

# **NEScom 3.0**

## **Temperature Control Software for Windows 95, 98, 2000, NT, ME, and XP**

Thermo Electron Manual P/N U00846

Rev. 01/10/05

- **For use with Thermo Electron products with RS-232**
- **Select from easy to use product icons**
- **Create graphs and charts**
- **Easily configure ramping functions which control the setpoint over time**

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## About NEScom

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NEScom Windows application provides a means for querying and controlling Thermo NESLAB products over an RS-232 connection. The application bases all actions on controller icons. Once a controller icon is created, product parameters can be read and controlled.

Features include the capability to view and print a temperature and setpoint chart, configure and log alarms, run and save programs, and view indicators in the form of gauges and meters, all from menu bar selections.

NEScom Help will provide answers to the questions that will arise. Use keywords to obtain information in Help searches. Click on Help buttons for shortcuts to help topics. A glossary of terms is also located in the back of this manual.

## Installing NEScom

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The setup program installs NEScom and a run-time engine onto your system. Your system should have at least 10 MB disk space. We recommend installing NEScom on at least a Pentium I PC. Your monitor should have at least 800 x 600 resolution.

To start installing NEScom double click the drive with the NEScom CD in it and then double click the Setup icon.

Setup allows you to name the installation directory to copy files. Change the destination directories by selecting Change (although we recommend you use the defaults). Once the directory names are approved select Finish to complete the installation.

### RS-232 Connection & Cables

Thermo NESLAB offers a cable (P/N 083258) to interface your computer to a Thermo NESLAB product. This 3 meter straight through cable has a 9-pin male connector at one end and a 9-pin female connector at the other end. It will handle the most common configuration which is a PC with a 9-pin male connector and a newer Thermo NESLAB product with a female 9-pin connector.

Other configurations may require a different cable and/or an adapter. These items are common parts easily found at most computer stores.

If there is a problem running this product check the cable connections, ensure the Thermo NESLAB product is powered, and ensure RS-232 communications is enabled. If necessary, check the parameters in Configure COM port in the Options menu, see page 39. Ensure the protocol being used by NEScom is supported on the Thermo NESLAB product.

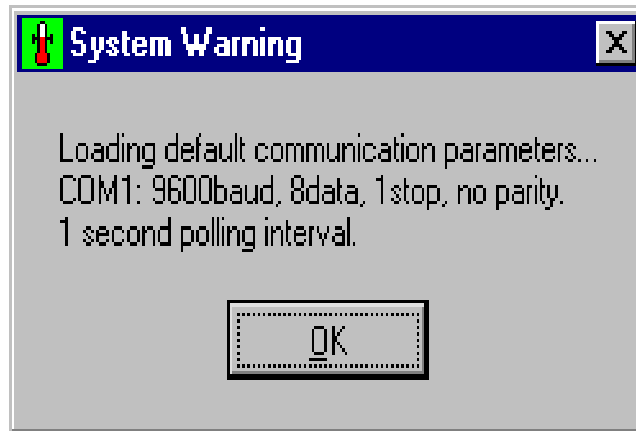
### Initialization

**Ensure your Thermo NESLAB product is configured for RS-232 operation.**

When NEScom is executed for the first time you are prompted to enter your name as the licensee. Then select **OK**.

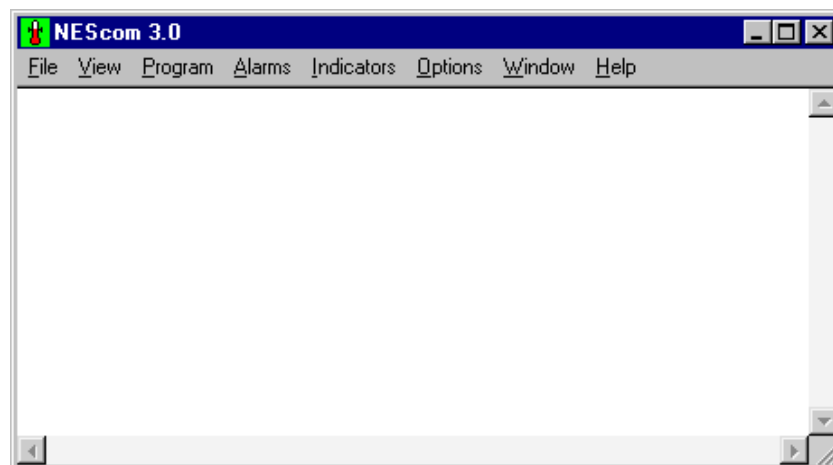


The program will then indicate the default communication parameters. (The only other time this is required is if the initialization file gets corrupted.)



Selecting **OK** with the mouse removes the pop-up message.

The following window appears:

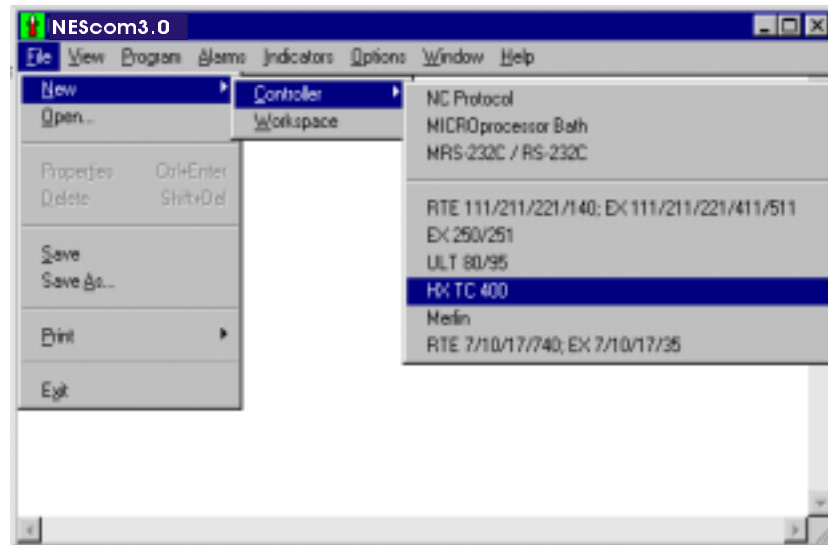


## Getting Started, Example

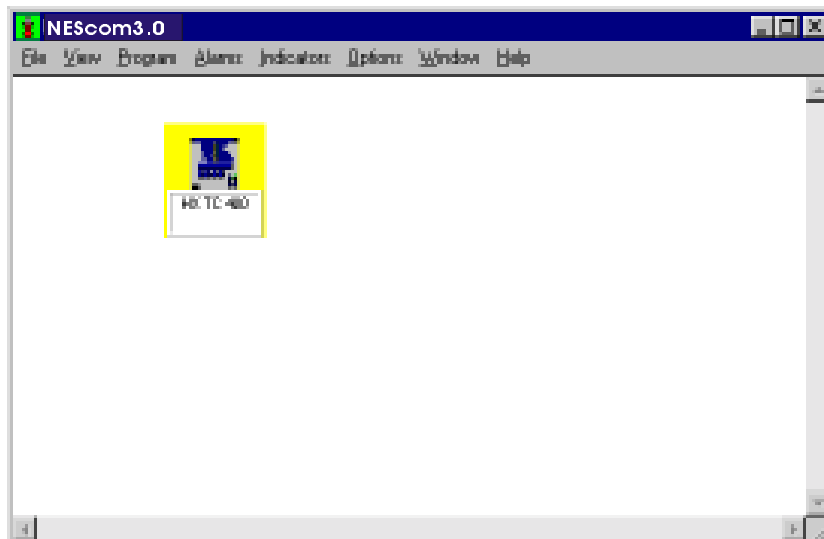
Ensure the cable is properly connected.

Ensure the Thermo NESLAB unit is configured for external communication and that all its communication parameters are properly set. Refer to the unit's Instruction Manual.

Select **F**ile, then **N**ew, then **C**ontroller, and then the appropriate controller, for this example **HX TC 400**.



The following window appears:

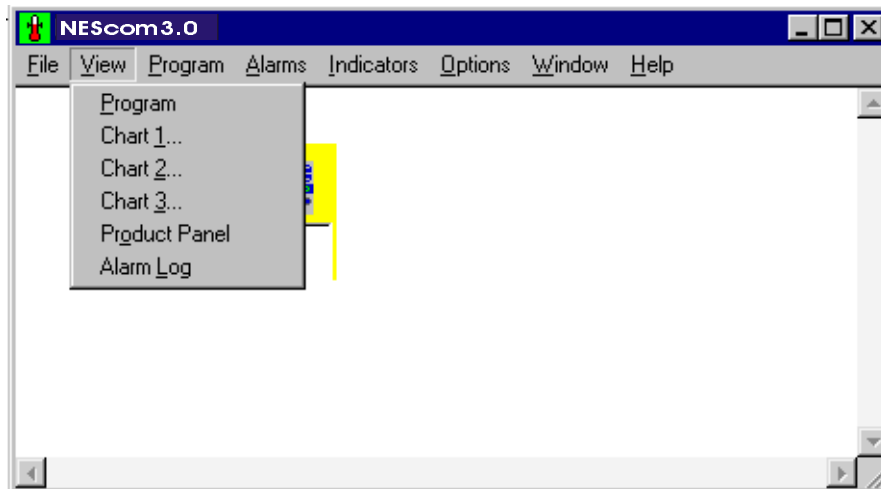


The HX TC 400 controller icon will have a yellow background color indicating that NEScom is polling the controller in an attempt to make contact.

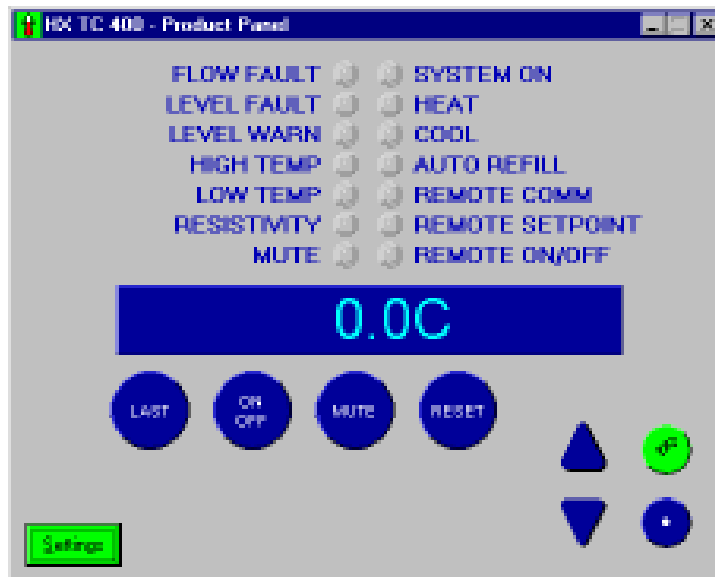


When the background color changes to blue, NEScom has successfully made contact but is not currently communicating with it.

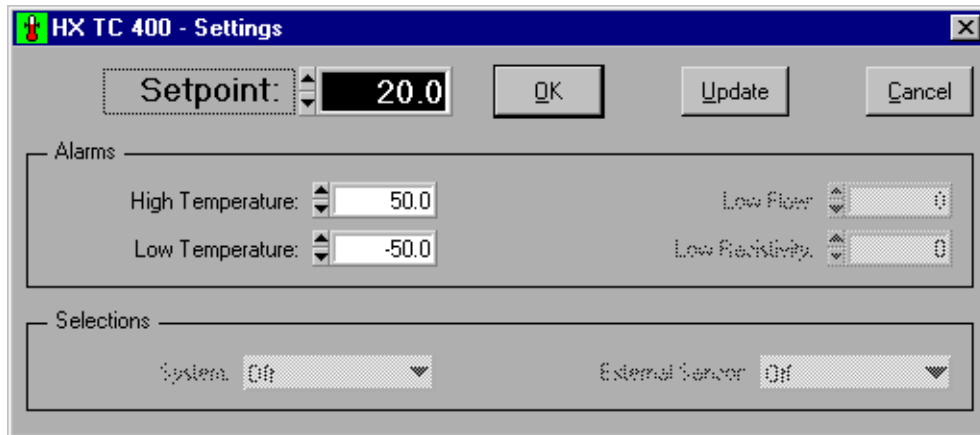
To enable communication select **View Product Panel**.



When the controller background color changes to green and the product panel appears, NEScom is communicating with the controller.



Clicking either arrow or the Settings button opens the settings panel. The settings panel displays the unit's current values.

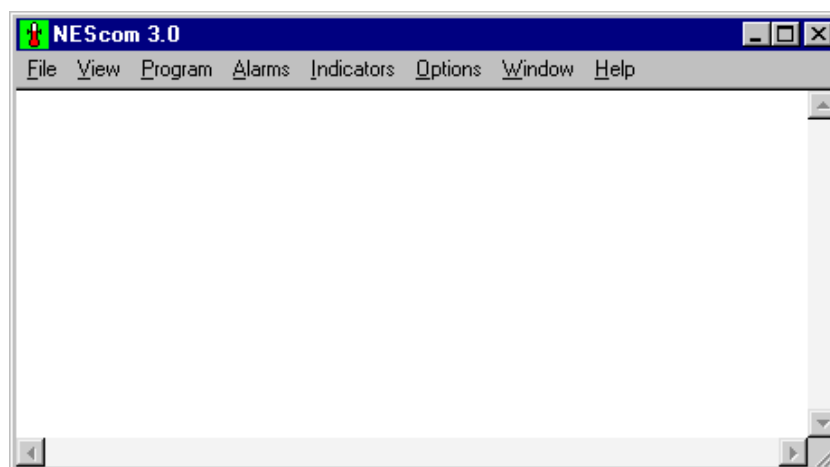


This panel contains the typical Setup Loop settings found in the product. Change one or more settings, then click the **OK** or **Update** button. The change(s) will be sent to the unit. If a setting is rejected by the unit (e.g., setpoint out of range), NEScom will beep. If the **Update** button was clicked, the rejected control will be re-freshed to the original value.

**NOTE:** The purpose of this panel is to change settings, so you must close the panel before working with other NEScom panels.

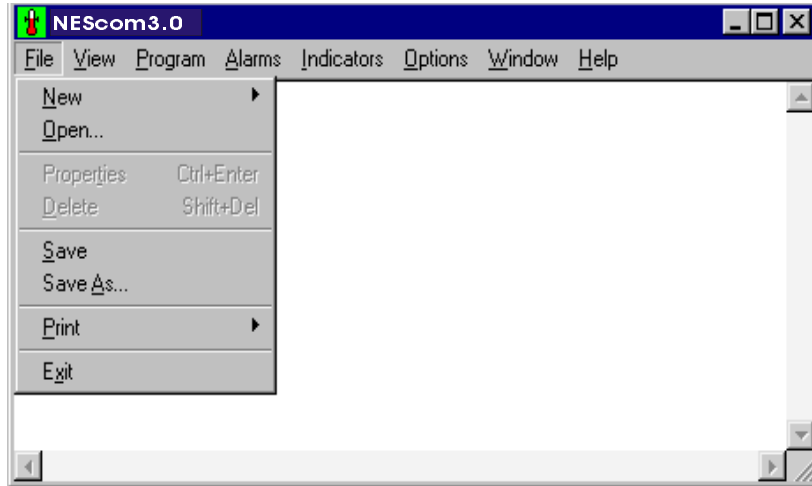
All products which have the ability to turn on and off through serial communications, can be turned on and off with NEScom, except when using the generic NC Protocol selection. Refer to the unit's Instruction Manual.

The remainder of this manual describes the NEScom windows. The windows are addressed in the same sequence that they appear on the Menu bar: **F**ile, **V**iew, **P**rogram, **A**larms, **I**ndicators, **O**ptions, **W**indow, and **H**elp.



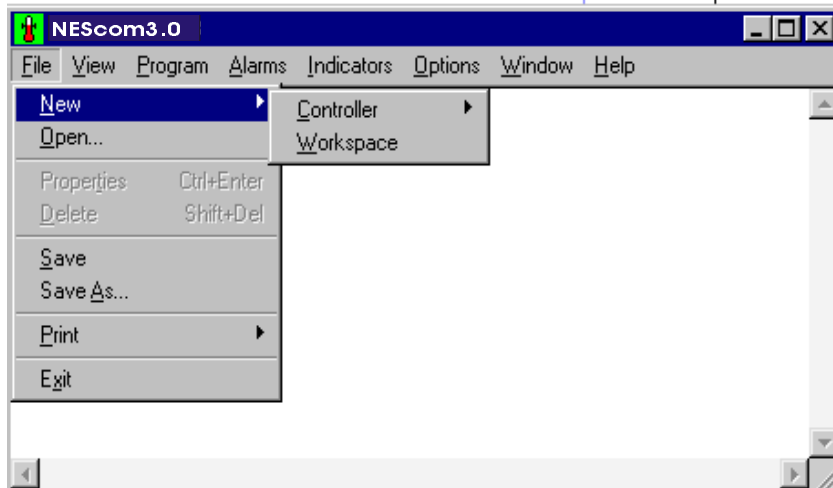
**NOTE:** Throughout the program, control buttons can be selected using the mouse or by a holding down the ALT key and then pressing the underlined letter displayed on the button label.

Select **F**ile from the menu bar to display the window shown below. This menu allows you to create, open, delete or save work spaces containing various controller configurations.



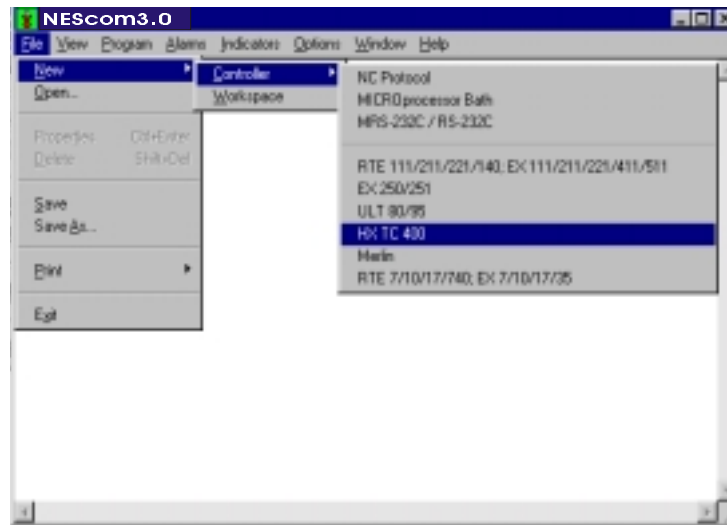
## New

The options are **C**ontroller or **W**orkspace.



## **Controller**

Use **Controller** to select the desired icon(s). The icon represents the controller.



Select from the following icon types:

*NC Protocol*<sup>1</sup> - General support for Thermo NESLAB products that support the NC Protocol.

*MICROprocessor Bath*<sup>1</sup> - General support for Thermo NESLAB Microprocessor line of baths (RTE/EX).

*MRS-232C / RS-232C*<sup>1</sup> - General support for Thermo NESLAB Digital line of baths and chillers that utilize the MRS232C or RS-232C.

*RTE 111/211/221/140; EX 111/211/221/411/511* - Support for RTE/EX digital products utilizing the NC Protocol.

*EX 250/251*

*ULT 80/95*

*HX TC 400*

*Merlin*

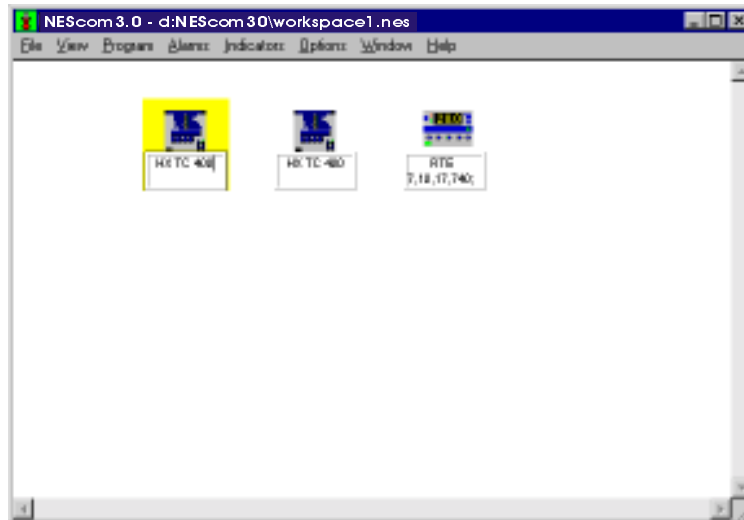
*RTE 7/10/17/140; EX 7/10/17/35*

When creating an icon, if the product has different serial communication defaults other than NEScom's, NEScom asks if you want to use the product's defaults.

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1. See glossary.

Up to eight (8) icons can be selected to create a workspace. Workspaces can be saved, see below.



Select an icon with the mouse to make it active. An icon is active if it is highlighted. All menu selections are now based on the active icon.

The background color of the active icon signifies its communication status.

*Yellow* - NEScom is polling the device in an attempt to make contact.

*Blue* - NEScom successfully contacted the device but is not currently communicating with the product.

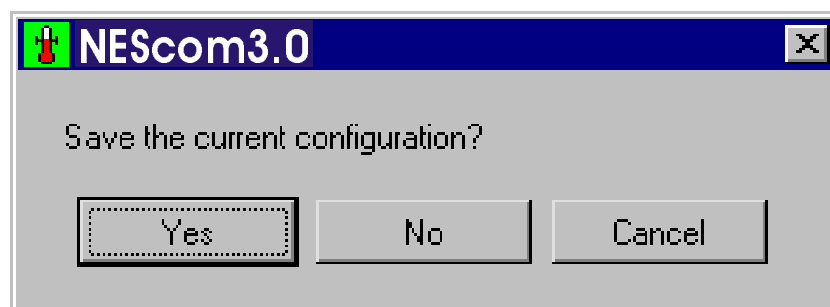
*Green* - NEScom is currently communicating with the product.

*Red* - an error in communication occurred. Communication is resumed by manually enabling communications. See **Properties** in this section, or **Enable Communications** in the **Options** section.

### **Workspace**

Select this option to define and configure a new workspace. A Workspace is made up of one or more controller icons. If one is already active, NEScom will prompt you to save the current workspace before a new one is defined or loaded.

All icons are cleared when a new workspace is created. Once new controller icons are added, the workspace can be saved.



Icon properties are saved when saving a workspace. If a program is in memory and has been saved to a file, then this file name is saved with the icon properties and restored whenever a workspace is opened.

## **Open**

Select this menu item to open a previously saved workspace.

### **File name:**

Type the file name in the space provided or select from the choices within the file list.

### **Files of type:**

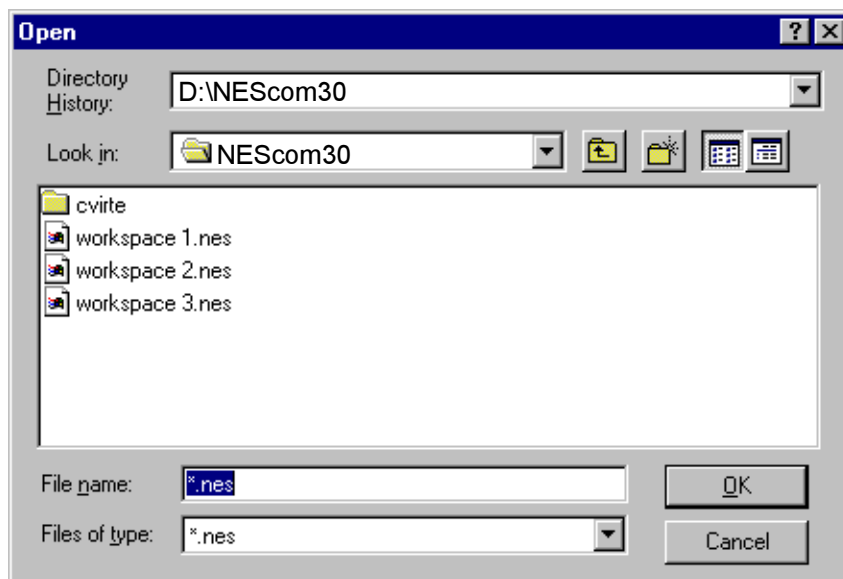
The default file type listed is \*.nes. To list all files in the directory click on the down arrow and select All files (\*.\*) .

### **Directory History:**

Choose from the default directory or browse through the directory structure.

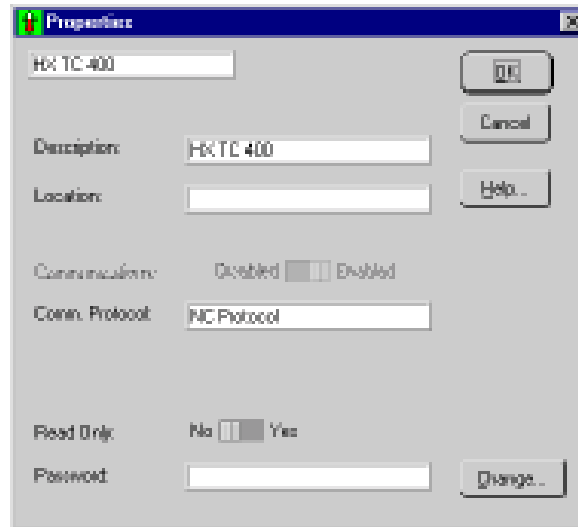
### **Look in:**

Choose from the default drive or select from other drive choices.



## Properties

Select Properties to view the window below. Properties include: Description, Location, Communications Protocol, Read Only status, and Password.



**Description:** If desired, enter a new description of the unit selected to communicate with NEScom. This description will appear on the icon and any window panel associated with this icon. The description is referenced when logging alarms.

**Location:** Enter the physical location of the unit (building, lab number ...) selected to communicate with NEScom. The location is referenced when logging alarms.

**Communications: Disabled—Enabled** This control is available only when there is a communication error. Under error-free operating conditions this control is dimmed and gives the status of communications. If an error occurs which causes communications to stop, communication is re-enabled by setting the switch to Enable.

NOTE: Communication is normally disabled when NEScom is not requesting parameters from the product. Once you configure NEScom to request data from the product, communication is automatically enabled.

**Comm. Protocol:** This displays the current communications protocol. This display cannot be changed.

**Read Only: No—Yes** When in read only mode, NEScom can only query a product for information and not perform any intrusive setting of product parameters (like temperature setpoint). Read Only mode is enabled by entering the correct password and selecting Yes on the Read Only switch.

With Read Only mode selected:

- Programs cannot be started.
- Setpoint cannot be changed from Product Panels.
- Product Panel buttons are disabled.

**Password:** A password must be entered before the Read Only mode can be enabled. All software is shipped with the password "password" as a default. Select Change.... to change your password. Passwords are case sensitive.

## **Delete**

Select this menu item to delete the active product icon within the workspace. When an icon is deleted, the icon created first among those remaining becomes the active icon.

NEScom prompts to confirm the deletion.

**NOTE:** The shortcut for delete is [Shift]+[Del].

## **Save**

Select this menu item to save the current workspace. If the workspace has not been previously saved then a dialog box will appear prompting for file information.

### **File name:**

Type the file name in the space provided or select from the choices within the file list.

### **Files of type:**

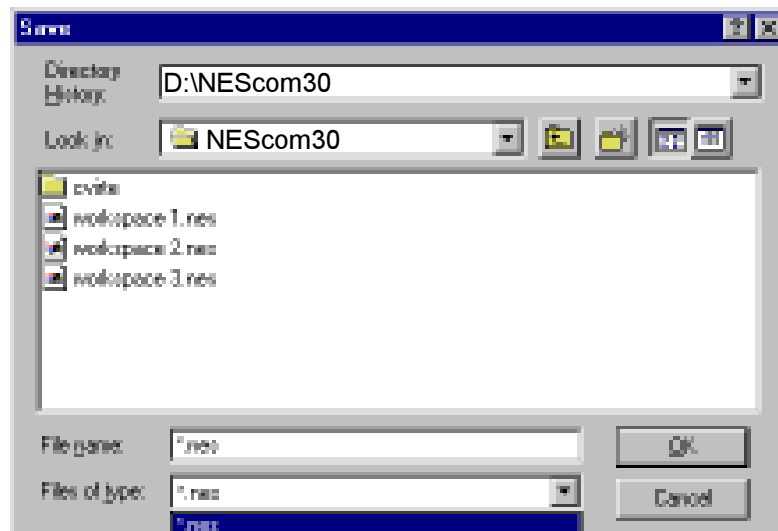
The default file type listed is \*.nes. To list all files in the directory click on the down arrow and select All files (\*.\*) .

### **Directory History:**

Choose from the default directory or browse through the directory structure.

### **Look in:**

Choose from the default drive or select from other drive choices.





## **Save As**

Select this menu item to save the current workspace under a new file name.

### **File name:**

Type the file name in the space provided or select from the choices within the file list.

### **Files of type:**

The default file type listed is \*.nes. To list all files in the directory click on the down arrow and select All files (\*.\*)).

### **Directory History:**

Choose from the default directory or browse through the directory structure.

### **Look in:**

Choose from the default drive or select from other drive choices.

## **Print**

Select Print from the menu choices to print a hard copy of a graph of the program in memory, a snapshot of the strip chart, the product control panel or the contents of the alarm log.

**Program:** After a Program is created and loaded into memory a hard copy can be made. You can print the program in the form of a graph or plain text. A Program must be viewed if printing in graph form.

**Chart:** A chart must be viewed before it can be printed. Only the portion viewed will be printed.

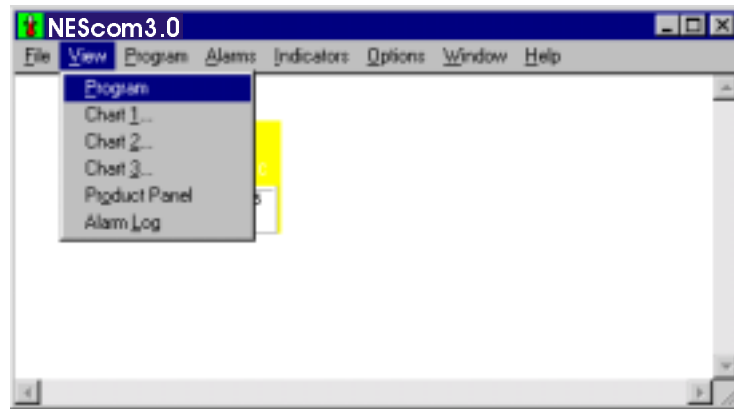
**Control Panel:** A control panel must be viewed before it can be printed.

**Alarm Log:** An Alarm Log must be opened before it can be printed. The output of the alarm log goes to the default printer.

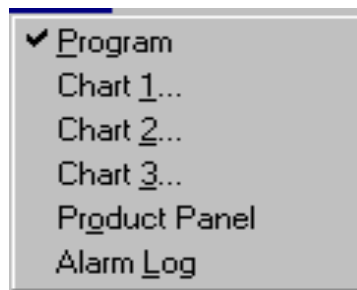
## **Exit**

Select Exit from the menu choices to exit the program. If the workspace has changed since the last save, a save-message prompt will appear before exiting.

Once NEScom is communicating with the product, select **V**iew from the menu bar to view one of three program graphs, strip charts, product control panels and alarm logs.



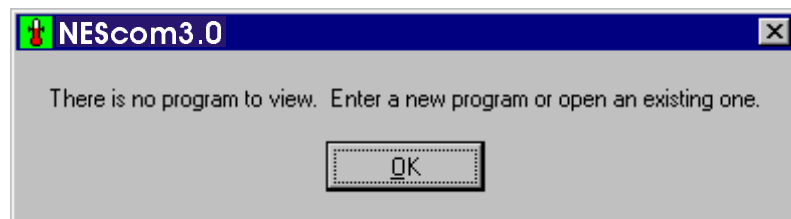
**NOTE:** A check mark to the left of the menu item signifies that the program exists for the active controller icon.



## Program

Select **P**rogram to view a graphic representation of the current program.

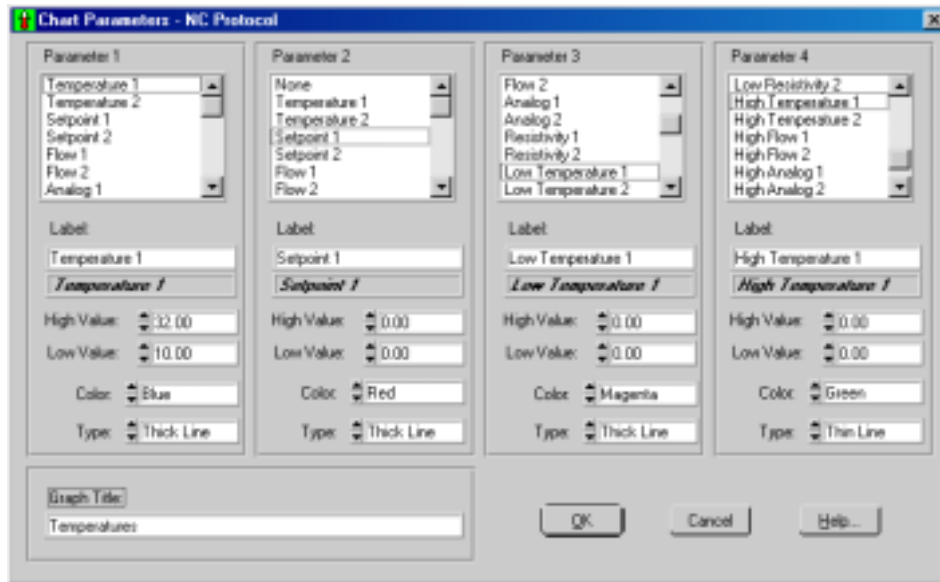
If there isn't a stored program NEScom displays:



To create a program see **P**rogram Menu in the next section.

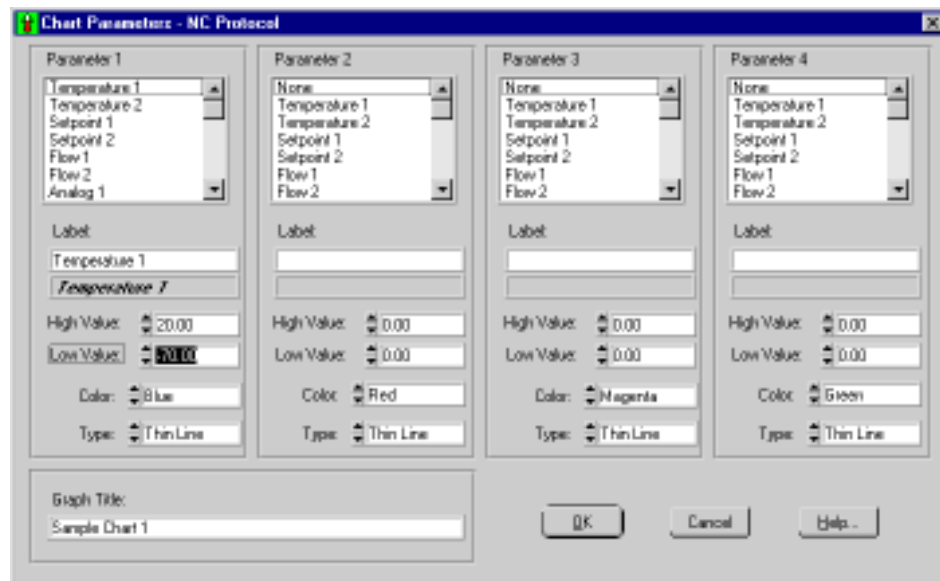
### Chart 1... Chart 2... Chart 3...

Selecting this menu item, prompts you with a pop-up panel for selecting which chart parameters to view and in what format to display the data.



**NOTE:** The Microprocessor Bath and the MRS-232C/RS-232C options have only a Chart 1 option and only 2 parameters: temperature and setpoint.

Depending on which controller icon type is active, the look of the Chart Parameters pop-up panel may vary. Only those controller icons supporting the NC protocol provide the flexibility of selecting from a variety of parameters to chart. Of all the parameters supported in the NC protocol, only those parameters supported in the actual product can be plotted on the chart. Selecting a parameter that is not supported does not affect the strip chart.



**Parameter 1/Parameter 2/Parameter 3/Parameter 4:** Select from the list of parameters. Any parameter not supported is indicated in the reference text box below the label field. To create a chart, Parameter 1 must exist. Parameter 2-4 are optional. All parameters on the screen are independent from other charts, including the log file.

**Label:** By default, the parameter name appears in the Label field. This field can be edited and is limited to 30 characters. The label appears in the chart legend. Parameter one is the title for the y-axis. The range of the y-axis depends on the values used for all the parameters.

**High Value:** Enter the upper limit for the parameter.

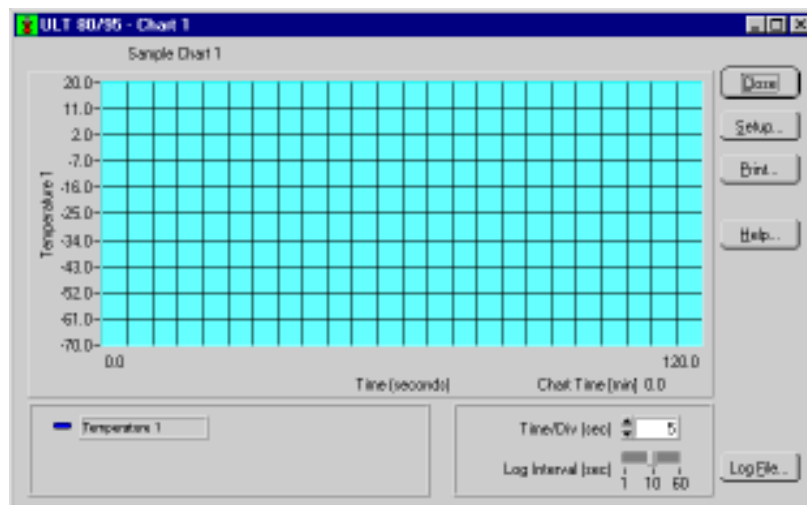
**Low Value:** Enter the lower limit for the parameter.

**Color:** Choose from 16 color choices.

**Type:** Choose a line style (thin line, thick line, or plotted points).

**Graph Title:** Enter a description of the graph.

After filling out the screen click **OK** to display the chart.



**Time/Div:** This selects the time interval for the x-axis divisions. There are always 24 divisions displayed along the x-axis. This time is in seconds unless the intervals are greater than five seconds. In this case the time scale for the x-axis is in minutes.

**Log File...:** Select this to output data acquisition to a file. The file contains a column for time and a column for each parameter being sampled. Time is in seconds and starts with zero. The **Log Interval** is configurable, select 1, 10 or 60 seconds (sec). Parameter headings are automatically logged to the file when it is first opened and data is written to the file as long as it is open.

When **Log File** is clicked the window changes to **Close File**. Close the file by clicking on **Close File** or by closing the chart panel.

**Close:** Select this to close the chart panel. The operator is warned that the log file will also close (if open).

**Setup:** Select this to bring up a panel for choosing which chart parameters to view and in what format to display the data.

**Print:** Select this to print the chart panel to a selected printer or to file. The chart can also be printed from the File menu. To print the graph at a later time, type the following at the DOS prompt: copy <filename> lpt1.

**NOTE:** A chart must be viewed in order to be printed.

**Help:** Select this to display this help topic.

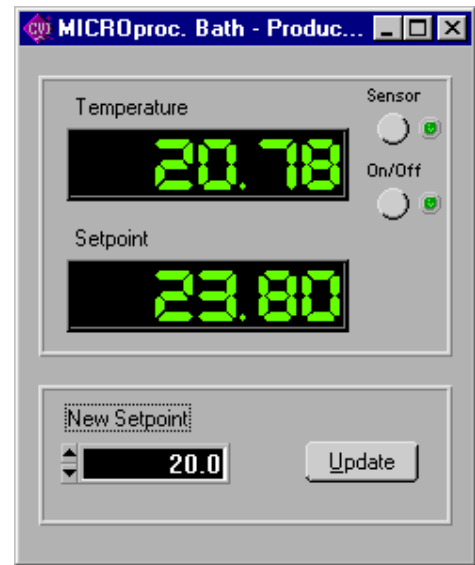
## Product Panel

Select **Product Panel** from the **View** menu to view the control panel of the active product icon. **NOTE:** All features of the product panel are disabled in the read-only mode. If attempting to perform a function that requires disabling read-only mode, you will be prompted with a message or a beep indicating that the unit is in read-only mode.

For an example of a product panel see **Getting Started, Example** on pages 4 and 5.

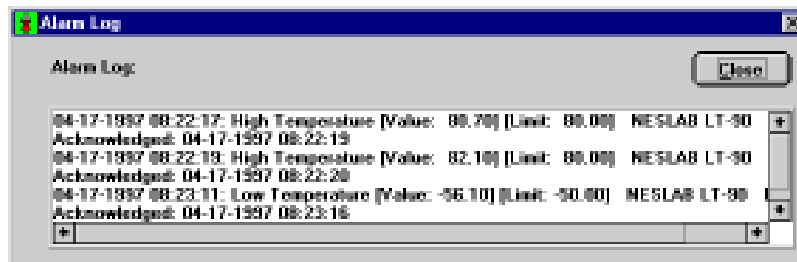
### Generic Product Panel:

All Generic controller icons share a generic product panel which displays temperature and temperature setpoint. The temperature setpoint can be updated when read-only is disabled. This is done by entering a number in the “New Setpoint” field and clicking on the “Update” button.



## Alarm Log

Select **Alarm Log** from the **View** menu to view the contents of the alarm log in a pop-up window panel. An alarm log file must be opened in order to be viewed. Scroll through the alarm log with the vertical and horizontal scroll bars.



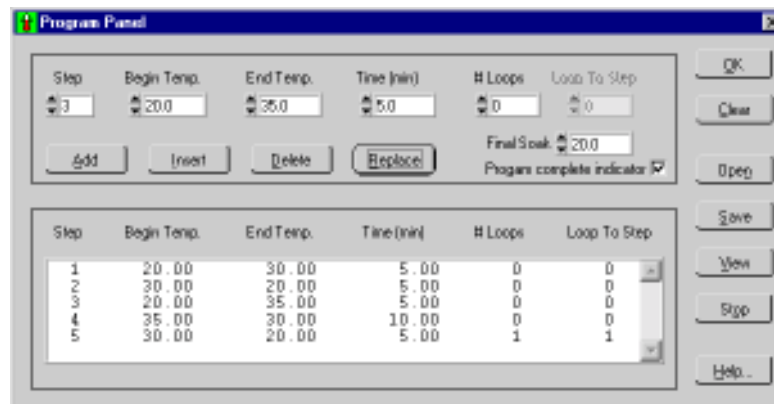
# Program

NEScom provides a means for programming temperature setpoints over time. Setpoint ramp and soak functions are entered as program steps. Any sequence of steps can be repeated up to 999 times with the program-loop feature.



## Program Parameters...

Programs are built/edited, viewed and controlled using the Program Panel window. The panel is divided into the Program Edit Window (top), the Program View Window (bottom) and the Program Panel Buttons (side).



## Program Edit Window

Program steps are defined by their step number. Use this window to enter program steps. Adding, inserting, deleting and replacing steps is accomplished by first choosing a step number.



The screenshot shows the 'Program Panel' window with a single step configuration. The fields are as follows:

Step	Begin Temp.	End Temp.	Time (min)	# Loops	Loop To Step
3	30.0	20.0	5.0	1	1

Additional controls include: Add, Insert, Delete, Replace buttons; Final Soak: 20.0; and Program complete indicator:

**Step:** Up to 100 steps can be entered starting with step 1.

**Begin Temp:** Enter the beginning temperature of the program step.

**End Temp:** Enter the ending temperature of the program step.

**Time (min):** Enter the duration of the program step in minutes.

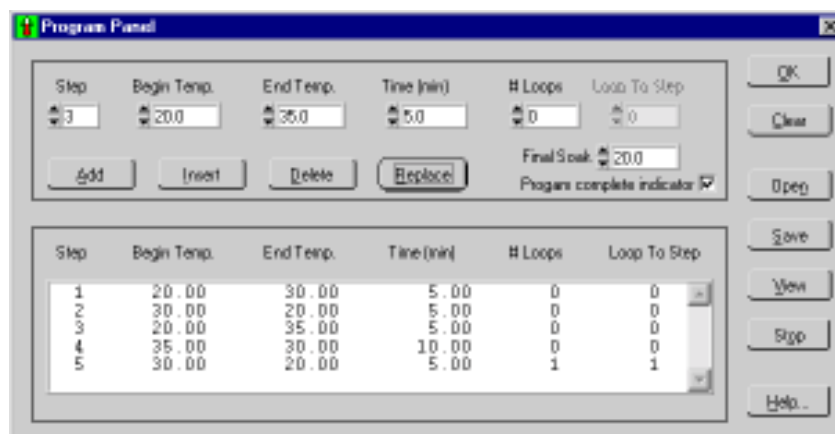
**NOTE:** Setpoint soak is achieved by setting the start and end temperatures to the same value. Soak time is the period of time entered here. Once a step is completed, the program resumes to the next step in the program unless # Loops, see below, is set greater than zero. The maximum duration for a single step is 9999.9 minutes.

**# Loops:** A sequence of steps can be repeated to create a program loop. A number other than zero entered in this field equals the number of times a sequence of steps is repeated. When a program encounters a nonzero number for # Loops, it will go to the step number entered in **Loop To Step** and repeat this action as many times as indicated. Once the number of loop repeats is reached, the program resumes to the next step in the normal sequence of the program. A loop can repeat up to 999 times.

**Final Soak:** The temperature that will be maintained once the program is completed or manually stopped.

**Program complete indicator:** Select this to get a pop-up message to indicate a complete program.

**NOTE:** If a communication time-out occurs, the setpoint will remain at the last setpoint.



The screenshot shows the 'Program Panel' window with a multi-step program configuration. The fields are as follows:

Step	Begin Temp.	End Temp.	Time (min)	# Loops	Loop To Step
3	20.0	35.0	5.0	0	0

Additional controls include: Add, Insert, Delete, Replace buttons; Final Soak: 20.0; and Program complete indicator:

Step	Begin Temp.	End Temp.	Time (min)	# Loops	Loop To Step
1	20.00	30.00	5.00	0	0
2	30.00	20.00	5.00	0	0
3	20.00	35.00	5.00	0	0
4	35.00	30.00	10.00	0	0
5	30.00	20.00	5.00	1	1

Additional controls include: OK, Clear, Open, Save, View, Stop, Help... buttons

**Add:** After all parameters are entered into a program step, click **Add** to add this step into the program.

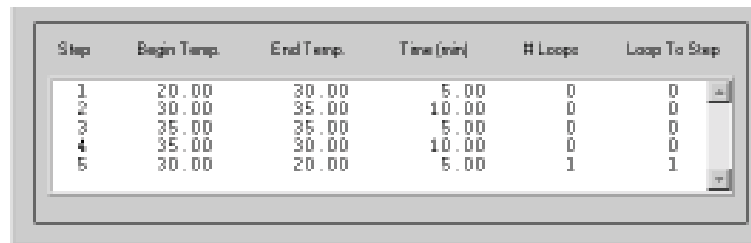
**Insert:** Inserts a program step into the program. The step number of the inserted step, as indicated by the Step value, remains the same and all step numbers greater than or equal to the inserted step number are incremented by one. When a step is inserted within a loop, the **Loop To Step** value for that loop is not changed. When a step is inserted prior to a loop, the **Loop To Step** value for that loop is incremented by one.

**Delete:** Deletes a program step from the program, as indicated by the Step value. All step numbers greater than or equal to the inserted step number are decremented by one. When a step is deleted within a loop, the **Loop To Step** value for that loop is not changed. When a step is deleted prior to a loop, the **Loop To Step** value for that loop is decremented by one.

**Replace:** Replaces the program step previously entered with the current program step.

### Program View Window

This view-only portion of the window details each programmed step. Scroll the window using the vertical scroll bar.



Step	Begin Temp.	End Temp.	Time (min)	# Loops	Loop To Step
1	20.00	30.00	5.00	0	0
2	30.00	35.00	10.00	0	0
3	35.00	35.00	5.00	0	0
4	35.00	30.00	10.00	0	0
5	30.00	20.00	5.00	1	1

**NOTE:** Highlighting program steps in this portion of the window has no affect on the Program Edit Window.

### Program Panel Buttons

**OK:** Closes the Program Panel.

**Clear:** Clears the entire program currently loaded.

**Open:** Loads a program that has previously been saved to a file.

**Save:** Saves current program to the specified path and file name.

**View:** Displays a graphic representation of the current program. See page 28.

**Start:** Starts the program. When communication is established the program begins executing and the controller icon turns green. **NOTE:** The Program Panel will disappear. Click **Program** and then **Program Parameters...** to display the Program Panel. The **Start** button changes to **Stop** on the program panel when the program is running.

**Stop:** Stops the program. Under conditions of normal program termination (stopped by the operator or completed as intended) the setpoint will be set to Final Soak. The **Stop** button on the Program panel changes to **Start**.

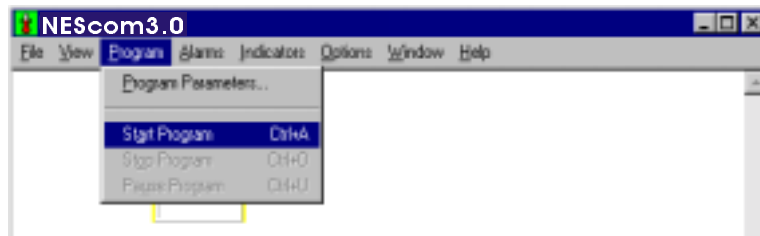
**Help:** Displays this help topic.





### Start Program (Ctrl+A):

This menu selection is available only when a program has been stored in memory. This selection starts the program at the first program step. When the program is running, the controller icon is highlighted green indicating that communication is established.



If the program is successfully executing, this menu selection becomes unavailable to the operator and the **Stop Program** and **Pause Program** selections become available. The program control button on the program panel changes from **Start** to **Stop**.

**NOTE:** If communication fails the icon is highlighted in red.

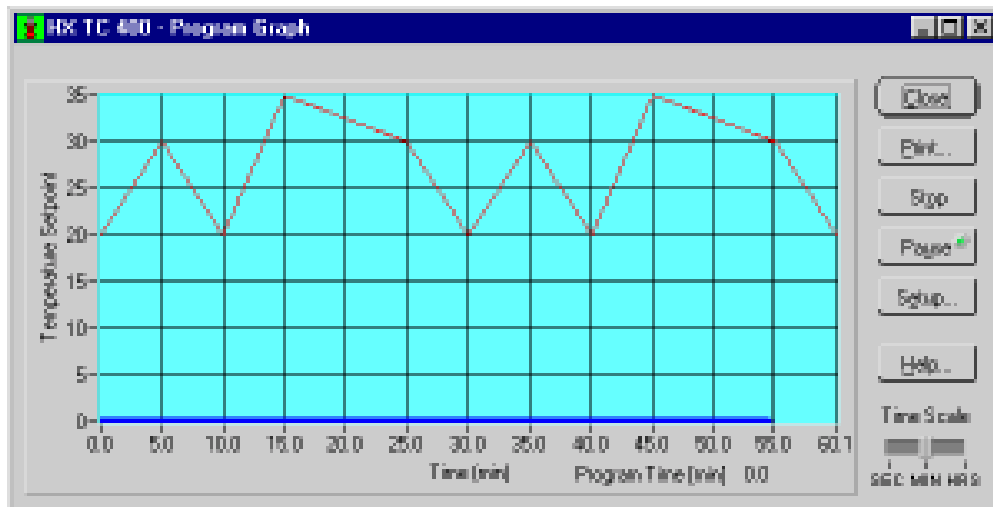
### Stop Program (Ctrl+O):

This menu selection becomes available once a program is stored in memory and started. Selecting this menu item stops the program. When stopped manually, the program sets the setpoint to the Final Soak value. The **Stop** button on the Program panel changes to **Start** when a program is stopped.

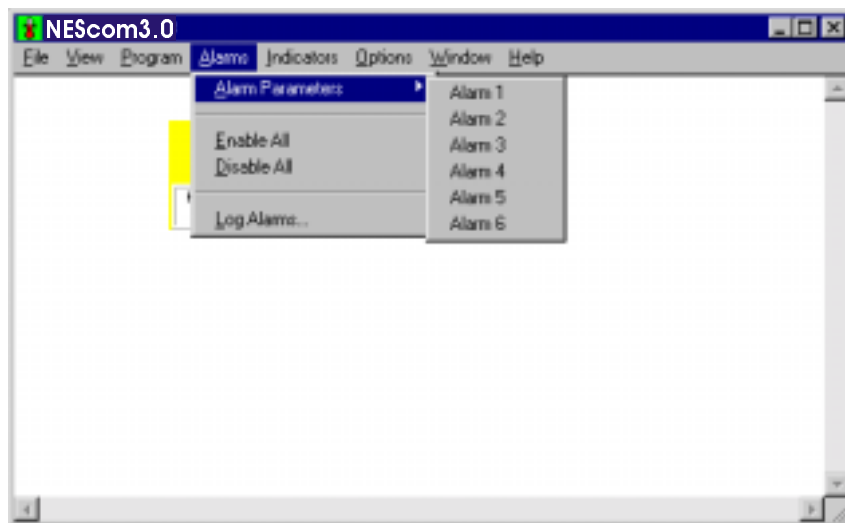
### Pause Program (Ctrl+U):

This menu selection becomes available once a program is stored in memory and started. Selecting this menu item pauses the program. When paused, this menu item is checked and the program does not set the setpoint to any new values. To resume execution of the program, select **Pause** again. A check mark at this menu item signifies that the program is paused. The program can be stopped when paused.

**View Program:** Displays a graphic representation of the current program. The program buttons work in the same manner as the Program Panel Buttons.

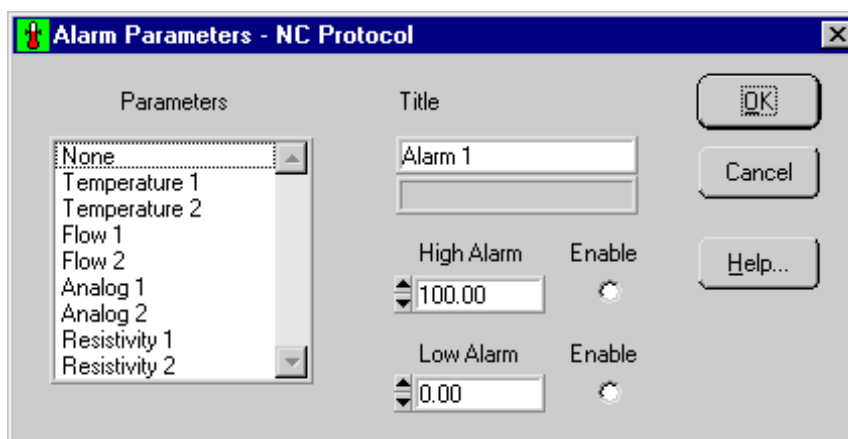


NEScom can be configured to generate warning messages when alarm conditions occur. Alarm setup can vary depending on which communication protocol is in use. All alarms can be enabled or disabled with a single menu selection.



## Alarm Parameters

Select any alarm from the menu. The descriptions Alarm 1, Alarm 2, etc. are default names which can be modified when configuring an alarm.



Alarms are configured by first selecting a specific parameter from a list of ones supported, then entering a high limit and low limit for that parameter. Parameter units and precision match those of the actual product.

High limit and low limit alarms can be later enabled or disabled by recalling the alarm from this menu. A check mark on an alarm description signifies that either limit or both limits are enabled.

**Parameters:** Select the alarm parameter. If the parameter is not supported by the product then the reference field will read Not Supported.

**Title:** Enter a descriptive title for each alarm. This will appear as the new description for this menu item.

**High Alarm:** Enter the high limit. The alarm will activate when the parameter in question exceeds this limit.

**Low Alarm:** Enter the low limit. The alarm will activate when the parameter in question is lower than this limit.

**Enable:** Individually enables or disables each alarm.

**Cancel:** Cancels all changes made since the last save.

**OK:** Confirms the alarm configuration.

### **Enable All**

Enables all defined alarms. See Alarm Parameters for individually enabling alarms.

### **Disable All**

Disables all defined alarms. See Alarm Parameters for individually disabling alarms.

When an alarm occurs, you are prompted with a pop-up message. This message displays the alarm description, the value read from the product and the alarm limit. Messages also display the icon description and location entered under icon properties. You must acknowledge this message and then have the option to disable the alarm.

**NOTE:** In all cases an alarm point is stored within the Windows application and is independent of any alarm setting in the product. For instance, a high-temperature alarm created here will not affect the product's high-temperature alarm setting.

### **Log Alarms...**

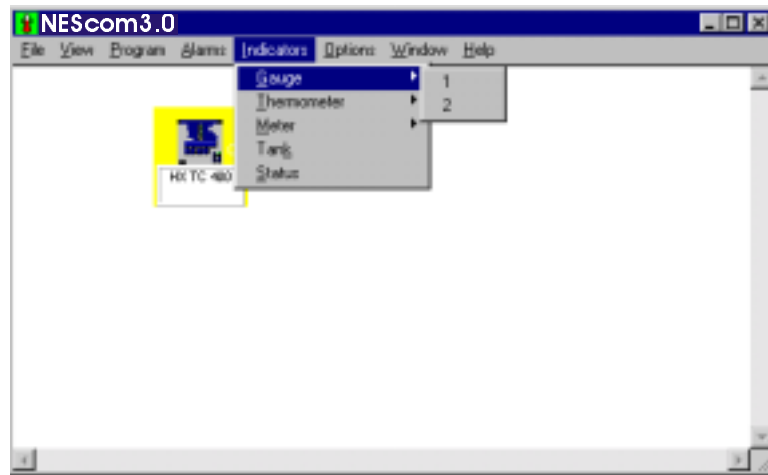
NEScom provides the means to log all alarm messages to a file. Select this menu item to create a log file. A file selection dialog box allows the operator to easily open a file for automatic logging. A check mark on this menu item signifies that an alarm log has been opened. Selecting this menu item with a check mark closes the alarm log.

Alarm log entries are stamped with the date and time of the alarm occurrence and the contents of the alarm message. The alarm log also indicates when an alarm was acknowledge.

View the contents of the alarm log by selecting **Alarm Log** from the **View** menu.

Print the contents of the alarm log by selecting **Print** from the **File** menu.

Indicators are graphical representations of data. Graphical formats such as gauges, thermometers and meters are linked to product parameters for greater visibility. An indicator is created by selecting the specific indicator from the menu. A check mark on the indicator menu item signifies that the indicator exists. Selecting a checked menu item deletes the indicator.



All indicators reside in an indicator window. The sizable window is displayed when the first indicator for a controller icon is created. There is a unique indicator window for each controller icon. Indicators are dimmed for all controller icons other than the selected active icon.

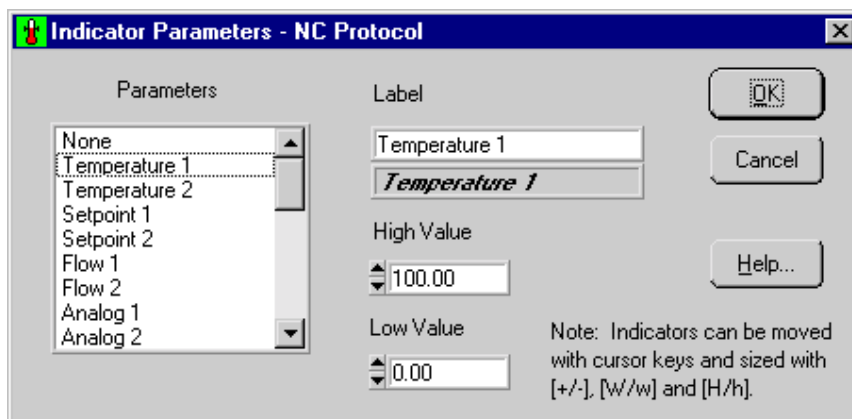
Indicators can be moved within the indicator window with the mouse or the cursor keys and sized with your keyboard's +/- (overall adjust), W/w (width adjust), or H/h (height adjust) keys.

Left-Double-Click an indicator to configure the indicator range and title.

Indicators are outlined in red when they are out of range.

## NC Protocol Parameters

The following window is displayed when any Indicator is selected:



The NC protocol is designed to acquire all possible parameter values from Thermo NESLAB proprietary controllers. Most (if not all) products supporting the NC protocol use only a subset of the entire function set. When linking an indicator or chart parameter to a protocol parameter for a given product, only those parameters supported by the product are possible parameter choices.

### Supported Parameters:

Temperature 1  
Temperature 2  
Setpoint 1  
Flow 1  
Flow 2 (future expansion to Flow 10)  
Resistivity 1  
Resistivity 2

### Supported Alarm Points:

Temperature 1 (high low)  
Temperature 2 (high low)  
Flow 1 (high low)  
Flow 2 (high low)  
Resistivity 1 (high low)  
Resistivity 2 (high low)

## Microprocessor Protocol

NESLAB's Microprocessor line of products provide temperature, setpoint, high limit and low limit values. Here, the thermometer indicators are linked to temperature and setpoint and the gauge indicators are linked to the temperature limit values.

## MRS232C Protocol

Products supporting the MRS232C protocol only provide temperature and setpoint values so two thermometer indicators are available.

## Gauge

### **NC Protocol**

When selecting either 1 or 2 from the Gauge menu item, the operator will be prompted to link a NC protocol parameter to the indicator.

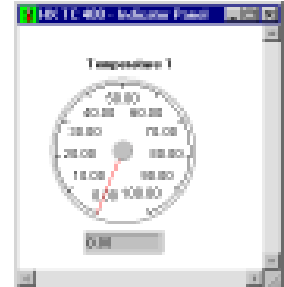
**Parameters:** Choose a parameter from the list choices. Parameters that are referenced as Not Supported will not be linked to an indicator.

**Label:** Type a label for the indicator.

**High Value:** Enter a high value for the indicator.

**Low Value:** Enter a low end for the indicator.

Values outside the entered range make the indicator go out of range. This is illustrated by a red outline on the indicator.



### **Microprocessor Protocol**

High Temperature

Low Temperature

### **MRS232C Protocol**

Not Supported

## Thermometer

### **NC Protocol**

When selecting either 1, 2 or 3 from the Thermometer menu item, the operator will be prompted to link a NC protocol parameter to the indicator.

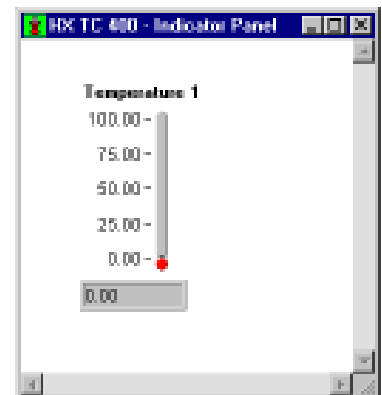
**Parameters:** Choose a parameter from the list choices. Parameters that are referenced as Not Supported will not be linked to an indicator.

**Label:** Type a label for the indicator.

**High Value:** Enter a high value for the indicator.

**Low Value:** Enter a low end for the indicator.

Values outside the entered range make the indicator go out of range. This is illustrated by a red outline on the indicator.



### **Microprocessor Protocol and MRS232C Protocol**

Temperature

Setpoint

## Meter

### NC Protocol

When selecting either 1, 2, 3 or 4 from the Meter menu item, the operator will be prompted to link a NC protocol parameter to the indicator.

**Parameters:** Choose a parameter from the list choices. Parameters that are referenced as Not Supported will not be linked to an indicator.

**Label:** Type a label for the indicator.

**High Value:** Enter a high value for the indicator.

**Low Value:** Enter a low end for the indicator.

Values outside the entered range make the indicator go out of range. This is illustrated by a red outline on the indicator.



### Microprocessor Protocol and MRS232C Protocol

Not Supported

## Tank

### NC Protocol

When selecting the Tank menu item, the operator will be prompted to link a NC protocol parameter to the indicator.

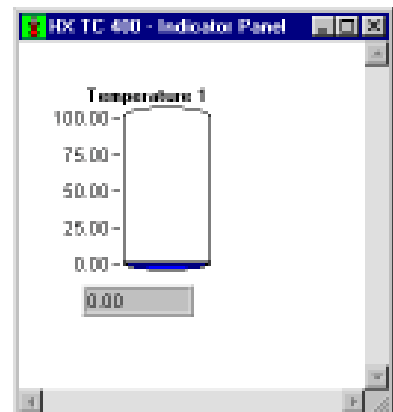
**Parameters:** Choose a parameter from the list choices. Parameters that are referenced as Not Supported will not be linked to an indicator.

**Label:** Type a label for the indicator.

**High Value:** Enter a high value for the indicator.

**Low Value:** Enter a low end for the indicator.

Values outside the entered range make the indicator go out of range. This is illustrated by a red outline on the indicator.



### Microprocessor Protocol and MRS232C Protocol

Not Supported

## Status

Select **Status** from the Indicator menu bar to view a product's predefined status conditions. Status flags indicate faults, warnings and other system conditions, and typically vary from product to product. Reference the product owners manual for the definition of status bits.



## NC Protocol

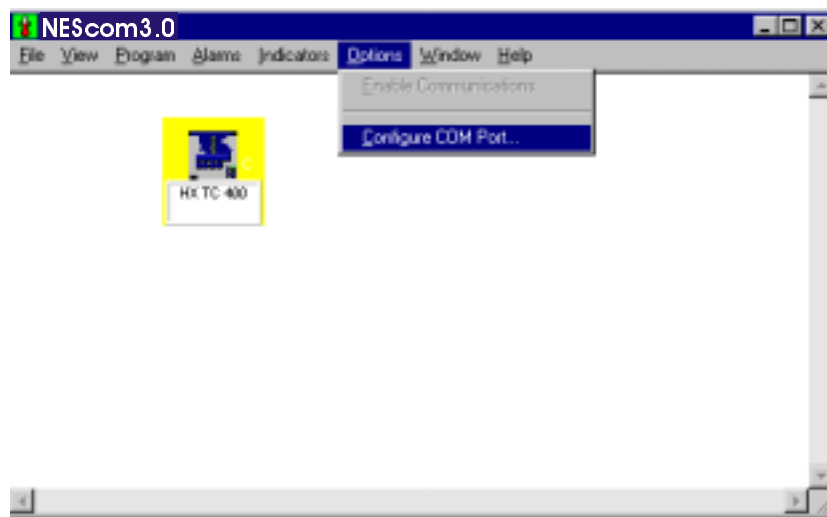
Up to 48 status fields can be predefined for a product. These fields are labeled for specific products that report their status. When viewing status for a Generic NC icon, the operator will see that the labels for the status fields are generic as well. These labels can be modified by selecting the field and typing the status label name.

## Microprocessor Protocol and MRS232C Protocol

Not Supported



Select **Options** from the menu bar to configure and reset the COM port.



### **Enable Communications**

The control for enabling communications is available only when there has been a communications time-out error. Under normal operating conditions this control is dimmed and gives the current communication status. Enabling communications re-initializes the COM port.

Select this menu item to re-enable serial communications following a communications time-out error. This can also be done from the properties panel and the communications panel. A controller icon with a red background signifies that there has been a communications error.

Once the COM port has been re-initialized, the product is polled by NEScom in order to establish contact. A controller icon with a yellow background signifies that it is polling the product. The icon will remain yellow until contact is made.

## Configure COM Port...

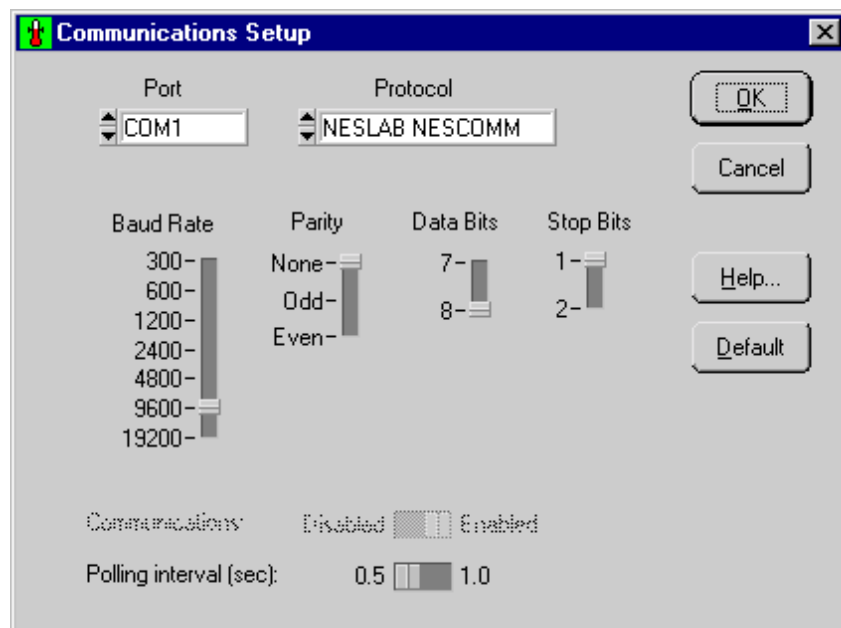
Select this menu item to configure the comm port.

Communication is normally disabled when NEScom is not requesting parameters from the product. Once you configure NEScom to request product data communication is automatically enabled.

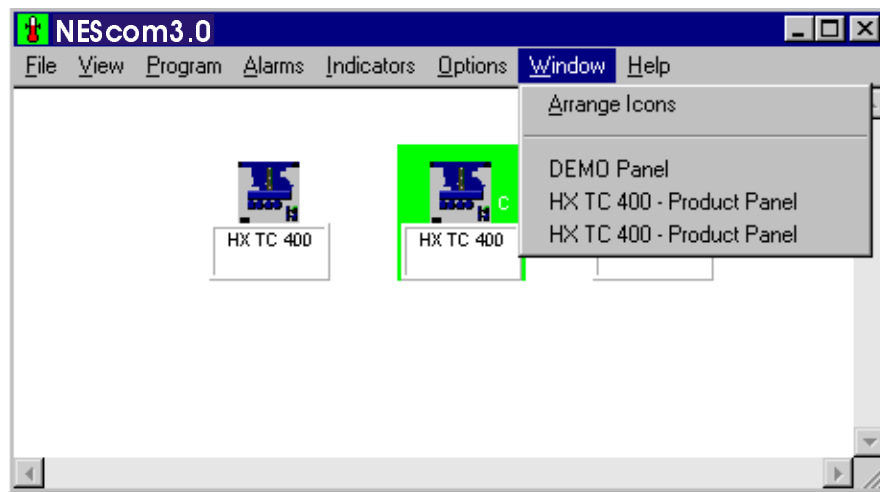
Select the Default button to set suggested RS-232 settings for the protocol in use.

- NC Protocol: 9600 Baud, 8 data bits, 1 stop bit, no parity, polling interval 1.0 second.
- MRS232/RS232: 300 Baud, 8 data bits, 1 stop bit, no parity, polling interval 1.0 second.
- MICROprocessor Bath: 4800 Baud, 8 data bits, 1 stop bit, no parity, polling interval 1.0 second.

Start-up configuration: Port: COM1, 9600 Baud, 8 data bits, 1 stop bit, no parity, polling Interval 1.0 second.



Select **Window** from the menu bar for arranging icons and restoring window panels.



## Arrange Icons

Select this menu to arrange controller icons in the NEScom main window panel.

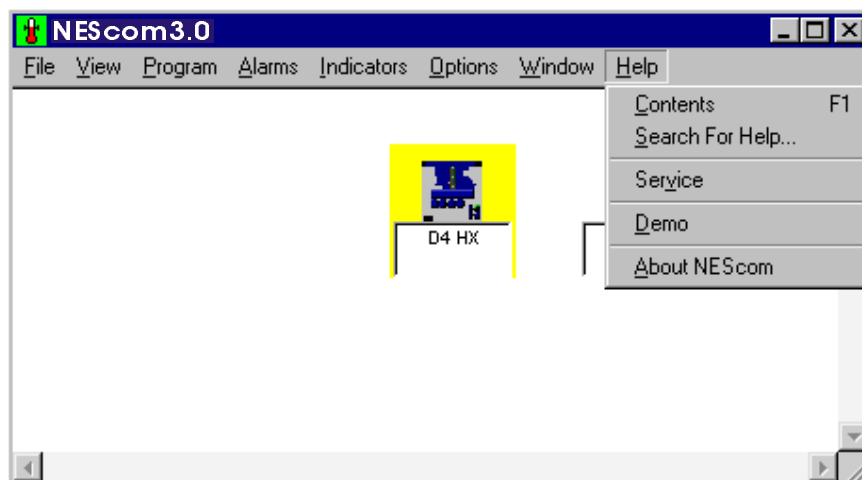
## Moving an Icon

Icons can be moved within the main window. Clicking on the icon changes the cursor to a pointing finger cursor. Moving the cursor to the top edge of the icon changes the cursor back to the default style. When the cursor changes back to the default style, click and drag the icon to move it.

## Window Panels

Lists all window panels opened. Click on the window panel description to bring the panel to the front or restore a panel when minimized. If there are no window panels opened then this section of the menu is empty.

Select this menu item for help in operating NEScom. Help is based on the menu selections of the program. Help buttons on various panels provide a shortcut to a help topic. Get to detailed information on a topic by clicking on help links.



### **Contents**

The contents of Help is based on the menu bar of NEScom. Selecting this menu item brings up the HELP utility. Use the Tab key to scroll through the HELP contents or double-click on a topic to view that specific help screen.

### **Search for Help...**

Search on a Help topic. Start by typing the first few letters of the word to search. Click on a topic within the list of topics appearing in the text box. Once a topic is selected, click on Display to get help on the topic.

### **Service**

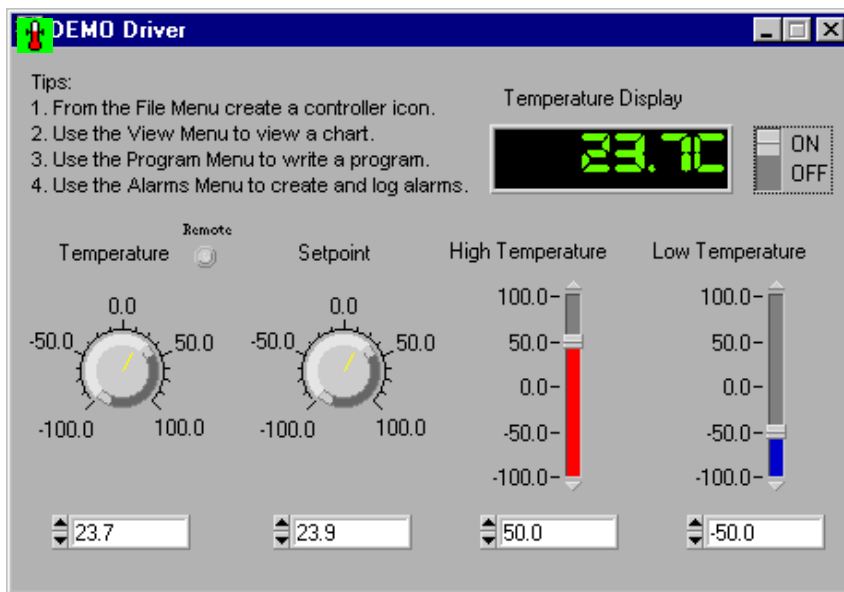
Opens the Service Log window. Use this log to keep track of service issues. Fill in the Name and Description, then click **Add**.

## Demo

A mock controller can be used in place of an actual product to demonstrate NEScom features. Select Demo from the Help menu and a controller box will appear. When a demo-controller is created, the Demo menu item has a check mark. Selecting this menu item with a check mark removes the demo-controller.

Rather than issuing commands over the communications interface to an actual product, commands are intercepted and values from the demo controller driver are used. Bring up charts and indicators, run programs and setup alarms just as if an actual product existed.

First create a product icon, or open a file to restore a previously saved workspace, then bring up the demo-driver. A pop-up message will prompt for the temperature units. Select Fahrenheit, Celsius or Cancel.



### Turn the DEMO ON!

You interact with the demo just like an actual product. Switch the ON/OFF switch to the ON position. The temperature follows the setpoint within a half of a degree of error. With the switch in the OFF position you can manually vary the temperature.

The following parameters are available for demonstration:

**ON/OFF:** Starts and stops the controller. When the DEMO controller is ON, temperature follows the setpoint with a small margin of error. This allows you to create and view a program, or view a chart of temperature and setpoint. With the DEMO controller OFF, you can manually adjust the setpoint.

**Temperature Display:** Displays the temperature value.

**Temperature:** Enter a value for temperature or use the controls to vary the parameter.

**Setpoint:** Enter a value for setpoint or use the controls to vary the parameter.

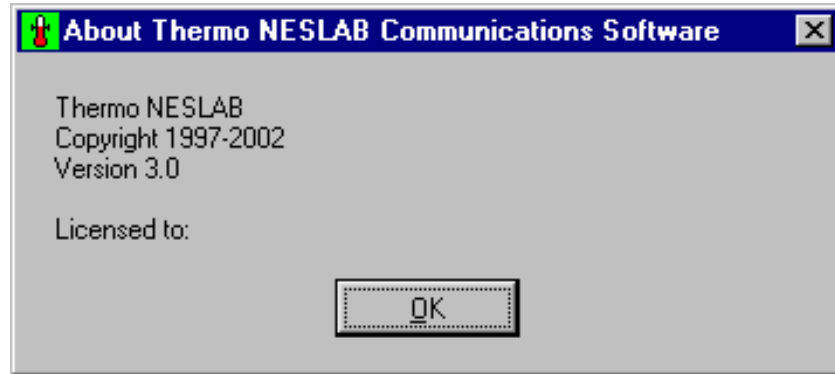
**High Temperature Limit:** Enter a value for the high temperature limit or use the controls to vary the parameter.

**Low Temperature Limit:** Enter a value for the low temperature limit or use the controls to vary the parameter.

**Remote LED:** Indicates the remote sensor option enabled. See microprocessor bath control panel.

## **About NEScom**

This displays copyright and license information relative to NEScom. Make reference to this information when contacting Thermo NESLAB support.



### No Contact:

If there is a problem contacting the product check the cable connections and ensure the Thermo NESLAB product is powered and RS232 communications is enabled.

Check the parameters in Configure COM port in the Options menu. Ensure the protocol being used by NEScom is supported on the Thermo NESLAB product.

### No Control:

Ensure the software is not in the Read Only mode.

With Read Only mode selected:

- Programs cannot be started.
- Setpoint cannot be changed from Product Panels.
- Product Panel buttons are disabled.

The background color of the active icon signifies its communication status.

*Yellow* means that NEScom is polling the device in an attempt to make contact.

*Blue* means that NEScom successfully contacted the device but is not currently communicating with the product.

*Green* indicates that NEScom is currently communicating with the product.

*Red* indicates that an error in communication occurred. Communication is resumed by manually enabling communications. See Properties or Enable Communications.

### Can't Turn Unit On/Off Using NEScom:

Only products which have the ability to turn on and off through serial communications, can be turned on and off with NEScom, except when using the generic NC Protocol selection. RTE 111/211/221/140, EX 111/211/221/411/511, EX 250, and ULT 80 can't be turned on and off.

### Error Messages:

1	Bad Command	Errors 1 through 6 may be caused by one of the following: <ul style="list-style-type: none"><li>•Wrong Controller icon selected in File Menu</li><li>•Wrong baud rate or parameter mismatch</li><li>•Bad connection - check cables</li><li>•Wrong COM port selected or possible comport conflict</li><li>•Command sent from NEScom not supported by the target Thermo NESLAB product.</li></ul>
2	Bad Data	
3	Bad Checksum	
4	Bad Response	
5	No Response	
6	Bad Transmit	
7	Unknown Error	
8	Unrecoverable Error	

## **Poor Display:**

When Windows 95 is configured for Large Fonts, many of NEScom panels are badly affected. If the labels are overlapping numeric settings, then there is a good chance that the display is configured Large Fonts. Font size is configure through the control panel:

Control Panel -> Display -> Settings -> Font Size

A typical setting is "Small Fonts" which is a normal setting (100 %). This configures 10 point Arial at 96 pixels per inch.



NEScom : Windows application which communicates with supporting Thermo NESLAB products.

NC Protocol: A generic communications protocol designed to acquire parameter values from Thermo NESLAB products supporting the protocol (5/97).

MICROprocessor Protocol: A communications protocol implemented on NESLAB's microprocessor line of baths and chillers. Supports Delta-Temp.

MRS232C Protocol: Term used to describe the protocol used with NESLAB's MRS232C/RS232C apparatus for RS232 communications on NESLAB's digital line of products. Supports Delta-Temp.

Read Only: When in read only mode, NEScom can only query a product for information and not perform any intrusive setting of product parameters (like temperature setpoint). Read Only mode is disabled by entering the correct password in the Properties Panel and selecting No on the Read Only switch.

With Read Only mode selected:

- Programs cannot be started.

- Setpoint cannot be changed from Product Panels.

- Product Panel buttons are disabled.

Workspace: A workspace is made up of one or more controller icons. If one is already active, NEScom will prompt you to save the current workspace before a new one is defined or loaded. All icons are cleared when a new workspace is created. Once new controller icons are added, the workspace can be saved.

## Software Warranty

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The media on which you receive NEScom are warranted not to fail to execute programming instructions, due to defects in materials and workmanship for a period of 1 year from the date of shipment. Thermo NESLAB will, at its option, repair or replace software media that do not execute programming instructions if Thermo NESLAB receives notice of such defects during the warranty period. Thermo NESLAB does not warrant that the operation of the software shall be uninterrupted or error free.

Thermo NESLAB believes that the information in this manual is accurate. The documentation has been carefully reviewed for technical accuracy. In the event that technical or typographical errors exist, Thermo NESLAB reserves the right to make changes to subsequent editions of this document without prior notice to holders of this addition. The reader should consult Thermo NESLAB if errors are suspected. In no event shall Thermo NESLAB be liable for any damages arising out of or related to this document or the information contained in it.

Thermo NESLAB ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO LOSS OR DAMAGE TO PROPERTY, LOSS OF PROFITS OR REVENUE, LOSS OF THE UNIT, LOSS OF TIME, OR INCONVENIENCE.

The warranty provided herein does not cover damages, defects, malfunctions or service failures caused by the owner's failure to follow Thermo NESLAB installation or operation instructions.

# NEScom Software Registration

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To validate the warranty and to keep you updated, please complete the information and return it to:

Thermo NESLAB  
Software Registration  
Attention: Marketing Department  
P.O. Box 1178  
Portsmouth, NH 03802-1178 USA

You may mail this information or fax it to 603 436-8411. Thank you.

Name (First/Last) \_\_\_\_\_

Company Name \_\_\_\_\_

Company Division or Mail stop \_\_\_\_\_

Street Address \_\_\_\_\_

City/Zip \_\_\_\_\_

State or Province \_\_\_\_\_

Country \_\_\_\_\_

Software Name & Version \_\_\_\_\_

Date Software Received (Month/Date/Year) \_\_\_\_\_

What is your application for using this software product.  
\_\_\_\_\_  
\_\_\_\_\_

Please comment or give any suggestions you may have regarding this software.  
\_\_\_\_\_  
\_\_\_\_\_