

O P E R A T I N G M A N U A L

XTC/3 Editor

XTC/3 Configuration Editing Software

IPN 074-452-P1



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XTC/3 Editor

XTC/3 Configuration Editing Software

IPN 074-452-P1A



GLOBAL HEADQUARTERS:

Two Technology Place, East Syracuse, NY 13057 USA
Tel: +1.315.434.1100 Fax: +1.315.437.3803 E-mail: reachus@inficon.com

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GLOBAL HEADQUARTERS:

Two Technology Place, East Syracuse, NY 13057 USA
Tel: +1.315.434.1100 Fax: +1.315.437.3803 E-mail: reachus@inficon.com

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**For Customer Support, contact the INFICON office nearest to you.
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North America

USA — East Syracuse, NY

Phone: +1.315.434.1100
Fax: +1.315.437.3803
Email: service.usa@inficon.com

USA — Santa Clara, CA

Phone: +1.408.361.1200
Fax: +1.408.362.1556
Email: service.usa@inficon.com

USA — Austin, TX

Phone: +1.512.448.0488
Fax: +1.512.448.0398
Email: service.usa@inficon.com

Europe

Germany — Koeln

Phone: +49.221.347.42222
Fax: +49.221.347.42221
Email: leakdetection.service@inficon.com

Principality of Liechtenstein — Balzers

Phone: +423.388.3111
Fax: +423.388.3700
Email: service.europe@inficon.com

Asia / Pacific

China — Beijing

Phone: +86.10.6590.0164
Fax: +86.10.6590.0521
Email: reach.china@inficon.com

China — Guangzhou

Phone: +86.20.8723.6963
Fax: +86.20.8723.6003
Email: reach.china@inficon.com

China — Hong Kong

Phone: +852.2520.2880
Fax: +852.2865.6883
Email: reach.china@inficon.com

China — Shanghai

Phone: +86.21.6209.3094
Fax: +86.21.6295.2852
Email: reach.china@inficon.com

Japan — Yokohama

Phone: +81.45.471.3328
Fax: +81.45.471.3327
Email: reach.japan@inficon.com

Korea — Seongnam

Phone: +82.31.783.2941 ext. 4
Fax: +82.31.783.2945
Email: reach.korea@inficon.com

Korea — Service Center — Suwon

Phone: +82.31.206.2890
Fax: +82.31.206.3058
Email: reach.korea@inficon.com

Singapore

Phone: +65.890.6250
Fax: +65.890.6266
Email: reach.singapore@inficon.com

Taiwan — HsinChu

Phone: +886.3.552.5828
Fax: +886.3.552.5829
Email: reach.taiwan@inficon.com

Middle East / Africa

Israel

Phone: +972.3.534.6822
Fax: +972.3.534.2589

South Africa

Phone: +27.11.793.6831
Fax: +27.11.793.7172

Turkey

Phone: +90.216.327.4041
Fax: +90.216.327.4046

Latin America

Argentina

Phone: +54.11.4701.6200
Fax: +54.11.4702.2546

Bolivia

Phone: +59.12.32.2198
Fax: +59.12.32.9751

Brazil

Phone: +55.11.41544888
Fax: +55.11.41544888
Email: pv@prestvacuo.com.br

Chile

Phone: +56.2.235.9686
Fax: +56.2.235.1680

Columbia

Phone: +57.1.335.1100
Fax: +57.1.269.6923
Email: reciend@colomsat.net.co

Ecuador

Phone: +59.32.22.7174
Fax: +59.32.50.2996

Mexico

Phone: +52.5.752.6746
Fax: +52.5.754.8664
Email: meisaventas@infosel.net.mx

Peru

Phone: +51.14.51.8947
Fax: +51.14.64.1820

Venezuela

Phone: +58.2.944.2010
Fax: +58.2.944.3123

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Chapter 1

Getting Started

1.1 Introduction

The XTC/3™ Editor is a Microsoft® Windows®-based application that provides both programming capability and data collection for the INFICON® XTC/3 Thin Film Deposition Controller. It is written as a full 32 bit application which takes advantage of the capabilities of 32 bit operating systems such as Windows 2000 and Windows XP.

The XTC/3 Editor provides online and offline editing, structured as functional windows, that allows for saving multiple configurations. The program makes use of a simple, intuitive user interface which clearly displays the parameters and performs boundary checking.

The editor can be used to create new configurations, read existing configurations from a file or the XTC/3 controller, and send any or all parameters from a Configuration file to the XTC/3 controller.

Please see the **XTC3 Readme.wri** file distributed with the software for the latest information.

1.1.1 How To Contact Customer Support

If you have a question about your software, first refer to this Operating Manual or the Help function within the software. If you cannot find the answer here, or no online Help is available for your topic, then contact Customer Support. When calling Customer Support, please have this manual at hand, along with the following information:

- ◆ The XTC/3 Editor version number (available from the **Help >> About XTC/3 Editor...** dialog box).
- ◆ The type of computer that you are using and its specifications.
- ◆ Your MS Windows type and version number.
- ◆ A description of your problem.
- ◆ What you were doing when the problem occurred.
- ◆ An explanation of the corrective action that you may have already attempted.



CAUTION

Please contact your Customer Support Representative before sending any files.

Customer support may be reached at the following phone numbers. Please contact the location that is closest to you. If you are located outside the USA please contact your sales office, or see www.inficon.com for a complete listing of worldwide service centers.

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Syracuse, NYph. 315-434-1128 fax 315-437-3803

San Jose, CAph. 408-436-2828 ext. 125 fax 408-436-1580

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Customer support is also available on the World Wide Web or via email:

WWW <http://www.inficon.com>

Email Thin.Film@inficon.com

1.2 Operating Manual Style Conventions

File names, diskette labels, environment variables, program names, screen prompts, command strings, and text that you must enter on your keyboard are presented in **this font**. For example, Enter `a:\install`.

Windows dialog options, title bars, and menu options are presented in **this font**. For example: select **File >> Open...**

When you must hold down a key then press another key, this is expressed as (for example) Press **Ctrl+C**

We assume that the CD ROM drive you'll be using is drive D. If you're using another drive, whenever you see "**d:**" substitute your CD ROM drive letter.

We also assume your hard drive is C, so if this isn't the case for you, whenever you see "**c:**" substitute the letter for your hard drive.

Often you will be required to select an option from a cascading menu. Instead of verbose statements, for example, "position the mouse pointer over the word **File**, press the left mouse button to display the cascading menu, then drag the pointer to highlight the words **Edit Configuration** and release the left mouse button," you will read, "select **File >> Edit Configuration**."

You will also be required to use icons and buttons. For example, instead of the statement, "position the mouse pointer over the **Configuration Editor** icon, then press and release the left mouse button to select **Configuration Editor**," you will read, "click the **Configuration Editor** icon." or, you may read "select the **Configuration Editor** icon".

Similarly, left-click means to press and release the left mouse button and right-click means to press and release the right mouse button.

The XTC/3 Editor operates in the Windows environment. We make the assumption that you know how to use the Windows Graphical User Interface (GUI). Therefore, actions in the XTC/3 Editor GUI that are common to the Windows GUI are not explained in detail in this manual. If you do need help with the Windows GUI, please refer to the Windows documentation supplied by Microsoft.

NOTE: This is a note paragraph. Notes provide additional information about the current topic.

HINT: This is a hint paragraph. Hints provide insight into product usage.



CAUTION

This is a Caution paragraph. It cautions against actions which may cause damage to the XTC/3 Controller or lead to the loss of data.

1.3 Inventory Of Supplied Items

You should have one CD ROM (or may have floppy disks) which contain the XTC/3 Editor program and online Operating Manual.

1.4 Computer System Minimum Requirements

Table 1-1 Computer System Minimum Requirements

	Recommended for communication with one XTC/3 Controller	Recommended for communication with up to 4 XTC/3 Controllers (more than 4, consult factory)
Processor	Pentium® III 550 MHz or greater	Pentium 4 3.2 GHz or greater
RAM	512 MB or greater	2 GB or greater
Hard Disk space to load XTC/3Editor	15 Mb	15 MB
Hard Disk Space for storage	20 GB (see Note below)	60 GB (see Note below)
Disk Drives	(1) Floppy, (1) CD	(1) Floppy, (1) CD
Monitor	15 inch, SVGA or greater	15 inch, SVGA or greater
Resolution	1024 x 768 or greater	1024 x 768 or greater
Communications	One RS-232 port or one Ethernet card	One Ethernet card
Operating System	Windows 2000 or XP	
NOTE: Data files should be archived and removed periodically as a maintenance step to provide storage space for ongoing data collection.		

The XTC/3 Controller and Communications Interface must meet the requirements shown in the following sections.

1.5 XTC/3 Requirements

1.5.1 Firmware

The XTC/3 firmware must be Version 1.00 or higher.

1.5.2 Thin Film Models Supported

The XTC/3S and XTC/3M are the only Thin Film Deposition Controllers supported at the time of this release.

1.6 Communications Interface

Communications interfaces supported are RS-232 and TCP/IP, via an Ethernet card, for communications with multiple XTC/3 controllers.

1.6.1 Communications Baud Rate

The baud rates supported for RS-232 are: 9600, 19200, 38400, 57600, and 115200. 115200 is the default.

1.6.2 Communications Cable

Communication cables are required to connect the PC running the XTC/3 Editor to the XTC/3 Controller. Cables are different and dependent on the Communications Interface.

- ♦ For RS-232C Communications, refer to the *XTC/3 Thin Film Deposition Controller Operating Manual* (IPN 074-446-P1) section titled “RS232C Serial Port” for detailed information concerning constructing an RS-232C cable.
- ♦ For TCP/IP Ethernet Communications, a standard Ethernet cable at a length appropriate for your installation is required. INFICON does not supply Ethernet cables.

Maximum Length

RS-232 — 50 feet (15 meters)

1.7 How To Install The XTC/3 Editor

Install the XTC/3 Editor from within Windows as follows:

NOTE: Administrative or Standard user rights are required to install the XTC/3 Editor on a system running Windows 2000 or XP system.

NOTE: This description assumes that the CD-ROM drive is drive “d”. If it is not “d”, substitute the appropriate drive letter.

- 1 Insert the CD into the CD-ROM drive.
- 2 Select **Start >> Run...** to display the **Run** dialog
- 3 In the **Open** field, type **d: \setup**
- 4 Select **OK**.
- 5 When prompted, answer the questions.

NOTE: If prompted during the installation to replace a system file (e.g. a DLL file), it is recommended that the file be replaced. Normally this prompt is only presented if the file on the hard disk is older than the file on the installation disk. The newer version should still work with older programs that use this file; however, if you are concerned that it may cause problems, abort the installation, save a copy of the file in question, and restart the installation program.



CAUTION

The XTC/3 Editor may not function properly if all files are not installed.

When the installation is complete, put the original CD in a safe storage area.

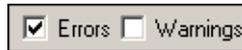
1.8 The Software Controls

The XTC/3 Editor software utilizes some common Windows controls as well as a few custom controls for easy editing and entry of parameters and information.

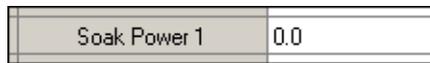
The following controls may be in use throughout the software:



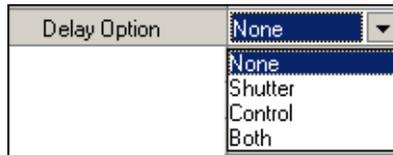
..... **Button.** Pressing this will display a dialog box for user input or take the action noted on the button.



..... **Checkbox.** This is used to enable or disable a feature or action taken upon the system.



..... **Entry box.** An entry box generally accepts a numeric or alphanumeric entry and has upper and lower boundaries associated with the parameter. The boundaries are checked after the entry has been input and the cursor has been moved to another entry point. The value in an entry box can be typed over by clicking once in the box, to focus on the box, and then typing the new entry. A double-click in the box will highlight the value, which allows for the value to be edited or deleted.



..... **Pulldown.** A pulldown, indicated with a downward triangle, provides a list of acceptable inputs for the parameter. A highlight is used to select the parameter. Some entry boxes that use pulldowns can also be directly edited.

HINT: When editing from the keyboard, the Alt+DownArrow key combination will "pull" the pulldown.



..... **Radio buttons.** These buttons are used to accept a single selection from at least two choices. Radio buttons are often grouped according to functionality and sometimes enable other controls based on the choice selected. If radio buttons are shown, but are disabled (greyed), then they are being used to show a status not selectable by the user.

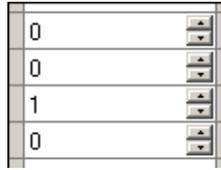


..... **Spinners.** Spinners are a pair of triangles pointing up and down. These are used to increase or decrease a parameter. Most often used with an entry box, spinners only act upon the entry box selected with the mouse pointer. When two or more entry boxes are on the same line as the spinner, the mouse pointer must be used to select an entry box before the spinners will change the value in that box. When an entry box contains a value with punctuation (e.g. a value of time), the spinners act upon each piece of the value individually. Some entry boxes that use spinners can also be directly edited.

HINT: When editing from the keyboard, the Alt+UpArrow key combination will increase the value (except for Time spinners). The Alt+DownArrow key combination will decrease the value.



..... **Toolbar.** A collection of buttons that is often visible for an associated functionality and invisible when that function is inactive. Toolbars can be moved with the mouse pointer or made visible/invisible from a menu selection.



..... **Grid.** The grid is a row and column collection of cells of related data that use many of the controls mentioned above. Some grids allow for all cells to be edited and some contain a mixture of protected and editable cells. Controls used in grid cells include Pulldowns, Entry Boxes, and Spinners. Some grids support use of the **Delete** and **Insert** keys.

In grids that support deletion, any row can be deleted by selecting an item in the row and pressing the **Delete** key.

In grids that support insertion, a row can be inserted above any row by selecting an item in a row and pressing the **Insert** key.

In grids that support duplication, a row can be duplicated by selecting an item in the row and pressing the **Shift-Insert** key combination. The duplicated row is then inserted as the next row.



..... **Context Menu.** This menu is accessed by clicking the right mouse button on a view, grid or panel. Many parts of the software contain a context menu; the menu provides functionality appropriate for the data or parameters displayed.

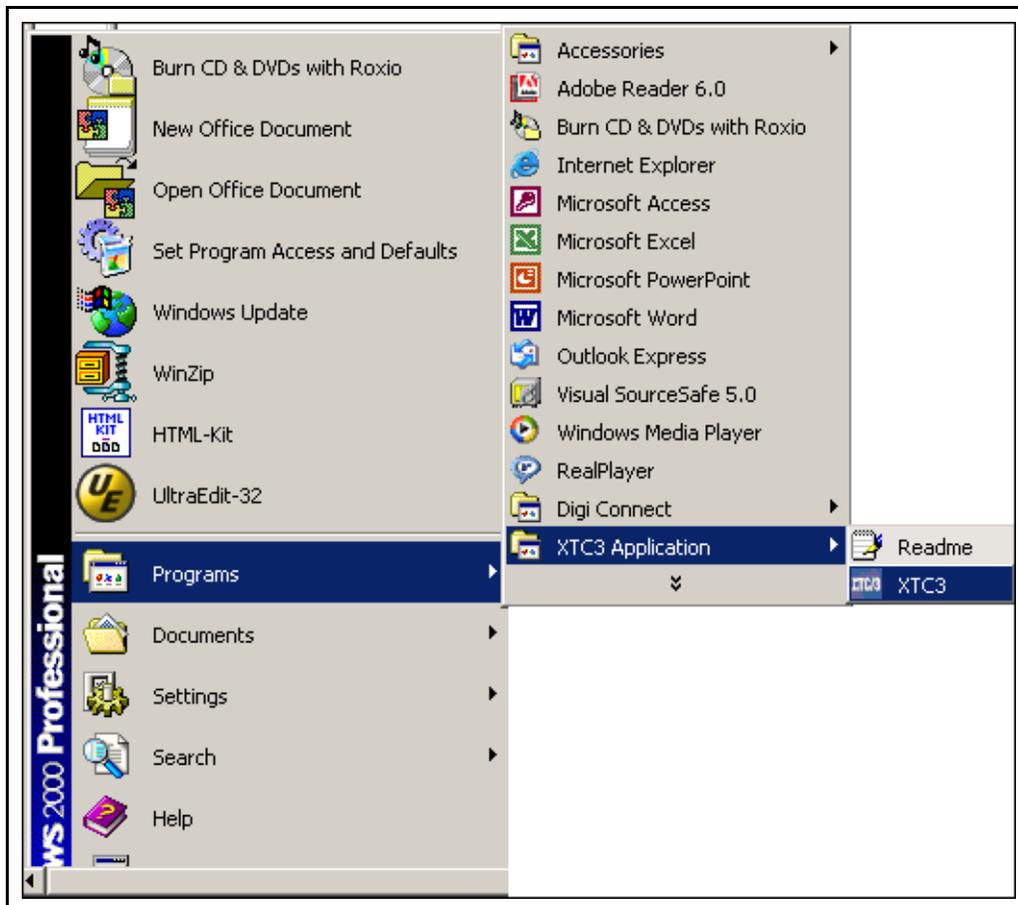
1.9 How To Start The XTC/3 Editor

To start the XTC/3 Editor select **Start >> Programs >> XTC3 Application >> XTC3** (see Figure 1-1).

HINT: You may want to make a shortcut to XTC/3 Editor on your desktop to facilitate starting the program in the future. See the Windows documentation for instructions on how to create shortcuts.

When upgrading the XTC/3 Editor program it is not possible for the installation program to upgrade existing shortcuts. After an upgrade, an existing shortcut will not work if the XTC/3 Editor is installed in a folder that is not the folder pointed to by the shortcut.

Figure 1-1 Starting XTC/3Editor



The first time XTC/3 Editor is run on a computer, it will start in the setup screen with the communication configuration dialog displayed.

See Chapter 2 for information on how to configure the communications interface, individual controllers and user preferences.

1.10 Where To Go From Here

This Operating Manual is intended to make the process of setting up, installing, and using the XTC/3 Editor a pleasurable and trouble-free experience. Please, take a few moments to look through it and become familiar with its contents.

The information in this manual is organized into the following chapters:

Chapter 1, Getting Started

An introduction to the XTC/3 Editor application, provides instructions on how to install and run the XTC/3 Editor, and explains how to use this Operating Manual.

Chapter 2, Setup

A description of how to set up the software and communications ports for your installation and customize it to your preferences.

Chapter 3, Editing Configurations

Describes how to edit, save and send Configuration files, which specify the measurement parameters for the XTC/3 Controller.

Chapter 4, Monitor

Describes how to acquire, save, recall and report XTC/3 Controller data.

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Chapter 2 Setup

2.1 Introduction

When the XTC/3 Editor is first installed on a system, there are a few things that need to be set to customize it to the particular hardware configuration. In addition, several aspects of how the program looks and acts can be customized to individual preferences. This chapter discusses how to customize your system to the needs of your location.

2.1.1 Initial Setup

The first time the XTC/3 Editor is run, the following steps should be taken to set up the system:

- 1 Set up the communications ports (see [section 2.2](#) below).
- 2 Configure each controller (see [section 2.3 on page 2-11](#)).
- 3 Configure user preferences (see [section 2.4 on page 2-14](#)).

2.2 Communications Setup

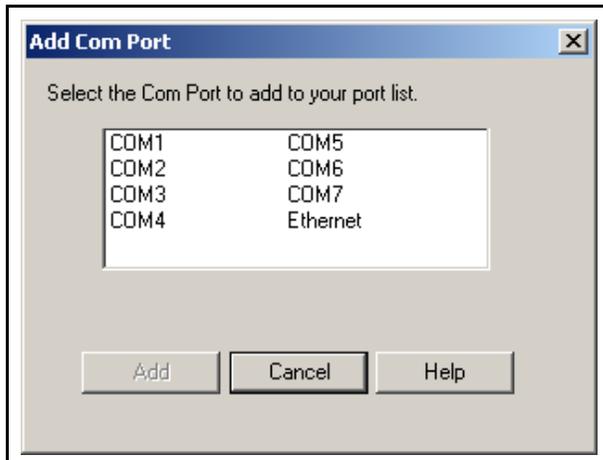
The communications interface is set up via the **System Properties Pages**, which are accessed via **Tools >> System Properties**, or from the **System >> System Properties** menu on the **System Setup Screen**, or by double-clicking on the **System Icon** on the **System Setup Screen** (see [Figure 2-1](#)).

Figure 2-1 Accessing System Properties and Communications Settings



The first time the XTC/3 Editor is run it starts on the **System Setup Screen** and prompts for a communications port (Com Port) to be configured. See [Figure 2-2](#). From this dialog, select and add the Com Port to be used for communications with the XTC/3 Thin Film Controllers.

Figure 2-2 Add a Com Port

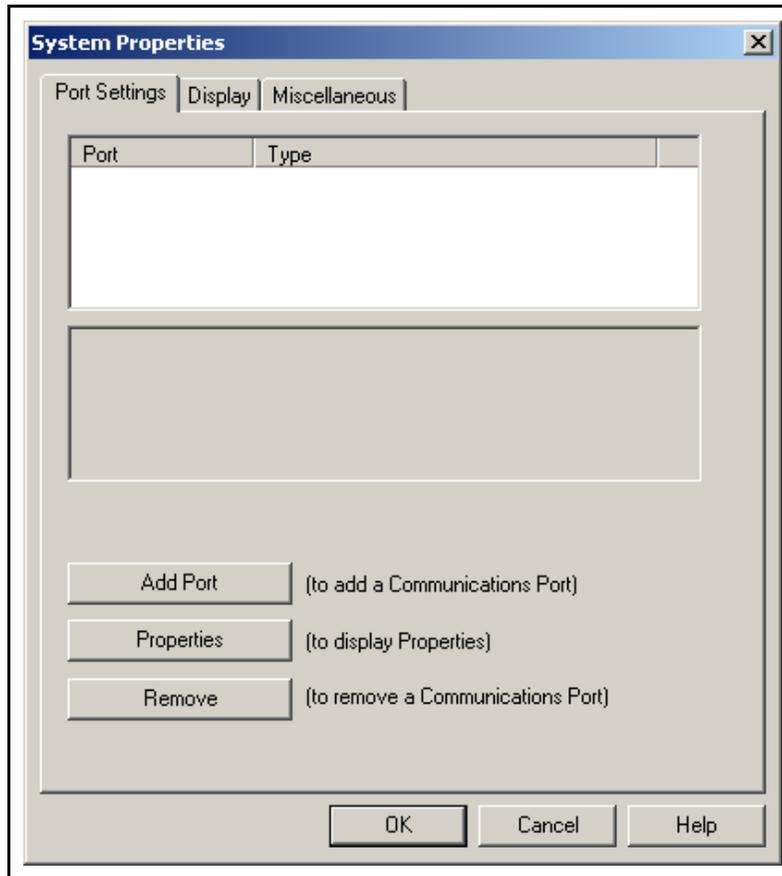


NOTE: Communication problems often occur when other programs (for example, PDA link programs) that either actively use the communications port, or wait for activity on the communications port, are running in the background. These types of programs should be disabled or removed from the computer used for XTC/3 Editor communications.

For most installations, the default settings applied by the program to the newly added port will work without being changed. Adding a port, and pressing OK to any dialogs that follow, will configure a port that is immediately ready for use.

Com Ports can be added or reconfigured from the **System Properties** page, shown in [Figure 2-3](#), which provides three tabs: **Port Settings**, **Display** and **Miscellaneous**. The **Port Settings** tab is described in [section 2.2.1 on page 2-4](#) and the **Display** and **Miscellaneous** tabs are described in [section 2.4 on page 2-14](#).

Figure 2-3 System Properties Page

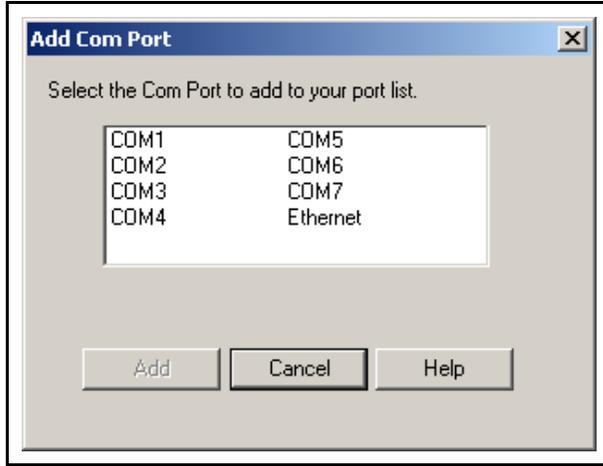


Three buttons are provided on the Port Settings tab which affect the port highlighted in the list: **Add Port**, which is described in [section 2.2.1 on page 2-4](#), **Properties** for Serial communications and **XTC3 Controller List** for Ethernet communications, which is described in [section 2.2.1 on page 2-4](#), and **Remove**, which deletes the port and any associated parameters from the System Properties.

2.2.1 Adding A Communications Port and Controllers

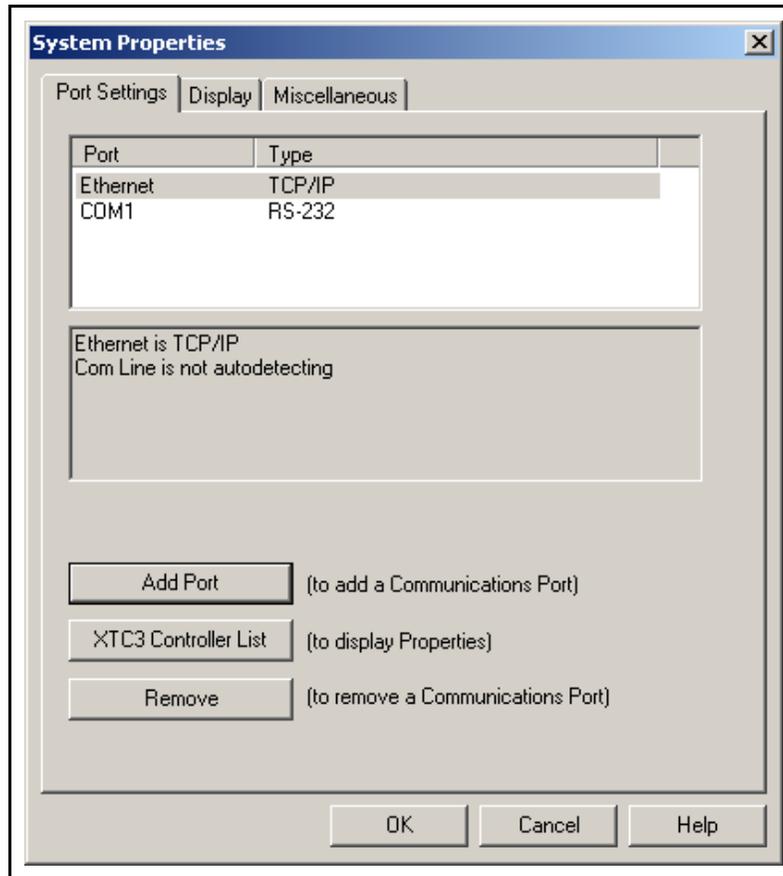
Clicking on the **Add Port** button will bring up the dialog shown in [Figure 2-4](#).

Figure 2-4 Add a Communication Port



If communicating to the XTC/3 Controller via **RS-232**, select the port to which the **serial cable** is connected. After selecting the correct port, click the **Add** button. If communicating to the XTC/3 Controller via **Ethernet**, select the Ethernet port and press **Add**. The **System Properties** dialog and will now display the added ports as shown in [Figure 2-5](#).

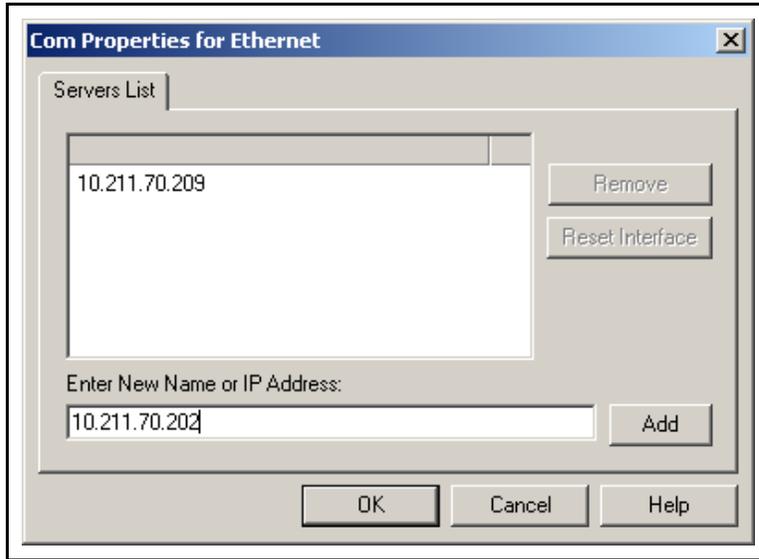
Figure 2-5 System Properties with added ports



The IP address of each XTC/3 instrument connected to the Ethernet network (in the form xxx.xxx.xxx.xxx) can be added by first selecting the Ethernet item on the ports list of the Port Settings page and then pressing the **XTC3 Controller List** button. A **Com Properties for Ethernet** box will open (see [Figure 2-6](#)).

NOTE: If the XTC/3 instrument is directly connected from a stand-alone computer, the ethernet cable should be a "cross-over" cable unless the PC has the ability to dynamically reconfigure itself. Static addressing is supported. DHCP is not supported. For more details, consult the *XTC/3 Thin Film Deposition Monitor Operating Manual* (IPN 074-446-P1).

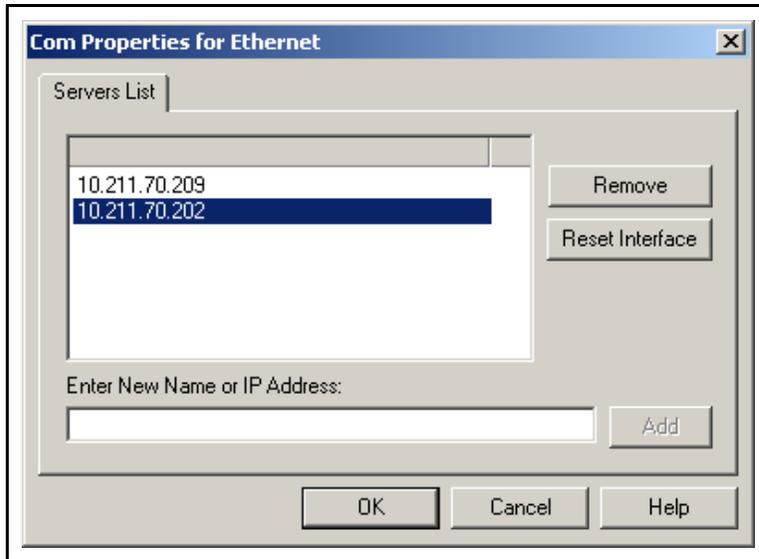
Figure 2-6 Ethernet Communication Properties



After typing the IP address of the XTC/3 instrument, click on **Add**. The Controller’s IP Address is then added to the list.

If the **Remove** button is clicked, the highlighted Controller’s IP Address is removed from the list.

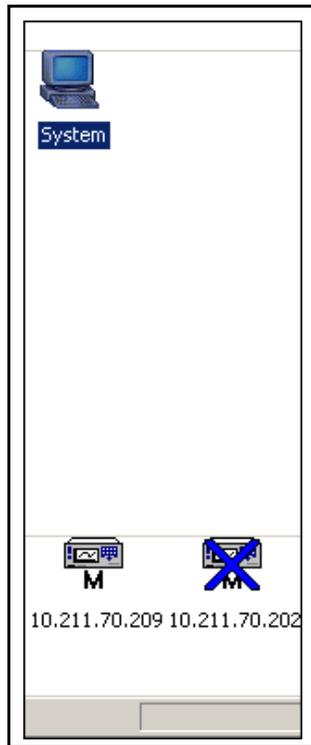
Figure 2-7 Reset Interface Button



Clicking on the **Reset Interface** button resets the Controller’s Ethernet parameters to their default values.

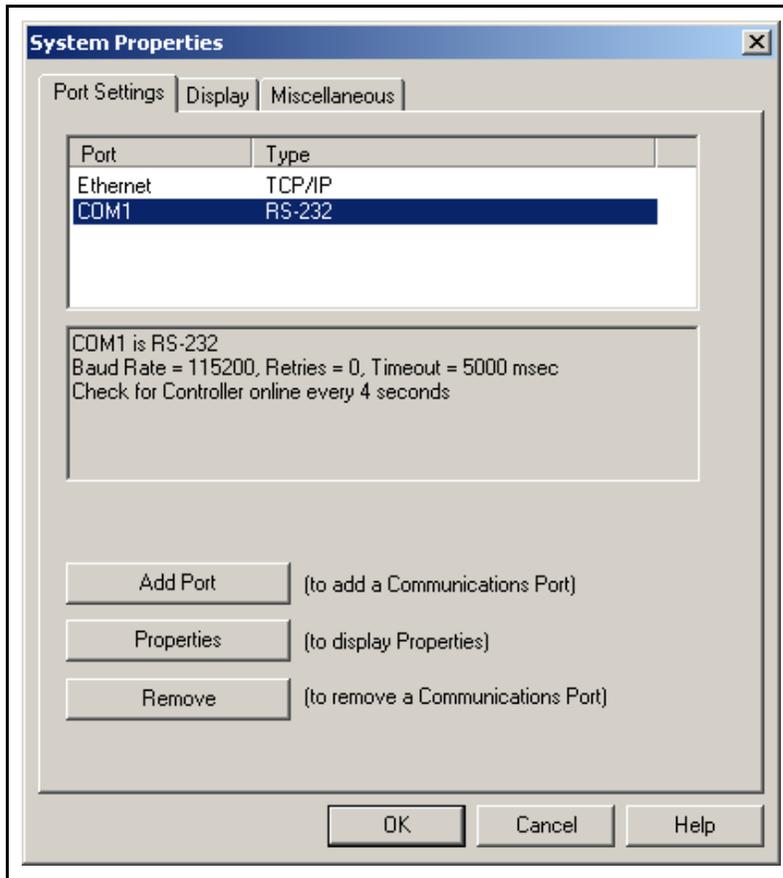
When the **OK** button is selected, the Controller(s) at that IP Address is physically added. (See [Figure 2-8](#)). An icon is added for each new controller.

Figure 2-8 XTC/3 Instruments Added through Ethernet



The display then returns to the **Port Settings** tab of the **System Properties** display. (See [Figure 2-9](#).)

Figure 2-9 System Properties: Port added

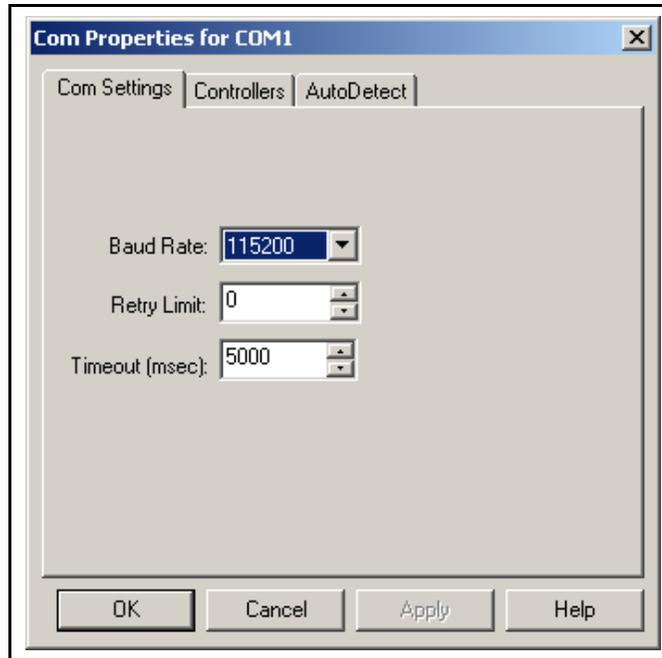


For Serial Communications (RS-232), the port properties can be changed by selecting the serial port item (e.g. COM1), then clicking the **Properties** button on the **Port Settings** page (See [Figure 2-9](#)). Clicking the **Properties** button will display the **Com Properties** page with three tabs shown in [Figure 2-10](#) and described in [section 2.2.2](#).

2.2.2 RS-232 Communications Port Properties

Figure 2-10 shows the properties of the Communications Port.

Figure 2-10 Com Properties: Com Settings tab



The **Baud Rate** is set by default to 115200 for RS-232 communications. This is the fastest rate possible (at this time) in the XTC/3 Controller.

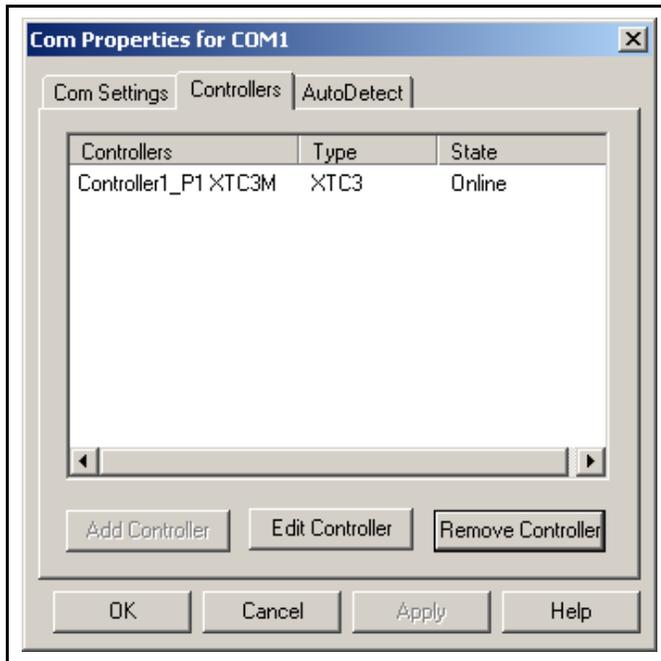
The **Retry Limit** is the number of times the program will try to reestablish communications with the XTC/3 Controller after a communication error. The default (0) should be adequate for most installations, however, if the Controller goes off line frequently, try setting the Retry Limit to a higher count.

The **Timeout** is the number of milliseconds the communication module will wait for a response from the controller. Normally, the default value (5000) is adequate and should not be changed. Setting this value too high will increase the time it takes to detect a controller which has gone off-line. Setting it too low may cause an error to be reported when communication commands with long execution times are issued.

Click **OK** to accept the selections, or **Cancel** to abort the action. You can also click on the **AutoDetect** tab to access the other parameters associated with the **Com Properties** for this port.

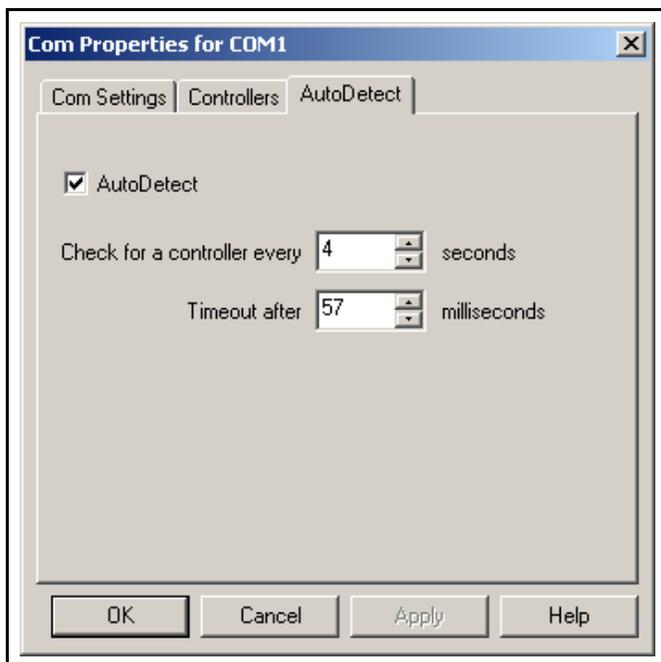
The **Controllers** tab provides a list of Controllers configured to communicate with the software. For RS-232 communications, this list will contain one Controller and that controller will be automatically detected and added when connected. (See Figure 2-11).

Figure 2-11 Com Properties: Controllers tab



The **Controllers** tab (refer to [Figure 2-11](#)) allows for a Controller to be removed (using the **Remove Controller** button) or edited (using the **Edit Controller** button). When editing the Controller, changes can be made to the **Controller Name**, which is used to identify the Controller in the software. The **AutoDetect** tab (see [Figure 2-12](#)) allows XTC/3 Editor communications to streamline the detection of a controller at a serial port.

Figure 2-12 Com Properties: AutoDetect tab



The **AutoDetect** check box (see [Figure 2-12](#)) specifies that the software should periodically check the communication port for a controller and automatically brings it online.

The other two parameters can be set to further improve the timing of the communications.

The interval specified (**Check for a Controller every “t” seconds**) is the time between successive checks.

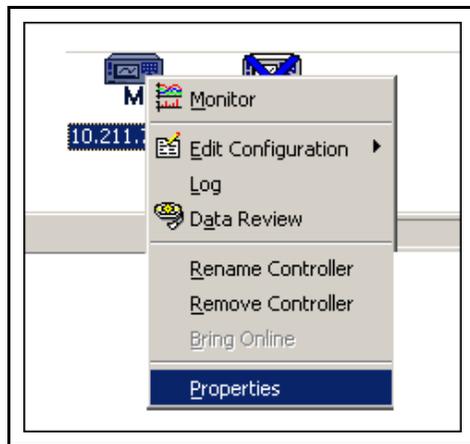
Timeout after specifies the time interval after which the controller goes offline in the event of a communication failure.

When **Autodetect** changes are finished, click **OK** to accept the settings (or **Cancel** to abort the action). If **AutoDetect** was selected, the program will automatically detect and bring online any controllers connected to the ports. A short delay may occur while bringing the controllers online.

2.3 Controller Configuration and Setup

When a controller first comes online, an icon representing the controller is placed on the System Setup screen. The **Data Settings** page is available to configure system parameters for the controller. This page is accessed by right-clicking on the controller icon ([Figure 2-13](#)) and selecting **Properties**.

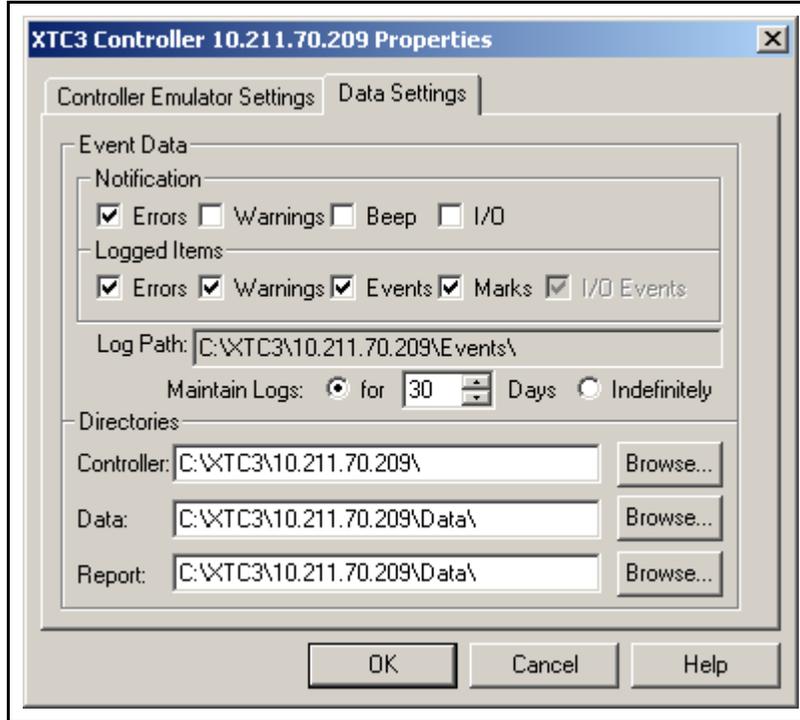
Figure 2-13 Accessing the Controller Properties



NOTE: The Controller Icon will normally appear as shown in [Figure 2-13](#). If the Controller Icon is shown with a blue "X" on it, that indicates that the Controller has not been online. If the Controller Icon is shown with a red "X" on it, that indicates that the Controller was once online but is currently offline. In either case, right-click on the icon and select **Bring Online** to bring the controller online. If the Controller Icon is shown with a yellow "X" on it, that indicates that the controller port is in use by another application (RS-232) or by another computer (Ethernet), assuming the controller has been powered up for longer than one minute.

The **Data Settings** page (Figure 2-14), accessible by selecting **Properties**, allows the configuration of the event reporting and logging facility and the specification of the directory paths for storage of event data, controller data, configuration, and other XTC/3 Editor files.

Figure 2-14 Controller Data Settings



Event Data

Notification This parameter allows specification of the level of errors that will be reported to the user in an error dialog box. The choices are **Errors**, **Warnings** and **Beep**. If only **Beep** is selected the error dialog box will *not* be displayed when an error is detected, but rather the PC will beep once indicating an error has occurred. The error log can be examined to determine the nature of the error.

Logged Items

Errors When checked, all errors reported from this controller will be logged in the event log file.

Warnings When checked, all warnings reported from this controller will be logged in the event log file.

Events When checked, all events for this controller will be logged in the event log file.

- Marks** When checked, if a mark is automatically inserted in a data stream as a result of an alarm condition, it will be logged in the event log file.
- Log Path** The location where the event log files will be written. A new event log file is written each day and named according to the date with a **.evt** extension. The path is automatically determined by the program, which automatically adds **\Events** to the **Controller** directory path (see below).
- Maintain Logs** Event log files over a specified age will be automatically deleted. The expiration may be specified or **Indefinitely** may be selected to keep them until explicitly removed.

Directories

Three paths can be specified for the storage of files associated with the XTC/3 Editor: **Controller**, **SOD** and **Reports**. To change any directory, type in the new path or select a path using the **Browse** button.

- Controller** This is the top level directory for all files that are related to a specific controller. Sub directories under the **Controller** directory are used to save the **Configuration file**, **Event Logs**, etc. The default **Controller** directory is built by adding the **Controller** name (with illegal characters converted to underscores) to the **Main** directory specified during installation.
- SOD** This is where the **Sea of Data (SOD)** files are stored. This can be changed to a larger disk or network drive to allow saving of more data without overflowing a local disk. The default **SOD** directory is built by adding **\Data** to the **Controller** directory.
- Report** This is where the **Report** files are stored. The default **Report** directory is inherited from the **SOD** directory.



CAUTION

If a network or removable drive is selected for the SOD directory, it must be available and writable when the XTC/3 Editor is ready to write data. If the network or drive is not available, a loss of data could occur.

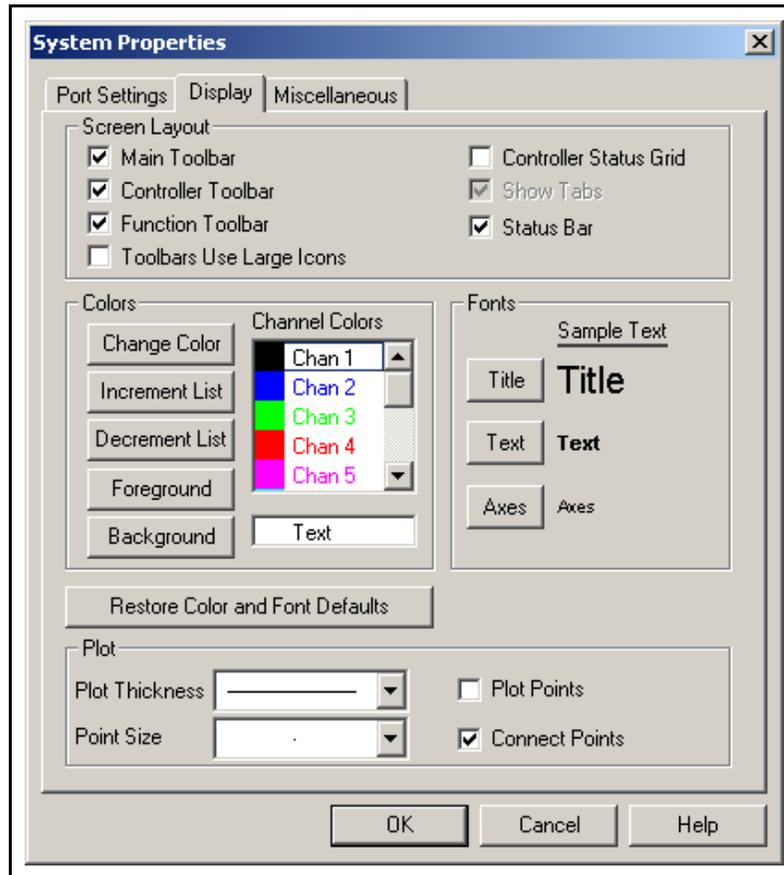
2.4 User Preferences

The **System Properties** pages allow the customization of several global (that is, system wide as opposed to controller specific) options. Selecting **Tools >> System Properties** on the main menu, selecting the **System >> System Properties** menu on the **System Setup** screen or clicking on the **System** icon on the **System Setup** screen brings up the **System Properties** display used to configure your system. The **Port Settings** tab allows the configuration of the communication channels (refer to [section 2.2 on page 2-1](#)). The **Display** tab has several options which customize the display (see [section 2.4.1 below](#)). The **Miscellaneous** tab allows the customization of several options (see [section 2.4.2 on page 2-17](#)).

2.4.1 Configuring The Display Options

Figure 2-15 shows the **Display** tab of the **System Properties** pages.

Figure 2-15 System Properties, Display Tab



Screen Layout

This section allows the specification of which screen elements are displayed when the program is run. Each element can be enabled or disabled at any time while the program is running.

- Main Toolbar** The **Main Toolbar** is displayed when checked.
- Controller Toolbar** The **Controller Toolbar** with function buttons is displayed when checked.
- Function Toolbar** The **Function** or view specific toolbar is displayed when checked.
- Toolbars Use Large Icons** When checked, all toolbars will use larger icons than initially presented at startup. Due to icon size and screen size, some toolbars may be displayed on a second line when using **Large Icons**.
- Controller Status Grid** The **Controller Status Grid** is displayed when checked.
- Show Tabs** If the **Controller Status Grid** being displayed contains multiple pages, tabs are used to select the desired page. This option displays the tabs when checked and hides them when unchecked.
- Status Bar** The program **Status Bar** is displayed at the bottom of the screen when checked.

Colors

- Channel Colors** The default color set used for trend channels in **Monitor** are displayed in this box.
- Change Colors** Changes the color used for the highlighted channel. A standard color selection palette is displayed. Select the desired color and click **OK**.
- Increment List** Add a channel to the end of the list.
- Decrement List** Delete a channel from the list.
- Foreground** Set the color in which text will be displayed on the graphs. A standard color selection palette is displayed. Select the desired color and click **OK**. The selected color is displayed in the text box to the right of the button.

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Background Set the background color for the graphs. A standard color selection palette is displayed. Select the desired color and click **OK**. The selected color is displayed in the text box to the right of the button.

Fonts

Title Select the font size and typeface to be used for titles on the graphs. A standard font selection dialog will be displayed. Select the font and size and click **OK**. A sample of the text in the selected font is displayed to the right of the button.

Text Select the font size and typeface to be used for miscellaneous text on the graphs. A standard font selection dialog will be displayed. Select the font and size and click **OK**. A sample of the text in the selected font is displayed to the right of the button.

Axes Select the font size and typeface to be used for the axis labels on the graphs. A standard font selection dialog will be displayed. Select the font and size and click **OK**. A sample of the text in the selected font is displayed to the right of the button.

Plot

Plot Thickness Provides choices of different thickness lines for plotting and printing trend data.

Point Size Provides choices of different size points for plotting and printing data. Some point sizes are indistinguishable when using the **Connect Points** option.

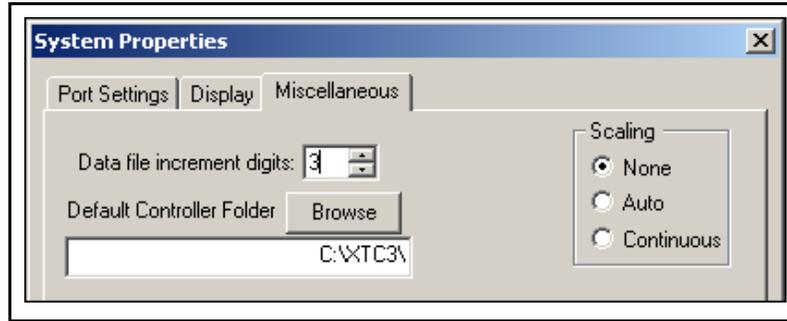
Plot Points Plots a point of **Point Size** when enabled. When used with a large **Point Size** and **Connect Points** enabled, this provides a marker at each point along the trend lines.

Connect Points When enabled, provides a line connecting all points on a per channel basis. When disabled, data is plotted as points only.

NOTE: The effect of changing the above parameters may differ based on the monitor, display board, resolution and user settings.

2.4.2 Miscellaneous User Options

Figure 2-16 System Properties, Miscellaneous Tab



- Data file increment digits** This entry configures the number of numerical places used in the file name index for SOD (data) files. For example, selecting 3 will allow the index to increment to 999 as SOD data files are saved.
- Default Controller Folder** This entry allows for specification of a base folder for the controller. The base folder is used as the storage folder if the folder specified during installation becomes corrupted.
- Scaling** This selection pertains only to data scaling of the y-axis in the Data Logger graph.
None does not rescale the graph as new data is acquired.
Auto will rescale the graph only at the start of a new data set.
Continuous will rescale the graph as new data is acquired.

2.4.3 Access Levels

The XTC/3 Editor can be operated from one of two Access Levels — *Advanced* or *Normal*. These levels provide protection against modifications of controller configurations and System Setup. An Advanced user may want to completely set up the system and then set the Access Level to Normal for the system operators. The XTC/3 Editor system can be password protected to operate at one of two access levels:

- ◆ **Advanced.** All system controls are available. The system may be controlled manually while in **Advanced** mode.
- ◆ **Normal.** A limited set of system controls are available. Major functionality that is not available to a **Normal** user includes **Edit Configuration** and any changes to the System Setup. Many functions are available but provide read-only access at the **Normal** Access Level.

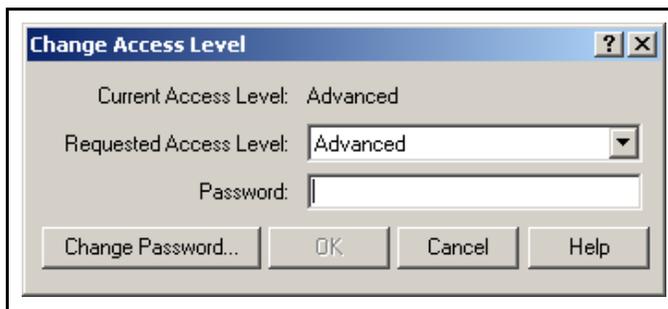
To change the security level, select **Tools >> Set Access Level...** See [Figure 2-17](#).

Figure 2-17 Tools >> Set Access Level



The **Change Access Level** dialog will display the current security level. In [Figure 2-18](#) the **Current Access Level** is set to **Advanced**.

Figure 2-18 Change Access Level Dialog



When changing from **Normal** level to **Advanced** level, enter the correct password in the **Password:** field and click **OK**. To change a Password, click the **Change Password...** button, enter the old Password and the new Password in the appropriate boxes, and click **OK**. As with any password, it should be remembered and protected.

Chapter 3

Editing Configurations

3.1 Introduction

This chapter describes the **Configuration Editor** and how to use it. The Editor is constructed as a **Main Dialog** (see [Figure 3-8 on page 3-5](#)) which provides access to separate dialog boxes for each of the parameter groups within the Configuration. The Configuration is separated into the following parameter groups:

System Parameters

- ♦ **General Parameters** — See [section 3.5, Editing the General Parameters, on page 3-10](#) for details.
- ♦ **I/O Map**. Contains the following items:
 - ♦ **Input** — See [section 3.6, Editing the I/O Map Parameters, on page 3-11](#).
 - ♦ **Relay/Type and TTL/Type** — See [section 3.6, Editing the I/O Map Parameters, on page 3-11](#).
- ♦ **Films** — See [section 3.7, Editing Film Parameters, on page 3-13](#).

User Created Parameters

- ♦ **Creating a Process** — See [section 3.8, Creating a Process \(XTC/3M Only\), on page 3-14](#).

Please refer to the *XTC/3 Thin Film Deposition Controller Operating Manual* (IPN 074-446-P1) for technical details on the operation and parameters of the XTC/3 Controller. No detailed information specifically for the parameters is provided here.

NOTE: Each Editor dialog box provides a toolbar that allow for changes to be sent to the controller (if attached) or undone, and buttons to be saved or cancelled. The Save functionality on each dialog box does not save the Configuration to disk, it only saves the parameters to the computer memory (referred to here as the Editor memory) and to the Main dialog of the Editor. To save the Configuration to disk, use the **Save** button on the Main Page of the Editor. To send the entire configuration to the XTC/3 controller, use the **Send All** button on the Main Page of the Editor.

3.2 Using the Configuration Editor

The Configuration Editor is invoked by selecting **File >> Edit Configuration, File >> Open** (see Figure 3-1), or clicking on the **Configuration Editor** icon (see Figure 3-2).

Figure 3-1 Opening the Configuration Editor

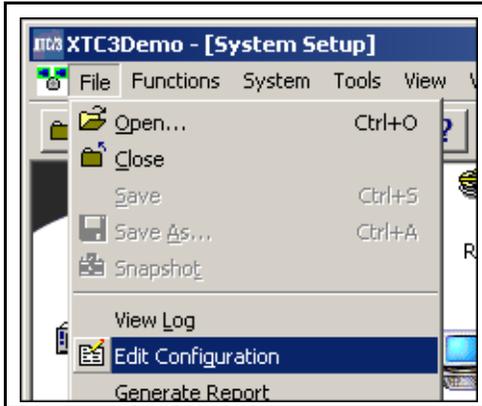
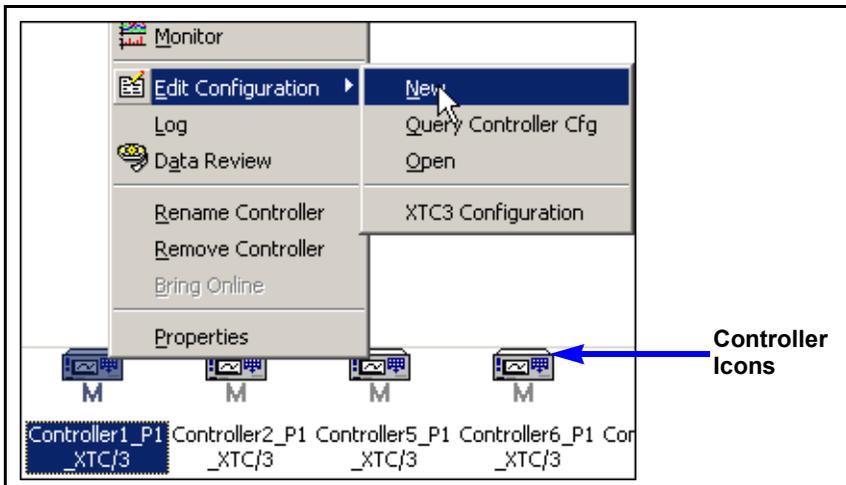


Figure 3-2 Configuration Editor Icon



The Configuration Editor can also be accessed from the XTC/3 icon's context menu, which is available by right-clicking on the Controller icon. See Figure 3-3.

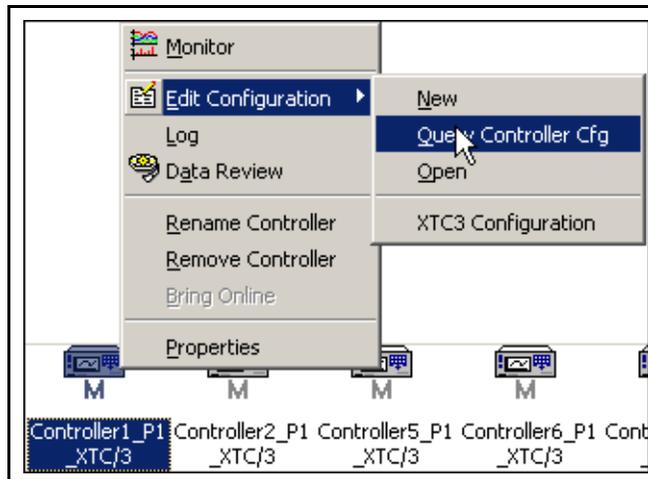
Figure 3-3 XTC/3 Controller's Context Menu



This context menu provides access to the most recently edited Configuration, or edit a new or existing Configuration.

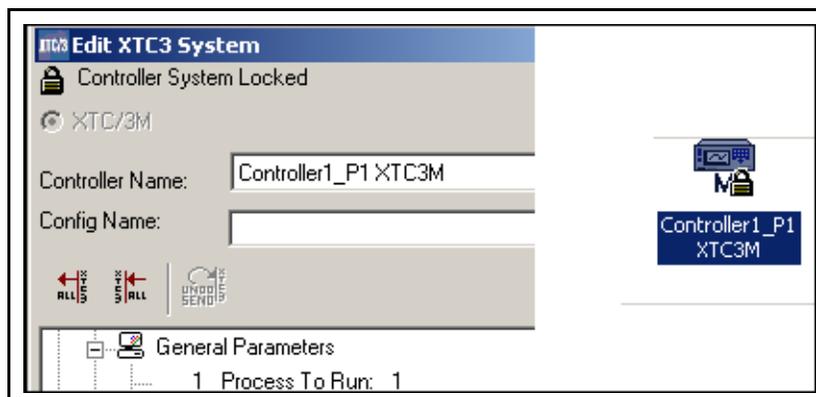
HINT: When editing a Configuration for an attached Controller, the best starting point is the choice of **Query Controller Cfg** as shown in [Figure 3-4](#). This selection reads the entire Configuration from the Controller and fills the Editor pages with all the parameters of the Configuration file. This allows for full synchronization of the parameter settings before any changes are made through the Editor. As changes are made they can be checked, by the Editor, against other related parameters to ensure that no conflicts exist.

Figure 3-4 Starting the Editor with Query Controller Cfg



NOTE: When the **Query Controller Cfg** command is used, the Controller front panel is essentially locked against any changes being entered. This ensures that all parameters in the Editor, and any changes being made, will be applied without conflict to the Controller. The "Locked" status of the Controller is shown in the upper left corner of all Editor dialogs and on the Controller icon (see [Figure 3-5](#)). The "Locked" status can not be applied if, while editing a new or existing Configuration, a single page is queried from the Controller without having queried the entire Configuration first.

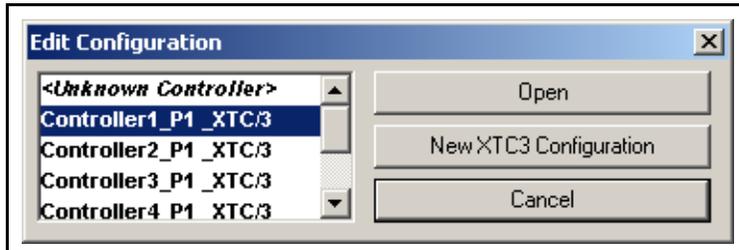
Figure 3-5 Controller Locked Status, example



If either **File >> Edit Configuration** or the **Configuration Editor** icon is selected to start the Editor, then the dialog shown in [Figure 3-6](#) will be displayed. This allows for a Controller to be specified as the target for a new or existing Configuration. To

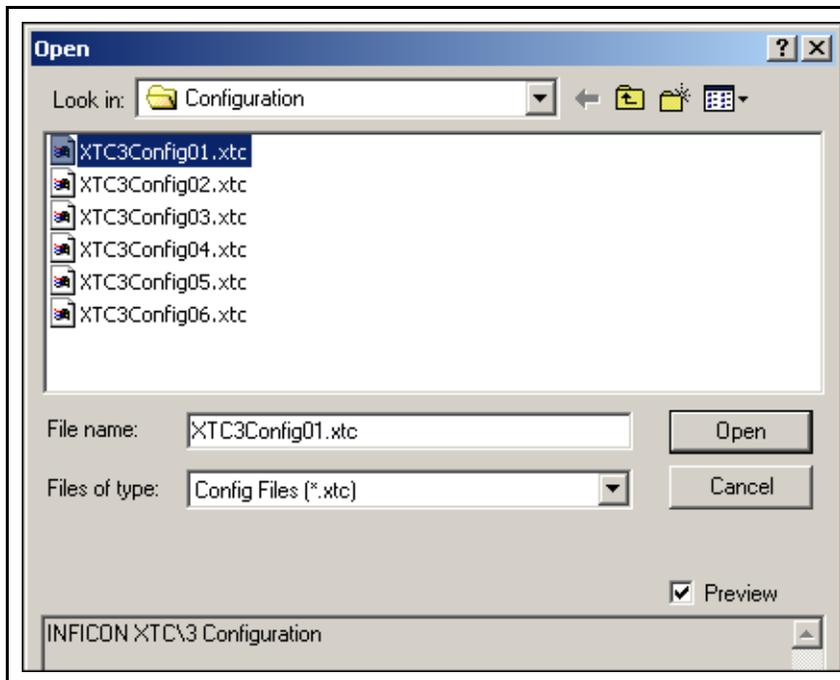
open an existing Configuration file select **Open**; to create a new Configuration from scratch select **New**. The item *<Unknown Controller>* is highlighted by default when the **Edit Configuration** dialog appears. To edit a configuration for a known Controller (e.g. XTC/3 1 in [Figure 3-6](#)), highlight the Controller entry and press **Open**. This will open a **File Open** dialog, as shown in [Figure 3-7](#), in the appropriate folder for this Controller.

Figure 3-6 Selecting A New Or Existing Configuration



Selecting **New** will open the Configuration Editor immediately to the main window (see [section 3.3 on page 3-5](#)).

Figure 3-7 Selecting A Configuration To Open



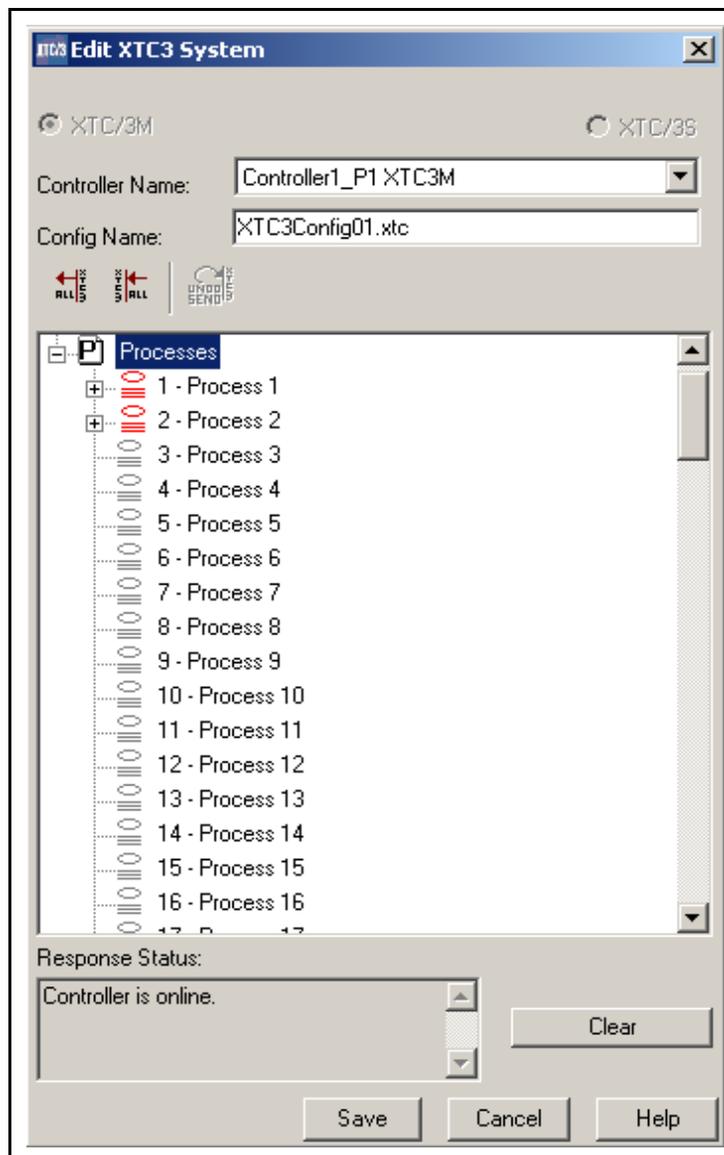
If the **Files of type** box does not show a XTC/3 Configuration (***.xtc**) or All Files (***.***), then click on the pulldown and select one of these types from the list. Clicking on a filename will display a few lines of text in the preview box which describe the Configuration. Once a file is selected and opened, the main window of the **Configuration Editor** will be displayed (see [Figure 3-8](#)).

3.3 Configuration Editor Main Window

Figure 3-8 shows the **Main Window** of the **Configuration Editor**. The **Controller Name** and **Config Name** appear in this window to identify which XTC/3 Controller this Configuration is for and in which file this Configuration will be stored (the Config Name entry will be blank if editing a new configuration). The **Controller Name** is not stored in the XTC/3 Controller, it is simply a text field used on the PC to identify the intended target for the Configuration file.

The Main Window is the only window from which the entire Configuration file can be saved to disk and sent to the controller. Editing of each individual page is launched from this window by double-clicking on either a Parameter Group name or individual parameter name within the Main Window.

Figure 3-8 Configuration Editor: Main Window



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All of the parameters can be listed within the Main Window by clicking on each plus sign [+] at the front of any Parameter Group name. For instance, to list the parameters within the General Parameters, click on the plus sign that precedes General Parameters (see Figure 3-9). The result of that action will be a list of all General Parameters (see Figure 3-10).

Figure 3-9 The General Parameters branch

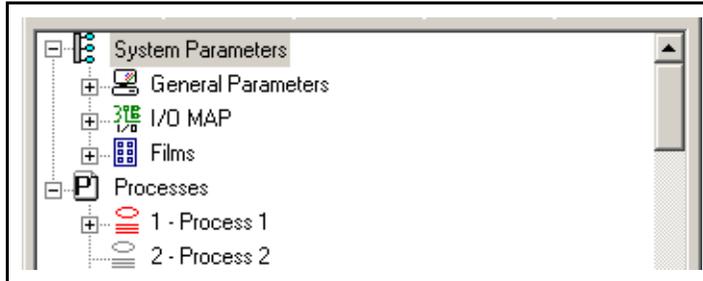
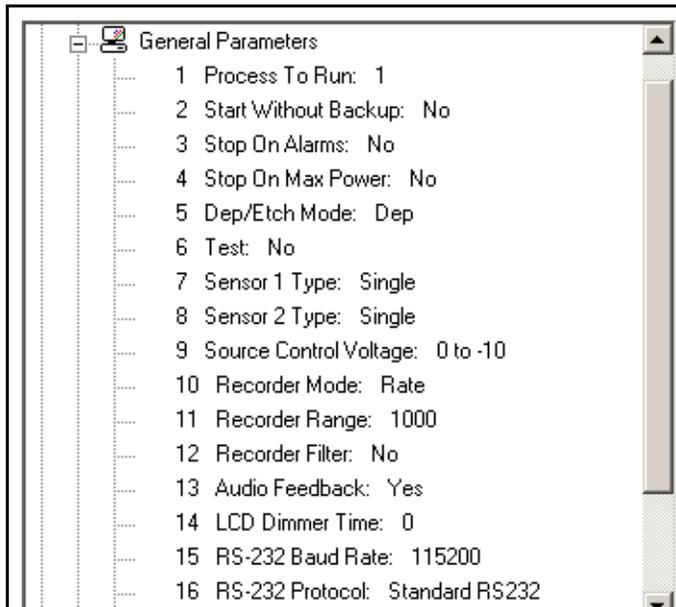


Figure 3-10 Expanding the General Parameter branch



The following describes the entry points and Toolbar buttons on the Main Page (refer to Figure 3-8 on page 3-5):

Controller Name The name of the XTC/3 Controller for which this Configuration is intended. Select the name from the drop-down list if XTC/3 Controller icons have been placed on the System Setup screen.

The first line in the **Controller Name** list is blank. This can be selected when creating a Configuration for a controller which is off-line or attached to a different computer. When

editing a Configuration for a controller which is off-line, or if *blank* is selected, any bounds checking that is performed based on the controller hardware is not reliable. However, when the Configuration is sent to the controller it will be checked against the actual hardware for the controller on which it is being loaded, and any parameters that are out of bounds will be flagged as errors. At that time the Configuration must be corrected in order to be run.

Config Name The file name used to save the Configuration. Any name can be used, but a descriptive name is recommended. Since the XTC/3 Editor is a 32 bit application, the name is not limited to eight characters and an extension, thus allowing a more descriptive name to be chosen. If the extension is omitted, **.xtc** will be appended to the filename. The filename can be changed at any time during the Configuration editing process. The configuration file must be saved using the **.xtc** extension.

Query All The **Query All** button will, if a controller is attached, read the entire contents of the controller and load those parameters into the Editor. This is the best way to edit a Configuration for a controller that has already been programmed as it ensures that the contents of the Editor are synchronized with the controller contents.

NOTE: The **Query All** button on the main page (Figure 3-8 on page 3-5) reads all the parameters from the controller for all of the editor pages. This is not true for the Query All buttons on each page, which only read the parameters for the page being edited.

NOTE: It is recommended that the **Query All** button be used prior to editing a configuration for a controller that is online (i.e. connected to the PC).

Undo Last Send Every time **Send All** is performed, the **Undo Last Send** button is enabled. Clicking on this button will revert the controller to its previous state.

Send All This will, if a controller is attached, send the entire contents of the editor (i.e. all parameters on all pages) to the controller. This is the best way to program (or update) a controller as it ensures that the entire contents of the Editor is sent and stored in the controller.

NOTE: If standard procedure is to use the **Send All** button, then it is recommended that the **Query All** button (or **Query Controller Cfg**, [Figure 3-4](#)) be used prior to editing a configuration.

Save Pressing **Save** will provide a **Save As** dialog, which allows the Configuration to be saved to disk. Saving the Configuration to disk will close the Editor.

Cancel This will prompt you to save any unsaved changes before closing, otherwise it will discard any changes made to the Configuration and close the Editor. However, this does not remove changes that have already been sent to the controller.

NOTE: The **Cancel** button on the individual pages will prompt to save any unsaved changes before that individual page is closed. On individual pages, those changes are saved to the Editor memory and to the Main Page, but not to disk or the Controller.

Clear Clears the response status window shown at the bottom of the Editor page. The status window is used to show communication errors that may occur during the Query and Send operations.

To get started on Editing a Configuration, single click on the System Parameters plus sign (+) and then double click on the Parameter Group label "General Parameters". This will launch the editable page for **General Parameters** as shown in [Figure 3-12](#).

3.4 ToolBar Description

At the top of every dialog box, there is a toolbar that contains, from left to right, the Query All, Send All, Query Selection(s), Send Selection(s), Undo SendAll, Undo Send Selection(s), and Undo Last Edit (Figure 3-11)

Figure 3-11 Toolbar

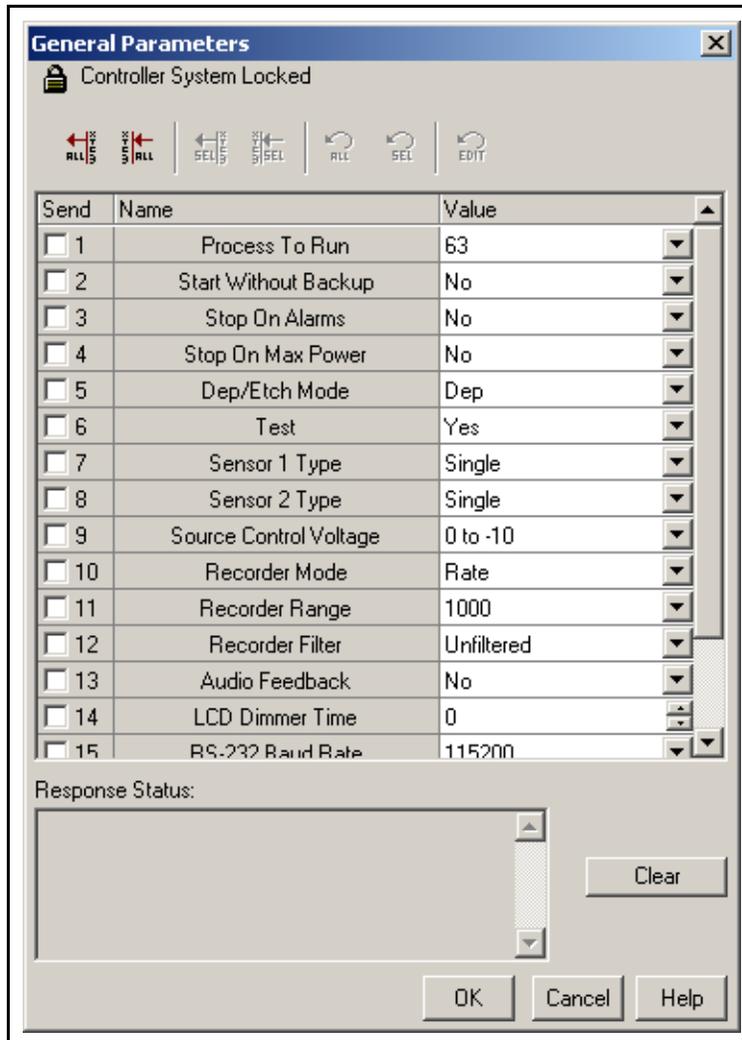


- ◆ Query All: Queries all parameters related to this particular dialog box from the controller.
- ◆ Send All: Sends all parameters related to this particular dialog box to the controller.
- ◆ Query Selection(s): Queries selected parameter(s) from the controller.
- ◆ Send Selection(s): Sends selected parameters(s) to the controller.
- ◆ Undo Send All: Resets controllers to their state prior to Send All action.
- ◆ Undo Send Selection(s): Resets controller to their state prior to Send Selection(s) action.
- ◆ Undo Last Edit: Resets current dialog box to state prior to last change.

3.5 Editing the General Parameters

Figure 3-12 shows the **General Parameters** dialog box of the **XTC/3 Editor**. This box sets the general parameters that are not specific to any I/O, film or process.

Figure 3-12 General Parameters Page



To edit any parameter, enter the desired value in the **Value** column or use the corresponding pulldown. Any parameter can be sent to the XTC/3 Controller by selecting the parameter in the **Send** column and pressing the **Send Selection** button on the toolbar. Clicking on the header of the Send column will select all parameters. The entire page of parameters can be sent by pressing the **Send All** button (regardless of the **Send** column selections). The **OK** button will save all changes to the Editor memory; the **Cancel** button will discard all changes.

For specific information on any **General Parameter**, refer to the *XTC/3 Thin Film Deposition Controller Operating Manual* (IPN 074-446-P1).

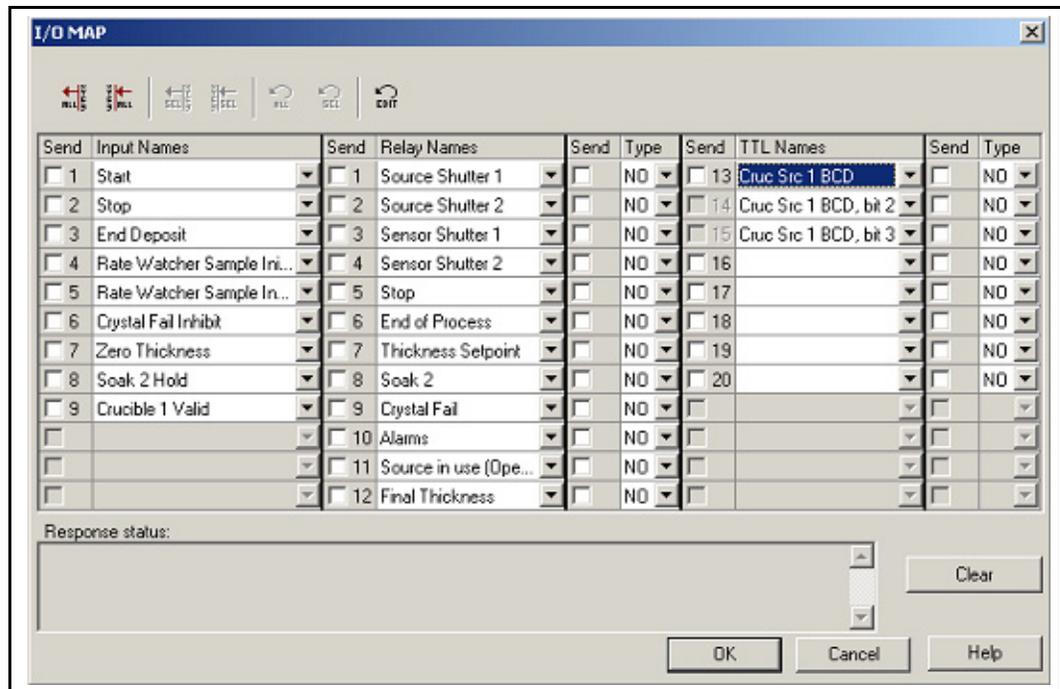
3.6 Editing the I/O Map Parameters

Figure 3-13 shows the I/O Map dialog box of the XTC/3 Editor.

NOTE: This box will be **GRAYED OUT** in an XTC/3S configuration since the I/O is fixed in that instrument.

This box allows the selection of the system Inputs, Relays and TTLs from a drop down list.

Figure 3-13 I/O Map



I/O functions can be assigned to their respective input (1 to 9) or output (1 to 20) using a drop-down list, see Figure 3-15. These I/O functions are described under the **Input Names**, **Relay Names**, and **TTL Names** columns. If **Sel Process** input or a **Cruc Src** output is chosen, a varying number of inputs/ouputs is reserved. The reserved slots will be grayed out and cannot be sent or queried (see input 7 or 14/15 TTL Send above or Relay 4-9 in Figure 3-13).

If a Controller is attached to the PC then the Input, Output and TTL parameters from the controller can be queried and displayed in the I/O Map dialog box of the Editor. If all parameters were queried from the Main Page then the parameters will be shown on the I/O Map dialog box when the dialog is opened.

Figure 3-14 A set of 6 reserved inputs associated with the Sel Process(99) input #3

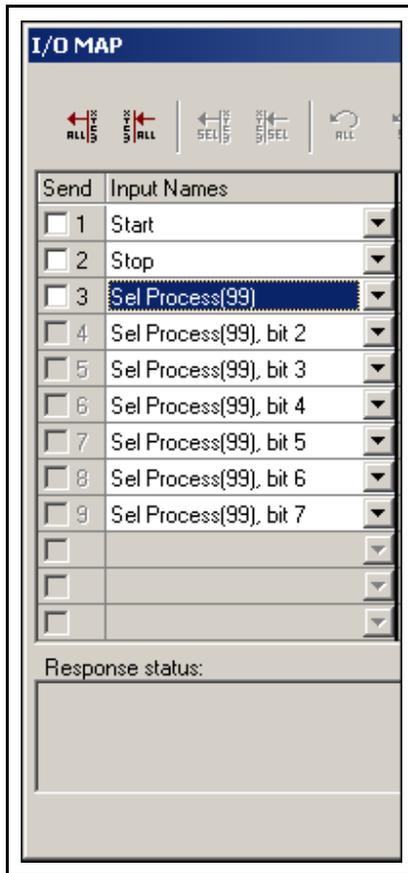
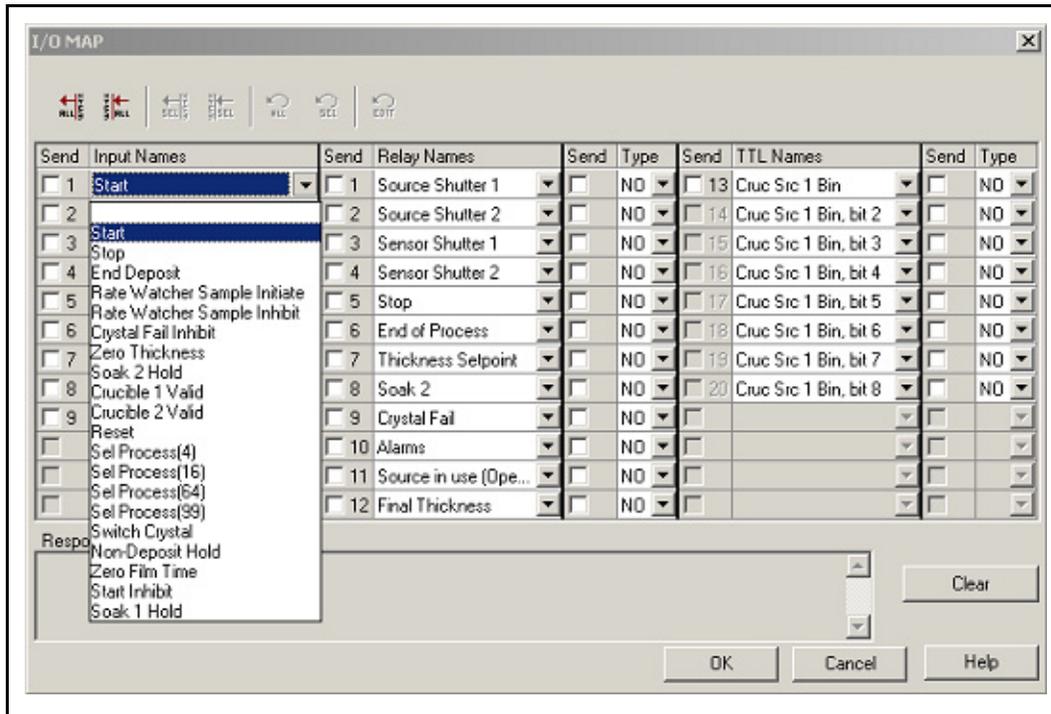


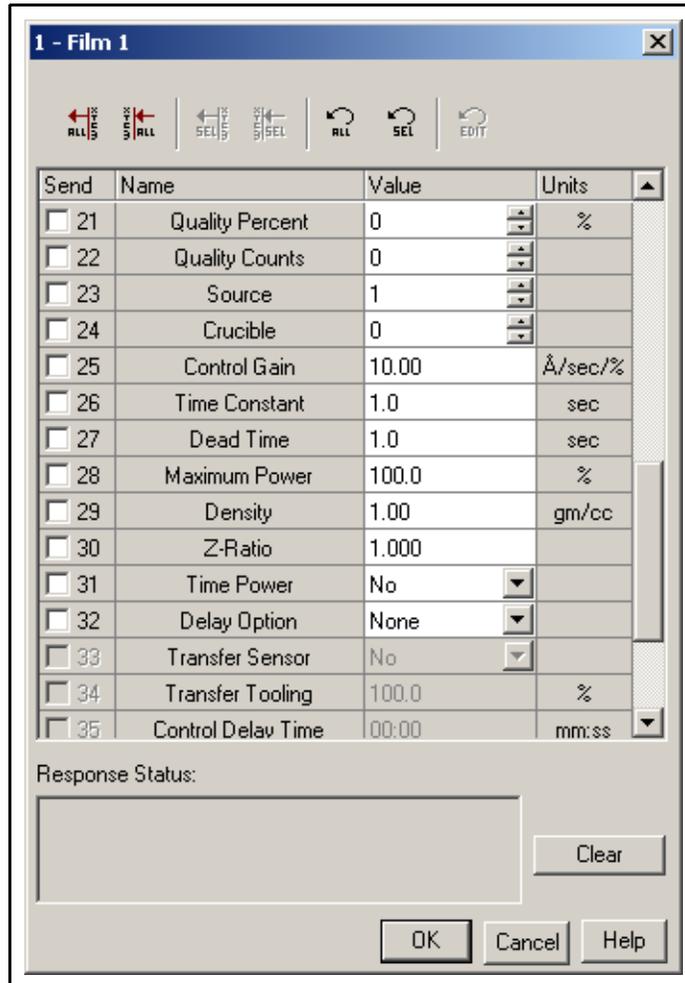
Figure 3-15 Entering an I/O item



3.7 Editing Film Parameters

Figure 3-16 shows the Film 1 parameter set for the XTC/3 Editor. The Film 1 Parameters dialog box sets the Film Parameters that are specific to Film 1 for the XTC/3 Controller.

Figure 3-16 Film Parameters Page



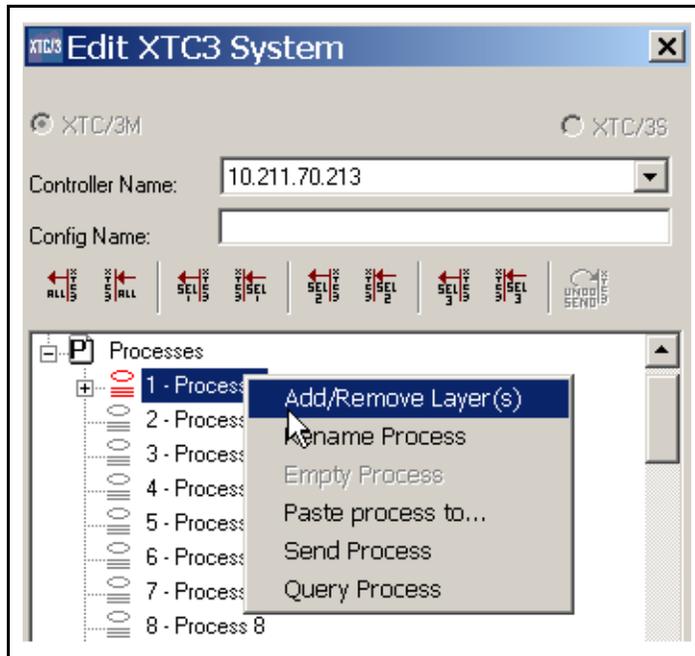
To edit any parameter, enter the desired value in the **Value** column or use the corresponding pulldown or spinner. Any parameter can be sent to the XTC/3 Controller by selecting the parameter in the **Send** column and pressing the **Send Selection** button. The entire set of parameters can be sent by pressing the **Send All** button (regardless of the **Send** column selections). The **OK** button will save all changes to the Editor memory; the **Cancel** button will discard all changes.

For specific information on any **Film Parameter**, refer to the *XTC/3 Thin Film Deposition Controller Operating Manual* (IPN 074-446-P1).

3.8 Creating a Process (XTC/3M Only)

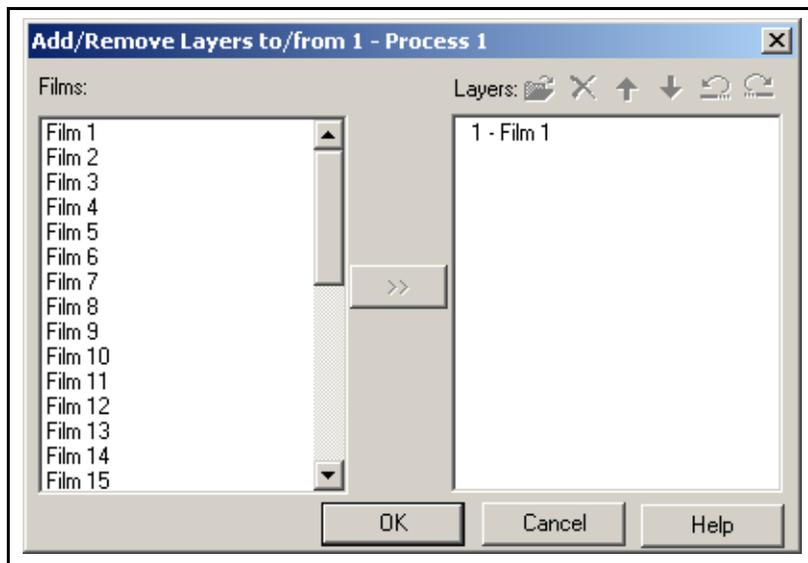
To create a Process, right-click on one of the processes and select **Add/Remove Layer(s)** from the context menu. (See Figure 3-17.)

Figure 3-17 Adding a New Process



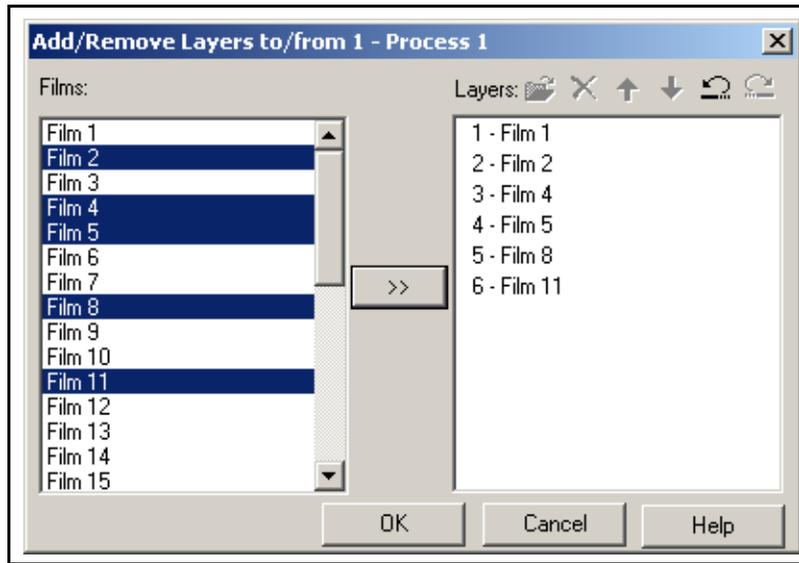
An **Add/Remove Layers to/from Process** window will be displayed (see Figure 3-18).

Figure 3-18 Add/Remove Layers to/from Process Interface



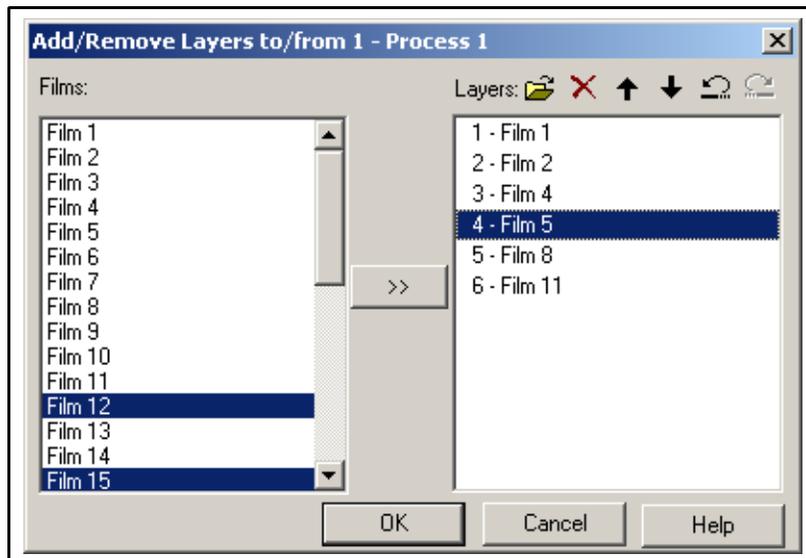
To add a layer(s), select the film(s) in the **Films** side and press the >> button. The corresponding layer(s) will then appear in the **Layers** side. (See Figure 3-19.)

Figure 3-19 Adding Layers



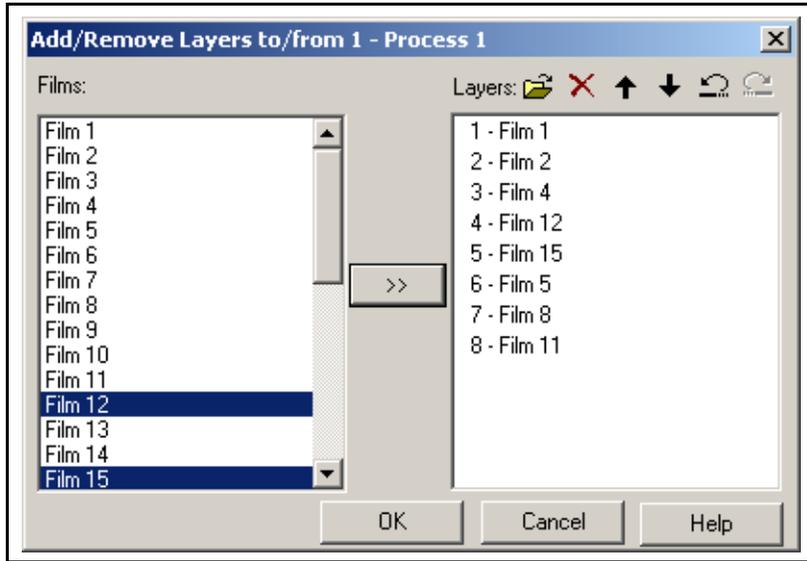
If there are already layers, add new layers at a certain position by selecting the position and clicking the >> button. For example, as shown in [Figure 3-20](#) and [Figure 3-21](#), Films 12 and 15 are inserted above Film 5, position 4.

Figure 3-20 Adding Layers To a Specific Positon



IPN 074-452-P1A

Figure 3-21 Result



A layer (on the right side) can be moved up or down by first selecting it and either dragging it up or down with the mouse or by clicking the up or down arrow in the toolbar located above the Layers side. In the example shown in [Figure 3-22](#), Film 11 is moved up to the position above Film 4. The result is shown in [Figure 3-23](#).

Figure 3-22 Moving layers up or down

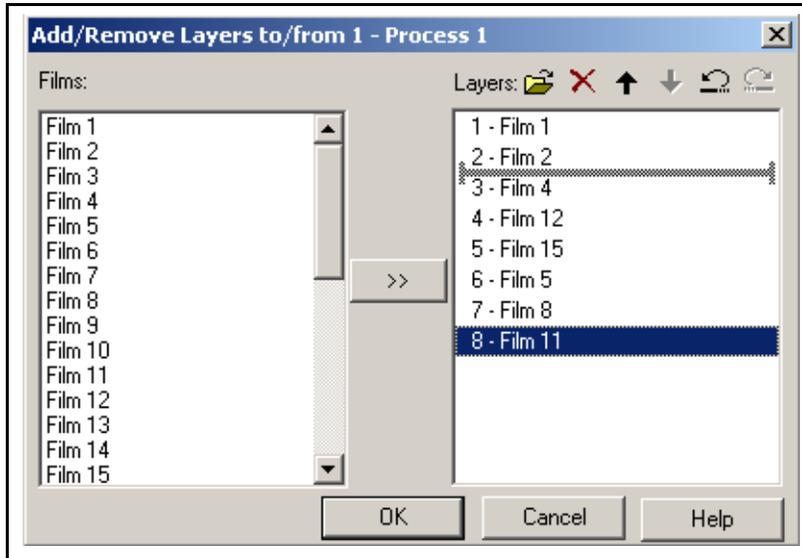
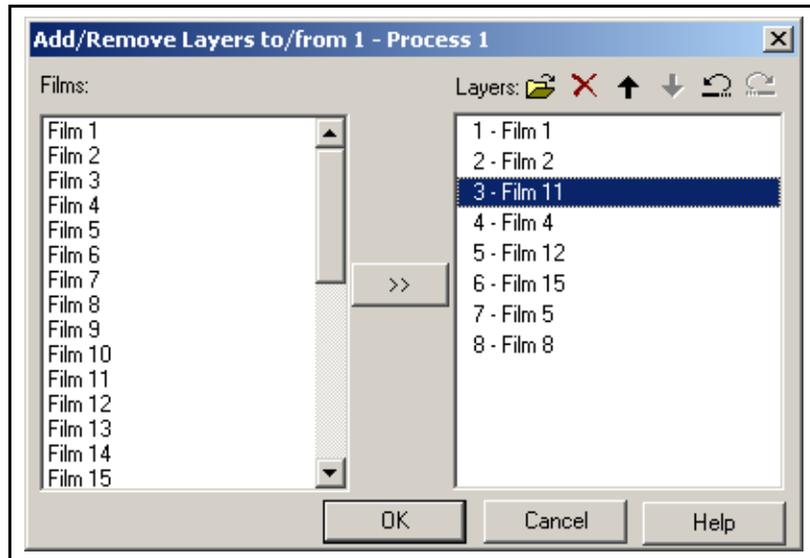
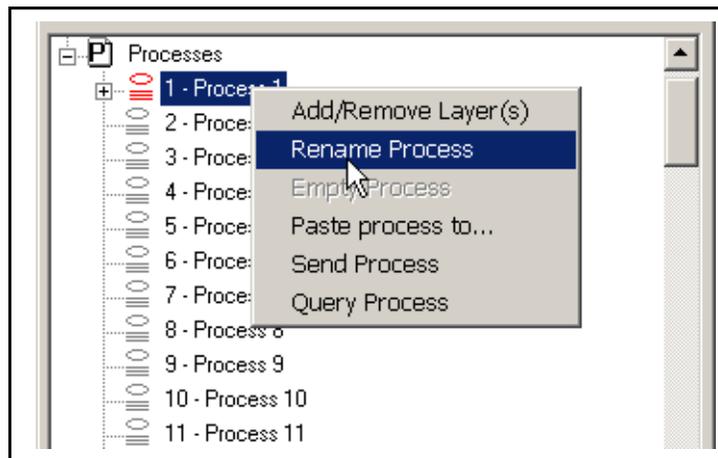


Figure 3-23 Result



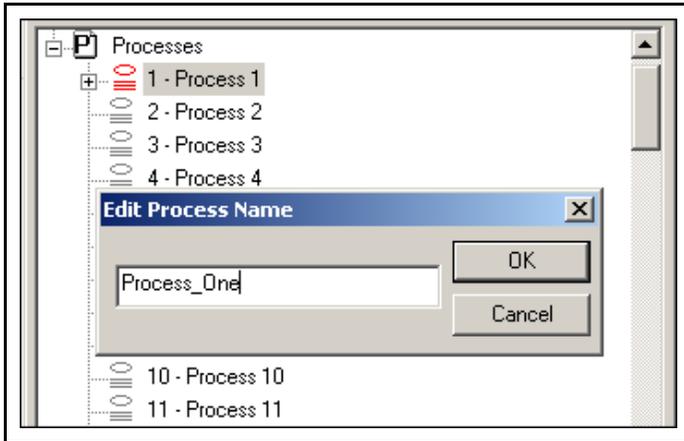
To rename a process, select the process, right-click and select **Rename Process**. See Figure 3-24.

Figure 3-24 Renaming a Process



A name edit box is displayed. A maximum of 15 characters can be entered. See Figure 3-25.

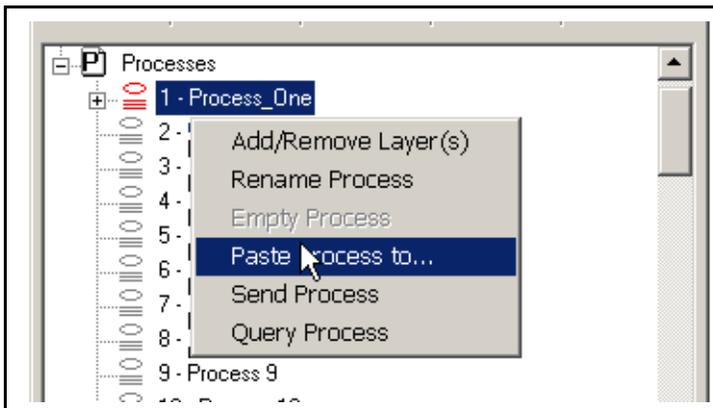
Figure 3-25 Editing a Process Name



In Figure 3-24 the **Empty Process** menu item is grayed out. This is because this process has been selected as the **Process To Run** in the General Parameters. (Refer to section 3.5, *Editing the General Parameters*, on page 3-10.)

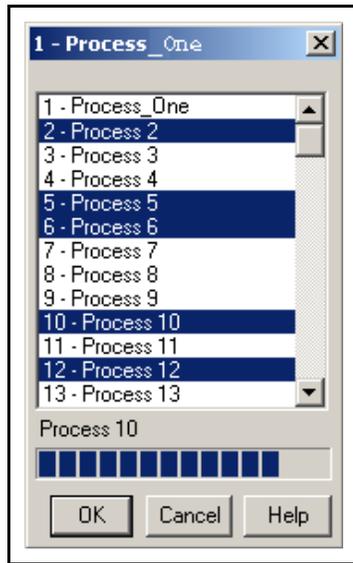
The content of a process, e.g. layers, can be copied to one or more processes. Select a process, right-click and select **Paste process to...** See Figure 3-26.

Figure 3-26 Pasting a Process



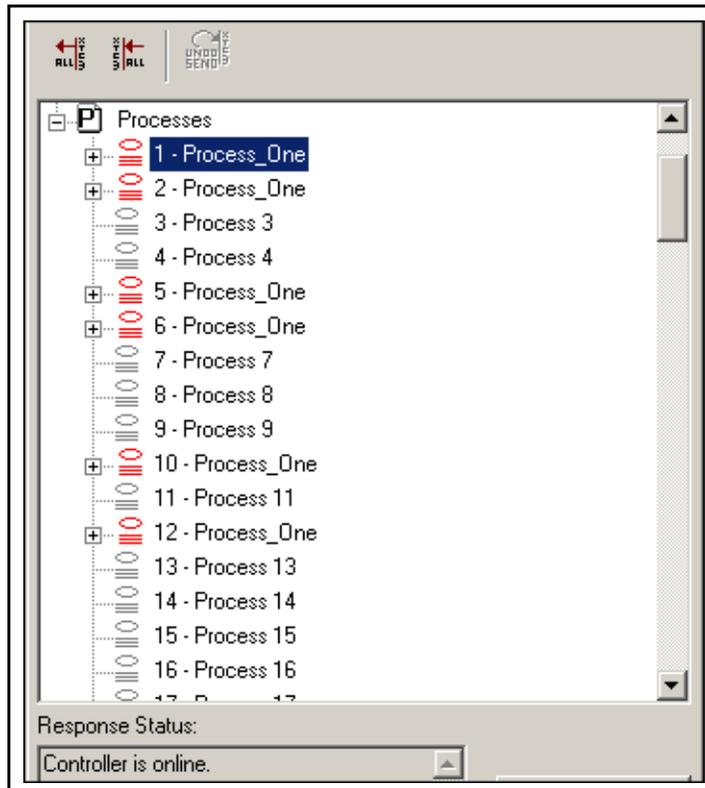
The dialog box similar to the one shown in Figure 3-27 will be displayed. From the list shown, select one or more processes and click **OK**. A progress bar will show which processes are being copied.

Figure 3-27 Pasting a Process to Several Other Processes



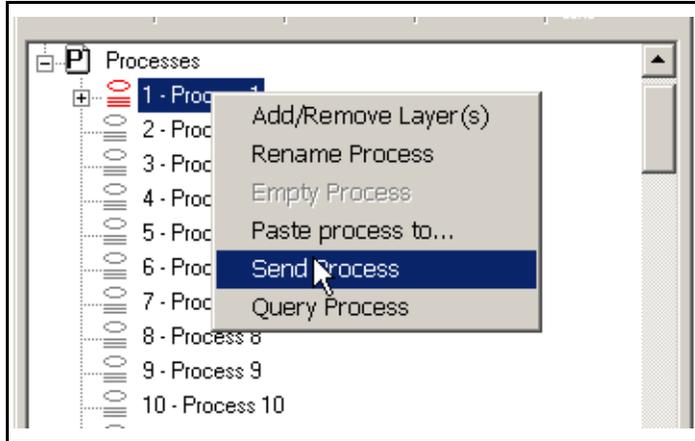
In this example, the result will show that five more processes identical to process 1 have been added. See [Figure 3-28](#)

Figure 3-28 Resulting Processes in Main Tree



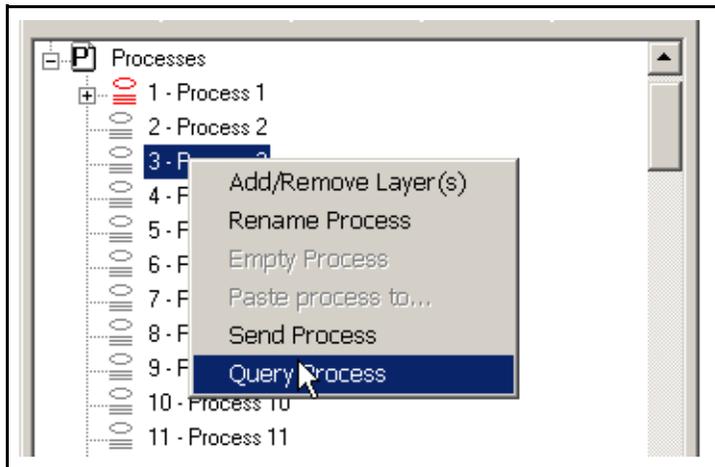
The content of an individual process can be sent to the controller. Select a process, right click to bring up the context menu, select **Send Process**. See [Figure 3-29](#). Please note that an empty process can be sent to clear a process in the controller.

Figure 3-29 Sending a Process to the Controller



A process can be filled or replaced with the content of a process from the controller via Query Process. Select a process, right click to bring up the context menu, select **Query Process**. See [Figure 3-30](#).

Figure 3-30 Querying a Process in the Controller



Chapter 4 Monitor

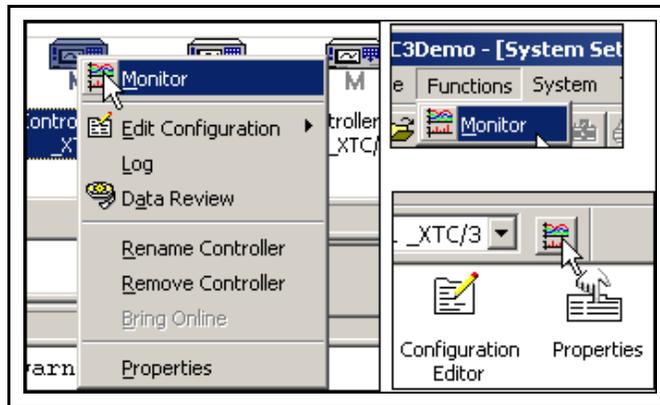
4.1 Introduction

The XTC/3 Editor includes a Monitor, which collects and stores six types of data: Rate, Rate Deviation, Power, Thickness, Frequency and Crystal Life. Sensor Status and State are also recorded. Monitor can also be used to recall data from files, which can then be printed or output to an ASCII file for import into other applications.

4.2 Starting Monitor

The **Monitor** function is started from **Function >> Monitor** of the program menu, the Controller toolbar, or the Controller's context menu (see [Figure 4-1](#)).

Figure 4-1 Different Ways to Run Monitor

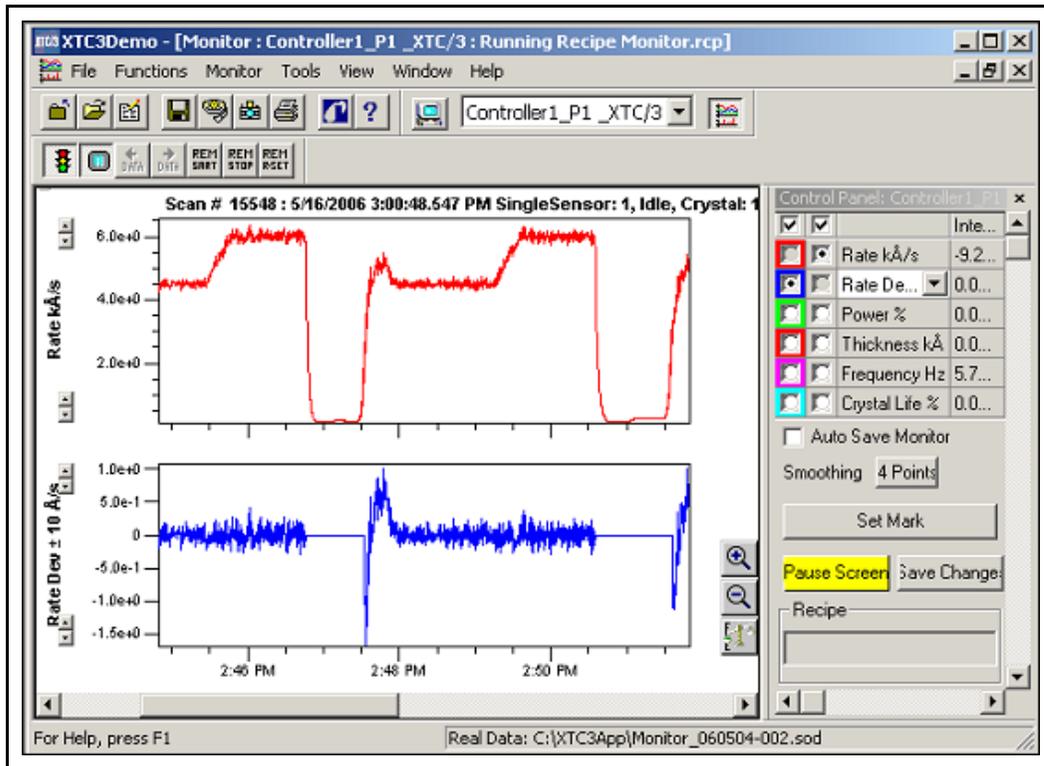


4.2.1 The Data Display

The **Monitor** window (see [Figure 4-2](#)) has four main components — the **Trend Graph**, **Menu and Toolbars** and **Data Grid/Control Panel** — each of which can be displayed or hidden to show the data as needed. The **Trend Graph** shows the measurement as a function of time. The **Data Grid/Control Panel** shows the intensities of the selected parameters at the **Data Cursor**. As the **Data Cursor** is moved, the **Data Grid** and **Trend Graph** header will automatically be updated.

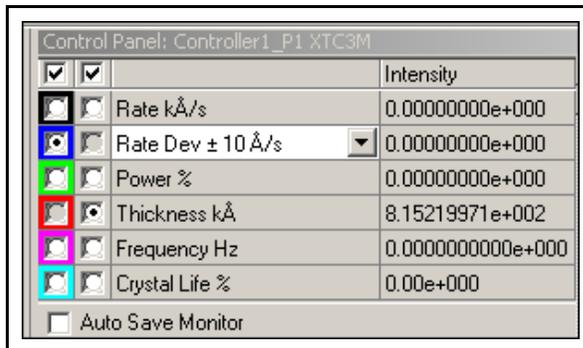
The data can be saved automatically, in files of a maximum size of 11MB, or when the **Snapshot** icon is selected. All data can be saved by selecting **Monitor >> Save Data**.

Figure 4-2 Monitor Screen Layout



Data collection from the XTC/3 is done for six data parameters. Only two data parameters can be displayed on the **Trend Graph**. The display parameter choice is made from radio buttons on the grid of the Control Panel as shown in Figure 4-3.

Figure 4-3 Select the Data for display in Monitor



The following data are collected from the XTC/3 for each controller:

- Rate** measured rate of accumulation.
- Rate Deviation** calculated from the difference of the measured rate to the rate setpoint. From the dropdown list, one can select Rate Dev +/- 5 Å/s, +/- 10 Å/s, +/- 20 Å/s or +/- 40 Å/s
- NOTE:** The **Dev** choices from the dropdown list are for the same data but provide different choices of scale for the Y-axis.
- Power** The Power, in %, of the Channel control output.
- Thickness** The Thickness in kÅ of the accumulation on the substrate.
- Frequency** The Frequency in Hz of the active crystal.
- Crystal Life** The Life in % of the active crystal.

NOTE: Refer to the *XTC/3 Thin Film Deposition Controller Operating Manual* (IPN 074-446-P1) for a more thorough understanding of the data parameters.

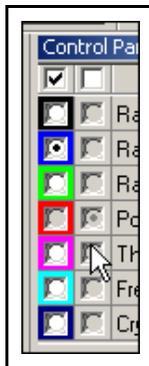
4.2.2 The Control Panel

The **Control Panel** provides a grid and buttons to control the display and collection of data.

4.2.3 The Display Grid

A display can be removed from the view by unchecking the checkbox located at the top of the grid. This is shown in [Figure 4-4](#).

Figure 4-4 Grid Radio Buttons and Check boxes



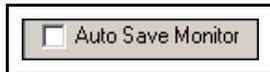
IPN 074-452-P1A

Removing a display from the view has no effect on the collection of that data (it is still collected). Selecting a Radio button will display the corresponding data plot. The color of any plot can also be changed by right clicking on the left radio button and selecting **Change Color** from the context menu.

4.2.4 Saving Data

Data can be saved automatically or by manual selection. By default, data is not saved, based on the unchecked state of **Auto Save Monitor** shown in [Figure 4-5](#).

Figure 4-5 Default is to discard all data collected



If **Auto Save Monitor** is checked (see [Figure 4-6](#)), then data is automatically saved any time the data collection is stopped. This selection is maintained from session to session by the program.

NOTE: When data is saved, it is written to a file and the file is closed. Any data collected after the file is closed will be stored in a new file.

Figure 4-6 Auto Save Data Enabled



Data can be saved at any time by pressing the **Save As...** toolbar button, which saves all data collected since **Monitor** was started into one file. This selection displays a **Save As...** dialog which allows for selecting the destination folder and file name. By default, the file name is `Monitor_yymmdd-xxx.sod` where:

- ◆ yy is the last two digits of the year
- ◆ mm is the two digit month
- ◆ dd is the two digit day
- ◆ xxx is an **index**, starting at 000 and incrementing up to the maximum number provided by the index digits (in this case, 999). By default, the index is three digits, which can be changed on the **System Properties >> Miscellaneous** page.

Data can also be saved by pressing the **Snapshot** toolbar button, which only saves the data showing on the display at the time it is pressed. For example, if 3 hours of data have been collected and the X-axis is set to show 5 minutes of data, then pressing the Snapshot button will only save that specific 5 minutes of data. Taking a **Snapshot** does not close the current data file. Saving data does not stop data collection.

NOTE: No dialog is shown when a **Snapshot** is saved. However, the path and filename are displayed in the **Status Bar** at the bottom of the screen.

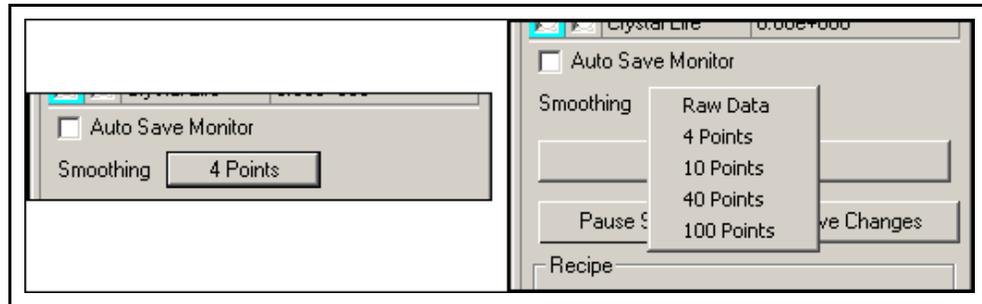
NOTE: A **Snapshot** can be taken of Live or Recalled data.

The maximum file size allowed for any data file is 11MB. It is the responsibility of the user to manage data files, data archiving and hard disk storage.

4.2.4.1 The Display Smoothing Setting

The effective noise of the displayed data can be filtered by changing the **Smoothing** setting (see Figure 4-7). **Smoothing** provides an averaging of data points before the point is displayed, but has no impact on the raw data collected and saved. **Smoothing** only affects the display of **Rate** or **Rate Deviation**.

Figure 4-7 Changing Smoothing



4.2.4.2 Setting a Mark

The **Set Mark** button (see Figure 4-8) on the **Control Panel** allows for a **Mark** and text description to be applied to the data. The Set Mark function will **Freeze** the graph and provide a crosshair cursor (+) to select the data scan to be marked. Text information (for the **Marks History** log) can be added in the **Set Mark** dialog (see Figure 4-9). That **Mark** is then indicated along the X-axis with a colored diamond (see Figure 4-10).

Marks are automatically generated for:

- ◆ the start of the Monitor, to store a "benchmark" of the crystal status
- ◆ any Crystal status change — Crystal Good, Crystal Invalid, Crystal Failure
- ◆ any controller state change — Ready, Idle, Deposit, etc...

Figure 4-8 Set Mark button



Figure 4-9 Set Mark Dialog

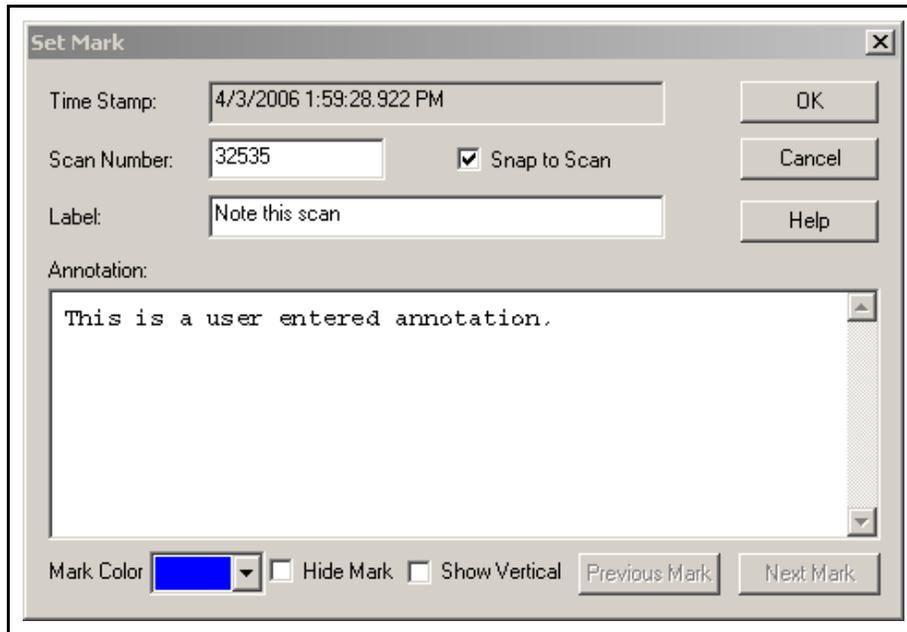
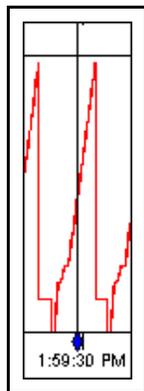


Figure 4-10 Mark Indicator on Graph



4.2.4.3 The Pause and Start/Stop Controls

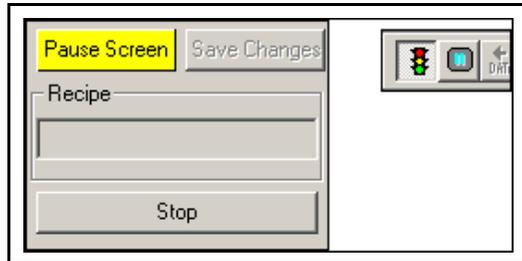
The **Pause Screen** button (see Figure 4-11) on the **Control Panel** stops the plotting of data collected, which allows the plotted data to be easily studied or reviewed. **Pause** freezes the display but not the data collection. Data collection continues in the background while the display is frozen and the **Pause Screen** button is colored yellow. Pressing the yellow **Pause Screen** button will unfreeze the display and update the graph with all the data collected since the button was pressed. There is an equivalent **Pause** button on the toolbar (see Figure 4-11).

Moving the **Data Cursor** will also **Pause** the display during data collection.

NOTE: Changing the X-axis to 60 minutes or greater, when the Trend Graph is scrolling, will automatically freeze the display.

The **Start/Stop** button (see [Figure 4-11](#)) on the Control Panel serves a dual purpose. When data is being collected, the button can be used to stop collection, which also stops the display. When data collection is stopped, the button can be used to start collection and the display. Stopping data collection results in the data being saved to disk, if the **Auto Save Monitor** function is enabled, or discarded. Starting data collection from this button starts a new collection session. There is an equivalent **Start/Stop** button on the toolbar.

Figure 4-11 The Pause and Stop buttons



CAUTION

Stopping the data collection when Auto Save Monitor is not checked will discard all data collected since the Monitor was started. There is no warning or prompt when this action is taken.

Zoom In () provides an adjustable rectangle on the **Trend** Graph that will display the data from within the rectangle across the full width of the graph.

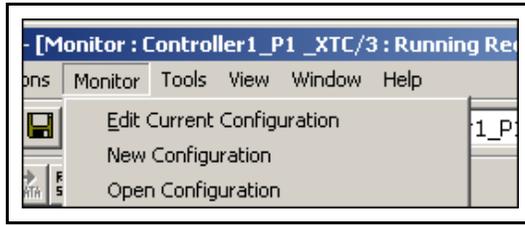
After using the **Zoom In** feature, the **Zoom Out** () button can be used to return all the data to the Graph. Clicking outside the graph area has the same effect.

The **Rescale** button () can be used to show the full height of the data.

4.3 Editing the Configuration

The **Configuration Editor** is available while collecting data so that changes can be made and the effect of the changes can be seen in real time. Three functions exist to edit the Configuration while collecting data — **Edit Current Configuration**, **New Configuration** and **Open Configuration**. Each function is accessed from the **Monitor** menu (see [Figure 4-12](#)).

Figure 4-12 Monitor, Edit Configuration Choices



4.3.1 Edit Current Configuration

Monitor >> Edit Current Configuration reads the entire Configuration from the XTC/3 and locks the front panel from any changes. This selection performs the **Query Controller Cfg** function that is recommended as the starting point for editing a Configuration (see [section 3.2, Using the Configuration Editor, on page 3-2](#)). Any changes made to the Configuration can be sent to the controller by selecting the parameter (i.e. checking the **Send** box) and pressing the **Send Selection** button in the Editor.

The effect of a parameter change should appear immediately in the data collection if the parameter is related to data collection.

NOTE: Use of **Monitor >> Edit Current Configuration** may result in delayed data plotting during the brief time that the entire Controller configuration is being sent to the computer from the XTC/3.

4.3.2 New Configuration

The **Monitor >> New Configuration** loads the Editor with a default configuration from disk, which then allows for any parameter to be programmed and sent to the Controller. This is typically used to change a few parameters without impacting data collection. It is recommended that the **Send Selection** button be used to send any changes.

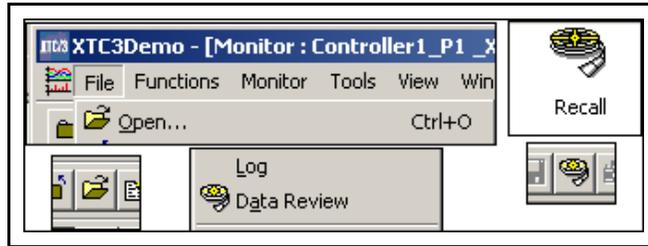
4.3.3 Open Configuration

Monitor >> Open Configuration loads the Editor with a previously saved configuration from disk.

4.4 Recalling Data

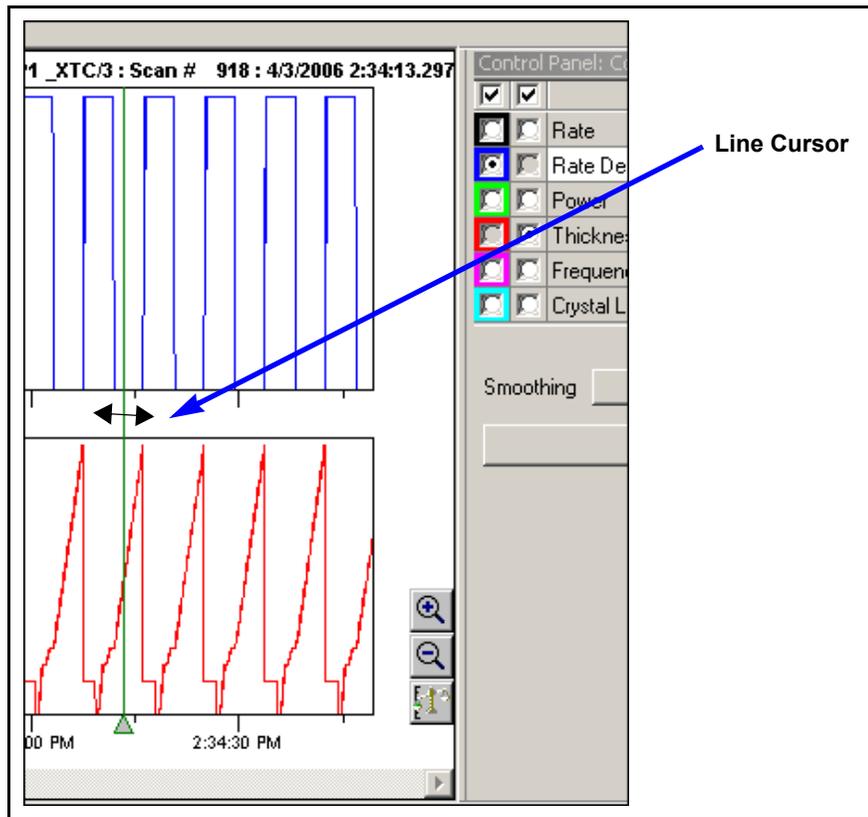
Data that has been saved to disk can be recalled into the Monitor view by **File >> Open**, the **File Open** toolbar button, the **Recall** toolbar button, or the context-menu selection of **Recall**. All options are shown in [Figure 4-13](#). When using **Recall**, the file type is defaulted to **XTC/3 Data (*.sod)**, which is the correct file type for data files.

Figure 4-13 Recalling a Data File



After a data file is opened, the data cursor can be used to display numeric data for any scan of data contained in the file. The cursor can be repositioned by pressing and holding the left mouse button when over the Data Cursor, dragging the Data Cursor, and releasing the mouse button. The left and right arrow keys can also be used to move the Data Cursor once it has been repositioned on the graph. Figure 4-14 shows the Data Cursor repositioned.

Figure 4-14 Recall, Cursor Use





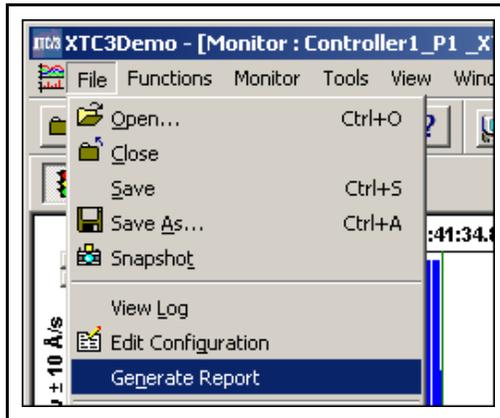
WARNING

Recall and manipulation of very large data files, while collecting data, may cause the system to slow down. It is advisable to recall very large data files only when data collection is idle to lessen the impact on the system performance.

4.5 Generating Reports

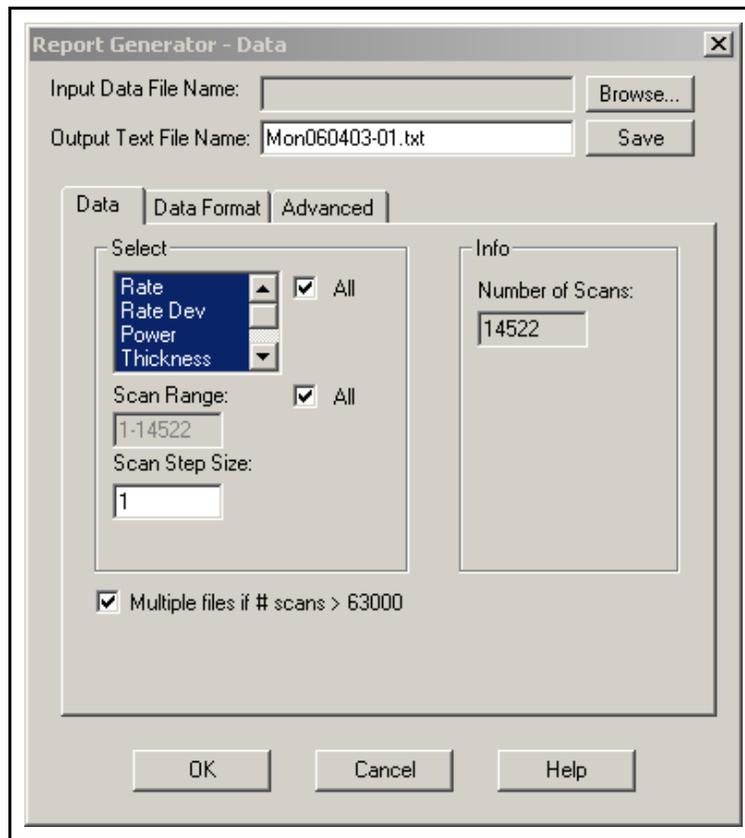
ASCII reports can be generated for data files by using the **File >> Generate Report** selection shown in [Figure 4-15](#). Reports can be generated for individual files, live data, or a series of files.

Figure 4-15 Selection for Generating a Report



To generate a report, select **File >> Generate Report**. If live data are being displayed or a data file has been **Recalled**, the dialog in [Figure 4-16](#) will appear. In other cases, a standard file **Open** dialog will appear.

Figure 4-16 Generating a Report - SOD Data selections



If live data are being displayed, the **Input Data File Name** box will be blank and the **Number of Scans** will be incrementing. Leaving the **Input Data File Name** box blank will generate a report for the live data being acquired. If you are generating a report for a recalled data file, that filename will be shown in the **Input Data File Name** box. If the desired data file is not being displayed, click on the **Browse** button and use the standard XTC/3 Editor file **Open** dialog to select the file or files for which to generate a report. To select multiple files highlight the first file, press and hold the control key, click on the other files to select them, and then release the control key. Holding the shift key down and clicking will select all the files between the current selection and where the mouse was clicked.

The output filename, by default, is the same as the input filename but with a **.txt** (tab separated) or **.csv** (comma separated) extension. When reporting a single file, this name can be changed to any valid filename. When reporting multiple files, it is possible, although not recommended, to edit the list of output files.

Select one or more parameters from the list of parameters (Rate, RateDev, Power, Thickness, Frequency and Crystal Life) or click the **All** check box to select all.

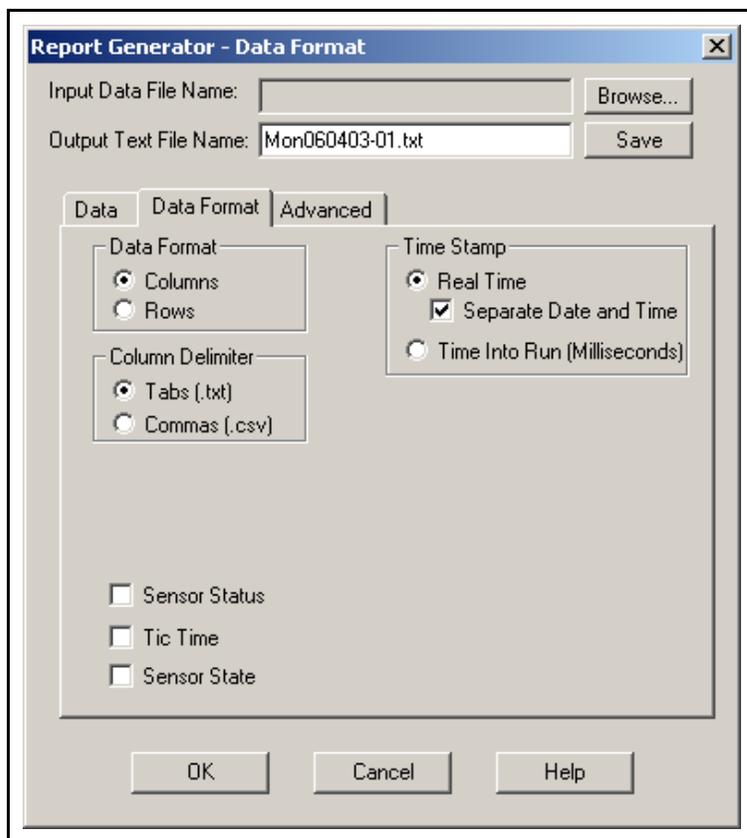
Enter the range of scans of interest in the **Scan Range** box or click the **All** check box for all scans.

Enter the step size in the **Scan Step Size** box. Enter 1 to report every scan, 2 to report every other scan, etc. For single files, the actual limits are displayed in the **SOD Info** box. However, since multiple files may have different limits they are left blank if more than one file is selected. If the ranges selected exceed the actual limits of one of the files in a group, the points that fall within the specified ranges are reported and no error is displayed.

The **Multiple files if #scans is > 63000** check box is for files that contain more than 63000 scans in order to account for older Excel applications that cannot display more than 65000 lines. Multiple files with a maximum of 65000 lines will be generated.

Click on the **Data Format** tab to display the **Data Format** page, shown in [Figure 4-17](#), used to select the formatting options and the type of data for the report.

Figure 4-17 Generating a Report - Setting the Data Format



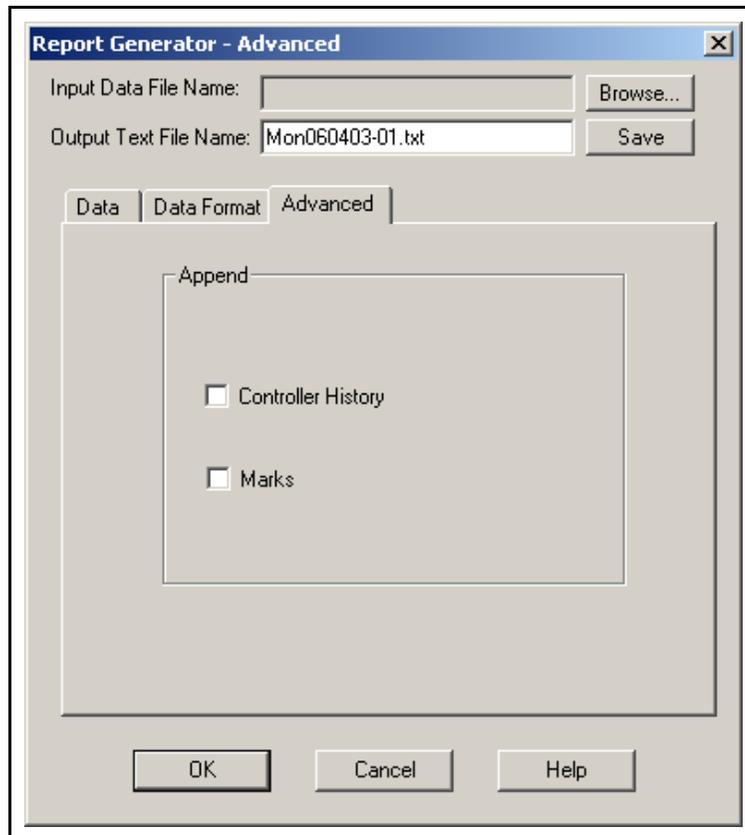
The data can be oriented in **Columns** or **Rows**. Selecting **Columns** places the measurements for each parameter in separate columns with one scan per row. Selecting **Rows** generates a series of parameter-measurement pairs, grouped by scan. The delimiter between columns can be selected as either **Tabs** or **Commas**.

Sensor Status, **Tic Time** and **Sensor State** data can also be generated and displayed in separate columns if the corresponding boxes are checked.

NOTE: The Report Generator creates text files, from data files, in two possible formats - **tab delimited** (.TXT) or **comma separated variable** (.CSV). When a large quantity of data is collected into one file (e.g. a SOD file) the resulting text file from the Report Generator will also be large. Files that are too large for the Windows Notepad can be opened in a program such as Excel®. Both .TXT and .CSV files can be opened in Excel.

Select the **Advanced** tab to display additional options (see [Figure 4-18](#)). This page allows the **Controller History** and **Marks** to be included in the report.

Figure 4-18 Generating a Report - Advanced options



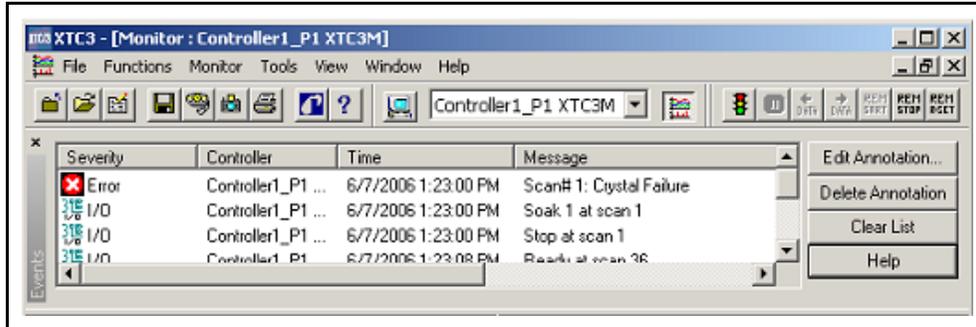
When the desired options are selected, click **Save** to write the data to the output file. The files generated are plain text files and can be viewed with any text editor, such as Notepad, and imported into other programs such as Excel.

The **Save** button will generate a report for the selected data file(s) but will not close the **Report Generator** dialog. This allows for use of the **Browse** button to select a different input file and continue generating reports. The **OK** button will generate a report for the selected data file(s) and close the **Report Generator** dialog.

4.6 The Event Log

When an error or event on one of the Controllers is detected, an Event window is displayed. (See Figure 4-19.)

Figure 4-19 Event Window

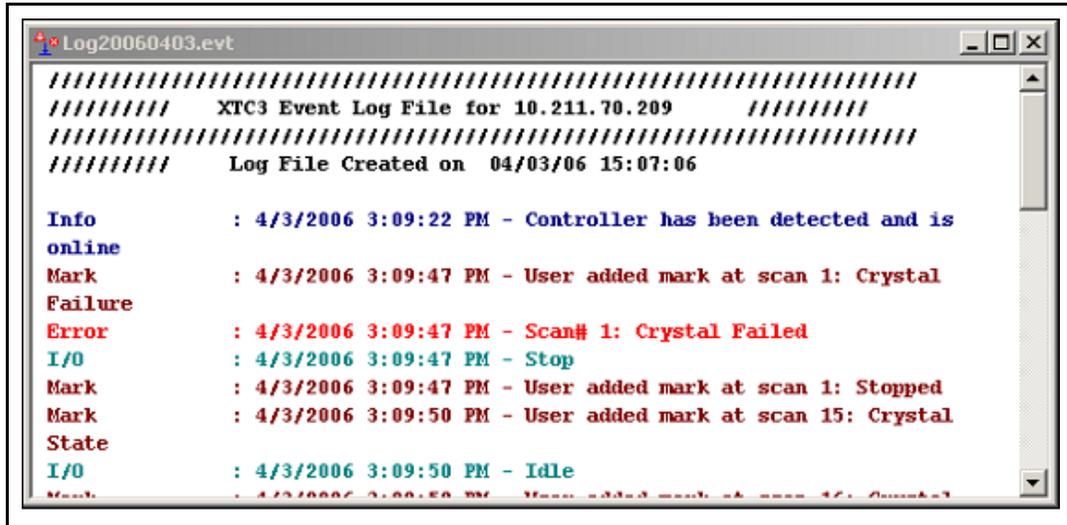


One or more errors/events can be displayed in this window and the window will stay displayed until it is closed by the user. This allows several errors/events or warnings to accumulate when no one is watching the screen, that can be viewed, for example, when the user returns. By default, only errors are displayed in this window, however, it is possible to configure the program to include warnings or I/O (refer to section 2.3 on page 2-11). Most errors displayed provide status about the crystals in use. There are errors that are displayed when communication problems exist; these are most likely due to a large amount of data transferring between the Controller and PC.

Errors, warnings, events and marks are logged in an event file according to the preferences selected in the **Controller Properties** pages (refer to Figure 2-14 on page 2-12). A new log file is created every day with the name Logyyyyymmdd.evt. Where yyyy is the year, mm is the month, and dd is the day. To view the log file for a Controller, select **File >> View Log** or select **Error Log** from the context menu when the cursor is over a Controller icon in the setup page.

If invoked using the **File >> View Log** command, a file **Open** dialog will be displayed to allow the selection of a log file to view. If invoked from the context menu on the **Setup Screen** then the current log file for that Controller will be displayed, as shown in Figure 4-20.

Figure 4-22 View after selecting Log View Options



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