



# Process Eye Professional (V4)

SP104007 Rev 2.50  
October 2004

As part of our continuous product improvement policy, we are always pleased to receive your comments and suggestions about how we should develop our product range. We believe that the manual is an important part of the product and would welcome your feedback, particularly relating to any omissions or inaccuracies you may discover.

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## ***I. Getting Help***

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We are always pleased to provide assistance where we can. If you are experiencing difficulties or need help, feel free to call your local MKS Spectra facility and ask for the Customer Support Group. Please have the following information ready so that our technical staff may help you quickly and effectively:

- The serial numbers of the analyser, Microvision Plus or HPQ-2 control unit; each of these numbers begins with the letters "MKS" or "LM"
- The Process Eye software version number; this is written on the software CD ROM and can also be found on screen by selecting **Help / About** from the menu-bar in the Process Eye **Select / Mode** window.
- The operating system used.

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## ***II. Introduction***

Process Eye Professional is designed to operate with the MKS Spectra Microvision, HPQ-2 and IP range of instruments. It will not operate with any other control unit in the MKS Spectra range.

Process Eye Professional will run under Windows 98SE/ME/NT/2000 and Windows XP operating systems. No other versions of Windows are suitable.

**Note:** This manual is to be used in conjunction with Process Eye Professional V4.03 with Service Pack 1. If you are currently using an earlier version of Process Eye Professional please contact your local MKS Spectra representative to discuss upgrade options.

### ***Process Eye Professional overview***

The Process Eye Professional package is designed to monitor partial pressures and optionally, analog and digital inputs, in a production environment where it is essential to observe and record the current status of the process, while simultaneously reviewing historical events in both the current and archived runs. In addition, complex comparisons, including statistical comparisons, can be made in real time.

The data acquisition is fast and covers a wide dynamic range of pressures so that some, or all of the partial pressures, along with analog and digital inputs, can be measured and stored, while only data of interest is displayed.

The package has been designed to be configured by the process engineer, who can set up a number of pre-set configurations called "recipes" for various production requirements. These can then be selected by an operator with a single click on a named button.

### ***Servers and Workstations***

The concept of server and workstations is fundamental to Process Eye Professional. RGA control units such as Microvision Plus and HPQ-2, connect to a PC via a 232/422 serial communications interface, or in the case of IP based instruments that connect via a standard network interface. In Process Eye Professional, this PC is the "server".

The Process Eye software used to acquire, store and review data, which also provides the interface to the process environment by providing alarms, is the "workstation".

If required, one PC can do the job of both server and workstation and in the majority of installations this will be the case. The Process Eye Professional software will operate seamlessly, with the user requiring no knowledge of the server/ workstation concept.

## *TCP/IP Communications*

The RGA Server application handles the serial RGA instrument interface. The RGA Server application can handle as many RGA instruments as can be physically connected to a PC.

The main Process Eye Professional application can connect to any number of RGA Servers using the TCP/IP protocol.

In IP based instruments, RGA Server resides in the instrument itself. Process Eye communicates directly with the embedded RGA Server via a standard network interface, using the TCP/IP protocol.

In situations where different PC's are used as the workstation and server, communication between the two is via a TCP/IP networking protocol over a local area network (LAN) or an Internet connection. This means the process engineer can run Process Eye Professional remotely from the office without the need to enter the cleanroom.

## *Measurements and Scans*

Traditionally, RGA operation has been based around a series of scanning modes such as bar chart, analog scan and multi-trend.

In Process Eye Professional, a scan can be made up of any number of mass scan measurements that acquire bar chart or analog data and mass reading measurements that deal with single masses. User measurements that may be the result of a calculation can also be incorporated into the scan along with data from another source.

## *Connecting Control Units*

The Microvision Plus or HPQ-2 control unit connects to the PC using a serial interface that may be RS232 or RS422. **RS485 is not supported.**

IP based instruments, connect via a standard network interface.

The control unit must be one suitably configured to run with Process Eye Professional.

If the control unit was supplied with another software package or a previous version of Process Eye, please contact your local MKS Spectra facility for upgrade instructions.

### ***III. Installation Requirements***

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Process Eye Professional operates under Windows 98SE/ME/NT (SP6 or higher)/2000 and Windows XP environments, running on an IBM compatible PC.

The recommended minimum specification is a Pentium P200Mhz and 64MB of memory.

It is recommended that ALL available updates for your particular operating system have been applied before the installation of Process Eye Professional.

The Process Eye Installer will search your system for files that need to be updated for the correct operation of Process Eye, these may include Service Packs, Windows Installer Updates or newer versions of Internet Explorer. This process is automated and simply requires the user's permission to install the required components.

**Note:** You will need to have administrative privileges to install these updates.

Once the required updates have been applied, or if your machine already meets the software requirements, the first page of the Process Eye Installation Wizard appears.

# ***Section 1 - Installation***

---

## *Overview*

Before you start to install Process Eye Professional, make sure you have fitted and pre-configured any plug-in communication cards you may require.

If you are using Windows NT/2000 or XP, you will require Administrator privileges to install Process Eye Professional.

Once installed, you will only require "Power User" privileges to run Process Eye Professional.

Any RGA control units should be connected to the PC and switched on.

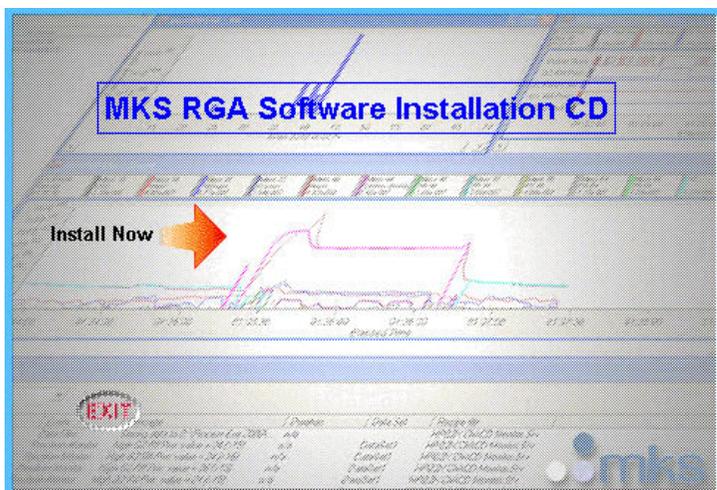
The following sections detail the software installation, creating a Power User account and configuration of the main Process Eye program.

It is recommended you work through each section in turn.

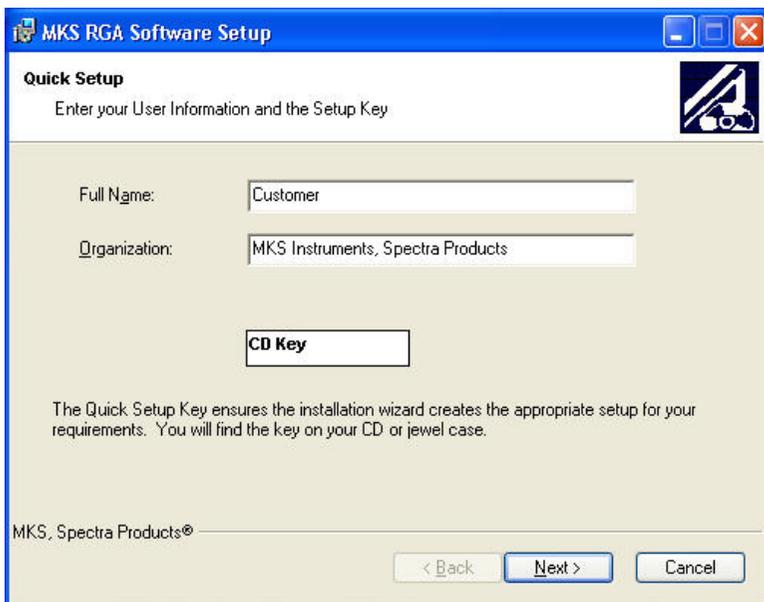
## 1.1 - Installing Process Eye Professional

**Note:** You will need to be logged onto the PC with an administrative account to install to install Process Eye.

Insert the Process Eye Professional disk into the CD drive of the PC. The Set-up Program will start automatically, if not, browse to the root directory of the CD and run the "Setup.Exe" file.



To begin the installation, click on the **<Install Now>** button. If your computer has all the prerequisites mentioned in the Requirements section, the installation will begin.

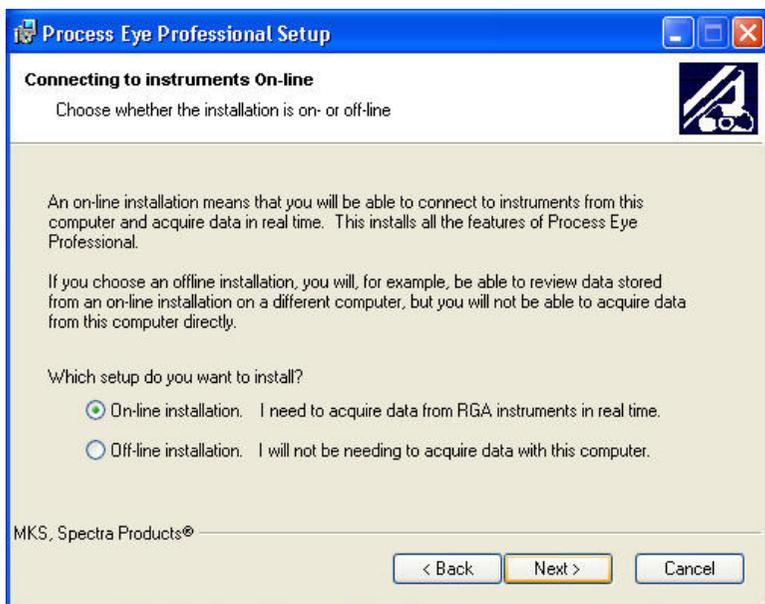


Enter a **Full Name** and **Organization** if required.

The **Quick Setup Key** is supplied with your CD and determines the type of Process installation. If an invalid key is entered, a confirmation dialog appears giving you the option to re-enter the key.

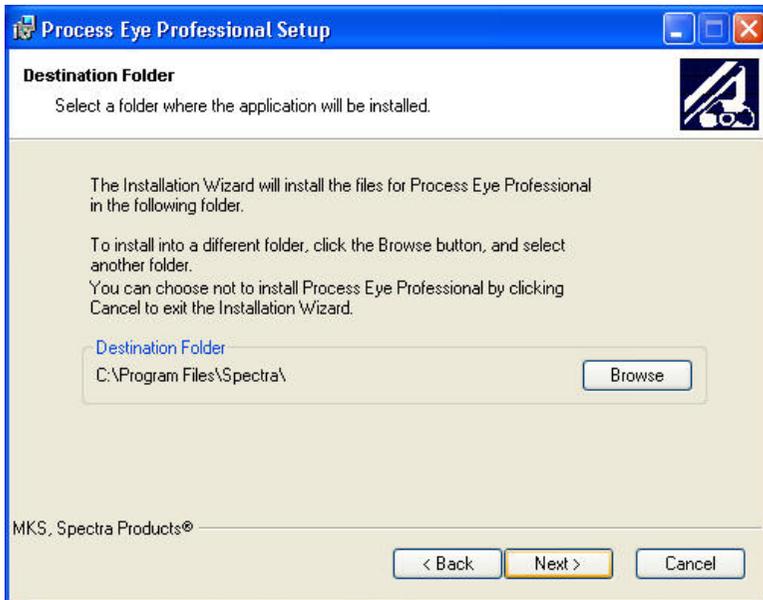


Once a valid key has been entered, click the **<Next>** button to continue.



An **On-line** installation installs the full suite of Process Eye components and should be chosen if the PC is to run the RGA instrument via an RS232 or Ethernet connection.

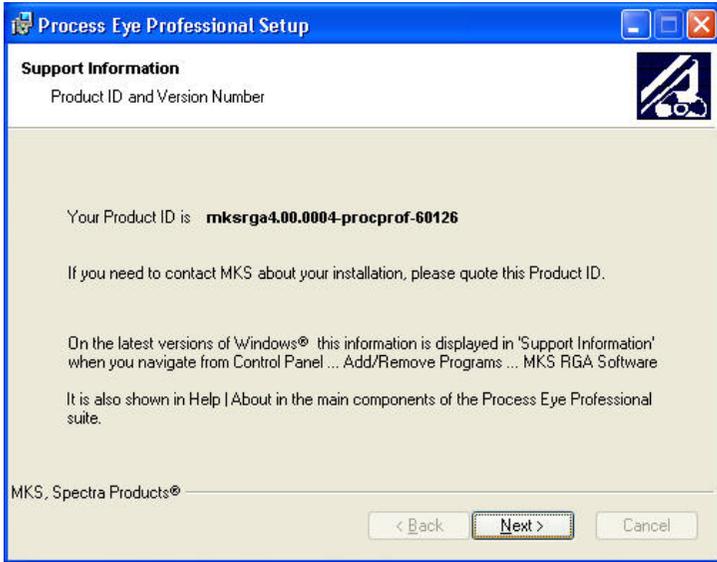
An **Off-line** installation installs only the components required to view stored data and the ability to create or modify recipes.



Select the installation directory used for the Process Eye software. The above shows the default directory of **C:\Program Files\Spectra**.

If you wish to install to another directory, click on the **<Browse>** button. A standard "Browse" dialog is displayed where you can select a directory of your choosing.

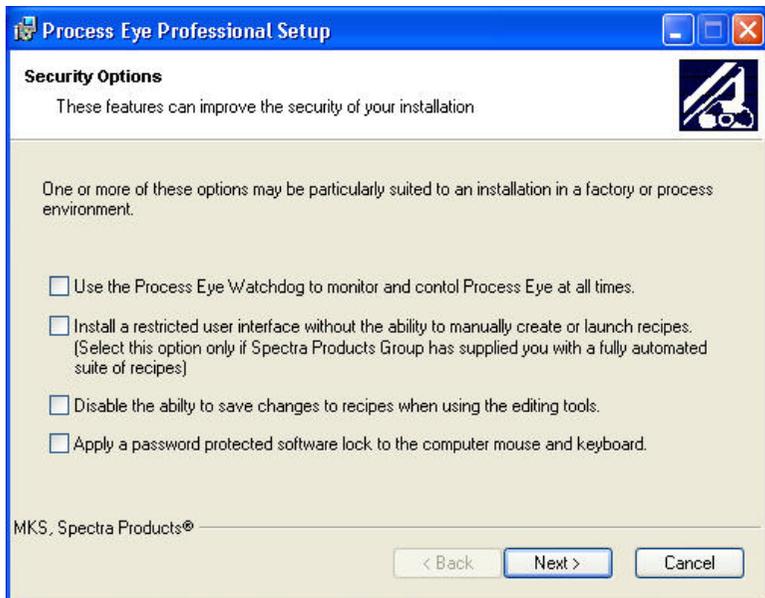
Once the required files have been copied and the software registered, the "Support Information" dialog is displayed.



This dialog provides details of your software version numbers and how to re-obtain these version numbers after installation.

**Note:** the Product ID number will be required if support is requested.

The "Security Options" dialog.



On this dialog, certain security options can be set to prevent unauthorised access or changes to the software.

The Process Eye Watchdog is a background application that monitors the status of Process Eye Professional. If it detects that Process Eye Professional is not running for any reason it will automatically restart the application. To learn more about the Process Eye Watchdog see Section 17.3.

By installing a restricted user interface, you will be unable to create or launch recipes. This should only be used if MKS Spectra have provided a fully automated suite of recipes.

By disabling the ability to save changes to recipes extra protection is given to the installed suite of recipes. Only those with the ability to uncheck this option would be able to edit recipes already created which enables administrators to manage the use of Process Eye Professional

Applying a Software Lock protects your PC from being used whilst you are away. To learn more about the "Computer Lock" see section 17.2.

Once the above step has been completed, the installation success dialog is displayed.

To close and exit the installer, click **<Finish>**.



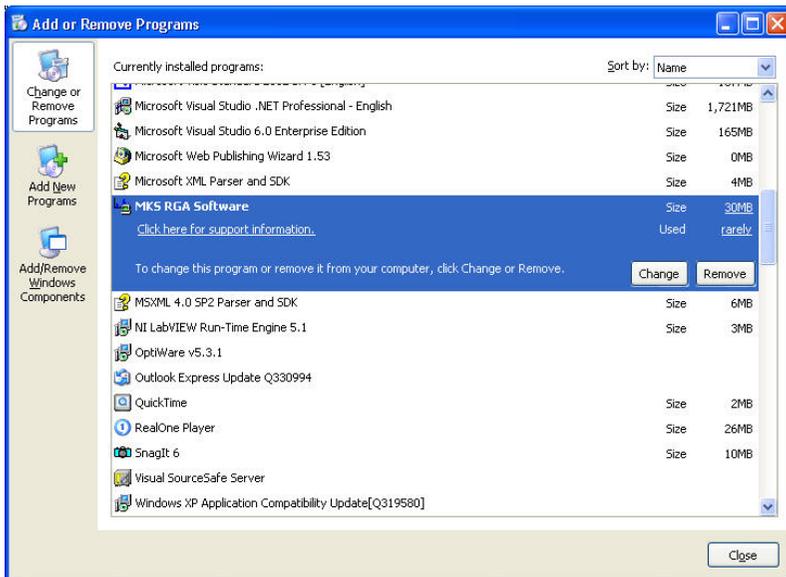
## 1.2 - Modifying the Installation

Once the main Process Eye program has been installed, you can modify your installation using Windows installer.



From the **Start** menu, select **Control Panel / Add or remove Programs**

From the list, select "MKS RGA Software".



Details of your current installation can be displayed by clicking on the **Click here for support information** link.

This will bring up the “Support Info” dialog, which displays various details on the Process Eye installation, as well as the option to repair the current installation.



If you wish to make changes to your installation, click on the **<Change>** button on the “Add or Remove Programs” dialog.

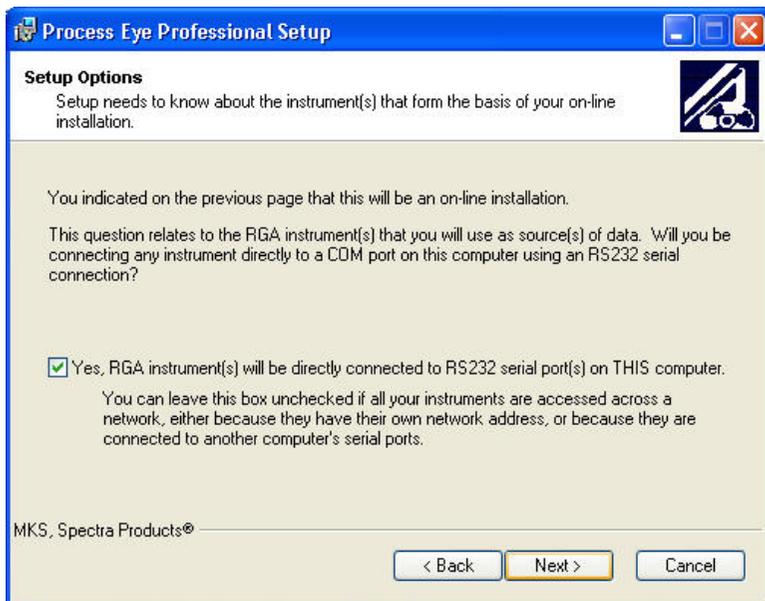
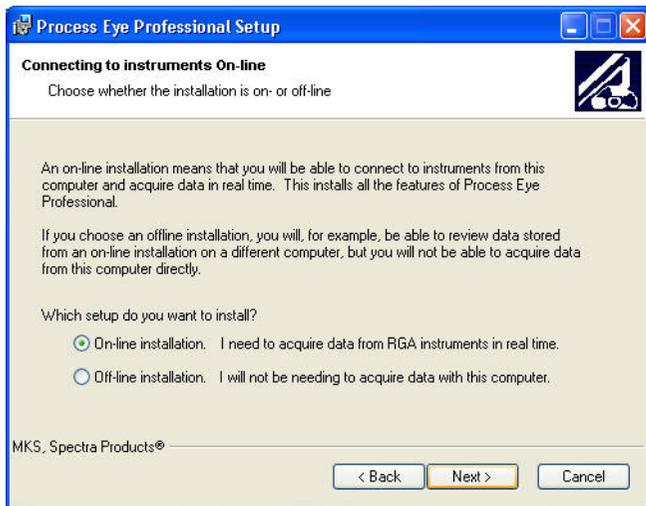
The “Process Eye Professional Setup” dialog will appear, giving the options to **Modify**, **Repair** or **Remove** the software.



To **modify** the installation, click the **<Modify>** button then the **<Next>** button.

You will then return to the installation wizard, but this time there will be more options to choose from.

The off-line/on-line choice is the same as in the original installation.



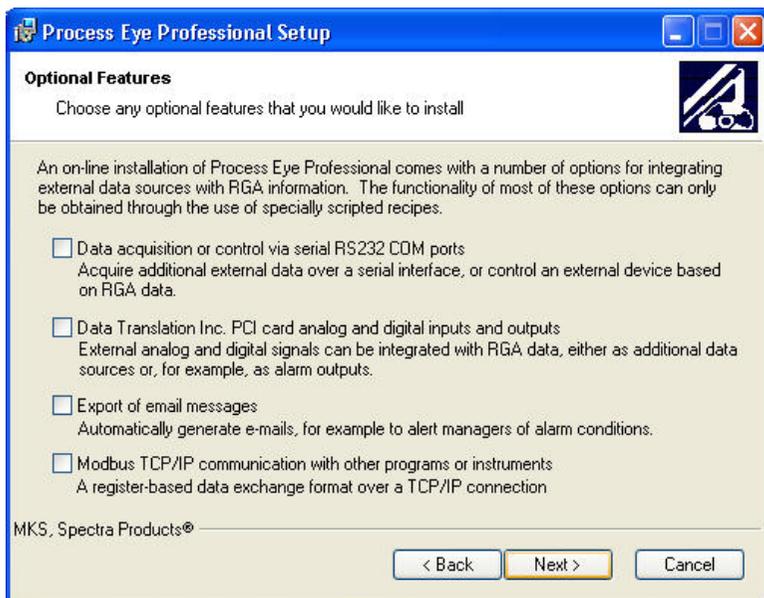
Check the **Yes** box if you will have instruments connected to this computer.

If you do not check the box, the **RGA Server** option will be removed from your installation allowing connections to instruments on the network only.

For more information on network connections, see section 4.3 Network Configuration.

Click **<Next>**.

Depending on the original type of installation chosen, you will see a different list of optional features.



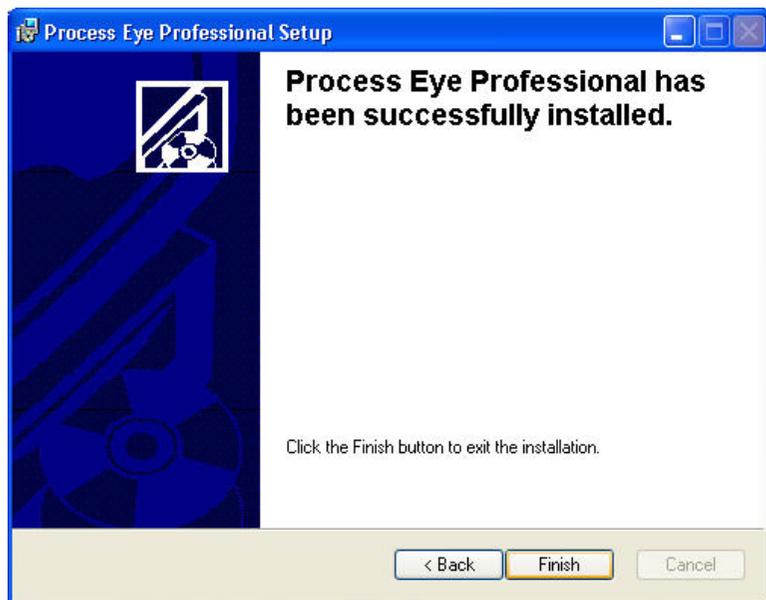
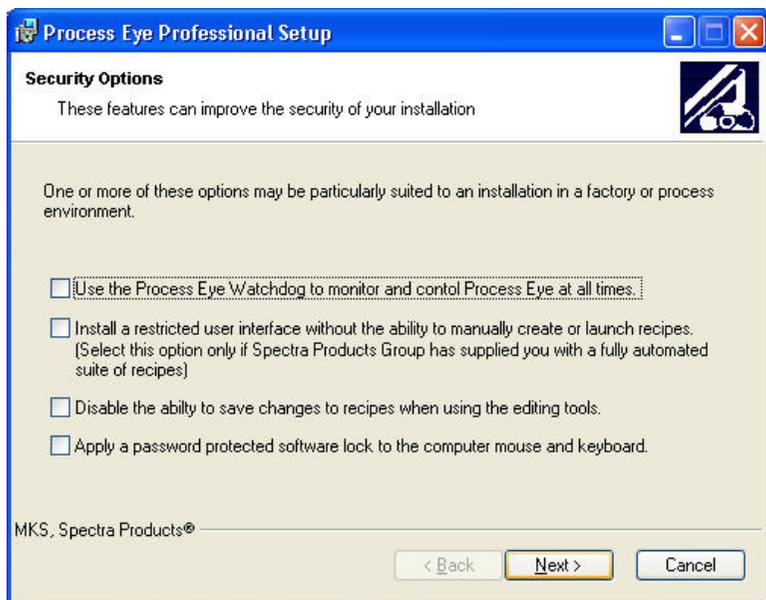
There are currently four standard install optional features. To install any one of them, check the box next to that feature and click **<Next>**. If you wish to use any of these features but are unsure how to implement them please contact your local MKS Spectra representative.

If you are happy with the information you have entered click **<Next>** to continue.

If you want to change any information, click **<Back>** to navigate to the relevant dialog.

At any time you may click **<Cancel>** to exit without making any changes.

Select any optional security options then click on **<Next>**. See Section 1.1 for an explanation of these features.



Click **<Finish>** to exit the installer.

## ***Section 2 - Creating User Accounts***

---

### *Overview*

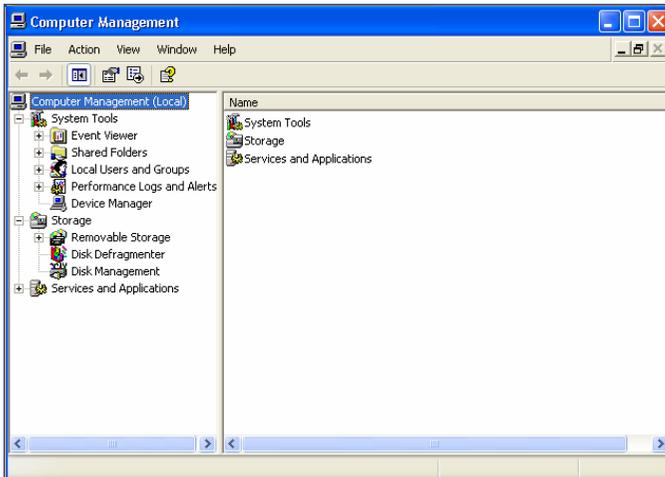
The following section describes how to create a new local user and assign local user rights using the Windows XP environment as a guide.

This is not common for all Windows operating systems, advice from your I.T representative or MKS Spectra should be sought if you are unsure of how to continue, or the PC is part of your company network.

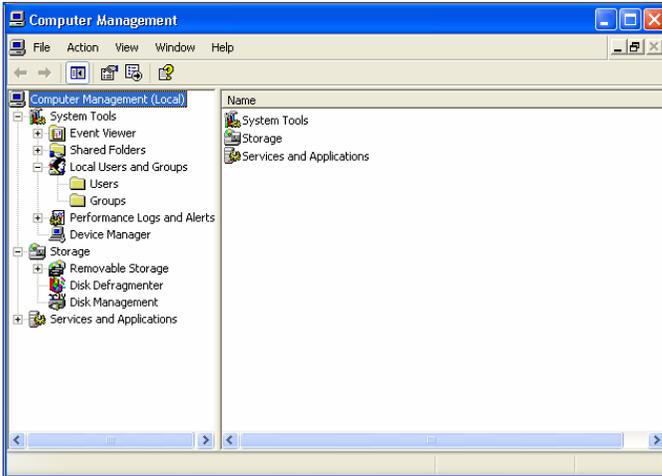
You will need to be logged on to the PC with an administrative account to create the **RGA User** account with assigned **Power User** rights.

## 2.1 - Create the "RGA User" Account

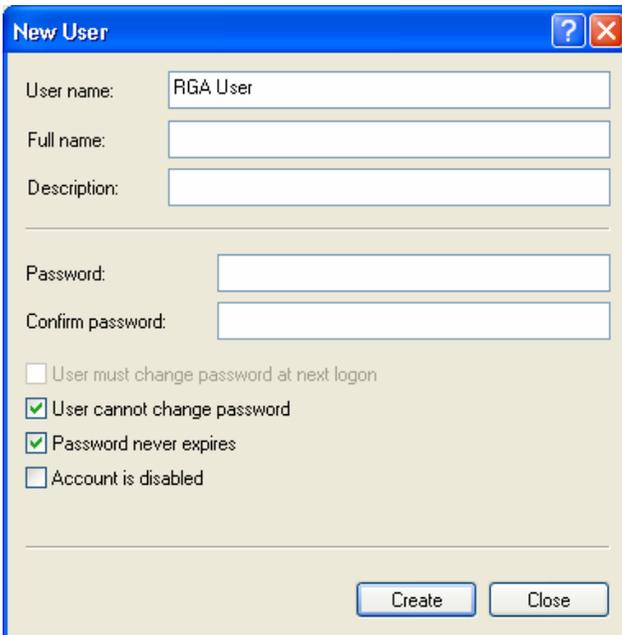
Click on the **Start** button, right-click on the **My Computer** entry and select **Manage** from the menu.



In the "Computer Management" dialog, click on the **Local Users and Groups** entry to expand the list and show the **Users** and **Groups** folders.



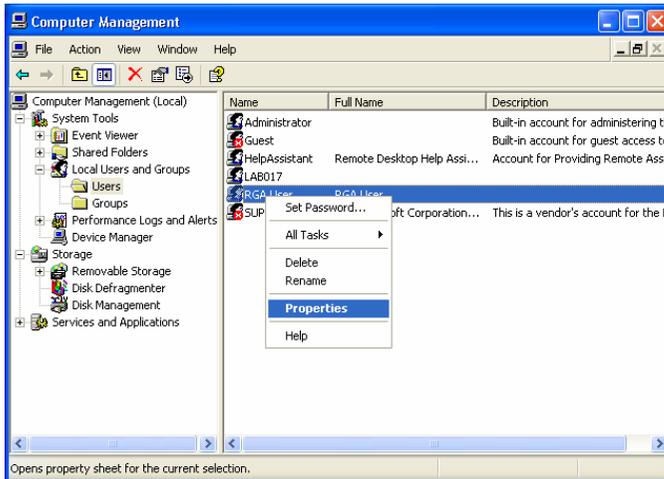
Right-click on the **Users** folder and select **New User** from the list.



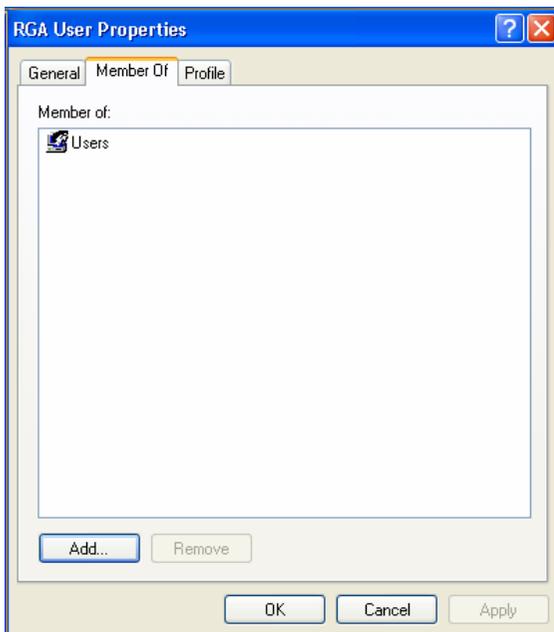
It is recommended that you use the name "RGA User" to easily identify the account. You can enter a full name, description and password if you wish.

Check the **User cannot change password** and **Password never expires** boxes as shown.

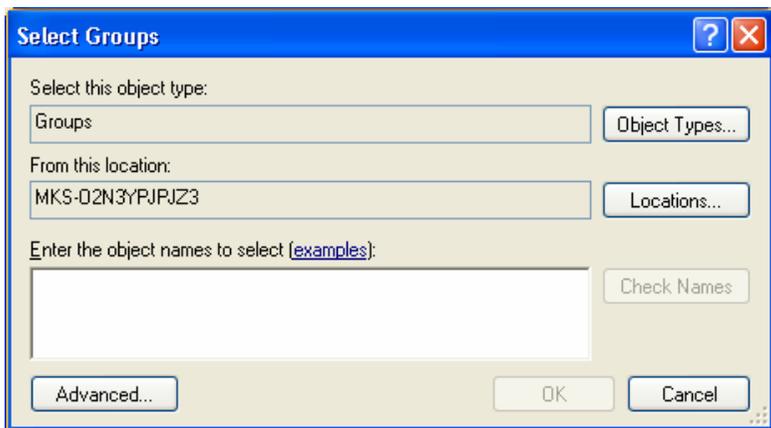
Click on the **<Create>** button and then click the **<Close>** button to return to the "Computer Management" dialog.



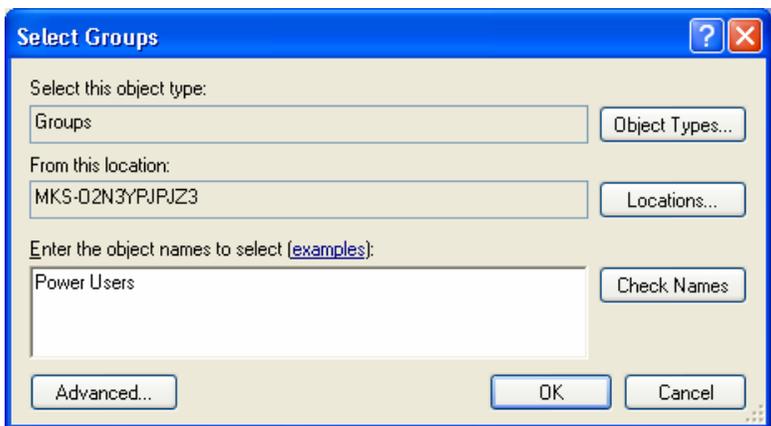
Right-click the "RGAL User" account you have just created and select **Properties** from the list.



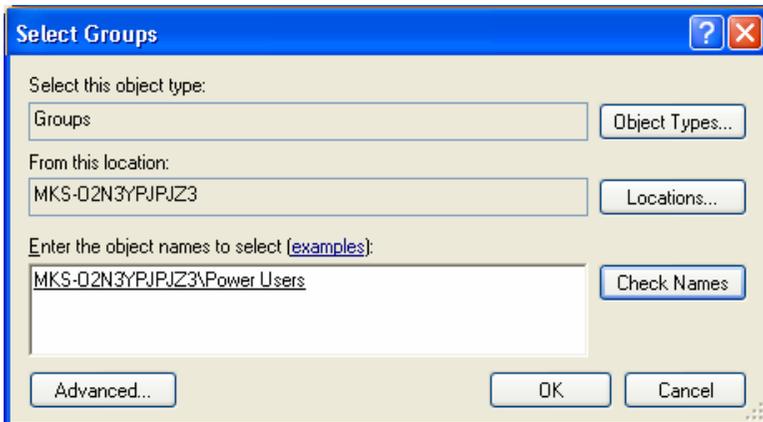
Clicking on the **Member of** tab displays the default **Users** group. Click on the **<Add>** button to add another group type.



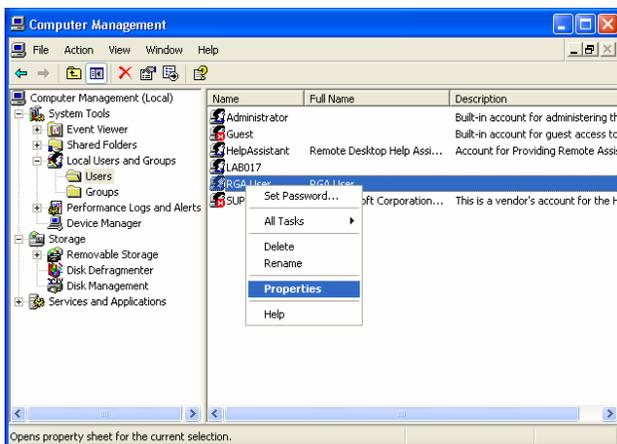
In the **Enter the object names to select** field, type in "Power Users" as shown and click **<OK>**.



The "Select Groups" dialog will reflect the changes made.

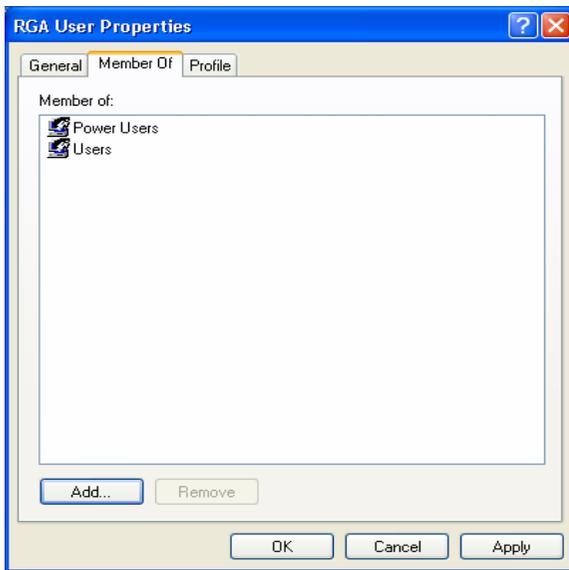


Click <OK> to return to the "Computer Management" dialog.



Right-click on the **RGA User** account and select the **Properties** field.

In the "RGA User Properties" dialog, confirm that **Power User** is displayed under the **Member of** tab.



Click on the **<OK>** and exit the "Computer Management" dialog.

At this point, you should now log-off as the Administrator and log-on as the RGA User to continue with the **Software Setup** section.

## ***Section 3 - The Setup Wizard Program***

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### *Overview*

After completing the installation of Process Eye Professional, you must run the Setup Wizard program before you can use the software.

If you do try to use the software before this section has been completed, the initial setup procedure will automatically re-start.

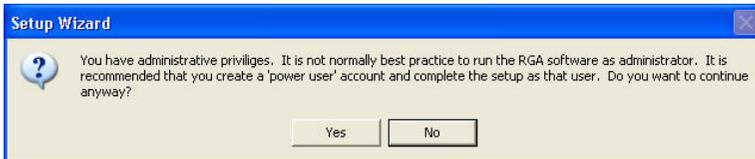
The Setup Wizard application configures the connection to the instrument, the directories used to store recipes, views, and data, default pressure units and how the software will start. It also allows the installation of recipes from disk.

The following **Standard Setup** section, describes how to install an instrument connected to the PC with an RS232 cable for normal use.

For network installation, see Network Setup (Section 4).

### 3.1 - Standard Setup

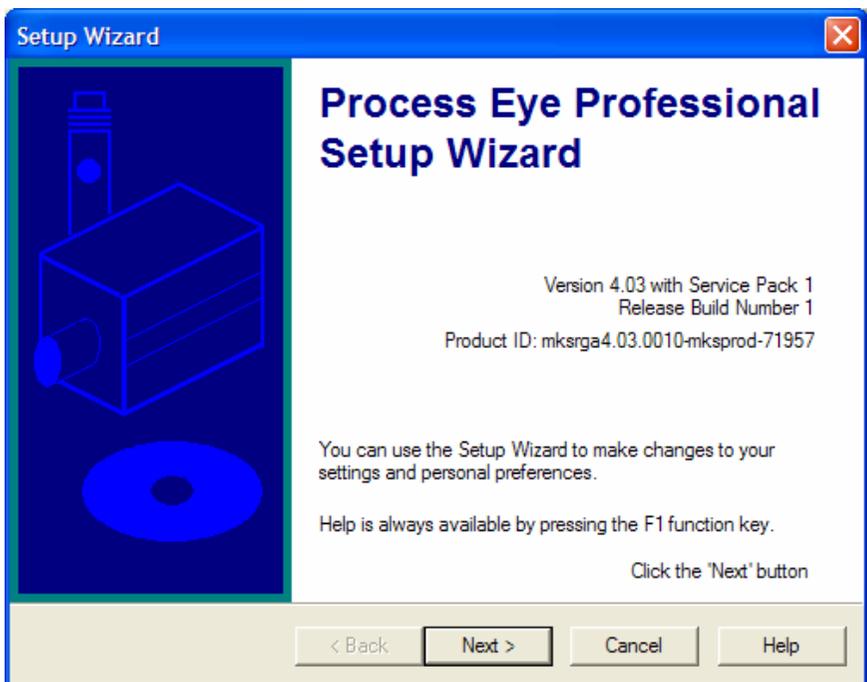
Click on **Start / All Programs / MKS RGA Applications** and select the **Setup Wizard** entry.



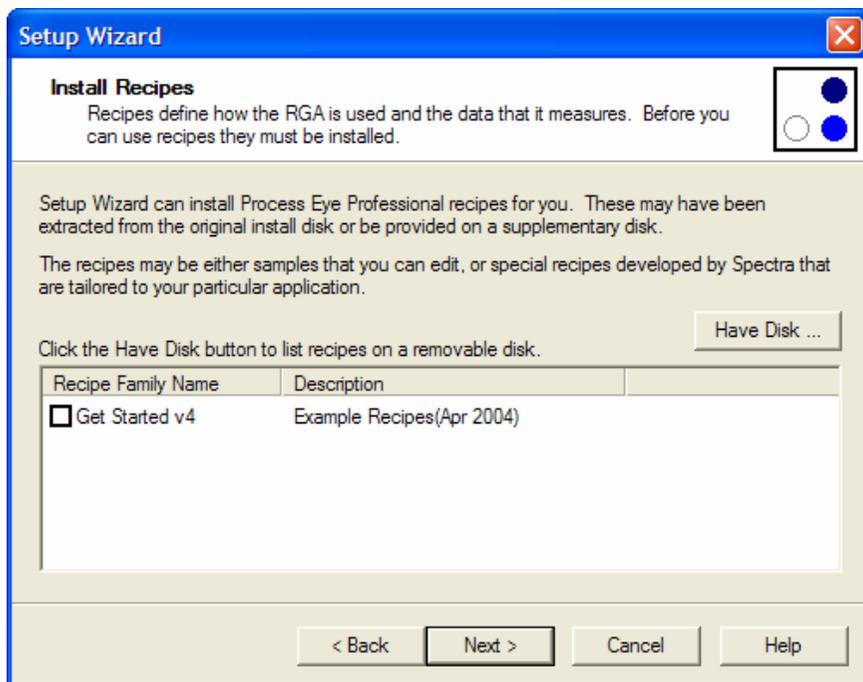
If you are currently logged on as an administrator, the above dialog will appear.

Although not recommended, if you wish to continue to setup the software as the currently logged on user click the **<Yes>** button. Otherwise click **<No>** to exit, log on as "RGA User" and re-start Setup Wizard.

The "Process Eye Setup Wizard" dialog will appear.



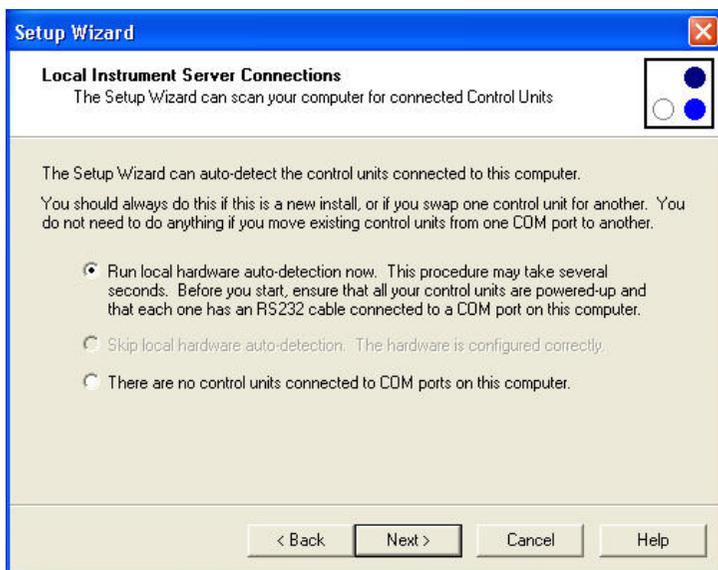
The first dialog displayed is the “Install Recipes” dialog.



The Process Eye installation CD contains a number of standard recipes, such as an analog scan, bar chart and leak check, which can be installed by checking the **Get Started V4** box.

To learn more about installing recipes from disk, see the “Using a recipe install disk” Section 7.

The “Local Instrument Server Connections” dialog.



In this “standard setup” guide, the PC is to have an instrument connected via the RS232 link. Check **Run local hardware auto-detection now** to select this option.

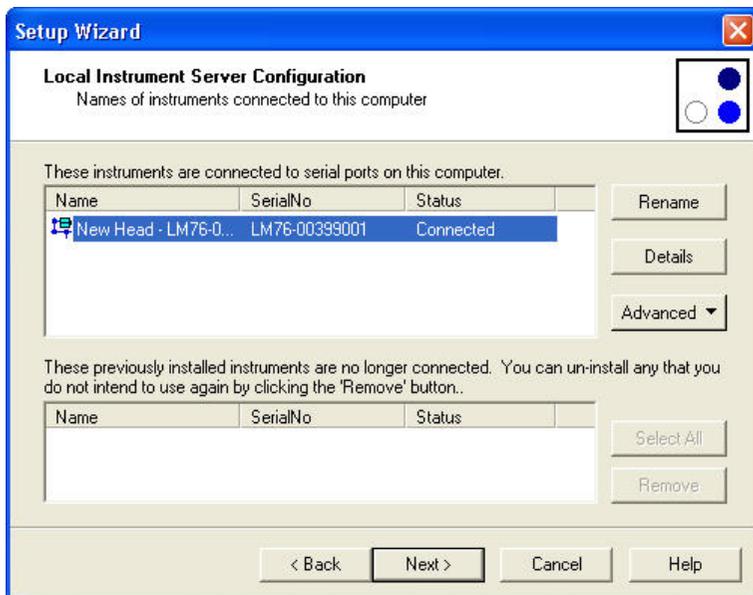
If this is the first time Setup Wizard has been used, the **Skip local hardware auto-detection** option will be unavailable.

If **There are no control units connected to COM ports on this computer** option has been selected, the setup program will skip through the local set-up and proceed to install an instrument with a network link to the PC.

At this point, all instruments to be used with the PC should be connected via the RS232 leads and powered up.

**Note:** Setup Wizard can be run at any time to add further instruments at a later date.

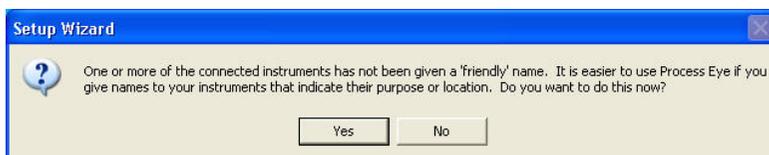
Setup Wizard now checks all available com ports and lists any found instruments.



The name of the instrument, its serial number and status is displayed.

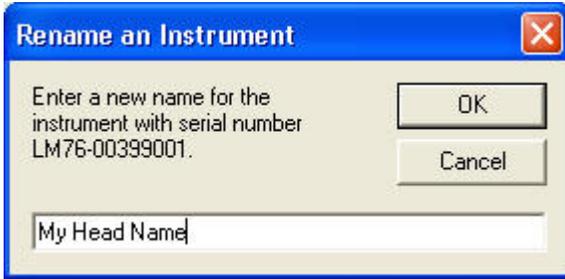
Assuming this is the first time that the instrument has been used with this installation, it will be given the default name of "New Head – LMXX-XXXXXXXX" where "LMXX-XXXXXXXX" is the serial number of the instrument.

Clicking **<Next>** before renaming the instrument causes the following dialog to be displayed.

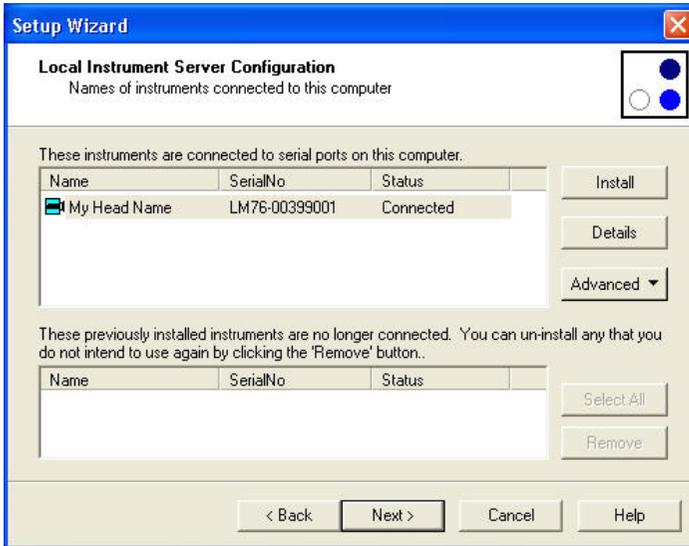


It is recommended you give the head a meaningful name to aid in identification. This can be especially useful if you intend run many RGA heads from the PC.

Click **<No>** to accept the default name or **<Yes>** to bring up the "Rename an Instrument" dialog.

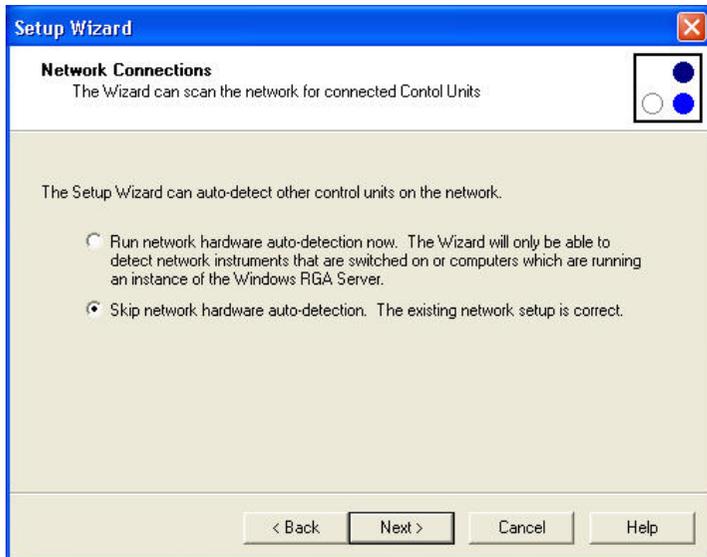


Simply type in the required name and click **<Ok>**.



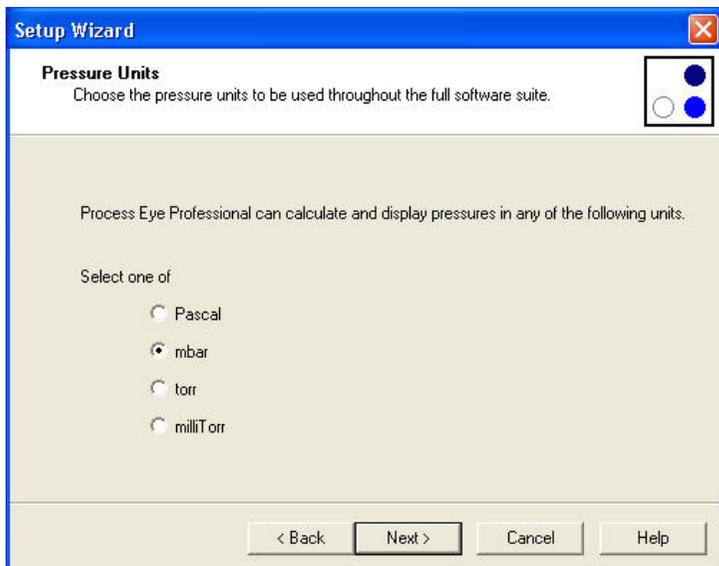
The instruments new name will now appear in the list of connected instruments.

The next dialog shown is “Network Connections”.



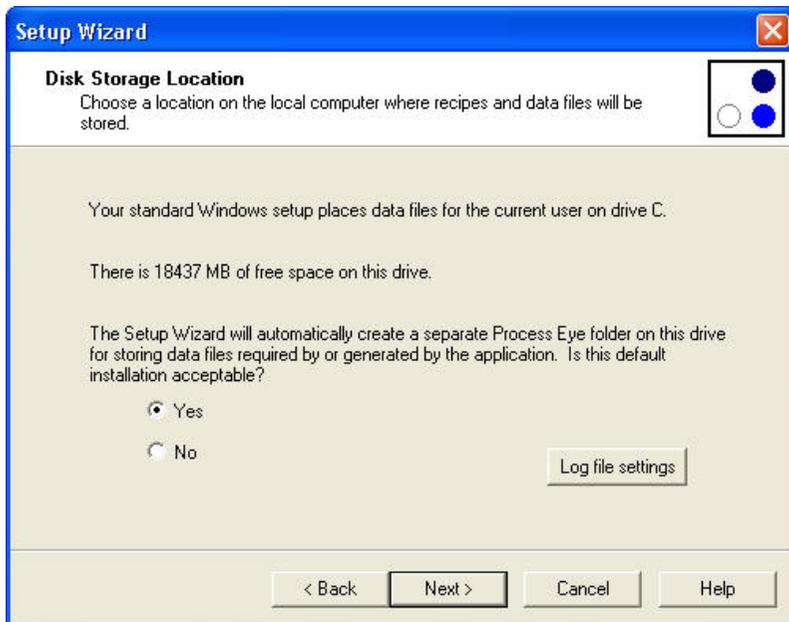
For this example of a “standard install”, skip network hardware detection and continue.

The “Pressure Units” dialog.



Here you may choose the unit of pressure Process Eye will use as a default.

The “Disk Storage Location” dialog.



The default location for storing recipes, views and data is the “My Documents” folder.

If you intend to have more than one user account logging on and using Process, then the following points should be noted.

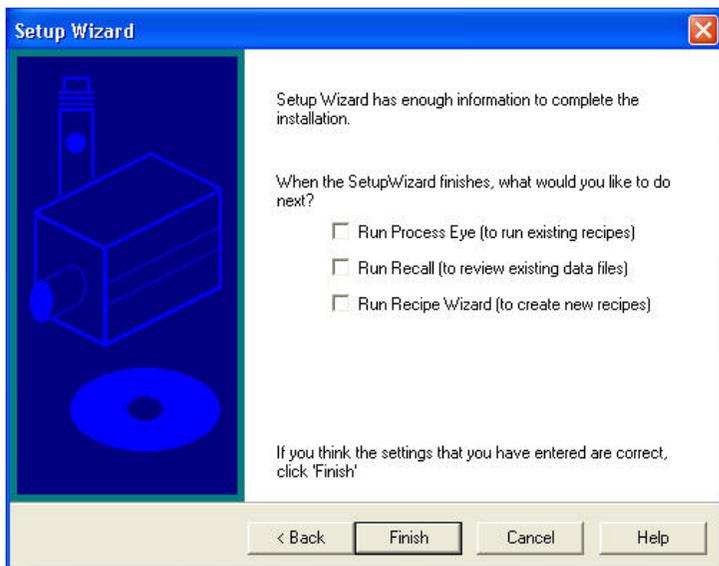
Each users “My Documents” folder and the files it contains, are by default hidden from other users. This presents a problem if recipes and data are to be available for all users who logon to the machine.

In this case, it would be easier to create a common location for these files, thus allowing access for all users.

To learn more on this topic, see Section 6.

The "Process Eye Error Log File" is where information on any script errors encountered is stored. This information can be viewed to help with recipe diagnosis.

The default setting is adequate for most users, but to change the properties of the file click on **<Log File Settings>** button.



This is the final dialog in the setup procedure. You can select whether you run Process Eye with the standard recipes, start the Recall program or start the Recipe Wizard when Setup Wizard exits.

These options can also be run from the **Start** menu, to complete the standard installation, leave the boxes un-checked and click **<Finish>**.



An “installation completed” dialog will appear, click **<OK>** to exit the installation program.

Setup is now complete, you can run Setup Wizard at any time to make changes to the following aspects of the installation:

- Serial Server options.
- Network Connections.
- Disk Storage options.
- Default Pressure units.
- Install recipes from a disk.

## ***Section 4 - The RGA Server Program***

### ***Overview***

The Local and Network Server Setup dialogs are used to configure the RGA Server application. RGA Server is the interface between Process Eye Professional and the connected instrument.

The RGA Server configuration is specific to both the connection and the instrument. If changes are made to either, the Setup Wizard must be re-run and the instrument re-installed.

If RGA Server is configured incorrectly, Process Eye will be unable to establish communications with an instrument.

### ***Local & Network Connections***

Process Eye can be configured in two ways;

1. To run local instruments directly connected to and used by the host PC only.
2. In such a way that other PC's can access the local instruments across a network.

To understand how to configure units across a network, you need to understand the architecture of the software and how it treats each connection to the instrument.

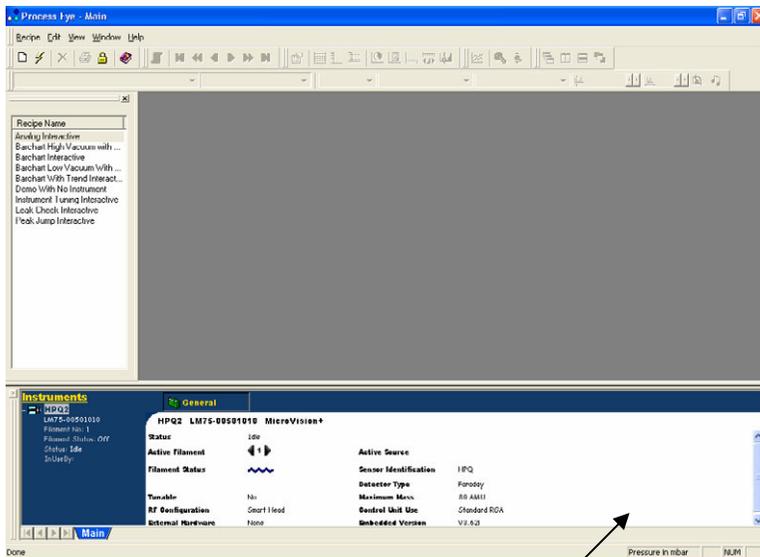
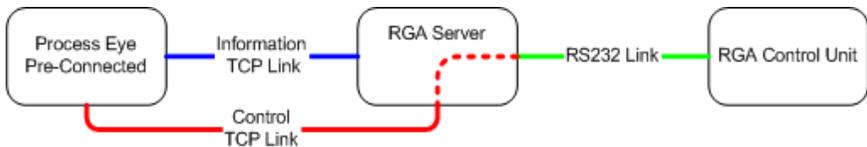
We would suggest you work through the following section to gain a thorough understanding of Process Eye's connections.

## 4.1 - Understanding Connections

The user interface program e.g. Process Eye, Recipe Wizard or Setup Wizard connects to the RGA Server program with a TCP link.

This link can be one of two types, either an **Information Link** - RGA Server can accept as many of this type as are required, or a **Control Link** - RGA Server can accept only one link per instrument.

For example: Process Eye is configured to pre-connect to an instrument, when Process Eye is started, the program will create both an Information connection and a Control connection to the instrument, as shown in the diagram below.

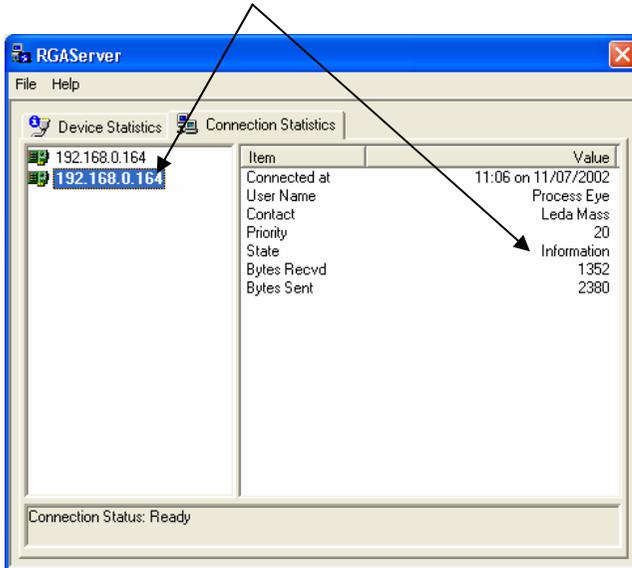


The main Process Eye screen will look like this.

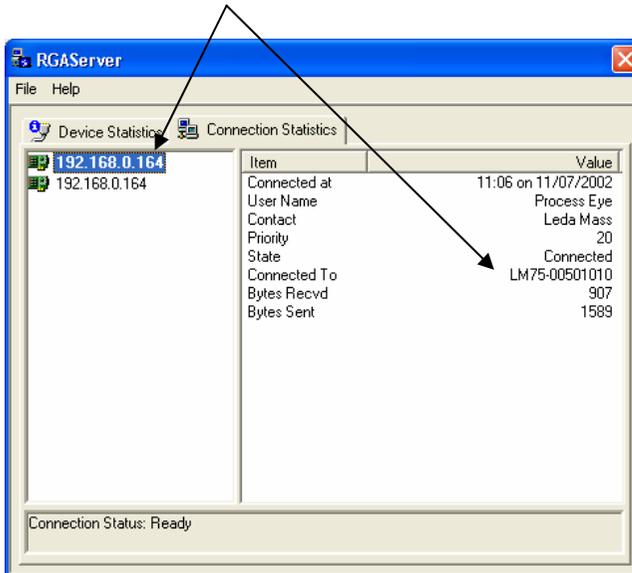
Note the instrument's information panel is complete with all the details of the connected instrument.

If you look at the current connections in RGA Server, by double-clicking the RGA Server icon which appears in the Windows taskbar, you will notice that RGA Server has two active TCP connections.

The Information connection.



and the Control connection.

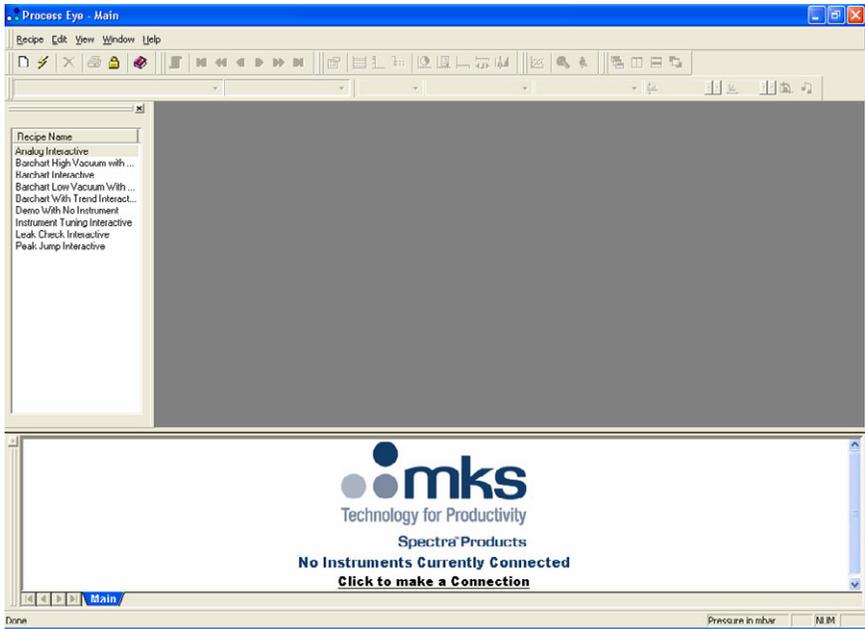


If Process Eye was configured not to pre-connect to an instrument, there would only be an Information connection as shown in the diagram.

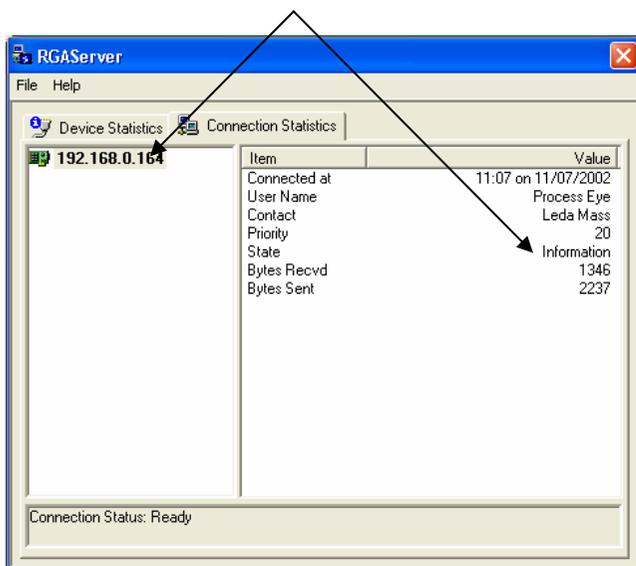


The Control connection and therefore the instrument's information panel will only appear when a recipe is run and the control link established.

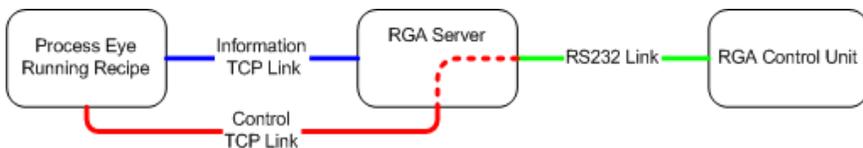
The main Process Eye screen will look like this.



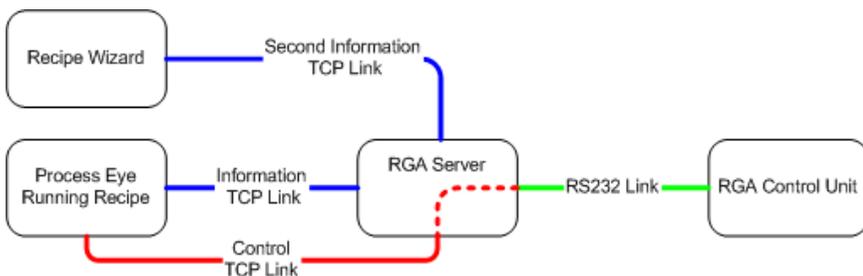
If you look again at the RGA Server screen, you will notice only the one Information connection is present.



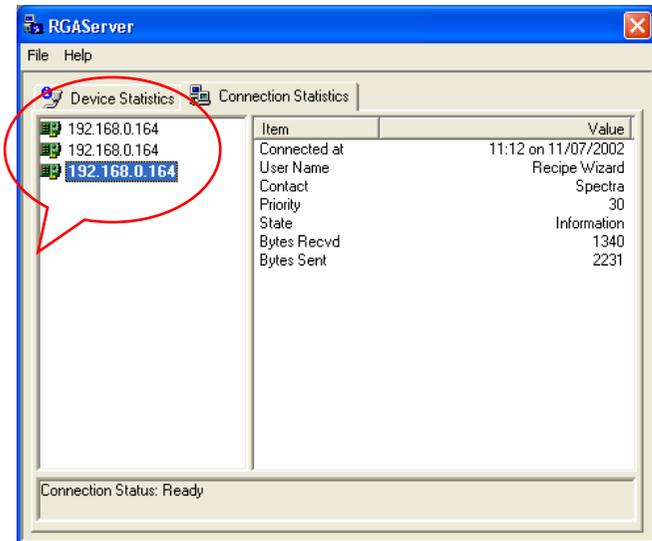
When a recipe is started, a Control connection is made and RGA Server will again display both connections.



When the Recipe Wizard is started, a third connection is made to RGA Server as shown.

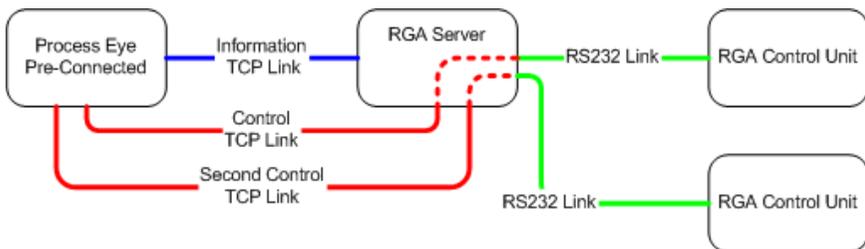


RGA Server will display two Information connections and one Control connection.



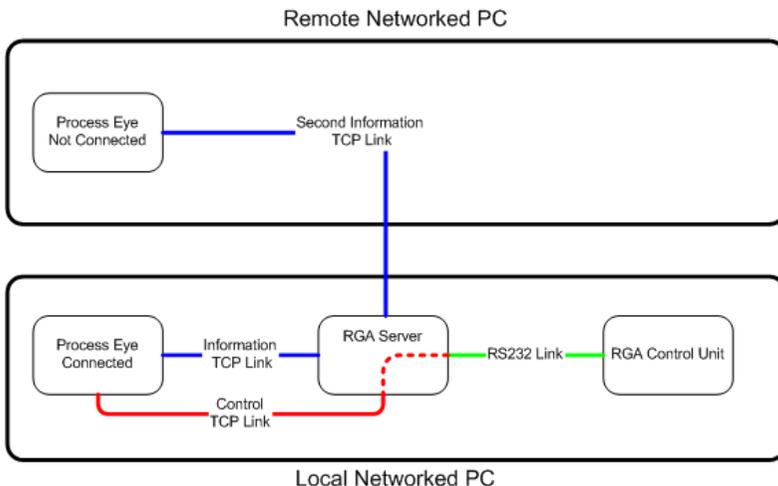
Exiting the Recipe Wizard will close the second Information connection.

If two instruments are used, there will be two Control connections, one to each instrument. This enables separate recipes to be run for each unit, or a recipe run on one instrument while Hardware Setup is being used with the other.

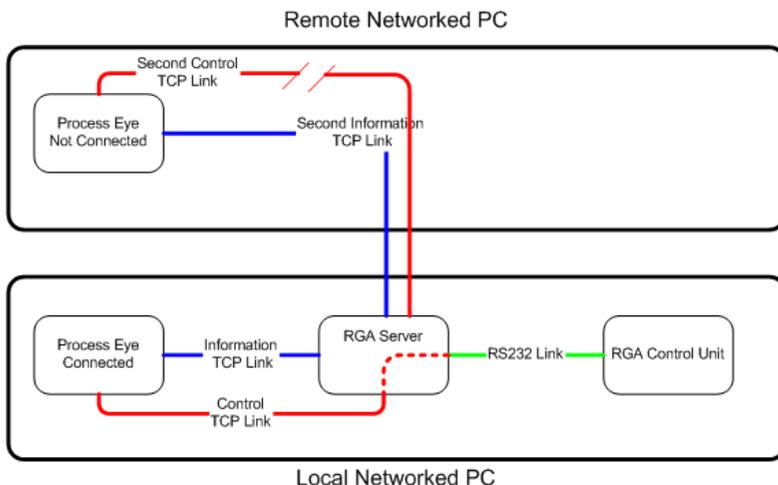


**Note:** These rules are important when instruments are used over a network.

If Process Eye is connected to an instrument locally, you can connect to the instrument remotely with an Information link from a networked PC as shown below.

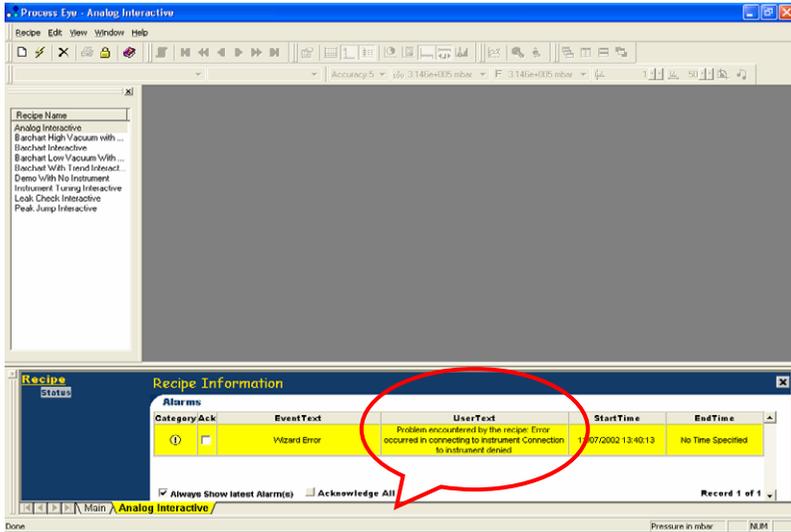


If an attempt is made to run a recipe on the remote PC however, a second Control connection would be required.

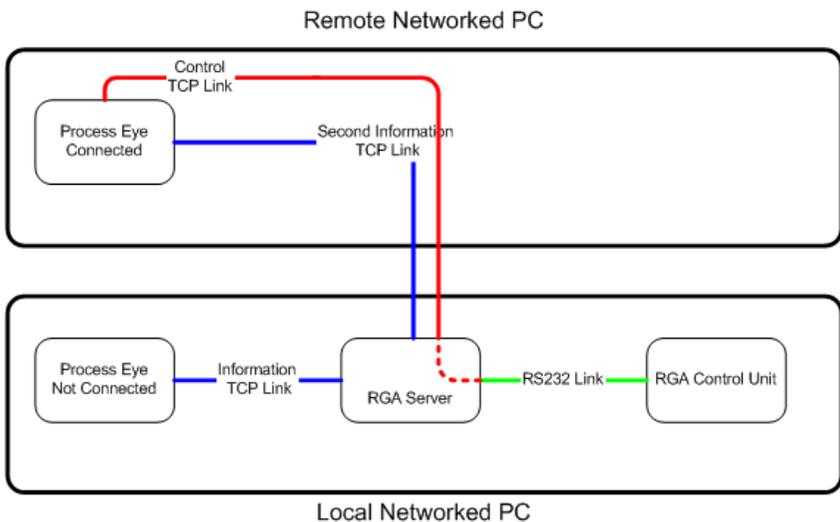


This second connection is not allowed and the following message would appear on the main Process Eye window.

"Problem encountered by the recipe. Error occurred in connecting to instrument. Connection to instrument denied".

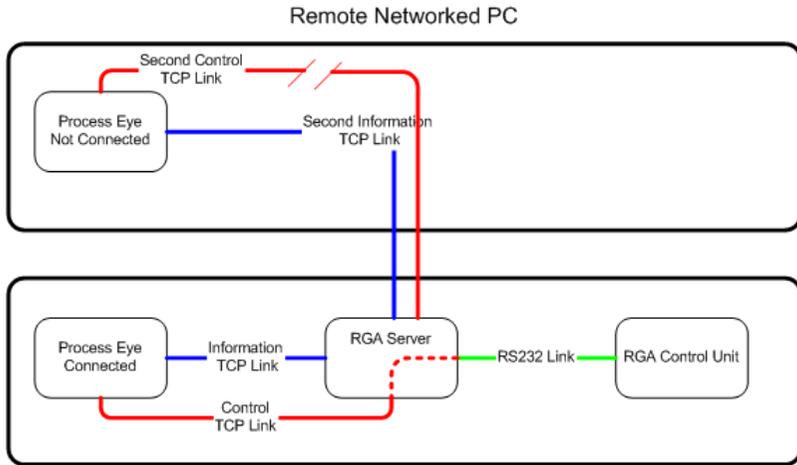


If Process Eye is not connected locally, there will only be an Information connection, therefore the remote PC will be able to create the required Control connection. Process Eye will then be able to connect to the instrument and run recipes as normal.

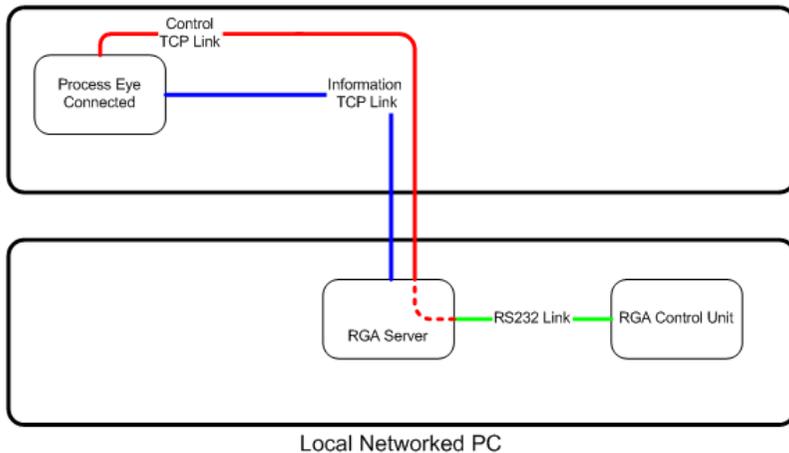


**Note:** In order for the remote PC to access the local machines instruments, Process Eye must already be configured to share its instruments and RGA Server must already be running on the local PC, before the connection attempt is made.

Schematically you would have the following connections:  
 If the Process Eye program was running, a second Control connection is disallowed.



And if the Process Eye program was not running.  
 Remote Networked PC



Therefore, if the **Shared Access** option is checked in the Instrument Details Window, Process Eye will be configured so that it does not pre-connect to the instrument, thus allowing a networked PC to connect.

If the **Start the Server When Windows Starts** option is checked in the Setup Wizards connection options, RGA Server will start when the PC boots up, thus allowing a networked PC to connect even if Process Eye has not been started on the local PC.

## *4.2 - Local Server*

### *Overview*

A Local Server runs on the host PC and connects directly to instruments connected to it using serial communications such as RS232.

By default, in a new installation or when installing instruments for the first time, Process Eye assumes the following:

The instrument will NOT be shared (Exclusive).  
RGA Server will NOT start with Windows.

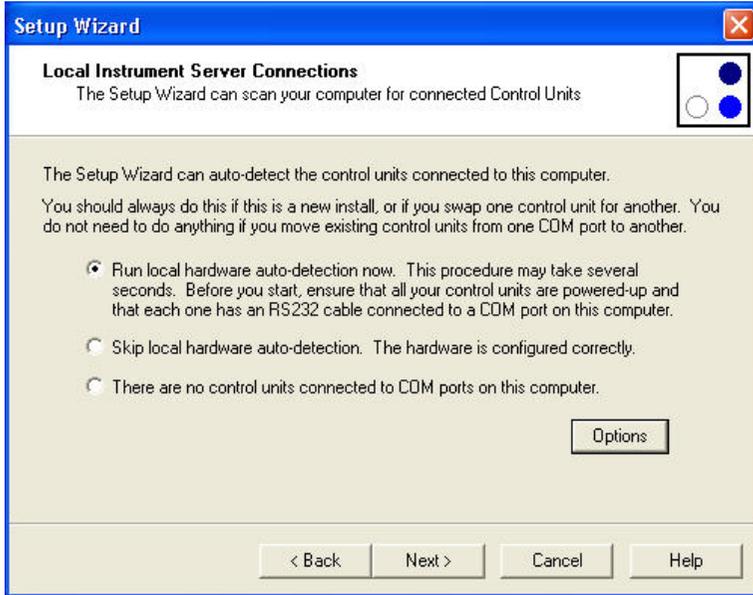
In this case, RGA Server would normally be configured to start when Process Eye is started and Process Eye configured for "Exclusive Access". This will provide both the control and information links required to run the instrument.

**Note:** No other connections to the instrument will be possible.

## 4.2.1 - Local Server Setup

Local Server Setup is part of the Setup Wizard program, located in the **Start / All Programs / MKS RGA Applications / Tools** menu.

Run **Server Setup** and click **<Next>** until the "Local Instrument Server Connections" dialog appears.



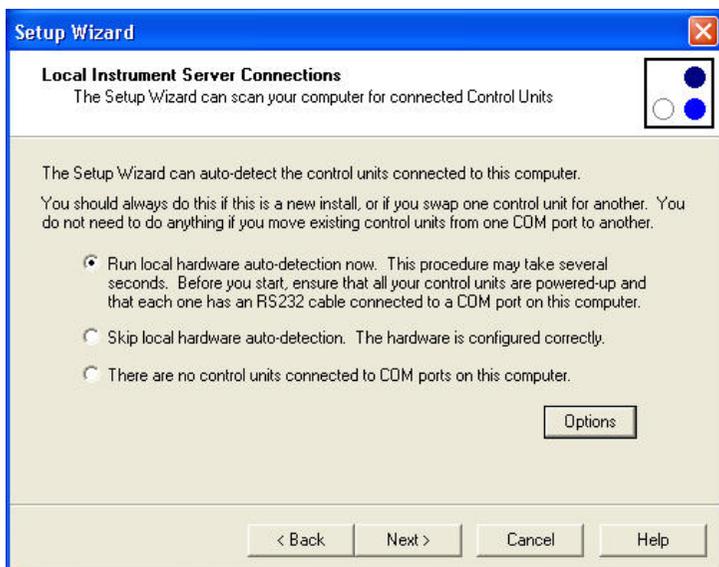
**Note:** The **<Options>** button is disabled if this is the first time any instruments have been installed. Clicking the button reveals a dialog showing the RGA Server start-up option.

Checking **Run the RGA Server When Windows Starts** option starts the RGA Server program whenever Windows starts.

If the option is not checked, RGA Server will only start when one of the MKS RGA Applications such as Process Eye starts.

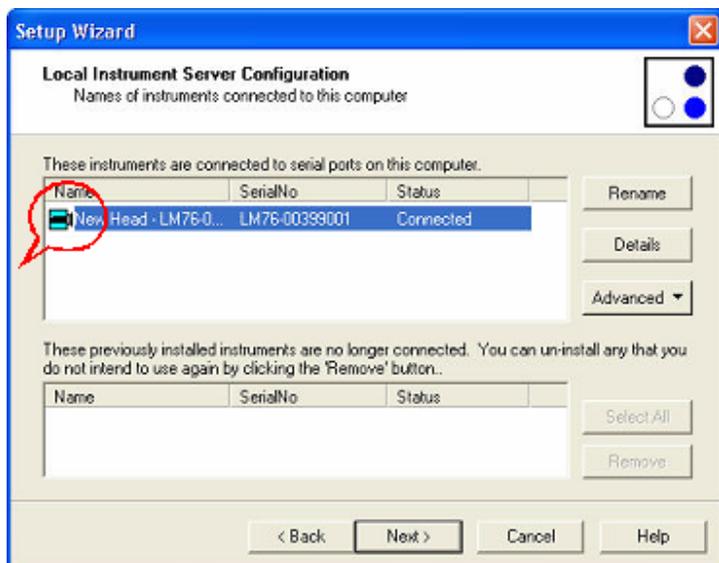
For a local installation, where no access from remote PC's required, uncheck this option.

When the server options have been set click **<OK>** to return to the previous Setup Wizard screen.



Check the **Run local hardware auto-detection now** option and click **<Next>**.

After polling the available com ports, a list of the discovered instruments is displayed.



The highlighted icon indicates the type of access level associated with the installed instrument. The following access options may be observed:

 **Exclusive (Pre-connected)** – Both the information and control links are established. No other connections can be made to the instrument. This icon will always be present on a “local server” configured as this section describes.

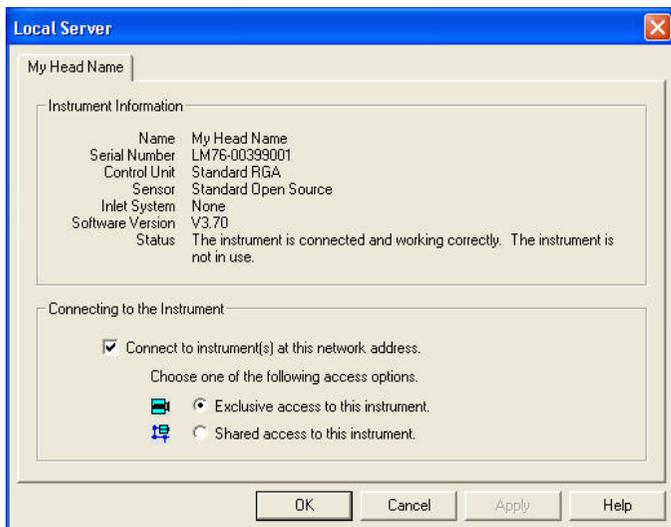
 **Shared (Not Pre-connected)** – Only an information link is made when RGA Server starts, a control link is then established when necessary. This allows external connections to be made to the instrument when RGA Server is in use but the instrument is idle. This access setting is required to share instruments across a network.

If the server cannot make any connection this is represented by the  icon.

To change the instrument connection configuration, double click on the instrument in the connected instrument list to bring up the Local Server dialog page.

If you followed the Standard Setup section, you should already have an instrument installed on the RGA Server.

To view information on the connected instrument or to change options specific to the instrument, double-click its entry or highlight it and click the **<Details>** button.



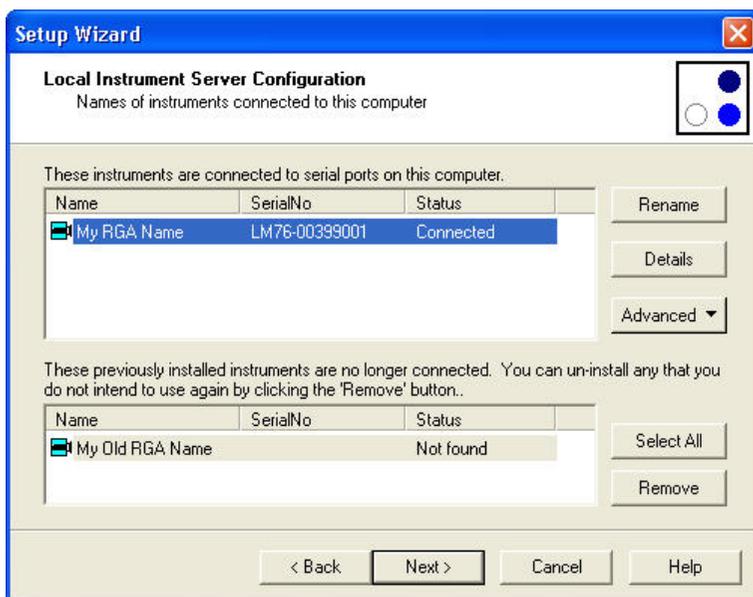
To run the Server Program when Process Eye starts, check the **Connect to instrument(s) at this network address** check box.

To choose to Pre-connect, select the **Exclusive access to this instrument** option. Otherwise select the **Shared access to this instrument** option.

To return to main dialog click **<OK>**.

## 4.2.2 - Removing Old Instruments

Any previously installed instruments which are no longer available are displayed in the bottom list window of the "Local Instrument Server Configuration" dialog.



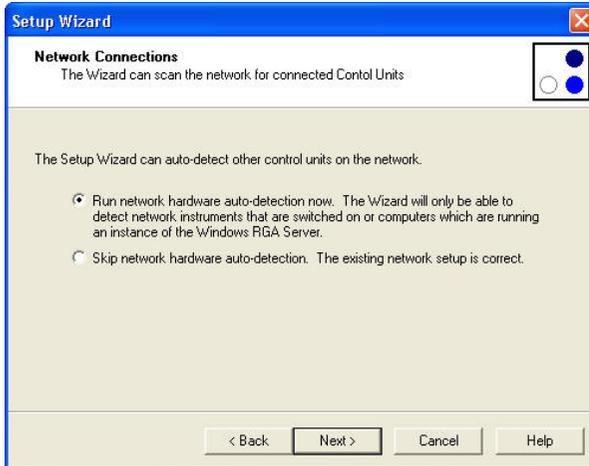
In the above example, the server found the instrument "My RGA Name". The previously installed instrument "My Old RGA Name" was not found and was placed in the lower list of previously installed instruments.

These instruments have their settings stored in the registry. If they will no longer be used, these settings can be removed. Simply highlight the instrument you wish to remove and click on the **<Remove>** button.

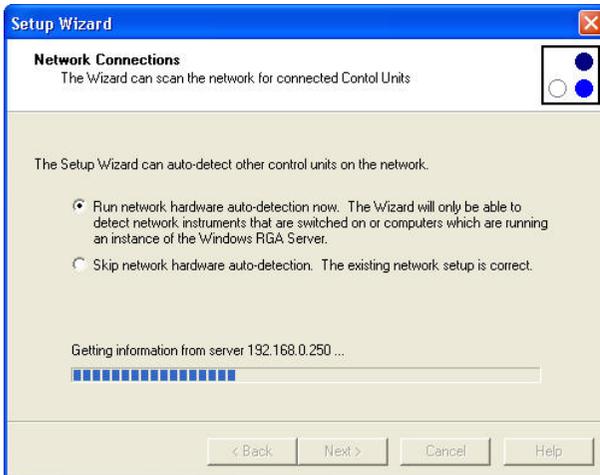
## 4.3 - Network Configuration

To add a network connection to RGA Server running on a remote PC, click on the **Run Network Hardware Detection** option on the "Network Connections" dialog.

This will begin a network search looking for any active instances of RGA Server.

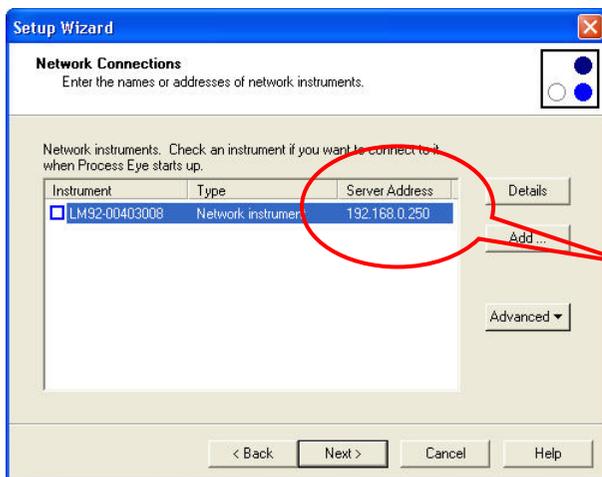


Click **<Next>**.



The program searches the network for instances of running RGA Server programs.

Instances of RGA Server found on the network will be interrogated and any connected instruments displayed in the list.



Active RGA Server

If you wish to add the address of a known server that is not currently running click **<Add>**.

The "Add Server Connection" dialog will appear.

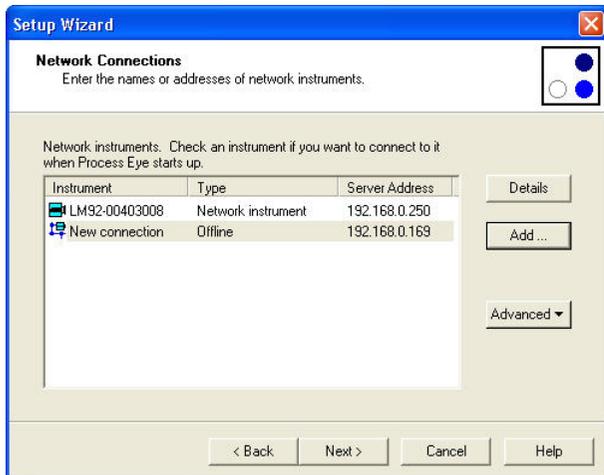


In this dialog, enter the IP address of the remote PC, or providing your network has "DNS Lookup", you can simply type the network name of the remote PC.

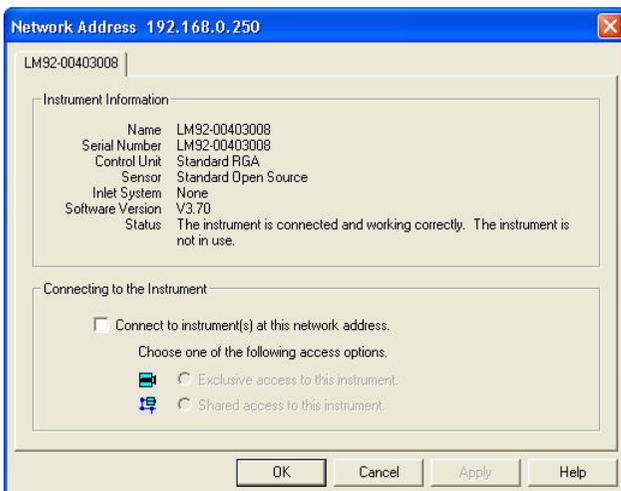
**Note:** See your network administrator if you are unsure about IP addresses or DNS Lookup.

Click **<OK>**.

The IP address you added will now appear in the list.



To configure the type of connection made to a server, highlight the connection and click **<Details>**.



The instrument details are displayed along with the connection options. To connect to this server whenever one of the RGA Applications is run, check the **Connect to instruments at this network address** box. You can then choose whether to pre-connect to this instrument by selecting an access option.

## **Access Options:**

### **Exclusive access to this instrument**

When Process Eye is started on the local PC, both an information and control link is established. No further connections can be made to the instrument.

### **Share access to this instrument**

When Process Eye is started on the local PC, only an information link is made allowing any other PC to establish a control link and therefore run the instrument.

## *4.4 - Advanced Server Setup*

### *Overview*

The "Advanced Local Server Setup" dialogs within Setup Wizard are used to configure the RGA hardware and software.

Such configuration changes may include the following:

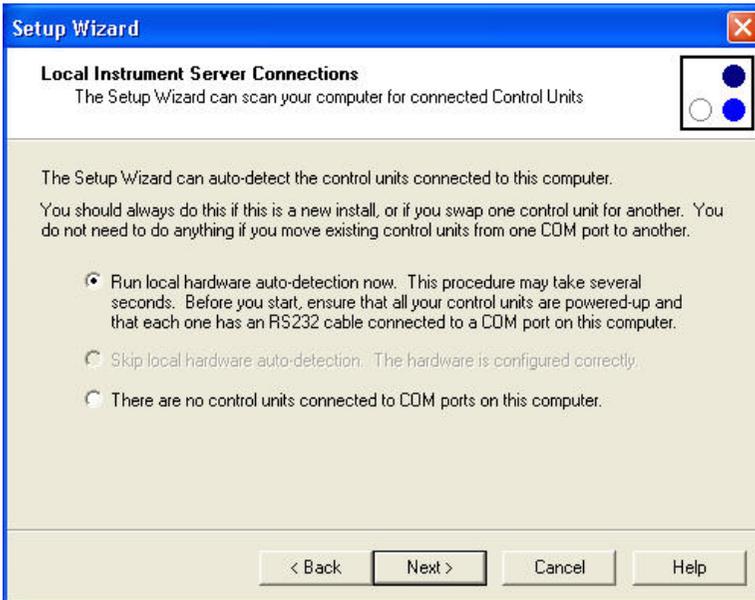
- Upgrades to the instruments embedded software.
- Inlet configuration options.
- Digital Inputs and outputs defined.
- Instrument diagnostics.
- Default instrument settings reset.

The Server can also be set to run when Windows starts

## 4.4.1 - Advanced Local Server Setup

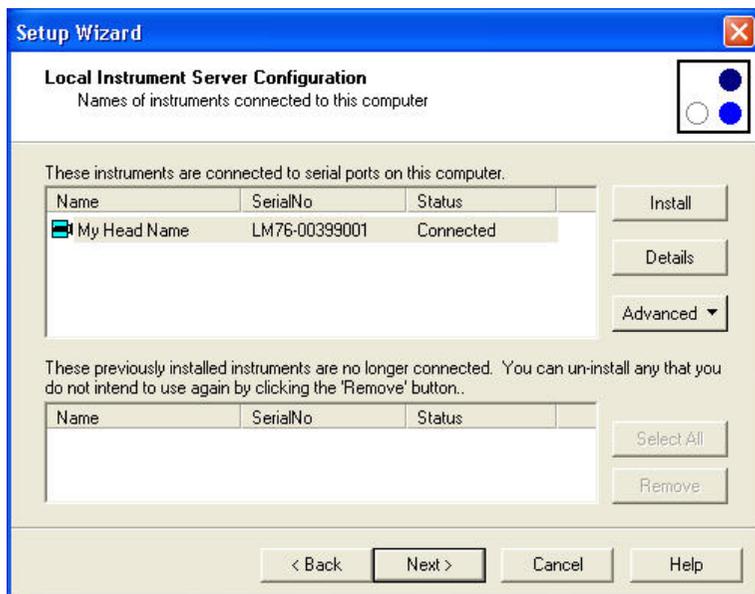
Advanced Local Server Setup is part of the setup Wizard program located in the **Start / All Programs / MKS RGA Applications / Tools** menu.

Run Setup Wizard and click **<Next>** until the "Local Instrument Server Connections" dialog appears.



Check the **Run local hardware auto-detection now** option and click **<Next>**.

At the "Local Instrument Server Configuration" dialog, highlight the instrument to configure.



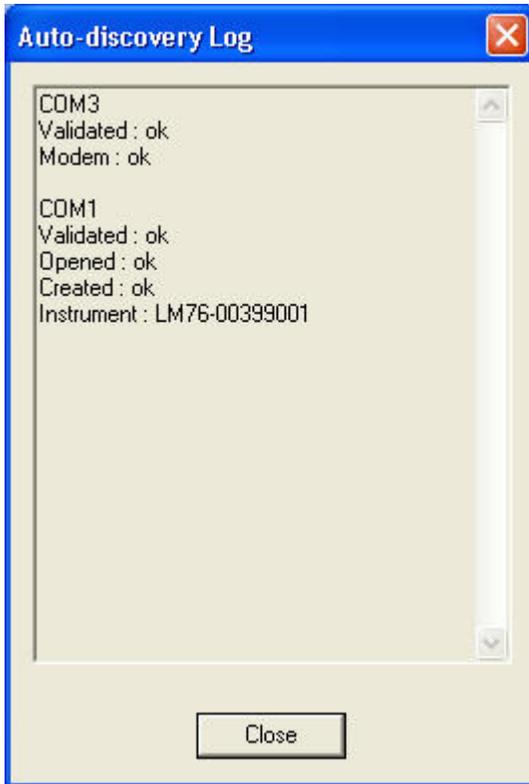
To select an advanced feature click on the **<Advanced>** pull down list and then select the feature required from the shown list.



The various features available are explained in the following section.

## *View Auto-discovery Report*

When hardware auto-detection has been run it is possible to view a log of the com ports checked.



The auto discovery report lists all the com ports checked on the system. For each Com port the results of the tests are displayed along with the serial number of any instrument found on that port.

This is a useful feature to use if you suspect a faulty Com Port on your PC.

To close the window and return to the "Local Instrument Server Configuration" dialog click on **<Close>**

## ***5 - Instrument Configuration***

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### *Overview*

Choosing the advanced mode of Server Setup by clicking the **<Advanced>** button on either the "Network Connections" or the "Local Instrument Server Connections" dialogs, provides advanced options for instrument configuration.

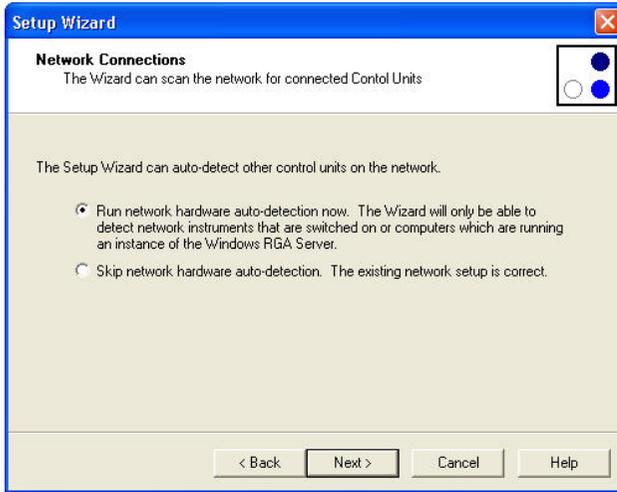
As updates to the instruments software become available, these can be downloaded to the internal memory rather than carry out the complex task of memory replacement.

The configuration of the instruments digital input/output lines is also covered in the following sections.

Advanced Network Server Setup is part of the Setup Wizard program located in the **Start / All Programs / MKS RGA Applications / Tools** menu.

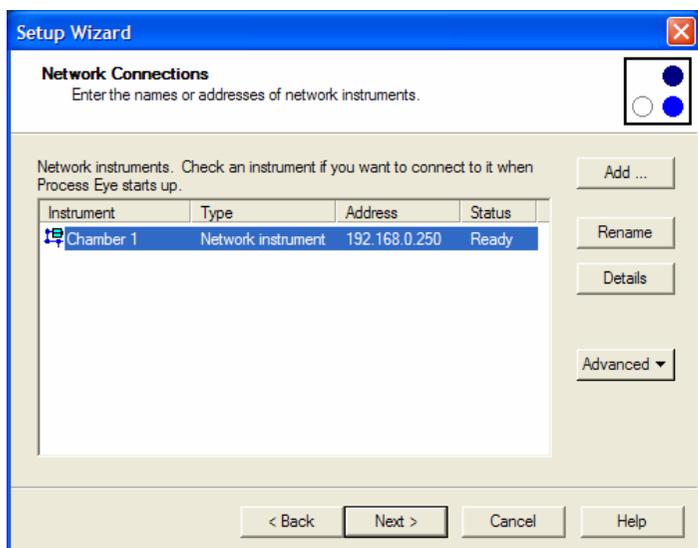
The following example details an instrument with a network connection. For a local RS232 connection simply follow the steps through Setup Wizard to get to the same features.

Run Setup Wizard and click **<Next>** until the "Network Connections" dialog appears.

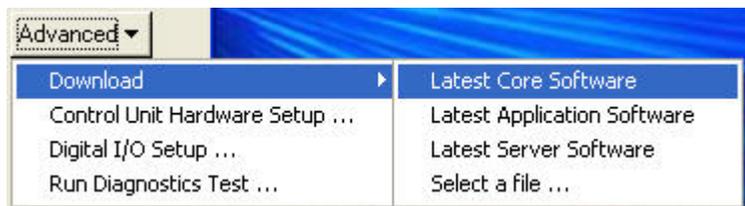


Check the **Run Network auto-detection now** option and click **<Next>**.

At the "Network Connections" dialog, highlight the instrument to configure.



To select an advanced feature, click on the <Advanced> pull down list and select the feature required.



## 5.1 Downloading Instrument Software

The “smart head” instrument uses up to three software programs to function. These are stored using non-volatile ROM inside the unit itself.

One program, called the **Core**, contains the code required to handle communications protocols and the programming of internal memory.

The second program is the **Application**, this contains the code required for the instrument to function, taking a mass spectrum for example.

The third program only applies to IP and e-Vision instruments that have the sever built into the smart head, on these instruments you can also download a new server program

Core, Application and embedded server software can be “Downloaded” to the instrument using the Setup Wizard program.

The same procedure is used for all downloads.

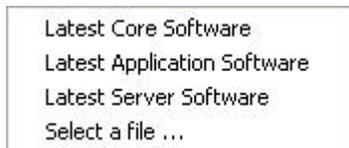
### **Note:**

**Downloads to the instrument should only be carried out if required, upgrading to a newer software version, or replacing a corrupted file for instance.**

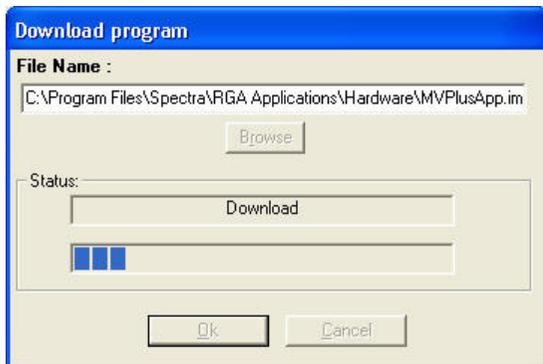
**Great care should be taken when downloading software to the instrument. If the process fails, or is interrupted before the process has completed, new ROM’s will more than likely be required.**

To download a new Core, Application or Server to the instrument, select **<Download>** from the **<Advanced>** drop down list button.

Under download there are four options to select:



To download the "Core", "Application" or "Server", select the appropriate option.



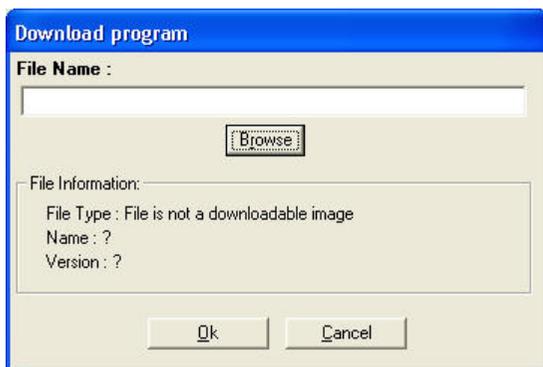
The "Download Program" dialog will automatically appear and the appropriate file downloaded to the instrument.

When the download has completed the dialog will close and the system return to the "Local Instrument Server Configuration" dialog.

The above option uses the file versions that were supplied with your Process Eye CD.

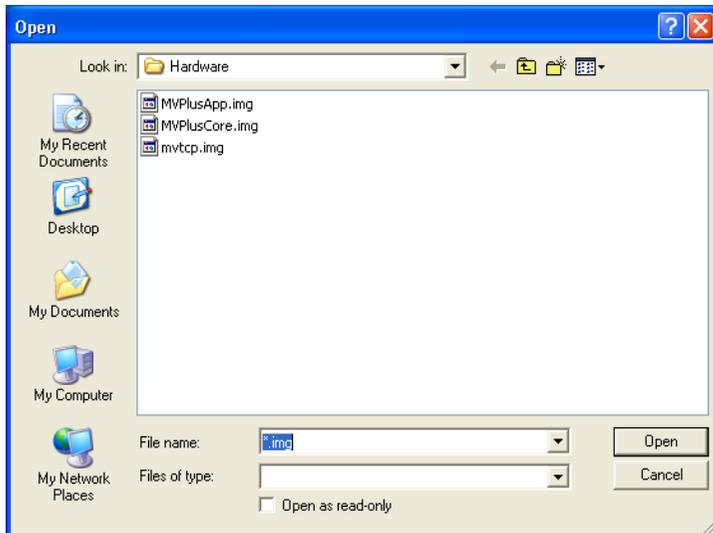
Individual upgrade files may be supplied by MKS Spectra as they become available. In this case, use the **Select a File** option.

To select a file to download click on **<Select a file>**, this will bring up the "Download Program" dialog.



To select the file to download, click the **<Browse>** button.

The "Open" dialog will appear.



The default location for the Core and Application files is:

**C:\ Program Files \ Spectra \ MKS RGA Applications \ Hardware.**

If the files have been supplied on a floppy disk, or your Process Eye installation path was not the default, simply browse to the location of the files using the "Open" dialog.

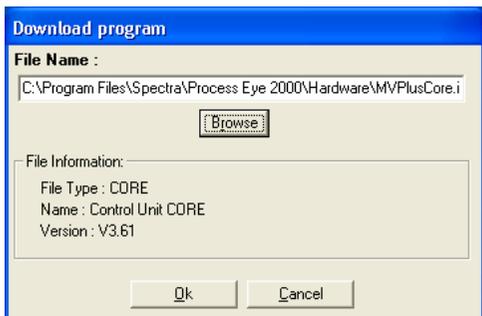
The three files are:

**MVPlusCore.img**  
**MVPlusApp.img**  
**MVTCP.img**

The version numbers for the Core and Application files were current at the time the Process Eye software was compiled at our factory. New versions may become available in the future.

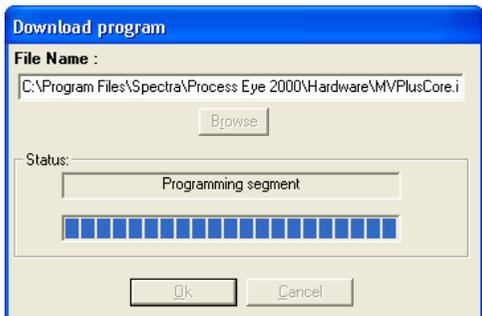
Highlight the required file and click the **<Open>** button.

The "Download Program" dialog will appear.



If a valid file has been selected, the type, name and version number will be displayed.

Clicking the **<OK>** button will begin the download process.



When the download has completed the dialog will close and the system return to the "Local Instrument Server Configuration" dialog.

## *5.2 Inlet Configuration Wizard*

### *Overview*

The RGA system can be supplied with a number of different inlets, most designed to reduce the pressure in the ion source.

These inlets have a pressure reduction factor associated with them, this factor is used in conjunction with the calibration factor, to determine the pressure displayed on the screen.

The first inlet factor is factor #0 and is the factor used either when the system has no valves configured, or the valves are all closed.

All systems have an inlet factor #0 and on a standard RGA the factor is 1, meaning that the inlet does not effect the pressure.

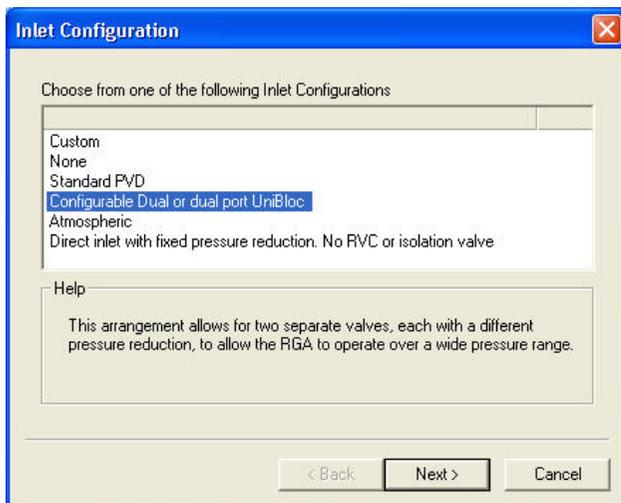
On a standard Cirrus with a capillary inlet however, the sampling pressure is reduced from atmosphere (1000 mBar) to the optimum PVD source pressure (1E-3 mBar). The inlet factor #0 is therefore set to 1,000,000 as the pressure is reduced by a factor of a million.

On a Uniblock inlet system, there are two external valves to allow two different pressure reduction paths to the source. On this inlet there are three factors, Inlet Factor #0 is used when both valves are closed and is normally set to 1. Inlet Factor #1 is used when valve 1 is open and inlet factor #2 is used when valve 2 is open.

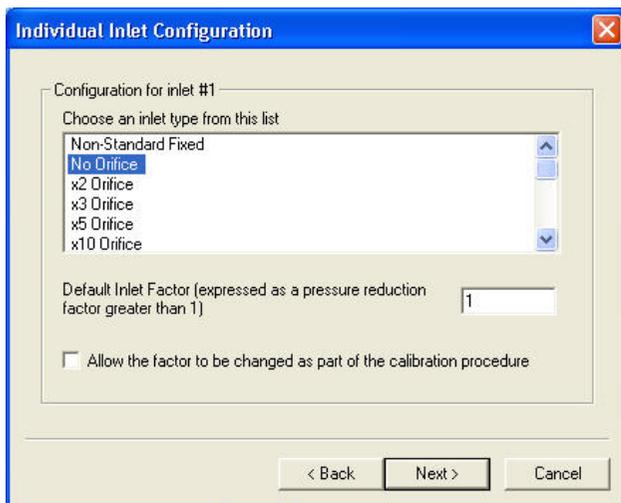
The inlet factors 1 and 2 would depend on the orifice disks fitted to the Uniblock and can be set using the inlet configuration wizard.

If you are unsure what inlet factors are applicable to your system, please contact MKS Spectra for advice.

To start the wizard select **Inlet Configuration Wizard** from the **<Advanced>** pull down list.



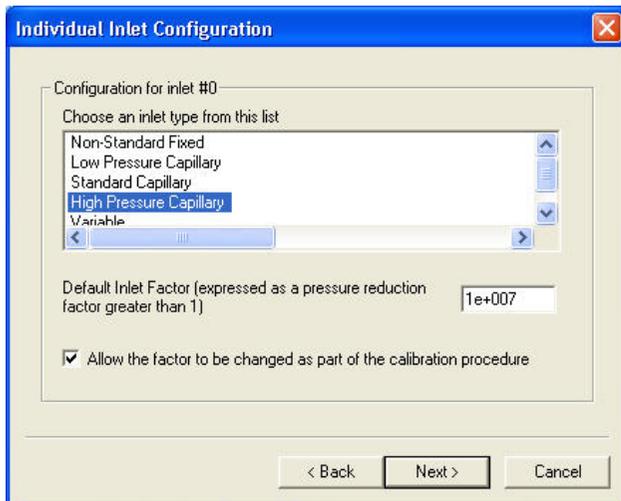
Select the type of inlet required and click on **<Next>**.



Depending on the inlet chosen, the factor for the first inlet can be set. The inlet factor is always greater than, or equal to 1. If the inlet halves the pressure then the inlet factor is 2 for example. We do not currently support inlets that cause an

increase in pressure. If the inlet selected is "Non-Standard Fixed" the inlet factor can be typed directly into the box.

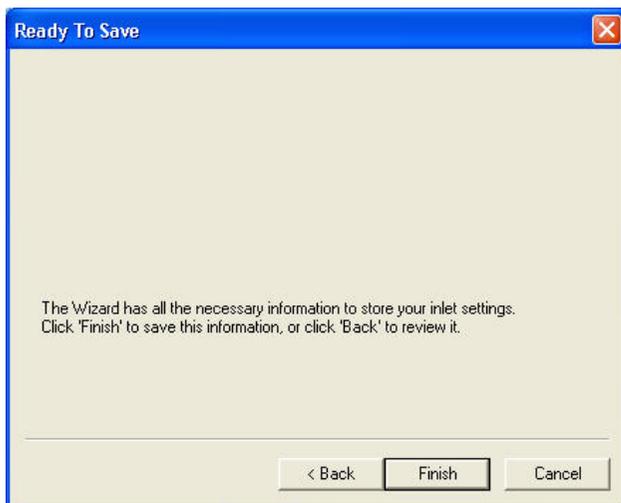
If **Allow the factor to be changed as part of the calibration procedure** is checked, the inlet factor is not fixed and can be changed during the calibration.



Click **<Next>** to continue.

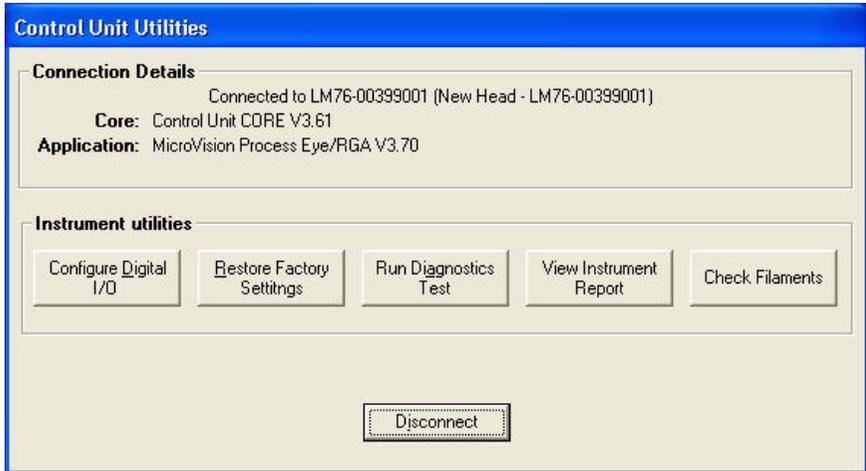
If an inlet with no valves was chosen then the inlet configuration page will be for inlet #0.

To continue click **<Next>**.



## 5.3 Control Unit Hardware Setup

To start the Control Unit Hardware Setup program select **Control Unit Hardware Setup** from the **<Advanced>** pull down list.



This page gives details of the downloaded software versions and allows various functions to be performed on the instrument. **Configure Digital IO** and **Run Diagnostics** can also be performed directly from the **<Advanced>** pull down menu

Click on **<Disconnect>** to return to the "Local Instrument Server Configuration" dialog.

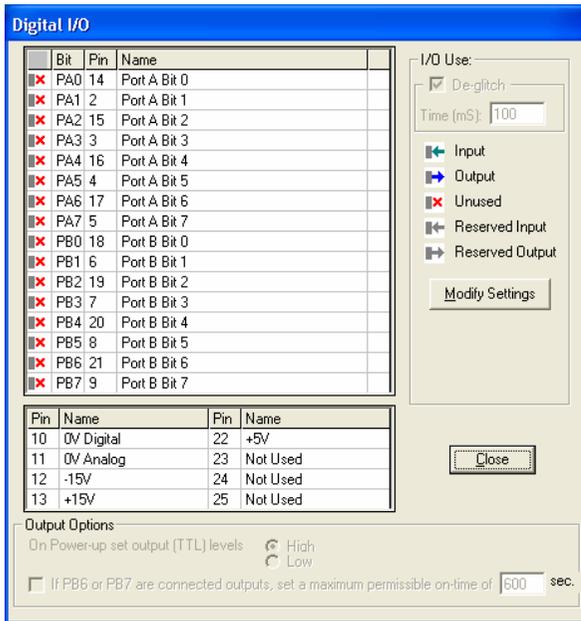
## 5.4 Configuring Digital I/O

Certain instruments are supplied with 16, standard TTL digital lines, which can be independently configured to be either Inputs or Outputs.

These can be used for integrating the instrument into the customers system allowing recipes to be automated and/or interact with the system.

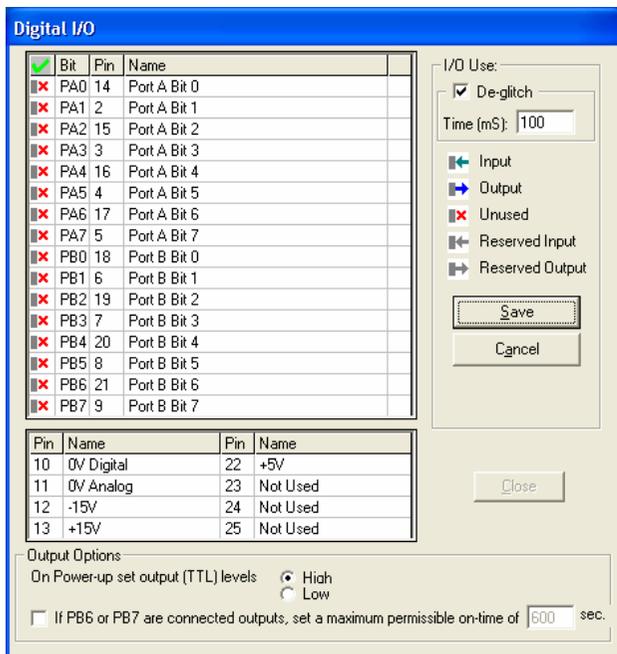
To configure the digital I/O, either click on **Configure Digital I/O** on the "Control Unit Utilities" dialog,

Or select **Digital I/O Setup** from the **<Advanced>** pull down list on the "Local Instrument Server Configuration" dialog.



If this is the first time the digital lines have been configured, they will all be set to "Unused". Other options are Input, Output, Reserved Input and Reserved Output.

To modify these settings click on the **<Modify Settings>** button.



You will notice that the **<Modify Settings>** button has been replaced by **<Save>** and **<Cancel>** buttons.

To modify the action of a channel, click on the channels entry under the column headed by the green check. Each mouse click will cycle through the available actions for that particular channel.

The Process Eye software can directly read the level of inputs, and can set the levels of outputs. This can be done from the Recipe Wizard or recipe script.

**Note:** When using a plug in device on the digital port, for example, an RVC, some of the lines will be reserved.

When each digital line has been configured, click on **<Save>** to save the changes.

## *5.5 Digital I/O De-Glitch*

The De-Glitch filter maybe used to filter potentially noisy inputs. De-Glitch can be enabled by checking the radio button, on the "Digital I/O" dialog.

When enabled, the De-Glitch filter works by monitoring the data line for changes in state. If a change is detected a timer will start, if no further changes of state are detected by the time the timer has reached the De-Glitch time, the digital input line will change state.

If a change in state is detected before the timer has reached the De-Glitch time, no changes will be made to the digital input line.

**Note:** If the digital input is continually changing state at a frequency faster then the set De-Glitch time, then no changes in state will be reported.

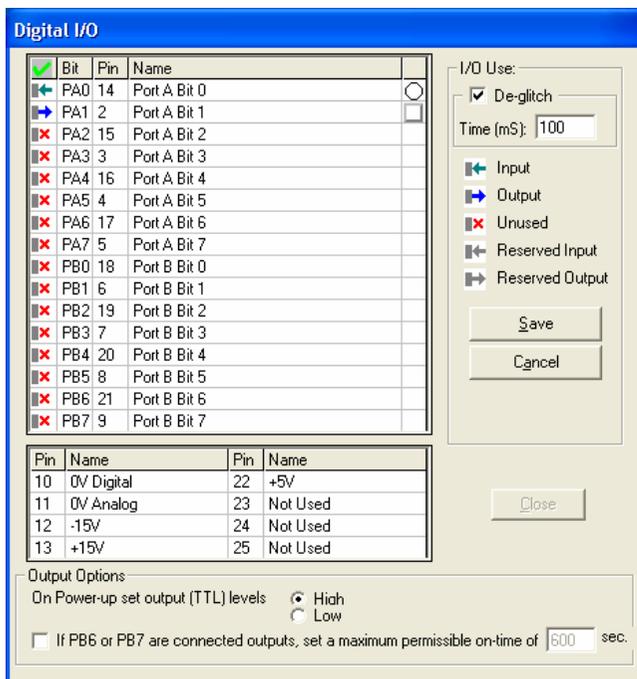
## 5.6 Digital I/O Output Options

The **On Power-up set output TTL levels** check box is used to determine the default “on state” of the digital outputs at switch on.

If set to “High”, the digital outputs will be set high at switch on and if set “Low” they will be set low.

**Note:** If in script, setting a line to zero will set the level to low, setting it to one will set the level high. This is true whether the default **On Power-up set output TTL levels** is high or low.

The digital lines, PB6 and PB7 differ from the other lines as they can be configured to revert to an OFF state after a predetermined amount of time. This can be configured by checking the **If PB6 or PB7 are connected outputs** box and entering the required time in seconds.

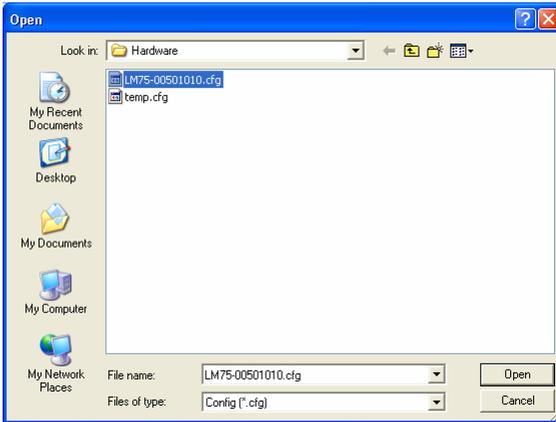


To return to the “Local Instrument Server Configuration” dialog click on **<Save>** and then **<Close>**.

## 5.7 Restore Factory Settings

The configuration settings of the instrument can be restored from the "Emergency Recovery" disk supplied with your instrument, by clicking on the **<Restore Factory Settings>** button on the "Control Unit Utilities" dialog.

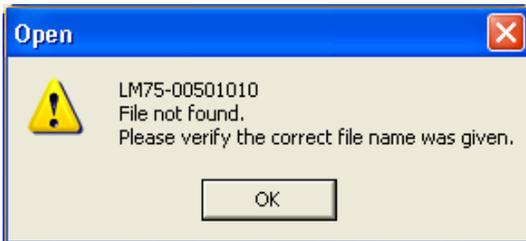
The "Open" dialog will appear.



Browse to the directory where the back up file is located and click the **<Open>** button.

The filename format used for this file type is  
**LMXX-XXXXXXXXX.cfg**

If an incorrect file type has been selected, a warning dialog will appear.



Click the **<OK>** button to return to the "Control Unit Utilities" dialog and choose the correct file.

Click the **<Open>** button and the configuration settings will be restored.

## 5.8 Diagnostics

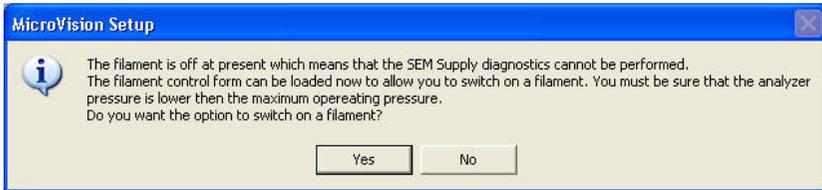
The Process Eye software can perform a series of diagnostic tests on the instrument to aid with fault finding.

For the full range of diagnostic tests, the filaments should be switched ON before diagnostics are performed.

**Note:** Filaments are not tested under the diagnostics, but should be switched on so that the SEM diagnostics can be performed. For help with filament testing, see the Filament Diagnostics section.

To run diagnostics either click on **<Run Diagnostics Test>** on the "Control Unit Utilities" dialog or select **< Run Diagnostics Test >** from the **<Advanced>** pull down list on the "Local Instrument Server Configuration" dialog.

If the filaments are switched OFF, the following dialog will appear.



Clicking the **<Yes>** button will bring up the "Filament Control" dialog to allow the filaments to be switched ON.

Otherwise, continue on to next page.

The "Control Unit Diagnostics" dialog.

Description	ADC	Max.	Min.	Actual	Result
-450V Supply	-4.64	-355.9	-533.8	-412.38	Passed
-15V Supply	-7.51	-13.5	-16.5	-15.02	Passed
-130V Supply	-1.3	-116.2	-143.4	-131.24	Passed
+5V Supply	4.5	5.35	4.75	4.95	Passed
+15V Supply	7.45	17.5	13.5	14.91	Passed
Electron Energy	-0.64	-0.5906	-0.6865	-0.64	Passed
Extractor	-1.12	-1.026	-1.192	-1.12	Passed
SEM Supply Diagnostic	-0.01	-555	-645	-5.49	Not tested

The diagnostics report shows the details of all measurements made on the power supplies within the instrument, giving the upper and lower limits for each individual supply voltage and displaying a "Pass" or "Fail" result.

To print a copy of the report click on **<Print>**

To switch the control unit audio speaker on, click on **<Test Audio>**

To return to the "Local Instrument Server Configuration" dialog click on **<OK>**.

## 5.9 Viewing the Instrument Report

To view the current instruments settings, click the **<View Instrument Report>** button on the "Control Unit Utilities" dialog.

The "Sensor Profile" dialog will appear.

**Sensor Profile: LM76-00399001 (New Head - LM76-00399001)**

CONTROL UNIT CONFIGURATION

Control Unit Use	Configurable Mobile Cart
Sensor Type	Standard Open Source
Inlet System Type	None

GENERAL SETTINGS

Mass Range	1 to 200 AMU
Mass Resolution	Invalid
Peak Resolution	1 Peak/AMU
Mains Frequency	50Hz
Detector Type	Faraday + Channel Plate
Filament Type	Tungsten
R.F. Configuration	Smart Head

ELECTRONICS SETTINGS

Full Scale ADC input	8388608
Full Scale Input Current	2.0e-06
No. of Electronic Gain Ranges	3
Electronic Gain Ranges	1 100 20000

ANALYZER SETTINGS

No. of Source Configurations	6
No. of Preset Source Configurations	3
No. of Detector Settings	4

	<u>EE (eV)</u>	<u>IE (eV)</u>	<u>Em (A)</u>	<u>Ex (V)</u>
Standard Electron Energy	70	5.5	1	-112
Low Electron Energy	40	5.5	1	-112
User defined 1	70	5.5	1	-112
User defined 2	70	5.5	1	-112
User defined 3	70	5.5	1	-112
EasyView	70	5.5	1	-112

	<u>LMA</u>	<u>HMA</u>	<u>LMR</u>	<u>HMR</u>
Standard Electron Energy	32767	32767	32767	32767
Low Electron Energy	32767	32767	32767	32767
User defined 1	32767	32767	32767	32767

Close Print Clear

The "Sensor Configuration" report shows all the configurable settings for the instrument. These settings can be checked against the report included with the instrument when shipped, in case adjustment is required.

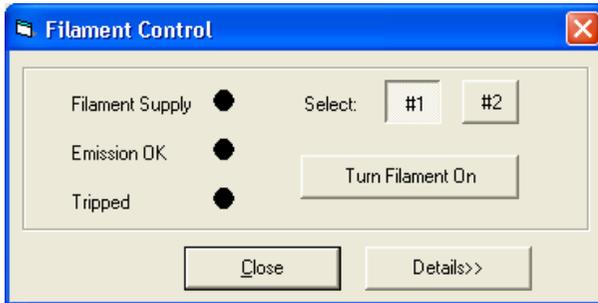
To print the page click on **<Print>**

To return to the "Local Instrument Server Configuration" dialog click on **<Close>**.

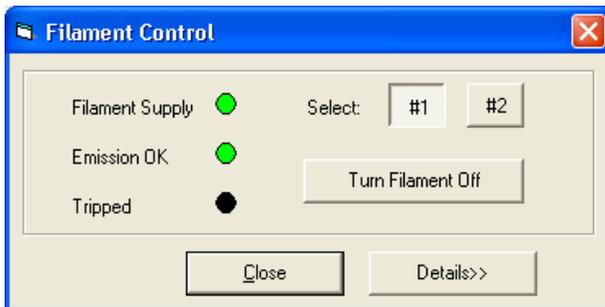
## 5.10 Filament Diagnostics

To run the filament diagnostics, click the **<Check Filaments>** button on the "Control Unit Utilities" dialog.

The "Filament Control" dialog will appear.



To switch on a filament, select either filament 1 or 2 and click the **<Turn Filament On>** button.



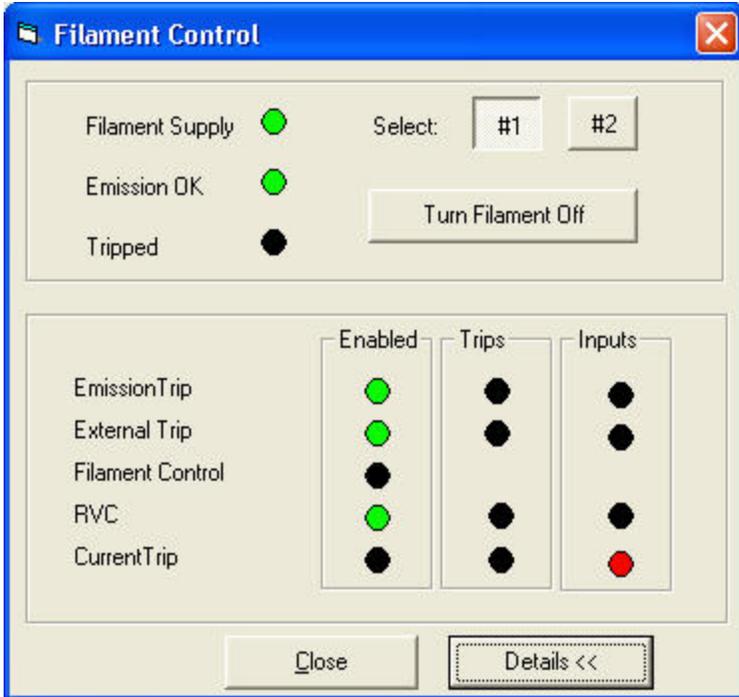
The "Filament Control" dialog now changes to show the **Filament Supply** and **Emission OK** are both good and that the filament has not been **Tripped**.

Select filament 2 and check supply and emission indicators are also good.

If there is a problem with either of the filaments, the **Tripped** indicator will be lit. To help diagnose the cause of a filament trip you can look at the filament control operation in more detail, by clicking the **<Details>** button, see the "Advanced Filament Diagnostics" section for an explanation of these indicators.

## 5.11 Advanced Filament Diagnostics

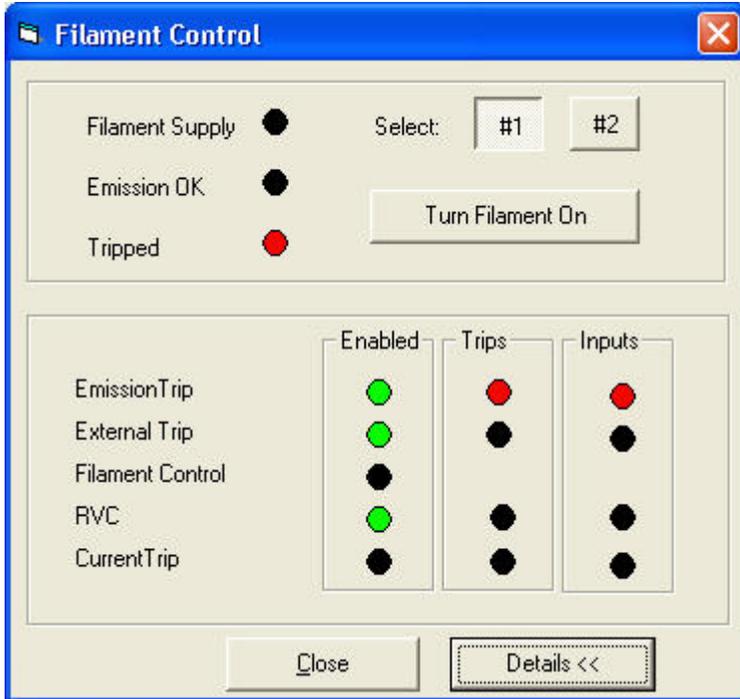
To aid in filament fault diagnostics, the advanced filament details can be viewed, this dialog gives details on the trip type and trip events.



In the above example the filament switched on OK so the **Filament Supply** and **Emission OK** indicators are green.

The **Enabled** column shows which trips are active, in the above example **Emission Trip**, **External Trip** and **RVC** are active and have their indicator lit. **Filament Control** and **Current Trip** are not lit and are not used to trip the filament.

In the above example, although the **Current Trip** level is "bad" and therefore red, it is not one of the active trips and so the filament is not switched off



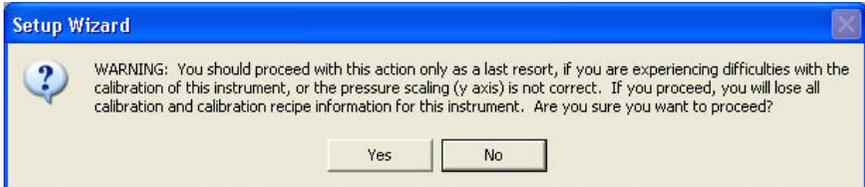
In this example the filament has been tripped off, the **Filament Supply** and **Emission OK** indicators are not lit but the **Tripped** indicator is.

Looking at the **Inputs** column the **Emission Trip** indicator shows a “bad” level and is lit red. In the **Enabled** column the **Emission Trip** indicator is lit, indicating that the trip is active. There fore in the **Trips** column the **Emission Trip** indicator is also lit, showing that this trip has actually switched the filament off. In this example the indicators show that the filament has tripped of due to a problem with the emission current.

To return to the “Local Instrument Server Configuration” click on **<Close>**.

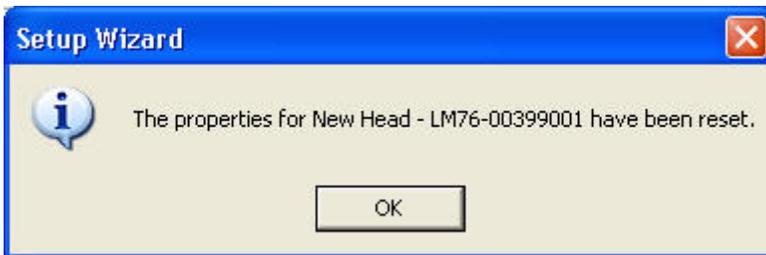
## 5.12 Reset Instrument Settings

To reset the instrument settings select **<Reset Instrument Settings>** from the **<Advanced>** pull down list. This will reset all the Server settings for this instrument



The above warning dialog will be displayed, to continue click on **<Yes>**

To exit without resetting click on **<No>**



To return to the "Local Instrument Server Configuration" click on **<OK>**

## 5.13 Server Settings

To set the server settings select **<Server Settings>** from the **<Advanced>** pull down list.



If network access for the local instrument is required, check the **Run the RGA Server when Windows starts** option. This will start the server program whenever Windows starts. If the option is not checked then the server program will only start when one of the MKS RGA Applications such as Process Eye Professional starts

To return to the "Local Instrument Server Configuration" click on **<OK>**.

## ***Section 6 - Disk Storage Locations***

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### *Overview*

Process Eye must have a directory to store the recipes and views you create and data you may wish to store and view later.

The default path to this directory is:

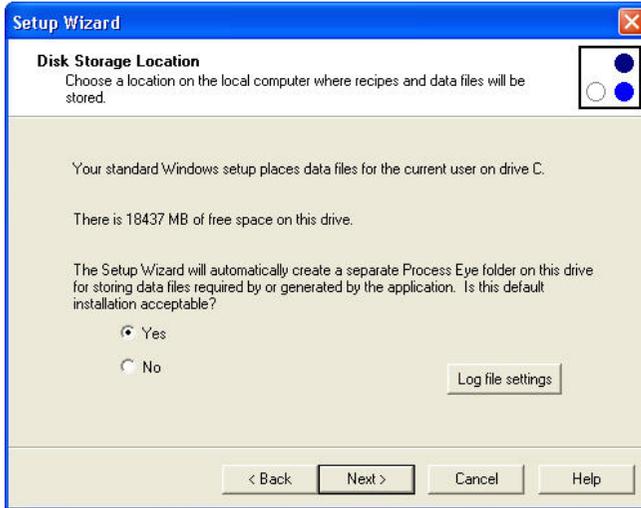
**C: / Documents and Settings / Current User / My Documents**

This means that each user logging on to the PC will have a unique directory for their data and recipes, which remain hidden from other users.

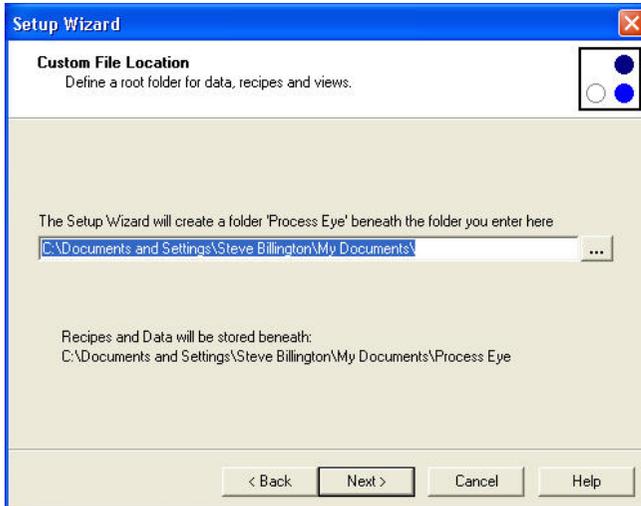
If you want to share this data between users, or change the location of this directory to a networked PC for example, it can be achieved by changing the options in the "Disk Storage" dialog, available from the Setup Wizard program.

## 6.1 Changing the Default Location

The “Disk Storage Location” dialog.



Change the default setting of **Yes** to **No** and click **<Next>**.



The directory location will be the default chosen by the Process Eye software. If you know the path to your new directory, replace the text with your new path.

If you are unsure of the location, you can use the **<Browse>** button.



This will bring up a standard browse dialog.



Select your preferred directory by using the **“Folders”** and **“Drives”** menus.

## ***Section 7 - Using a Recipe Install Disk***

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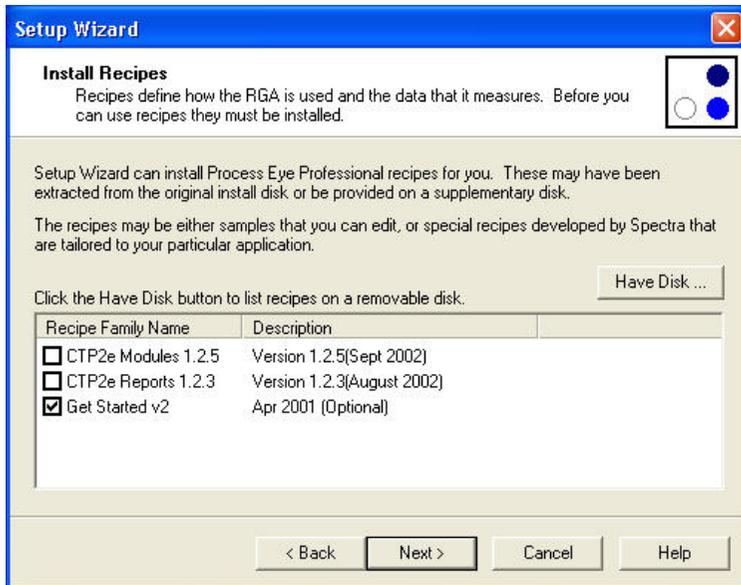
### *Overview*

There are two ways to install pre-written Process Eye Professional recipes. One is to import them, one at a time, using the **<Import>** function in the Recipe Wizard.

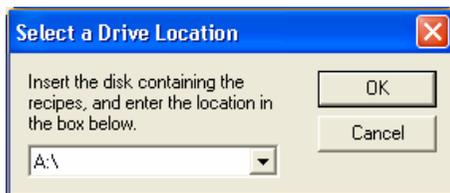
The second is to use a "recipe install disk" supplied by MKS Spectra. This installation disk is supplied with a number of pre-written recipes to get you started using Process Eye. Instructions on how to install are outlined in the "Standard install procedure" section.

If however, you need to install recipes from a disk, you can use the Setup Wizard program.

The “Install Recipes” dialog.



Click on the **<Have Disk>** button and select the drive that contains the recipes.



Click **<OK>** to install the files from disk.

If you try to copy any recipes that are already installed, you will see the following warning dialog.

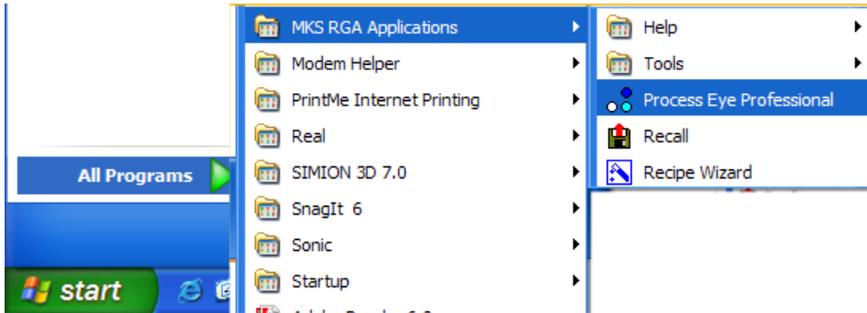


## Section 8 - Starting Process Eye Professional

**Note:** The CD is not required to run Process Eye Professional.

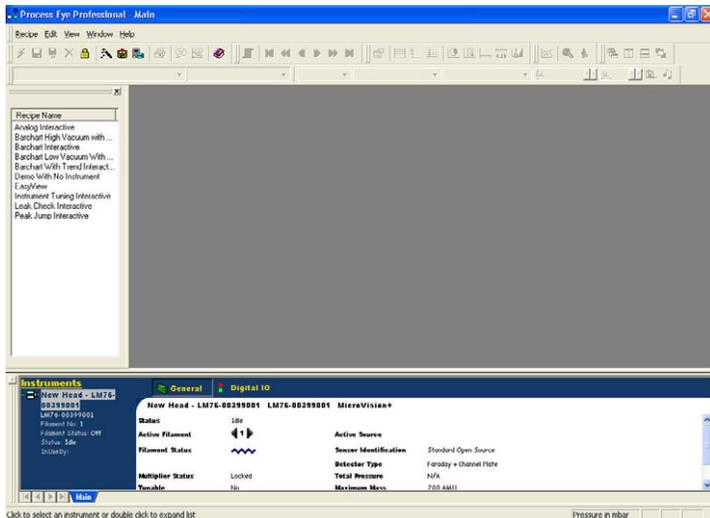
To start the main Process Eye Professional program, click on:

**Start / Programs / MKS RGA Applications/ Process Eye Professional.**



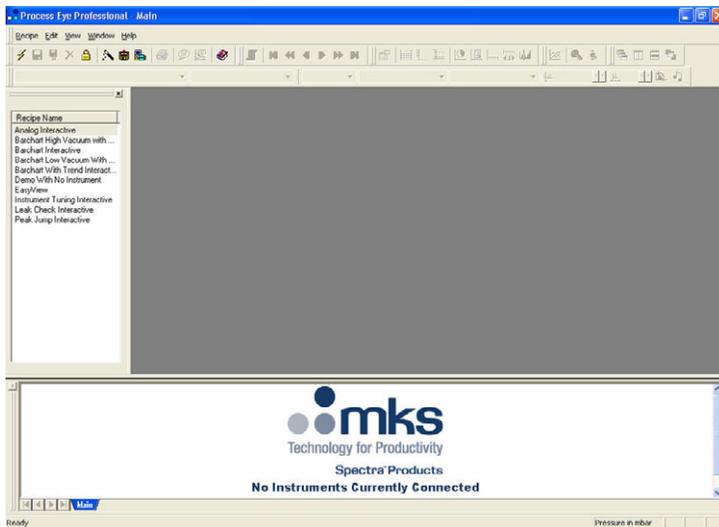
If you are already in Recipe Wizard, Process Eye Professional can be launched directly by clicking on the Launch Process Eye button, or by selecting **Recipe / Run Process Eye** from the menu bar. 

The main Process Eye dialog is displayed.



If during the configuration of Setup Wizard, the option **Pre-connect to instrument** was chosen, this screen will show the instruments details.

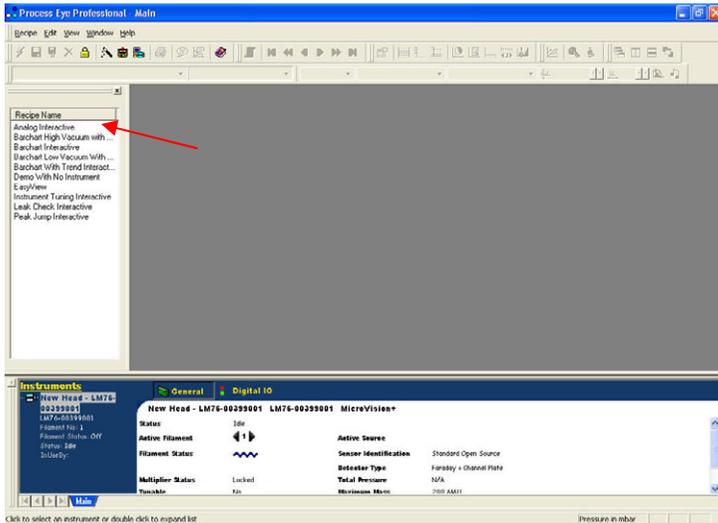
If this option was not chosen, see Section 4.2 Local Sever Setup, otherwise the screen will be as shown below.



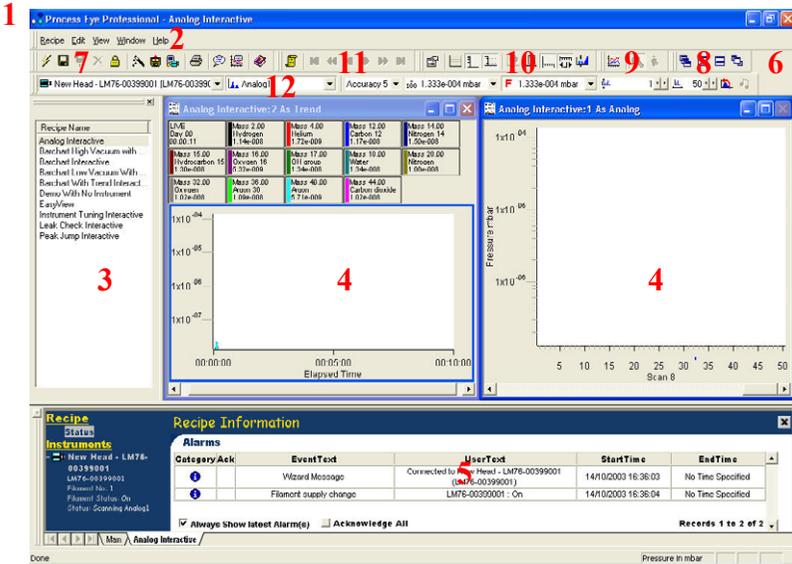
## 8.1 - The Main Process Eye Screen

The main Process Eye Professional screen is where most of your time will probably be spent.

As well as displaying the RGA data acquisition windows, it also provides details of installed recipes, instrument information, alarm events and communications status.



To make the Process Eye main window a little more interesting, double click the **Analog Interactive** recipe.



## 1 Title Bar

The Title Bar shows the application name, Process Eye and the name of the recipe if one is running. The Close, Minimize and Maximize button on the right-hand side of the title bar operate in the normal manner.

## 2 Menu Bar

Process Eye Professional is no different to other Windows programs, all the available function are available via the menu bar.

## 3 Recipe List

The Recipe List contains a list of all the currently available recipes. To run a recipe, double click on the recipe title in the "Recipe Names" list or select the recipe and click on the <Run Selected Recipe> button. 

## 4 Views Windows

The Views windows are where the data acquired in Process Eye Professional is displayed. Any number of view windows may be displayed, but in the graphic, just two are shown, a bar chart and a trend.

## 5 Status Windows

The Status window, as the name suggests, shows status information including instrument, filaments, events and alarms. The Status Window is multi-page, in addition to the main page tab; there will be additional tabs for each recipe that is running.

Click on the tab for the page you wish to view. The tabs are named after the recipe to which they relate.

## 6 Toolbars

The Toolbars appear as one row of buttons below the menu bar and immediately above the recipe list and views windows. The twenty-five buttons consist of five separate toolbars. Each of the toolbars may be hidden by selecting <View / Toolbars> from the menu bar and un-checking those you wish to hide. The default setting is visible for all five toolbars.

## 7 Default Toolbar



-  **Run Recipe** button starts a recipe. Select the recipe from the recipe list and click on the Run Recipe button.
-  **Interactive Disk Store** button is used to start disk store in an interactive recipe that has not been configured to store to disk automatically.
-  **Disk Store Pause** button is used to pause an interactive disk store, to un-pause, click again.
-  **Close** recipe button is use to halt a recipe that is currently running. The Close Recipe button will not be available unless a recipe is running and the Status window has focus (click in the status window to give it focus). Also, the recipe needs to have been configured to include the ability to end the recipe prematurely.
-  **Lock** button can be used to lock the application by using a user specified password.
-  **Run Recipe Wizard** button will run the recipe wizard program to enable you to edit recipes
-  **Run Recall** button will run the recall program to allow review of stored data
-  **Run Setup Wizard** button launches Setup Wizard to allow changes to the installation



**Print** button will print the data from the active data window.



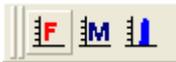
**Add Annotation** button can be used to add annotation to a trend at a particular time.



**Add Annotation at Selected Time** button is used to mark a place on a trend



**Help** button opens the Process Eye Professional help file. Use the Process Eye Professional Help just as you would any other Windows help document.



**Calibration** buttons are used to define Faraday and Multiplier calibrations (first two buttons), and to perform a calibration of either kind (third button).

## 8 Window Arrangement Toolbar



**Cascade** button cascades all windows.



**Tile Vertical** button vertically tiles all windows.



**Tile Horizontal** button tiles all the windows horizontally.



**Bring to Front** button will bring the active window to the front.

## 9 Trend Display Toolbar



**View Properties** button is used to add a new trend or to edit an existing trend. Clicking on the View Properties button will cause the Trend Display Pane and Channel Properties windows to be displayed. See Adding Trends for more details of this window.

Note the button only becomes available when there is data to trend i.e. after the second scan is complete.



**Key Display** button controls the display of the key table for the active trend views. The button will not be available if no trend view is available.



**Key Mode** button changes the key table view between vertical and horizontal views.

## 10 Chart Display Toolbar



**Properties** button displays the settings for the currently active recipe view.



**Grid** button displays a Y-axis grid in the currently active view window. Default is disabled.



**Log/Lin** button switches between a linear and logarithmic Y-axis. Default is linear.



**Y-axis Minor Ticks** button enables the display of minor ticks on the Y-axis. Default is major ticks.



**Time** button switches between real and elapsed time on the X-axis from the start of the recipe. Default is elapsed time.



**Days** button displays the date and time on the X-axis. Default is time only.



**X-axis Minor Ticks** button enables the display of minor ticks on the X-axis. Default is major ticks.



**Add Scroll Bar** button adds a scroll bar to the X-axis. Default is no scroll bar.



**Add Cursor** button adds a measurement cursor to the active Bar chart display. The cursor can be moved to the required mass and will display the mass number and partial pressure. As many cursors as are required can be added.

## 11 Scan Navigation Toolbar



When the **Historic Data** button is not depressed, the active continuous mass scan view is displaying the live data currently being acquired. While the button is depressed, the continuous scan window will display historic data.

New data is still being acquired in this historic mode, you will see the total number of scans figure increasing while the current scan number remains the same.

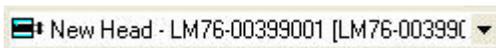
The six navigation buttons will only become available when historic data is being viewed, e.g. The “**Historic Data**” button is depressed.

-  **First Scan** button to view the oldest scan stored in memory.
-  **Jump Back** button to view the scan 10 scans previous to the current one being view.
-  **Previous Scan** button allows you to view the last scan.
-  **Next Scan** button allows you to view the next scan.
-  **Jump Forward** button to view the scan 10 scans subsequent to the current one being view.
-  **Last Scan** button to view the newest scan acquired in the current recipe run.

## 12 Interactive Scan Navigation Toolbar



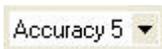
The “**Interactive Scan Toolbar**” becomes active when interactive recipes are running to allow you to modify the scan parameters.



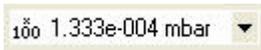
**Control Unit Text Box** is an information only box, giving the details of the control unit the recipe is currently using.



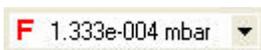
**Scan List** box gives the name of the currently active scan.



**Accuracy** drop down list allows you to make changes to the accuracy of the current scan.



**Electronic Gain** drop down list allows you to select the Pre-Amp gain.



**Detector** drop down list allows you to switch between Faraday and SCEM detectors.



**First Mass** text box allows you to select the start mass of the scan. You can either type in the required number and press <Enter> or use the scroll arrows to scroll to the required start mass.



**Mass Span** text box allows you to select the mass span of the scan. You can either type in the required number and press <Enter> or use the scroll arrows to scroll to the required mass span.



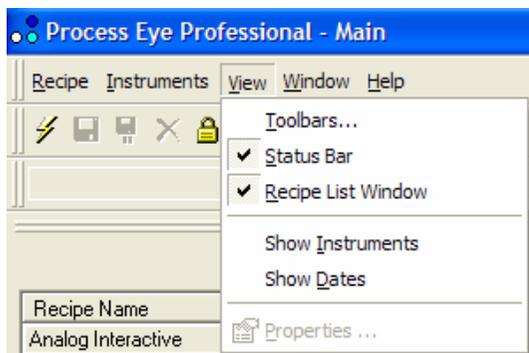
**Restart Scan** button will force the scan to restart.



**Audio** button is used to switch on/off the audio tone in the interactive leak check recipe.

### 13 Customizing Toolbars

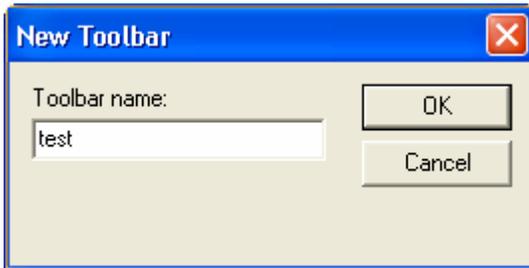
You can customize the toolbars as required. You can choose which Toolbars are visible or you can create your own toolbars with your own choice of buttons. From the view pull down menu, select **<Toolbars>**.



This will bring up the “Toolbars” dialog. Check the box for the toolbars you wish to have displayed. Checking the **<Cool Look>** check box will change the appearance of the toolbars.

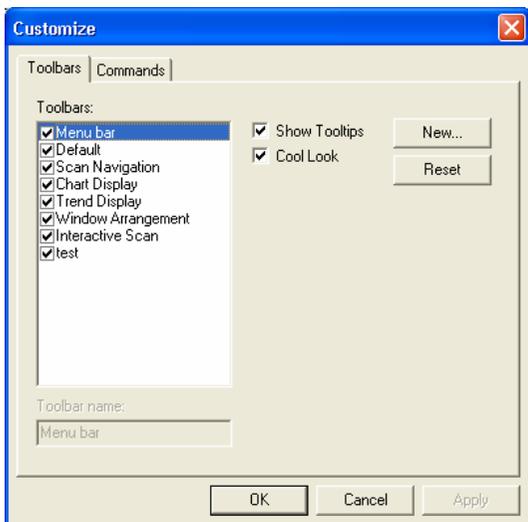


To create a new toolbar, click on the **<New>** button.

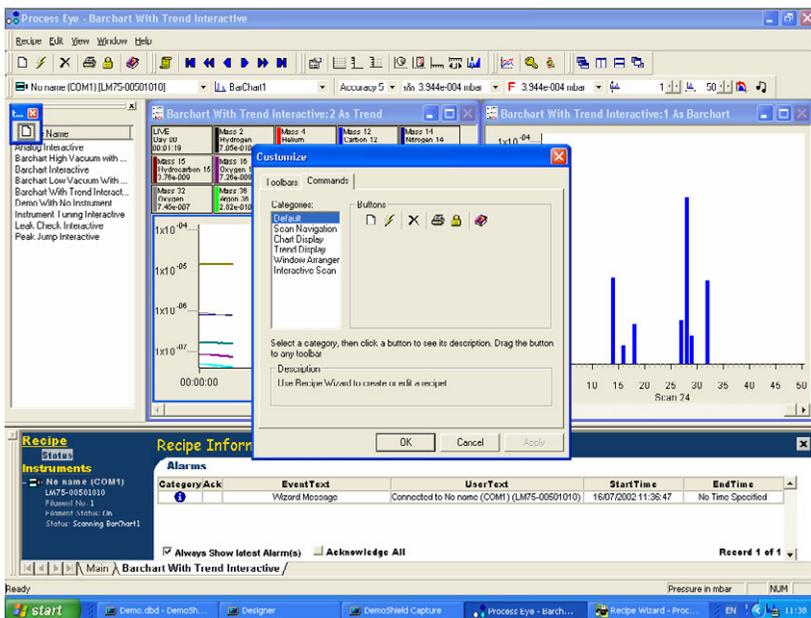


Give the new Toolbar a name and click **<OK>**. This will create a blank Toolbar that you can then customize.

From the toolbar dialog box click on the **<Customize>** button to bring up the customize dialog.



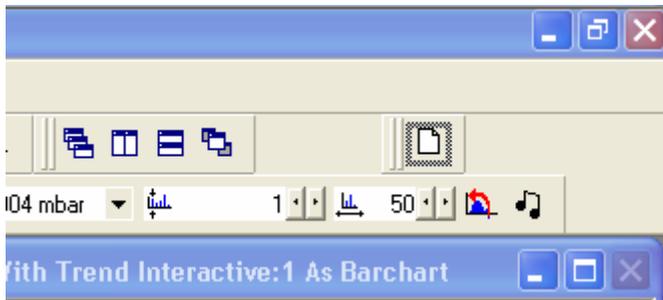
Click on the **<Command>** tab to see the buttons currently assigned to the new Toolbar you have created.



You can drag one of the buttons (in this case the **"Create New Recipe"** button) onto the toolbar.

You can add as many buttons as you like from different toolbars. To save this new Toolbar, click **<OK>**.

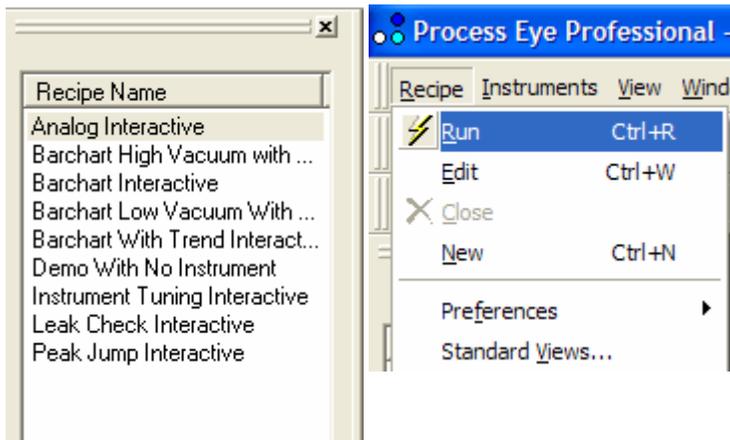
This new Toolbar can then be positioned next to the other toolbars.



## 8.2 - Starting a Process Eye Recipe

The currently available recipes are shown in the **Recipe List**.

To run a recipe, double-click the entry in the Recipe List, or highlight the entry and choose **Recipe / Run** from the menu, or click the **<Run Recipe>** button on the Toolbar.



Alternatively click on the recipe with the right mouse button and then select Run from the list of options



## 8.3 - Closing a Process Eye Recipe

Before you can exit a recipe, you must select the recipe in the status window. If the recipe is not active, the **<Abort>** button is disabled.



To select the recipe to close, click on the particular recipes' tab at the foot of the screen. In this example, the **Main** recipe is used.

The screenshot shows the 'Instruments' software interface. On the left, a tree view shows the selected instrument: 'No name (COM1)' with details like 'LM75-00501010', 'Filament No: 1', and 'Status: Scanning BarChart1'. The main area displays the 'General' tab for the selected recipe, 'No name (COM1) LM75-00501010 MicroVision+'. The status is 'Scanning BarChart1'. The 'Active Filament' is set to 1, and the 'Filament Status' is shown as a red wavy line. Other parameters include 'Tunable: No', 'RF Configuration: Smart Head', 'External Hardware: None', 'Active Source: Base Pressure RGA', 'Sensor Identification: HPQ', 'Detector Type: Faraday', 'Total Pressure: N/A', 'Maximum Mass: 80 AMU', 'Control Unit Use: Standard RGA', and 'Embedded Version: V3.62m'. At the bottom, a tab labeled 'Main' is selected, and the status bar shows 'Ready'.

You can then end the recipe with the **<Abort>** button, which will now be active.

Or by clicking on the **<Close>** button in the top right hand corner of the status window.



The screenshot shows a status window with a table containing the following data:

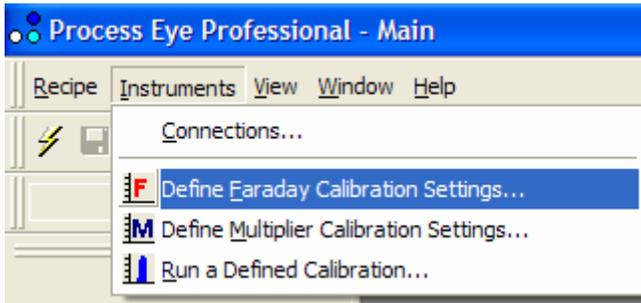
UserText	StartTime	EndTime
Connected to No name (COM1) (LM75-00501010)	16/07/2002 11:36:47	No Time Specified

Below the table, it shows 'All' and 'Record 1 of 1'. At the bottom, there are two buttons: 'Pressure in mbar' and 'NUM'. A red arrow points to the close button (X) in the top right corner of the window.

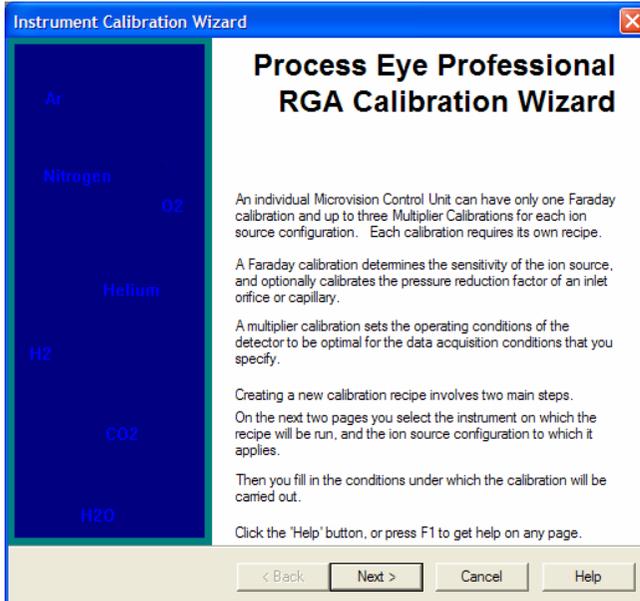
## 8.4 - Defining and Running a Faraday Calibration Recipe

To calibrate the instrument you first need to define a calibration for it to perform.

To define the calibration, select **Define Faraday Calibration Settings** from the **Instruments** pull down menu.



The "RGA Calibration Wizard" is started.

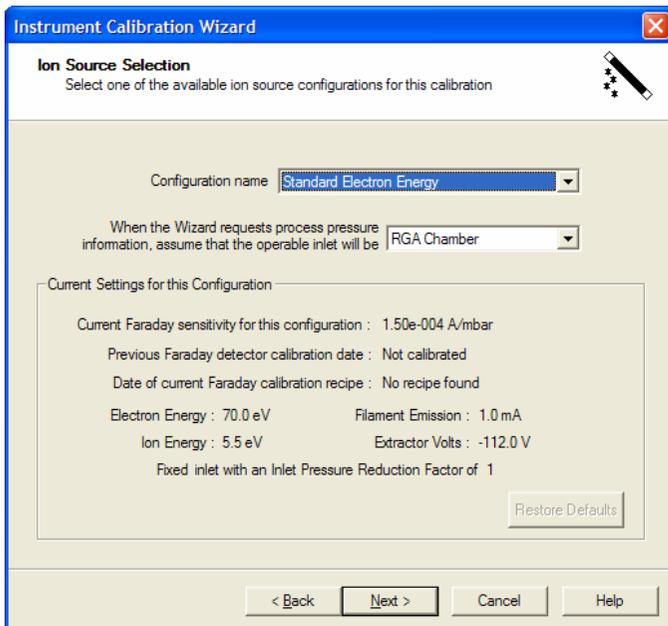


From the following dialog choose the instrument for which the calibration is to be defined, and click **<Next>**.



The "Ion Source Selection" dialog is displayed, and presents the opportunity to choose which ion source configuration the calibration is to be associated with. It also shows the details of any previous calibrations defined for this instrument.

When correctly configured click **<Next>**.



The "Calibration Mass and System Pressure" dialog is displayed.

Enter the following variables into the text boxes:

**Mass to be used for Faraday calibration** – the mass used to base the calibration upon. This would normally be 28, but any mass with a reasonable peak size can be used.

**The anticipated process pressure gauge reading when the calibration is carried out** – this would normally be the total pressure of the sample chamber.

**Contribution of mass (XX) to the gauge pressure(s) entered above, expressed as a percentage is** – the contribution of the chosen calibration mass as a percentage of the total pressure.

E.g.

$100 \times \frac{\text{the partial pressure of mass 28}}{\text{the sum of all partial pressures}}$

Instrument Calibration Wizard

**Calibration Mass and System Pressure**  
Define the calibration mass and, if requested, estimate the likely system pressure applicable at run-time.

Faraday Detector Calibration Parameters

Mass to be used for Faraday calibration

The anticipated process pressure gauge reading when the calibration is carried out is  mbar

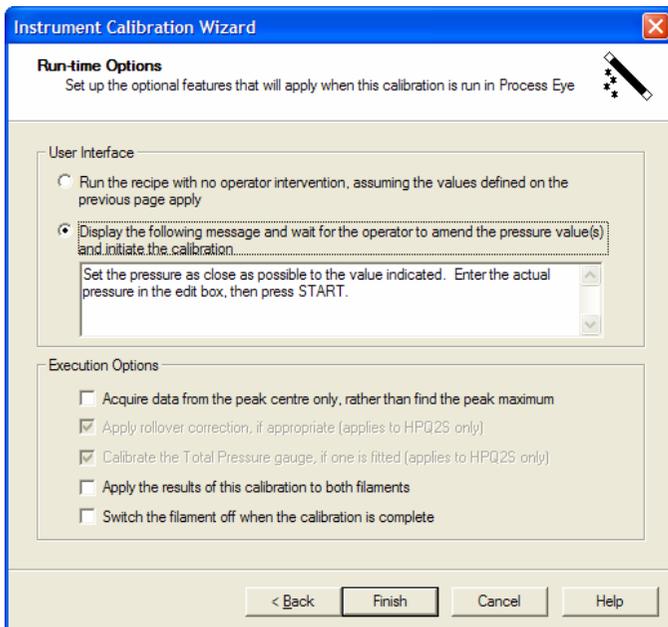
The anticipated ion source pressure gauge reading when the calibration is carried out is  mbar

The contribution of mass 40 to the gauge pressure(s) entered above, expressed as a percentage, is  %

< Back   Next >   Cancel   Help

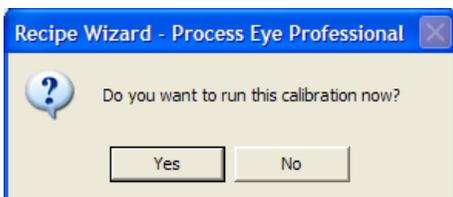
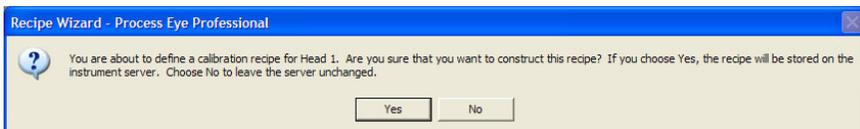
When all the parameters have been entered correctly click **<Next>**.

Finally, the “Run-time Options” dialog is displayed. Select the required options and click **<Finish>** to complete the calibration definition.

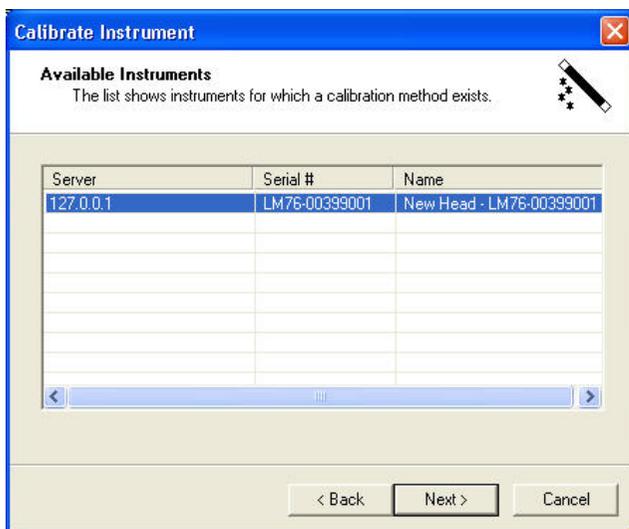


Firstly you will be asked to confirm that you want to define a new calibration, and then given the option to run the newly defined calibration.

To run the calibration at this point, click **<Yes>**. If you choose not to run the calibration at this time, it can be run at any time by selecting **Run a Defined Calibration** from the Instruments pull down menu.



The "Select an Instrument" dialog is displayed.



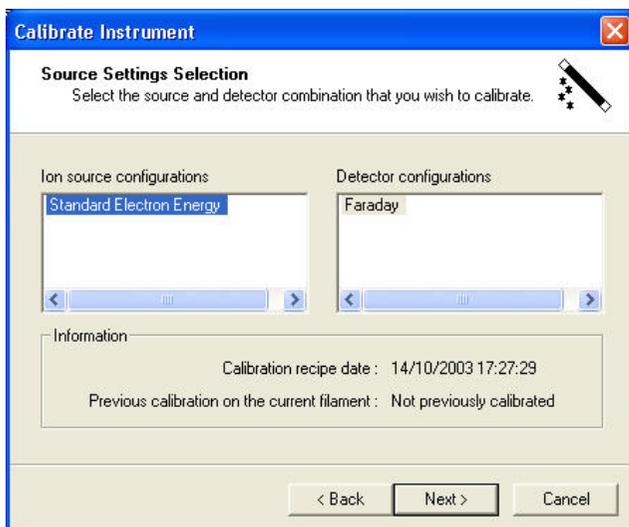
From the list, pick the instrument you wish to calibrate. In this case, there is only one instrument present.

The calibration data is stored along with the RGA Server program, so running a calibration will change the calibration settings for that particular server.

**Note:** All users who connect to an instrument, either locally or over the network, use the same calibration information. Once you have run a calibration, you will change the calibration information for all users of that instrument.

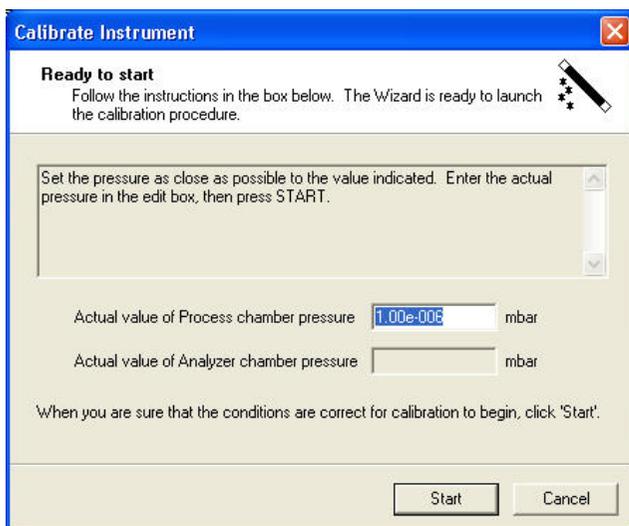
You can define one Faraday calibration and three multiplier calibrations for each ion source setting.

The creation date and the date the calibration was last run are shown in the "Information" panel.

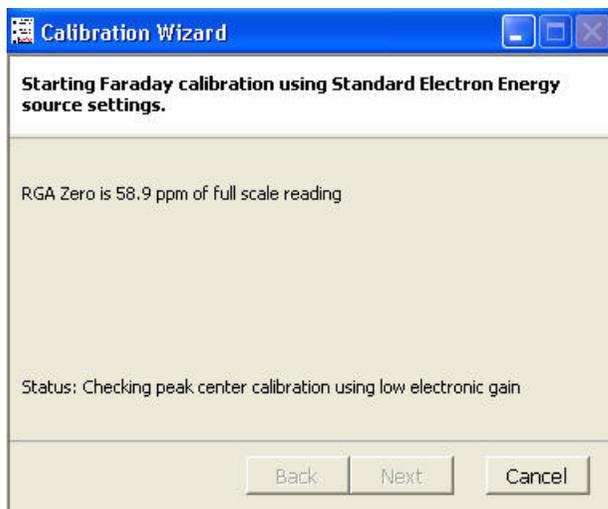


When you have selected the instrument, ion source setting and detector, click on **<Next>** to start the calibration. If you have started the calibration routine directly from the definition wizard then the correct instrument, ion source setting, and detector are automatically selected, simply click **<Next>** to continue.

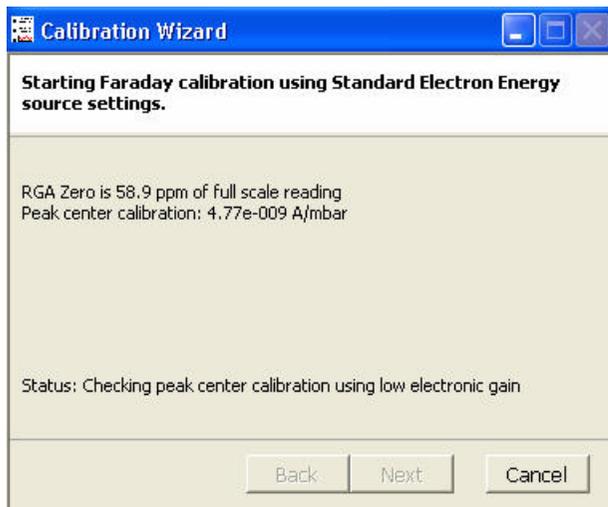
Depending on how the calibration recipe was written, you may or may not need to enter the actual chamber pressure.



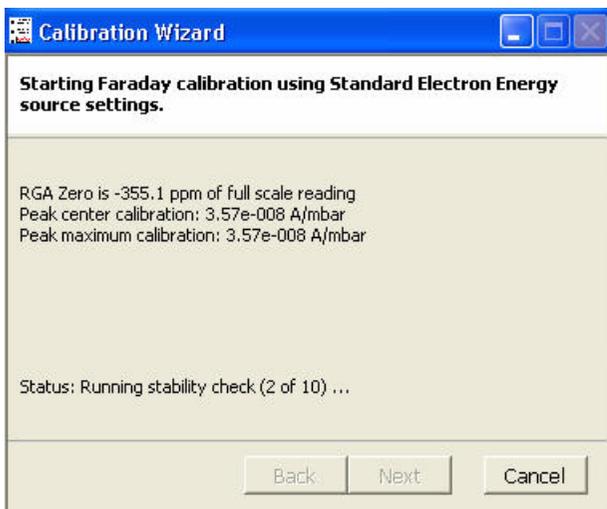
Enter a corrected gas pressure and press **<Start>** to begin the calibration.



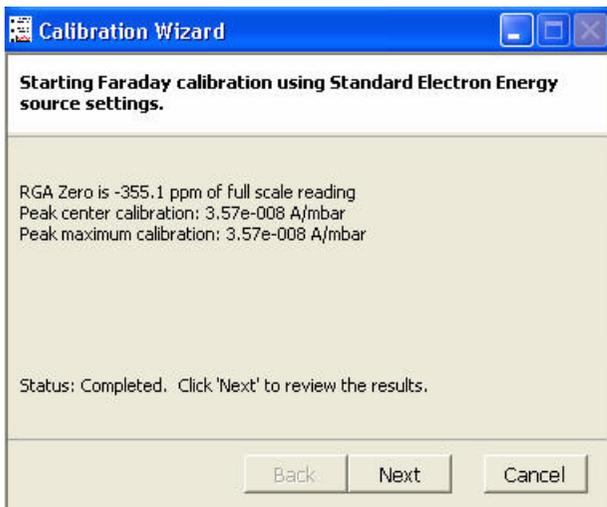
The first step is to measure the zero and check the mass alignment



The next step is to measure the peak center peak height



When the peak maximum and peak center readings have been taken the stability is checked.



The calibration is now complete.

Click **<Next>** to view the results of the calibration.



The stability of the calibration is calculated as a percentage, based on the following formulas:

**Peak Maximum:**

Spread= (Max Partial Pressure - Min Partial Pressure) / (Max Partial Pressure + Min Partial Pressure) \* 100

**Calibration results:**

Spread < 0.2 then calibration is "excellent"

Spread < 1 then calibration is "good"

Spread < 4 then calibration is "adequate"

Spread < 12 then calibration is "poor"

If the result is outside these values, the calibration is "very poor".

If the spread result is "poor" and the peak height of the mass you are trying to calibrate on is less than 0.01% of full scale, you will get a message that the peak you have chosen is too small.

In this case, choose a larger peak for calibration.

**Peak Centre:**

Peak Height Bar chart 1 (Peak Max) - Peak height Bar chart 2 / Peak height Bar chart 1 (Peak Max)

Error < 0.08 then alignment is "excellent"

Error < 0.2 then alignment is "adequate"

If the result is outside these values, the alignment is "very poor".

To exit without changing the calibration click **<Cancel>**

To reset the calibration to the factory defaults click on **<Default>**

To use the new calibration click on **<Apply>**



If the new calibration is applied then details will be stored in the application log file Process.xml in the Process Eye\Logs directory

```
<MESSAGE Time="2003-10-27 12:01:17" Value="Calibrating RGA (Source: Standard Electron Energy, Multiplier 1 detector.)" />  
<MESSAGE Time="2003-10-27 12:01:17" Value="Existing settings: sensitivity: 5.57e-004 A/mbar, voltage: -683.3 volts" />  
<MESSAGE Time="2003-10-27 12:01:19" Value="Filaments have been on for 4.8 minutes" />  
<MESSAGE Time="2003-10-27 12:01:41" Value="Peak height of mass 28amu using Faraday detector: 1.44e-008mbar" />  
<MESSAGE Time="2003-10-27 12:01:41" Value="Starting multiplier calibration. Required peak height is 1.44e-008 mbar using a detector gain of 100" />  
<MESSAGE Time="2003-10-27 12:02:16" Value="Calibration succeeded. The stability test result was good.The new calibration is 5.51e-004 A/mbar at -683 Volts" />  
<MESSAGE Time="2003-10-27 12:02:26" Value="Calibration applied: Standard Electron Energy: New factor = 5.51e-004 A/mbar" />  
</LOGFILE>
```

To exit the calibration wizard click on **<Finish>**

## 8.5 - Defining and Running a Multiplier Calibration Recipe

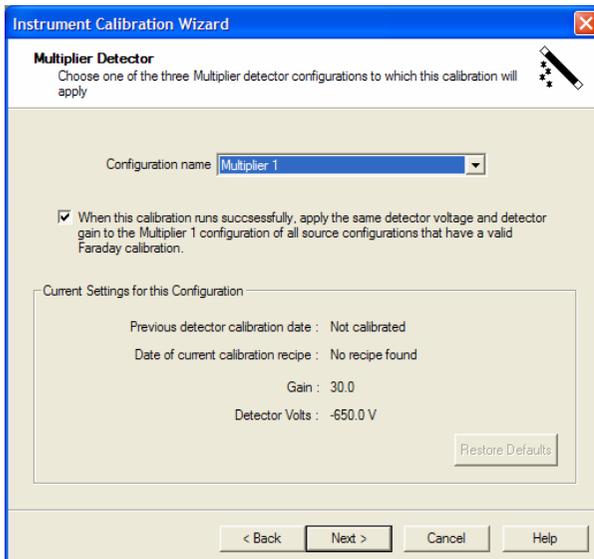
As for the Faraday calibration, go to the Instruments pull down menu, but this time select **Define Multiplier Calibration Settings**.

Follow the same steps as in the definition of the Faraday calibration up until the **"Ion Source Selection"** dialog. Here you can again select which ion source settings will be used for the calibration but if you have not performed a Faraday calibration you will be presented with the following message after clicking **<Next>**.



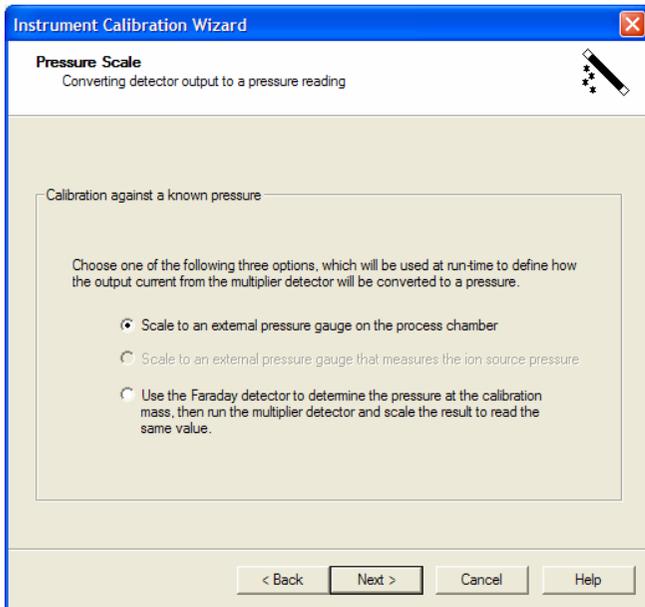
This simply states that whilst the multiplier will be calibrated to the current Faraday measurements, resulting multiplier measurements will be inaccurate as "real" measurements in the same way as the Faraday measurements are. If you are happy with this, click **<OK>**.

The "Multiplier Detector" dialog is then displayed.



This dialog is used to choose which multiplier detector configuration the calibration will apply to, and also displays the details of any previous calibrations. Click **<Next>** to continue.

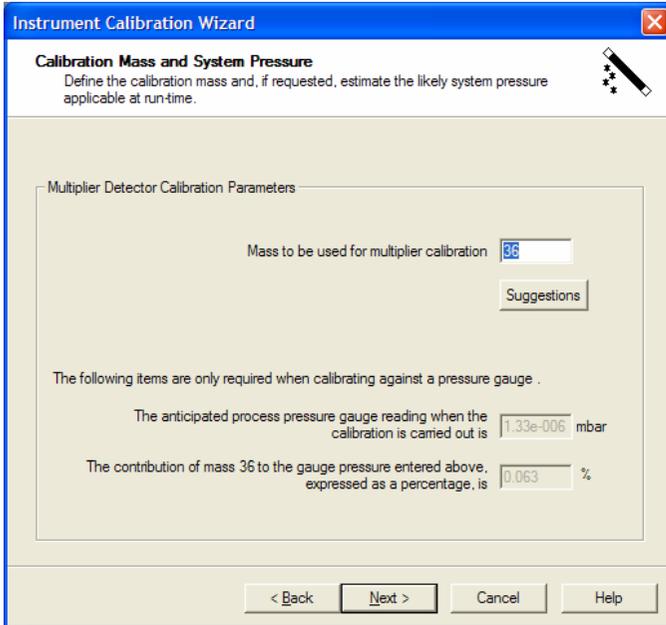
The **"Pressure Scale"** dialog is then displayed.



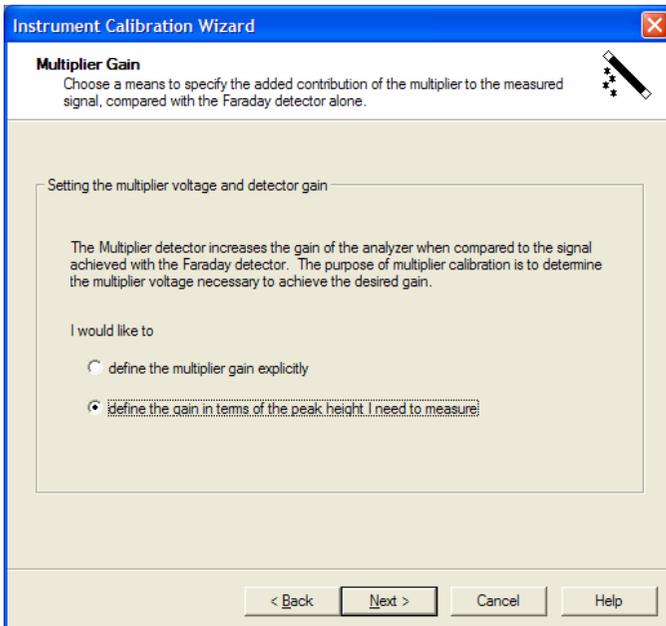
This dialog is used to choose the method employed to perform the calibration. Scaling to an external pressure gauge reading uses the same method as the Faraday calibration, so this example will use the second method which calibrates the multiplier to match the Faraday measurements. Select the appropriate option and click **<Next>**.

You are then presented with the "Calibration Mass and System Pressure" dialog.

When using the Faraday measurements to perform the calibration all that is required at this dialog is to enter the mass at which the calibration will occur. To continue, click **<Next>**.



The "Multiplier Gain" dialog is then displayed.



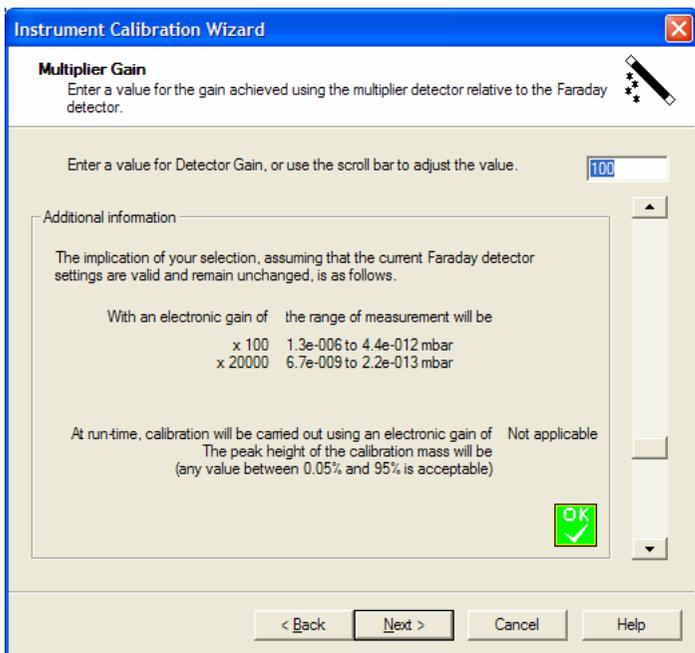
This dialog allows you to choose how you want to define the gain of the multiplier detector. There are two choices; **Define the multiplier gain explicitly**, where a user defined gain setting is used for calibration,

Or **Define the gain in terms of the peak height I need to measure** where the maximum required peak height is entered and the associated gain is then calculated for calibration. Both methods are described here:

### Define the multiplier gain explicitly

Select this option at the "Multiplier Gain" dialog, and click **<Next>**.

From the resulting dialog simply enter the required gain value into the text box. The implications of the entered value are explained along with the maximum and minimum detectable partial pressures using this value of detector gain for each electronic gain setting. When complete, click **<Next>**.



## Define the gain in terms of the peak height I need to measure.

Select this option at the “Multiplier Gain” dialog, and click **<Next>**.

From the resulting dialog simply enter the required maximum detectable partial pressure into the text box. The calibration recipe will then calculate the detector gain required to make this possible. The implications of the entered value are explained along with the maximum and minimum detectable partial pressures using this value of detector gain for each electronic gain setting. When complete, click **<Next>**.

**Instrument Calibration Wizard**

**Maximum measurable peak height**  
Enter a maximum peak height that you need to measure

Measurable peak height range  
I would like to use this source / detector configuration to measure partial pressures on a range where the maximum value is  mbar

Favor detector gain over electronic gain (recommended)

Additional information  
The implication of your selection, assuming that the current Faraday detector settings are valid and remain unchanged, is as follows.

With an electronic gain of	the range of measurement will be
x 100	1.3e-006 to 4.4e-012 mbar
x 20000	6.6e-009 to 2.2e-013 mbar

You will achieve the specified maximum peak height using a detector gain of 100.3 and an electronic gain of 100

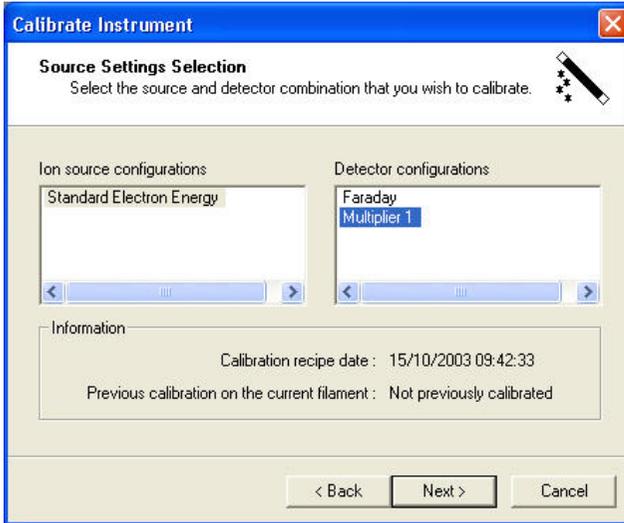
At run-time, calibration will be carried out using an electronic gain of 100. The peak height of the calibration mass will be (any value between 0.05% and 95% is acceptable) Not applicable

The “Run-time Options” dialog is then displayed as in the Faraday calibration. Make any necessary choices and click **<Finish>** to complete the definition of the multiplier calibration.

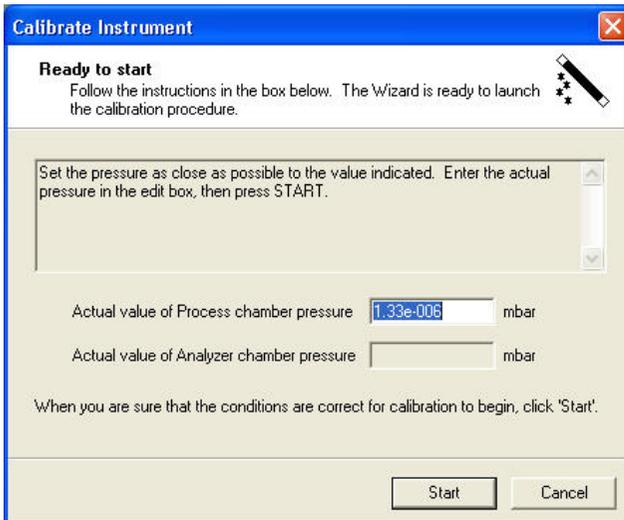
As in the Faraday calibration definition, you are asked if you are sure you want to define a new multiplier calibration and then if you would like to run the calibration.

To run the multiplier calibration, either click **<Yes>** now, or select **Run a Defined Calibration** from the Instruments pull down menu.

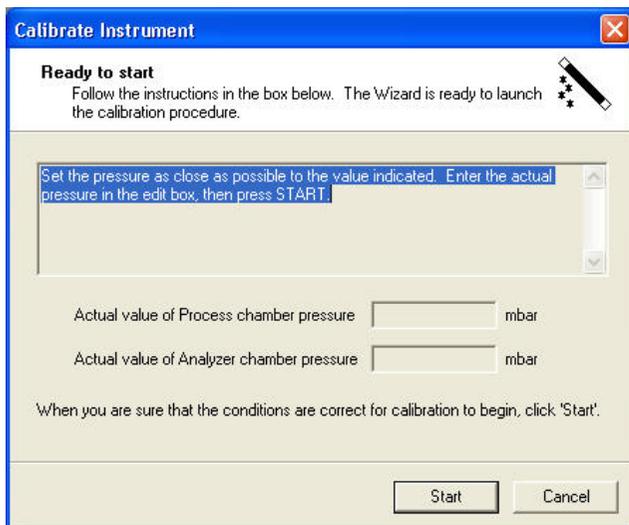
To calibrate the multiplier, follow the steps for the faraday calibration but select one of the multiplier settings for the detector. Again, if you have started the calibration routine directly from the definition wizard then the correct instrument, ion source setting, and detector are automatically selected, simply click **<Next>** to continue.



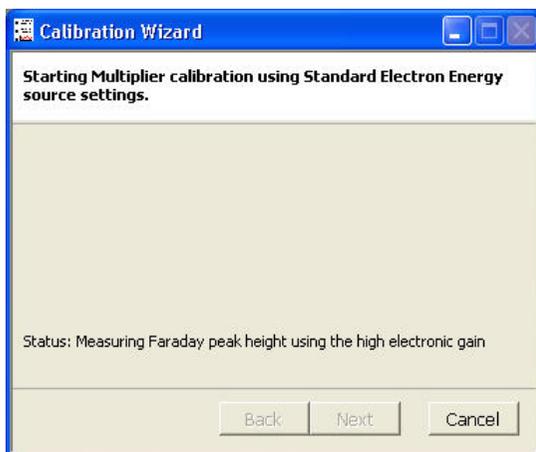
Depending on how the calibration recipe was written, you may or may not need to enter the actual chamber pressure.



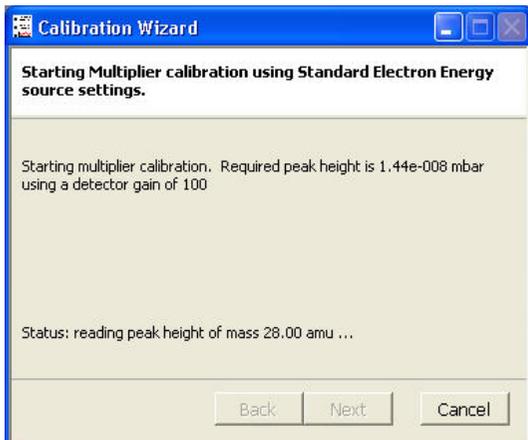
In this example, we are calibrating against a Faraday peak so there is no need to enter a pressure, click on **<Start>** to continue.



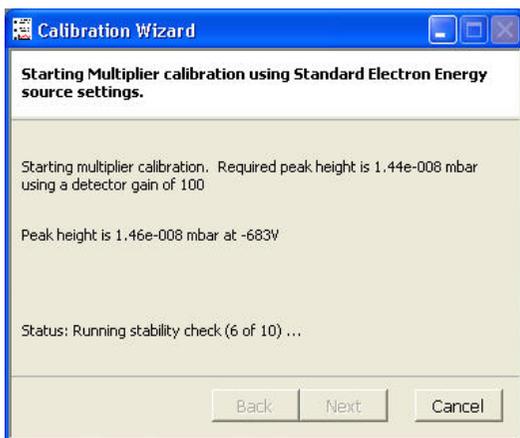
Process Eye will firstly measure the Faraday peak height.



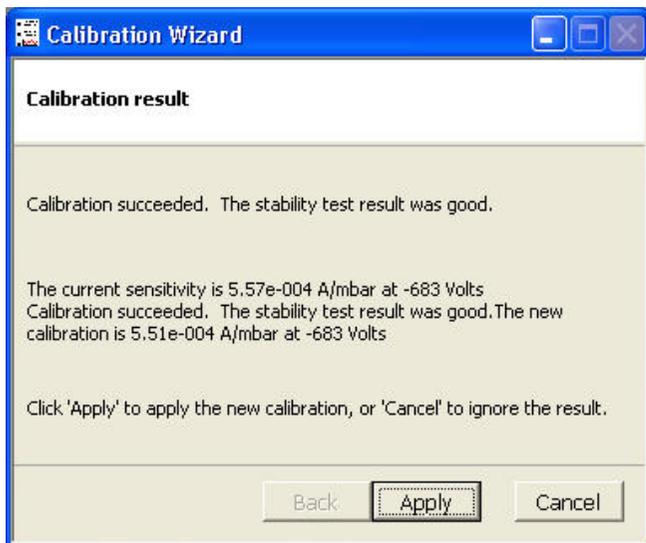
Then the multiplier peak height is measured. The multiplier voltage will be increased or decreased until the multiplier peak height matches that of the Faraday reading.



Once the multiplier voltage has been adjusted, the recipe will perform another twelve scans to check the stability of the calibration.



When the calibration is complete, a report is generated detailing the previous calibration factor as well as the new one.



The stability of the calibration is calculated as a percentage, based on the following formulas:

$$\text{Spread} = (\text{Max Partial Pressure} - \text{Min Partial Pressure}) / (\text{Max Partial Pressure} + \text{Min Partial Pressure}) * 100$$

**Calibration results:**

Spread < 0.2 then calibration is "excellent"

Spread < 1 then calibration is "good"

Spread < 4 then calibration is "adequate"

Spread < 12 then calibration is "poor"

If the result is outside these values, the calibration is "very poor".

If the spread result is "poor" and the peak height of the mass you are trying to calibrate on is less than 0.01% of full scale, you will get a message that the peak you have chosen is too small. In this case, choose a larger peak for calibration.

To apply the new calibration click on **<Apply>** To exit without changing the calibration click **<Cancel>**



If the new calibration is applied then details will be stored in the application log file Process.xml in the Process Eye\Logs directory

```
<MESSAGE Time="2003-10-27 12:01:17" Value="Calibrating RGA (Source: Standard Electron Energy, Multiplier 1 detector.)" />
<MESSAGE Time="2003-10-27 12:01:17" Value="Existing settings: sensitivity: 5.57e-004 A/mbar, voltage: -683.3 volts" />
<MESSAGE Time="2003-10-27 12:01:19" Value="Filaments have been on for 4.8 minutes" />
<MESSAGE Time="2003-10-27 12:01:41" Value="Peak height of mass 28amu using Faraday detector: 1.44e-008mbar" />
<MESSAGE Time="2003-10-27 12:01:41" Value="Starting multiplier calibration. Required peak height is 1.44e-008 mbar using a detector gain of 100" />
<MESSAGE Time="2003-10-27 12:02:16" Value="Calibration succeeded. The stability test result was good.The new calibration is 5.51e-004 A/mbar at -683 Volts" />
<MESSAGE Time="2003-10-27 12:02:26" Value="Calibration applied: Standard Electron Energy: New factor = 5.51e-004 A/mbar" />
</LOGFILE>
```

Click **<Finish>** to exit the calibration wizard

## 8.6 – Interactive Disk Store

Clicking on the **Interactive Disk Store** button whilst in an interactive recipe that is not already storing to disk, will bring up the interactive store dialog.



Start disk storage

What to store | Where to store

Buffering scans 21 (28/11/2002 14:43:06) to 360 (28/11/2002 14:47:17)

Start Storing

From now onwards...

From buffered scan 21 at time 28/11/2002 14:43:06

Finish Storing

Continue indefinitely

At buffered scan 360 at time 28/11/2002 14:47:18

OK Cancel Apply

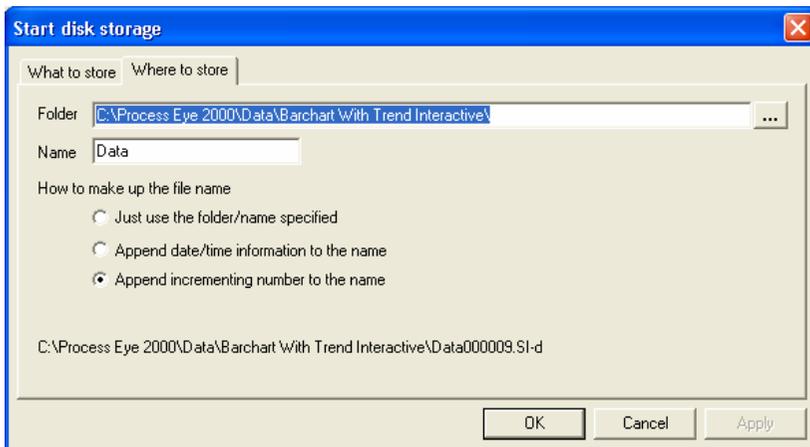
In this dialog you can choose to store from the current scan onwards, or from any scan held in the buffer.

Scans that have been erased from buffer cannot be stored.

By default all scans are held in memory by this property can be changed in the recipe wizard to reduce memory use.

If you choose to store from a buffered scan, you can also choose the scan at which you finish storing.

Clicking on the **Where to Store** tab allows the user to specify a location for the stored data.



At any time, you can end the disk storage by clicking on the interactive store button again.

To pause disk store, click on the **Disk store pause** button.

To resume storing later, simply click the button again. This will restart storing to disk to a new file.

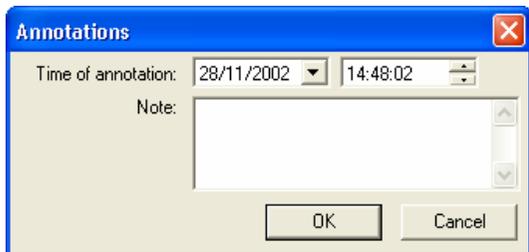


**Note:** While the disk store is active, the scan is no longer interactive and the interactive scan controls will be unavailable. When you pause or end the disk store the scan will become interactive again.

## 8.7 - Adding Annotations

Time stamped annotations can be added to a trend.

There are 2 ways to do this. The first is to click on the **Add Annotation** button.

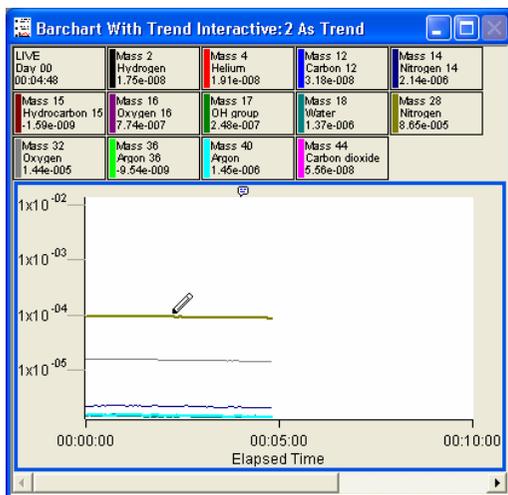


In the dialog that appears, you can specify a time for the annotation to appear on the trend, and any text you wish to add.

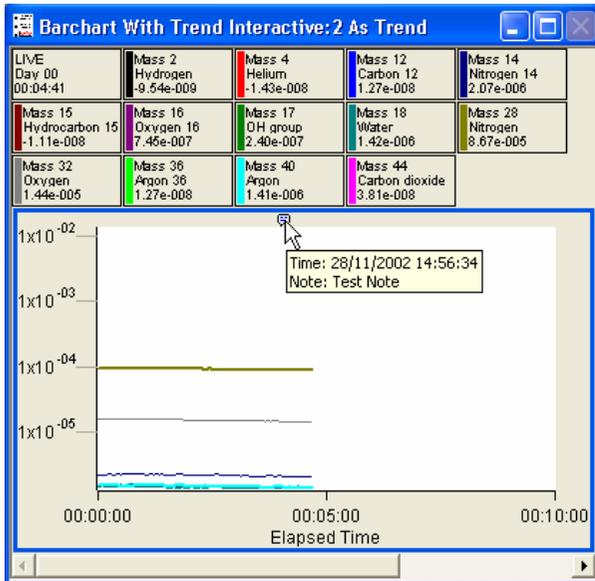
The second way to add an annotation is to click on the **Add Annotation At Selected Time** button.



The cursor will change to a pen, select the point on the trend that you want to add the annotation and click.



Each annotation added will be marked by a symbol along the top of the trend. If you move the cursor over this symbol, the text will be displayed as a tool tip.



You can add as many annotations as required and when using "Recall" they will be displayed in the same way.

## ***Section 9 - Working with Views***

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### *Overview*

Views are the graphs that display the RGA data in Process Eye Professional. Process Eye Professional utilises a user defined view system that gives the user flexibility and reduces setup time for repeated functions.

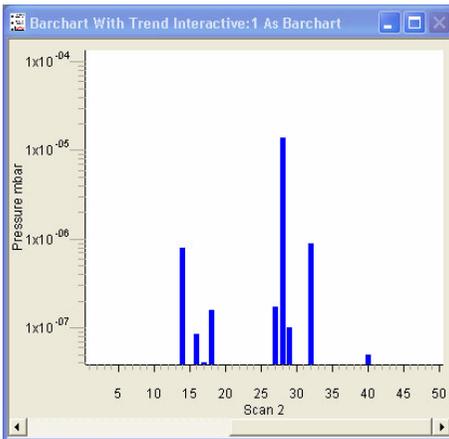
In a fixed view system the user is presented with the same default view every time measurements are collected. Whilst these default views can be configured to suit the requirements of the user, it is often the case that they need to be reconfigured every time a process is performed. With the user defined view system used by Process Eye Professional the precise requirements of the view are defined when the measurements are created, and will then display exactly what the user needs to see first time, every time. The user can even define multiple views for each recipe, and display different view types and data sources at once.

## 9.1 - View types

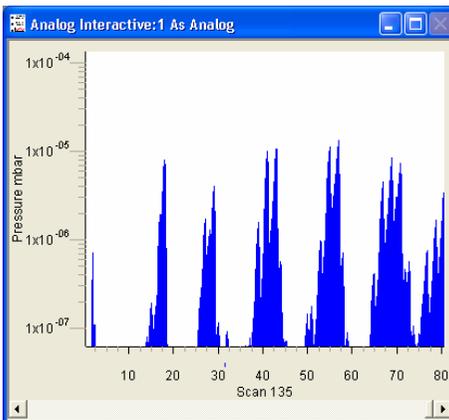
Views come in two different types.

The first type is a **Swept Measurement View**. This is a display of partial pressure versus mass.

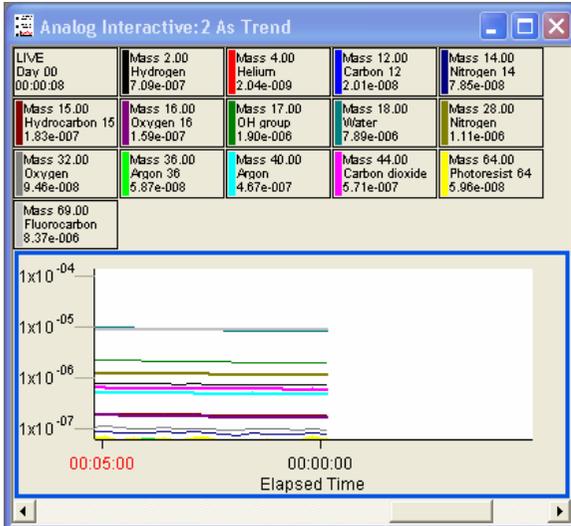
There are basically two types of swept measurement view, the **Bar chart** shown below, where there is a single bar shown per mass.



And the **Analog** view, where there are a number of bars per mass, giving a pseudo-analog view.



The alternative is the **Trend** view, where a variable versus time can be plotted.



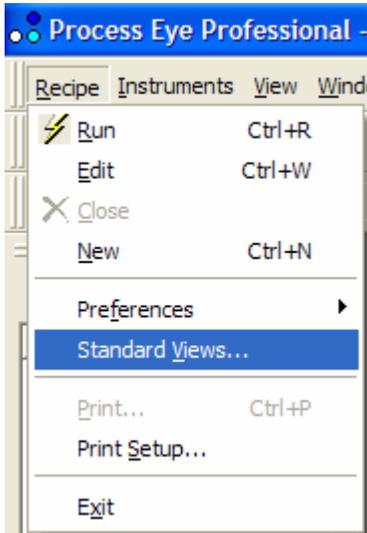
This type of view is more flexible as the data plotted is not necessarily partial pressures, any user variable can be plotted on trend.

## 9.2 - Creating Views in View Manager

View Manager is Process Eye Professionals central view management system. All views are created, edited, imported, or deleted through View Manager, regardless of their type or function.

It can be used to set a default view style, or create new views for specific applications or processes.

The **View Manager** feature can be started from the **Recipe** pull-down menu and selecting **Standard Views**.

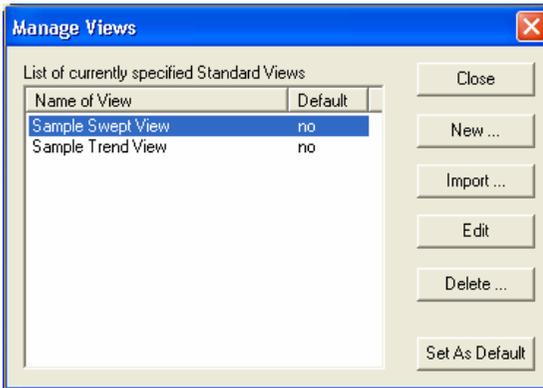


## 9.3 - Creating a New Swept Measurement View

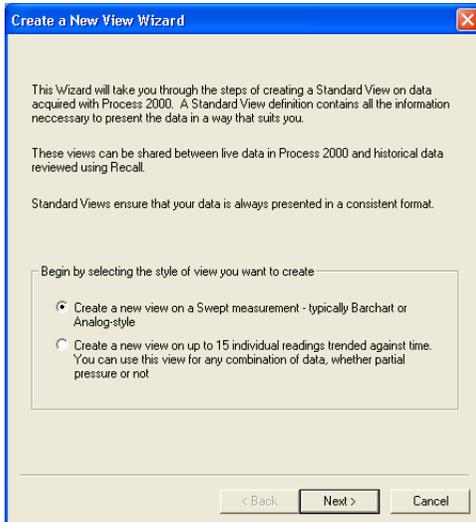
A swept measurement view can only be associated with swept data acquisitions e.g. Analog or Bar chart measurement.

It cannot be associated with either a Peak Jump or a Leak Check measurement.

The View Managers start page gives details of the current views registered in Process Eye. To create a new view, click on the **<New>** button.

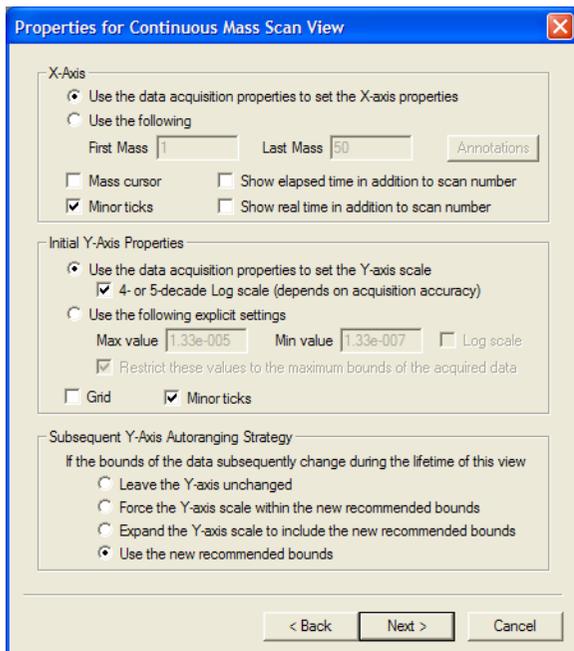


The "Create New View Dialog" appears.



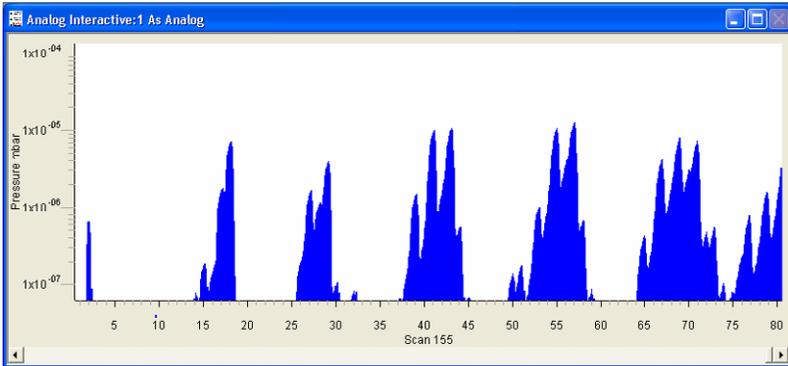
Click on the radio button next to **Create New View on a Swept Measurement** and then click the **<Next>** button.

The "Properties for Continuous Mass Scan View" dialog appears.



You may change the properties on this page to customize the views that you create. For an explanation of these properties, see Section 9.4.

The above picture shows the default properties that can be used to create the following default view.



In this view, the first and last masses measured are shown on the X-axis along with the scan number.

The four-decade, logarithmic Y-axis, displays the unit of pressure (user defined in preferences, see Section 13) and the full-scale pressure for the current data acquisition setting. Minor ticks are also displayed.

## *9.4 - Explanation of the Properties Settings*

The following section outlines the various changes that can be made to views using the "Properties for Continuous Mass Scan View" dialog. We will look at each function in turn.

### **X-Axis**

Checking the **Use the data acquisition properties to set the X-axis properties** button creates a view with the X-axis properties governed by the measurement on which the view has been based.

For example, if the view was based on a Bar chart scan, measuring from mass 5 up to mass 45 then this view will show mass 5 to mass 45 along the X-Axis.

Checking the **Use the following** bases the X-axis range on the values entered in the text boxes, with the following limitations.

Although you can choose not to display masses that are being measured, you cannot choose to display masses that are not being measured.

For example, you create a Bar chart measurement scanning from mass 5 to 45, you can base a view displaying from mass 10 to 40, but not from mass 5 to 50. If this is attempted, the view will revert to displaying the measurement's range

**Mass Cursor** check box has no function, this has been superseded by the Mass Cursor button found on the tool-bar.

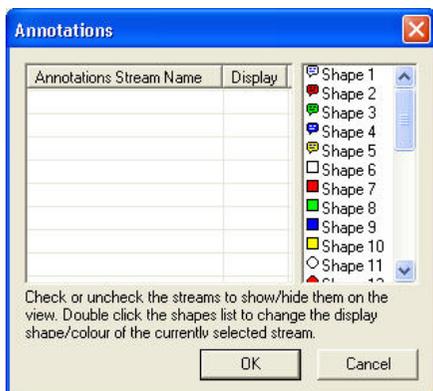
**Minor Ticks** displays minor ticks on the X-axis.

**Show elapsed time in addition to scan number** displays the elapsed time from the start of the recipe.

**Show real time in addition to scan number** displays the real time, governed by the PC clock.

Both the above options cannot be enabled at the same time.

To edit the Annotations icon click on **<Annotations>**



Any annotation streams defined in the recipe will be listed, check the display box to show the annotation on the view. To change the icon, select one of the shapes from the list.

Click **<OK>** to return to the properties page

### Initial Y-axis Properties

On a swept measurement, the Y-axis is always shown as pressure, the units of which are determined in the Process Eye preferences, Section 13.

**Use data acquisition properties to set Y-axis properties** creates a view with the Y-axis properties governed by the measurement on which the view is based.

**4- or 5- decade log scale** changes the Y-axis from a linear scale with its origin at zero, to a logarithmic scale with a minimum dependant on the accuracy of the measurement. The higher the accuracy, the lower the minimum pressure will be displayed.

**Use the following explicit settings** enables the maximum and minimum displayed pressures to be entered manually. The display can be either linear or logarithmic determined by the check box.

**Restrict these values to the maximum bounds of the acquired data** causes the Y-axis maximum pressure setting, to be governed by the maximum pressure obtained from the measurement associated with the view.

**Note:** You cannot display zero or negative values in logarithmic mode.

**Grid** displays a horizontal grid, aligned with the ticks of the Y-axis.

**Minor Ticks** displays minor ticks on the Y-axis.

### **Subsequent Y-Axis Auto-Ranging Strategy**

If a view's Y-axis limits are based on an "interactive" measurement then these limits can be changed during the lifetime of the view.

Three options determine how the axis will react to changes in the measurement such as electronic gain range or detector changes for example.

**Leave the Y-Axis unchanged** leaves the Y-Axis settings unchanged when the measurement changes. The settings will be based on the measurement when the view is loaded.

**Force the Y-Axis scale within the new recommended bounds** changes the Y-Axis settings to match the new measurement settings.

**Expand the Y-Axis scale to include the new recommended bounds** changes either the maximum or the minimum Y-axis settings to incorporate the new settings.

For example if you increase the electronic gain, the minimum displayed pressure would be changed to match the smaller pressure that could now be measured. The maximum pressure displayed would remain the same. If the electronic gain was then reset to its previous value, the Y-Axis would not change.

Once the changes to the view settings are complete, the view can be saved. Click on the **<Next>** button to bring up the "Save View" dialog box.

## 9.5 - Saving a Swept Measurement View

To be able to use the view later, it must first be saved.

The following section will describe the naming of the file, display name and save locations.

The "Save View" dialog.

Save View

Overall modifications to the display

None  Background subtract  
 Standard deviation  Background ratio

Filename

Optional Screen title to be displayed above view

Name by which this view will be known in the List of Views

Test Swept View

Disk Filename

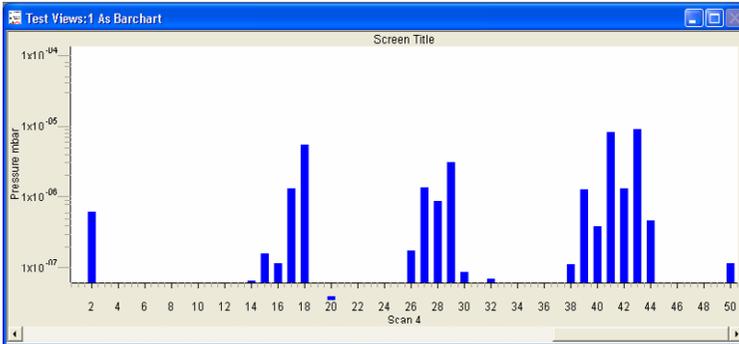
C:\Documents and Settings\LAB017\My Documents\Process Eye 2000\View ...

< Back Finish Cancel

Type in a name for the view, by default, the file that will store the properties is given the same name with a \*.SI-v extension.

If you want to give the file a name, that is different to the name of the view, click on the file **<Browse>** button and manually rename the file.

If you want a caption to appear on the graph as a title, type it in the **Optional Screen Title** text box.



If you select to make a trend view, the trend view properties dialogs will appear.

**Note:** If you edit a currently existing view, and change the name in the **Name by which this view will be known in the list of views** text box, the file name will not automatically be changed to match the list name. Unless you click on the **<File browse>** button and change the name of the file, you will overwrite the currently existing view that you are editing and the original view will be lost.

## 9.6 - Trend Views

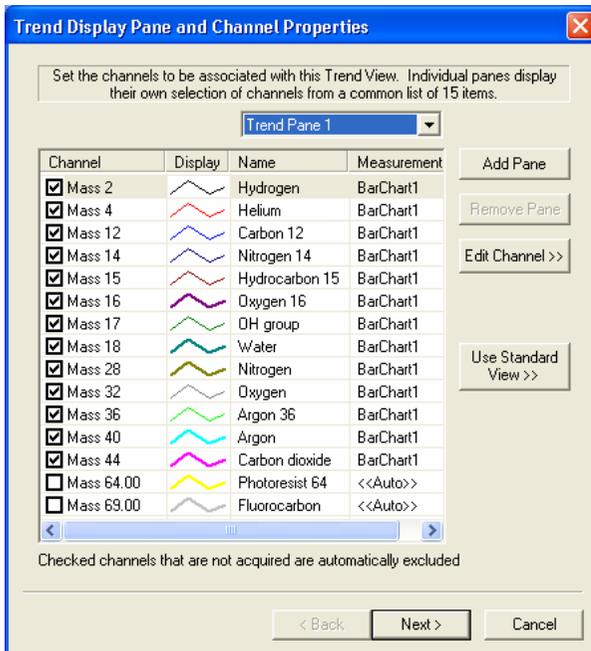
A trend view can be associated with any measurement. Along with the RGA data, it is also possible to display signals from the analog / digital inputs and other user variables. The only limitation is that the X-axis is always time.

### 9.6.1 - Creating a Trend view

After selecting **Create a trend view** in the **Create view** wizard page, the following "Trend display and channel properties" dialog is displayed.

The first page is the channel setup page, by default, 13 of the 15 masses are enabled. You can enable or disable channels by checking the box next to the channel.

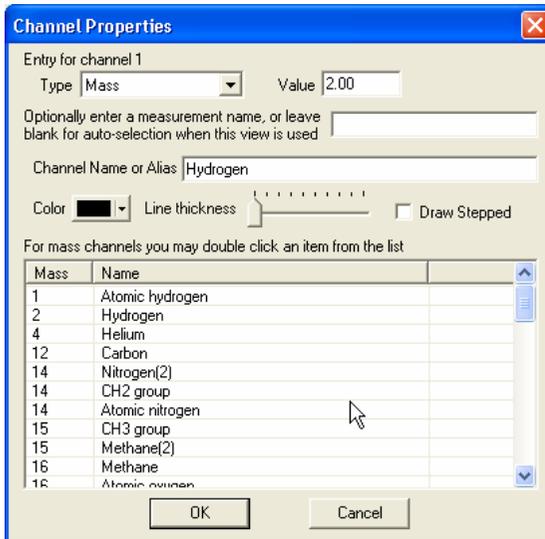
Clicking on the use standard view will set the channels to be the same as those in the default trend.



## 9.6.2 - Editing a Trend Channel

You can edit a channel either by double clicking it, or by highlighting the channel and then clicking the edit channel button.

This will bring up the "Channel Properties" dialog, which allows each channel to be set-up independently.



### Type



The channel can be one of two types selected from the pull-down list.

A **mass** type channel, is a partial pressure measurement of a mass scanned by one of the measurements in a recipe

A **channel** type channel is any channel other than the channel defined in the recipe. These channels are user variables that can be defined either in the recipe wizard, or through script and are not necessarily partial pressures.

The associated list of known gases relating to mass numbers is contained in the text file **C:\Program Files\Spectra\RGAAplications\Workstation\Common Gases.txt**". This may be edited or added to in order to give an accurate description of the users system.

## Editing a mass channel

If the channel type selected is **Mass**, there are a number of ways of editing the channel. One way is to select one of the pre-defined channels in the selection table.

Mass	Name	
1	Atomic hydrogen	
2	Hydrogen	
4	Helium	
12	Carbon	
14	Nitrogen(2)	
14	CH2 group	
14	Atomic nitrogen	
15	CH3 group	
15	Methane(2)	
16	Methane	
16	Atomic oxygen	

Clicking on one of the lines will set the mass value and channel name. Alternatively, you can type in the value of the mass you wish to display in the **Value** text box.

Value

Then type the name that you wish to appear on the trend key in the **Channel name or alias** text box.

Channel Name or Alias

If you leave this box blank the channel name will be displayed as "Mass ??.??" where "??.??" is the value entered in the **Value** text box.

The measurement name is the name of the measurement that you want to use to provide the partial pressure data. If the box is left blank, the measurement selection will be **Auto**.

Optionally enter a measurement name, or leave blank for auto-selection when this view is used

This does not mean that the best data will be selected, only that the software will look for a mass with the value entered for each measurement in the measurement list. The first measurement that contains this mass value will be the one that is used.

For example, you have two Bar chart measurements, Bar chart 1, that is a mass 1 to 50 Faraday measurement and Bar chart 2, which is a mass 1 to 100 multiplier measurement.

If the channel has a mass value of 4.00, the data would be taken from Barchart1 because that is the first measurement that contains a mass with a value of 4.00. This will be true, even if the peak height on mass 4 is so small that it is lost in the noise level and mass 4 in multiplier is a good stable peak.

If the value is mass 84 the data would be taken from Barchart2, even if the peak is so large it is off-scale. This is because Barchart2 is the first measurement that contains mass 84.

If the measurement name entered is not a valid measurement name in the current recipe, then the measurement selection defaults to auto.

### **Editing a user channel**

If the channel type is set to **Channel** then the **Value** box is greyed out, as these channels are variables defined by their names.

The channel will be selected based on the name in the **Channel Name** text box and the measurement name in the **Measurement Name** text box.

The measurement name is the name of the measurement that you want to use to provide the data. If the box is left blank, the measurement selection will be **Auto**.

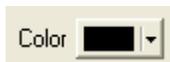
This does not mean that the best data will be selected, only that the software will look for a variable name with the same name as that entered in the **Channel Name** text box, in each measurement in the measurement list.

The first measurement that contains this mass value will be the one that is selected.

For most channels, the measurement name for user variables will be **UserMeasurement**.

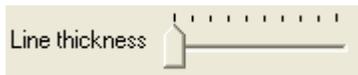
## Editing the channel display

To change the colour of a trend line, click on the **Colour** list box.



This will bring up a standard Windows colour selection dialog, where you can choose a new colour.

To change the thickness of the displayed line, move the slider on the **Line Thickness** control.



Moving the slider to the right increases the thickness.

Channel	Display	Name	Measurement
<input checked="" type="checkbox"/> Mass 2.00		Hydrogen	<<Auto>>

Moving the slider to the left decreases the thickness.

Channel	Display	Name	Measurement
<input checked="" type="checkbox"/> Mass 2		Hydrogen	BarChart1

The **Draw Stepped** check box can be used when displaying digital information on a trend.

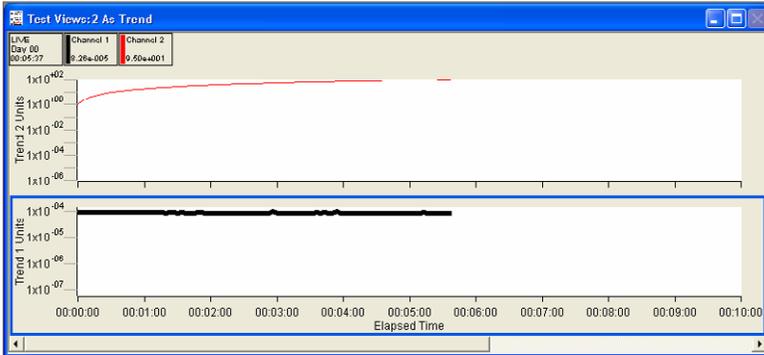


Instead of each point on the trend being joined by a straight line, the points are joined only by horizontal and vertical lines. The data is forced to be a value of either zero or one. This feature is particularly useful for displaying digital channels on a trend.

Channel	Display	Name	Measurement
<input checked="" type="checkbox"/> Mass 14.00		Atomic nitrogen	<<Auto>>

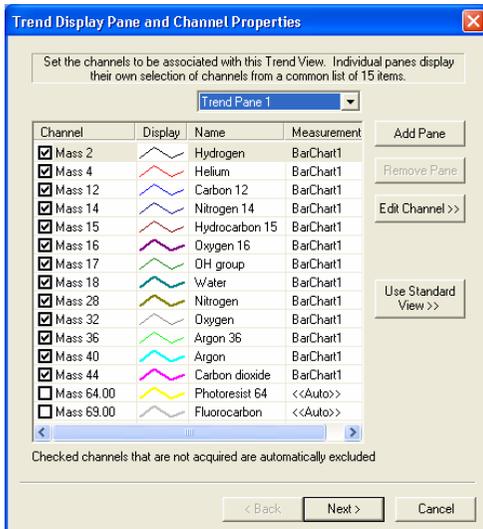
## 9.6.3 - Adding a Trend Pane

Although you cannot define multiple Y-Axis scales to allow you to display different data on the same trend, you can create multiple trend panes, which allow you to display a number of different Y-Axis on the same trend.



This is a 2-pane trend with channel 1 displayed on trend pane 1, with its own measurement units and channel 2 displayed on trend pane 2 with different measurement units.

On the "Trend display pane and channel properties" dialog, click on the **<Add pane>** button to add a new pane.



The settings for each pane can be modified. Select the pane that you wish to edit from the Trend Pane Pull-down list box



The two-pane view at the start of this section was created in the following way.



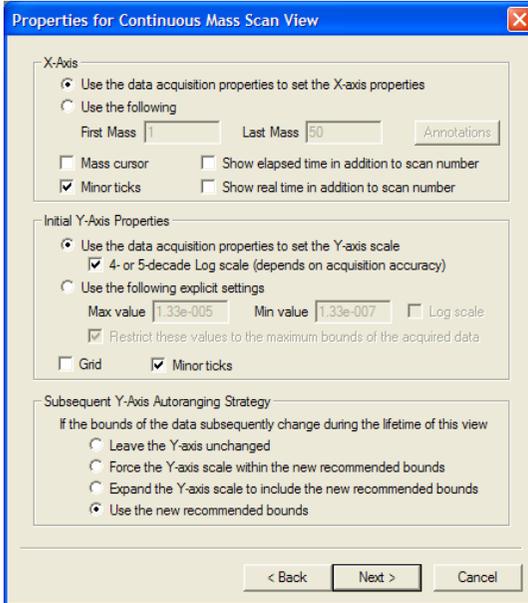
Channel 1 was enabled on trend pane 1



Channel 2 was enabled on trend pane 2

## 9.6.4 - Configuring the Trend's Y-Axis

Once the channels have been set, click on the **<Next>** button. This will bring up the Y-axis dialog box.



Each trend pane can have a different Y-Axis setup. To set up each pane, select the pane you want to edit from the trend Pane pull down list box.



### Y-Axis Scale Properties

The scale can be set in a number of ways.



If you select the above option, the scale will be defined by the measurements that the displayed channels use. For the **Usermeasurement** measurements, this is a scale between 100 and 1E-6. The check box will change the scale between linear and log.

Use the following explicit settings

Checking the above will allow you to set the maximum and minimum limits on the Y-axis manually.

Max value

0.000133

Enter the maximum value you want to display.

Min value

6.35e-008

Enter the minimum value.

Log scale

To display a Log scale, check the box.

Note: The software cannot display negative numbers or zero when set to Log scale.

Units of pressure

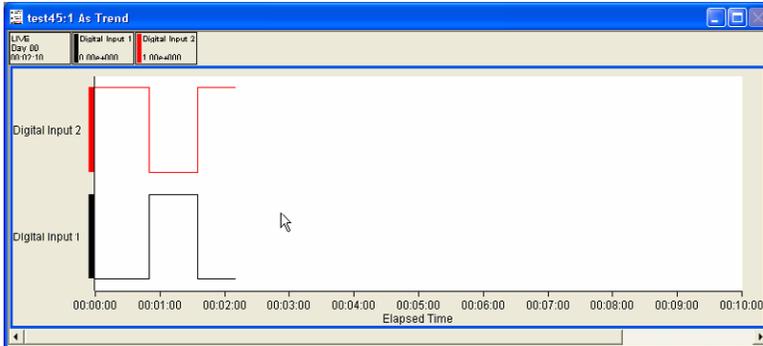
If the **Units of pressure** check box is enabled, the axis will change scale if the units are changed in preferences.

Restrict these values to the maximum bounds of the acquired data

If the above option is checked, the scale will be limited by the maximum bounds of the measurements being used. For example, if the only data to be displayed are mass channels from Barchart1, the limit of the maximum value you can have will be the full-scale pressure on Barchart1.

Stack channels of digital data

With this option selected, the Y-axis does not have a scale as such. All enabled channels are given a value of either zero or one and are then plotted against their channel name.



This option is only useful for displaying digital data. In the above example, there are two digital input channels with both channels configured to **Draw stepped**".

## Y-Axis General Properties

Grid

Enabling the grid check box will draw a horizontal grid on the trend.

Y-axis Minor ticks

Enabling the minor ticks check box will display minor ticks. If the grid is enabled you will also get grid lines for the minor ticks.

Y-axis Title

Enter a label for the Y-axis in this text box.

Percentage of total window height for this pane

If there is only one trend pane on the trend this box is set to 100% and grayed out.

Percentage of total window height for this pane

If there is more than one trend pane, you can set the proportion of the trend window that the particular pane will occupy.

## Y-Axis Auto-range Properties

- Leave the Y-axis unchanged
- Force the Y-axis scale within the new recommended bounds
- Expand the Y-axis scale to include the new recommended bounds

If the view uses an interactive measurement to set the Y-Axis limits, then those limits can change during the lifetime of the view. Changing the electronic gain, or type of detector for example.

You can therefore select one of three options to control how the view will react to a change in the measurement.

**Leave the Y-Axis unchanged** leaves the Y-Axis settings unchanged when the measurement changes. The settings will be based on the measurement settings when the view is loaded.

**Force the Y-Axis scale within the new recommended bounds** changes the X-Axis settings to match the new measurement settings. What you will see would be the view that would have been created if the current settings were the ones that existed when the view was created.

**Expand the Y-Axis scale to include the new recommended bounds** changes either the maximum or minimum Y-axis setting to incorporate the new settings.

For example if you increase the electronic gain, the minimum displayed pressure would be changed to match the smaller pressure that could now be measured. The maximum pressure displayed would remain the same. If the electronic gain was reset to its previous value the Y-Axis would not change.

## Configuring the trend time axis

Click on **<Next>** to bring up the “Time axis and legend properties” dialog.

Time Axis Display and Legend Properties

Each pane shares a common set of properties for the Time Axis

Time Axis

Display clock time

Display elapsed time

Scroll display

Clock start: 15/10/2003 11:48:28

Elapsed start: 0 dd 0 hh 0 mm 0 ss

Span: 0 dd 0 hh 10 mm 0 ss

Display days

Minor time ticks

Annotations

Elapsed Time Origin

View creation time

Time of my choice: 30/12/1895 00:00:00

Specific data source start time: BarChart1

Key Legend

Hide Legend

Table View

Save all the settings as a new or modified view definition

< Back Finish Cancel

## Time axis properties

Clock start: 23/07/2002 15:16:23

To make changes to this property, you will need to edit the trend whilst it is running.

Display clock time

This option will display the time axis using real time as calculated by the PC clock.

Display elapsed time

This option will display the time axis as an elapsed time. The origin of the elapsed time will depend on how the time origin is defined.

Elapsed start  dd  hh  mm  ss

This is the offset from the elapsed time origin that the time axis will start to display.

Span  dd  hh  mm  ss

This is the amount of time that will be displayed on screen; in this case the last 10 minutes of data will be displayed.

Scroll display

When checked the trend will scroll to keep the latest data displayed. If not checked the trend will only display data for the first X minutes. Where X is the number of minutes set in the span.

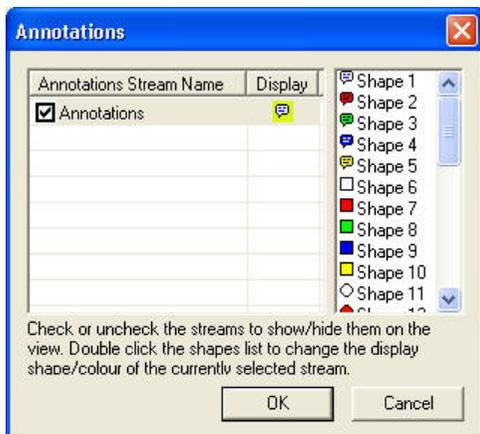
Display days

When checked the time axis will display the number of days the trend has been running for as well as the time.

Minor time ticks

When checked the time axis will display minor ticks.

To edit the Annotations icon click on **<Annotations>**



Any annotation streams defined in the recipe will be listed, check the display box to show the annotation on the view. To change the icon, select one of the shapes from the list.

Click **<OK>** to return to the properties page

### Elapsed time origin properties

View creation time

With this option checked, the origin of the elapsed time is the time when the view was created.

Time of my choice: 14/08/2002 16:01:06

This option is only available when editing a live trend.

Specific data source start time: [Text Box]

This option will set the elapsed start time origin to be the time that a measurement was created. Type the name of the measurement in the text box.

## Key Legend properties

Hide Legend

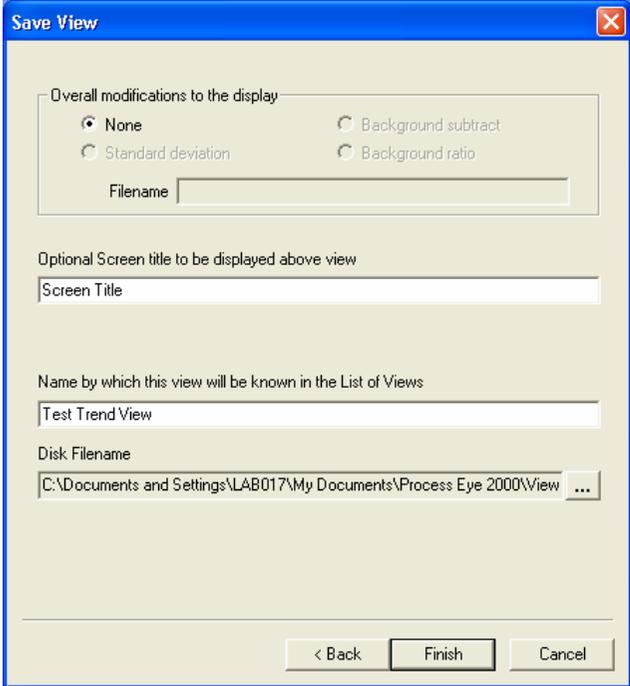
Checking this box will remove the key legend from the trend.

Table View

Checking table view will position the key legend to the left of the trend. If left unchecked, the legend will appear above the trend.

## 9.6.5 - Saving a Trend

Clicking on the **<Next>** button, will bring up the "Save View" dialog box.



The "Save View" dialog box is a standard Windows-style window with a blue title bar and a close button in the top right corner. It contains several sections for configuring a saved view:

- Overall modifications to the display:** A group box containing four radio buttons: "None" (selected), "Standard deviation", "Background subtract", and "Background ratio". Below these is a text field labeled "Filename".
- Optional Screen title to be displayed above view:** A text field labeled "Screen Title".
- Name by which this view will be known in the List of Views:** A text field containing "Test Trend View".
- Disk Filename:** A text field containing "C:\Documents and Settings\LAB017\My Documents\Process Eye 2000\View" followed by a file browse button (three dots).

At the bottom of the dialog are three buttons: "< Back", "Finish", and "Cancel".

Overall modifications to the display are not allowed at this time.

The optional screen title will be displayed above the trend, simply type the required caption into text box.

To save the view, give the view a name, by default the file that will store the properties is given the same name with a \*.SI-v extension. If you want to give the file a name that is different to the name of the view, click on the file browse

**Note:** If you edit a currently existing view and change the name in the **Name by which this view will be known in the list of views** text box, the file name will not automatically be changed to match the list name. Unless you click on the file browse button and change the name of the file, you will overwrite the currently existing view that you are editing and the original view will be lost.

## 9.6.6 - Using the Properties Dialog

A "live" view can be edited either by right clicking on the view itself, or by clicking on the **<Properties>** button.

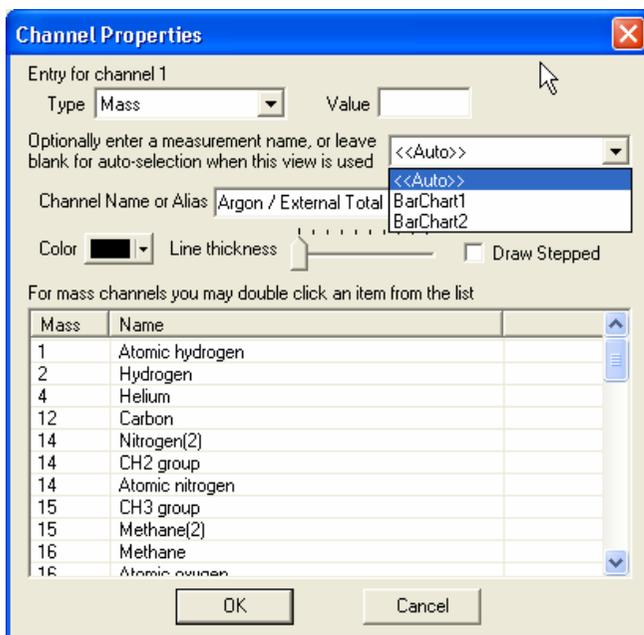


This will bring up the **Editing Pages** that you see when using View Manager. The editing page for a "swept view" works exactly the same way as described in the section **Creating a Swept Measurement**.

There are a number of differences in the behaviour of these pages however, when editing a trend.

This is mainly because the recipe is running and the Process Eye software is aware of what measurements and user channels exist.

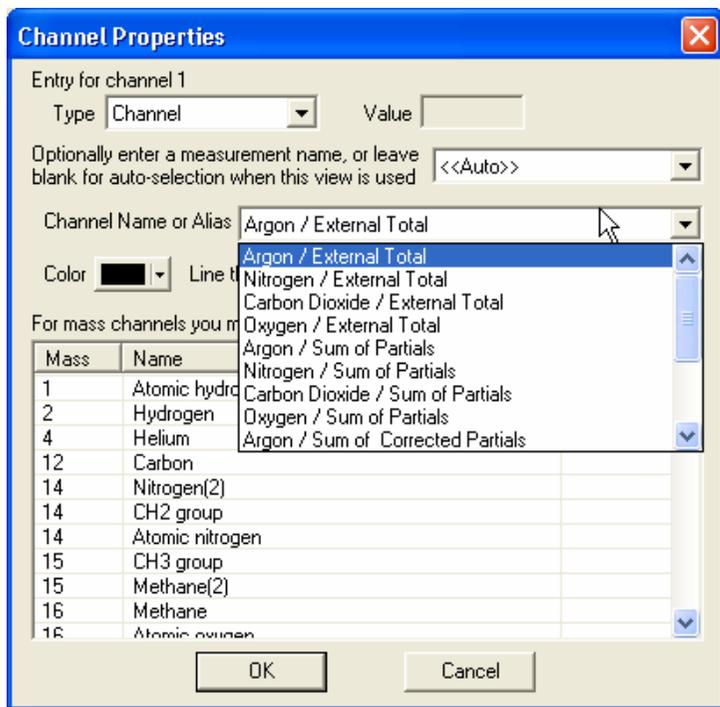
Therefore, the **Measurement Name** changes from a text box to a list box, with the measurements in the current recipe.



As you can see above, there are only measurements in this recipe. When **Mass** is selected as the channel type, the only options are **Auto**, **Barchart1** and **Barchart2**.

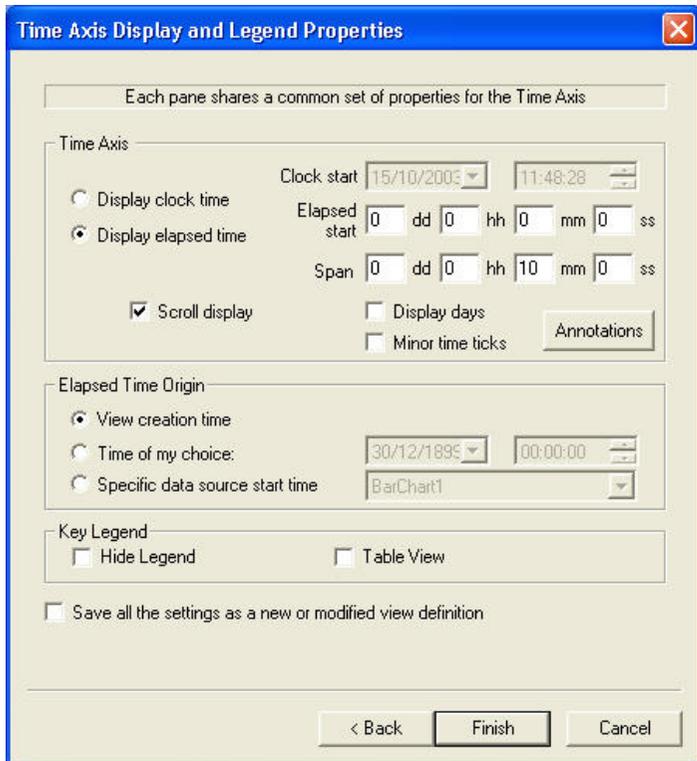
If the channel type was changed to **Channel**, the measurement type options are reduced to either **Auto** or **Usermeasurement**.

With the channel type set to **Channel** as in the example below, the channel name also becomes a list box with the user channels defined in the recipe as the contents.



The Y-Axis page behaves in exactly the same manner as when editing in view manager.

The time axis page however behaves slightly differently.

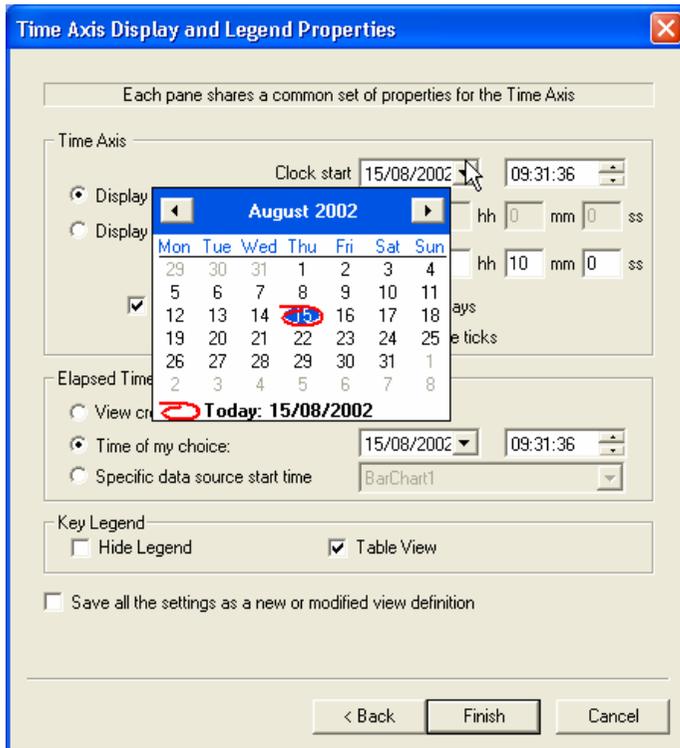


With **Display Clock Time** selected, the **Clock Start** feature is now available.

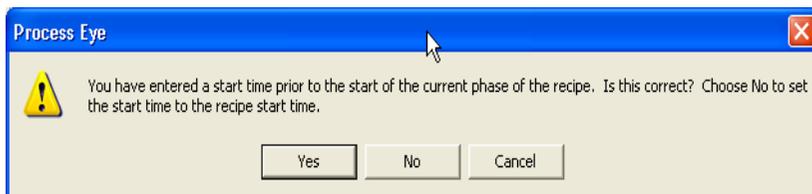


The time displayed will be the current time at the origin of the X-axis. You can enter a new time and date for the X-axis origin, however if you have **Scroll Display** enabled, the time origin will be reset at the end on the next scan.

To change the date, click on the **Clock Start** pull down, the “Calendar” dialog will appear. Select the required date from the calendar pages.



If you enter an X-axis start time, that is before the recipe started to scan, you will see the following dialog box.



If you click the **<Yes>** button, the trend will start in the middle of the time axis as shown in the following example. If you click **<No>** the trend will start at the beginning of the time axis which will correspond to the start time of the recipe.

The elapsed time origin **Time of my choice** feature is also available.



You can set the origin to be any time you require, the elapsed time displayed becomes the time that has elapsed from this point.

If you make your changes and then click the **<Finish>** button now, the changes would be made for the current view but when the recipe is restarted, these changes will be lost and the trend properties will return to the previous settings. To avoid this, save the settings you have made.

To save the new settings, check the save settings box.



This will then bring up the "Save View" dialog as before.

## 9.6.7 - Editing a Live Trend

Trend views can be changed by using the following toolbar buttons. These buttons will only affect the currently active view. Alternatively, right-clicking the 'Trend', will show the "View Properties" dialog.



**Minor Ticks** turns minor ticks on or off for the Y-axis.



**Grid** turns the grid on and off for the Y-axis.



**Log/Lin** changes between log and linear mode for the Y-axis.



**Display Days** switches on and off the **Display Days** function.



**True/Elapsed Time** switches between displaying the **Real Time** and the **Elapsed Time**.



**X-Axis Minor Ticks** turns minor ticks on and off for the X-axis.



**X-Axis Scroll Bars** turns scroll bars on and off for the X-axis.



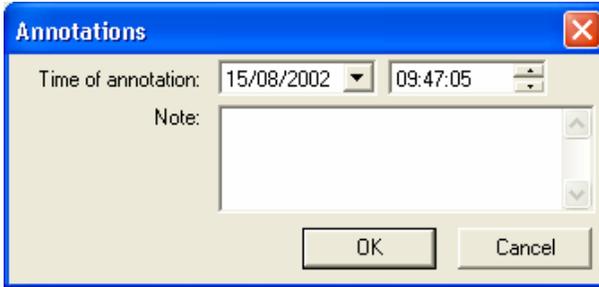
**Legend Key** makes the legend key visible or invisible.



**Table View** moves the legend key either to the left of the trend or above the trend.

## 9.6.8 - Adding Annotation to a Trend

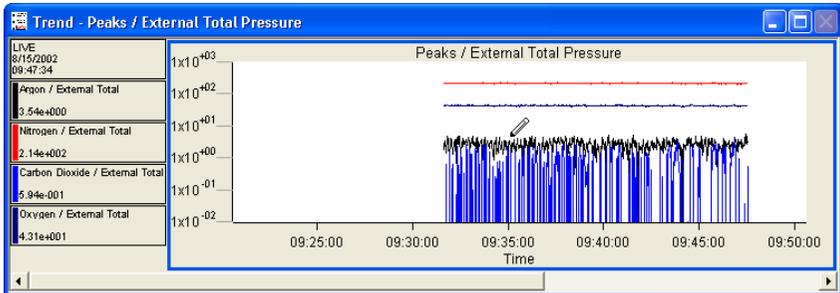
To add annotations, click the **<Annotation>** button, this will open the "Annotations" dialog box.



Here you can enter text into the **Note** text box, when your annotation is complete, press the **<OK>** button.

By default, the time of annotation will be the current time, although you can select a new time, by using the **Time** and **Date** list boxes.

To add an annotation to an individual trend line, click the **<Trend Annotation>** button, this changes the cursor to a pen.



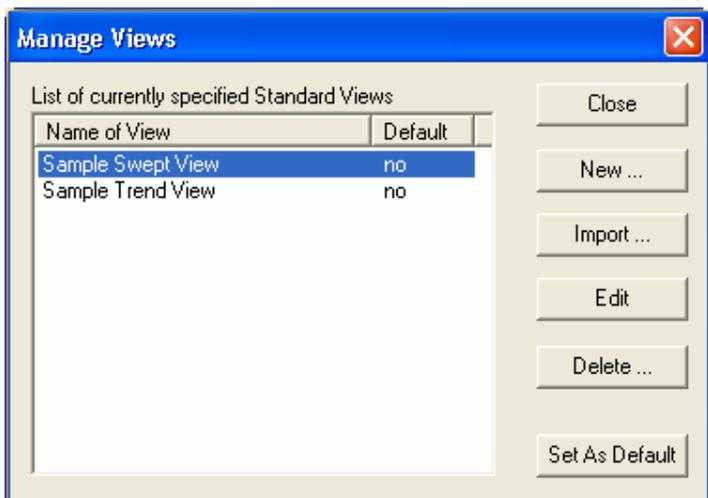
You can move the cursor along the trend line, until the event that you want to annotate has been selected. Clicking on the trend at this point will bring up the annotation dialog, but now the time will be set to the time at that position on the trend.

Currently, the only way to view these annotations is to recall a saved file with annotations, and then save this file as a text file.

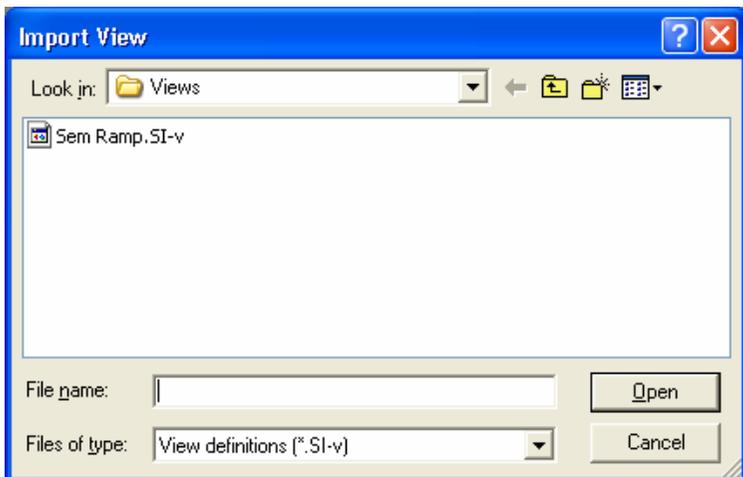
The annotations cannot be viewed in any of the Process Eye programs.

## 9.7 - Importing a View

To import a view, select **<Import>** in the “Manage Views” dialog.



The “Import view” dialog appears.



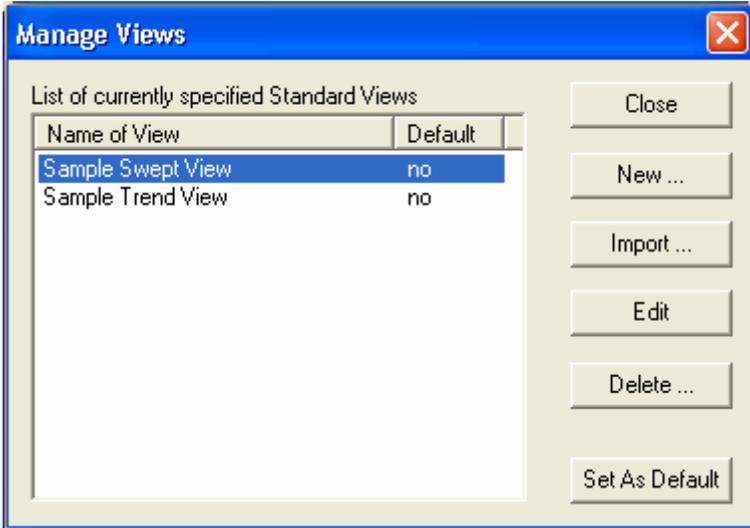
Browse to the view definition file (\*.SI-v) that you want to import and click the **<Open>** button.

This will then take you through the **View Creation Wizards** as described earlier, but with the various settings already filled in with the settings from the imported file.

On the save page, you can either keep the same **List Name** and **File Name**, in which case a copy of the definition file will be generated in the Process Eye Professional\Views directory,

**Note:** If the file is already in this directory, then it will be overwritten or you can choose to change either the list name, or the file name.

## 9.8 - Editing a View in View Manager

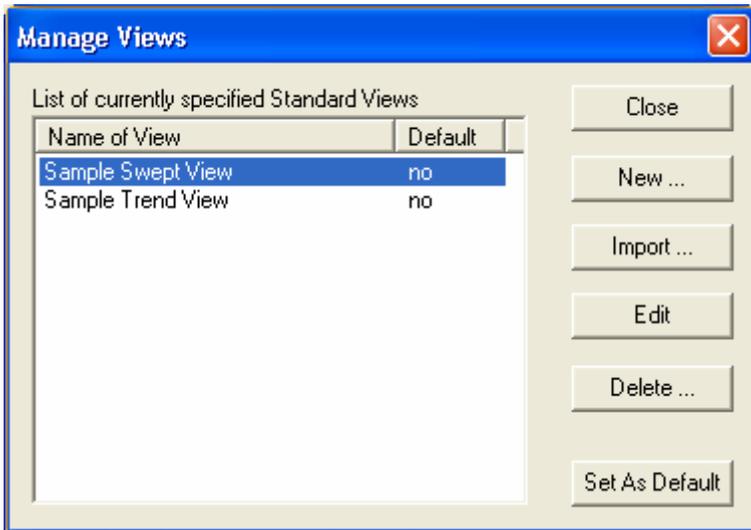


Select the view that you wish to edit from the “Manage Views” dialog, and click the **<Edit>** button.

This will take you through the **View Creation Wizards** described earlier, but with the various settings already filled in with the original settings from the view.

On the save page you can then either keep the same **List Name** and **File Name**, in which case the original file will be overwritten, or you can choose to either change the **List Name** or the **File Name**.

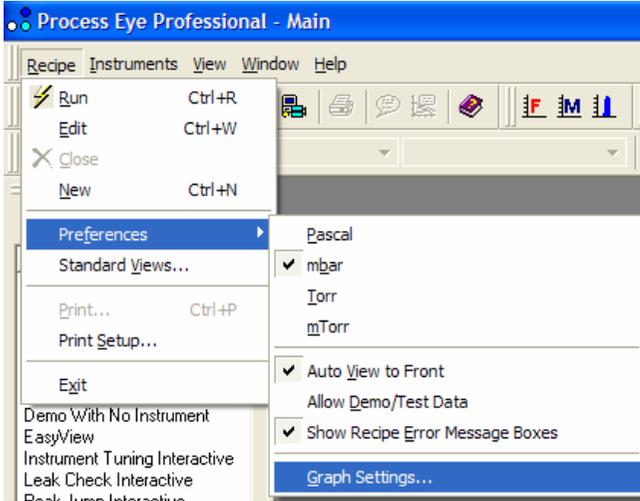
## 9.9 - Delete a View in View Manager



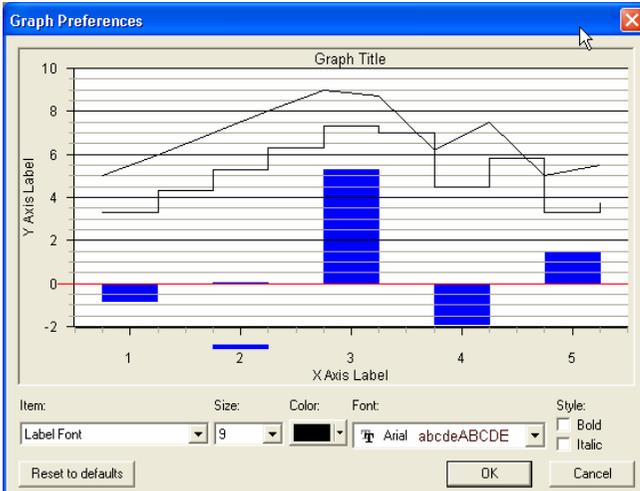
Select the view you wish to delete in the “Manage Views” dialog, and click the **<Delete>** button.

## 9.10 - View Global Properties

You can set the global properties of the views from the "Graph Settings" under **Preferences**.



The "Graph Preferences" dialog appears.

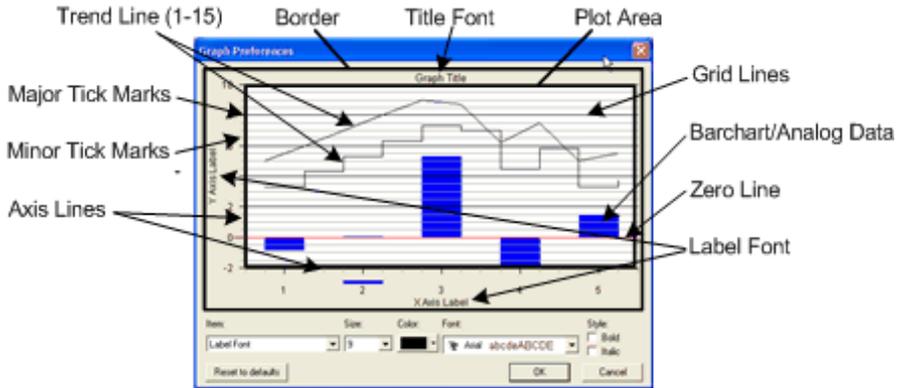


Here you can manipulate the various options used in the graphs, size, colour, font and the style of each item.

The dialog changes to reflect any changes that are made.

Clicking on the **<Reset to Defaults>** button will return all the settings, to their factory defaults.

The following diagram shows all the options that can be set. If the properties cannot be changed for a selected item, they will remain "greyed-out".

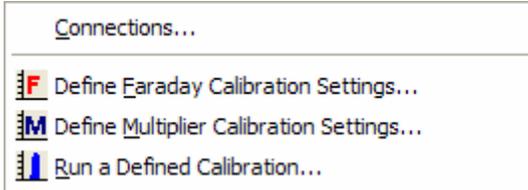


Trend Key Font (not shown)

## Section 10 - Other Menus

### Instruments Pull-Down Menu

The **Instruments** menu:



From this menu the Connections dialog can be accessed, and calibrations can be defined and performed.

### View Pull-Down Menu

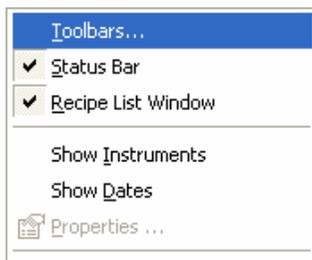
The **View** pull-down menu.



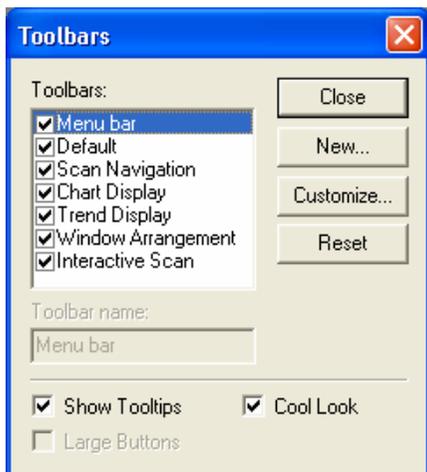
This menu can be used to set up the appearance of Process Eye.

## Toolbars

Selecting **Toolbars** from the menu,



Opens the "Toolbars" edit dialog.

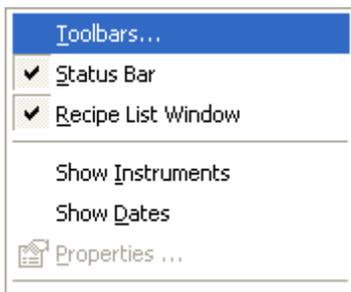


## The Status Bar

The **Status Bar** appears at the bottom of the screen.



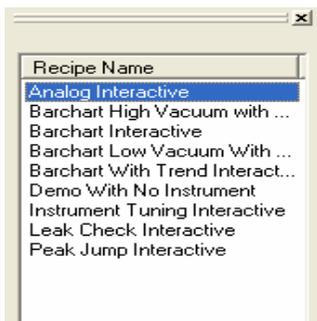
To make the Status Bar visible/invisible, click on the **Status Bar** item in the pull-down menu.



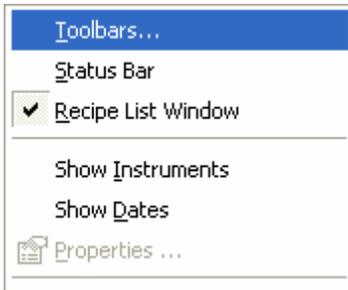
If a check is visible, then the Status Bar will be visible.

## Recipe List Window

The **Recipe List** window is the list of all the currently loaded recipes.

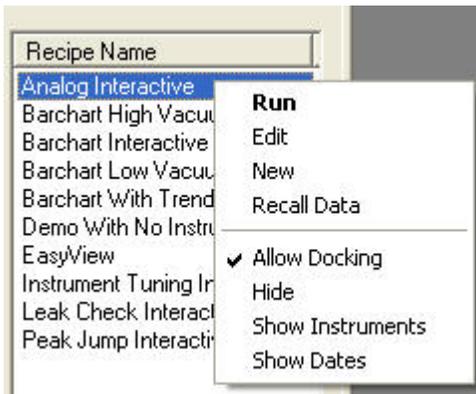


This window can be resized and is dockable, however if you close it, you can only bring it back using the view pull down list.



Check the **Recipe List Window** entry to make the recipe list visible or invisible.

Various functions are also available by clicking on a recipe in the recipe list window with the right mouse button.



Select **<Run>** to start this recipe.

Select **<Edit>** to use the Recipe Wizard to edit this recipe.

Select **<New>** to create a new wizard recipe.

Select **<Recall Data>** to open the Recall program in the directory associated with data stored in this recipe.

Select **<Allow Docking>** to make the recipe list dockable. If this selection is not checked then the recipe list behaves like a “daughter” window.



Select **<Hide>** to close the recipe list. It can then only be made visible by selecting **<Recipe List Window>** in the view pull down menu.

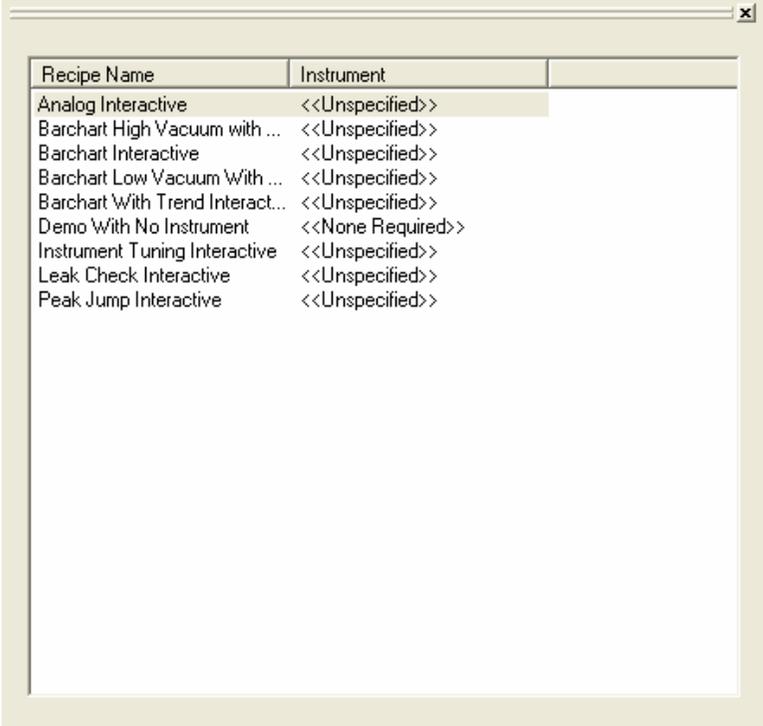
The show instruments and show dates functions have the same function as those in the view pull down menu, described below.

### Show Instruments

To show the instrument that a recipe is written for in the recipe list window, click on the Show Instruments Item in the view pull down menu.



The recipe list window will then display the instrument information.



Recipe Name	Instrument
Analog Interactive	<<Unspecified>>
Barchart High Vacuum with ...	<<Unspecified>>
Barchart Interactive	<<Unspecified>>
Barchart Low Vacuum With ...	<<Unspecified>>
Barchart With Trend Interact...	<<Unspecified>>
Demo With No Instrument	<<None Required>>
Instrument Tuning Interactive	<<Unspecified>>
Leak Check Interactive	<<Unspecified>>
Peak Jump Interactive	<<Unspecified>>

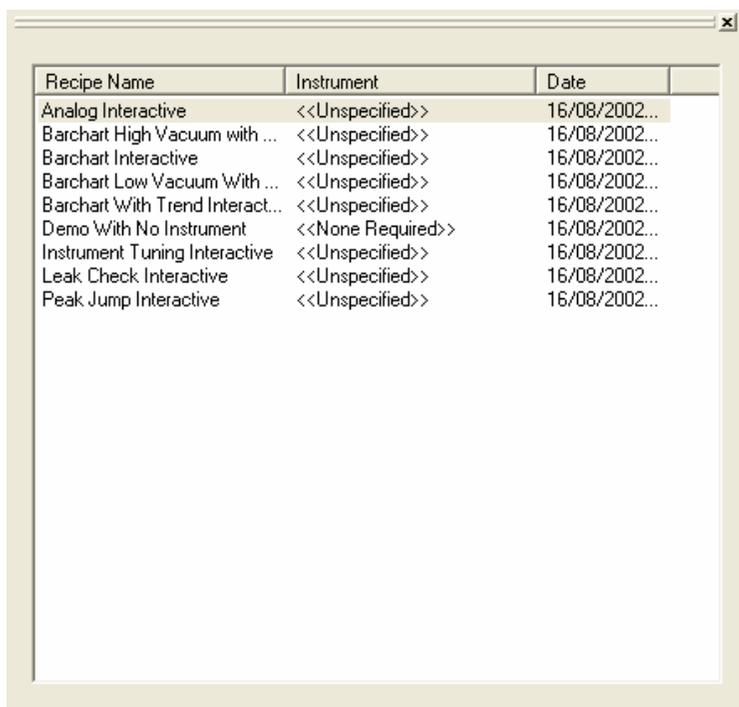
Generic recipes will have an “unspecified” instrument, recipes that do not use an instrument will have “None required” as the instrument. Otherwise the instrument details that the recipe was written for will appear.

## Show Dates

To show the date a recipe was created in the recipe list window, click on the **Show Dates** item the **View** pull down menu.



This will add dates to the recipe list window.



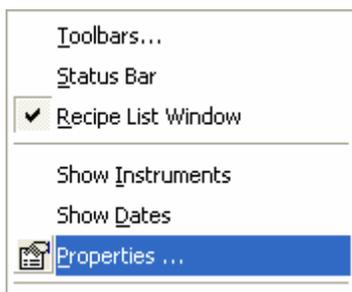
A screenshot of a window titled 'Recipe List Window'. It contains a table with three columns: 'Recipe Name', 'Instrument', and 'Date'. The table lists several recipes with their corresponding instruments and dates.

Recipe Name	Instrument	Date
Analog Interactive	<<Unspecified>>	16/08/2002...
Barchart High Vacuum with ...	<<Unspecified>>	16/08/2002...
Barchart Interactive	<<Unspecified>>	16/08/2002...
Barchart Low Vacuum With ...	<<Unspecified>>	16/08/2002...
Barchart With Trend Interact...	<<Unspecified>>	16/08/2002...
Demo With No Instrument	<<None Required>>	16/08/2002...
Instrument Tuning Interactive	<<Unspecified>>	16/08/2002...
Leak Check Interactive	<<Unspecified>>	16/08/2002...
Peak Jump Interactive	<<Unspecified>>	16/08/2002...

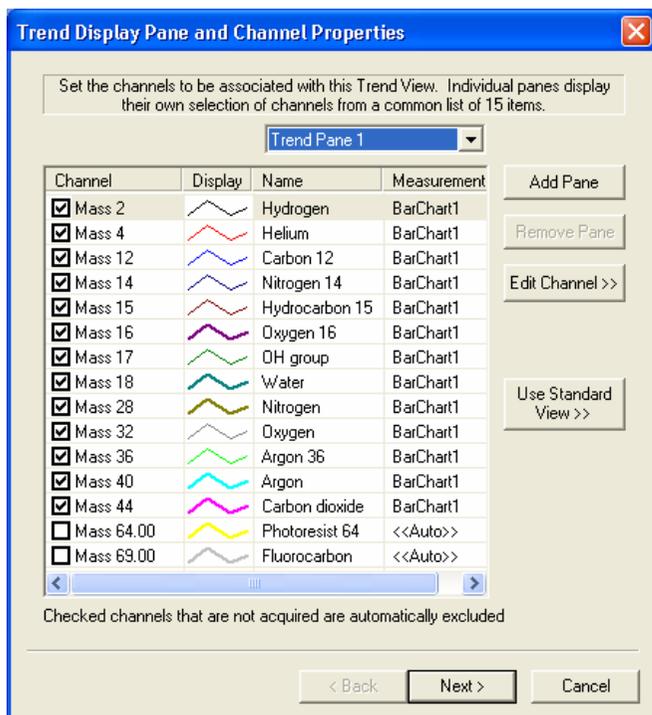
These are the dates the recipes were added to the list, or modified using the recipe wizard. If you modify just the script of the recipe, then the date is not updated.

## Properties

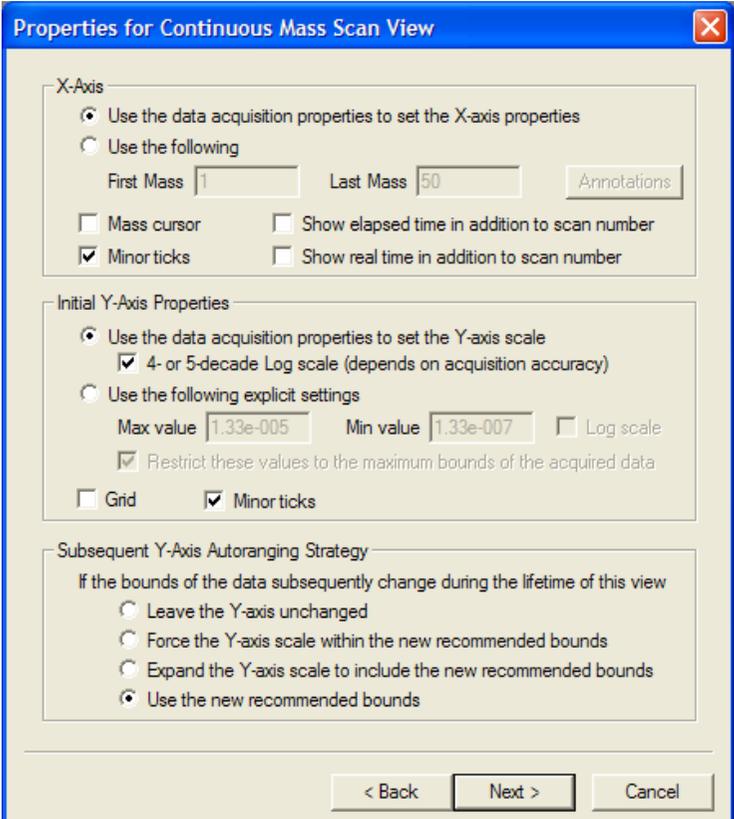
The **Properties** item will only be active if a recipe is running with a view loaded.



Click on the properties button to bring up the view properties of the active view. If the view is a trend, the trend properties dialog is displayed.



If the view is a swept measurement, the swept measurement view properties dialog is displayed.



The dialog box is titled "Properties for Continuous Mass Scan View" and contains three main sections for configuring the X-axis, initial Y-axis, and subsequent Y-axis autoranging strategy.

**X-Axis**

- Use the data acquisition properties to set the X-axis properties
- Use the following
  - First Mass:  Last Mass:  Annotations:
  - Mass cursor  Show elapsed time in addition to scan number
  - Minor ticks  Show real time in addition to scan number

**Initial Y-Axis Properties**

- Use the data acquisition properties to set the Y-axis scale
  - 4- or 5-decade Log scale (depends on acquisition accuracy)
- Use the following explicit settings
  - Max value:  Min value:   Log scale
  - Restrict these values to the maximum bounds of the acquired data
  - Grid  Minor ticks

**Subsequent Y-Axis Autoranging Strategy**

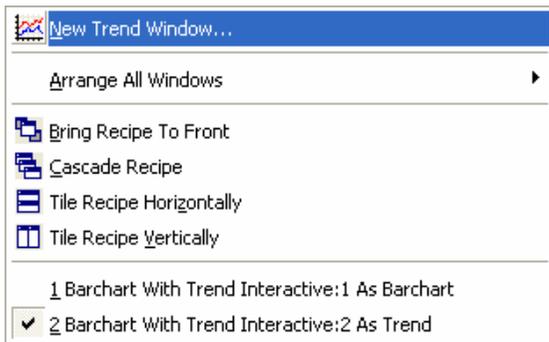
If the bounds of the data subsequently change during the lifetime of this view

- Leave the Y-axis unchanged
- Force the Y-axis scale within the new recommended bounds
- Expand the Y-axis scale to include the new recommended bounds
- Use the new recommended bounds

Navigation buttons: < Back, Next >, Cancel

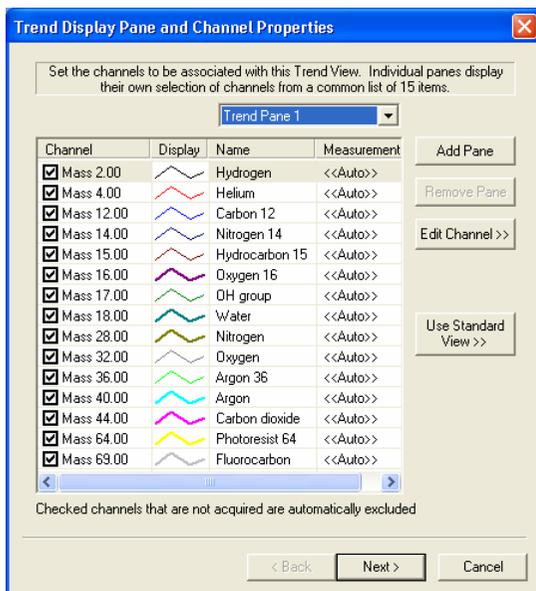
## Window pull down menu

The **Window** pull-down menu is where you can add a new trend view or arrange the view windows you already have.



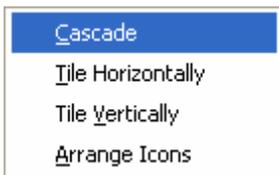
## New Trend Window

Clicking on new trend window will bring up the trend properties window for a new view.



## Arrange All Windows

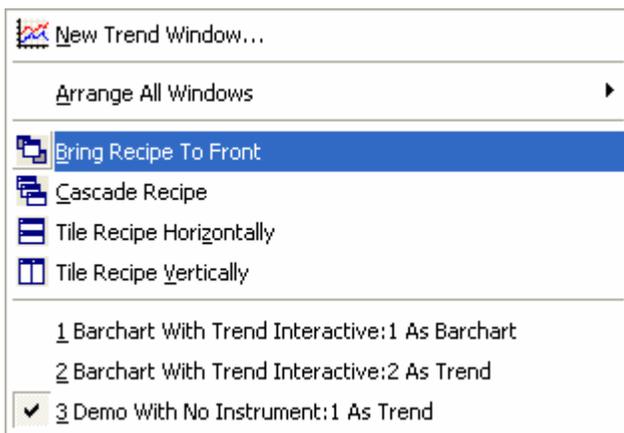
This item will bring up an additional list.



From here, you can arrange the windows in the usual way. In this menu however, all the currently open views from all the currently running recipes will be arranged.

The other window arrangement methods in this pull down menu apply only to the active recipe.

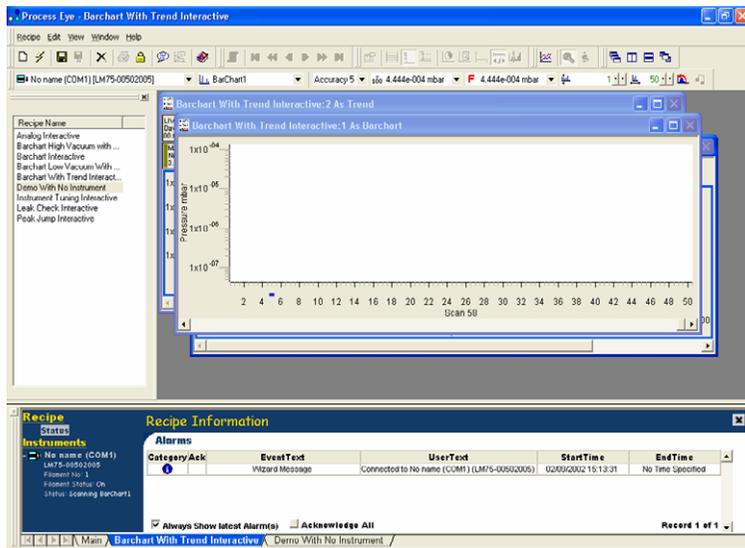
**Bring Recipe to Front** brings the views for the current active recipe to the front.



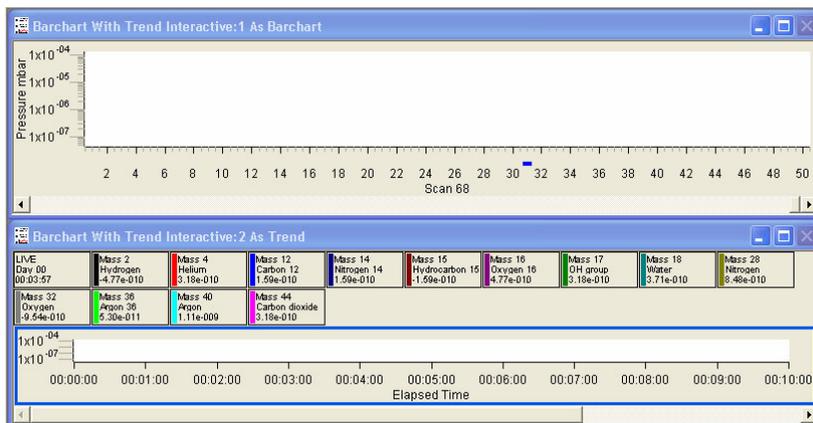
In this case there are 2 views for the active recipe (Barchart with Trend Interactive) and one view for the inactive recipe (Demo with no instrument).

If **bring recipe to front** is clicked, the two Bar chart with Trend Interactive views are overlaid on the other view.

**Cascade Recipe** brings the views for the current active recipe to the front and arranges them in cascade mode.

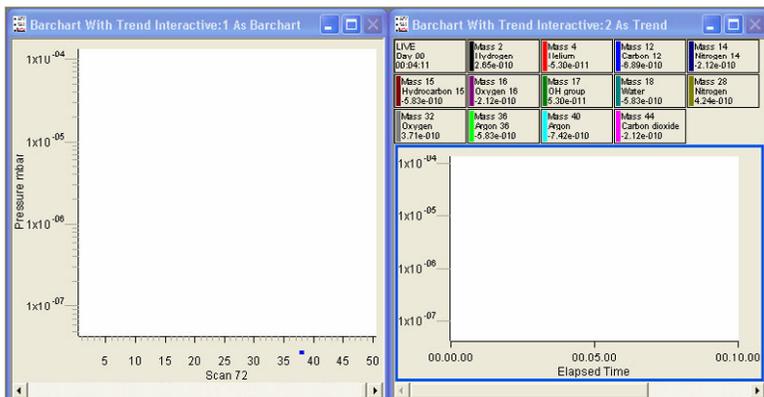


**Tile Recipe Horizontally** brings the views for the current active recipe to the front and tiles them horizontally.



## Tile Recipe Vertically

brings the views for the current active recipe to the front and tiles them vertically.



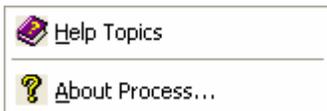
## Selecting Individual View



The bottom section of the pull down list contains a list of the currently open views. The current active view is indicated by a tick next to it. To make a different view active, click on that view. As well as making this the active view it will also bring the view to the front.

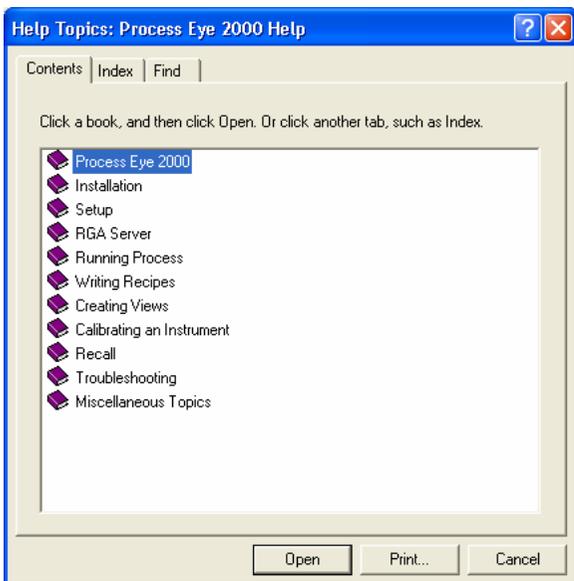
## Help Pull down Menu

The help pull down menu is where you can access the online help, or get information about the Process Eye program



## Help Topics

Clicking on help topics will bring up the standard windows help dialog



# Section 11 - The Status Window

The status window gives information on connected control units and any recipes that are running.

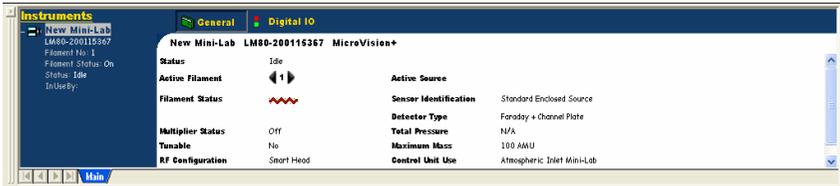
The window can be resized and is dockable, so it can be placed anywhere on the screen. By default, it is located at the bottom of the Process Eye screen.

## No Instruments Connected Window



If there are no instruments connected, or if the system is not set up to pre-connect to any instruments, then the page will appear as above. Clicking the **Click to make Connection** link takes you to the "Connections" dialog see Section 12.

## General Information Window



If there is an instrument connected, the instrument details will appear on the page.

The blue information area of the window is always visible.

The white information area changes to reflect the currently selected mode. E.g. pressing the **<General>** button. It also displays details on the currently selected instrument, filament and multiplier status.

**Select Filament** selects which filament to use.



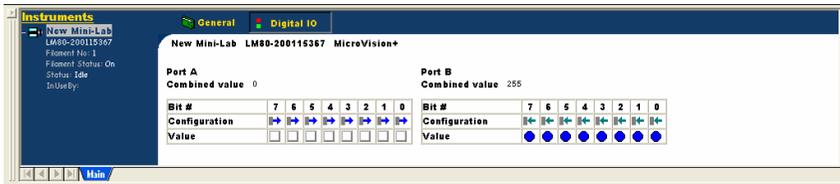
### Filament On/Off

Click to switch the filaments on or off.

When the filament is on, it is displayed red, when off, blue.



## Digital IO Window



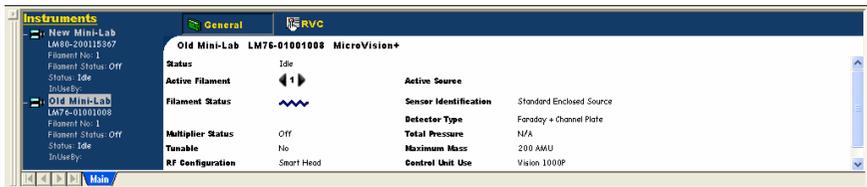
Clicking the **Digital IO** button changes the information panel, to that of the digital IO port.

The digital ports consist of 2 ports of 8 lines. In the above example port A is configured as 8 outputs and port B is configured as 8 inputs. However the inputs and outputs can be configured in any combination required.

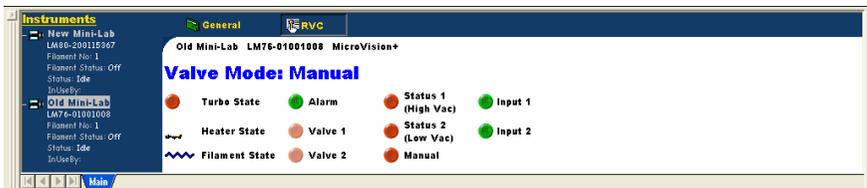
The value of an output can be set by clicking on the box under the Bit# you wish to change. A white box signifies the bit is low, a blue box signifies that the bit is high. Clicking the box will toggle between the two states.

The circle under the inputs signifies the level of an input. A blue circle signifies a high input and a white circle signifies a low input.

## RVC Window



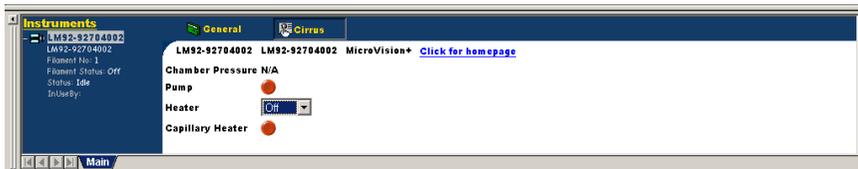
If your system is configured to have an RVC, then the Digital IO button will be replaced by an **RVC** button.



Clicking on this button will display the RVC status. Here you can switch the turbo, heater, filament and valve(s).

## Cirrus Window

If you are using Process Eye with a Cirrus, the Digital IO button is replaced by a **Cirrus** button.



Clicking this button displays the Cirrus status. Here you can control the Cirrus pumps and heaters.

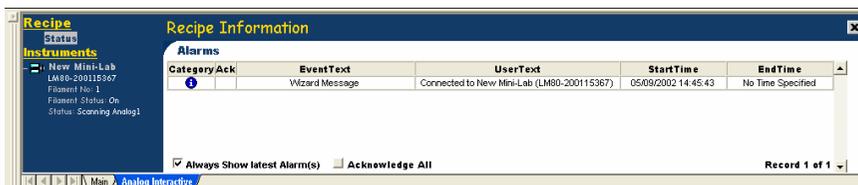
The **Pump** indicator is red when the pumps are off, amber when the pumps are starting up, and green when the pumps are fully operational and the turbo is at speed.

Clicking the indicator will toggle the status. The main **Heater** selection box allows the user to select three states for the chamber heater, Off, Warm, and Bake.

When the capillary heater is on the indicator will turn from red to green, clicking the indicator will toggle the status.

For more information on the Cirrus see the Cirrus manual.

## Recipe Information Window

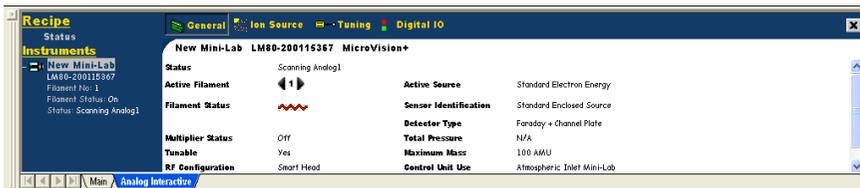


When a recipe is running, there will be a new tab for the recipe and the layout of the status page will change slightly.

On the left hand side, there will be a new **Recipe Status** link in addition to the **Instrument** information.

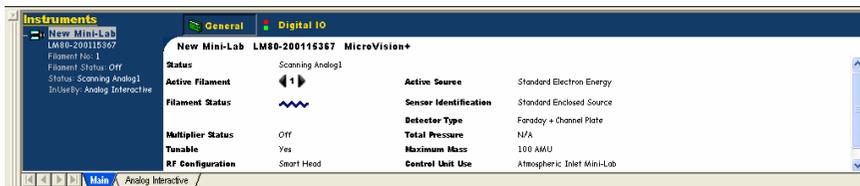
On a recipe page there is only the instrument on which the recipe is running listed, whereas the main window lists all connected instruments.

The information on the white area of the window is now recipe information. This is where all the Recipe Event Log Messages are displayed. To close this recipe, click on the recipe abort button in the top right corner of the page. 



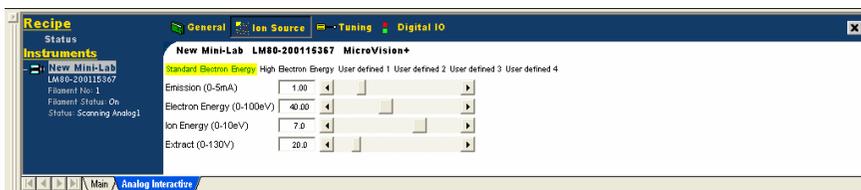
Clicking on the instrument link, on the left hand side of the view, causes the instrument information to be displayed as shown above.

In addition to the **General** and **Digital IO** information, there are two new buttons for **Ion Source** and **Tuning**. If your recipe does not allow tuning, these pages will be for information only. However, if your recipe does allow tuning, you will be able to change ion source settings and alignment and resolution in these pages.



You can get back to the standard information window simply by clicking in the **Main** recipe tab at the bottom of the window.

## Ion Source Settings Window



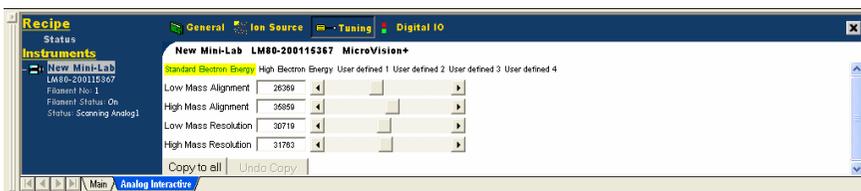
This is where the ion source parameters are set. The ion source configuration for the current recipe is highlighted in green.

In the above example, **Standard Electron Energy** is both the actual ion source configuration used by the analog interactive recipe and the parameters we can see on the sliders.

Enter a number in the text boxes for the four parameters, or use the sliders to change the values.

You can view the settings of any of the other five configurations by clicking on the label. The label becomes highlighted in yellow and the parameters displayed will be those for that configuration.

## Tuning Window



Here is where the tuning parameters can be adjusted. Since there is a different set of tuning parameters for each ion source configuration, this window behaves in a similar manner to the ion source setting windows.

The ion source configuration highlighted in green, is the one that is selected for this recipe.

In the above example **Standard Electron Energy** is both the actual ion source configuration used by the analog interactive recipe and the tuning parameters we can see on the sliders.

Either enter a number in the text boxes for the four parameters or use the sliders to change the values.

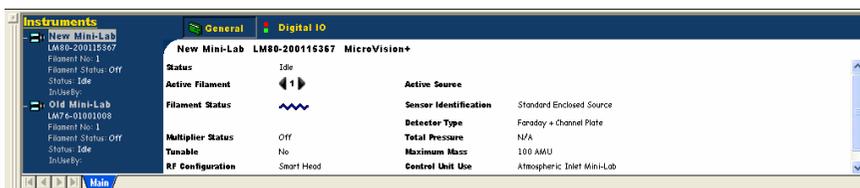
You can view the settings of any of the other five configurations by clicking on the label. The label will become highlighted in yellow and the parameters displayed will be those for that configuration.

If you wish to use the current tuning parameters on all of the ion source configurations, you can simply click on the **Copy to all** button.

If you change your mind, clicking on the **Undo Copy** will reset the parameters to their previous values.

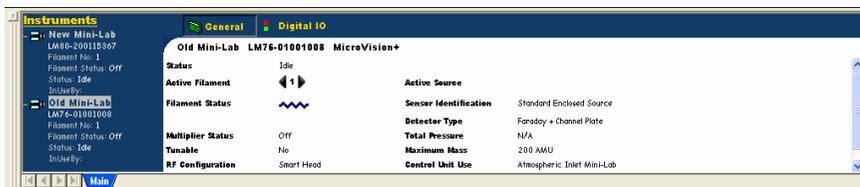
This undo option is only available whilst this window is open. If the active view is changed, the values will be permanently written.

## Status Window with Multiple Heads

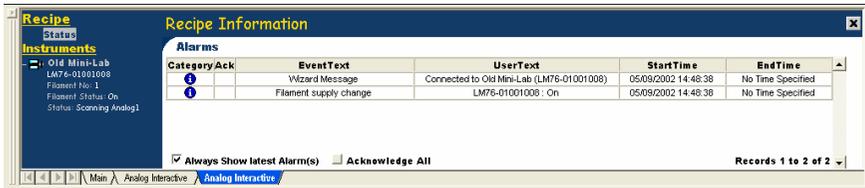


If more than one head is connected, they are listed on the left hand side under the instruments heading. To see the information for each head, click on the head.

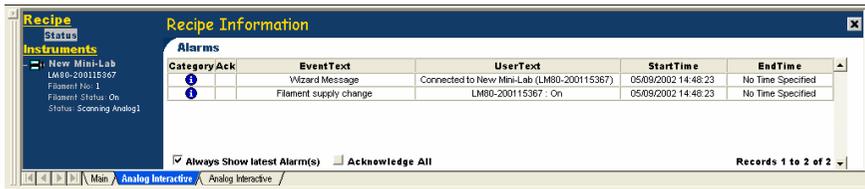
In the above example "New Mini-Lab" is highlighted and the information displayed is for the "New Mini-Lab" (note the title at the of the information page).



Clicking on another instrument, in this case "Old Mini-Lab", the information displayed will change to the information for the selected instrument. Note that the title has changed on the information page.



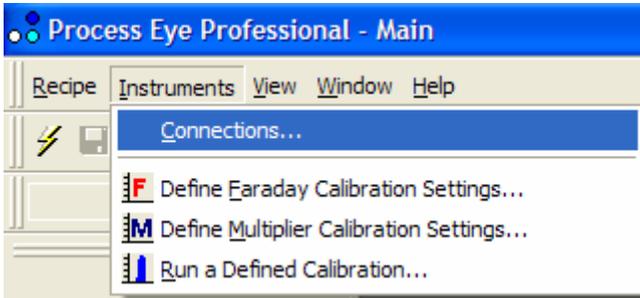
If more than one recipe is running, switch between them by clicking on the tab at the bottom of the window.



You can see that clicking on a different tab causes the instrument information to change, this window relates to a specific recipe and the instrument running that recipe.

## Section 12 - Connections

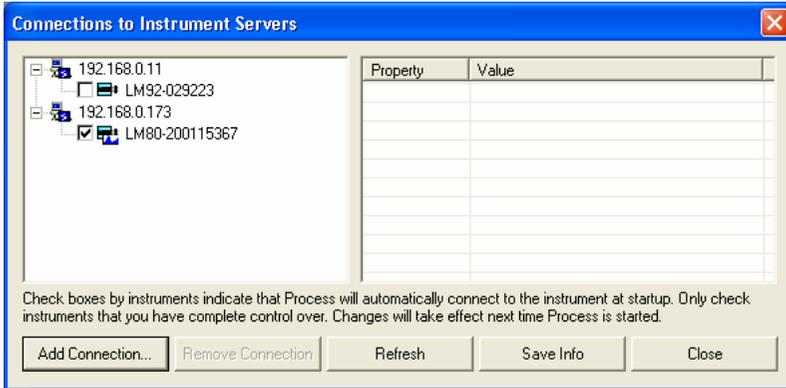
Process Eye's connections, are configured in the **Setup Wizard** program, however you may also edit the connection settings from within the Process Eye main program.



From the Process Eye main window, select **Connections** from the **Instruments** pull-down menu.

## 12.1 - Connection Information

The "Connections to Instrument Servers" dialog appears.



This connection dialog displays all the "found" and "configured" servers running, these servers are denoted by the following symbol.



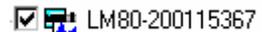
If there is a problem with the connection, the server symbol is replaced with the following symbol.



Displayed along side the server symbol is the I.P address of the server. In the above example, 192.168.1.173 is the address of the "local server" running on the PC. This connection could also be made by using the local loop back I.P address of 127.0.0.1.

Displayed under the server symbol are details of all the instruments connected to that server.

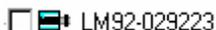
If a unit has been configured to be "pre-connected", there will be a check in the box next to it.



This means when the Process Eye program is started and available instruments have been located, any instruments with a check will be pre-connected and the instrument information will be displayed in the Process Eye **Status Panel**.

Once the instrument has been pre-connected, it will become unavailable to any other connection.

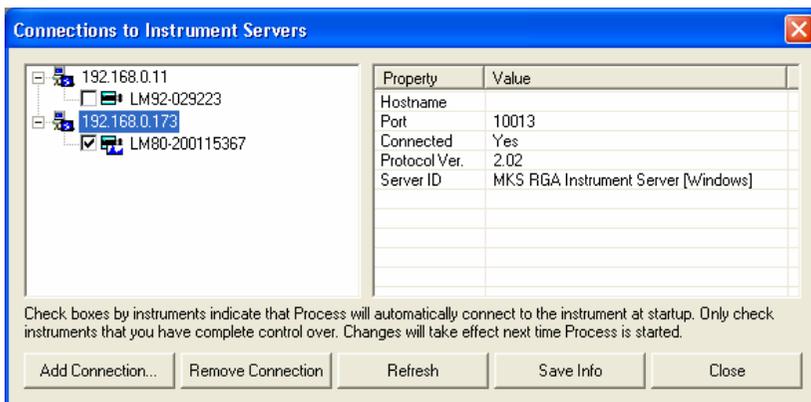
If there is no check in the box next to the instrument, Process Eye will not pre-connect. The instrument will be available to any other connection.



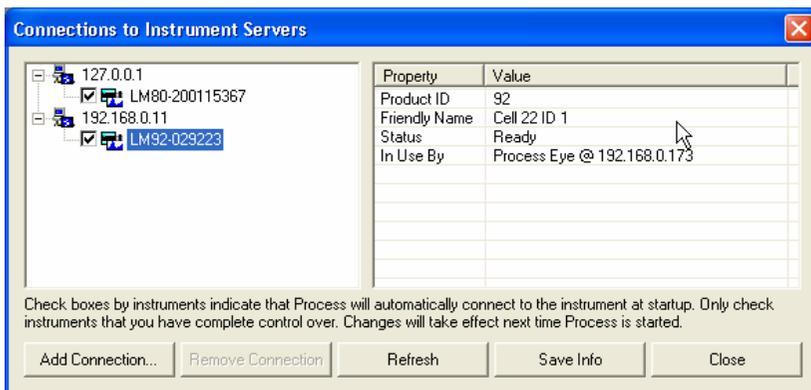
If there is a problem with the connection to one of the instruments, the following symbol will be displayed.



Further information about a connection can be seen if you click on one of the connections.



Clicking on the server will provide details about that connection.  
Clicking on the instrument will provide details about that instrument.



## 12.2 - Adding a Connection

To add a server connection click on the **<Add Connection>** button. The "Add New Connection" dialog appears.

Enter Network Address specified either as 4 number dot notation, or by name

127.0.0.1

OK

Cancel

And/or check the servers that you would like to add from the list of located servers below:

Server Address	Type	
<input type="checkbox"/> 10.10.54.72	Windows RS232/422	
<input type="checkbox"/> 10.10.54.106	Windows RS232/422	
<input type="checkbox"/> 10.10.54.43	Windows RS232/422	

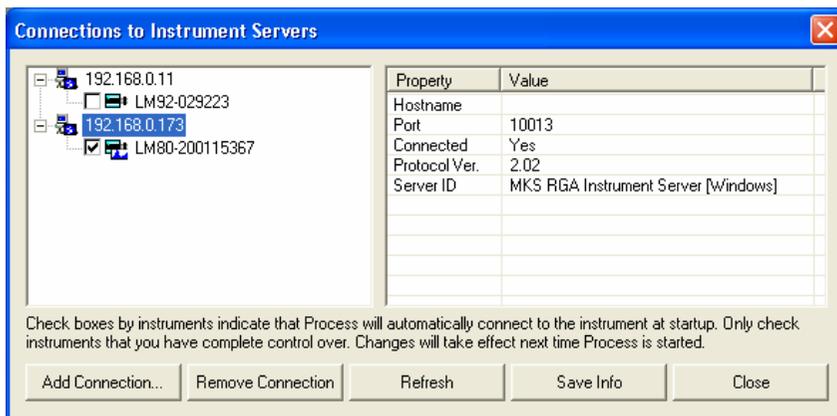
Refresh

Simply enter the TCP/IP address of the server you wish to connect to or select one of the "Found" servers displayed.

Click on **<OK>** to refresh the server information, if the server is found, all the instruments connected to that server will be displayed.

To pre-connect to these instrument simply check the box next to them and then re-run Process Eye.

## 12.3 - Removing a Connection

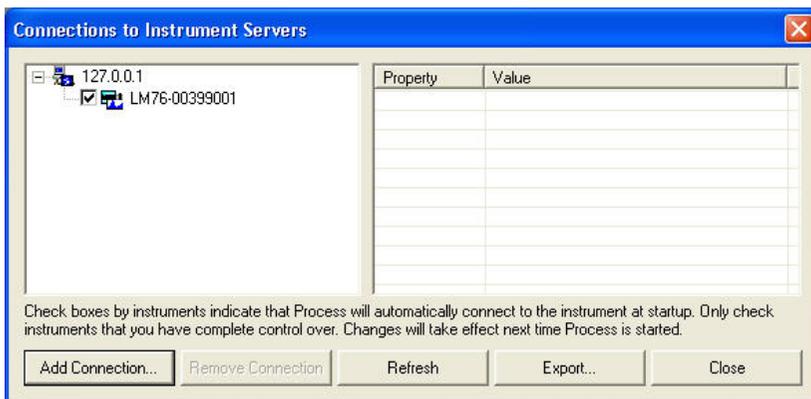


To remove a connection, simply highlight the connection that is no longer required and click on the **<Remove Connection>** button.

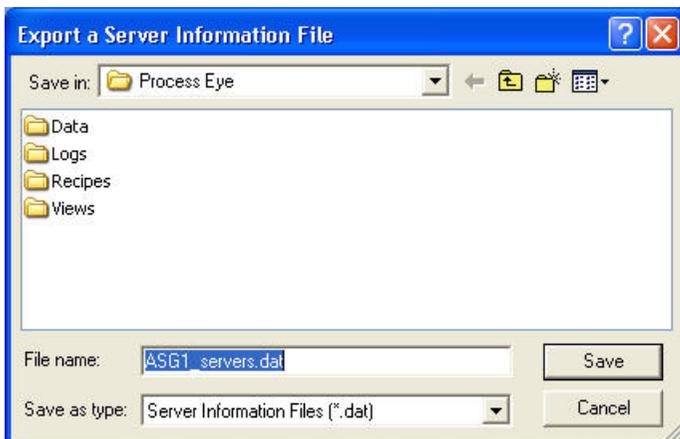
## 12.4 - Refresh Connections

Clicking on the **<Refresh>** button will refresh the connections to the servers. If the connections to instruments or servers change, then the information will be updated automatically.

## 12.5 - Export Connection Information



To save the connection information, click on the **<Export>** button.



The "Export a Server Information File" dialog appears. Choose a location and file name to save the file

This file can then be used on a PC without connections, to simulate this current configuration.

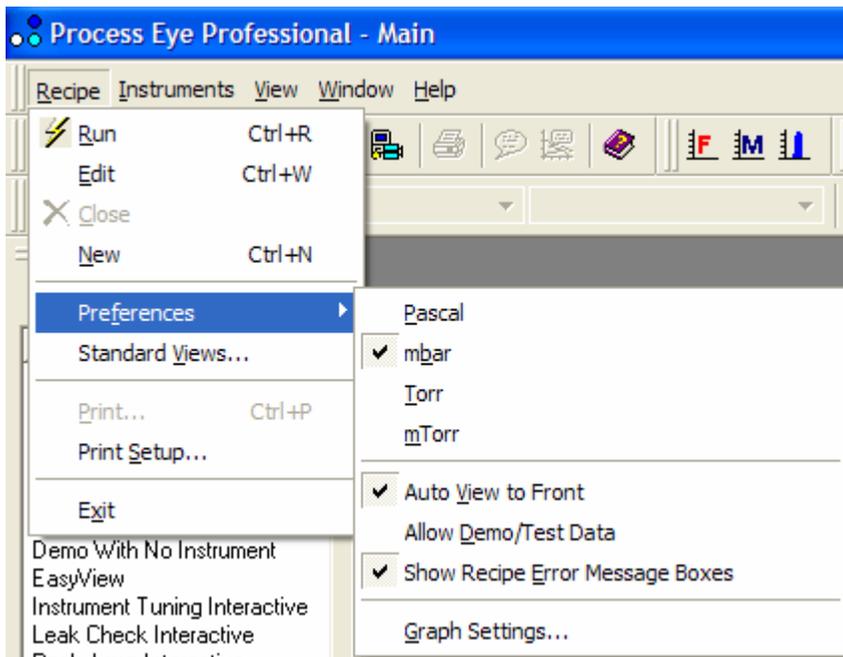
This enables off-line recipes to be written for the current installation. You do not need to store information to save the current configuration for use by the current PC, this happens automatically.

## *12.6 - Exit Connection Dialog*

To exit connections simply click on the **<Close>** button.  
If changes have been made to the pre-connection status of any of the instruments, this will only be updated when Process Eye is restarted.

## Section 13 - Preferences

The Preferences menu can be accessed from the **<Recipe>** pull-down menu.

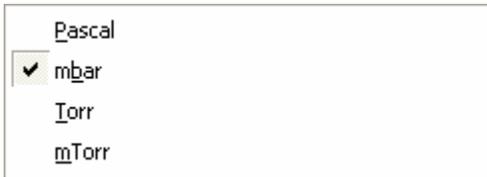


### Units of Pressure

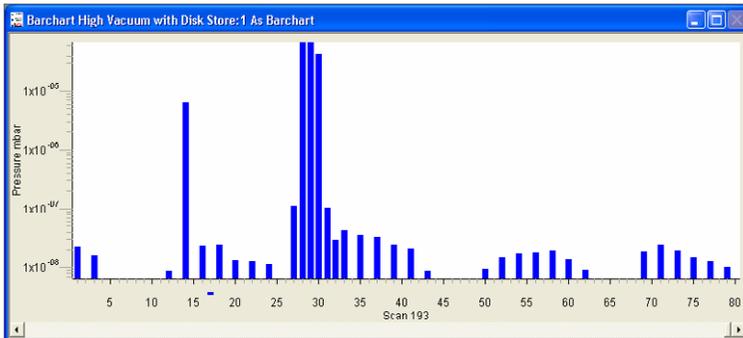
Process Eye Professional supports the following pressure units, Pascal, mBar, Torr and mTorr.

The internal units used by Process Eye are Pascal and all internal pressure values are stored in these units. This enables Process Eye, Recipe Wizard and Recall to use different units to display pressures, depending on the preference set in the particular program. Pascal is simply converted to the required unit, before displaying the information.

In addition all user variables that are labelled as pressures will also be converted from Pascal to the chosen unit.



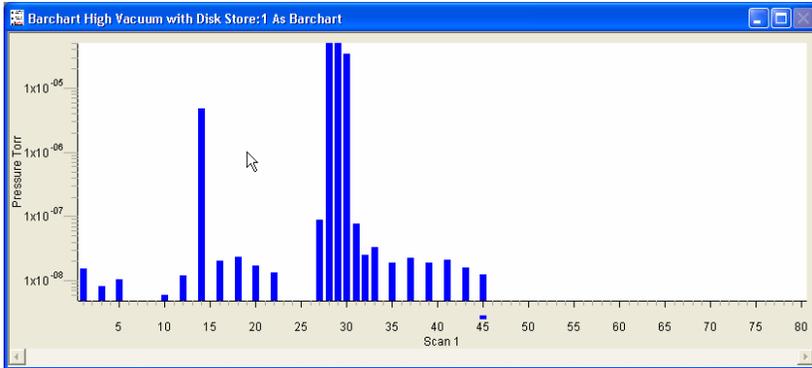
A “tick” in the selection indicates the currently used pressure unit. All pressure axes will also be labelled with the current unit.



In this case you can see that the Y-axis of the chart is labelled in mBar. To change this to Torr, click on **<Torr>** in the selection.



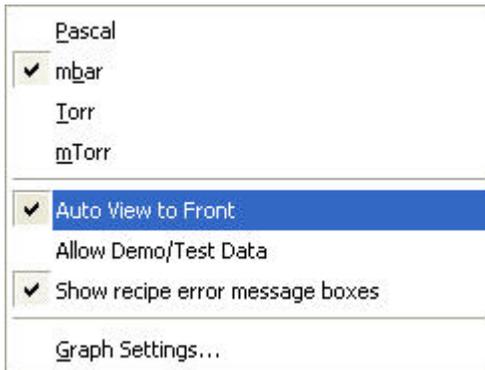
If any recipes are running, the peak heights will immediately change to represent this new measurement unit.



The axis scale and label will only change however, when the recipe is shutdown and restarted.

The “**Maximum Peak Height**” information will only change when Process Eye is shutdown and restarted.

### Auto View to front

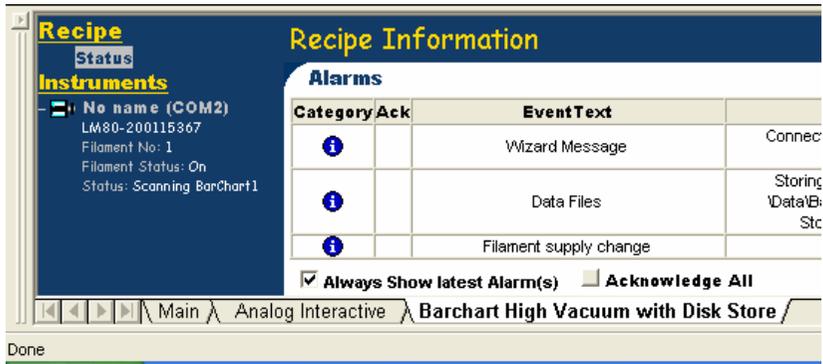


When process eye is running a recipe, the views for that recipe are displayed in the **Views Window**.

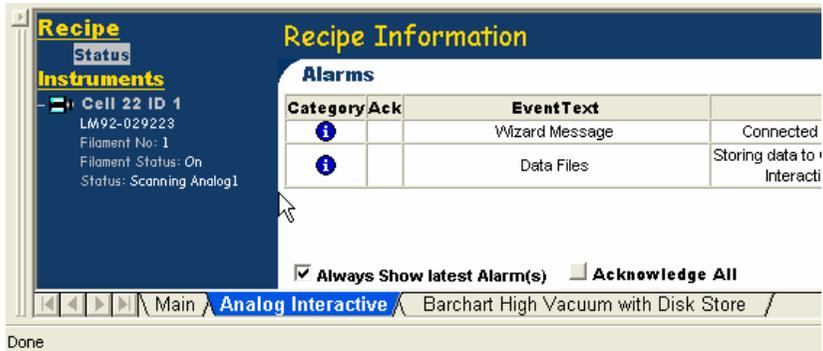
When more than one recipe is running however, not all views are displayed.

With the **Auto View To Front** checked, the views that become visible are dependent on the order in which the recipes were started.

With **Auto View to Front** enabled the views for the active recipe are brought to the front.

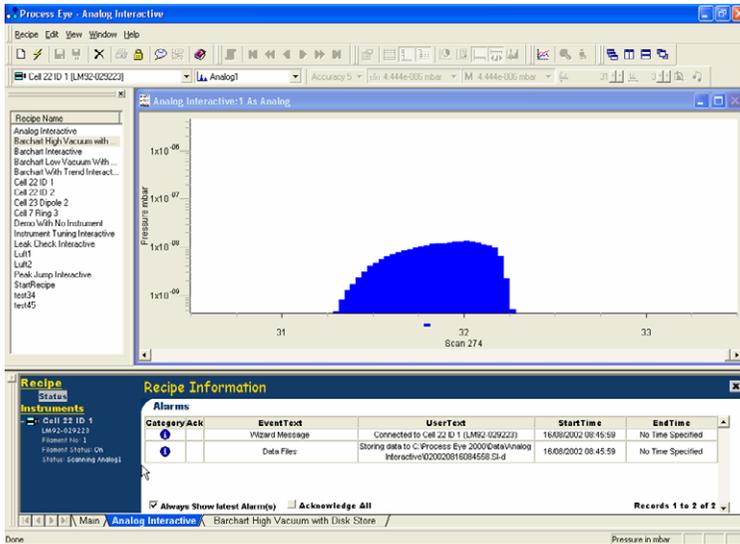


In the status window, the tabs for the running recipes are displayed. The uppermost tab is the selected recipe. In the above example, **Bar chart High Vacuum with Disk Store** is the selected recipe.

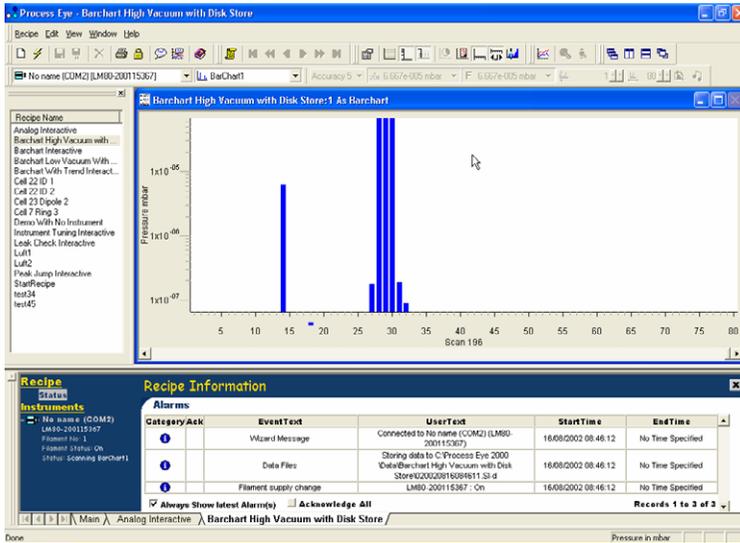


Clicking on the **Analog Interactive** tab causes that recipe to become the active recipe.

If **Auto View To Front** is enabled, the views for the active recipe will be displayed.



The **Analog Interactive** view is shown when this recipe is selected.



The **Bar Chart High Vacuum with Disk Store** view is shown when this recipe is selected.

## Allow Demo/Test Data

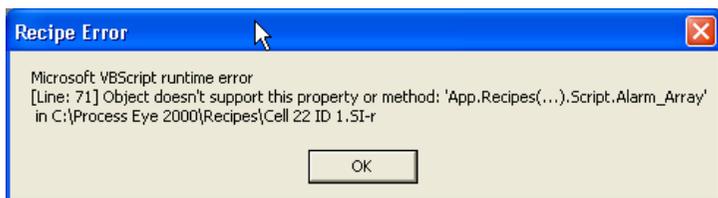
This advanced feature relates to the script code. In the recipe script, it is possible to simulate an instrument so that recipes may be tested, without having a real mass spectrometer on a vacuum system.

The feature is not supported by the recipe wizard and is only for advanced users who understand how to write recipe script.

If you are unsure, leave this feature switched off.

## Show recipe error message boxes

If a script error occurs in the recipe, you can choose whether or not to display an error message.



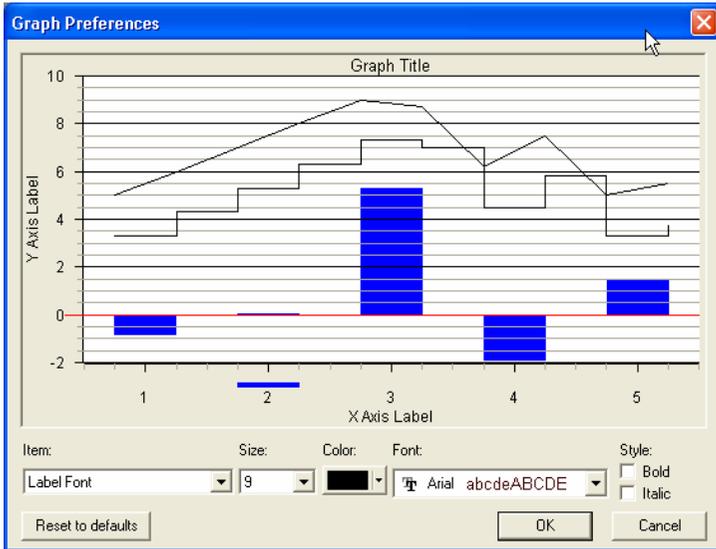
The message box gives useful information about the error that has occurred. If the error is a recognized error type, then the error type is given along with the code that caused the problem, the line the code is on and the recipe file name that contains the code.

You are locked-out of Process Eye until you OK the message box, the recipe that generated the error will then abort.

If the **Show Recipe Error Message Boxes** is not enabled, then the recipe will just abort on error.

## Graph Settings

From the **Graph Settings** entry, the global properties for the views can be adjusted.



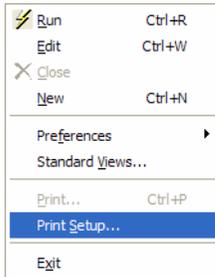
From this dialog, you can specify the size, colour, font type and style of each item.

This is an interactive view and will change to display any adjustments made.

## Section 14 - Printing

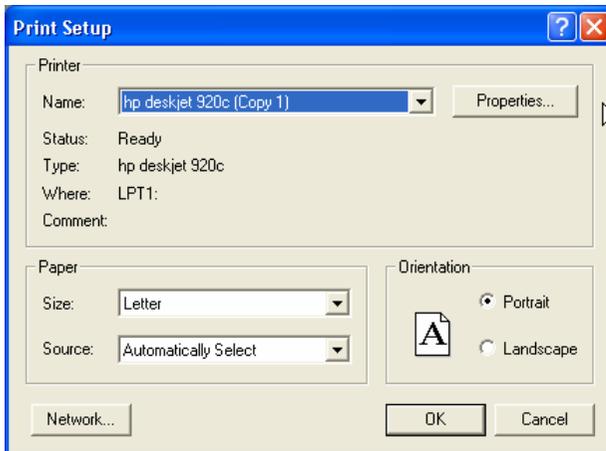
Both **Print Setup** and **Print** can be accessed from the recipe pull-down menu. Unless a recipe is running, the **Print** option is greyed out, as the print function only works with the active view.

In addition there is a print button on the tool bar.



### Print Setup

Selecting **Print Setup** from the Recipe pull-down menu, will bring up a standard Windows print properties dialog.



From here, you can configure the printer for paper size, orientation etc.

## Printing a View

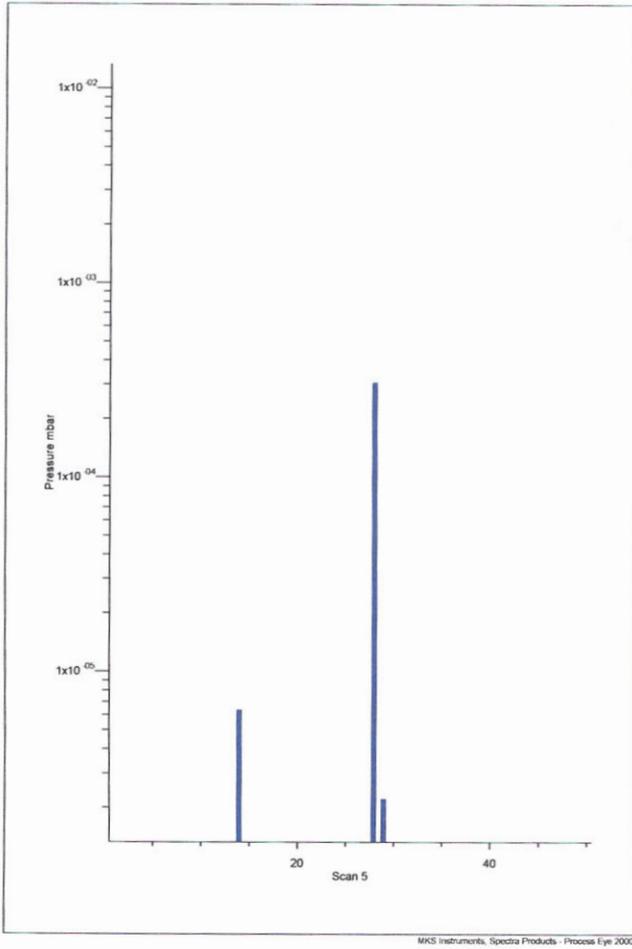
Click on the view you wish to print, so it becomes the active view. Then either click on the **Print** button or select **Print** from the recipe pull-down menu.

If you click on the print button, the print will start immediately with the default settings. If you select **Print** from the recipe pull-down menu, the standard Windows print dialog appears giving you the option to change the default printer settings.

You can only print swept measurement views and trends, other views within Process Eye cannot be printed.

If you require a hard-copy of these other views, use the **Print Screen** key on the keyboard.

Below is a printout of a typical Bar chart spectrum of nitrogen.

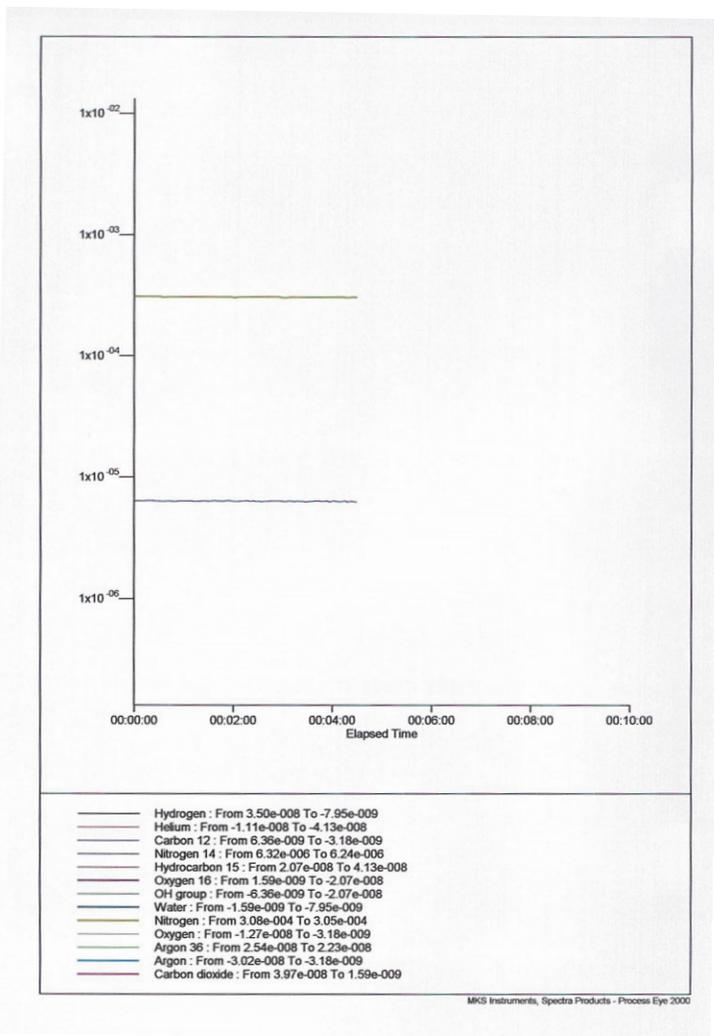


This is a typical trend printout.

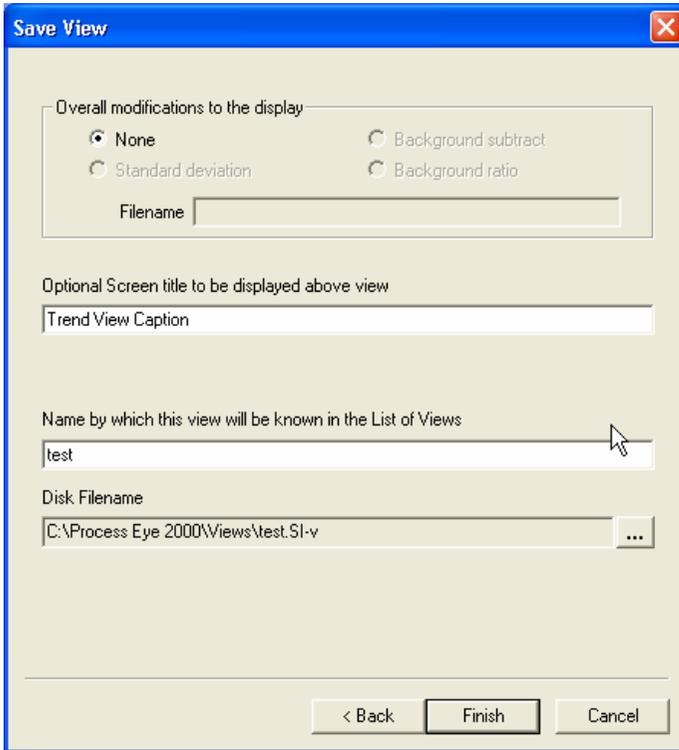
The key at the foot of the printout shows the colour of the line, the channel name and the value of the trend line at the start and finish of the trend printout.

There is no title or foot note feature in the print facility.

You can however give the printout a title by adding a caption to the view.



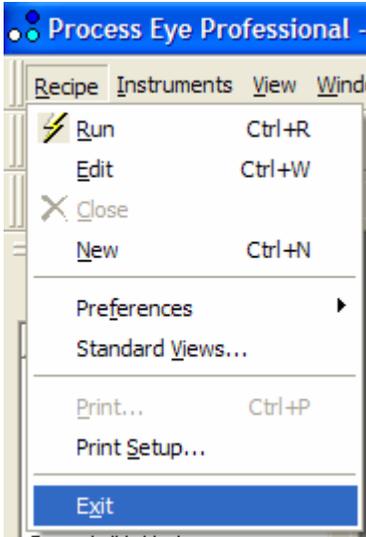
In the "Save View" dialog of the view properties, add the required title to the **Optional Screen Title** text box.



The trend view caption then appears as a title on the printout.

## Section 15 - Exiting Process Eye Professional

To exit Process Eye simply click on the close program button, or select **Exit** from the **Recipe** pull down menu.



## ***Section 16 - Running EasyView***

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### *Overview*

EasyView is a special recipe created to enable Process Eye to run as a standard interactive RGA software package.

All standard RGA modes of operation are available, in addition to diagnostics and calibration mode.

All scanning modes are fully interactive allowing changes to be made to all scanning parameters. There is also a disk store function allowing all data to be stored to disk, for review using the Recall program.

## Running EasyView

If the **Getting Started** recipes were installed during software setup **EasyView** appears as a recipe in the Recipe List box.

**Note:** EasyView will not be able to connect to any instruments that are already running other recipes.

When the EasyView recipe loads, a list of instruments is displayed in the **Status** window.



To reload the instrument list click on **<Refresh>**

To edit instrument connections click on **<Edit Connections>** this will bring up the connections dialog.

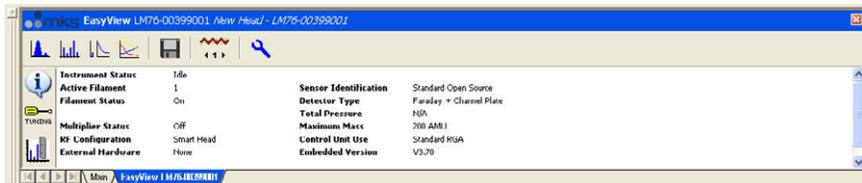
For each instrument found, information on its serial number, name, status, date last used and IP address is displayed.

If the instrument can be used by EasyView, the status is shown as "Ready", if not the status should give an indication of why the instrument cannot be used.

To connect to an instrument, first click on the instrument you wish to connect to in the list, so the instrument details are highlighted in blue



Then click on **<Connect>**



The EasyView status page will then load.

**Note:** Each EasyView recipe instance can only connect to one instrument at a time. To run with multiple instruments simply run EasyView multiple times and connect to each instrument in turn. In the instrument list any instruments that are already running EasyView will have "In use by recipe EasyView" in the status field.

## Closing EasyView

To close the EasyView recipe simply click on the close button in the top right corner of the EasyView Status window



## EasyView Toolbars

There are two EasyView toolbars; the **Mode Toolbar** is the horizontal toolbar across the top of the EasyView status page.



The buttons have the following functions



**Analog Mode** button starts (or stops if already running) the Analog mode.



**Barchart Mode** button starts (or stops if already running) the Barchart mode.



**Leakcheck Mode** button starts (or stops if already running) the leak check mode.



**Peakjump Mode** button starts (or stops if already running) the peakjump mode.



**Disk Store** starts (or stop if already storing to disk) storing data to disk



**Filament Select** chooses the current active filament. Clicking on one or other of the arrows toggles the active filament between filament 1 and filament 2



**Filament Status** shows the current status of the filament. Blue represents a filament that is off.



Red represents a filament that is on. Clicking the icon will toggle the filament between off and on.



**Diagnostics** runs the diagnostic program on display the diagnostic report on the screen.



**Status Page Toolbar** is the vertical toolbar along the side of the status page, it has the following buttons.



**Information** returns the status window display to the general information page.



**Tuning** opens the tuning page in the status window.

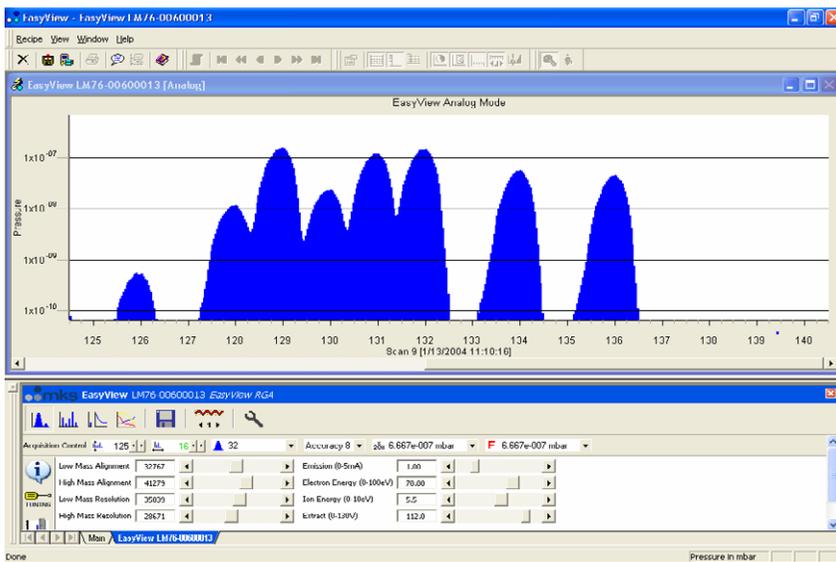


**Calibration** opens the calibration page in the status window.



**PeakJump Settings** is only visible when EasyView is in PeakJump mode. Clicking on this button brings up the PeakJump settings page in the status window

## 16.1 Analog Mode



The Analog view is displayed and the interactive analog control toolbar will appear in the status window.



Use this toolbar to change the scan parameters, each of the functions are explained below.



### Start Mass

To change the start mass of the scan, either enter a number directly into the box, or click on the arrows to increase or decrease the mass number. Note that the first mass cannot be less than 1 and that the first mass plus the mass span, cannot exceed the maximum mass allowed by the control unit.



### Mass Span

To change the mass span of the scan, either enter a number directly into the box, or click on the arrows to increase or decrease the mass span. Note that the first mass plus the mass span cannot exceed the maximum mass allowed by the control unit.

Accuracy 5 ▼

### Accuracy

Scan accuracy determines the amount of averaging carried out for each reading. A high accuracy number provides a clean scan but increases scan time. The accuracy ranges available are from 0 to 8.

▲ 32 ▼

### Points per peak

The number of measurements each full mass is divided into 8,16 or 32. The higher the number of points-per-peak selected, the better the representation of peak shape. However, scan time and the amount of data generated will increase. If the data is to be imported into Excel for instance, choose a lower value.

100 1.333e-004 mbar ▼

### Electronic Gain

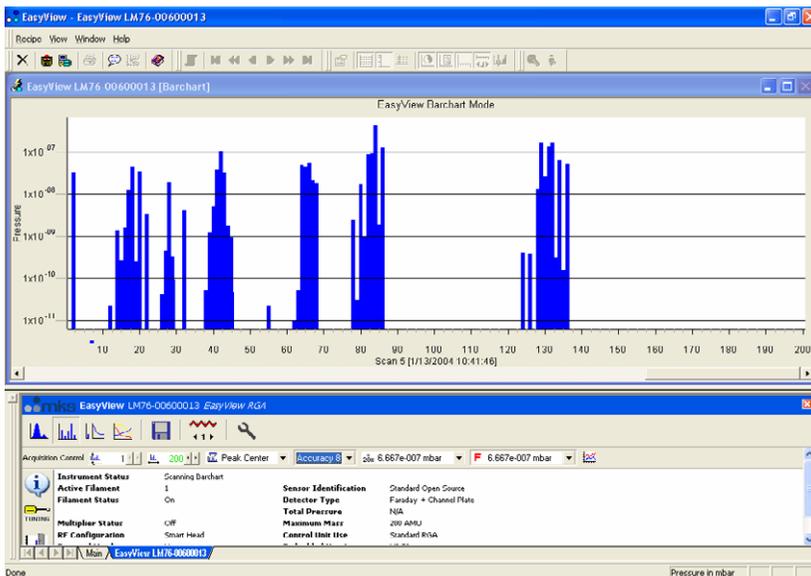
The electronic gain of the pre-amplifier can be changed by selecting one of the values from the drop down list. Depending on the type of instrument, the allowed values are 1,100 and 20000. The higher the gain selected, the smaller the partial pressure that can be measured, this may cause peaks of a higher partial pressure to saturate.

F 1.333e-004 mbar ▼

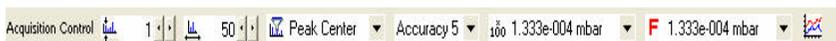
### Detector

The detector type used for the scan can be changed. Depending on the type of instrument, the options are Faraday, Multiplier 1, Multiplier 2 and Multiplier 3. Multiplier 1, 2 and 3 refer to the same physical detector, but using three separate calibration values.

## 16.2 Barchart Mode



The Barchart view is displayed and the interactive Barchart control toolbar will appear in the status window.



Use this toolbar to change the scan parameters, each of the functions are explained below.



### Start Mass

To change the start mass of the scan, either enter a number directly into the box, or click on the arrows to increase or decrease the mass number. Note that the first mass cannot be less than 1 and that the first mass plus the mass span, cannot exceed the maximum mass allowed by the control unit.



### Mass Span

To change the mass span of the scan, either enter a number directly into the box, or click on the arrows to increase or decrease the mass span.

Note that the first mass plus the mass span cannot exceed the maximum mass allowed by the control unit.



The scan mode is the method used to report the peak height. The options are - Peak Centre, Peak Max or Peak Average.



Scan accuracy determines the amount of averaging carried out for each reading. A high accuracy number provides a clean scan but increases scan time. The accuracy ranges available are from 0 to 8.



The electronic gain of the pre-amplifier can be changed by selecting one of the values from the drop down list. Depending on the type of instrument, the allowed values are 1,100 and 20000. The higher the gain selected, the smaller the partial pressure that can be measured, this may cause peaks of a higher partial pressure to saturate.

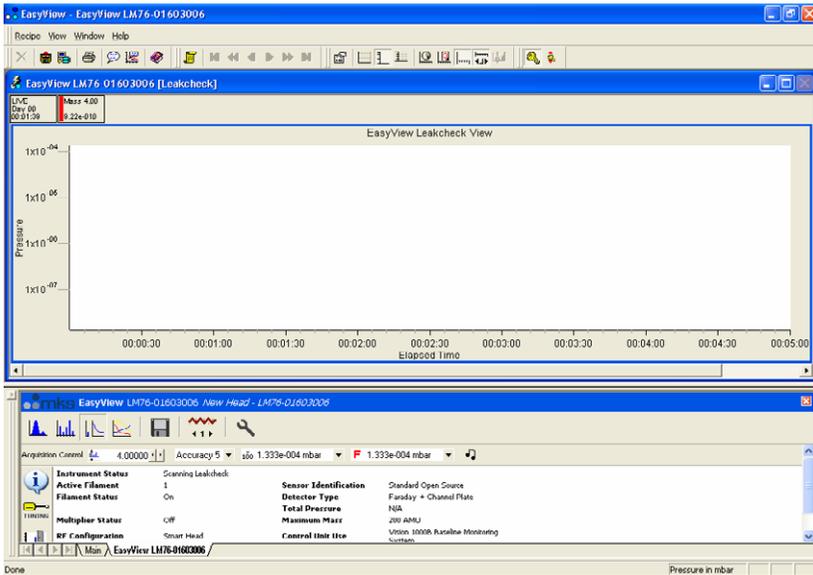


The detector type used for the scan can be changed. Depending on the type of instrument, the options are Faraday, Multiplier 1, Multiplier 2 and Multiplier 3. Multiplier 1, 2 and 3 refer to the same physical detector, but using three separate calibration values.

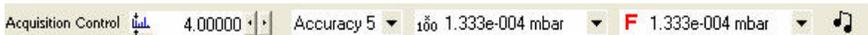


The add trend button adds a default trend in addition to the Barchart view. This trend can be edited in the same way as any normal trend view see Section 7 – Changing/adding Views

## 16.3 Leak Check Mode



The Leak Check view is loaded and the interactive Leak Check control toolbar appears in the status window.



Use this toolbar to change the scan parameters, each of the functions are explained below.



To change the probe mass of the scan, either enter a number directly into the box, or click on the arrows to increase or decrease the mass number. Note that the first mass cannot be less than 1 and that the first mass plus the mass span, cannot exceed the maximum mass allowed by the control unit.



Scan accuracy determines the sampling amount carried out on each reading. A high accuracy number provides a clean scan but increases scan time. The accuracy ranges available are from 0 to 8.

100 1.333e-004 mbar ▼

### Electronic Gain

The electronic gain of the pre-amplifier can be changed by selecting one of the values from the drop down list.

Depending on the type of instrument, the allowed values are 1,100 and 20000.

The higher the gain selected, the smaller the partial pressure that can be measured, this may cause peaks of a higher partial pressure to saturate.

F 1.333e-004 mbar ▼

### Detector

The detector type used for the scan can be changed.

Depending on the type of instrument, the options are Faraday, Multiplier 1, Multiplier 2 and Multiplier 3. Multiplier 1, 2 and 3 refer to the same physical detector, but using three separate calibration values.



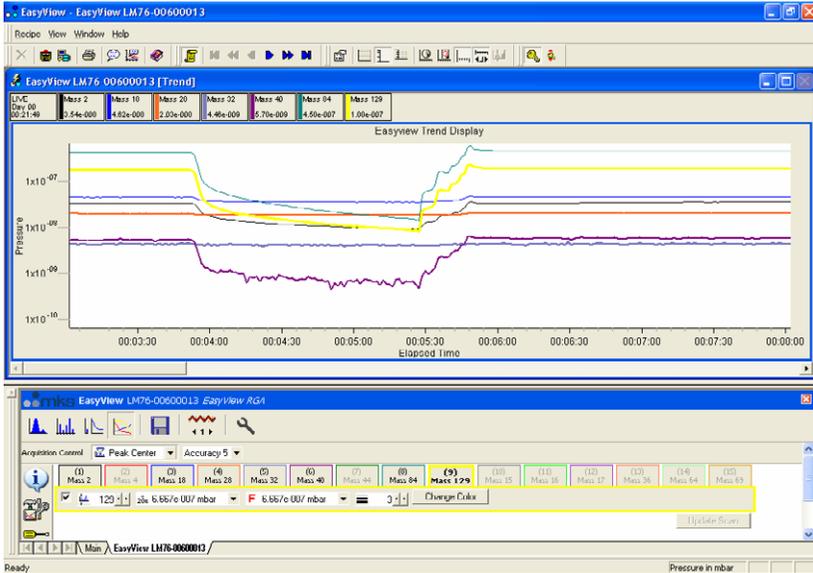
**Audio** Not support on certain sensor configurations.

Switches the audio tone on or off.

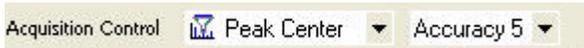
The tone changes in frequency as the measured peak height changes.

This is a useful feature if you are unable to see your monitor while leak checking.

# 16.4 Peak Jump Mode



The Peak Jump view is loaded and the interactive Peak Jump control toolbar appears in the status window.



Use this toolbar to change the scan parameters, each of the functions are explained below.



The scan mode is the method used to report the peak height. The options are - Peak Centre, Peak Max or Peak Average.

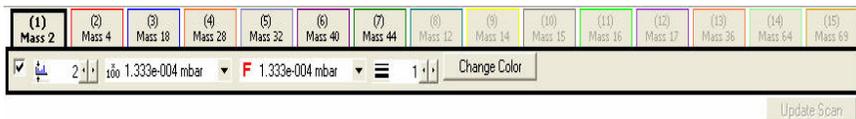


Scan accuracy determines the sampling amount carried out on each reading. A high accuracy number provides a clean scan but increases scan time. The accuracy ranges available are from 0 to 8.

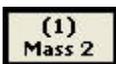


## Settings

Use this button to open the Peak Jump settings window shown below.



Settings for each of the 15 channels can be edited using this toolbar.



Click on the channels tab to edit the settings for that particular channel.



Check the box to enable the channel.

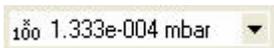
In the above example only channels 1 to 7 are enabled, channels 8 to 15 are disabled.



### Scan Mass

Set the particular channels scan mass.

Note that the mass cannot be less than 1 and cannot exceed the maximum mass allowed by the control unit.

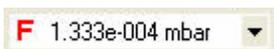


### Electronic Gain

The electronic gain of the pre-amplifier can be changed by selecting one of the values from the drop down list.

Depending on the type of instrument, the allowed values are 1,100 and 20000.

The higher the gain selected, the smaller the partial pressure that can be measured, this may cause peaks of a higher partial pressure to saturate.



### Detector

The detector type used for the scan can be changed.

Depending on the type of instrument, the options are Faraday, Multiplier 1, Multiplier 2 and Multiplier 3. Multiplier 1, 2 and 3 refer to the same physical detector, but using three separate calibration values.



## Line Thickness

The thickness of the plotted line can be changed to aid visibility



## Colour

The colour of the plotted line can also be changed, select a colour then click <OK> to apply it to the channel.

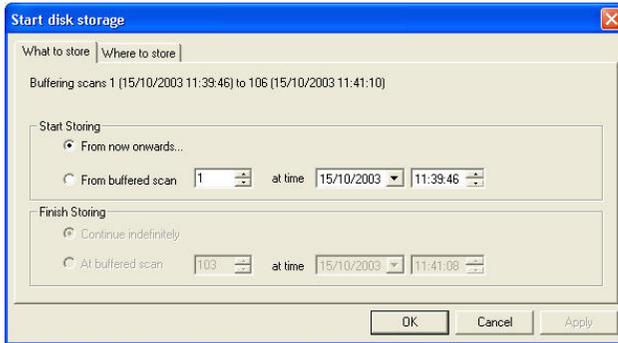


Changes made to the channels properties are not immediately made to the scan. When all changes required have been made, click <Update Scan>. The new settings will then be applied to the current scan.

## 16.5 Disk Store



Disk Store is available in any of the EasyView scan modes and can be accessed by clicking the button shown.



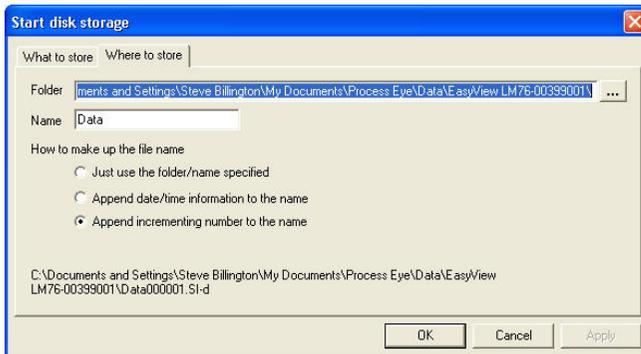
**What to store** options:

**From now onwards** stores each buffered scan to disk until stopped by the user.

**From buffered scan** allows *start* and *end* scan configuration.

**Note:** The buffer is reset if any changes to the current scan are made, otherwise the last 500 scans are stored in the buffer.

If disk storage is started at a buffered scan, then it is possible to stop disk storage at a defined buffered scan as well.



**Where to store** options:

**Folder** enter the path, or browse to the folder where the scans are to be stored. The default path is: **..\EasyView\Data\EasyView "Head Serial Number"**

## Name

Enter a name for the saved data file, by default this is "data" but it can be anything you choose.

As well as the name, the file can be amended with other information:

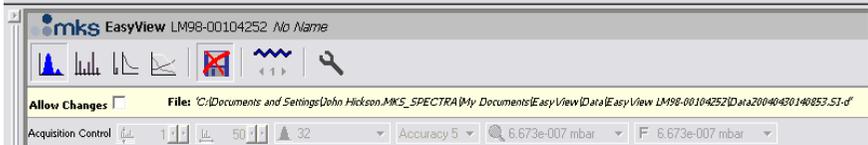
**Just use the folder name specified** creates the file "data.SI-d".

**Append date/time information to name** adds date and time information to the file and would create the file "DataYYYYMMDDHHmmSS.SI-d".

Where YYYY is the current year, MM is the current month, DD is the current day, HH is the current hour, mm is the current minute and SS is the current second.

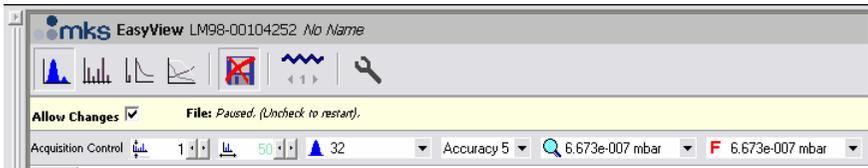
**Append incrementing number to the name** adds a sequential number to the name and would create the following file "Data000001.SI-d", the next would be "Data000002.SI-d" and so on for each file.

While storing to disk, the Disk Store toolbar will be visible in the status window.



Notice that the disk store icon is no longer available and the path to the disk store file is displayed.

Checking the **Allow Changes** box, pauses the disk store and re-enables the scan toolbar.



You can then change the scan properties, un-check the **Allow Changes** option and continue with the Disk Store without having to run through the "Start Disk Storage" dialog.

**Note:** The name of the file will still change.

## 16.6 EasyView Diagnostics

To run the diagnostics mode click on the **Diagnostics** button



Diagnostics mode is only available if there is no scan mode currently selected. If diagnostics is unavailable then the button is greyed out

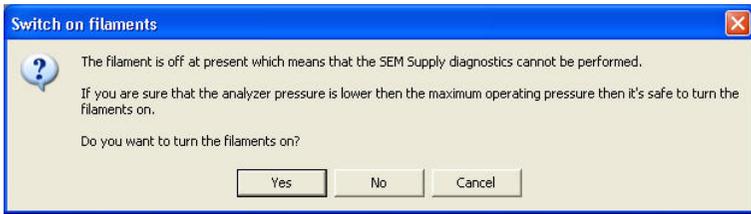


Running diagnostics produces the following report:

Instrument Diagnostic Information					
15/10/2003 11:41:40					
Serial Number: LM76-00399001					
User Defined Name: New Head - LM76-00399001					
Process Eye Version: 4.00000420					
Instrument Info					
Sensor Identification	Standard Open Source				
Detector Type	Faraday + Channel Plate				
External Hardware	None				
RF Configuration	Smart Head				
Maximum Mass	200 AMU				
Control Unit Use	Standard RGA				
Embedded Software Version	V3.70				
Active Filament	1				
Diagnostics Results					
Diagnostics	Min	Max	Reading	Passed	
-450V Supply	-533.80	-355.90	-409.99	✓	
-15V Supply	-16.50	-13.50	-15.01	✓	
-130V Supply	-143.40	-116.20	-131.80	✓	
+5V Supply	4.75	5.35	4.96	✓	
+15V Supply	13.50	17.50	14.90	✓	
Electron Energy	-0.69	-0.59	-0.64	✓	
Extractor	-1.19	-1.03	-1.12	✓	
SEM Supply Diagnostic	-645.00	-555.00	-582.89	✓	
Source Settings					
	Emission (mA)	Electron Energy (eV)	Ion Energy (eV)	Extract (V)	Faraday A/mbar
Standard Electron Energy	1.00	70.00	5.50	-112.00	1.50e-004
Low Electron Energy	1.00	40.00	5.50	-112.00	1.50e-004
User defined 1	1.00	70.00	5.50	-112.00	1.50e-004
User defined 2	1.00	70.00	5.50	-112.00	1.50e-004
User defined 3	1.00	70.00	5.50	-112.00	1.50e-004
EasyView	1.00	70.00	5.50	-112.00	1.50e-004
Mass Alignment/Resolution Settings					
	Low Mass Alignment	Low Mass Resolution	High Mass Alignment	High Mass Resolution	
Standard Electron Energy	32767	32767	32767	32767	
Low Electron Energy	32767	32767	32767	32767	
User defined 1	32767	32767	32767	32767	
User defined 2	32767	32767	32767	32767	
User defined 3	32767	32767	32767	32767	
EasyView	32767	32767	32767	32767	

The report contains information about the control unit configuration, source settings and mass alignment/resolution settings as well as power supply levels.

In order to test the multiplier the filament needs to be switched on. If you run diagnostics without switching the filament on the following dialog appears.



Click **<Cancel>** to exit without running diagnostics

Click **<No>** to run diagnostics with the filament off, in which case the multiplier voltage will not be tested.

Click **<Yes>** to switch the filament on and then run diagnostics.

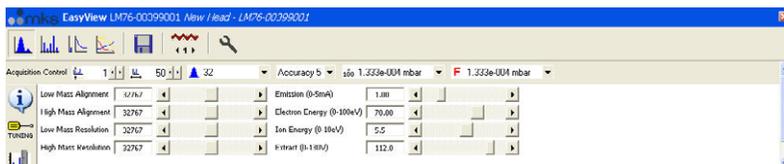
## 16.7 EasyView Tuning

To view the tuning information click on the “Tuning” button



This will display the tuning page in the status window.

**Note:** Tuning parameters can only be changed whilst in the analog mode. In all other modes the tuning information can only be viewed.



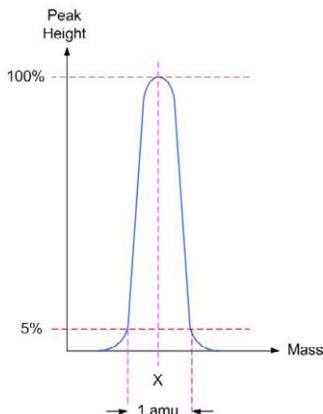
The tuning information consists of two parts. The first is the mass alignment and resolution controls. The second is the ion source parameters.

The mass alignment controls control the position of the mass peaks in relation to the mass scale. There are two controls for the alignment. The low mass control affects all masses by the same amount. Moving the slider to the right causes the peaks to move to the right and causes the alignment value to increase. Moving the slider to the left causes the peaks to move to the left and the alignment number to decrease. The high mass control affects masses proportional to how far up the mass scale they are. Moving mass 1 by 0.1 amu using the high mass control will cause mass 100 to move by 1 amu for example.

The resolution controls control the peak width. As you increase the resolution the peak will get narrower but will also become smaller. Reducing the resolution will make the peaks bigger but can lead to interference between adjacent peaks. For standard instruments the resolution is set so the peak width at 5% (10% for HPQ2 units) of the max peak height is 1 amu.

This peak is aligned at mass X

The resolution is set to 1 amu at 5% of max peak height



All instruments have the mass alignment and resolution set before leaving the factory. A copy of the tuning numbers will always be included with the documentation. Only small changes to the alignment and resolution should ever be necessary to account for small changes in temperature between the factory and place of operation. If major changes are made to the settings so that peaks are no longer visible, please re-enter the factory defaults to try and recover the peaks.

The ion source parameters should by default be set to the optimum parameters for the type of ion source fitted. If required, for specific applications these parameters can be changed. There are four parameters to change and they have the following functions.

Emission current is the current of thermally emitted electrons that flows between the filament and the source plate. The emission current is regulated by the temperature of the filament and hence by the actual current passing through the filament. Up to a point higher emission current gives higher peak heights, however higher emission currents mean higher filament temperatures and shorter filament life. Nominal emission current is 1 mA but this should be reduced if running at high pressure or at low electron energy.

Electron Energy is the accelerating voltage between the filament and the ion source. It is therefore the energy that the electrons have in the ion source. The standard electron energy is 70eV however for particular applications this may be changed. For example reducing the energy below 40eV will prevent Ar<sup>++</sup> ions being formed. This will prevent a peak at mass 18 due to the doubly charged mass 36 isotope of argon.

Ion energy is the voltage of the ion source and hence the starting energy of the ions. Changing the ion energy will affect the ion optics of the source and would not normally be changed.

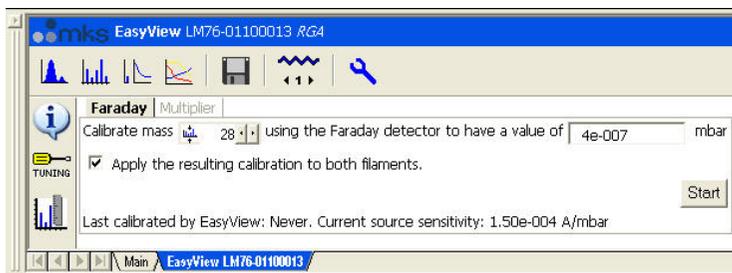
The extract voltage is the voltage on the extract plate in the ion source. This voltage again affects the ion optics of the source and would not normally be changed.

## 16.8 EasyView Calibration

To view the calibration page click on the **Calibration** button.



Click on **Faraday** tab to bring up the faraday calibration setup page.

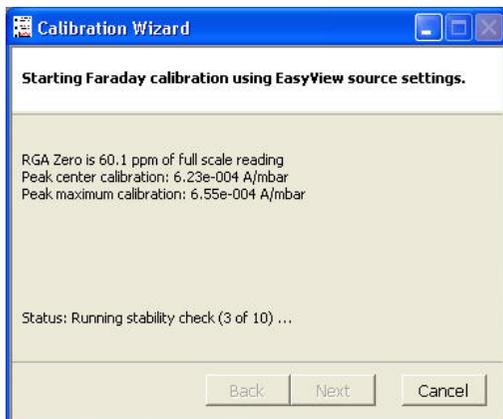


Pick a mass to calibrate on and enter the partial pressure of that mass. To start the calibration click on **<Start>**

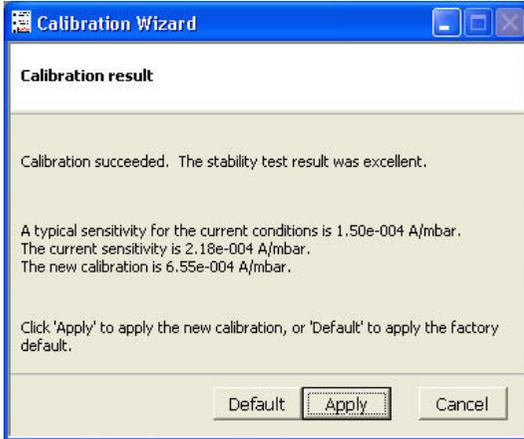
The date of the last calibration using these settings is displayed at the bottom of the window. In this case this is the first time the calibration has been run with these settings

Calibration can only be performed if the instrument is not in one of the scanning modes. If calibration is unavailable then the start button will be greyed out.

The calibration routine will then measure the zero, the peak maximum value and the peak center value of the mass chosen and then perform a stability check of 10 scans



Click **<Next>** to view the results of the calibration



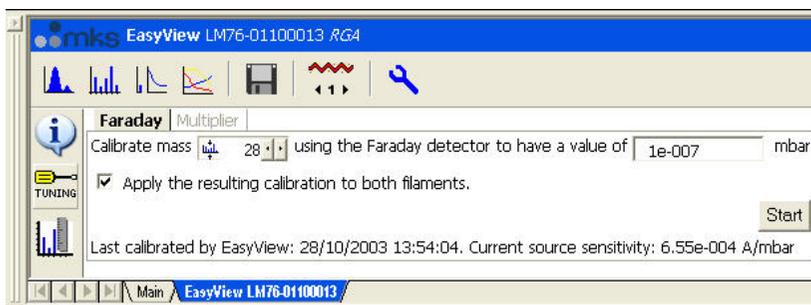
To exit without changing the calibration click **<Cancel>**

To apply the default calibration click **<Default>**

To use the calibration just performed click **<Apply>**



The calibration is now complete click on **<Finish>** to exit.



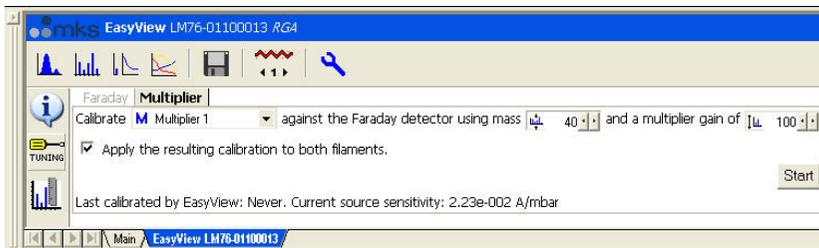
The date of the calibration and sensitivity value will then be displayed at the bottom of the EasyView window.

```
<MESSAGE Time="2003-10-28 13:52:58" Value="Calibrating RGA (Source: EasyView, Faraday detector)" />
<MESSAGE Time="2003-10-28 13:52:58" Value="Parameters: mass=28;pkht=1.00e-007" />
<MESSAGE Time="2003-10-28 13:52:58" Value="Existing sensitivity: 2.18e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:05" Value="Filaments have been on for 2.8 minutes" />
<MESSAGE Time="2003-10-28 13:53:08" Value="Gain: 100, fsp: 9.16e-005 mbar, RGA Zero is 60.1 ppm of full scale reading" />
<MESSAGE Time="2003-10-28 13:53:10" Value="Reading: 2.91e-007 mbar" />
<MESSAGE Time="2003-10-28 13:53:10" Value="Peak center calibration: 6.23e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:29" Value="Peak maximum calibration: 6.55e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:48" Value="Calibration succeeded. The stability test result was excellent." />
<MESSAGE Time="2003-10-28 13:53:57" Value="Calibration applied: EasyView: New factor = 6.55e-004 A/mbar" />
```

Details of the calibration will also be logged in the log file at

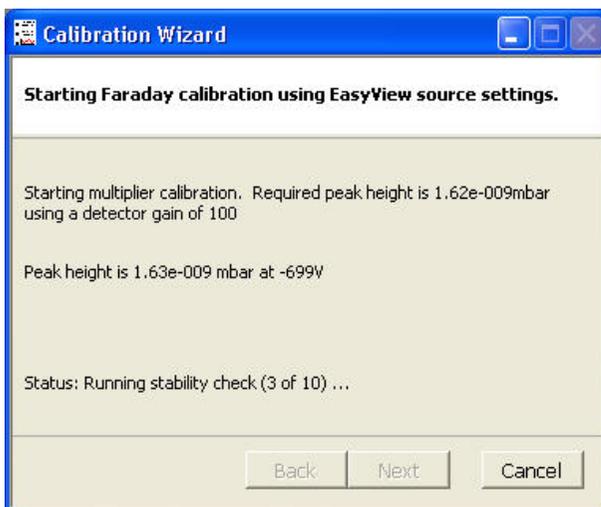
\\.\Process Eye\Logs\Process.xml

To calibrate the multiplier click on the **<Multiplier>** tab on the calibration page

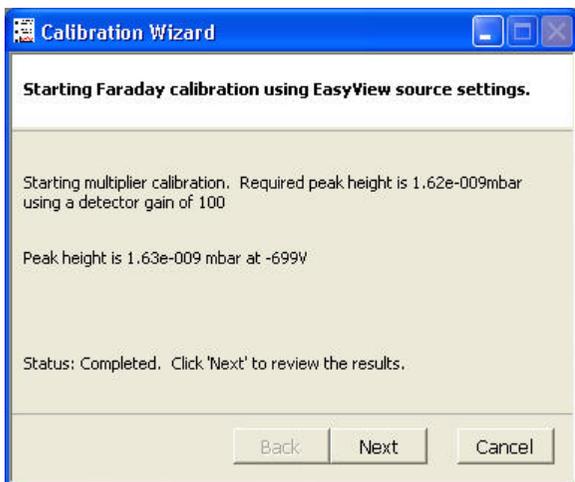


Select the multiplier setting to be calibrated from the drop down list, the mass to calibrate on and the multiplier gain required. The multiplier will be calibrated at the mass chosen, so that the pressure reported in faraday and multiplier at this mass will be the same.

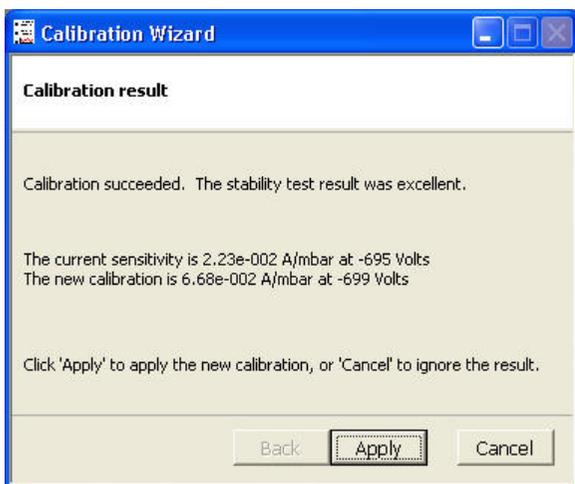
Click **<Start>** to begin the calibration



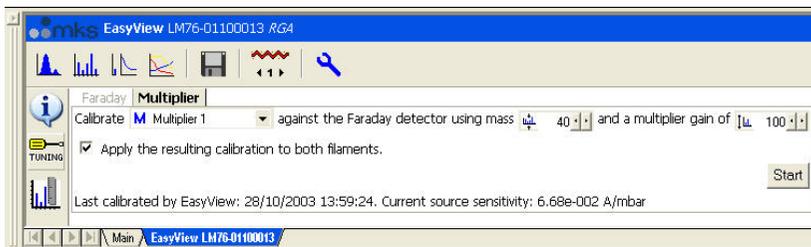
The calibration will perform a zero, measure the peak height in faraday, adjust the multiplier voltage so the peak height in multiplier with the gain specified matches and then check the stability.



When the calibration finishes, click **<Next>**



Details of the previous and current calibration will be displayed, click **<Apply>** to apply the current calibration.



The date and sensitivity of the current calibration will be displayed at the bottom of the EasyView window

```

<MESSAGE Time="2003-10-28 13:52:58" Value="Calibrating RGA (Source: EasyView, Faraday detector" />
<MESSAGE Time="2003-10-28 13:52:58" Value="Parameters: mass=28;pkht=1.00e-007" />
<MESSAGE Time="2003-10-28 13:52:58" Value="Existing sensitivity: 2.18e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:05" Value="Filaments have been on for 2.8 minutes" />
<MESSAGE Time="2003-10-28 13:53:08" Value="Gain: 100, fsp: 9.16e-005 mbar, RGA Zero is 60.1 ppm of full scale reading" />
<MESSAGE Time="2003-10-28 13:53:10" Value="Reading: 2.91e-007 mbar" />
<MESSAGE Time="2003-10-28 13:53:10" Value="Peak center calibration: 6.23e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:29" Value="Peak maximum calibration: 6.55e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:53:48" Value="Calibration succeeded. The stability test result was excellent." />
<MESSAGE Time="2003-10-28 13:53:57" Value="Calibration applied: EasyView: New factor = 6.55e-004 A/mbar" />
<MESSAGE Time="2003-10-28 13:55:51" Value="Calibrating RGA (Source: EasyView, Multiplier 1 detector" />
<MESSAGE Time="2003-10-28 13:55:51" Value="Parameters: mass=40;pkht=0.00e+000;dgain=100;mmpkht=0" />
<MESSAGE Time="2003-10-28 13:55:51" Value="Existing settings: sensitivity: 2.23e-002 A/mbar, voltage: -695.0 volts" />
<MESSAGE Time="2003-10-28 13:56:04" Value="Filaments have been on for 5.8 minutes" />
<MESSAGE Time="2003-10-28 13:57:01" Value="Peak height of mass 40.03amu using Faraday detector: 1.62e-009mbar" />
<MESSAGE Time="2003-10-28 13:57:01" Value="Starting multiplier calibration. Required peak height is 1.62e-009mbar using a detector gain of 100" />
<MESSAGE Time="2003-10-28 13:58:16" Value="The current sensitivity is 2.23e-002 A/mbar at -695 Volts The new calibration is 6.68e-002 A/mbar at -699 Volts" />
<MESSAGE Time="2003-10-28 13:58:32" Value="Calibration applied: EasyView: New factor = 6.68e-002 A/mbar" />

```

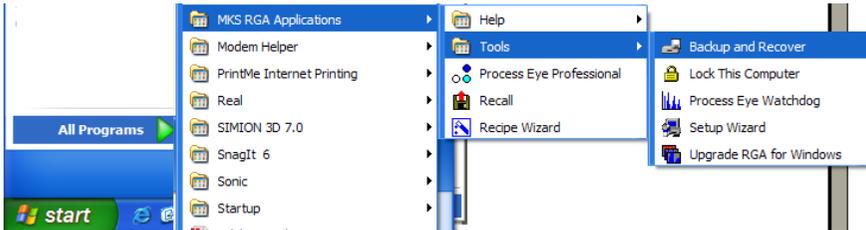
Details of the calibration will also be logged in the log file at

\\.\Process Eye\Logs\Process.xml

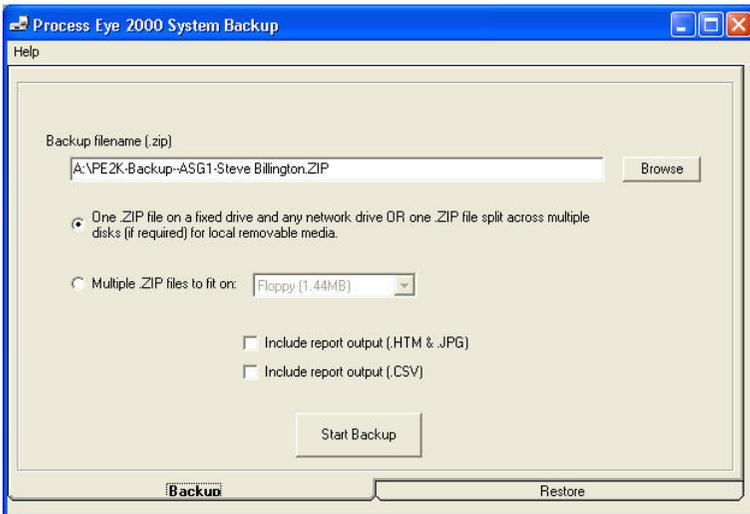
## Section 17 - Process Eye Tools

### 17.1 Backup and Recover

The backup and recover tool is used to backup the current Process Eye installation. The tool will backup all recipes and views as well as the registry settings for the current user.



To run, select **Backup and Recover** from **Start\MKS RGA Applications\Tools**



This will bring up the System Backup dialog, choose the location and name for the backup file.

To make a backup spanned across a number of disks, click the **Multiple Zip files to fit** option and select the type of media that the files must fit on. There is a custom size option, simply select and then enter the size of files to be created

Include report output (.HTM & .JPG)

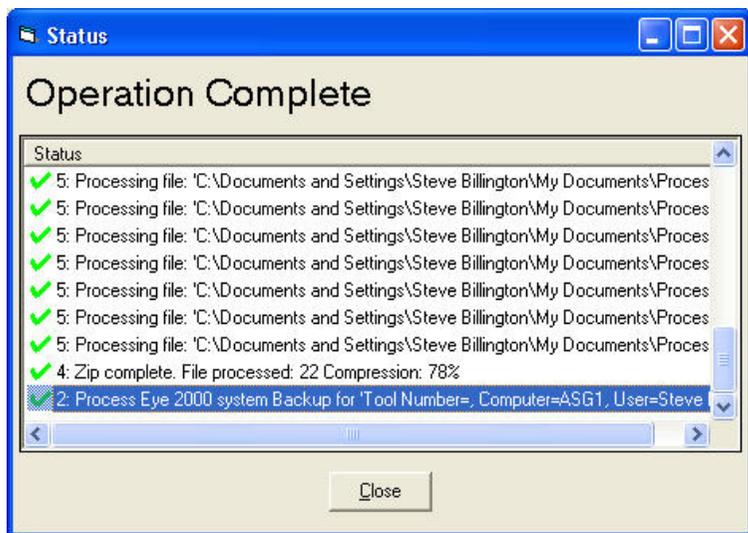
Include report output (.CSV)

If reports are also to be backed up check the relevant check boxes

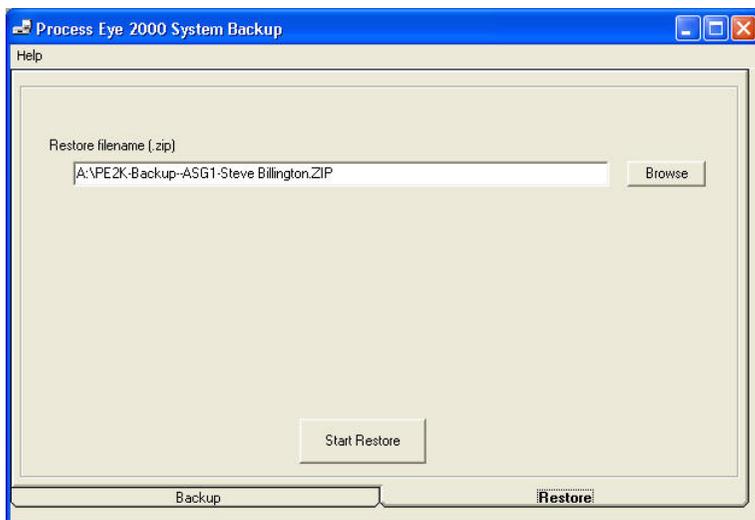
When the options have been selected click **<Start Backup>**



At the System Backup dialog click **<OK>**

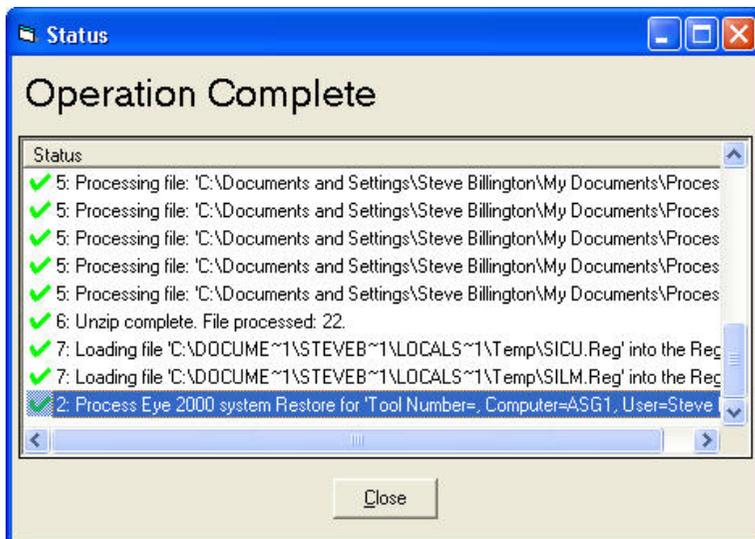


The files to be backed up will be added to the zip file, then the operation is complete then click **<Close>**



To restore a backed-up installation click on the **<Restore>** tab.

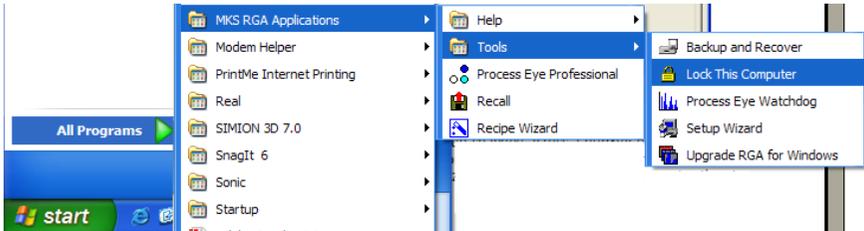
Click on **<Browse>** and select the backup file required from the standard file open dialog. To begin the restore process click on **<Start Restore>**



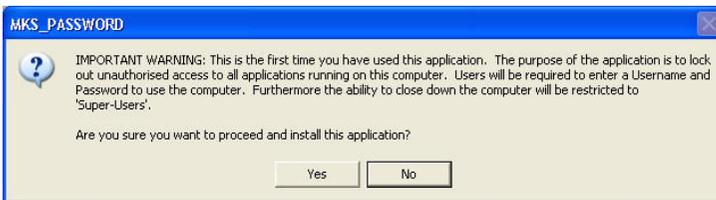
When the restore is complete click on **<Close>**

## 17.2 Computer Lock

Process Eye has the ability to lock the computer to prevent unauthorised use.



To run this utility select **Lock This Computer** from **Start\MKS RGA Applications\Tools**.



The first time the utility is run there is a warning dialog click **<Yes>** to continue



The above dialog gives the initial username and password, which is "admin" and a blank password field click **<Yes>** to continue



The computer will now be locked. To unlock the computer type "admin" in the **UserName** text box and then click on **<Logon>**

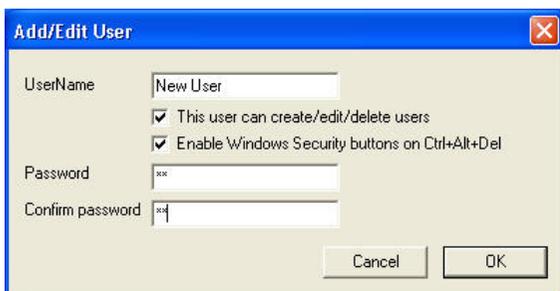


To lock the PC click on **<Lock PC>**. If you do nothing (ie no mouse actions or key presses) the PC will be locked anyway after 5 minutes. To configure the Lock PC utility click on **<Configure>**



In configure you can create, edit and delete users. You can also change the time without use before the computer is locked. To do this simply enter a number in the to text box.

When run for the first time the first action should be to create a new user, to do this click on **<Add New User>**



Enter a new user name and password. The password has to be typed twice to confirm it.

Two options are possible for this new user:

**This User Can Create/Edit/Delete Users** allows administrative privileges over the other users, when this option is not checked the user buttons on the configure dialog will be greyed out when you logon as this user.

**Note:** Before deleting the original default user, please ensure that at least one user with administrative privileges has been created

The second check box allows access to windows secure buttons when logged on. If this box is checked then the user can use ctrl+alt+del to bring up the windows task manger. The user can then go to applications and close the Computer Lock utility. If this button is not checked then this function is unavailable.



If you try to exit in this manner the above warning will be displayed, click **<Yes>** to exit



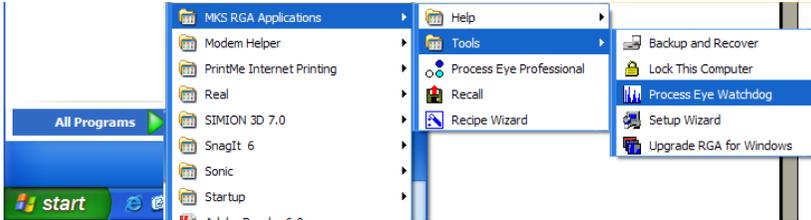
The new user will now appear in the list, click **<OK>** to continue



Log on as the new user by entering the new username and password. It is not possible to click on **<Configure>** and delete the "admin" user.

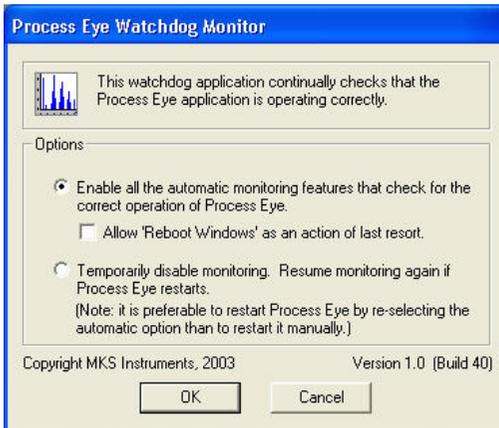
## 17.3 Process Eye Watchdog

The process eye watchdog utility monitors the performance of the Process Eye program. If it detects a problem with Process Eye it will attempt to restart the program.



Select **Process Eye Watchdog** from **Start\MKS RGA Applications\Tools**

The watchdog will then start Process Eye. To configure the watchdog double click on the icon in the taskbar.



The watchdog can be temporarily disabled by selecting the second option box and can cause windows to reboot if the **Allow Reboot Windows** checkbox is checked. However the program will automatically restart when Windows reboots, or if Process Eye is restarted.

The only way to stop the utility is to end the process "prowatch.exe" using the Windows Task Manager.