

LAN-520X LAN Port Installation Guide

1.0 Basic LAN Device Setup

The following are basic setup instructions for the LAN-520X device server. This is to serve as an installation and wiring guide and some settings may not apply to every application.



NOTE: The LAN-520X is an updated version of Keri's LAN-520 device. If you are using the new NC-485X Network Converter with the LAN-520, you must use the updated LAN-520X module. The original NC-485 Network Converter is NOT compatible with the new LAN-520X.



NOTE: To set up the LAN-520X, you **MUST** have technical knowledge of general networking in a PC environment. Please have the Network Administrator on site to resolve any special networking issues that might occur during device programming. Network topologies and strategies will vary.

2.0 Before Starting

A Static IP address is required in order to communicate with the *Doors* program. An IP address, the subnet address, and gateway address are also needed.

NOTE: The unit's MAC address may also be required and should be noted. The MAC address will be something similar to this: (00-20-4a-86-4d-9b).

3.0 Installing the LAN-520X to a PXL-500

1. Power down the PXL-500 master controller.
2. On the master PXL-500 controller, remove jumpers from JP6 and JP7.
3. Insert the LAN-520X into TB13 on the PXL-500.

NOTE: Mounting screws are supplied to secure the LAN-520X to the PXL. The PXL will have to be removed from its enclosure to do this.

4. Connect the RJ-45 port on the LAN-520X to the network.
5. Power up the PXL-500 (if this is a new PXL panel, a ram reset is required).

NOTE: LEDs on the LAN-520X should light up as follows during a new boot up: The two LEDs, (red and green) furthest from the RJ45 connector will begin to blink, alternating from red to green for several seconds. This indicates that the new LAN-520X is seeking an address either from a DHCP server, or it will assign itself an auto IP in the range of 169.254.XX.XX with a netmask of 255.255.0.0 The auto-IP address will be randomly selected within the LAN-520X if DHCP is not used on the network.

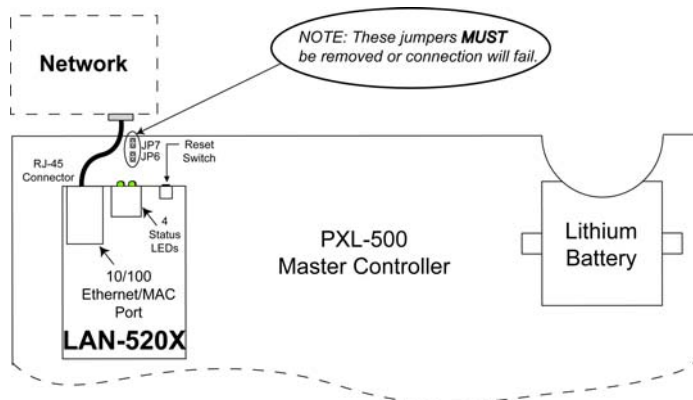


Figure 1: Installing the LAN-520X

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4.0 Setting a Static IP Address

There are several methods that may be used in order to configure the LAN-520X. The IP address, subnet mask, and gateway IP to be assigned will be needed for the following sections. The gateway address is not needed if the PC running *Doors* is on the same subnet.

4.1 Setting a Static IP Address Using Telnet (Preferred Method)

Setting up the LAN-520X via a command prompt in Windows is an easy process without the need of installing any extra software. To use this method the person configuring the LAN-520X must have administrative rights in order to run the required commands.

NOTE: This method may also be used to recover a LAN-520X that has been previously programmed but has an IP address that is now unknown.

Two basic commands are used in this method, ARP, & Telnet. Information to be typed is in **bold**.

1. Open a command prompt
 - Click on the Windows Start and select "Run."
 - The Run window will appear. In the Open field, type "cmd" and click on the OK button.
 - This will open up a Command Prompt (DOS) window.
2. At the prompt, type the following to make a Telnet connection to the LAN-520X¹:

NOTE: Address Resolution Protocol (ARP) is the standard method for finding a host's hardware address when only its network layer address is known. For more info on the usage of arp type ARP/? at the command prompt and press ENTER.

```
arp -s <LAN-520 IP address> <LAN-520 MAC address> <Enter>  
Example: C:\>arp -s 174.120.9.115 00-20-4A-24-89-67
```

```
arp -a <enter>
```

```
telnet <LAN-520 IP address> 1 <Enter>  
Example: C:\>telnet 174.120.9.115 1 <Enter>
```

NOTE: A Telnet "Connection Failed" screen appears. This is normal.

```
telnet <LAN-520 IP address> 9999 <Enter><Enter>  
The Enter button must be pressed twice within 5 seconds.  
Example: C:\>telnet 192.168.100.250 9999 <Enter><Enter>
```

NOTE: The ARP command does not report when this command is completed successfully. However, if it has been done incorrectly, an error will occur. To verify the contents of the ARP table type arp -a and press ENTER. The MAC address should be paired with the IP address to be assigned.

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1. The information to be typed is typical, but as applications may vary, so may the procedure.

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The following menu should appear:

```
Change Setup:
0 Server
1 Channel 1
2 Channel 2
5 Expert
6 Security
7 Defaults
8 Exit without save
9 Save and exit      Your choice?
```

Select option #7:

7 Defaults <enter> This will set communications settings to the default.

NOTE: This will not reset the IP and subnet setting in the unit.

0 Server <enter>

IP Address: Enter the IP address in segments then press enter.

This will replace the numbers in parenthesis

Example: 192.168.100.103 would be entered as:

192<enter>168<enter>100<enter>103<enter>

Set Gateway: Gateway will only be needed if you intend to communicate with another subnet.

Enter “Y” then enter address if needed as done with IP ADDRESS in the prior step, otherwise type “N” and proceed to next step

NetMask: Number of Bits for Host Part: This number is a calculation of the subnet mask

Most common are: 255.255.255.0 = 8 & 255.255.0.0 = 16

NOTE: The last page will describe how to calculate the number of bits

9 Save and exit <enter>

4.2 Setting a Static IP Address Using the Lantronix® Device Installer

If the network has a DHCP server running, the IP address will be automatically assigned during the LAN-520X boot up only if the device is plugged in to the live network at the time. If this is the case, the Device Installer software is used to identify the assigned IP address. The Lantronix Device Installer is located on the *Doors* install CD.

NOTE: Net Framework 1.1 is required for the Device Installer to be installed. If it is not found on the PC during the installation of the Device Installer, a prompt will appear to install .Net Framework. Microsoft .net framework 1.1 (Dotnetfx)), is located in the same folder as the Device Installer on the Doors install CD.

1. Install the Device Installer.

- Click on the setup.exe found in [CDROM Drive]:\Lantronix Device Installer.
- Follow the instructions given throughout the installation.

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2. Identify the LAN-520X address using the Device Installer.
 - a. Open the Lantronix Device Installer (default location: Windows Start > Program Files > Keri Systems > DeviceInstaller > deviceinstaller).
 - b. The Device Installer will automatically search to locate the MAC address and IP address of any LAN-520X connected to the local LAN automatically.
 - c. Keep in mind that although the Device Installer is capable of finding these devices on a local LAN even if they are on different subnets, routers and firewalls can keep the Device Installer from finding the LAN device.
 - d. After the device is found, use the Device Installer to assign an IP address to the LAN-520X by clicking on the device in the right hand window, then click the “Assign IP” button and follow directions given. You’ll need an IP address, subnet mask and gateway (If needed) before hand.

NOTE: Even if the IP address assigned by DHCP is the desired address, it is still dynamic and can change. The Device Installer will still need to be used to set the address, even if it is the same one, in order to make that address static. If the address remains dynamic and later changes, Doors will no longer be able to connect to the LAN-520X.

4.3 Verify Communication By Performing a Telnet Session to Port 10001

This will test the port used by *Doors* to communicate to the LAN device outside of any software other than the Windows environment.

The telnet command is preferred over the ping command in testing communications because the telnet command will give a specific response from the device whereas the Ping command, though it will give a reply from the IP address, the response is not specific to the device (i.e. if there is a duplicate address on the net the Ping may still get a reply).

1. In the command prompt window type in, **telnet xxx.xxx.xxx.xxx 10001**.
 - If successful, a blank screen and a blinking cursor will appear. The link LED on the LAN-520X will blink on and off indicating that port 10001 is open.
 - If telnet is unable to connect, then review the settings. If the settings are correct then contact a network administrator to verify the needed ports are available. Some operating systems and hardware, such as routers and firewalls are set to block ports. Ensure these firewalls have ports 10001, 10021, and 9999, open for communication with the *Doors* software.
 - Close the session.

NOTE: If you are able to telnet into port 9999 in the command prompt but not to 10001, it is very likely that the ports required by Doors are blocked and will require that a Network Administrator address the issue so a successful telnet session to port 10001 may take place.

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4.4 Calculating Netmask: Number of Bits For Host Part

During the configuration of the LAN-520X's TCP/IP address it will be necessary to add the subnet mask in number of host bits. The following is one way of calculating the host bits in a subnet.

A Decimal to Binary conversion of 255 will be all 1's (11111111) and a 0 will equal 8 0's (00000000).

If there are two 0's in the subnet (255.255.0.0) there will be 16 0's thus the host part will be 16.

1. To calculate a subnet like 255.255.255.248, open the Windows Calculator.
2. Click on View > Scientific.
3. Dec (Decimal) will already be selected.
4. Type in the last segment (248).

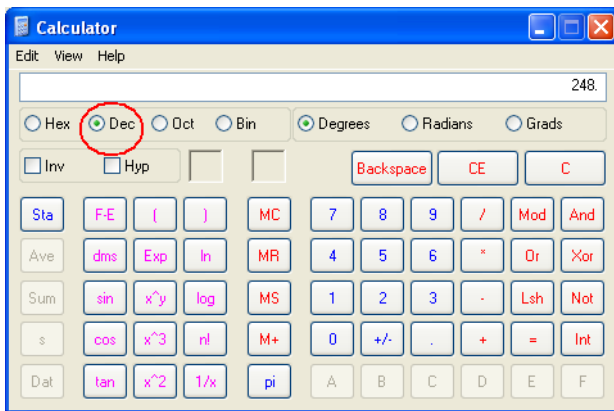


Figure 2: Windows Calculator - Decimal

5. Select Bin (Binary) and the binary conversion will take place.
6. The 0's will represent the number of available bits. This number will be the Number of Bits for Host Part (248 = 11111000 = 3). Number of Bits for Host Part is 3.

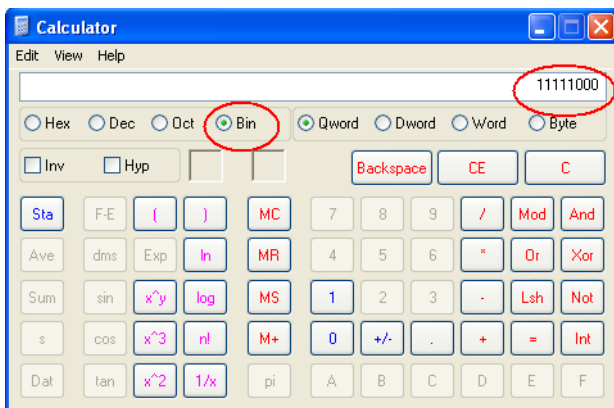


Figure 3: Windows Calculator - Binary

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