PLANAR™

WallNet™

Setup & Operation

020-0567-05 19 Aug 2010

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WallNet

IMPORTANT: You must contact your network administrator for help to install WallNet. If you are not a network administrator, read this manual first, but do not proceed with connecting WallNet to the network without the assistance of the local network administrator.

DO NOT APPLY POWER to the WallNet device server yet!

What WallNet Is

WallNet is a system of hardware (a small box) and software that displays information about a wall of Planar displays via a web browser. WallNet is used primarily for monitoring, reporting and some control (for example, manually powering the displays on and off). The connection between the computer and the WallNet device server is typically through a LAN (local area network).

With WallNet you can check the status of any display, receive periodic reports or automatic alerts about the displays, turn the lamps on or off interactively or at scheduled times, set up custom command buttons, perform automatic color balancing (ACB) and control dual lamp systems.

The WallNet software includes a web server. To configure and operate WallNet, you use a browser that looks at web pages delivered by the WallNet web server. When WallNet communicates with the Planar displays, it does so with RS232 commands through its serial port.

Also included in the WallNet software are other programs that work with the web server to implement your requests, such as status monitoring, and email reports and alerts.

What WallNet is Not

WallNet is not designed to help with setting up and making adjustments to the displays or the wall, although you can use it to control displays at a distance.

What ACB Is

Color balancing is a process that makes all the displays (or cubes) in a wall show the same color and brightness. It compensates for differences in lamps and other optical components of the system. In some products, color balancing needs to be done manually.

ACB (Auto Color Balance) is a feature enabled for certain Planar displays that include an integrated color sensor, such as the c50SP, c67SP and c70SPw. For these displays, WallNet can measure the colors on the wall and make adjustments to each cube to match color and brightness over the whole wall.

Auto color balancing eliminates the need to learn how to color balance manually. It is much faster and more accurate, giving much better results.

What SiFi (Set it and Forget it™) Is

SiFi is a term for advanced features that make configuring and maintaining a wall even easier. SiFi includes Auto Color Balance and Dual Lamp control.

Supported Display Products

Product	Periodic Reports Automatic Alerts	SiFi
c50SP/c67SP/c70SPw	Yes	Yes
c50RP-RX/c67RP-RX	Yes	Yes
LED series	Yes	Yes
c80RP	Yes	Yes
Lion XL/UXL (only)	Yes	No
Margay	Yes	No
Margay II	Yes	Yes
mXXL	Yes	No
Clarity Matrix	Yes	No
Puma (all models)	Yes	No

When you configure WallNet for the correct display type, some of WallNet's web pages change to reflect what can be done with each display type.

Software for Other Display Types

WallNet is pre-loaded with software for either all current rear projection products, or Matrix and flat panel LCD products. WallNet software for all supported displays is on the WallNet CD and is also available for download at: www.planar.com

When to Load WallNet Software

First, complete the general setup described in this manual until you have established network settings for your WallNet. *Save the configuration*.

Then follow the instructions on page 29 to load the new WallNet software.

When you load new WallNet software, the saved settings (such as network setup) are preserved. Therefore, it is important during the first configuration to save the configuration before loading new software.

Software vs. Firmware

In this manual and on the WallNet web pages, **software** is loaded into the WallNet itself to update it or change between supported sets of displays.

Firmware is loaded into the *display* to update the operation of the Planar display itself.

Getting Ready to Set Up WallNet

DO NOT apply power to the WallNet device server yet!

DO NOT connect it to the network yet!

Be Prepared!

For the normal setup procedure, you won't need to know this, but we strongly suggest that you read through "Recovery Procedures" on page 75 before starting the step-by-step setup for the first time.

To use these recovery procedures you must have

- a DB9 null modem cable

or

- a null modem adapter and a straight-thru DB9 cable

plus

- a PC with a free COM port that has a terminal program such as HyperTerm or Tera Term Pro

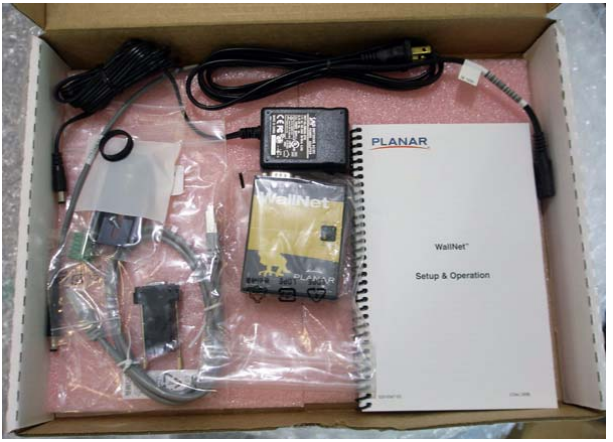
Try it Locally First

The best way to proceed is to set up WallNet in a local setting. Have everything in the same place: your computer, the WallNet device server, and a network connection. If you get into trouble and have to reset the box, it's easier to have it right there.

You can set up WallNet at your desk and connect it to the Planar displays later.

What You Have in the WallNet Kit

Below is a picture of all of the items contained in the wall kit as they are packaged in the shipping box. The contents of the box are also listed and individual parts shown as well.



- CD with WallNet Assistant software and other files, including the software for using WallNet with all supported displays.
- WallNet device server

- Power supply and power cord

- Power cable for displays with AUX power

- Plastic grommet

- This manual (also on the CD as a PDF)
- RS232 adapter (DB9 female to RJ45). See next bullet for picture.

- Straight-thru cable with RJ45 on both ends

- Mounting hardware (DIN rail, etc.)

What You Need to Know First

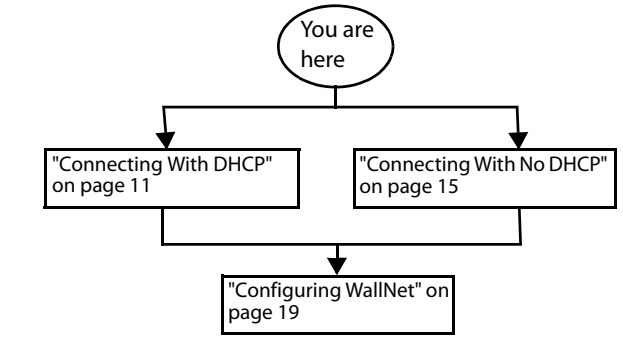
To make WallNet work on your network, you need to know these things:

- Does your network support DHCP? If it does, this makes things a bit easier. Ask your network administrator.
- What is the SMTP mail server name or address? WallNet will use this to send email messages and alerts.
- If you do NOT have DHCP, or you do not want to use it, you need to know the IP address to assign to the WallNet, network mask, DNS server, and gateway.

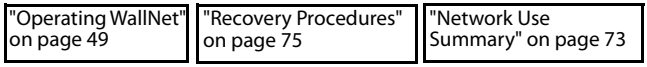
If you are unsure what some of this information means, contact your network administrator.

What You Will Do

This manual is divided into several major parts; you do not need to read them all.



Use these sections as needed.



Next Step

After you (or your network administrator) have decided whether to connect using DHCP or a static IP address, turn to the appropriate section and begin.

DO NOT APPLY POWER to the WallNet device server yet!

Connecting With DHCP

The instructions in this section will only work if your local network has a DHCP server. If you don't know whether or not it has this, contact your network administrator.

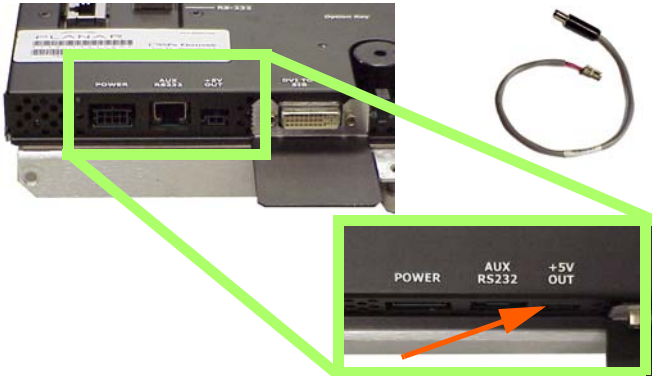
This section provides instructions to establish the initial network connection to a WallNet that is in its factory default state. After you have made this first connection and have a web browser displaying the WallNet home page, you are ready to continue with the instructions. See "Configuring WallNet" on page 19.

DO NOT APPLY POWER to the WallNet device server yet!

1 **First**, connect the WallNet device server to the network.

2 **Then**, connect power to the box. (See the following page.) During startup, the LEDs turn on and off as the WallNet software goes through its initialization process. When this is complete, the CPU LED blinks continually: one second on, one second off. This tells you the box is working and ready for the next step.

For SiFi capable installations, WallNet power may come from the bottom of the control board. A cable is supplied for this connection.



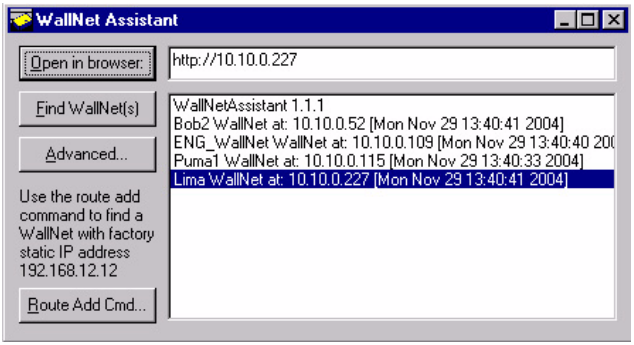
Using WallNet Assistant

WallNet Assistant is a software program that finds WallNet hardware on a network.

1 Install WallNet Assistant. Installation is semi-automatic when you insert the CD. If it doesn't install automatically, go to:
`E:\Assistant\Installer`
(where E: is the drive letter of your CD ROM drive) and start:
`SETUP.EXE`.

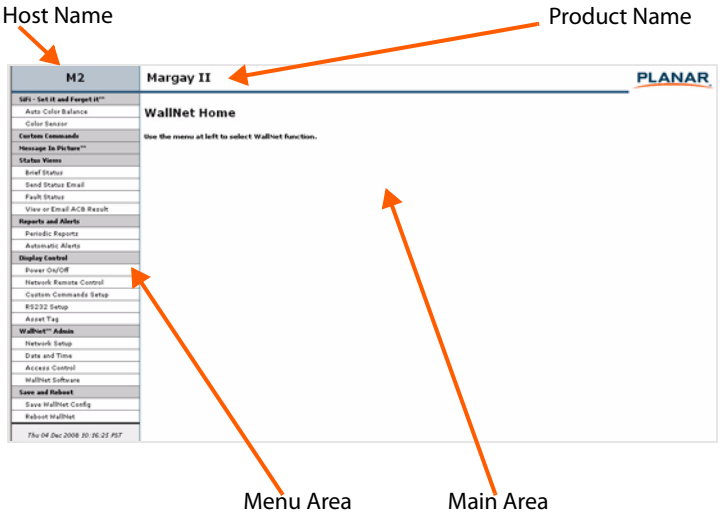
Note: If installing under Windows® Vista, you must enable the Windows XP SP2 compatibility mode option on `SETUP.EXE` before you run the installer.

2 Start WallNet Assistant. Upon opening, it will look for all WallNet device servers on the network and list them in the window.



- Each WallNet found on the local network is listed with its IP address and the date and time. If the WallNet has been assigned a name, that name will appear first, such as Puma1 WallNet: at 10.10.0.115 [Mon Nov 29 13:40:33 2004].
- New WallNet device servers just out of the box are listed with text, such as "WallNet at: 10.10.0.102 [date and time]". The date and time shown are from WallNet's own clock, which you will set later.
- At the top of the list is the product name and its version: WallNet Assistant 1.1.1, which will go away when you click **Find WallNet(s)**.
- WallNet Assistant uses a very simple broadcast protocol to discover WallNets on the local network. Most networks do not route broadcast packets, so it is very possible to have properly configured, reachable WallNets on your network that WallNet Assistant won't find. Consult with your network administrator if you are having trouble using WallNet Assistant to find WallNets.

3 Double-click the new WallNet device server listing, which opens your browser pointed at that WallNet.



4 You should see the WallNet home page. It will look something like this.

Next Steps

You are now finished with connecting WallNet using DHCP.

See "Configuring WallNet" on page 19.

Connecting With No DHCP

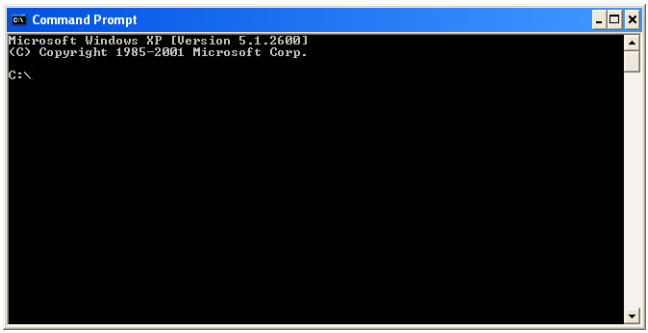
The instructions in this section describe the first connection to a WallNet at its default static IP address. If you are not sure if this is the correct option, contact your network administrator.

This section provides instructions to establish the initial network connection to a WallNet that is in its factory default state. After you have made this first connection and have a web browser displaying the WallNet home page, you are ready to continue with the instructions. See "Configuring WallNet" on page 19.

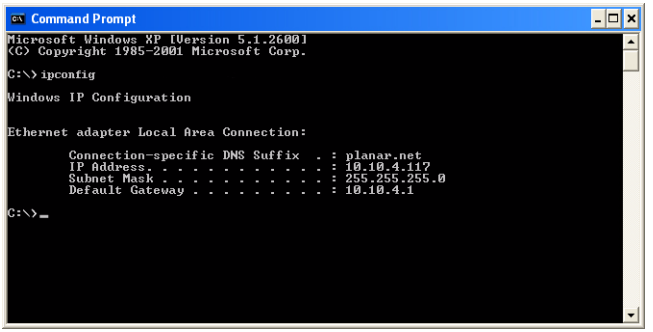
Getting Your Computer's IP Address

Before you begin, you need to know the network IP address of your computer.

1 Find and start a program on your Windows computer called Command Prompt or DOS Prompt. This is usually in the Accessories folder for Windows.



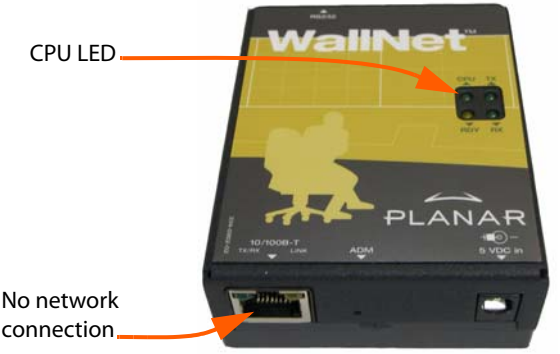
2 At the prompt, type `ipconfig` and press [Enter].
In a few seconds your computer's IP address will be shown. If `ipconfig` doesn't work, try `winipcfg`.



3 Write down the IP address. You won't need the mask or other information. Keep the Command Prompt window open; you will need it later.

Connecting to WallNet

1 DO NOT connect WallNet to the network.



2 Apply power to WallNet with no network connection.

For SiFi capable installations, WallNet power may come from the bottom of the control board. A cable is supplied for this connection.

3 After a minute or so, the CPU light will start blinking: on one second, off one second. Count at least 30 seconds (15 times LED is on).

4 Connect WallNet to the network.

5 Connect your computer (with the known IP address) to the same network. DO NOT connect the computer and WallNet directly to each other, unless you are using a crossover cable. They can only communicate over a correctly configured network.

6 Do one of the following:
- Using the WallNet Assistant program, click the **Route Add Cmd** button to automatically run the route add command.
- Type this *on one line* exactly as shown (except substitute your PC's IP address)[1]:

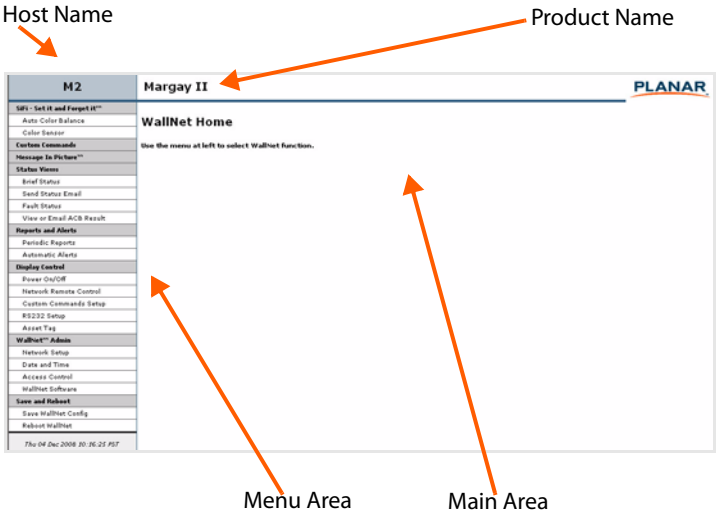
```
route add 192.168.12.0
mask 255.255.255.0 <PC IP
address>
```

7 Press [Enter]. This action tells the network that your computer can point to this WallNet, but so far, yours is the only computer that can.

8 Start your browser and point to: http://192.168.12.12[2]

1. 192.168.12.0 is a network address.
2. 192.168.12.12 is the default address of the WallNet.

9 You should see the WallNet home page that looks something like this.



Next Steps

You are now finished with connecting WallNet using a static IP address.

To continue, see "Configuring WallNet" on page 19.

Configuring WallNet

The Network Setup section provides instructions to set the final network configuration for the network on which this WallNet will permanently reside. If you do this configuration on a different network from the "final" network, (for example, on someone's office network vs. on the end customer's network), you may need to defer making the final network configuration changes until you finish the rest of the configuration.

Network Setup

1 From the WallNet home page, select Network Setup in the menu area.

The WallNet web pages include many detailed instructions. Take the time to read them.

2 In the **WallNet hostname** box it now says WallNet. Change this name to something more appropriate. This will be the name for this particular WallNet device server. The hostname is limited to 16 characters: alphanumeric, dash, or underscore only (which you can see in the instructions on the WallNet page). This is also the name that will appear in the list when you use WallNet Assistant.

3 Leave **Domain name** blank unless your network administrator tells you otherwise.

4 Do one of the following:
- If you will use DHCP, go to step 5.
- If you will **not** use DHCP, go to step 6.

5 Under the DHCP section, choose **Yes, use DHCP**.
   a. Change the default DHCP timeout (ten seconds) only if instructed by your network administrator.
   b. You do not need to fill in anything under the Static (non-DHCP) Network

Settings section. However, if you do, these settings will be used in the event that the DHCP attempts to time out.

c. Go to step 7.

6 Under the DHCP section, choose **No, use static settings**.

a. In the Static (non-DHCP) Network Settings section, enter the **IP address** given to you by the network administrator.

b. Enter the **Network mask**, **DNS server**(s), and **Gateway** as instructed by the network administrator.

c. Go to step 7.

7 Scroll to the bottom of the page and click **Confirm and apply new network settings** to receive the Confirm Network Change page.

8 Review the settings to make sure they are correct. Click **OK, apply changes now** to receive the Applying Network Changes page.
This shows the network settings to be used.

If you have changed the static IP address or changed from static to DHCP setup, you may need to point your browser at the new address or use WallNet Assistant to find the new address.

9 You may have to click the **Refresh** button on your browser to see the new WallNet name in the upper left.

If you lose contact with WallNet after changing network settings, see "Recovery Procedures" on page 75.

Date and Time

1. In the menu area, select Date and Time. Set the date and time manually in the box under the Manual Date and Time section. The date format is very exact. Fill in the current date and time using exactly the format shown on the page. Click **Set date and time**.
2. If you want to have the WallNet device server periodically check the time from a network source, fill in the NTP server name or address, and poll interval in the Date and Time Server section. Click **Apply new date and time server settings**.
   If you don't have a preferred NTP server, then www.pool.ntp.org is a reasonable choice for most installations.
3. Carefully read the instructions in the Local Time Zone section. Fill in the text box and click **Set time zone**.

Note: The start and end of daylight saving time default to the first Sunday of April and the last Sunday of October. As of 2007, U.S. locales that observe daylight saving time must enter start and end dates in this section. For example, EST5EDT,M3.2.0,M11.1.0 is correct for U.S. Eastern time zone as of 2007.

4. You will save this configuration later. Go to the next section to continue.

Network Time Updates

The WallNet clock will drift over time. Also, there is no battery backup for the WallNet clock. If WallNet loses power, its clock will reset to an incorrect date and time. You can reset the clock manually if it drifts too far or WallNet loses power.

If you want the WallNet clock to be coordinated with a network time server, complete the following steps.

1 On the Date and Time page, under the Date and Time Server section, fill in the NTP server name or address, and the polling interval. Click **Apply new date and time server settings**.

2 You will save this configuration later. Go to the next section to continue.

Access Control

Do you want to use passwords for extra security? It is a good idea, especially at the Admin level. There are three security levels: View, Operator and Admin. The following table shows the security levels that are needed to perform different functions.

Note: Not every function is in all products.

Operation	Security Level
SiFi	Operator
Custom Commands	View
Message In Picture	Operator
Status Views **Unit Status** **Brief Status** **Full Status** **Full Status and Memory** **Send Status Email** **Fault Status** **View or EMail ACB Result**	View
Reports and Alerts **Periodic Reports** **Automatic Alerts**	Operator
Display Control **Power On/Off** **Network Remote Control** **Custom Commands Setup** **RS232 Setup** **Asset Tag**	

Operation	Security Level
WallNet Admin **Network Setup** **Date and Time** **Access Control** **WallNet Software**	Admin
Save and Reboot **Save WallNet Config** **Reboot WallNet**	Admin & Operator

The Admin level can access everything. The Operator can access View, but not Admin. View can only access View.

When passwords are set, a dialog box pops up the first time anyone tries to access a page that requires a password. Enter **view**, **operator** or **admin** (always lower case) and the password to gain access.

If you set the admin password and then forget it, you can use the manual recovery procedures. (See "Recovery Procedures" on page 75.) However, you must be at the WallNet to do this. You can't do it remotely.

1. In the menu area, select Access Control.
2. Under the Web Access section, set the passwords and confirm them. Then click **Set** for each level. (To remove a password, delete the contents of password and Confirm boxes and click **Set**.)
3. Under Network Access, leave **Enable daytime service** checked.
4. If you know you will use it, check **Enable ASCII command service (TCP/UDP port 57)**. Checking this box enables other programs, such as MIP Maker or Remote Control, to communicate with this WallNet. These programs can use the network to find and communicate with a WallNet and with the displays to which it is connected. See "ASCII Command Service" on page 69.

5 **Enable telnet login** is rarely needed, but is available for those who understand it and need it. If you need to enable telnet login, you can log in as user 'root' with the password 'clarity'. If you enable telnet permanently, consider changing the root password, using the 'passwd' command, to enhance security. Saving the WallNet configuration also saves any root password change.

6 When you are finished making changes, click **Change network access**.

Email Settings

1 In the menu area, select Network Setup.

2 In the Email section, enter the **SMTP mail server name or address** supplied by your network administrator. WallNet uses the SMTP server to send email reports and alerts, which you will configure later. Without a valid SMTP server, WallNet cannot send email.

3 In the **Email from and reply-to address** box, enter the email address from which you want to send reports and alerts. This email will also be the address to which people receiving reports and alerts will reply.

4 Click **Confirm and apply new network settings** to receive the Confirm Network Change page.

5 Review the network settings to make sure they are correct. If they are, click **OK, apply changes now**.

Save WallNet Config

All the configurations you previously set are now in RAM in the WallNet device server, but they will disappear if the box loses power or is rebooted.

1. In the menu area, select Save WallNet Config.
2. Click **Save configuration settings now**. It takes about 30 seconds to save settings. Once this is complete, you will see the following message:

```
Compressing configuration
files...done.
Saving configuration files to
flash...done.
```

Select Display Product

WallNet has several versions of software, each of which supports a set of displays. For example, LED Series, cXXRP/RX/SP and Margay II are combined into one WallNet software version, while support for mXXL and Clarity Matrix is provided in a separate WallNet software version. These independent WallNet software versions are distributed as binary files with the extension **.wn**. To switch between them, you must load the appropriate software file into WallNet. (See "Finding WallNet's Address" on page 75.) WallNet only has enough memory for one of these software "images." Depending on which version has been loaded, you may see different options in the Select Display Product Type section.

If the WallNet software requires that you select a specific display product, use the following instructions.

1. In the menu area, select WallNet Software.

2 Under the Select Display Product Type section, select: LED Series, cXXSP/RX/RP or Margay II.
If you see another display not listed here, select the option that matches your display product.

3 Click **Change Display Setting**.

You may need to reload or refresh the web browser to see the new product name appear above the main area, because sometimes browsers display cached pages.

Clicking the button in step 3 stops and restarts the web server running in WallNet. There is a separate web server for each display product.

Differences in WallNet Menus

Several of the menus take on different appearances depending on the Planar display type. For instance, Margay does not support SiFi functions, so there is no Auto Color Balance or Dual Lamp Control.

Plug It In

Plug the WallNet hardware into the RS232 IN connector on the Planar display.

1 Use the 9-pin to RJ45 adapter provided with the WallNet system. Plug it into the 9-pin connector on the WallNet device server.

2 For non-SiFi applications, use a supplied straight-thru cable to go from the adapter to the RS232 IN connector on the display.

Note: For SiFi capable displays, you can choose to connect the adapter to the AUX232 IN connector on the bottom of the control board.

Set Display IDs in the Displays

WallNet does not go out and seek the display IDs. You must list them for WallNet. But first you must set them with the remote control in each display.

Set the IDs so that each display has a unique combination of Group ID and Unit ID in that wall. The displays respond when they are addressed individually. You don't want two displays responding at the same time.

The display model User Guide has more detail about setting the IDs and connecting the displays for RS232 control. In general, the following steps will work for most products, except Clarity Matrix.

1. Using the remote control, press MENU to open the menu system on your display.
2. Select ADVANCED OPTIONS and press ENTER.
3. Select SERIAL PORT SETTINGS and press ENTER.
4. Select GROUP ID and then UNIT ID. Use the + / – keys to scroll through the alphanumeric characters.
5. Select the baud rate you want to use. This is the baud rate between the WallNet box and the displays. All displays must be set to the same baud rate.
6. Press PREV to save your changes.
7. Press MENU to close the menu system on your display.

The baud rate is not automatically adjusted, as when modems talk to each other and find the highest rate they can both use. The baud rate must be set manually at all the displays and set manually in WallNet.

Set Display IDs in WallNet

Use the following instructions to set these same numbers in a list in WallNet.

1 In the menu area, select RS232 Setup.

2 Select the baud rate at which the displays are set. (See ✎ above.) Click **Change RS232 Settings**.

Note: Your displays may support lower baud rates that are not supported by WallNet. Some advanced features, such as Auto Color Balance, require higher baud rates to succeed.

3 If you want to view the on-screen serial status menu, click **Show RS232/RS485 Status Menu** under the Serial Port Status section. To hide the menu, click **Send Menu Key**.

Note: This is useful if you want to verify that all display IDs are set to a unique value and that the baud rate settings match.

4 Under the Enter Display IDs section, list the display IDs in the box. Separate the IDs with a space, comma, or put them on separate lines. Click **Change RS232 Settings**.

5 If you want to confirm communication to each individual display, do one of the following under the Confirm RS232 Setup section:

- Click **Report to browser only**.
- Click **Report to browser and on screen**.
- Click **View firmware version information**.

When you are finished viewing the information, click **Clear on-screen messages**, if necessary.
The information in the report includes the display model, firmware part number and revision, and firmware compile date.

Save and Reboot WallNet

1. In the menu area, select Save WallNet Config.
2. Click **Save configuration settings now**. Wait while the settings are saved to flash memory in the box. The box will tell you when it has finished.
3. Select Reboot WallNet in the left menu.
4. Click **Reboot WallNet now**. Wait about 90 seconds for the reboot to complete.

WallNet Uses Cookies

WallNet uses cookies on your computer to differentiate between various computers that it might communicate with. It uses cookies **only** to remember the ID of the last display selected.

If your browser restricts cookies, you may want to allow the WallNet cookie. It's not particularly useful to do this until after the WallNet IP address is set.

Loading New Software Into WallNet

If you want to load new software to the WallNet device server, you can connect to www.planar.com quickly by clicking the Planar logo in the upper right corner.

Getting New WallNet Software

Go to www.planar.com.

1. Navigate to the section that contains software updates and then look for WallNet. Here you will find the latest software for WallNet.
2. Select the software you want and save it to your hard drive. **Make a note of the location of this file**. You will need to browse to this file in a later step.

Note: WallNet software file names end with the **.wn** extension.

Loading the Software into WallNet

1. In your browser, click the **Back** button until you return to the WallNet page.
2. In the menu area of the WallNet page, select WallNet Software. In the main area, scroll down to the Load WallNet Software section and follow the directions. Return to step 3 of this section to continue. Loading new software takes one to two minutes.
3. In the menu area, select Reboot WallNet, and then click **Reboot WallNet now**. This takes about 90 seconds.

Miscellaneous Configuration

The following sections refer to miscellaneous options that can be set up on the WallNet Software page.

Reset to Factory Default

Use this to reset ALL settings to the factory default. This includes network settings, date and time, etc., as well as display settings like RS232 IDs and email report and alert options.

Caution: Using this option will reset all of your configurations and reboot the WallNet hardware. Because this includes network settings, be aware that the WallNet may not configure to the same network address after the system reboots.

When you click **Reset ALL to Factory Default**, you receive the Confirm Factory Reset page. Click **OK** if you are sure you want to reset ALL settings to the factory default.

Product ID Link

The top of each WallNet page shows a product name (for example, Margay II or RP/RX). By default, this is a link to http://www.planar.com. You can change this link to refer to any URL that you find useful.

Advanced Settings

For products with SiFi, WallNet polls the displays at a rate of one per second to look for user requests that have been made using the IR remote control and the on-screen menus. In some situations, this polling can have a noticeable performance impact. If you want to disable this polling, check the **Disable polling for user request entered via IR remote** checkbox. When you are finished, click **Change Advanced Settings**.

For products with SiFi, WallNet uses Message In Picture (MIP) Banner 1 to display progress messages and to warn of impending scheduled ACB and lamp switch operations. To disable the use of MIP for user messages, check the **Disable MIP for ACB and lamp switch messages** checkbox. When you are finished, click **Change Advanced Settings**.

There may be additional advanced settings depending on product type. Read the on-screen instructions in the advanced settings section for more information.

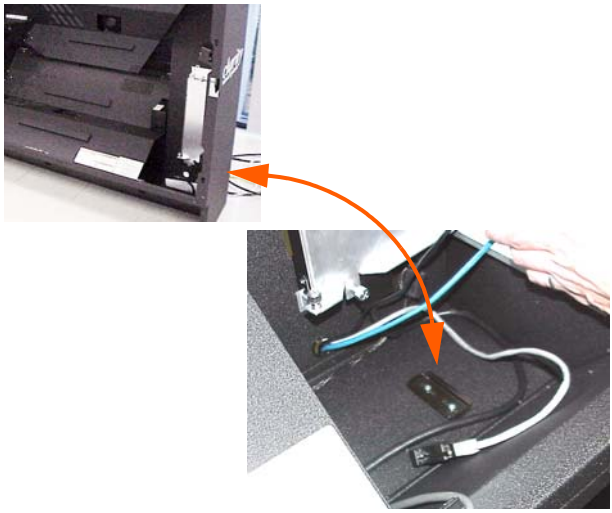
Saving the Configuration

Similar to other WallNet settings, changes are effective immediately. However, in order for the changes to become permanent, you must save the entire WallNet configuration. See "Save WallNet Config" on page 25.

Mounting the WallNet for c50SP/c67SP/c70SPw Displays

For c50SP/c67SP/c70SPws, the WallNet device server (the little box) can be mounted in one of the displays.

1 Mount the small bracket on the floor of the chassis below the control board.



2 Connect cables to the WallNet device server.
   a. Connect the 9-pin adapter to device server.
   b. Connect the short network cable (supplied) to the adapter.
   c. Connect the other end of the short network cable to the AUX RS232 connector at the bottom of the control board. (The clip side of this connector faces away from the lettering on the face of the control board.)
   d. Connect the short power cable to the server. DO NOT CONNECT this power cable to power yet.

e. Insert the grommet (supplied) into the hole in the back of the chassis below the control board.
f. Feed a network cable from your network through this hole to the server.

3 With the cables connected, clip the device server onto the bracket.
   a. The server should be oriented so the adapter is toward the middle of the chassis.
   b. Hold the right side of the server against the chassis bottom and slide it onto the bracket.
   c. Press down on the server and it will click into place.

To remove the server, use a small screwdriver to pull release the latch.

Bottom of server showing spring latch

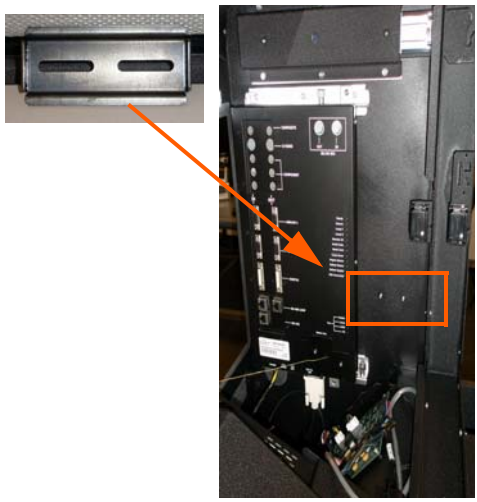
4 Go to "Cable Connections to the WallNet Box" on page 46 to continue.

Mounting the WallNet for the LED Series, c50RP/c67RP, c50RX/c67RX and c80RP Displays

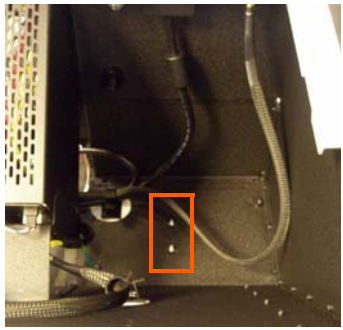
1. Select the unit in which you want to install the WallNet device.
2. Do one of the following:
   - For front-access units, remove the screen.
   - For rear-access units, loosen the screws on the back of the unit that hold the control board in place. Swing the control board inside the chassis.
3. If the power is on, turn it off and remove the power cord. (For front-access units, reach through the opening next to the control board.)

WARNING! Always turn off power and remove the power cord when adding or removing an electronic part.

4 Remove the bracket from the WallNet accessory box and place it on top of the M4 threads that are already in the chassis.



If you have a c70HD-LED, the M4 threads will be on the bottom of the chassis.



5 Remove the two nuts from the WallNet accessory box and use them to secure the bracket to the chassis.

6 Snap the back of the WallNet box on the bracket.

7 On the back of the unit, push out the hole plug (near the air filter) and replace it with the grommet provided with the WallNet kit. This will be used to route the WallNet cables from inside this unit to the outside of the chassis.

8 Plug one end of the power cable into the bottom of the WallNet box and the other end into the System Interface Board (SIB).

9 Plug the RS232 cable into the RS232 port on the WallNet box and route the other end through the cable route to the AUX RS232 port on the outside of the chassis.

10 Plug the Ethernet cable into the 10/100 base-T port on the WallNet box and route the other end through the cable route to your control network.

To remove the server, use a small screwdriver to pull release the latch.

Bottom of server showing spring latch

11 Go to "Cable Connections to the WallNet Box" on page 46 to continue.

Mounting the WallNet for Margay II Displays

1 Select the unit in which you want to install the WallNet device.

2 Do one of the following:

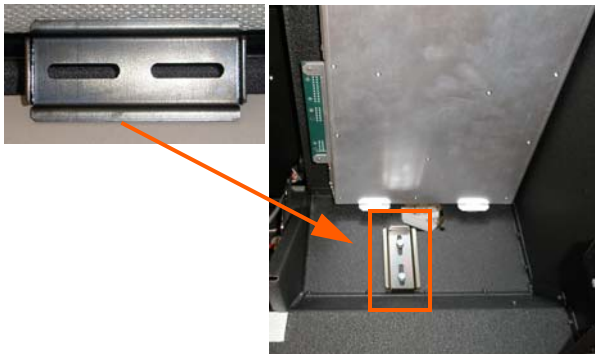
- For front-access units, remove the screen. Loosen the screws that hold the control board in place and carefully lift it off of the tab holders on the bottom of the chassis.

- For rear-access units, hold the tab on the control board and loosen the screws on the back of the unit that hold the control board in place. Continue holding the tab on the control board, carefully push it in and lift it off of the tab holders on the bottom of the chassis.

3 If the power is on, turn it off and remove the power cord. (For front-access units, reach through the opening next to the control board.)

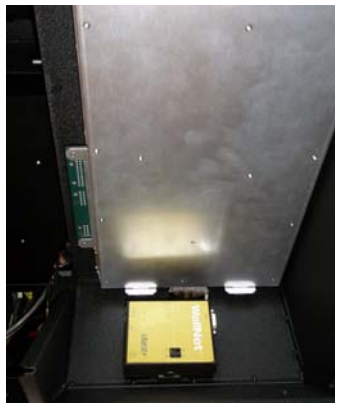
WARNING! Always turn off power and remove the power cord when adding or removing an electronic part.

4 Remove the bracket from the WallNet accessory box and place it on top of the M4 threads that are already inside the chassis.



5 Remove the two nuts from the WallNet accessory box and use them to secure the bracket to the chassis.

6 Snap the back of the WallNet box on the bracket.



7 On the back of the unit, push out the hole plug (below the power switch) and replace it with the grommet provided with the WallNet kit. This will be used to route the WallNet cables from inside this unit to the outside of the chassis.

8 Remove the WallNet power cable from the accessory box. Plug one end of the power cable into the 5 VDC In connector on the WallNet box and route the other end to the +5 Out connector on the control board.

9 Plug the RS232 cable into the RS232 port on the WallNet box and route the other end through the cable route to the AUX RS232 port on the outside of the chassis.

10 Plug the Ethernet cable into the 10/100 base-T port on the WallNet box and route the other end through the cable route to your control network.

To remove the server, use a small screwdriver to pull release the latch.

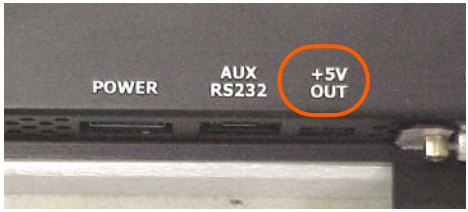
Bottom of server showing spring latch

11 Do one of the following:
   - For front-access units, carefully place the tabs on the bottom of the control board into the slots inside the chassis. Push the control board towards the outside of the chassis and tighten the screws that secure the control board to the chassis. Replace the screen.
   - For rear-access units, carefully place the tabs on the bottom of the control board into the slots inside the chassis. Hold the tab on the control board as you pull it towards the outside of the chassis. Continue holding the control board as you retighten the screws.
12 Go to "Cable Connections to the WallNet Box" on page 46 to continue.

Cable Connections to the WallNet Box

Cable connections should look like the following pictures.

The short power cable (supplied) will connect from the server power connector to the +5V Out on the bottom of the control board. (For RP/RX, this will connect to the SIB inside the chassis.) Do not connect it yet.



About the AUX RS232 Connector

This connector is supplied on the control board of the SP, RP, RX and Margay II displays for connection to the WallNet device server. This leaves the RS232 In connector free for the use of another control system.

Restrictions in Using the RS232 Inputs

- In a set of displays connected for serial I/O, you can use both the RS232 IN and the AUX RS232 connectors on **one display (or Quad controller module for Clarity Matrix) only**. The display or Quad controller module will attend to only one of these connectors at a time, preventing garbled communication.
- You **cannot** use the AUX RS232 connector on one display and the RS232 IN connector on another display. Doing this can lead to confused communication and unpredictable results.
- You **cannot** you use the RS232 IN connector on one display, and the RS232 IN connector on another display. Doing this can lead to confused communication and unpredictable results.
- For Clarity Matrix, external serial devices (such as WallNet and touch panel control systems) must be connected to the RS232 IN or the AUX RS232 connector of the master Quad controller module (A1).

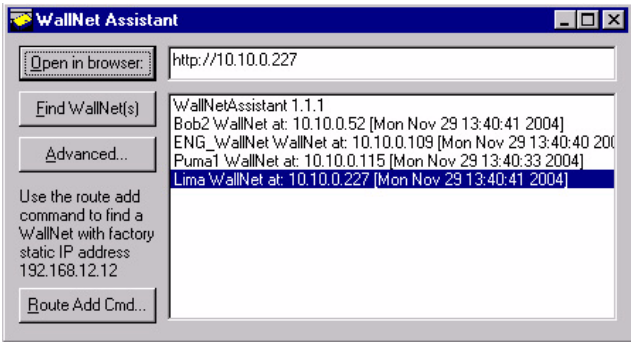
Operating WallNet

Most of WallNet's operation is straightforward. These instructions supplement what you see on the WallNet screen.

If you are not familiar with the Planar display that is connected to WallNet, now would be a good time to look at the display's Quick Start Guide or Installation Guide and maybe try the remote control.

Viewing a WallNet's Browser Page

A quick, easy way to connect to WallNet is to find it on the network with WallNet Assistant. Starting this program (available on the WallNet CD) searches the network for WallNets and lists them in a window. Select the one you want and then click **Open in browser**.



Notice that the names of the WallNets are the names you gave each WallNet on the Network Setup page. (You might want to save the WallNet locations in your browser's Favorites list.)

Status Views

Note: *You need* View *authority to do anything here.*

Start WallNet in a web browser and select Status Views in the menu area. There are three types of status reports: Brief, Full or Full and Memory. Note that Full Status and Memory (available only for displays with the memory slot feature) will take a significant amount of time to download if many of the memory slots are used.

1. Click **Brief Status** or **Unit Status**.
2. Choose a single ID in the dropdown list to the right of **Get status for:** This list has all the IDs assigned to (and connected to) this WallNet. If you think some are missing, add them in Display Control > RS232 Setup.
3. Click **Get status for:** After a few moments, the browser displays the report for that display.
4. Look at the first few times. If there is no status information shown, then WallNet is not connected to that display or that display has no AC power.

From the return information, you can learn some basic facts. If all of the following are true, you can be reasonably certain that the display is showing the picture from the selected source:

- Display power or at least one lamp is on
- Mode is settled on something reasonable, not Searching or Source Absent
- Displayed Pattern is None (no test pattern is being displayed)
- If the Menu or MIP Displayed is No, the source picture is *not* partly covered with a menu

You can also choose **All** or **Direct**:

- **All** returns the status of all the displays listed in RS232 Setup. This can take a while if there are many of them.
- If WallNet is connected to a series of displays, **Direct** returns information from the first one it is connected to, regardless of its address.

Direct is useful if the lamps aren't on, and you don't know the display's RS232 ID. You can control it *Directly* to get its Full Status.

Full Status gives you information about the current settings of the display. In addition, for displays that have slot memory, there are clickable links to look at the contents of each of the non-empty memory slots.

Full Status and Memory retrieves everything *plus* the contents of all the non-empty memory slots. If many of the memories are used, it can take several minutes to get it all. If you do this with **All**, you will have a long wait. This selection only appears for display products that have the memory slot feature.

Fault Status retrieves the current state of the display. Choose a display ID from the dropdown box and click **Get Status for**. The current Fault State will be displayed, as well as the state of the High Brights. This selection only appears for display products that have the High Bright LED diagnostic feature.

High Brights refer to the very bright amber and red LEDs that flash on the screen in a pattern. These form a code, shown in the table on the Fault Status page, that would tell a person watching the screen what the current fault is. This same Fault Status is displayed in the table as Fault State.

The **All On** and **All Off** buttons, as well as the **On/Off** buttons for individual displays, turn on and off these High Bright LEDs, *not* the displays themselves.

Send Status Email

Use **Send Status Email** to send yourself or someone else the current status of the display. If you add a comment in the text box, it will appear in the message above the data. The message is plain text. You can send any of the three types of reports: Brief, Full or Full and Memory.

The email's return address will be the reply-to address specified in: WallNet Admin > Network Setup > Email.

View or Email ACB Result

Use Email ACB Result to view the last ACB output in your browser or send it via email. You can also view or email the detailed diagnostic ACB output, and set an option to automatically email results after every color balance. In addition, this page allows the user to cancel a scheduled color balance or lamp switch within a five-minute warning period. During the warning period, an optional message is displayed on the wall for about ten seconds each minute.

About the Time Stamp

Notice the date and time below the WallNet menus in the left column of the browser. This is the time according to the clock in WallNet (not your computer's clock).

Neither this time nor the information in the main area is updated automatically. To get a more current reading, click the **Refresh** button on your browser.

Your computer is not directly connected to WallNet. It simply sends messages to and receives replies from WallNet's web sever.

Custom Commands

You need View *authority to do anything here.*

These ten buttons send commands that are set up in Custom Commands Setup, are described on page 66. You need Operator authority to set up the buttons, but only View authority to use them.

Message In Picture

You need Operator *authority to do anything here.*

Note: MIP is not supported in all products.

Message In Picture displays a message over the source picture. You can compose and display the messages in this section. See the MIP Maker program and the MIP Guide from the Planar website for information about this feature.

In the Menu section, click on an MIP type to write, display or hide the message.

Reports and Alerts

You need Operator *authority to do anything here.*

Periodic Reports

Three types of reports gives you great flexibility in reporting:

- **Scheduled Report** sends an email daily, weekly or monthly.
- **Running Time Report** uses the Running Time of only *one* of the displays: the first one in the RS232 Setup list.
- **Lamp Age Report** looks at the hours of all the lamps in all the displays. Therefore it is important to reset the lamp hours when lamps are changed. This report is only applicable to lamp illuminated rear projection cube products.

After you modify any of these report settings, click **Change Periodic Report Settings** at the bottom of the page. The settings are not effective until you do.

Automatic Alerts

Email alerts are sent when any of the following events occur:

- A lamp fails
- A fan fails
- A temperature exceeds a set threshold
- An interlock opens, for supported displays with interlocks
- A display fails to respond for a set number of minutes
- Other product-specific alerts may be available

After you modify any of these alert settings, click **Change Alert Settings** at the bottom of the page. The settings are not effective until you do.

General notes about alerts:

- For Margay, Puma and Lion: Alert conditions are tested every two minutes on the odd minutes (:01, :03, etc.)
- For all other products: Alert conditions are tested on a continuous basis. The serial communications to check alert conditions are evenly paced so that WallNet sends at most only a few serial requests to the wall each second. It takes 5-10 seconds per display to check for alert conditions, depending on which alerts are configured. Source absent and no response alert emails are only sent after a full cycle of checking conditions on every display, since those alerts include information for all the displays in the wall.
- Only configured (checked) alerts are tested.
- Alerts are sent only once for any condition. For example, if a lamp fails the email is sent once, not every two minutes. Whenever WallNet observes a “good” or non-alert condition for a previously sent alert, it clears the record of the previous alert and will send a new email if that event occurs again. If a temperature is fluctuating around the alert trigger point, an alert will be sent each time the temperature dips below the trigger and then goes above it again.
- The record of alerts sent is in volatile memory, so if WallNet is rebooted, it will send all the current alerts again.

About No Response Alerts:

- The recommended *minimum* interval setting for the **No Response Alert** is either:
  - For Margay, Puma and Lion: two minutes.
  - For all other products: the larger of either a) two minutes or b) ten seconds times the number of displays in the wall, rounded up to the next higher whole minute (e.g. about three minutes for a wall with 16 displays).
- There are four possible states in the No Response Alert message: over, under, never and OK. Below is an example of a response from a 12-display wall set to send an alert when any display fails to respond for 15 minutes:

```
From: some_wall@planar.com
To:ts@planar.com
Subject: WallNet No Response
1 over 15 min.:00
2 under 15 min.:01,03
1 never:0B
8 OK:02,04,05,06,07,08,09,0A
No response for the past 15 minutes
```

  - One display has not responded for **over** the allotted time, but it did respond at least once since the last WallNet reboot.
  - Two displays have not responded to the most recent ping(s), but their last response was **under** the time limit. For example, they may have responded eight minutes ago, but not since.
  - One display has **never** responded, at least not since the last time WallNet rebooted.
  - Eight displays are **OK** because they responded the last time they were pinged.

The last line is the text from the **Enter additional note (optional):** text box in the No Response Alert setup. It will be anything you put in that box.

Emailing to Cell Phones

WallNet Alert emails are designed to be short. This ensures that messages can be easily read on cell phones and other PDA devices.

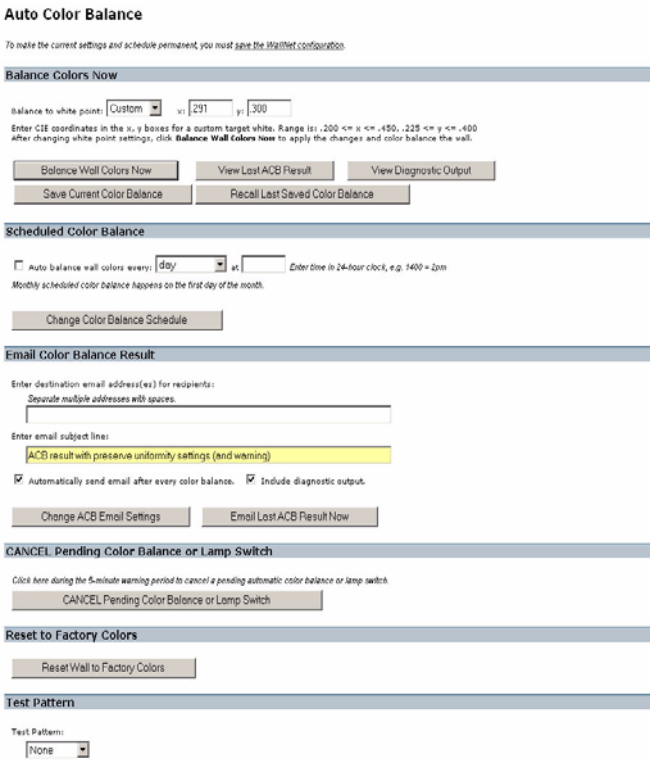
SiFi

SiFi includes Auto Color Balance and Dual Lamp control. *You need* Operator *authority to do anything here.* These features are not available in all products.

Auto Color Balance

ACB requires an Option Key coded for ACB in *every* cube in the wall that authorizes ACB operation. ACB will not proceed if WallNet cannot confirm the ACB Option Key in every unit. Some newer products don't require the physical key. For these products, WallNet will still report that a key is present and will allow ACB to proceed.

ACB requires that all lamps in the wall have been on for at least five minutes or that illumination LEDs in the wall have been on for at least one minute. ACB will not proceed unless WallNet confirms that these conditions are met for every display in the wall.



Balance Colors Now

This section allows you to balance wall colors now, save the current color balance, view the last ACB result or recall the last saved color balance.

You can color balance to a specific color temperature, Brightest/Default or a Custom white point. There are some differences in these options for lamp versus LED illumination systems, as described below.

For the LED series, you can change the display profile for the wall using the **Display Profile** dropdown list. If you have already set the display profile on your wall, you do not have to select it again here. For more information about display profiles, see the c50RP-RX-LED, 67RP-RX-LED, c70HD-LED Installation Guide.

Balance wall brightness only can be checked to skip the color matching portion of ACB and balance brightness only. This option is only available for the LED series products.

Balance to white point

For the LED series, the Default white point is generally recommended. This is because an optimal target white point is included in the display profile. For lamp-based systems, the default setting is called Brightest because it balances to the brightest white point that all the displays in the wall can attain.

The other entries in the white point dropdown list are color temperatures that correspond to commonly used white point targets. For the LED series, if you choose a white point that is too far from the default for the current display profile, then ACB will not proceed. The warning messages on the screen will list the display profiles that are compatible with the selected white target.

For all products, the Custom setting allows you to enter CIE coordinates in the x, y boxes for a custom white target.

Note: Measured white point may vary slightly from the target point due to screen color.

To start an immediate ACB, click the **Balance Wall Colors Now** button. You will see detailed information that shows the progress of the ACB. This information is mainly intended for diagnostic purposes.

View Last ACB Result shows the detailed output of the last Auto Color Balance. This is useful for viewing diagnostic information after a scheduled ACB or one started in the menu system using the IR remote.

View Diagnostic Output shows RS232 transactions and details of the ACB process, which are useful for troubleshooting.

Scheduled Color Balance

For the LED series, ACB can be scheduled to run automatically every month, two months, three months, four months or six months.

For lamp-based systems, ACB can be scheduled to run daily, weekly or monthly.

The schedule is not active until the checkbox is checked and you click **Change Color Balance Schedule**. At the scheduled time, WallNet will warn of the impending color balance for five minutes using Message In Picture. After the five-minute warning period, it can take up to several minutes to balance a wall for color and brightness. The exact timing depends on the display product type, communication speeds, and the size of the wall. The best way to determine the expected time is to measure the ACB process for your wall during installation.

Email Color Balance Result

Type in the email addresses and subject line for which you want ACB information to be sent. This can include ACB results and related diagnostic information. You can choose to automatically send email after every color balance or to manually send only the last ACB result. If you have made any changes to email addresses or the subject line, click **Change ACB Email Settings**. Before you exit this screen, make sure to save the WallNet configuration to make any changes permanent.

CANCEL Pending Color Balance or Lamp Switch

When there is a scheduled color balance or dual lamp switch, there is a five-minute warning period in which you can cancel the color balance or lamp switch. During the warning period, a message is displayed on the wall for about ten seconds each minute.

Reset to Factory Colors

This recalls the factory colors for each of the displays.

Test Pattern

This makes several colors available to check the quality of the color balance.

How ACB Works

The WallNet device server is connected to one of the cubes and through it to all other cubes in the wall.

1. WallNet receives a command, either from an on-screen menu selection or from you via the WallNet web pages, and proceeds to color balance the wall.
2. The previous color adjustments in all cubes are disabled.
3. On each display, a sensor moves into the light path, partially blocking the displayed picture.
4. The display is changed to one of the internal test patterns, turning the screen red.
5. WallNet collects color and brightness data from each of the cubes as the test pattern changes from color to color.
6. The sensors are retracted, and the displays return to the source picture.
7. WallNet calculates the adjustment necessary to make all the cubes match.
8. WallNet sends these values to each cube individually and these values are applied.
9. For some products (e.g. Margay II), a second round of measurements and adjustment is required. For others (e.g. cXXRP/RX/SP), a single measurement series is enough.

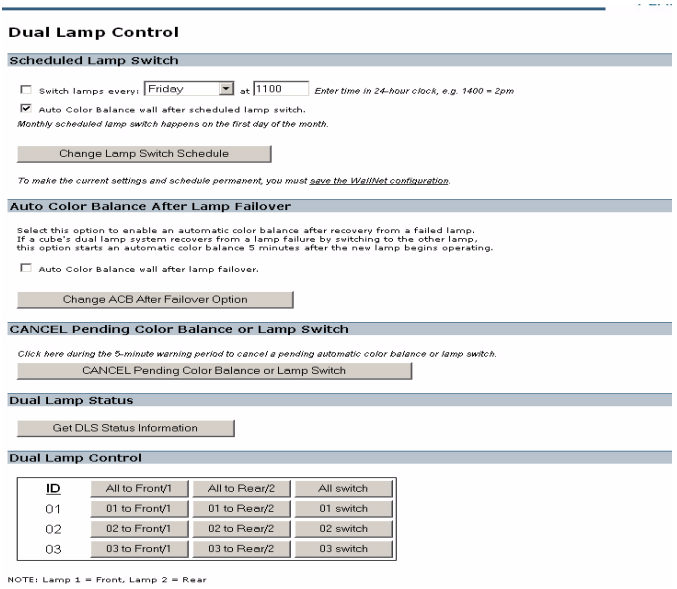
Note: By default, ACB process messages are shown on each cube using MIP Banner 1. You can disable this progress indicator using the Advanced Settings section of the WallNet Software page. (See "Advanced Settings" on page 31.)

The image output is preempted by test patterns as WallNet measures the color and brightness performance of the wall. Depending on the display type, communication settings and size of your wall, this process can take up to several minutes.

Dual Lamp Control

Note: The information in this section only applies to lamp-based products that have a dual lamp changer.

Dual Lamp control allows you to configure settings for automatic lamp switching, as well as to view status and manually switch lamps.



Scheduled Lamp Switch

You can set the lamps to switch once a week on a particular day, or once a month. The schedule is not active until the checkbox is checked and you click **Change Lamp Switch Schedule**. At the

scheduled time, WallNet will warn of the impending switch for five minutes using Message In Picture. After the five-minute warning period, it typically takes about a minute to switch lamps.

DO NOT schedule a lamp switch and a color balance at the same time. Color balancing can only be done *after* the lamps have been on for at least five minutes. If you are going to schedule color balancing AND a lamp switch, schedule the lamp switch first.

Auto Color Balance After Lamp Failover

Select this option to enable an automatic color balance after recovery from a failed lamp. If a cube's dual lamp system recovers from a lamp failure by switching to the other lamp, this option starts an Automatic Color Balance five minutes after the new lamp begins operating.

CANCEL Pending Color Balance or Lamp Switch

When there is a scheduled color balance or dual lamp switch, there is a five-minute warning period in which you can cancel the color balance or lamp switch. During the warning period, a message is displayed on the wall for about ten seconds each minute.

Dual Lamp Status

Click **Get DLS Status Information** to view the current dual lamp status.

Dual Lamp Control

Allows you to manually switch the lamps. You can command each cube or all cubes to switch to Lamp 1 or Lamp 2, or to switch to the opposite lamp.

Display Control

You need Operator *authority to do anything here.*

Power On/Off

Power On/Off controls lamp power, not the AC power. You cannot control AC power through WallNet.

Schedule Automatic Power On/Off

This section has four options for which you can schedule an automatic power on/off. The options are: no automatic power on/off, same daily schedule, Monday-Friday same schedule and weekends off. Or each day has its own schedule. You can only select one of the schedule types. The default is **No automatic power on/off**.

Remember to use 24-hour time. Two thirty in the afternoon is 1430 or 14:30 and not 230 or 2:30.

Power On/Off Repeat and Delay Control

Sometimes when you send a Power On command to a large wall of Planar displays, one or two do not turn on. This section allows you to broadcast the command at set intervals or set a Delay and send the Power On command to displays individually.

If you leave these three boxes blank, WallNet sends a broadcast On command, waits ten seconds, and then goes through the list of displays in RS232 Setup, checking the state of the lamp(s). Any display that reports the lamp(s) *not* On gets another On command. This continues for up to ten tries every ten seconds, stopping when no more displays report Off.

Network Remote Control

The Network Remote Control window shows a graphic of a remote control. Be careful with this control, as clicking on the buttons will send commands to the display screens. Unless you are looking at the display screen, it is suggested that you **do not** use this tool.

Custom Commands Setup

Custom Commands allow you to establish what the ten Custom Command buttons will do.

1. In the menu area, select Custom Commands Setup.
2. Type a label for the button in **Button # Text**.
3. In **ASCII Command(s)**, enter the ASCII commands to be sent when that button is clicked.
4. If more than one command is required, enter each command on a separate line in the box.
5. Click **Test button # commands** to send the commands immediately. You will see an output page showing the commands sent and replies received (if any). Use the browser's **Back** button to return from this results page to avoid losing unsaved changes. If you select the Custom Commands Setup section again, you will lose unsaved changes.
6. Scroll to the bottom of the Custom Commands Setup page and click **Change Custom Command Buttons**. This applies what you have done to the custom buttons accessed from Custom Commands at the top of the left menu.

After the buttons are programmed, anyone with View access can use them from Custom Commands at the top of the left menu. When the buttons are used from there, none of the ASCII command text is shown to the viewer, unless the View command output box is checked.

In the menu area, select Save WallNet Config after programming the buttons. Click **Save configuration settings now**.

RS232 Setup

WallNet does not know what displays it is connected to. This is where you tell it. Do not use wildcards, such as ** and 0*. They won't work and won't be saved in the list. Read the detailed instructions on the web page for more information or see "Set Display IDs in the Displays" on page 27.

Asset Tag

Asset Tag allows you to change text in the displays. It can be used to identify displays with your company's property number, describe the position in a wall of each display, or store the serial number of the display.

Be warned that the Asset Tag text is stored in the control board of each display. If the control board is changed for a new one, or swapped with another module or board in the wall, the Asset Tag text goes with it.

WallNet Admin

You need Admin *authority to do anything here.*

All of the items under this heading are explained in "Connecting With DHCP" and "Connecting With No DHCP".

Save and Reboot

You need Operator *authority to do anything here.*

Save WallNet Config

Whenever you change any of the settings, such as Periodic Reports, Automatic Alerts, RS232 Setup, etc., the changes take effect immediately. However, if power is lost to WallNet, these changes will be lost.

It is good practice to copy these changes from the WallNet RAM to the flash memory, where it is permanently stored (until you save it again).

1. In the menu area, select Save WallNet Config.
2. Click **Save configuration settings now**.

This action copies everything in RAM to flash memory.

Reboot WallNet

If you make changes that have not yet been saved and decide to go back to the previous settings, reboot WallNet.

1. In the menu area, select Reboot WallNet.
2. Click **Reboot WallNet now**.

This copies everything in flash memory to RAM.

RAM memory is used for all current operations. When power is applied to WallNet, flash memory is copied to RAM.

Reboot takes about 90 seconds.

ASCII Command Service

WallNet has an optional network service that relays commands received over the network out its serial port. It responds with any reply received from the displays connected to the serial port. The format of the commands is exactly the same as regular RS232 commands for the particular display product. To get command details for the specific display type, refer to the documentation.

The ASCII Command Service is disabled by default as a security measure. To enable the service, check the **Enable ASCII command service** checkbox on the Access Control page of the WallNet Admin section of WallNet's menus. **Be sure to save the WallNet configuration if you want to make this change permanent.**

The general sequence of events are as follows:

1. WallNet reads printable ASCII characters from the network up to the first carriage return (CR) or linefeed (LF).
2. Once a CR or LF character is read from the network, WallNet then sends the whole line out the serial port and waits for a reply.
3. WallNet reads printable ASCII characters from the serial port up to the first CR or LF.
4. Once a CR or LF character is read from the serial port, WallNet then sends the whole response line back to the network application.

Service Information Responses

In addition to the literal command and response relay, the ASCII Command Service has a few situations where it sends a line to the network application. All of these information lines, from the service to the client application, begin with the character '#' which never starts a valid display ASCII command response. This allows the client application to easily filter and ignore or process these information lines that come directly from the service. See below for specific details of the service information lines.

Network Port

The ASCII Command Service is implemented on port 57 for both TCP connections, and for UDP packets. In order to use the service, your network must not block port 57 for TCP and/or UDP, depending on which transport protocol your application uses.

TCP Versus UDP

Because of the different nature of TCP connections and UDP datagrams (packets), the behavior of the WallNet is slightly different depending on whether the application is using a TCP connection or UDP to send the display commands.

Note: In the string values shown below, the sequence "\r\n" indicates a CR+LF pair.

TCP Notes

- Only one simultaneous TCP connection is supported.
- If WallNet receives an empty line (no command text, followed by a CR or LF), it responds with "# Clarity ASCII protocol server ready (TCP).\r\n".
- If WallNet receives a single Ctrl-D character (0x04) on a TCP connection, it sends "# Ctrl-D closing connection.\r\n" and then closes its end of the connection. Ctrl-D is a traditional character used to signal that a client is finished using a telnet connection.
- If the data received by WallNet on a TCP connection contains any non-printable ASCII characters (other than Ctrl-D and CR or LF). WallNet responds "# ERR illegal character in input [<i>] = 0x<XX>\r\n" where <i> is the zero-based index into the string at which the bad character appeared. The <XX> is the hexadecimal value of the bad character. The UDP server does not scan character by character so it will not emit this message.
- An easy way to test a TCP connection to the ASCII Command Service is to use any telnet client program to connect to the WallNet at its IP address and port 57. Telnet clients default to port 23, but always have a way to specify an alternate port. For example, common command-line telnet clients take an optional port argument after the IP address,

as in: “telnet 192.168.12.12 57”, where 192.168.12.12 is the IP address of the WallNet. Once connected, press [Enter] to see the “# Clarity ASCII protocol server ready (TCP).\r\n” message from WallNet, or type in any display ASCII command (e.g. “OP--PATTERN?”) to do simple interactive tests.

UDP Notes

- Because UDP is connectionless by nature, more than one simultaneous client application can be supported using UDP datagrams.
- If WallNet receives an empty line (no command text, followed by a CR or LF), it responds with “# Clarity ASCII protocol server ready (UDP).\r\n”.
- The UDP method can have an advantage over TCP, since there is no connection to maintain, and multiple applications can interact with the wall instead of one application tying up the one TCP supported connection.

General Notes

- If WallNet relays a command to the wall, but receives no characters in response, it answers “# ERR no RS232 reply\r\n”. This may not be an error at all, but is the normal condition when the command sent to the wall contains wildcard address characters, such as “OP**PATTERN=NONE”. The client application should be aware of this and handle (or ignore) it gracefully.
- If for any reason WallNet is unable to open its serial port, it sends “# ERR unable to open serial port.\r\n” in response to any command sent by the client application.

Network Use Summary

TCP/ UDP	Port	Protocol	Client/ Server	Purpose	Required/ Optional	Notes
TCP	80	HTTP	Server	Browser UI to WallNet	Req	1
TCP	25	SMTP	Client	Send email reports & alerts	Opt	2
UDP	123	NTP	Client	Synchronize WallNet's system clock	Opt	2
TCP	23	Telnet	Server	Manual WallNet maintenance	Opt	3, 4
TCP, UDP	57	Custom ASCII	Server	Custom network control program support	Opt	4
UDP	13	daytime	Server	Locate WallNets using WallNet Assistant	Opt	1, 2

1. Enabled by default settings
2. Recommended
3. Not recommended
4. Disabled by default settings

Recovery Procedures

Finding WallNet's Address

If you can't find WallNet on your network, use the following instructions.

1. Connect a **null modem** cable between the WallNet's RS232 serial port and a serial port on a computer. The computer does not have to be connected to the network.
2. Start a terminal program on your computer, such as HyperTerminal, and open a serial port at 9600, 8N1, no flow control.
3. Remove power from WallNet.
4. With the network cable still connected to WallNet, apply power to WallNet.

Look for:

```
## IP ADDR=_____ MASK=_____
```

in the serial program window. There may be other characters, but if you see this in the message, you have the IP address and mask of this WallNet.

Note: You can also use the on-screen menu of the display to which WallNet is connected. The bottom line of the SERIAL PORT STATUS menu shows characters coming in on the serial port. Closely watch this line while WallNet is booting up. Look for:

```
## IP ADDR=_____ MASK=
```

This will only appear for a second or two.

Manual Reset to Factory Defaults

A manual reset to factory default can be useful to recover from a lost admin password or from any situation that prevents using the normal web browser administration, such as accidentally entering an unworkable network configuration.

1. Connect a **null modem** cable between the WallNet's RS232 serial port and a serial port on a computer.
2. Start a terminal program on your computer, such as HyperTerminal, and open that serial port at 9600, 8N1, no flow control.
3. Remove power from the WallNet.
4. Press and hold the recessed ADM button with a straightened paper clip or other small tool. You will feel it click.

5. While holding the ADM button in, apply power to the WallNet.
6. When you see text appearing in the terminal program, you may release the ADM button.
7. When the boot completes and the messages stop, you will see a root command prompt.
8. At the root command prompt, type `factory` and press [Enter]. You will see:

```
[root@(none) /]# factory
Resetting to factory default
settings.
You must reboot to return to
factory initial state.
[root@(none) /]#
```

9 Remove and reapply power to reboot WallNet.

Default WallNet IP Address

Out of the box, or after a complete factory reset, all WallNets have this IP address:
`192.168.12.12`

… and this Mask: `255.255.255.0`

WallNet attempts to configure using DHCP for ten seconds. If no DHCP server responds in ten seconds, then the default static IP address above is configured.

You can use WallNet Assistant to configure a route from your PC to a WallNet at the default static IP address without changing your PC's IP address. See "Connecting With No DHCP" on page 15.

Declaration of Conformity

Manufacturer's Declaration of Conformity

This product, the Planar Systems Inc. WallNet, models N-1010 and N-2010, conforms to the following EU Directives and the standards noted.

Electromagnetic Compatibility Directive 89/336/EEC and Amending Directive 92/31/EEC

EN55022/CISPR 22, Class A – Radiated and Conducted Emissions from IT Equipment

EN55024 - Immunity Standard Including:

- EN61000-4-2 Electrostatic Discharge
- EN61000-4-3 Radiated Immunity
- EN61000-4-4 Electrical Fast Transient Burst
- EN61000-4-5 Surge
- EN61000-4-6 Conducted Immunity
- EN61000-4-11 Voltage Dips & Interruptions

The Technical Data File is available to proper authorities and the product is marked.

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in an installation. This equipment generates, uses and can radiated 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 receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician.

Note: Any changes or modification to the display not expressly approved by Planar could void the user's authority to operate this equipment. Use of a shielded interface cable is required t comply with the Class A limits of Part 15 of FCC rules.

Other Certifications

FCC Class A, CE Mark

Glossary

ACB Auto Color Balance. ACB is a feature for certain Planar displays that include an integrated color sensor. For these displays, WallNet can measure the colors and brightness over the whole wall and automatically adjust the displays to match.

DHCP Dynamic Host Configuration Protocol. A network service that provides automatic IP address assignment.

DIN Rail A metal rail that is typically used for mounting circuit breakers or equipment inside a mounting rack.

DLS Dual Lamp System (or Switcher). Products with DLS have a mechanical lamp changer that enables manual switching or automatic switching after a lamp failure.

DNS Domain Network Service. Associates information with a domain name that is used on the Internet. This is the service that provides name to IP address translation.

MIP Message in Picture is a feature that displays text messages on screen. ACB and DLS use this to display status and and warning messages. This feature can be disabled if desired.

NTP Network Time Protocol is a protocol for synchronizing the clocks of computer systems.

SiFi Set it and Forget it. This feature includes Auto Color Balance (ACB) and the Dual Lamp System (DLS).

WallNet Assistant	Software program that finds WallNet hardware on a network.