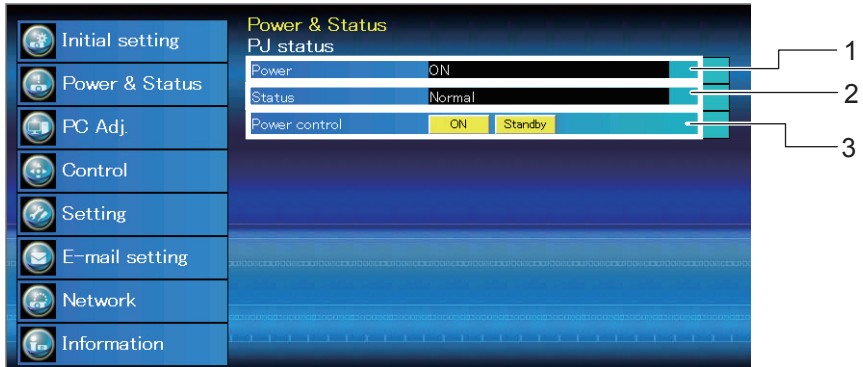
1 Displays the status of the lamp.
2 Displays the status of the projector's power.
3 Controls the projector power by clicking the "ON" or "Standby" button.

PC Adj. page

Click PC Adj. on the main menu. This function is to adjust the signal from the computer connected to the projector to obtain the proper picture image on the screen.
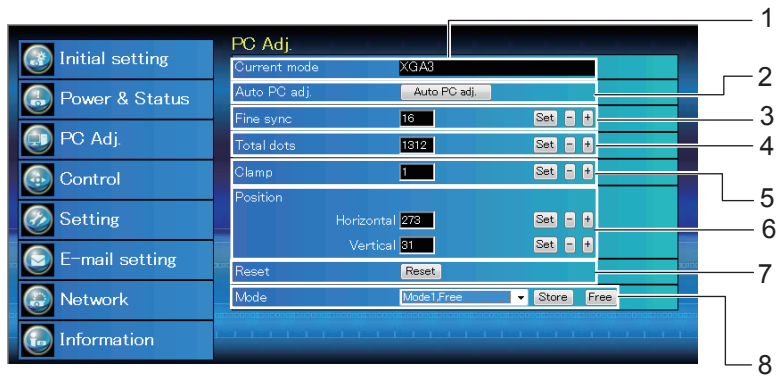
1 Displays the current mode of the input signal.
2 Performs automatic adjustment.
3 Performs Fine Sync adjustment.
4 Adjusts the number of total dots in the horizontal period.
5 Adjusts the phase of the clamp.

6 Adjusts the horizontal/vertical position of the image.
7 Resets the PC adjustments to the previous levels.
8 Store/Clear the PC adjustment values.

Using Web Browser (continued)

Click on the different tabs to change pages and select desired setting items.

1

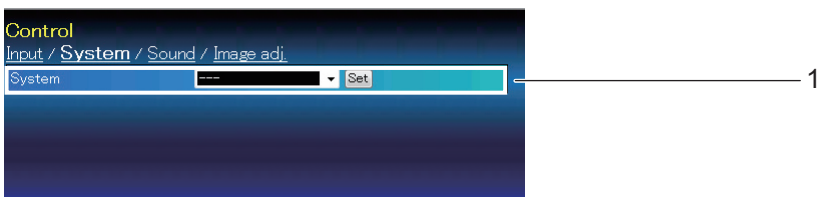1 Displays the different tabs of the page.

■ Input

This function is to select the input mode and source mode of the projector.

1

1 Selects the input mode of the projector or the signal source of the input.
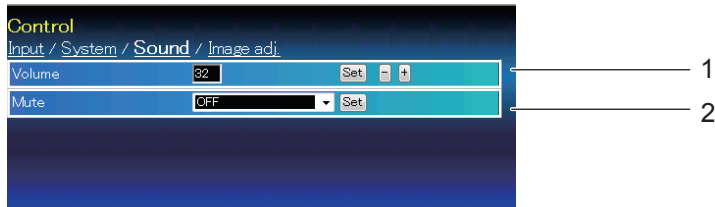
■ System

1

1 Displays the system of signal input to the projector.

13

Using Web Browser (continued)

Control page (continued)

■ Sound

This function is to adjust the sound of the projector.

1 Adjusts the sound volume from the speaker.
2 Suppresses the sound.

■ Image adj.

This function is to adjust the projected picture image and save the image mode.

1 Adjusts picture contrast.
2 Adjusts picture brightness.
3 Adjusts picture color saturation.
4 Adjusts picture hue.
5 Sets a color temperature mode.
6 Adjusts each white balance respectively.
7 Adjusts picture sharpness.

8 Switches brightness of darker part of the picture.
9 Switches noise reduction mode.
10 Switches progressive mode.
11 Resets the Image adjustment to previous levels.
12 Stores the Image adjustment levels.
13 Loads the Image mode.

14

Using Web Browser (continued)

Setting page

Click on the different tabs to change pages and select desired setting items.

1 Displays the different tabs of the page.

■ Screen setting

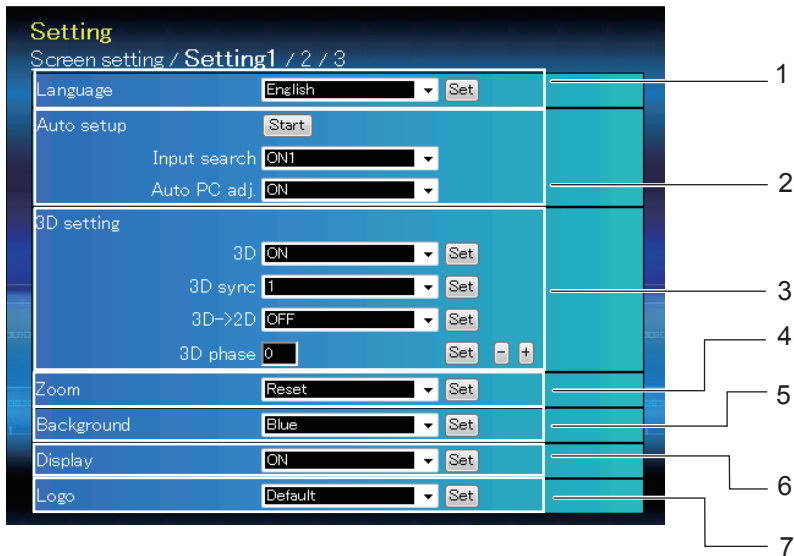This function is to adjust the screen mode of the projector.

1 Switches the screen mode.
2 Sets the image top/bottom and left/right reversed.
3 Sets the image left/right reversed.
4 Sets the aspect.
5 Sets the similar color of the wall or the school blackboard.
6 Resets the Screen settings.

Using Web Browser (continued)

Setting page (continued)

■ Setting 1

1 Sets the language display of projector's on-screen display menu.
2 Executes the Auto PC Adj, and Input Search function.
3 Sets 3D display functions.
4 Sets the Zoom adjustment value items.
5 Sets the screen background when no signal input.
6 Switches the on-screen menu display to on or off .
7 Sets the logo display during the startup to on or off.

■ Setting 2

1 Sets the COMPUTER IN 2/MONITOR OUT terminal.
2 Sets to enter the selected power management mode if the input signal is interrupted and no control key is pressed for the specified period of time.
3 Sets the power-on mode when the AC cord is connected to the outlet.
4 Selects lamp power mode.
5 Sets the prohibition of controls either Projector or Remote control.
6 Sets the fan control speed.
7 Displays the lamp run time.

16

Using Web Browser (continued)

Setting page (continued)

■ Setting 3
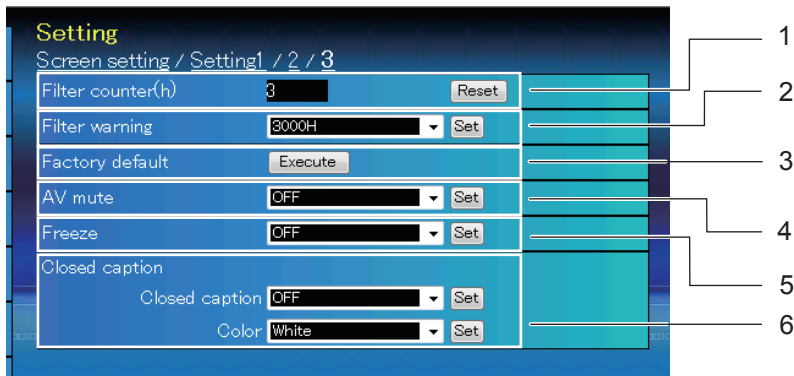
1 Displays the filter counter.
2 Sets the time to indicate the filter warning message on the screen.
3 Sets all of the projector control items to the factory default setting.
4 Sets the black out image and mute the sound temporarily.
5 Sets the image to freeze mode.
6 Sets the closed caption function.

> **Note**
>
> • The factory default function sets all of the projector control items to the factory default setting except Logo PIN code lock, PIN code lock, Lamp Corres. Value, Filter counter, Lamp runtime and PJ time.

E-mail setting page

This projector has an E-mail function which can send an alert message to users or an administrator if it detects an abnormality on the projector or run out of the life span of the lamp.
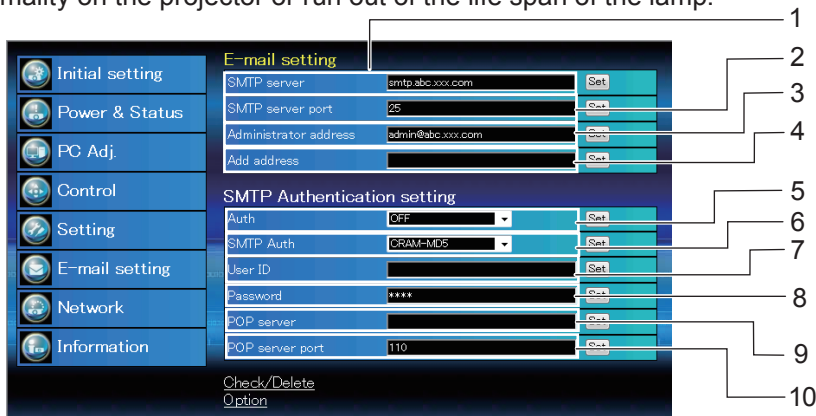

1 Enter server name or IP address of the SMTP server. (up to 60 characters)
2 Enter Port number of the SMTP server. (from 1 to 65535)
3 Enter e-mail address of administrator.
4 Enter e-mail address of the user to send mail when the projector has an abnormality.
5 Sets authentication setting option.

6 Sets user authentication setting option when selecting "SMTP Auth" in above column.
7 Enter SMTP user ID. (up to 63 characters)
8 Enter SMTP password. (up to 63 characters)
9 Enter server name or IP address of the POP server. (up to 60 characters).
10 Enter Port number of the POP server. (from 1 to 65535)

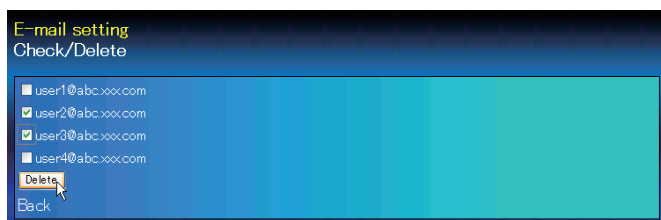# Using Web Browser (continued)

■ **Error message for sending alert mail**
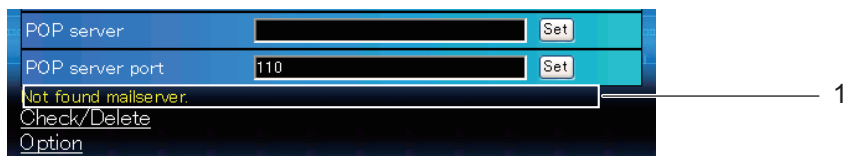
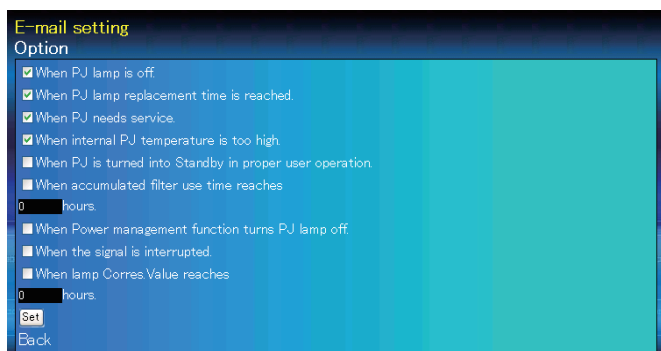1   Error message for missing SMTP server.

■ **Registering and deleting E-mail addresses**
To check or delete the registered addresses.

■ **Option selection for sending alert mail**
To check the condition items under which alert mail will be sent.

Using Web Browser (continued)

■ **Examples: Type and contents of alert mail**
When the projector has an abnormally, the following alert message are sent to the registered E-mail address according to your selected condition. Administrator or user can take an efficient action quickly by receiving this message. This is very useful to maintain and service the projector.
The following are examples of received message.

● **When internal PJ temperature is too high:**

```
TITLE: Message from projector
Projector Model Name: model name
TCP/IP: 192.168.10.100 Projector Name: PT-CW230

It sends you following message.

*The Projector lamp is turned off, because internal projector temperature is too high.
  Wait for the completion of the cooling process and make sure the projector has been turned into
  Standby. Then turn the projector on again.
  If the Indicator continues flashing, check the air filter for dust accumulation.
```

● **When PJ needs service:**

```
TITLE: Message from projector
Projector Model Name: model name
TCP/IP: 192.168.10.100 Projector Name: PT-CW230

It sends you following message.

*Maintenance requirement from Projector is detected.
  Check up LED status of projector and consult with the dealer.

MCI      3.3V    OK   ←──── Error information
MAIN     ALL     NG
```

> **Note**
>
> • The projector lamp was turned off, because the projector power circuit failed.
> • Unplug the AC power cord and plug it, and then turn on the projector once again to verify operation. If the problem still persists, unplug the AC power cord and ask servicing to a qualified service personnel with the error information.

● **When PJ lamp replacement time is reached:**

```
TITLE: Message from projector
Projector Model Name: model name
TCP/IP: 192.168.10.100 Projector Name: PT-CW230

It sends you following message.

*The projector lamp has reached replacement time.
  Lamp ON 3000 h
```

> **Note**
>
> • Replace it with a new lamp immediately and reset the lamp counter. If the projector is used without resetting the lamp counter, the alert mail is sent to users in every power-on of the projector. This alert mail will not be sent when unchecking the mail sending condition "When PJ lamp replacement time is reached".

Using Web Browser (continued)

Network page

The IP Address, Subnet Mask, Default Gateway, DNS (Domain Name Server) and projector name are setup on this menu.
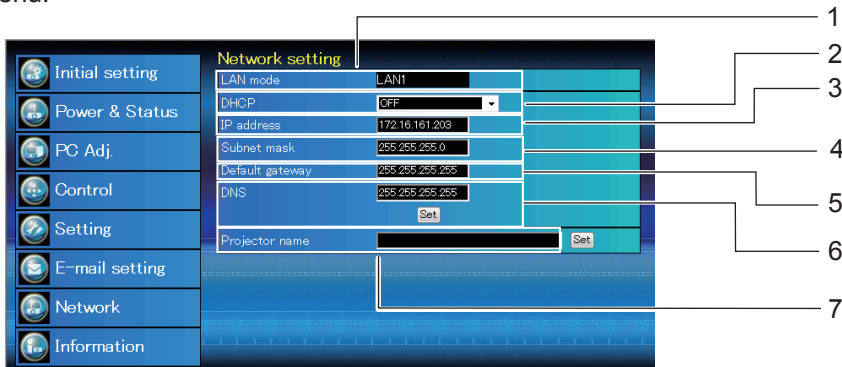
1 Displays the selected LAN mode.
2 Sets DHCP configuration.
3 Sets IP address of the projector.
4 Sets Subnet mask.
5 Sets IP address of the default gateway (Router).
6 Sets IP address of the DNS server. Must be set when using the e-mail function.
7 Sets name of the projector. (64 characters maximum)

Information page

This page is to display the basic information of the projector status. Click Update button to update the information.
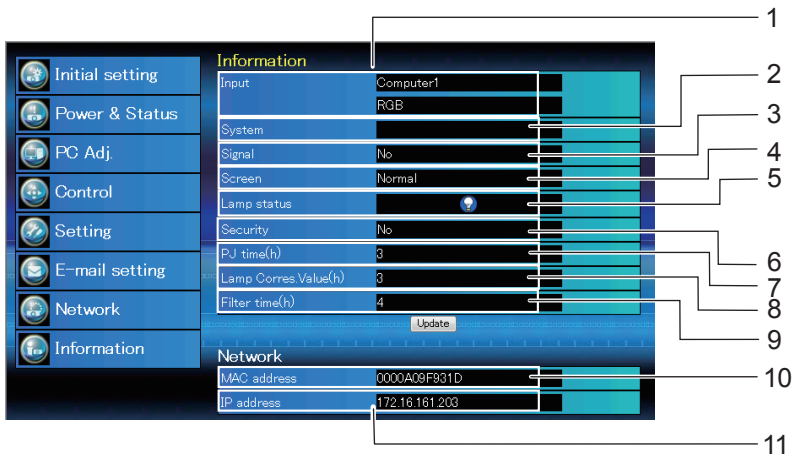
1 Displays selected input and source.
2 Displays selected signal system.
3 Displays input signal status.
4 Displays screen mode.
5 Displays lamp status with an icon.
6 Displays the security (PIN code lock) status.

7 Displays the accumulated run time of the projector.
8 Displays the run time (Corresponding value) of the lamp.
9 Displays the accumulated run time of the filter.
10 Displays MAC address of the projector.
11 Displays the IP address of the projector.

PJLink protocol

The network function of the projector supports PJLink class 1, and the PJLink protocol can be used to perform projector setting and projector status query operations from a computer.

Control commands

The following table lists the PJLink protocol commands that can be used to control the projector.

Command	Control details	Notes
POWR	Power supply control	Parameters 0 = Standby 1 = Power ON
POWR ?	Power supply status query	Parameters 0 = Standby 1 = Power ON 2 = Cool-down in progress
INPT	Input selection	Parameters
INPT ?	Input selection query	11 = RGB 1 12 = RGB 2 13 = RGB 3 21 = VIDEO 1 22 = VIDEO 2 23 = VIDEO 3 31 = DIGITAL 1
AVMT	AV MUTE control	Parameters
AVMT ?	AV MUTE status query	30 = AV MUTE mode off 31 = AV MUTE mode on
ERST ?	Error status query	Parameters 1st byte : Indicates fan errors, range 0 – 2 2nd byte : Indicates lamp errors, range 0 – 2 3rd byte : Indicates temperature errors, range 0 – 2 4th byte : Fixed at 0 5th byte : Indicates filter errors, range 0 – 2 6th byte : Indicates other errors, range 0 – 2 Definitions for each value from 0 to 2 are as follows. 0 = No error known 1 = Warning 2 = Error
LAMP ?	Lamp status query	Parameters 1st digits (1 – 5 digits) : Lamp cumulative operating time 2nd digit : 0 = Lamp off, 1 = Lamp on
INST ?	Input selection list query	The followings are returned as parameters. "11, 12, 13, 21, 22, 23, 31"
NAME ?	Projector name query	The name set for [Projector name] in [Network setting] is returned.
INF1 ?	Manufacturer name query	"Panasonic" is returned.
INF2 ?	Model name query	Answer the model name with either "CW230" or "CX200".
INF0 ?	Other information query	Information such as version number is returned.
CLSS ?	Class information query	"1" is returned.

PJLink security authorization

When using PJLink with security authorization, either of the password set for administrator privileges and the password set for user privileges with Web browser control can be used as the password for PJLink (See page 10). When using PJLink without security authorization, set use without the password for administrator privileges and the password for user privileges of Web browser control.
For specifications regarding PJLink, refer to the Japan Business Machine and Information System Industries
  Association website.
  URL http://pjlink.jbmia.or.jp/

# Control commands via LAN

Use of telnet

You can control the projector by using the telnet application*1 installed on your computer.
Normally, the telnet application is available on your computer.
* The telnet 10000 port is used to control the projector.

■ Control

(For example, in case of using the telnet application of Windows XP Professional.)

1) Select Run... submenu from Start menu on the computer. Type "telnet" onto the Open text area on the dis-
   played window and press OK button.
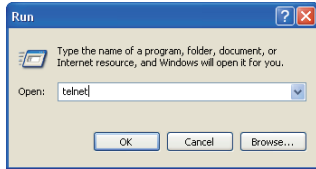
2) The telnet application will start and the following window will be displayed. Type as below to connect the pro-
   jector.
   > open 192.168.1.201 10000 [return]
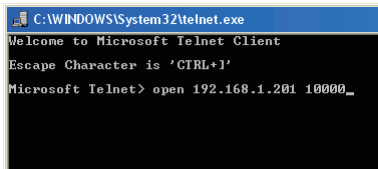
   * Use the IP address assigned to the projector.

3) When communication is established correctly, the word "PASSWORD:" appears on the window. Type the login
   password (Network PIN code*2) for the projector and then press "Enter" key on the keyboard. If you do not set
   up the Network PIN code, just press "Enter" key.
   When the word "Hello" is replied, login has been succeeded.

   * The password "1234" is used for the example.
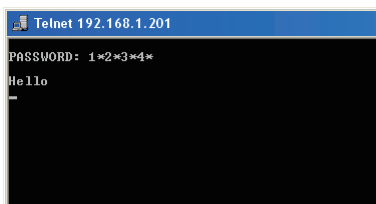
*1 Further instructions about the telnet application, please see the on-line guide on your computer.

*2 The password is a Network PIN code decided item "Network PIN code setting". If the authentication of the entered password is failed 4
   times continuously, the communication will be disconnected automatically. Please try again for the connection.

Control commands via LAN (continued)

4) Type the commands, refer to below table, to control the projector and then press "Enter" key for termination. For example, type "C00" which is a command to turn on the projector, and press "Enter" key. Confirm the projector is turning on.

* Enter with ASCII 64-byte capital characters and one-byte characters.

To disconnect the communication, press "Ctrl" key and "]" key at the same time, type "close" and then press "Enter" key on the Keyboard.
> close [return]

Command list table

Command	Function
C00	Power on
C02	Power off
C09	Volume up
C0A	Volume down
C0B	Audio Mute on
C0C	Audio Mute off
C1C	Menu display on
C1D	Menu display off

Note

- If the password or any command is not entered for more than 30 seconds, the communication will be disconnected automatically. Please try again for the connection.

Glossary

Item	Descriptions	See page
DHCP	Abbreviation for Dynamic Host Configuration Protocol. This function automatically assigns IP addresses to the connected equipment. If a device with the DHCP server function is present within a LAN, it automatically assigns IP addresses to the connected equipment	7
Gateway	The devices that are used for different network standards from yours. Gateway enables a connection with other network, by adjusting bilateral differences such as communication protocols. If no gateway is specified for the IP address of access destination, data will be sent to the host set as the gateway.	7
IP address	Internet Protocol (IP) is a protocol for distributing data, and the address corresponding to the data distribution destination is called the IP address. The same IP address cannot be used within the same LAN.	7
LAN	Abbreviation for Local Area Network. This is a network with a relatively narrow range such as inside a company.	4
Subnet	This limits the range of the IP addresses assigned to computers in order to divide the network into a number of sections during TCP/IP connection. The value used to divide the network at this time is called the subnetmask.	7

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