American TeleCare

NX Monitoring Patient Station

Installation and Operation Manual

Revision 01

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Section 1 Introduction

The NX Monitoring Station allows a patient to obtain data from a variety of medical devices and send it directly to a server, without connecting with a health care provider.

The patient can enter data into the Monitoring Station and send that data to a server at any time. The health care provider can also schedule monitoring sessions for each patient. In this case, the patient will be prompted to enter selected vital signs, answer specific questions and receive specific instructions from the health care provider at a date and time programmed into the Monitoring Station by the health care provider.

The health care provider can access the vital sign data and the answers to the questions that are located on the server at any time.

Section 2 Phone Line Requirements in the Home

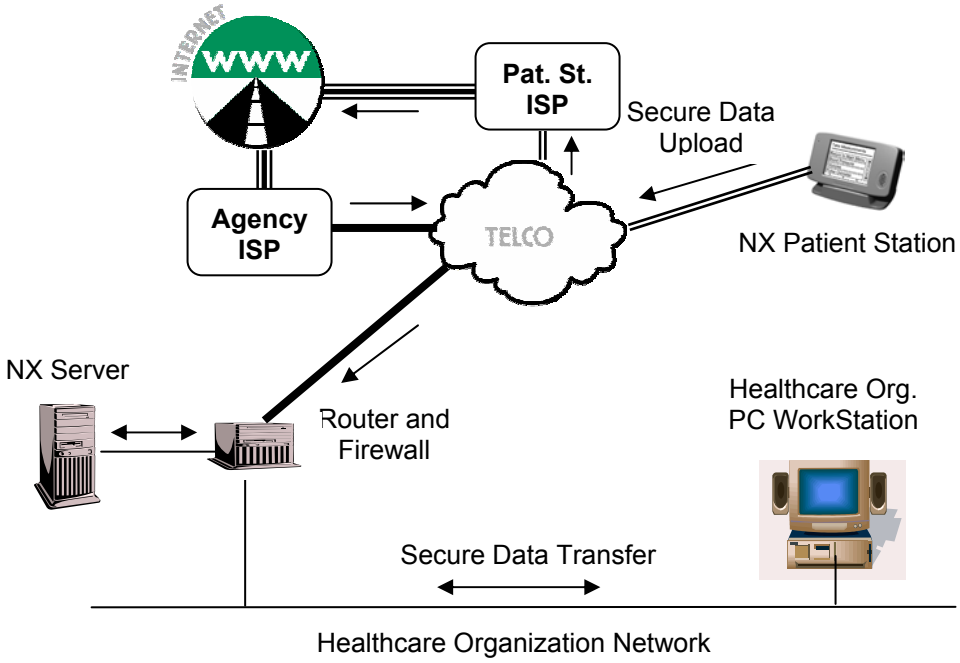
The patients will require a POTS (Plain Old Telephone Service) line in their home. The Monitoring Station will not operate over anything but an analog phone line at this time. The unit also requires an RJ11 phone jack.

Section 3 NX Monitoring Network

The following are two examples of configurations:

1. Using Internet Access

Note that the positioning and configuration of the Firewall with regard to the NX Server and the internal Network may vary. One arrangement is shown below. Other arrangements are possible.

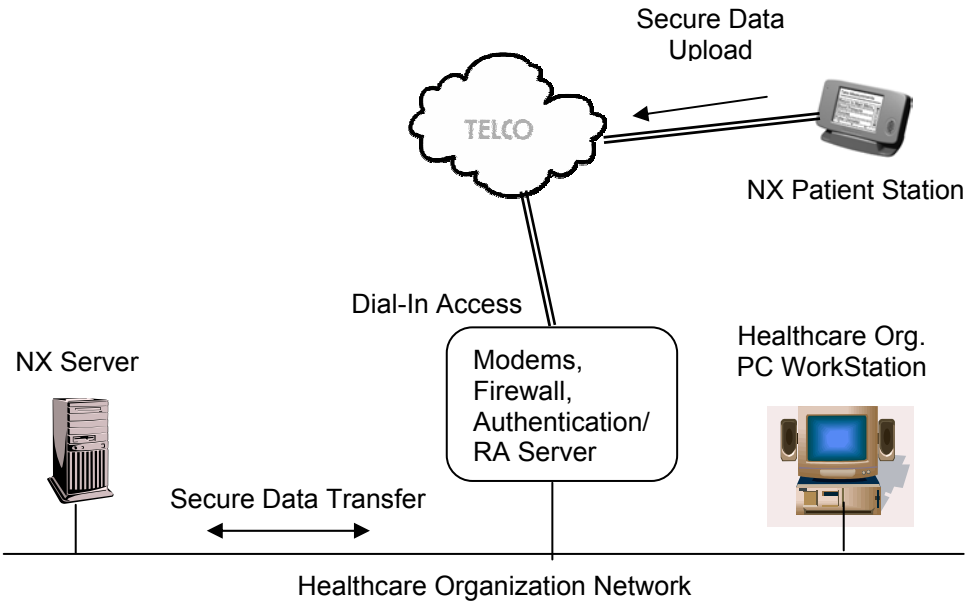


Notes:

1. The NX Patient Station is configured with the local ISP telephone number, ISP login ID and ISP password so that it can connect to the Internet. It is also configured with the IP address to get to the Healthcare Organization. The IP address is that of the NX Server and must be external (i.e. visible at the Internet access point of the Router) and static. The Firewall restricts access to the NX Server to HTTPS encrypted connections with the specific IP address of the NX Server. The NX Server takes over from there further restricting access to connections with the proper ATI issued Certificates, followed by the requirement for a valid NX User ID and a valid NX User Password.
2. The connection between the NX Patient Station and the NX Server is an HTTPS connection and is encrypted using SSL.
3. The connection between the Healthcare Organization's PC Workstation and the NX Server is an HTTPS connection and is encrypted using SSL.

4. The NX Server uses the Apache Web Server. Any other web server software such as IIS must be disabled.

2. Using a Remote Access Dial In Service:



Notes:

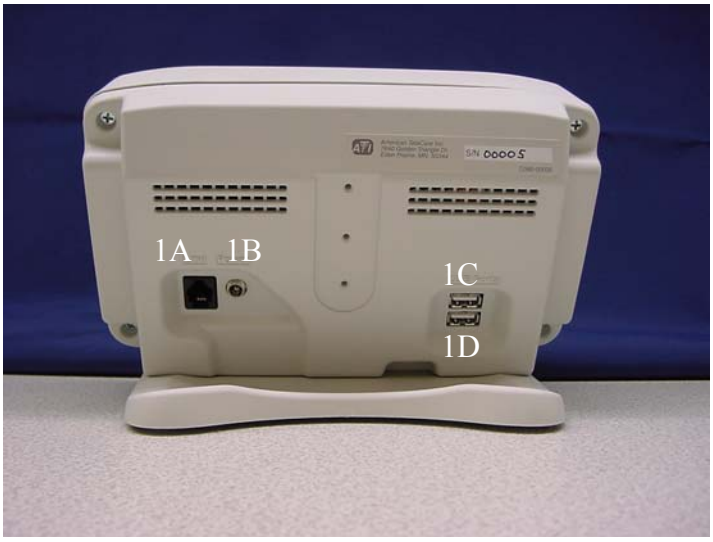
1. The NX Patient Station is configured with the Remote Access Service dial-in telephone number, a RAS login ID and a RAS password so that it can connect to the modem, be authenticated and allowed to be connected to the Network. It is also configured with the internal IP address of the NX Server so that after authentication, the connection can be routed to the NX Server. The NX Server takes over from there further restricting access to HTTPS encrypted connections with the proper ATI issued Certificates, followed by the requirement for a valid NX User ID and a valid NX User Password.
2. The connection between the NX Patient Station and the NX Server is an HTTPS connection and is encrypted using SSL.
3. The connection between the Healthcare Organization's PC Workstation and the NX Server is an HTTPS connection and is encrypted using SSL.
4. The NX Server uses the Apache Web Server. Any other web server software such as IIS must be disabled.

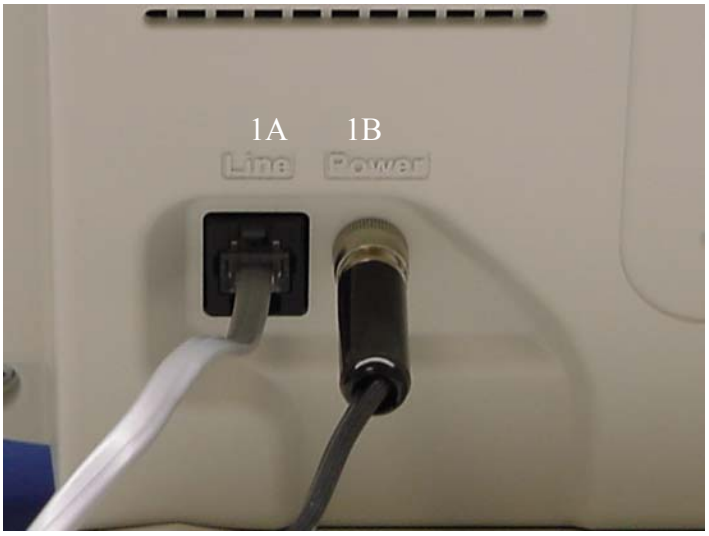
Section 4 Installation of the NX Monitoring Station

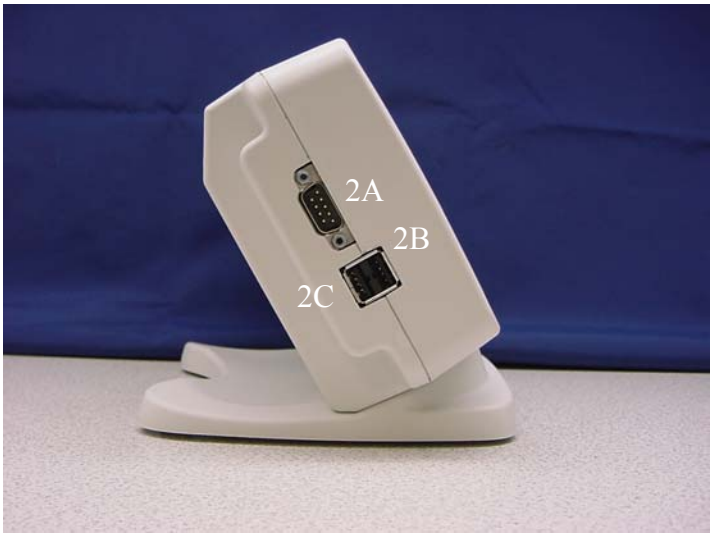
The following table explains how to set up the NX Monitoring Station. The first column lists each piece of hardware making up the Monitoring Station. The second column lists a specific port or connection site on that piece of hardware. The third column tells what each connection site or port connects to.

Use only UL listed, No. 26 AWG minimum telecommunication line cord for all telephone cables.

Equipment Piece	Connection Site	Connects To:
1. NX Monitoring Station	Phone jack on back of unit. (1A)	Power strip, "Out" phone jack. (3B)
	Power port of back of unit. (1B)	Power strip, one of several electrical jacks. (3A)
	Two USB ports on back of unit. (1C and 1D)	May be used with the USB keyboard.
	Nine-pin serial port on side of unit. (2A)	Not used at this time.
	Two USB ports on side of unit (2B and 2C)	May be used with the USB keyboard.
2. Power Strip with Surge Protection	One of several electrical jacks(3A)	Monitoring Station power port. (1B)
	"Out" phone jack. (3B)	Monitoring Station phone jack. (1A)
	"In" phone jack. (3C)	Phone jack in the wall.
3. USB Keyboard	Permanent cable with USB plug.	Monitoring Station USB port. (1C, 1D, 2B or 2C)


1A
1B
1C
1D


1A
1B
Line
Power


2A
2B
2C

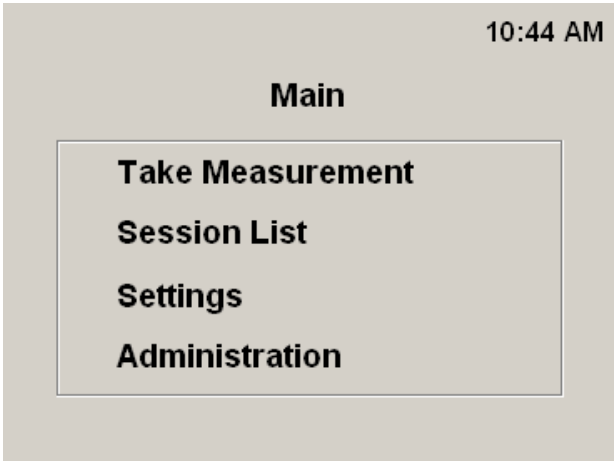
Section 5 Settings (Administrative)

Several settings must be entered into each Monitoring Station before it is given to a patient. Patient data will not be downloaded from the peripheral devices to the Monitoring Station if the settings are not entered correctly. The data will also not be sent from the Monitoring Station to the server if the settings are not correct.

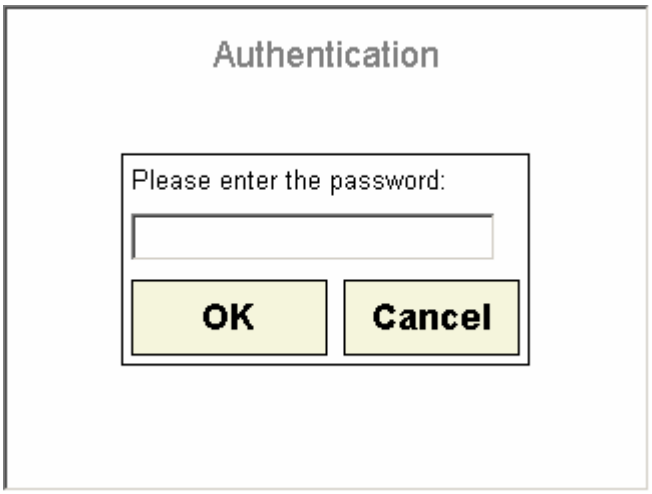
A. Patient Settings

It is necessary to enter a new patient setting (a Patient Key) each time a monitor is given to a new patient. The Patient Key determines in which patient record, on your server, the data will be saved. To enter a Patient Key, you must have a USB keyboard plugged into the NX Monitoring Station. The Patient Key you enter into the Monitoring Station must also be entered on the Admission Information screen for the patient at the NX Clinician Station. You will not be able to send data to a patient record until the Patient Key is entered at both locations.

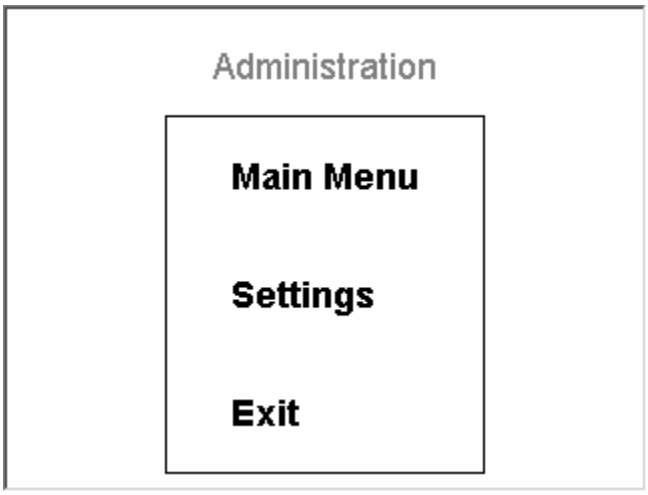
To enter a Patient Key:
1. Plug the NX Monitoring Station into power. The Main screen will appear.



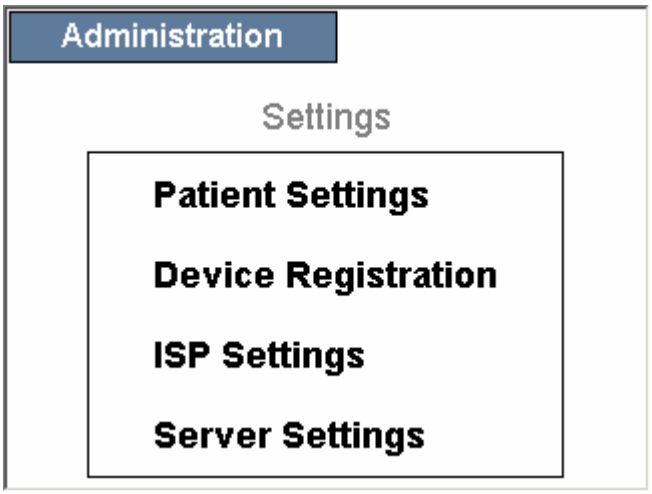
2. Press Administration. The Authentication screen will appear requiring a password.



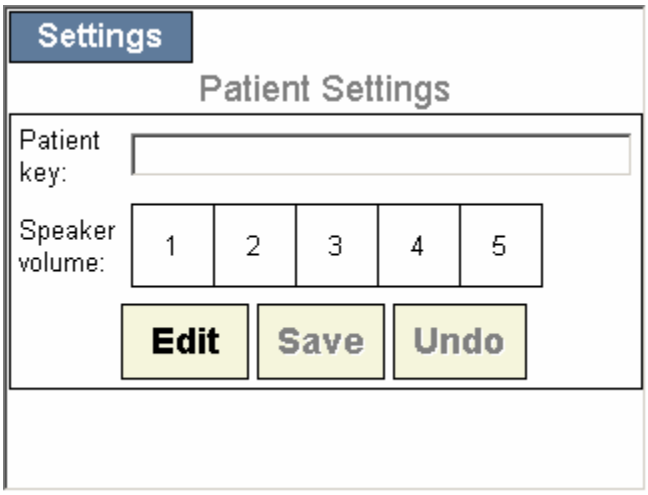
3. Enter the password. **The current password is ati**. We require a password at this time to prevent the patient from getting into the administration screens and changing the settings.
4. Press OK. The Administration screen will appear.



5. Press Settings. The Settings screen will appear.



6. Press Patient Settings. The Patient Settings screen will appear.



7. Type in the Patient Key. The Patient Key can be anything you'd like. It may consist of up to 36 characters. This same Patient Key must be entered into the Admission Information screen for the patient using this Monitoring Station, back at the Clinician Station.
8. Adjust the speaker volume if necessary.
9. Press Save. The Settings screen will reappear.

B. Device Configuration

The Device Configuration screen indicates which devices the patient will be prompted to use with this Monitoring Station. It also indicates how the Monitoring Station will obtain data from each device, i.e. via a cable, using the wireless adaptor module or with manual entry. The cable symbol indicates a cable will be used with the device. A hand symbol indicates the data will be entered manually. A red Ø symbol indicates that device will not be used by the patient.

If the hand symbol is selected for a specific device, the patient will only be able to enter data from that device manually. The patient will not be able to change the hand symbol to something else when he takes a measurement.

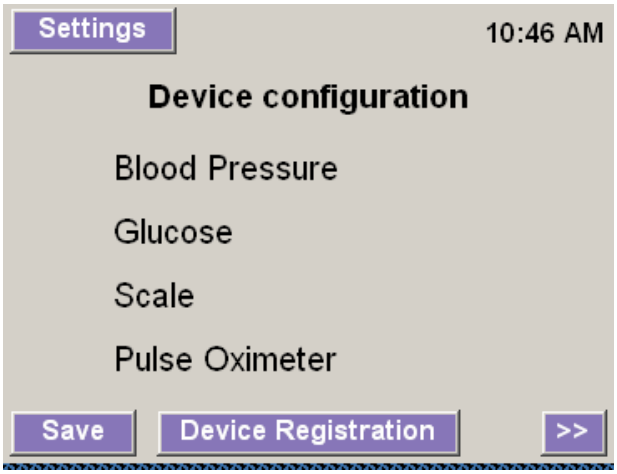
If the cable or dish symbol appears here for a specific device, the patient will be prompted to enter data using the cable or wireless adaptor module. The patient will be able to change the cable or dish symbol to a hand symbol when he takes a measurement, if he desires, by pressing directly on the symbol. To configure the Monitoring Station to download from a device via a cable, press directly on the symbol next to the name of the device until a cable symbol appears.

A dish symbol indicates a wireless adaptor module will be used to transfer data from the medical device to the Monitoring Station. Before this will work, the wireless adaptor module attached to the medical device must be registered and discovered by the Monitoring Station. A dish symbol will not appear next to the device until this is completed.

Currently only the scale and pulse oximeter can send data to the Monitoring Station using the wireless adaptor module. They must be located within 2 feet of the Monitoring Station during registration and use. Also, a scale and pulse oximeter being used with the same Monitoring Station must be registered at the same time without powering the monitor down between registrations. If you register them separately, the previously registered device will be unregistered and will have to be reregistered. When registering the wireless adaptor modules, only one monitor should be powered up and setting in the registration area. Any number of units may be close by, as long as they are powered down.

To register a peripheral device containing a wireless adaptor module:

1. From the Main screen, press Administration. The Authentication screen will appear.
2. Enter your password. **The current password is ati**. We require a password at this time to prevent the patient from getting in to the administration screens.
3. Press on OK. The Administration screen will appear.
4. Press Settings. The Settings screen will appear.
5. Press Device Configuration. The Device Configuration screen will appear.



6. Press Device Registration.
7. Follow the directions on the screen by removing and replacing the batteries from the wireless adaptor module you wish to register.
8. Press Register Device. A message informing you the device was registered will appear as "Discovered WS" (weight scale). This indicates the device has been registered. The name of the medical device should now have an image of a dish next to it.
9. Repeat the above steps, starting with number 5, until all the desired devices are registered to work with this specific Monitoring Station.
10. Once all devices have been registered, press Settings to return to the settings screen.

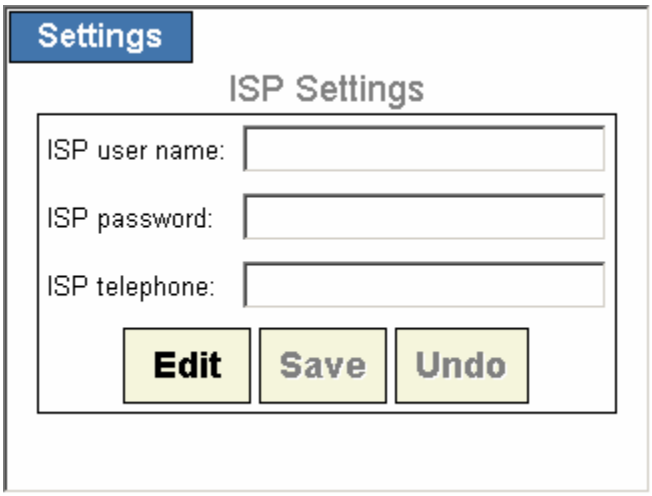
C. Dialup Settings

You will have to obtain a dial up User Name, Password, and Telephone Number for each Monitoring Station. Your agency may already have remote access dial up capabilities. If this is true, you may use the name, password and phone number you are currently using for the remote access dial up. Your Monitoring Stations may also connect to your server using an ISP (Internet Service Provider). When using as ISP, each Monitoring Station will require a different ISP user name and password. It is possible for each Monitoring Station to use the same ISP telephone number if all units are placed within a specific area. You may have to use more than one ISP telephone number if your patients will be spread out over several area codes. The ISP phone number must be a local call for the individual using the Monitoring Station. You will need a keyboard attached to the Monitoring Station to enter these settings. Once these ISP settings are entered into the Monitoring Station, you will be able to access the internet and send data to your server.

To enter dialup settings:

1. From the Main screen, press Administration. The Administration screen will appear.
2. Enter your password and press OK. **The current password is ati**. We require a password at this time to prevent the patient from getting in to the administration screens.
3. Press Settings. The Settings screen will appear.

4. Press Dialup Settings. The Dialup Settings screen will appear.



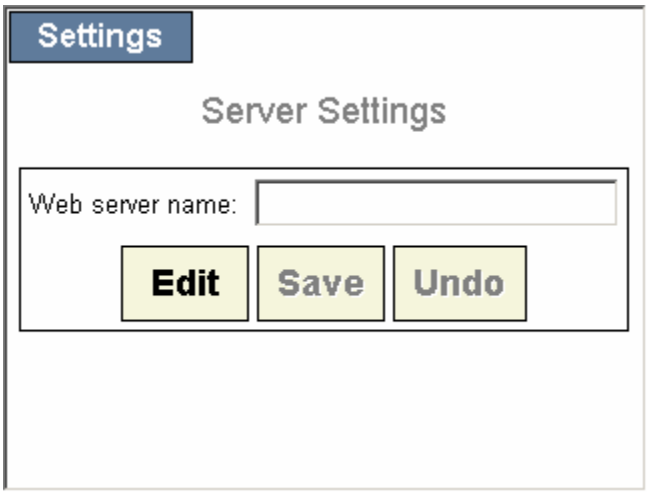
5. Type in the Dialup user name assigned to this Monitoring Station.
6. Press on the blank space labeled Password.
7. Enter the Dialup Password assigned to this Monitoring Station.
8. Press on the blank space labeled Telephone.
9. Type in the Dialup phone number. This must be a local call for the patient using this specific unit. If not, an 800 number must be used to prevent the patient from being charged for a long distance phone call.
10. Press Save.

D. Server Settings

The IP address of your server must be entered into the NX Monitoring Station. This will direct the data to your server when you send measurements. You will need a keyboard attached to the Monitoring Station.

To enter server settings:

1. From the Main screen, press Administration. The Administration screen will appear.
2. Enter your password and press OK. **The current password is ati**. We require a password at this time to prevent the patient from getting in to the administration screens.
3. Press Settings. The Settings screen will appear.
4. Press Server Settings. The Server Settings screen will appear.



5. Enter the IP address of your server.
6. Press Save.

Section 6 Uploading Data Outside of a Scheduled Monitoring Session

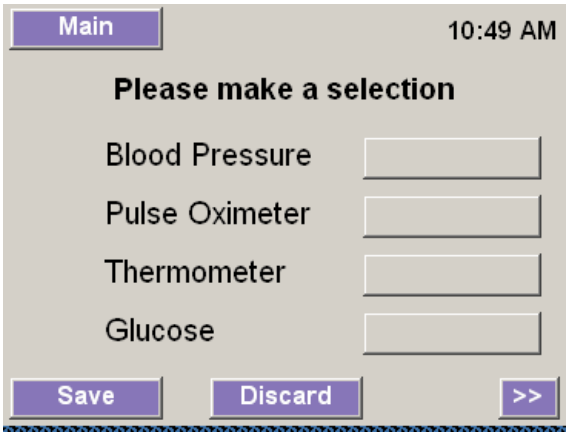
There are currently three ways data can be entered into the Monitoring Stations from the peripheral devices. It can be downloaded directly from devices containing a wireless adaptor module, it may be transferred via a cable, or the data can be entered into the Monitoring Station manually.

A. Obtaining Data from Devices using the Wireless Adaptor Module

Prior to obtaining readings from a device containing a wireless adaptor module, the monitor must be registered to work with that specific device. Device registration is explained in section 5.

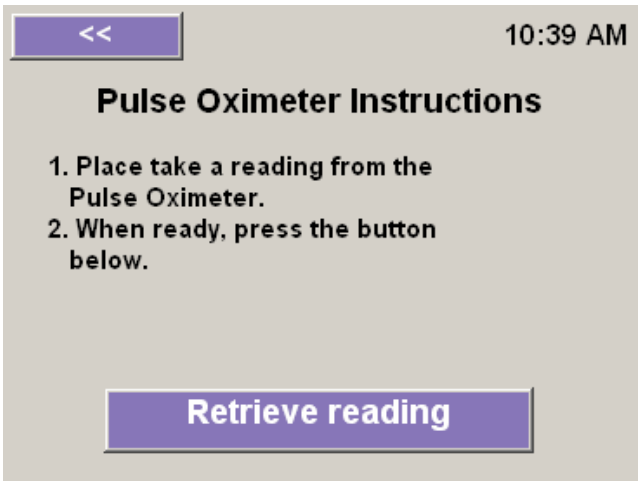
To obtain readings from the peripheral devices using the wireless adaptor module:

1. From the Main screen, press Take Measurement. The Selection screen will be displayed. To receive data from the peripheral device using the wireless adaptor module, the name of the device must have a picture of a dish next to it.



   If the name of the device has a dish symbol next to it, the Monitoring Station will attempt to download readings from the device remotely, using the wireless adaptor module. If the device does not have a dish symbol next to it, the wireless adaptor module has not been registered to work with the Monitoring Station. Device Configuration is explained in section 5.

2. Press on the name of the device you would like to use first. If the device you would like to use is not displayed, press More to view more devices. The Instruction screen for that device will appear.



3. Press Retrieve Reading.
4. Follow the instructions for using that device.
5. The Selection screen will reappear showing the most recently obtained data and prompting you to make another selection.
6. Once data has been obtained from all required devices, press on Save. You may also Discard the displayed readings, if desired. You will be asked if you would like to save these readings.
7. Press on Yes. The data received from each medical device will be sent to your server.

B. Entering Data into the Monitoring Station Manually

To enter data into the monitor manually:

1. From the Main screen, press Take Measurement. The selection screen will be displayed.
2. The name of the device for which you would like to enter data manually must have a hand symbol next to it. If it does not, press directly on the current symbol to change it.
3. Press on the name of the device you would like to use first. The instruction screen for that device will appear.
4. Use the peripheral device as you have been instructed.
5. Press Retrieve Reading. A key pad will be displayed allowing you to enter the results manually.
6. Enter the reading you obtained from the device. As you press the numbers, they will appear in the data entry box. If applicable, to advance to another data entry box on the same screen, press directly on the next box. The results may be cleared if necessary.
7. Once the results have been entered, press Enter.
8. The Selection screen will reappear, showing the data you just entered next to the name of the device. You may Discard the data if necessary.
9. Press Save. The data you just entered into the Monitoring Station will be sent to your server.

C. Using a Data Cable

Currently, you have the option to send data from the blood pressure meter and the glucose meter to the Monitoring Station via a cable.

To send data to the Monitoring Station via a data cable:

1. Connect the medical device to the Monitoring Station using the data cable. Each type of peripheral device has a specific data cable. They can not be interchanged.
2. From the main screen, press Take Measurement. The Selection screen will appear.
3. The name of the device you are about to use must have a symbol of a cable next to it. If it does not, you will have to configure the station to accept data from this medical device via a cable. This must be done from the Administration menu and is explained in section 5.
4. Press on the name of the device you would like to use. The instruction screen for that device will be displayed.
5. Follow the instructions given.
6. Press the Retrieve Reading button. The selection screen will reappear, prompting you to make another selection.
7. Select another peripheral device if necessary. It too must have a cable symbol next to it.
8. Once all desired devices have been used, press Save. You will be asked if you wish to save these readings.
9. Press Yes. All the readings just obtained will be sent to your server.

Section 7 Completing a Scheduled Session

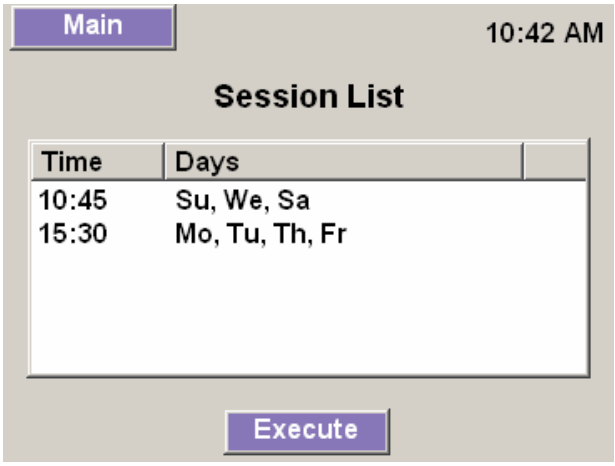
Patients will be prompted to complete a session at the date and times selected by the patient's health care provider. The tasks included in each session will also be determined by the patient's health care provider. **The session information entered at the Central Station by the health care provider will not be uploaded to the Monitoring Station until data is sent from the Monitoring Station to the Central Station.**

The following explains how to complete a scheduled session:

1. At the date and time scheduled by the health care provider, the Monitoring Station will play music, displaying the Welcome screen. The music will continue to play every minute for fifteen minutes if the patient does not start the session. After 15 minutes, the session will be considered missed.
2. Touch the screen. The Selection screen will appear displaying the tasks entered by the health care provider for this session. It will also show how each device will be sending data to the Monitoring Station, i.e. via a cable, the wireless adaptor module, or with manual entry. If any of the medical devices listed have a red Ø next to it, indicating the health care provider did not plan for the patient to use this device when the Device Configuration screen was completed, the patient can press directly on the Ø and change it to a hand symbol if desired. He will then be able to enter data manually for this device.
3. Select the peripheral device you would like to use first. (If there are no peripheral devices listed, press on Questionnaire.) The instruction screen for that device will appear. Use the device as instructed.
4. Press Retrieve Reading.
5. If entering the data manually, do so and press enter.
6. Select another medical device or the Questionnaire list if applicable and follow the instructions for each.
7. Once all the options have been completed, the data will automatically be sent to the server and the main screen will appear.

Section 8 Session List

The Session List screen allows you to view all sessions scheduled for this specific Monitoring Station. Sessions listed may be initiated by pressing on the row containing the session. Pressing on Execute will then start that specific session, walking you through all tasks making up this session.



Following a patient initiated session, the data will have to be saved manually for it to be sent to the server. Following a scheduled session, the data is automatically sent to the server upon completion of the session.

Section 9 Operating the Peripheral Devices

A. Scale

Prior to installing a scale into a patient's home, the following should be considered:

1. The LifeSource scale requires 4 double A batteries.
2. The AND scale requires a DC-9V battery.
3. If the scale is not going to be used for an extended period of time, the battery should be removed.
4. The scale should not be transported with the battery in place.
5. The switch on the back of the LifeSource scale should be set on Weight.
6. The Memory/Target switch, located on the upper right edge of the AND scale should be set on Memory.

To obtain a wieght using the digital scale:

1. If using the LifeSource scale, press the blue power button, located on the bottom edge of the scale. If using the AND scale, press the green ON button, located on the bottom right edge of the scale. . 0.0 will appear on the scale display with a 0 in the upper left corner of the display.
2. Step gently onto the scale. The 0 will disappear from the display.
3. When the 0 reappears, weighing is complete. The patient's weight will be displayed on the scale.
4. Ask the patient to step off the scale. The power will automatically shut off.

B. BP/Pulse Meter

As written in the A&D Medical Instruction Guide for the blood pressure/pulse meter, this monitor is intended for use by adults. Please consult with the physician before using this monitor on a child.

The blood pressure pulse meter contains the following components.

The Blood Pressure Cuff
The patient must receive instructions on how to place the blood pressure cuff on at the time the meter is placed into his or her home. Instructions for correct cuff placement appear on the cuff. We suggest the patient do several return demonstrations of the cuff placement while you are present. In addition to the standard cuff that is shipped with the Patient Stations, small and large cuffs are available.

The Inflation Rate Switch
The inflation rate switch allows the health care professional to determine how high the blood pressure cuff will be inflated. The inflation rate will need to be set according to each individual patient's baseline blood pressure. The inflation rate should be set at 33 - 40 mmHg above the patient's expected systolic pressure. But, if you have the inflation rate set at 150 and for some reason the patient's blood pressure jumps up to 160, the meter will stop inflating when it reaches 150, and then inflate to 180 in order to record the patient's blood pressure. The inflation rate should be set at the time the station is installed into the patient's home.

The Exhaust Velocity
The exhaust velocity is the rate at which the blood pressure cuff deflates. As the pressure in the cuff decreases, diastolic numbers will be shown decreasing on the meter display screen. The diastolic numbers should be shown decreasing in increments of 2 to 5. The exhaust velocity is pre-set in the factory and is dependent on the cuff size, not arm size. If the blood pressure cuff is changed, the exhaust velocity may need to be adjusted. Also if the patient has a slow pulse, or any condition that would require you to decrease a manual cuff more slowly than normal, the exhaust velocity may need to be changed. This will require a small flathead screwdriver.

To adjust the exhaust velocity rate:

1. Turn the blood pressure/pulse meter off and unplug it from the Monitoring Station.
2. Turn the meter over to display the circular opening which contains the adjustment screw. The adjustment screw may be covered with a round, black, plastic sticker. If so, remove the sticker. It can be pried off using the screwdriver.
3. To increase the exhaust velocity rate, (if the diastolic numbers are decreasing in increments less than 2) turn the adjustment screw just slightly clockwise.
4. To decrease the exhaust velocity, (if the diastolic numbers are decreasing in increments greater than 5, or the patient has a condition that would warrant you to decrease the rate at which the cuff deflates) turn the adjustment screw slightly counterclockwise.
5. Recheck the exhaust velocity and repeat the above steps until the diastolic numbers decrease in increments of 2 to 5. Once the meter has been calibrated for a new cuff, it should not have to be recalibrated unless the cuff size is changed again. If you adjusted the rate in which the cuff deflates due to the last patient's condition, i.e.: a slow pulse, repeat the above steps until the next patient's blood pressure can be measured.

To obtain a blood pressure and pulse using the meter:

1. Once the inflation rate is set as desired, place the cuff on your arm. Instructions for correct cuff placement appear on the cuff.
2. Press the blue Start button.
3. When the reading is complete, press the blue Start button again to turn the meter off. The reading can then be sent to the Monitoring Station via a cable or entered manually.

C. Glucose Meter

D. Pulse Oximeter

Section 10 Setting the Date and Time

The date and time on the Monitoring Station is automatically set to match the date and time on your server PC, once data is sent from the Monitoring Station to the server. **The date and time on your server PC must be correct**.

Section 11 Batteries

A. The Peripheral Medical Devices

It is suggested the batteries be removed from all peripheral medical devices when not in use.

The Scale
The scale requires four "AA" batteries.

The Pulse Oximeter
The pulse oximeter requires three "C" batteries.

The Glucose Meter
The glucose meter requires a 3-volt Lithium cell battery, Sony number CR2032FH or equivalent.

The BP Meter
The blood pressure/pulse meter requires four "AA" batteries.

B. The Wireless Adaptor Modules

Each wireless adaptor module attached to the peripheral devices requires one "AA" battery. It is recommended these batteries also be removed when not in use.

Section 12 Care and Cleaning of the NX Monitoring Station

A. Appropriate Storage and Operation Temperatures

The Monitoring Station should be operated in temperatures between 0˚ C (32 F) and 50˚ C (122˚ F). It should be stored in temperatures between –20˚ C (-4˚ F) and 70˚ C (158˚ F). Please keep this in mind before leaving the station in your vehicle.

B. Cleaning the Monitoring Station

Clean with a soft cloth or a cloth dampened with tap water, a mild detergent, antibacterial or antiseptic solution. Most cleaning agents used to clean equipment, such as IV pumps, will work well with this enclosure. You may want to test solutions containing a high concentration of bleach, on the back of the unit, for fading.

C. Maintenance and Calibration

1. Blood Pressure Meter

There are no calibration checks or adjustments associated with the Blood Pressure Meter. Nor are there any scheduled maintenance checks associated with the Blood Pressure Meter. However, if the Blood Pressure cuff is changed, the exhaust velocity rate should be checked and may need to be adjusted.

2. CareTone Ultra Receiver

There are no calibration checks or adjustments associated with the CareTone Ultra Receiver. There is a volume control on the CareTone Ultra Receiver to adjust the sound volume during operation, but there are no maintenance checks or adjustments.

Section 13 Returning Equipment for Repair

Technical Service Department
Return and Repair Policy
November 6, 2002

If the customer feels they have equipment that is not functioning properly, the Service Department at American TeleCare should be notified. The number to the Service Department is 1-800-323-6667 (203). The problem will then be reviewed. If the problem cannot be resolved over the phone, the customer will be issued an RMA (Return to Manufacturer Authorization) number. This will need to be written on the outside of the box being returned. The customer should retain one or two of their original boxes with the foam inserts.

American TeleCare warrants all equipment sold to be free from defects in material and workmanship in normal service and under normal conditions for one year from the date of invoice. However, we do offer an extended 2-year warranty.

Should equipment fail in normal service and under normal conditions through no fault of the customer during the warranty period, because of a defect in material or workmanship, the customer shall return the failed unit at the customer's expense, to American TeleCare. No charges shall be made for repair or replacement of the equipment covered by warranty, except the customer shall pay American TeleCare's standard handling charges upon return of the equipment. Warranty on a replacement unit will extend to the original warranty of the failed unit or 90 days, which ever is longer.

The normal turn-a-round for repairing product is 5 working days. It does not include shipping, which is normally ground. American TeleCare will ship repaired product back to the customer 1-day or 2-day at the customer's request and expense.

All repairs must be performed in the authorized repair laboratory at American TeleCare. Repairs are done at American TeleCare by American TeleCare authorized personnel for two reasons: 1) The designs of American TeleCare products are proprietary and 2) Specialized test equipment and extensive training are required to repair the equipment and ensure proper operation.

Section 14 Classification and Symbol Descriptions

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Symbol table

Symbol	Description
	Direct current
	Attention, consult ACCOMPANYING DOCUMENTS
	TYPE BF EQUIPMENT
	CLASS II EQUIPMENT

Equipment classifications

- **Mode of operation: continuously powered equipment**
- **Class II equipment**
- **Type BF applied Part**
- **Enclosure rating IPX0**
- **Equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.**

NX Monitoring Station
Installation and Operation ManualP206-001-OM
Revision Table:

Date	Change	Rev.	Apprv
December 16, 2002	Original	01	JL