NI-10 Network Interface Card

Installation & User's Guide
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INTRODUCTION

The NI-10 Network Interface Card is an accessory for the UP-2000 Universal Panel which allows the ASI 2000 application to communicate directly with the UP-2000 over a TCP/IP network connection. All types of network configurations are supported as long as the computer running ASI 2000 can open a simple TCP connection to the network segment where the panel is located. There are no special device drivers to install – all the necessary support is already built in to the ASI 2000 application.

SPECIFICATIONS

Size: 4" x 2 3/4" x 1/2"

Power Requirements: Powered by the UP-2000

Operating Temperature: -40°C to +75°C

Network Interface: Base10/100

REQUIREMENTS

UP-2000 Firmware Version (minimum): BSvcs 1.8, FW 2.2

ASI 2000 Software Version (minimum): 3.0
**INSTALLATION**

The NI-10 is installed into one of the four memory sockets (J8, J7, J7, and J5) on the UP-2000. It **must** be installed in a lower numbered socket than all the memory cards in the system. We suggest putting all the memory cards in the highest numbered sockets, starting with J8, leaving no empty sockets between cards, and placing the NI-10 in the next unused (lower numbered) slot. So, for example, if you have only one memory card it would be in J8 and the NI-10 would be in J7.

To install the NI-10, power down the UP-2000 panel. Next, orient the card so that the component side (side with the chips) is facing towards the serial and power connector of the UP-2000, and the gold contacts are perpendicular to the UP-2000, directly over the slot in which the NI-10 is being installed. Tilt the NI-10 45 degrees component side down and insert the gold edge connector into the memory socket. If done correctly, it will slide in easily. If you are having trouble inserting the NI-10 into the memory socket do not force it, try changing the insertion angle slightly and/or gently wiggling it back and forth until the board slides in easily. Once it is completely inserted into the socket, rotate the NI-10 so that it is now perpendicular with the UP-2000 board, just like the memory card(s). This should only take moderate force. If done correctly you should hear the clips snap in on both sides of the socket. When you release the NI-10 it should remain in the upright (perpendicular to the UP-2000) position. Do **not** plug in the network cable yet, as the card still needs to be configured.

**HARDWARE CONFIGURATION**

**NETWORK ADDRESSES**

Before you can configure the card you need to understand how the card is addressed. All network devices actually have two addresses, a MAC address and a network or IP address. The MAC address is assigned at the factory and is like a person’s social security number; it is unique to that device. Only that one device in the entire world has that MAC address. The IP address is like a person’s phone number, it is used to “talk” to the network device, but it will change from network to network just as a person will typically get a new phone number if they move to a different city. So you will not need to change the MAC address, however you will need to set the IP address of your NI-10 card.

There are two basic ways of assigning IP addresses to network devices. The method you use will depend on how you manage your network. You will probably have to coordinate with your IT department to determine which method best suits your site.

The first method is called “static IP assignment”. With this method, each device is configured for a specific IP address. The device will continue to use this address until it is reconfigured. If your site uses this method, someone must keep careful track of all the IP addresses in use because each device on your network must have a unique address. If this discipline is not followed, it is possible to bring down your network. Normally one person maintains the list
of all the IP addresses and assigns new ones. You will need to contact this person at your site and obtain the new IP address and subnet mask for your NI-10 card.

The second method is called DHCP. With this method, a computer running special server software manages all the IP addresses for your network. Every time a network device powers up, it will automatically obtain a new IP address from this server. This makes it easier to manage the IP addresses because the server does all the work. However, this also means that every time a network device restarts it may obtain a different IP address than it did the previous time. This makes it difficult for other network devices and applications to find each other. To resolve these problems, a variety of different naming systems have been developed which are used like phone-books to associate names with IP addresses. In order to maintain a maximum level of compatibility with different network configurations, the NI-10 does not support any of these naming systems. To use the NI-10 with DHCP, you need to configure your DHCP server to reserve an IP address for the network device with the MAC address of your NI-10 card. Most DHCP servers have this capability. Since MAC addresses are unique, only that one card will get assigned the specific IP address you set aside. This address can then be used when configuring the panel in ASI 2000. Additionally, many naming systems allow you to associate a fixed IP address with a name. By combining these two techniques, you can use a name to refer to an NI-10 using DHCP. The advantages are that you can plug the NI-10 anywhere into the network and it will function correctly. The IP addresses still need to be maintained manually, however the DHCP server takes care of assigning them to the individual cards automatically.

INSTALLING THE CONFIGURATION SOFTWARE

To configure the card, you will need to install the NI-10 configuration utility onto a computer with a serial port that can be physically connected to the NI-10 card. A laptop works well for this purpose. Place the NI-10 configuration utility installation CD into the CD drive of your computer. After several seconds the installation wizard should appear. Press the “Next” button, select where to install the utility (or just use the default), and press the “Next” button to begin the installation. After the software is installed you will be prompted to select a folder in the startup menu to place the shortcut for the utility. You can keep the default or select a different folder; press “Next” when you are finished. The confirmation screen will then be displayed. Press “Finish” to complete the installation process.

CONFIGURING THE CARD

During the installation please refer to Figure 1 for the location of items on the NI-10 card. Plug the rectangular end of the configuration cable, supplied with the NI-10, into the rectangular connector JP6 located in the upper right quadrant of the board. It is keyed so that it only goes in one way. It should only take moderate force to insert the cable. The other end of the cable must be plugged into the serial port of the computer that you installed the configuration utility onto. If the configuration cable is not long enough to reach from the NI-10 to the computer, use a straight-through 9-pin serial extender cable. Next install the
shorting plug onto jumper JP11 across both pins (the shorting plug is shipped in the parking position on one of the JP11 pins).

![Figure 1](image)

**Figure 1**

Now power up the UP-2000 panel and run the configuration utility on the computer connected to the configuration cable. You should see a screen that looks similar to the one in Figure 2. If you do not see this screen, then contact Access Specialties Technical Support at 651-453-1283 or support@access-specialties.com.
Select the communications port that is connected to the configuration cable. The program will automatically attempt to read the current configuration from the NI-10. If the information is retrieved successfully, you should see a form similar to the one in Figure 3 – the contents of the fields may be different, but they should all contain data. There should be no error messages in the message area at the bottom of the form.
The values which you can edit, will be displayed in the fields with the white background. The “Write Configuration” button will not be enabled, unless a change is made to the editable information on this screen. If the “Use DHCP” box is checked, the “IP Address” and “Sub Net Mask” fields will not appear. This is by design, since these fields are not required for the NI-10, configured with DHCP. If you need to do “Static IP” configuration, un-check this box. If any error messages were displayed, call Access Specialties Technical Support.

Make any changes that are needed. The server port must be unique, and must not be in use by any other software or hardware on your network. It must be a number between 1 and 65535. We suggest 4000 or something in that range, as this is most likely not in use in your network. Make note of the port number specified, as you will need it when you set up the panel in ASI 2000. After all your changes have been entered press the “Write Configuration” button. If you see a message at the bottom of the form that tells you the NIC configuration was successfully saved, then you are finished. If not, make sure that the shorting plug is correctly placed on JP11 and try again.

You can now remove the shorting plug from JP11, and the configuration cable from JP6. Power down the UP-2000 and plug in the network cable into the HALO connector. Power up the UP-2000 and within a few seconds, the small green light in the upper right corner of the card should start blinking. You are now ready to configure the UP-2000 panel in ASI 2000.

IMPORTANT NOTE: When routing the network cable, make sure that it is not pulling forward (towards the power and serial connectors on the UP-2000) on the NI-10 card. The clips at the ends of the memory socket that hold the card upright, are not designed to hold against very much force. If pulled on too hard, the NI-10 could pop out of the socket resulting in communications loss or even damage to the NI-10 or UP-2000. Always route the network cable back in a loop such that it pulls slightly back on the card (or not at all).

ASI 2000 CONFIGURATION

To configure the panel go to the Device Center module in ASI 2000. Edit the panel if it already exists in the ASI 2000 database, or add it now. Click on the connection tab and select a connection type of “TCP/IP”. The left side of the panel should now show the TCP/IP information fields as seen figure 4. If you are using the Static IP option, or DHCP without name assignment, then enter the IP address assigned to the NI-10 and the port number used. If this is a new panel, the screen will open with the “Use DHCP” box checked, as in Figure 4. If you need to use static IP, un-check this box, so that the IP address can be manually entered as in Figure 5.
If this is a new panel that was just added to the database, you will have to add it to the list of panels in Panel Manager. If this was an existing panel that you have changed the connection type for, you will have to remove it from the list of panels in Panel Manager and add it back in so that Panel Manager picks up the change.

The panel should automatically start communicating with Panel Manager after a few seconds. Occasionally the network will lose a long-term persistent connection like the one that Panel Manager uses to talk to the NI-10. In this case the NI-10 will time out the connection within two minutes and Panel Manager will establish a new one. This is all automatic and requires no intervention by the operator.

**OPERATIONS**

No special procedures are required to operate the NI-10. The panel will automatically detect the card and use it for all communications with the host. When it is operating correctly there will be a flashing green light in the upper-left corner of the card. When the host has made a successful connection to the NI-10 a solid red light will appear next to the green one.