NET/X™ IP THERMOSTAT : STEP-BY-STEP INSTALLATION GUIDE
FOR DIRECTCONNECT™ COMMUNICATIONS

> **DO NOT INSTALL** the thermostat until you have the LAN network connection information, including the *Router's IP address, User Name and Password*.

STEP 1: GET YOUR ETHERNET NETWORK INFORMATION

Confirm your LAN network router information. If you don't already know the DHCP range of your DHCP server on your router, you'll need to log into your router and retrieve that information (which means you'll need the router login information also!). Enter the IP address of your router in the address bar of your browser and log in. The DHCP range will be listed in the DHCP settings area.

STEP 2: DOWNLOAD THE Net/X™ DEVICE EXPLORER TOOL

The NetX™ Device Explorer tool can be downloaded here.

http://www.networkthermostat.com/software/netx-explorer-mac-and-pc

Figure 1 – Net/X™ Device Explorer

STEP 3: INSTALL THE ETHERNET THERMOSTAT BACKPLATE

A. Turn off the power to the HVAC unit and then follow the directions included with the thermostat for detailed instructions. Make sure the wires are connected to the correct terminals. In addition to the thermostat wires, there are three (3) wires from the Ethernet backplate. Connect the RED wire to the R terminal (along with the Red wire in the thermostat cable), the BLACK wire to the 24(c) terminal (along with the common wire in the thermostat cable), and the WHITE wire to the X1 terminal. These wires are shipped in the proper locations and are noted here for completeness.

Figure 2 – Ethernet Backplate

B. After installing the thermostat cable, study the thermostat installation pages and set the DIP switches on the back of the thermostat to the desired settings. Some DIP switch settings are required for proper HVAC equipment operation and others are features that may be engaged, as desired.

After setting the DIP switches, set the thermostat aside. Do NOT install the thermostat on the backplate.

C. Turn on the power for the HVAC equipment. When power is applied, the Green LED will be off (indicating the thermostat backplate is not connected to your LAN), and the Red LED will be on steady (indicating the thermostat backplate is not connected to the thermostat).
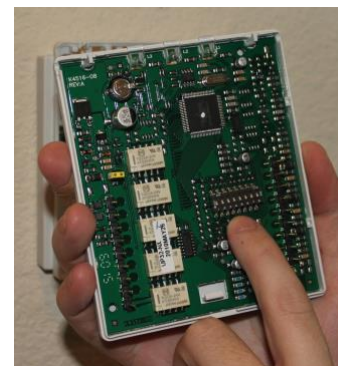

Figure 3 – DIP Switch Location

DO **NOT** INSTALL THE THERMOSTAT ON THE ETHERNET BACKPLATE YET!

STEP 4: CONNECT TO THE LAN USING THE RJ-45 DONGLE

Connect the RJ-45 dongle to the thermostat backplate by connecting the white connector on the dongle to the white connector on the backplate. Then connect your Ethernet Cable to the router/switch and the other end to RJ-45 connector on the dongle.

Once connected, the green LAN LED on the thermostat backplate will turn on, indicating that the thermostat has been assigned an address by your LAN's DHCP server.

## STEP 5: INSTALL THE THERMOSTAT ONTO THE BACKPLATE

Follow the instruction sheet to install the thermostat onto the backplate. When connected, the Satellite icon and the Lightning Bolt icon on the thermostat will turn on.

Satellite Icon Only (Red Arrow):
OFF = No Ethernet connection.
Satellite Icon + Signal Strength Bars (Red and Blue Arrow):
ON = The Ethernet Backplate is connected to the LAN router.
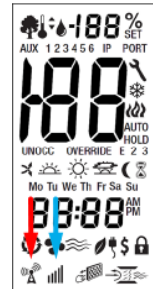
STEP 6: FIND YOUR Net/X™ ETHERNET THERMOSTAT USING THE Net/X™ DEVICE EXPLORER

Once you have connected to your LAN, start the Net/X™ Device Explorer. The Device Explorer will run on any Windows PC and allow you to see and connect to any of your Net/X™ Devices on your local network, using only your browser.

After launching Device Explorer, click on the 'Discover Devices' button, and when the replies appear, double-click on the thermostat to go to the thermostat's main page. If you are only going to connect to your thermostat(s) via your local network, the Net/X Device Explorer is the easiest method to access your thermostats.

Figure 4 - Net/X™ Device Explorer

Double-click on the thermostat to connect to it.

When the password dialog box is displayed, enter the defaults. (Both are *lower case*).
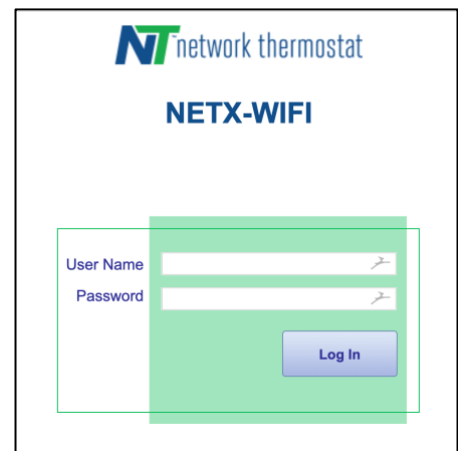
User Name: **admin**
Password: **netx**

Figure 5 - Connection at 169.254.1.51

For added convenience, go to the Basic Configuration page of the Net/X™ thermostat and change the thermostat name to something easier to remember than the default name. If you have multiple thermostats on your network, change the name of each of the thermostats to something meaningful. Thermostat names may have a maximum length of 15 characters with no spaces.

If connecting to the thermostat(s) is only needed from the LAN (not the Internet), the installation is complete.

To connect to the thermostat at any time, simply start the Net/X™ Device Explorer and select the thermostat needed. This simple software utility will always be able to find your thermostats if they are connected to the same network as your PC.

OPTIONAL: To access your thermostat(s) over the Internet or to change your thermostat address(es) to static IP address on your LAN, please continue to the next step.

CONNECTING TO YOUR Net/X™ THERMOSTAT OVER THE INTERNET (OPTIONAL)

To set up your permanent connection to your thermostat from anywhere on the Internet, follow the instructions below. These instructions are to be used after your thermostat is already connected to your LAN with a DHCP address assigned by the router.

STEP 7: CHANGE THE ADDRESS TO A STATIC IP ADDRESS ON YOUR LAN
Click on the Configuration tab, and then click the Network Settings button.

1 On the Network Settings page, UNCHECK the 'Enable DHCP' box

2 Enter a STATIC IP address for your local network. If you don't know what IP address you can use, you'll need to login to your router and see where the DHCP range is set. Select an available IP address that is OUTSIDE of the DHCP range. It cannot be one that being used by any other device/computer on the local area network. *(Do not change any of the other settings; Gateway, Subnet, Primary & Secondary DNS. These items have been automatically pre-filled to work with your network settings.)*

3 Change the HTTP Port from 80 (default) to 81 for your first thermostat. If you have more than one Net/X™ thermostat, increment this number by one for each addition thermostat installed; 82 for the second, 83 for the third, etc. (This is the port number that is used for the web pages.)

4 Leave the ASCII Port 10001 (default) for your first thermostat. If you have more than one Net/X™ thermostat, increment this number by one for each addition thermostat installed; 10002 for the second, 10003 for the third, etc. (This is the port number that is used for the API protocol for the Net/X-IP™ Command Center and third party programs and apps (such as iOS and Android apps.)

5 Then click 'Save & Reboot'.

Figure 8 - Static IP Address, HTTP Port 81, ASCII Port 10001

STEP 8: SET UP PORT FORWARDING ON YOUR ROUTER
Port Forwarding is a term used in the networking world which is simply the process of translating one address to another. The 'Internet' uses an addressing system (IP addresses and Ports) that is in the public domain. Your LAN is your private network with its own addressing (IP addresses and Ports). Port forwarding allows the Internet and LAN addresses to get translated through the router so connections can be rerouted from the public side (Internet) to the private side (your LAN). This is not a complicated task, and the simple steps below will take you through it. If you'd like to read more technical

details, please feel free to read the Wikipedia article on port forwarding at http://en.wikipedia.org/wiki/Port_forwarding . Net/X has partnered up with the leading port forwarding company, www.PortForward.com, giving you simple instructions and pictures for setting up your router properly.

1 Log into your router using the router's name and password. If you don't know the user name and password, there is a huge router Username & Password list at http://portforward.com/default_username_password/ .
These are the DEFAULT entries given by the router manufacturers.

2 In a separate browser window, go to http://portforward.com/cports.htm and scroll down the list until you find NetX RP32-xx (where xx can be either –WIFI or –IP) thermostat and click the link.

3 Then, locate your router in the list and click the matching model number. You can then either have the team at portforward.com set up your router for you, or you can click 'skip this advertisement' in the upper right corner to continue to step-by-step instructions.

In the example above (Figure 8), the thermostat is set to the local static IP address 192.168.1.170 and port 81. After your port forwarding set up is complete, any connection from the Internet to Port 81 on your Internet address (DSL or cable modem address assigned by your Internet Service Provider) will be routed to the local address of 192.168.1.170, port 81.

If you have multiple Net/X™ thermostats, you will need to use a separate local static IP address and a separate port number for EACH thermostat.   Portforward.com instructions show port forwarding for ports 81-89, allowing for up to 9 Net/X™ thermostats to be connected. If you have more than 9, simply increase the number of ports as needed.

The same is true for the ASCII ports. Start with your first thermostat at 10001 (default) and increment by 1 for each additional thermostat. Typical Addressing Scheme for locations with multiple Net/X™ Ethernet Thermostats should look like this:

Thermostat	IP Address	HTTP Port	ASCII Port
Location 1	xxx.xxx.xxx.xxx	81	10001
Location 2	xxx.xxx.xxx.xxx	82	10002
Location 3	xxx.xxx.xxx.xxx	83	10003
...	...	...	...

STEP 9: RECONNECT TO YOUR THERMOSTAT AND CLAIM IT

Now that you have a permanent location for your Net/X Ethernet thermostat, and you've set up port forwarding, you can access it at either the static IP address you assigned above, or using the Net/X Device Explorer. (It's the same location on

your network.)

[1] Click on the Configuration tab.
This will take you to the Basic Configuration page.

Enter AT LEAST the following information:
[2] Thermostat Name (use a more descriptive name for your thermostat). Click 'Apply'.
[3] Zip Code (this allows the thermostat to access your current weather and forecast information). Click 'Apply'.
[4] Login Email & Password
The login email address must be a valid address, but the password does NOT need to be the email password for the account. This password is the *Thermostat Login* password and should be different from your email password.
[5] Then, to claim your thermostat, click 'Register Thermostat'.

Figure 9 - Basic Configuration & Registration

The thermostat will briefly, securely, connect to the Net/X™ Remote Login Server and store the necessary information (encrypted, of course) so you can always find your thermostat(s), even if you don't have a static IP address from your ISP. When this process is complete (usually only a few seconds), you'll see a message that reads *Claimed* just to the left of the 'Register Thermostat' button.

STEP 10: CONNECT TO YOUR THERMOSTAT USING Net/X™ DirectConnect™ REMOTE LOGIN SERVICE

Now that you're all set up, you can use any current release browser (Firefox, Internet Explorer, Safari) to connect to your thermostat(s).

Simply go to www.networkthermostat.com and click **DirectConnect™ Login** in the upper right hand corner. When you log in with your user name (email) and password, you will see your list of your thermostats.   Just click the one you'd like to work with, and you'll be automatically redirected to that thermostat in a new browser tab