Cat. No. V234-E1-01

SYSMAC CS/CJ Series

WS02-EQMC1-V1

EQView

OPERATION MANUAL

OMRON

Notice:

OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

⚠DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Additionally, there may be severe property damage.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage.

⚠Caution Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

The abbreviation "Ch," which appears in some displays and on some OMRON products, often means "word" and is abbreviated "Wd" in documentation in this sense.

In this manual, "PLC" is used as the abbreviation for Programmable Controller.

Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

Note Indicates information of particular interest for efficient and convenient operation of the product.

1, 2, 3... 1. Indicates lists of one sort or another, such as procedures, checklists, etc.

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About this Manual:

This manual describes the installation and operation of the WS02-EQMC1-V1 EQView for the CS1W-SPU01 and CS1W-SPU02 SYSMAC SPU Units and includes the sections described below.

Please read this manual and all related manuals listed in the following table, and be sure you understand the information provided before attempting to install or operate an SYSMAC SPU Unit using the

EQView. Be sure to read the precautions provided in the following section.

Precautions provides general precautions for using the EQView, SPU-Console, SYSMAC SPU Unit, Programmable

Controller, and related devices.

Name	Cat. No.	Contents
WS02-EQMC1-V1 SYSMAC CS/CJ Series EQView (this manual)	V234	Describes the installation and operation of the EQView.
WS02-EDMC1-V2 SYSMAC SPU Data Management Middleware User's Manual	V232	Describes the installation and operation of the SYSMAC SPU Data Management Middleware (EDMS).
CS1W-SPU01/SPU02 CJ1W-SPU01 SYSMAC SPU Units Operation Manual	V229	Describes the installation and operation of the SYSMAC SPU Units.
WS02-SPTC1-V1 SPU-Console Operation Manual	V231	Describes the installation and operation of the SYSMAC SPU-Console.

Section 1 describes the four graphs that can be displayed with the EQView software and provides the specifications for them.

Section 2 provides the procedure for installing and uninstalling the EQView software on a personal computer.

Section 3 describes the menus for the graph display functions, along with basic operations, such as starting and existing the EQView.

Section 4 describes the settings and procedures required to display online trend graphs. It also describes the meaning and application of abstract variables and user notification.

Section 5 describes the settings and procedures required to display historical trend graphs.

Section 6 describes the settings and procedures required to display overlay graphs. It also describes the meaning and application of deviation analysis and threshold values.

Section 7 describes the settings and procedures required to display comparison graphs.

Section 8 describes creating and using variable catalogs.

Section 9 describes the meaning and application of linking using ID tables.

Section 10 describes troubleshooting, including troubleshooting online trend graphs.

⚠WARNING Failure to read and understand the information provided in this manual may result in personal injury or death, damage to the product, or product failure. Please read each section in its entirety and be sure you understand the information provided in the section and related sections before attempting any of the procedures or operations given.

Read and Understand This Manual

Please read and understand this manual before using the product. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY
OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY
OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted. IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this manual.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this manual is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

ERRORS AND OMISSIONS

The information in this manual has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

PRECAUTIONS

This section provides general precautions for using the EQView and the SPU-Console Ver. 1.3 and CS1W-SPU01 and CS1W-SPU02 SYSMAC SPU Units.

The information contained in this section is important for the safe and reliable application of EQView and SYSMAC SPU Units. You must read this section and understand the information contained before attempting to set up or operate an SYSMAC SPU Unit using the EQView.

1 Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of installing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of managing FA systems and facilities.

2 General Precautions

The user must operate the product according to the performance specifications described in the operation manuals.

Before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment amusement machines, safety equipment, and other systems, machines, and equipment that may have a serious influence on lives and property if used improperly, consult your OMRON representative.

Make sure that the ratings and performance characteristics of the product are sufficient for the systems, machines, and equipment, and be sure to provide the systems, machines, and equipment with double safety mechanisms.

This manual provides information for programming and operating the Unit. Be sure to read this manual before attempting to use the Unit and keep this manual close at hand for reference during operation.

⚠WARNING It is extremely important that a PLC and all PLC Units be used for the specified purpose and under the specified conditions, especially in applications that can directly or indirectly affect human life. You must consult with your OMRON representative before applying a PLC System to the above-mentioned applications.

3 Safety Precautions

⚠**WARNING** Do not attempt to take any Unit apart while the power is being supplied. Doing so may result in electric shock.

⚠**WARNING** Do not touch any of the terminals or terminal blocks while the power is being supplied. Doing so may result in electric shock.

⚠**WARNING** Do not attempt to disassemble, repair, or modify any Units. Any attempt to do so may result in malfunction, fire, or electric shock.

⚠**Caution** Execute online editing only after confirming that no adverse effects will be caused by extending the cycle time. Otherwise, the input signals may not be readable.

⚠**Caution** Emergency stop circuits, interlock circuits, limit circuits, and similar safety measures must be provided in external control circuits.

⚠**Caution** Tighten the screws on the terminal block of the AC Power Supply Unit to the torque specified in the operation manual. The loose screws may result in burning or malfunction.

4 Operating Environment Precautions

⚠**Caution** Install the SYSMAC SPU Unit correctly as described in the CS Series PLC Operation Manual or CJ Series PLC Operation Manual.

5 Application Precautions

Observe the following precautions when using the SYSMAC SPU Unit.

⚠**WARNING** Always heed these precautions. Failure to abide by the following precautions could lead to serious or possibly fatal injury.

- Always connect to a ground of 100 Ω or less when installing the Units.Not connecting to a ground of 100 Ω or less may result in electric shock.
- Always turn OFF the power supply to the CPU Unit, Slaves, and Communications Units before attempting any of the following. Not turning OFF the power supply may result in malfunction or electric shock.
  - Mounting or dismounting I/O Units, CPU Units, Memory Packs, or Master Units.
  - Assembling the Units.
  - Setting DIP switches or rotary switches.
  - Connecting cables or wiring the system.

⚠**Caution** Failure to abide by the following precautions could lead to faulty operation of the SYSMAC SPU Unit or the system, or could damage the SYSMAC SPU Unit. Always heed these precautions.

- Fail-safe measures must be taken by the customer to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes.
- Interlock circuits, limit circuits, and similar safety measures in external circuits (i.e., not in the Programmable Controller) must be provided by the customer.
- Always use the power supply voltages specified in the operation manuals. An incorrect voltage may result in malfunction or burning.
- Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied. Be particularly careful in places where the power supply is unstable. An incorrect power supply may result in malfunction.
- Install external breakers and take other safety measures against short-circuiting in external wiring. Insufficient safety measures against short-circuiting may result in burning.
- Install the PLC away from devices that generate high-frequency noise.
- Disconnect the Power Supply Unit's LG terminal from the GR terminal before conducting an insulation resistance test or withstand voltage test.
- Do not drop the SPU Unit or subject it to excessive vibration or shock.
- Make sure that all the Backplane mounting screws, terminal block screws, and cable connector screws are tightened to the torque specified in the relevant manuals. Incorrect tightening torque may result in malfunction.
- Leave the label attached to the Unit when wiring. Removing the label may result in malfunction if foreign matter enters the Unit.
- Remove the label after the completion of wiring to ensure proper heat dissipation. Leaving the label attached may result in malfunction.
- Use crimp terminals for wiring. Do not connect bare stranded wires directly to terminals. Connection of bare stranded wires may result in burning.
- Double-check all wiring and switch settings before turning ON the power supply. Incorrect wiring may result in burning.
- Wire all connections correctly.
- Mount Units only after checking terminal blocks and connectors completely.
- Make sure that the terminal blocks, expansion cables, and other items with locking devices are locked in place.
- When transporting the Unit, use special packing boxes and protect it from being exposed to excessive vibration or impacts during transportation.
- Check the user program for proper execution before actually running it on the Unit. Not checking the program may result in unexpected operation.
- Observe the following precautions when wiring the communications cable.
  - Separate the communications cables from the power lines or high-tension lines.
  - Do not bend the communications cables past their natural bending radius.
  - Do not pull on the communications cables.
  - Do not place heavy objects on top of the communications cables.
  - Always lay communications cable inside ducts.
  - Use appropriate communications cables.

- Before touching a Unit, be sure to first touch a grounded metallic object in order to discharge any static build-up. Not doing so may result in malfunction or damage.
- Confirm that no adverse effect will occur in the system before attempting any of the following. Not doing so may result in an unexpected operation.
  - Changing the operating mode of the PLC (including the setting of the startup operating mode).
  - Force-setting/force-resetting any bit in memory.
  - Changing the present value of any word or any set value in memory.
  - Touch the Unit only after first touching a grounded metal object to discharge any static electricity from your body.
  - Do not remove the Memory Card while the CARD indicator is lit. Doing so may damage the files on the Memory Card.
  - Do not turn OFF the power supply while Memory Card data is being accessed. Doing so may damage the files on the Memory Card.
  - Maintain the operating environment for the Memory Cards (such as the ambient operating temperature and other conditions). Request operating environment conditions from the manufacture of the card.
  - OMRON is not responsible for the operation of any memory cards produced by other manufacturers.
  - We recommend making a backup of the PC Card or Memory Card to prevent loosing the data inadvertently, e.g., by mistakenly deleting it.
  - Only Memory Cards can be used in the PC Card slot in a CS-series SYSMAC SPU Unit. Modem cards and Ethernet cards, which are not Memory Cards, cannot be used. Do not insert anything but Memory Cards into the Memory Card slot.
  - Make sure that the PC card or Memory Card is in the guides when inserting it. Faulty operation may result if the card is not in the guides.
  - Always lock the Memory Card in place with the card holder or card cover after inserting it. The Memory Card may become disconnected if it is not locked in place, causing faulty operation.
  - Always confirm that the Memory Card is facing the correct direction before inserting it. If a Memory Card is forced into the slot in the wrong direction, the Memory Card or guides may be damaged.
  - Always confirm the command code displayed on the 7-segment display before pressing the ENTER Button. Faulty operation may result if the command code is incorrect.
  - Never restart or turn OFF the power to the SYSMAC SPU Unit while changing sampling settings or other settings. “P1,” “P2,” and through “PE” will be displayed on the 7-segment display while sampling settings are being changed. the SYSMAC SPU Unit is restarted or turned OFF before completing the change operation, the system file being changed may be damaged.
  - Do not turn OFF the power supply to the Unit while transferring the Unit parameters or other data. Doing so may result in incorrect data being transferred to the Unit or the Unit may malfunction.
  - With the CJ1W-SPU01 SYSMAC SPU Unit, do not connect anything other than a UPS connection to the COMM port. Doing so may inadvertently shut down the SYSMAC SPU Unit.

6 Conformance to EC Directives

6-1 Applicable Directives

- EMC Directives
- Low Voltage Directive

6-2 Concepts

EMC Directives

OMRON devices that comply with EC Directives also conform to the related EMC standards so that they can be more easily built into other devices or the overall machine. The actual products have been checked for conformity to EMC standards (see the following note). Whether the products conform to the standards in the system used by the customer, however, must be checked by the customer.

EMC-related performance of the OMRON devices that comply with EC Directives will vary depending on the configuration, wiring, and other conditions of the equipment or control panel on which the OMRON devices are installed.

The customer must, therefore, perform the final check to confirm that devices and the overall machine conform to EMC standards.

Note Applicable EMS (Electromagnetic Susceptibility) and EMI (Electromagnetic Interference) Standards in the EMC (Electromagnetic Compatibility) standards are as follows:

Unit	EMS	EMI
CS1W-SPU01	EN61000-6-2	EN61000-6-4 (Radiated emission; 10-mregulations)*
CS1W-SPU02		
CJ1W-SPU01		

Low Voltage Directive

Always ensure that devices operating at voltages of 50 to 1,000 V AC and 75 to 1,500 V DC meet the required safety standards for the PLC (EN61131-2).

SECTION 1
Introduction

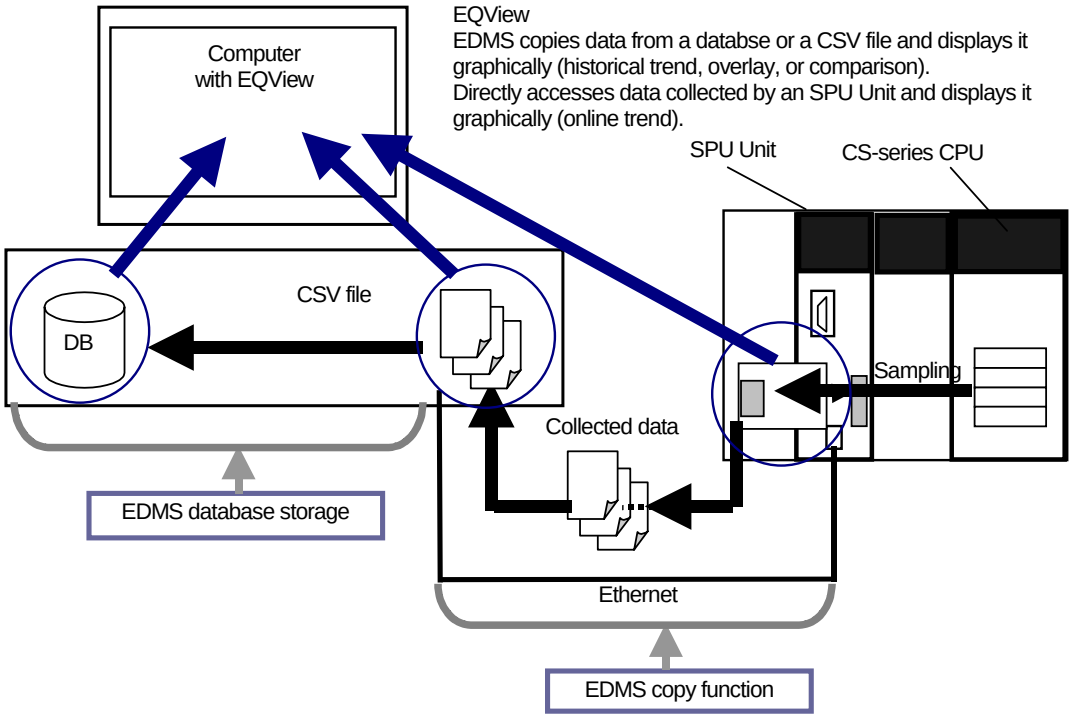
1-1 Overview

EQView is graphing software that uses the data collected by SPU Units and SYSMAC SPU data management middleware (hereafter called EDMS). By displaying both time charts and trend graphs on one display, you can see changes in sequence and timing at a glance.

1-1-1 Features

Graphable Data

- Data collected from an SPU Unit (CSV); EDMS-generated files (CSV); database files read by this software (historical trend, overlay, comparison)
- CSV files read from an SPU Unit, automatically refreshing at fixed intervals (online trend)



Note EQView can also graph data from the SPU Unit memory card by transferring it to the computer.

Graph Types

EQView can generate the following four types of graph:

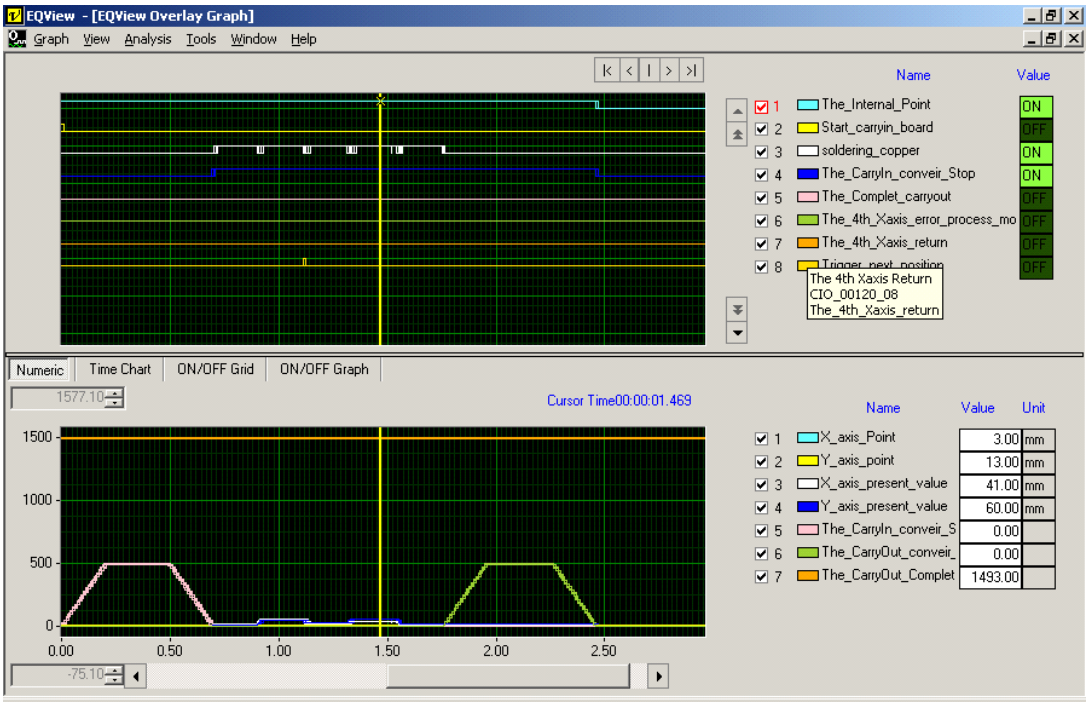
Graph Type	Function/Application
Online trend graph	Generates a graph by reading CSV files generated by the SPU Unit at fixed intervals. Identifies trends and changes in collected data. User-notification functionality monitors specified points for specified situtations (ondisplay or running FINS commands).
Historical trend graph	Generates graphs by reading CSV files from EDMS or a database on the computer. Identifies changes in data as they occur in chronological order. Can also identify differences in time or other values between two variables.
Overlay graph	Collects data on user-specified conditions at specific intervals, and displays the data for each cycle in an overlay. This allows the user to compare differences in time or other values between each cycle after generating historical graphs.
Comparison graph	Generates overlay graphs of all key data (ID), daily data, variable data, or CSV files. Can also overlay and compare past data as well as user-specified data.

To generate an online trend graph, select Programs | OMRON | EQView | Online Trend from the Start menu.

To generate an historical trend, overlay, or comparison graph, select Programs | OMRON | EQView | Historical Trend (Comparison) from the Start menu.

Graph Functions

Displays both point and numeric graphs simultaneously in one display:

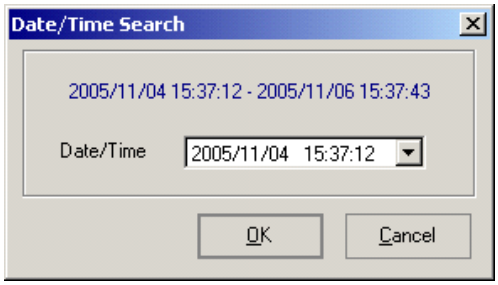


- When similar patterns of change are detected in the collected data, each pattern is separated and displayed in an overlay graph.
- Isolates key data (e.g. lot number, model number, etc.) from collected data and displays it as an overlay graph.

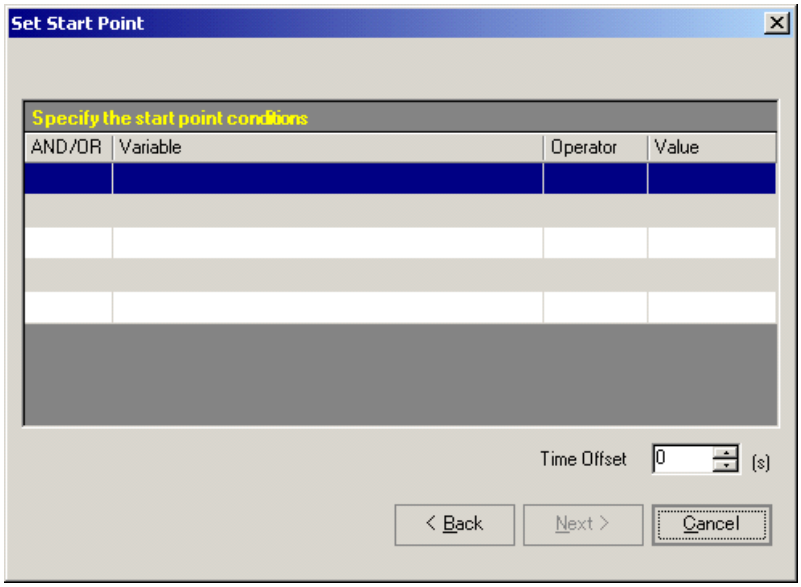
- From the above, differences in variables or timing based on patterns or key data are readily visible.
- Overlay graphs can be saved, allowing stored data to be read and added to other graphs.

Data Extraction

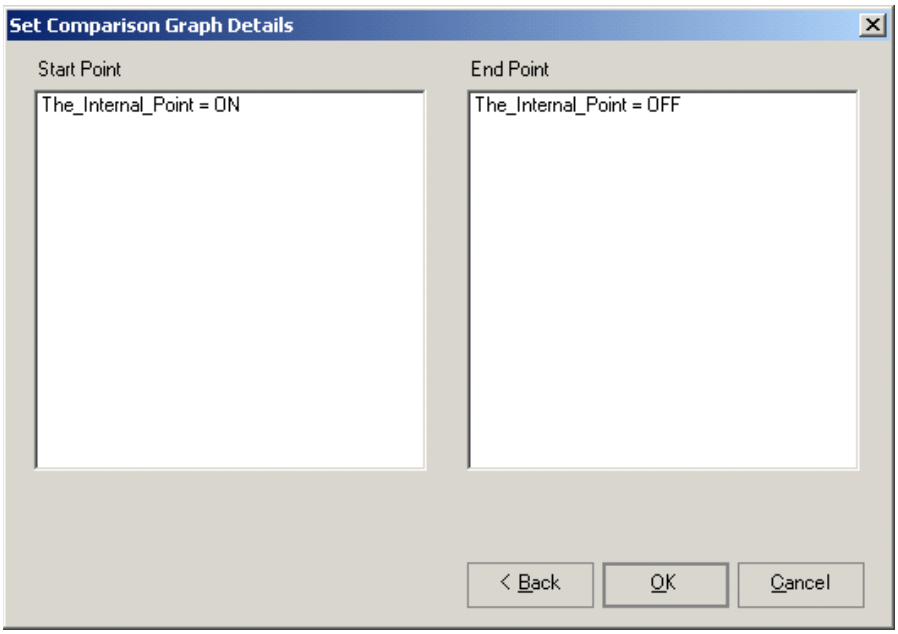
Extract the necessary data from a specific period by specifying the date and time:



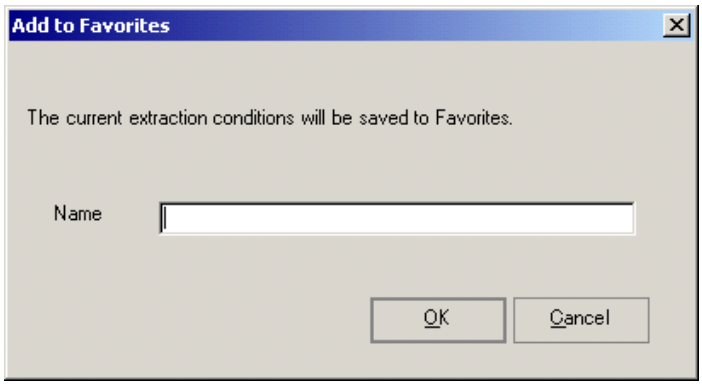
Extract the necessary data from a range by specifying variable conditions in the collected data:



Similarly, set variable conditions for extracting comparison graph data:

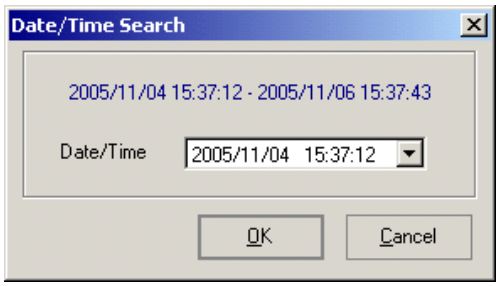


Save the data extraction conditions:

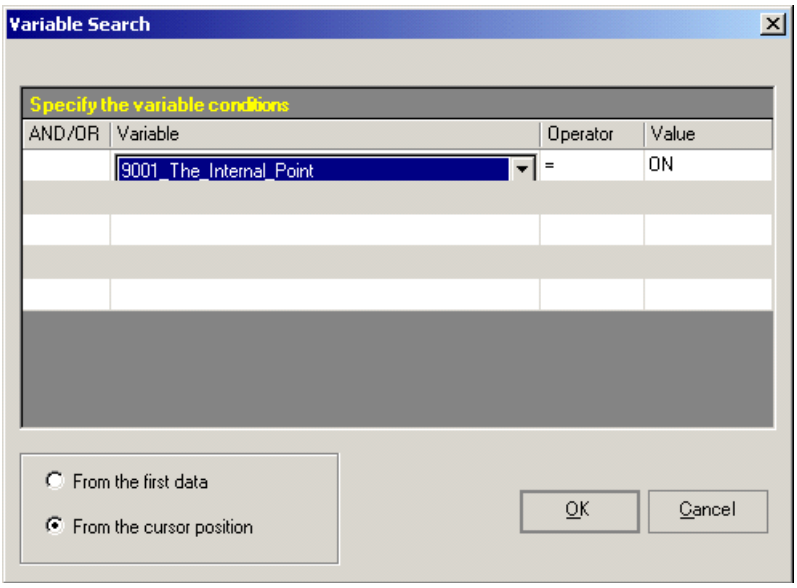


Search Function

Search for a date and time:

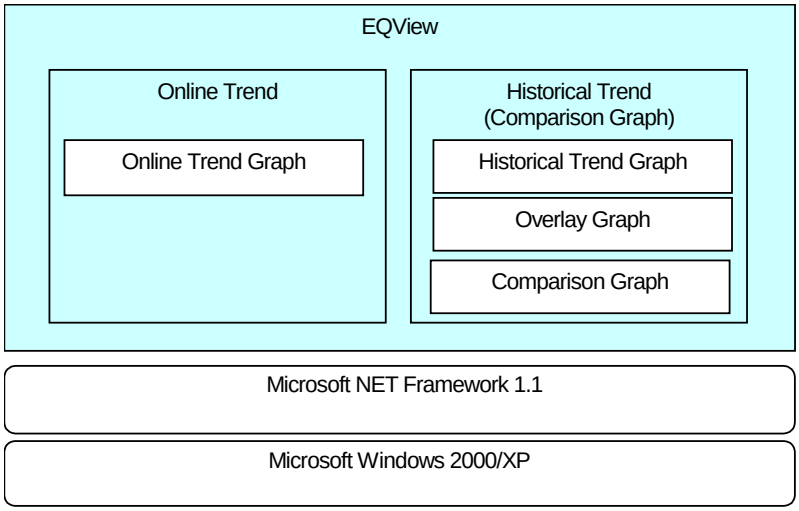


Search for variable conditions:



1-1-2 Software Configuration

EQView consists of the following programs:



1-1-3 System Specifications

Item		Description	
Model		WS02-EQMC1-V1	
System	Processor	Intel Pentium/Celeron, or compatible processor	
	OS	Microsoft Windows 2000 Professional, Microsoft Windows XP Home Edition, or Microsoft Windows XP Professional	
	Memory (RAM)	1 GB or better, is recommended. Note: Large graphs may require extensive memory resources.	
	Display	XGA (1024 x 768), or higher resolution video adaptor and monitor	
	CD-ROM Drive	Required for installation	
	Mouse	Mouse supported by the applicable OS	
	Network Card	Computers without a LAN port require an Ethernet network card (commercially available).	
	Application Platform (environment)	Microsoft .NET Framework Version1.1 Microsoft Data Access Components 2.6, or higher	
Communications Platform		FinsGateway Version 2003	
Other Software Requirements		Separate SPU Console to input SPU settings. Separate data management middleware (EDMS) to store data files generated by the SPU Unit.	
Basic Functions		Graphing	Displays point data or numerical data vertically in one display.
		Graphable variables	Maximum of 64 points or numeric values
Online Trend		Graphs trends by periodically sampling stored data from the SPU Unit data card	
		Display timing	Cycle for reading SPU Unit to update graph: 5 seconds
		Variable calculations	Performs calculations on read variables, displays updated variables. Includes mathematic, logical, and time/quantity calculations.
		User notification	Can be configured for up to five conditions for notification. Other options include notification of the first instance only, or everytime specified conditions occur.
Historical Trend		Generates trend graphs by reading CSV files or database data stored on a computer by EDMS middleware software.	
		Extraction conditions	Extract data from any selected period. Extract data based on up to five variables. Up to five extraction conditions can be stored for later use. Extraction conditions can also be saved in files.
		Graph manipulation	Graph enlargment/reduction Order of variable display Difference between two points (cursor pallette), etc.
Overlay Graphs		Overlays data from historical trends according to specific data conditions.	
		Overlay conditions	Up to five starting or ending conditions.
Comparison Graphs		Generates graphs by combining flagged data together in one graph.	
		Comparison mode	ID: Compares according to key data (data string) Date: Compares according to date Variable: Compares according to variable File: Compares according to file

1-1-4 Package Contents

Model WS02-EQMC1-V1 contains the following software and data:

- EQView Installation program

  The EQView installation program is used to install the EQView program onto a computer.

- Microsoft .NET Framework Version 1.1 Redistributable package

  Microsoft .NET Framework Version1.1 is required to run EQView. The re-distributable Microsoft .NET Framework can be used to install .NET Framework on the computer.

- FinsGateway Version2003.20 ETN_UNIT

  The FinsGateway version 2003 communications middleware is required to run the SPU Console.

- Microsoft Data Access Components (MDAC) 2.8 SP1

  Microsoft Data Access Components (MDAC) are required to access the Microsoft database. Requires version 2.6, or newer.

- Operation Manual

  This operation manual is included in PDF format in this package.

SECTION 2
Installation

2-1 Installing the Software

2-1-1 Before Installing

Before installing EQView, ensure that the computer meets the conditions specified in 1-1-3 System Specifications. The following software must be installed on the computer before EQView is installed:

- Microsoft .NET Framework Version 1.1
- FinsGateway Version2003 ETN_UNIT
- Microsoft Data Access Components (MDAC)

All of the above software can be installed from the EQView installation disk. The installation and removal procedures for EQView, Microsoft .NET Framework, FinsGateway, and MDAC are provided below.

Note Administrator rights are required to install and operate EQView.

2-1-2 EQView

Follow the steps below to install EQView:

1,2,3…

1. Start the computer and log in as the administrator.
2. Insert the EQView installation disk into the CD-ROM drive. The following installation program will start automatically.

If the program does not start automatically, execute the following file:

[CD-ROM_Drive]:\SetupLauncher.exe

3. Click Install EQView.
   The OMRON EQView Version 1.0 setup program will run. Follow the ondisplay instructions.

Note If Microsoft .NET Framework is not installed, an error message will be displayed and the setup program will end. In this case, follow the instructions below to install the required software and then install EQView.

2-1-3 Microsoft .NET Framework

Microsoft .NET Framework Version 1.1 is required to run EQView. Install it as follows if it is not already installed.

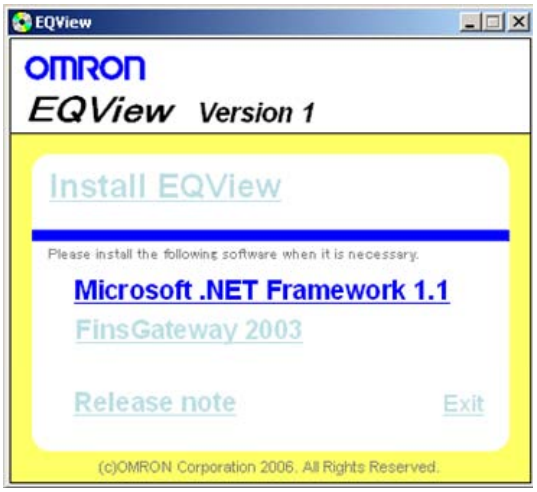
Note Microsoft .NET Framework Version1.1 is required to use EQView. Version 1.0, 2.0 or any other version will not work. Be sure that version 1.1 is installed.

Installing Microsoft .NET Framework

Microsoft .NET Framework Version 1.1 is included on the EQView installation disk as a redistributable package. Follow these steps to install the redistributable package:

1,2,3…

1. Start the computer and log in as the administrator.
2. Insert the EQView installation disk into the CD-ROM drive. The following program will start automatically:



If the program does not start automatically, execute the following file:

[CD-ROM_Drive]:\SetupLauncher.exe

3. Click Microsoft .NET Framework 1.1. The Microsoft .NET Framework 1.1 setup program will run. Follow the instructions provided by the program.

Installing with Windows Update

Microsoft .NET Framework can also be installed using Windows Update. An internet connection is required to run Windows Update.

Note Windows Update is a utility that comes with Microsoft Windows.

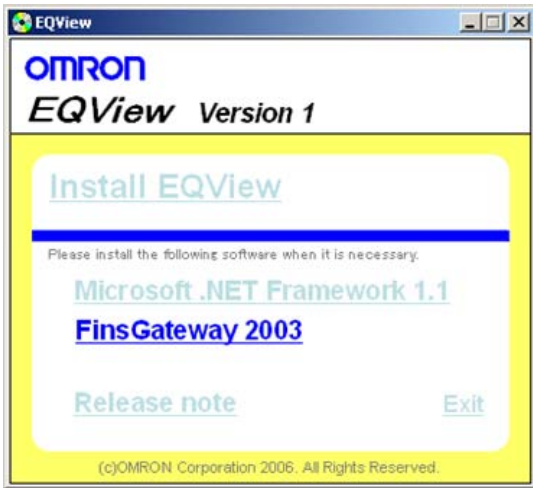
- For Windows 2000, select Windows Update from the Start menu.
- For Windows XP, select Windows Update from Programs in the Start menu.

2-1-4 FinsGateway

FinsGateway Version 2003 ETN_UNIT must be installed to use EQView. If an earlier version is installed, be sure to uninstall the earlier version before installing Version 2003. The computer must be restarted to complete the installation.

1,2,3…

1. Start the computer and log in as the administrator.
2. Insert the EQView installation disk into the CD-ROM drive. The following program will start automatically:



If the program does not start automatically, execute the following file:

[CD-ROM drive]:\SetupLauncher.exe

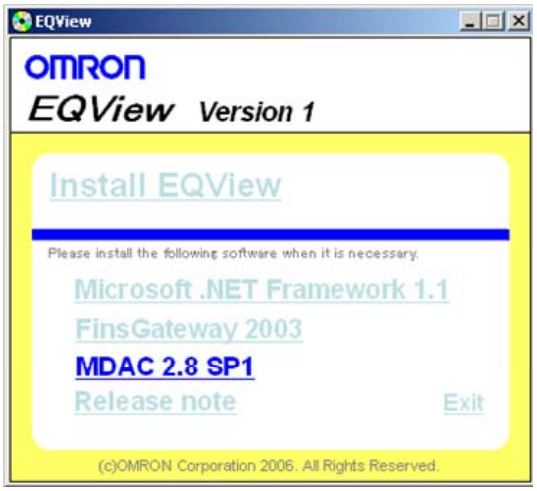
3. Click FinsGateway 2003. The OMRON FinsGateway Version 2003 Embedded Edition (ETN_UNIT) setup program will start. Follow the ondisplay instructions.
4. Restart the computer to complete the installation.

2-1-5 MDAC

Microsoft Data Access Components (MDAC) 2.6 or newer is required to run EQView. Install it using the following steps if it is not already installed:

1,2,3…

1. Start the computer and log in as the administrator.
2. Insert the EQView installation disk into the CD-ROM drive. The following program will start automatically:



If the program does not start automatically, execute the following file:

[CD-ROM drive]:\SetupLauncher.exe

3. Click MDAC 2.8 SP1

   The Microsoft Data Access Components 2.8 SP1 setup program will start. Follow the ondisplay instructions.

Note If Microsoft Data Access Components 2.6 or newer is already installed, the MDAC 2.8 SP1 option will not be displayed.

2-2 Removing EQView

Follow the steps below to remove EQView:

1,2,3…

1. Start the computer and log in as the administrator.
2. From the Start menu, select Control Panel.
3. Run Add or Remove Programs (Add or Remove Applications, in Windows 2000.)
4. Select OMRON EQVIEW Version 1.0 from Currently Installed Programs. The Setup maintenance program will start.
5. Select Remove, and click Next. Follow the ondisplay instructions.

SECTION 3
Basic Operations

3-1 Menu Summary

3-1-1 Online Trend Graph Menus

Graph Menu

Submenu	Description
New	Create a new online trend graph.
Save	Save the currently displayed graph as a CSV file.
Copy to Clipboard	Copy the currently displayed graph to the clipboard.
Print	Print the currently displayed graph.
Close	Close the graph.

View Menu

Submenu		Description
Variable Labels	Names	Display the variable names.
	Addresses	Display the variable addresses.
	Descriptions	Display the variable descriptions.
Variable Order		Manually change the variable display order.
Scale	Auto	Set the vertical scale automatically.
	Manual	Set the vertical scale manually.
Colors	Display Colors	Display the graph using the display color settings.
	Print Colors	Display the graph using the print color settings.

User Notification Menu

Submenu	Description
Set Triggers	Set the notification conditions.
History	Display the notification history.

Tools Menu

Submenu		Description
SPU Information		Display the SPU Unit data and status.
Set Colors	Display Colors	Change the display color settings.
	Print Colors	Change the print color settings.
Options		Set the options.

Windows Menu

Submenu	Description
Tile Vertically	Display the windows vertically.
Tile Horizontally	Display the windows horizontally.
Cascade	Cascade the windows.

Help Menu

Submenu	Description
About...	Display the software version.

3-1-2 Historical Trend Graph Menus

Graph Menu

Submenu		Description
Historical Trend	New	Create a new historical trend graph.
Comparison	New	Create a new comparison graph.
Favorites	Add to Favorites	Create a bookmark to the currently displayed graph.
	Import	Import the graph display bookmark settings from a file.
	Export	Save the graph display bookmark settings to a file.
Properties		Display the current settings.
Load		Open a graph data CSV file.
Save		Save the currently displayed graph as a CSV file.
Copy to Clipboard		Copy the currently displayed graph to the clipboard.
Print		Print the currently displayed graph.
Close		Close the graph.

View Menu

Submenu		Description
Variable Labels	Names	Display the variable names.
	Addresses	Display the variable addresses.
	Descriptions	Display the variable descriptions.
Variable Order	Sort Variables Manually	Manually change the variable display order.
	ON Order	Arrange the variable point display in ascending chrono-logical order starting from the graph cursor.
	OFF Order	Arrange the variable point display in descending chrono-logical order starting from the graph cursor.
Shift Variables		Shift the variable display by a specified period of time.
Scale	Auto	Set the vertical scale automatically.
	Manual	Set the vertical scale manually.
Cursor Palette		Display the Cursor Pallete dialog.
Colors	Display Colors	Display the graph using the display color settings.
	Print Colors	Display the graph using the print color settings.

Analysis Menu

Submenu		Description
Overlay Graph	Show	Display the overlay graph.
	Favorites | Import	Open a display settings file.

Search Menu

Submenu		Description
Date/Time Search		Search for data from a specified time.
Variable Search		Search for data based on specified variable conditions.
Favorites	Add to Favorites	Create a bookmark to the current search parameters.
	Import	Import the search parameter bookmark settings from a file.
	Export	Save the search parameter bookmark settings to a file.
Exit Search Mode		Exit search mode, and return to standard mode.

Tools Menu

Submenu		Description
Set Colors	Display Colors	Change the display color settings.
	Print Colors	Change the print color settings.
Options		Set the options.

Window Menu

Submenu	Description
Tile Vertically	Display the windows vertically.
Tile Horizontally	Display the windows horizontally.
Cascade	Cascade the windows.

Help Menu

Submenu	Description
About...	Display the software version.

3-1-3 Overlay Graph Menus

Graph Menu

Submenu		Description
Historical Trend	New	Create a new historical trend graph.
Comparison Graph	New	Create a new comparison graph.
Favorites	Add to Favorites	Create a bookmark to the currently displayed graph.
	Import	Import the graph display bookmark settings from a file.
	Export	Save the graph display bookmark settings to a file.
Properties		Display the current settings.
Load		Open a graph data CSV file.
Save		Save the currently displayed graph data as a CSV file.
Copy to Clipboard		Copy the currently displayed graph to the clipboard.
Print		Print the currently displayed graph.
Close		Close the graph.

View Menu

Submenu		Description
Variable Labels	Names	Display the variable names.
	Addresses	Display the variable addresses.
	Descriptions	Display the variable descriptions.
Scale	Auto	Set the vertical scale automatically.
	Manual	Set the vertical scale manually.
Cursor Palette		Display the Cursor Pallete dialog.
Colors	Display Colors	Display the graph using the display color settings.
	Print Colors	Display the graph using the print color settings.

Analysis Menu

Submenu		Description
Overlay Graph	Favorites | Add to Favorites	Create a bookmark to the currently displayed graph.
	Favorites | Import	Import the graph settings from a file.
	Favorites | Export	Save the graph settings as a file.
	Select Overlay Data	Select the overlay data to display.
	Save Master Data	Save the master data to a file.
	Load Master Data	Open the master data from a file.
	Clear Master Data	Clear the master data from the display.
	Align	Align the overlay data.
	Compare Thresh-olds	Display and compare the master data variable thresholds.

Tools Menu

Submenu		Description
Set Colors	Display Colors	Change the display color settings.
	Print Colors	Change the print color settings.
Options		Set the options.
Alignment Deviation Levels		Set the deviation analysis values.
Threshold Value		Set the threshold value.

Window Menu

Submenu	Description
Tile Vertically	Display the windows vertically.
Tile Horizontally	Display the windows horizontally.
Cascade	Cascade the windows.

Help Menu

Submenu	Description
About...	Display the software version.

3-1-4 Comparison Graph Menus

Graph Menu

Submenu		Description
Historical Trend	New	Create a new historical trend graph.
Comparison Graph	New	Create a new comparison graph.
Favorites	Add to Favorites	Create a bookmark to the currently displayed graph.
	Import	Import the graph display bookmark settings from a file.
	Export	Save the graph display bookmark settings to a file.
Properties		Display the current settings.
Load		Open a graph data CSV file.
Save		Save the currently displayed graph as a CSV file.
Copy to Clipboard		Copy the currently displayed graph to the clipboard.
Print		Print the currently displayed graph.
Close		Close the graph.

View Menu

Submenu		Description
Variable Labels	Names	Display the variable names.
	Addresses	Display the variable addresses.
	Descriptions	Display the variable descriptions.
Variable Order	Sort Variables Manually	Manually change the variable display order.
	ON Order	Arrange the variable point display in ascending chrono-logical order starting from the graph cursor.
	OFF Order	Arrange the variable point display in descending chrono-logical order starting from the graph cursor.
Shift Variables		Shift the variable display by a specified period of time.
Scale	Auto	Set the vertical scale automatically.
	Manual	Set the vertical scale manually.
Cursor Palette		Display the Cursor Pallete dialog.
Colors	Display Colors	Display the graph using the display color settings.
	Print Colors	Display the graph using the print color settings.

Analysis Menu

Submenu		Description
Master Data	Load	Read the master data from a file.
	Save	Save the master data to a file.
Line	Add	Create the comparison graph data.
	Delete	Delete the comparison graph data.

Search Menu

Submenu		Display
Variable Search		Search for data based on specified variable conditions.
Favorites	Add to Favorites	Create a bookmark to the current search parameters.
	Import	Import the search parameter bookmark settings from a file.
	Export	Save the search parameter bookmark settings to a file.
Exit Search Mode		Exit search mode, and return to standard mode.

Tools Menu

Submenu		Description
Set Colors	Display Colors	Change the display color settings.
	Print Colors	Change the print color settings.
Options		Set the options.

Window Menu

Submenu	Description
Tile Vertically	Display the windows vertically.
Tile Horizontally	Display the windows horizontally.
Cascade	Cascade the windows.

Help Menu

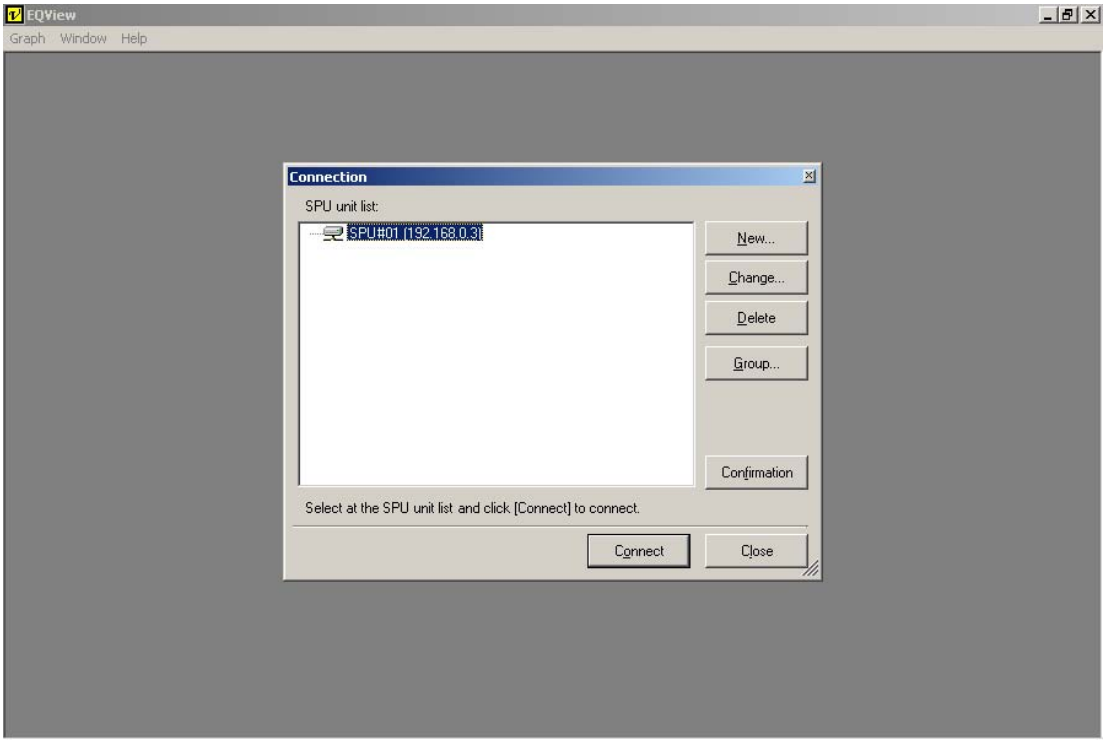
Submenu	Description
About...	Display the software version.

3-2 Starting and Exiting EQView

3-2-1 Starting EQView

Opening an Online Trend Graph

1,2,3… 1. Select Programs | OMRON | EQView | Online Trend (default name) from the Start menu. The online trend graph main window will be displayed, followed by the Connection dialog:

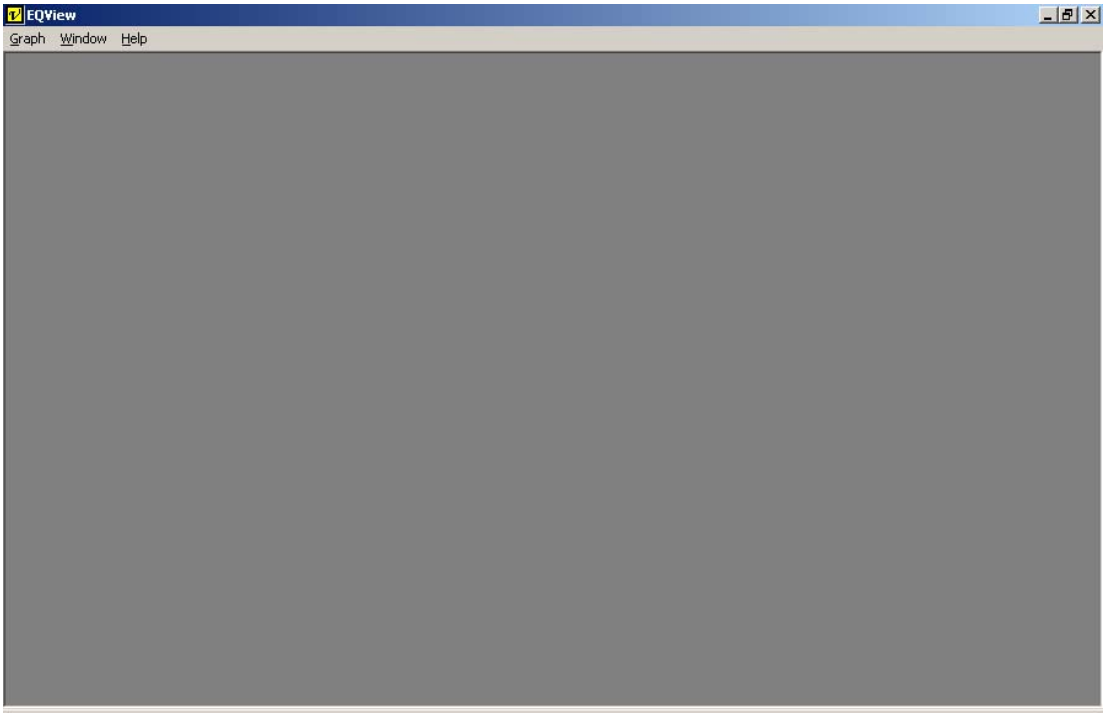


Note Refer to 4-1 Creating an Online Trend Graph for details regarding the Connection dialog.

Opening an Historical Trend Graph

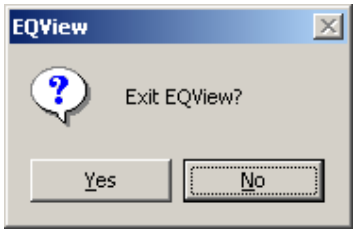
Follow these steps to open an historical trend graph, overlay graph, or comparison graph:

1,2,3… 1. Select Programs | OMRON | EQView | Historical Trend (default name) from the Start menu. The historical trend graph main window will be displayed:



3-2-2 Exiting EQView

1,2,3… 1. In the EQView main window, select Graph | Close. The following dialog will be displayed:



2. Click Yes to close EQView.

3-3 Common Operations

The following operations are common to all graph types.

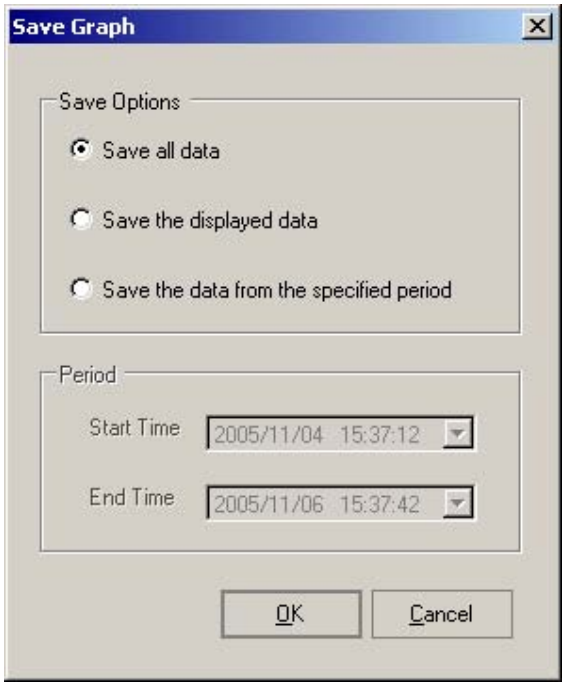
3-3-1 Saving Displayed Data

Data displayed as a graph can be saved as a file and later displayed as an historical trend graph:

1,2,3… 1. Select Graph | Save.

For an online trend graph, a standard Windows save dialog will be displayed. Skip ahead to step 3.

For an historical trend, overlay, or comparison graph, the Save Graph dialog (shown below) will be displayed. (For overlay graphs and comparison graphs, saving the data from a specified period is not available.)



Save all data	Save all graph data.
Save the displayed data	Save only the data currently displayed on the display.
Save the data from the specified period	Save all the graph data from a specified time period.

2. Select the Start Time and End Time, then click OK. A standard Windows Save dialog will be displayed.
3. After specifying the filename and location, click Save. The data will be saved as a CSV file. The data can then be displayed as an historical trend graph. Data files are saved to and opened from My Documents by default.

Note Master data and comparison graphs are saved and opened together.

3-3-2 Printing Graphs

Follow these steps to print the display:

1,2,3…

1. Select Graph | Print. A standard Windows Print dialog will be displayed.
2. Specify the necessary settings, then click OK.

3-3-3 Copying Graphs

Follow these steps to copy the display to the clipboard:

1,2,3…

1. Select Graph | Copy to Clipboard. The entire display will be copied to the clipboard.

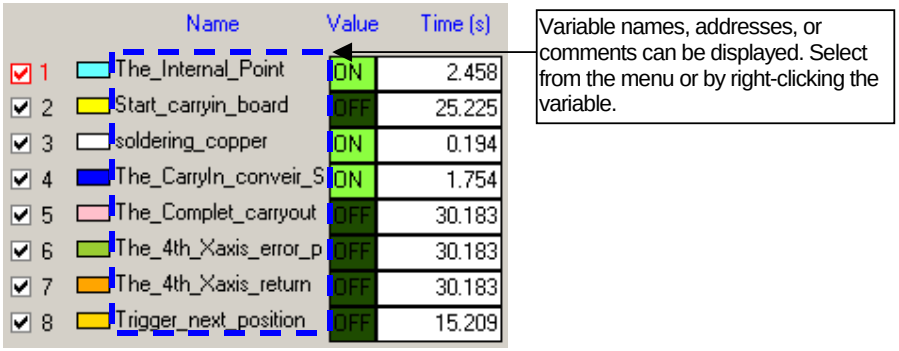
3-3-4 Arranging Windows

The graph windows can be arranged three ways:

- Vertical: Select Window | Tile Vertically.
- Horizontal: Select Window | Tile Horizontally.
- From upper-left to lower-right: Select Window | Cascade.

3-3-5 Changing the Variable Display

The variable display can be changed as follows:



- Display variable names: select View | Variable Labels | Names.
- Display variable addresses: select View | Variable Labels | Addresses.
- Display variable descriptions: select View | Variable Labels | Descriptions.

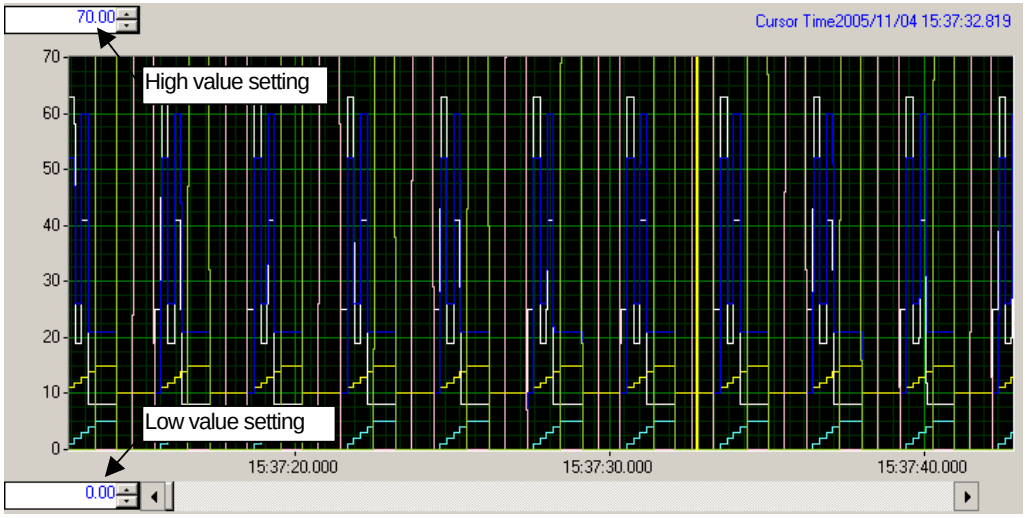
These settings work with both point graphs and numeric graphs. Selecting Hide All Variables from the right-click menu displays no variables on either value or point graphs.

3-3-6 Setting the Numeric Graph Vertical Scale

At startup, numeric graphs are set to align the highest and lowest points automatically. Select manual or automatic scaling as follows:

- To select manual scaling: select View | Scale | Manual.
- To select automatic scaling: select View | Scale | Auto.

With manual scaling, adjust the high and low values using the buttons on the left of the display:

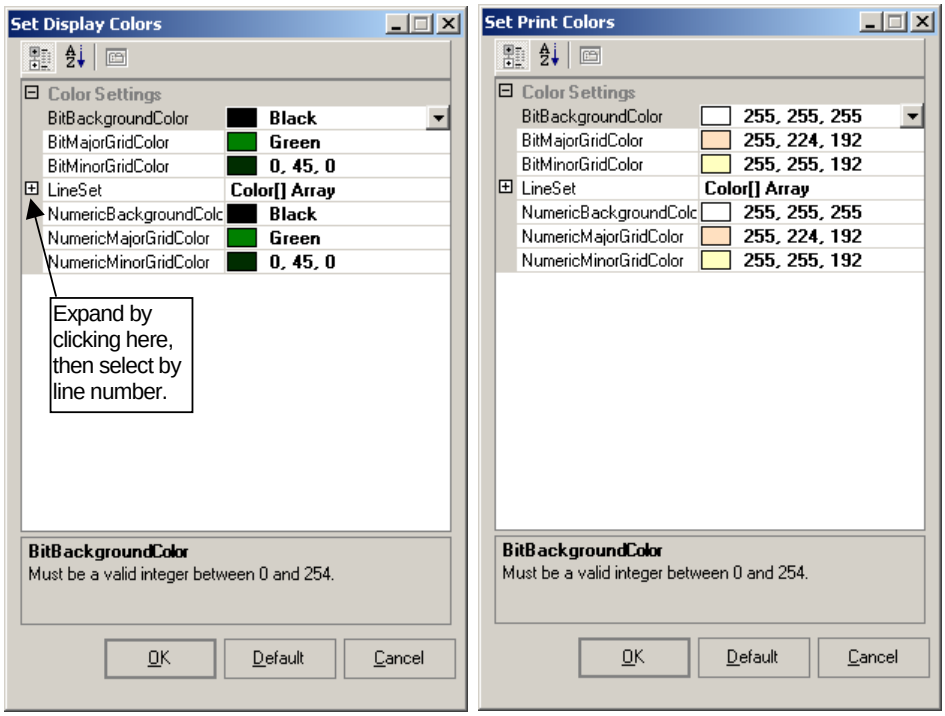


With automatic scaling, the vertical range is set for ease of reading.

3-3-7 Setting the Colors

The display and print colors can be set independently as follows:

1,2,3… 1. To set the display colors, select Tools | Set Colors | Display Colors. To set the print colors, select Tools | Set Colors | Display Colors. The following dialog will be displayed (depending on the colors being set):



Item	Description
BitBackgroundColor	Point graph background color
BitMajorGridColor	Point graph time axis color
BitMinorGridColor	Point graph non-time axis color
LineSet[xx]	Individual variable line color
NumericBackgroundColor	Numeric graph background color
NumericMajorGridColor	Numeric graph time axis color
NumericMinorGridColor	Numeric graph non-time axis color

2. After setting the colors, click OK. A confirmation dialog will be displayed.

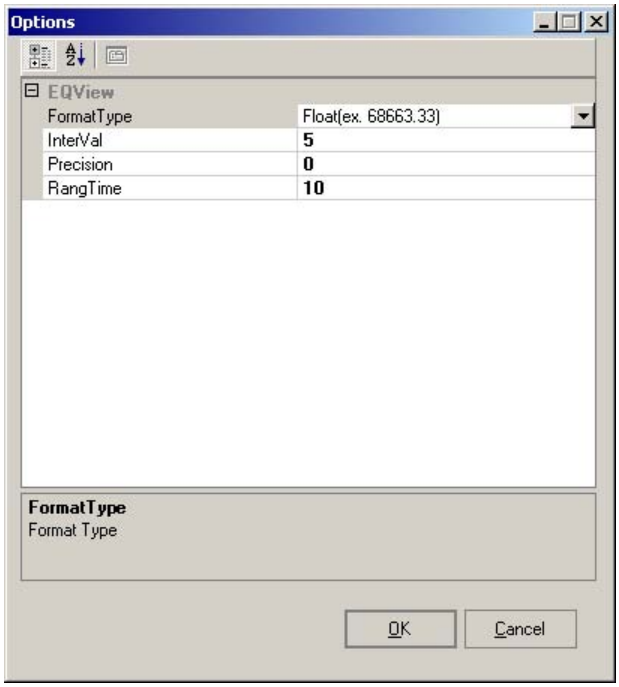
- Set the display display to use the print color settings by selecting View | Colors | Print Colors.
- Set the display display to use display color settings by selecting View | Color | Display Colors.

3-3-8 Setting the Options

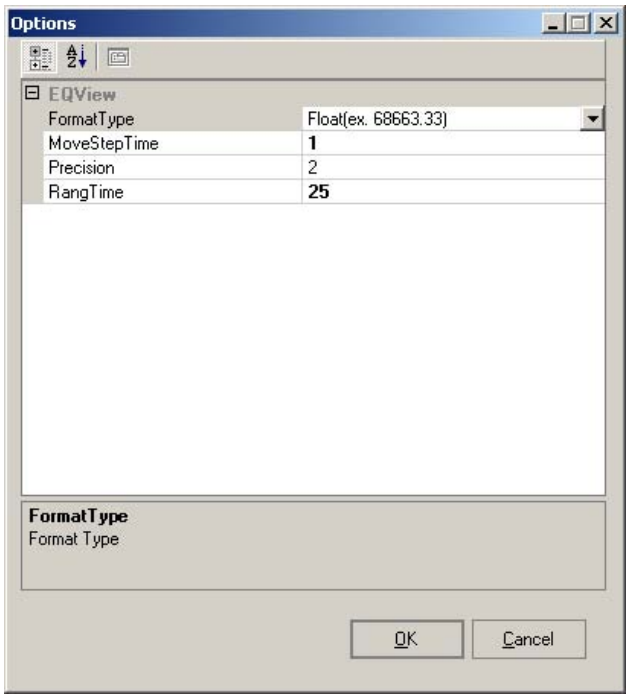
Set the numeric graph notation format, refresh rate, precision, and horizontal time range as follows:

1,2,3… 1. To set the options, select Tools | Options. One of the following dialogs will be displayed:

Online Trend Graph



Historical Trend, Overlay, or Comparison Graph



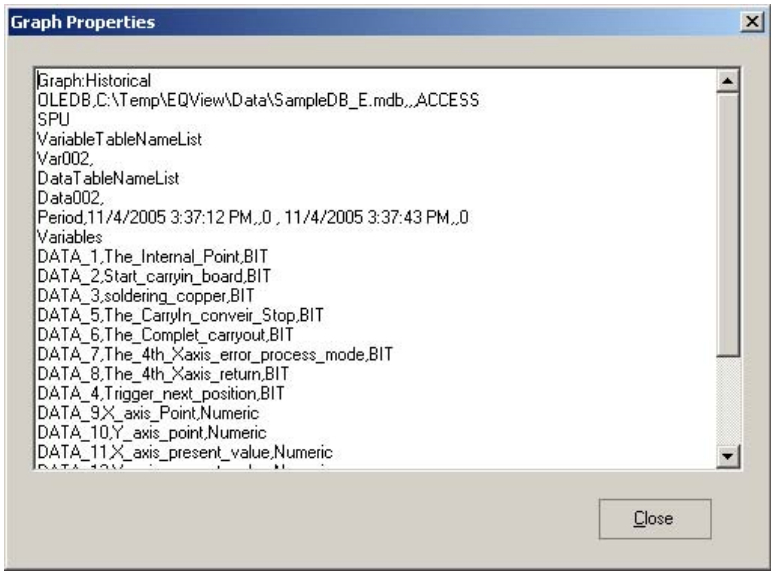
Item	Description
FormatType	Select one of the following formats: SI, Engineering, Scientific, Float (default)
MoveStepTime	Rate of movement using left/right buttons (default: 1)
Interval	Graph refresh rate (default: 5 seconds)
Precision	Display precision (default: 2)
RangTime	Horizontal time range (default: 40)

2. After setting the options, click OK.

3-3-9 Setting the Graph Properties

Display the properties of a displayed historical trend, overlay, or comparison graph as follows:

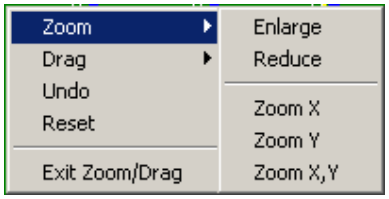
1,2,3… 1. Select Graph | Properties. The graph properties will be displayed as shown below:



3-3-10 Enlarging, Reducing, Panning

Enlarge, reduce, or reposition graphs. These functions are available for historical trend, overlay, and comparison graphs, but not online trend graphs:

1,2,3… 1. Right-click on the graph, and select the desired function:



2. To enlarge, reduce, or reposition a graph, select the desired option.
3. To end and return to standard mode, right-click and select Exit Zoom/Drag.

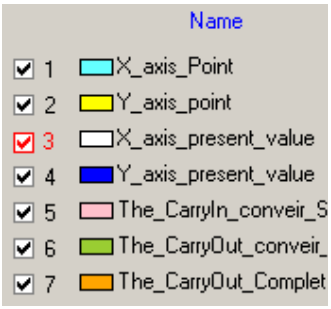
Enlarging, Reducing, and Repositioning Functions

Option	Function	Description
Zoom | Enlarge	Enlarges the graph size.	Zoom in on the position clicked.
Zoom | Reduce	Reduces the graph size.	Zoom out from the position clicked.
Zoom | Zoom X	Extends the X-axis.	Extend the ranges around the position clicked.
Zoom | Zoom Y	Extends the Y-axis.	
Zoom | Zoom X, Y	Extends both the X-axis and Y-axis.	
Drag | Pan X	Pan along the X-axis.	Move the graph by dragging it with the mouse to a new position.
Drag | Pan Y	Pan along the Y-axis.	
Drag | Pan X, Y	Pan along both the X-axis and Y-axis.	
Undo	Undo the previous operation.	Reverse only the most recent enlargement, reduction, or panning.
Reset	Undo all enlargement, reduction, and panning operations.	--
Exit Zoom/Drag	Finish enlargement, reduction, and panning.	Return to standard mode.

3-3-11 Scaling

By selecting one variable as a reference, you can automatically adjust the vertical scale of a numeric graph.

1,2,3… 1. Click a variable name. The checkbox will turn red as shown below:



2. After clicking the variable name, select Adjust Scale:

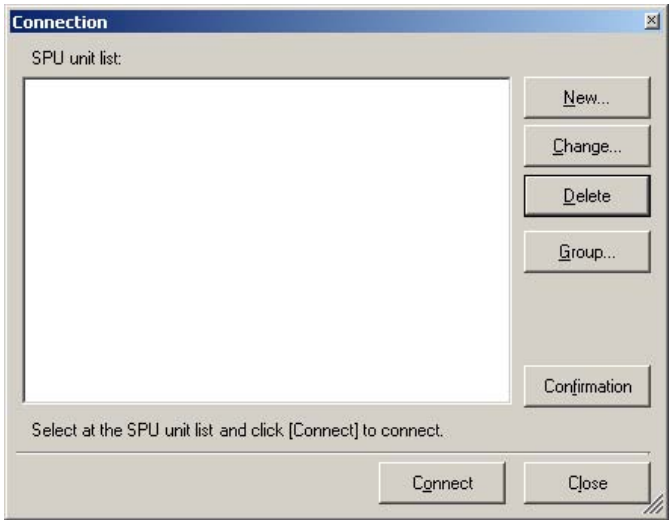
The vertical axis then scales to the selected variable.

SECTION 4
Online Trend Graphs

4-1 Creating an Online Trend Graph

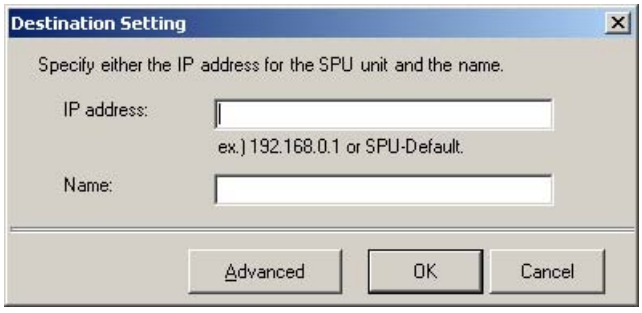
Connect to the SPU Unit by Ethernet and make a graph of the collected data. The data will be updated periodically. Multiple graphs can be displayed simultaneously.

1,2,3… 1. Select Programs | OMRON | EQView | Online Trend (default name) from the Start menu. The EQView main window will be displayed, followed by the Connection dialog:

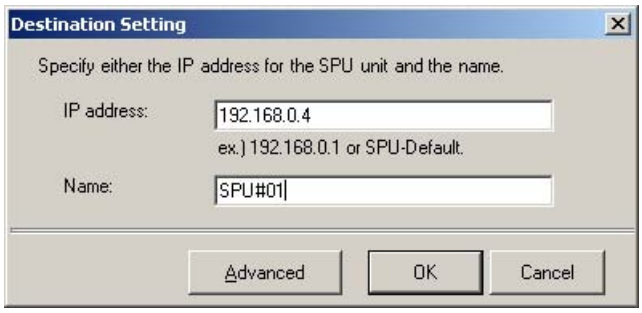


Note The dialog will display information on currently connected SPU Units only.

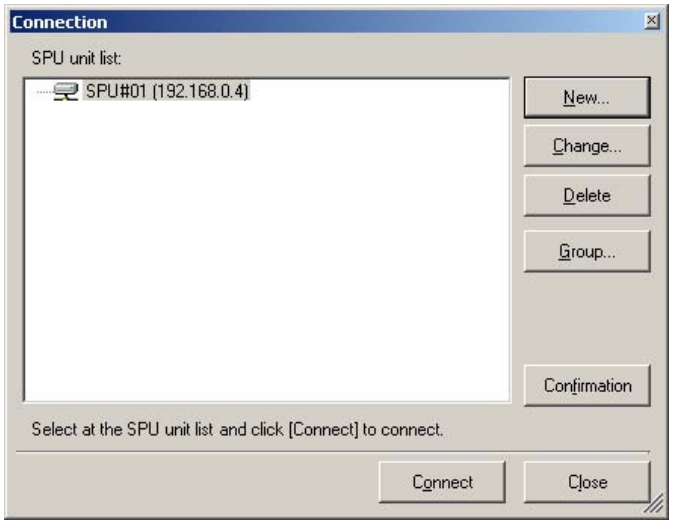
2. To connect to an SPU Unit for the first time, click New. Otherwise, select the SPU Unit to connect from the SPU Unit list. If New is clicked, the following New SPU Unit dialog will be displayed:



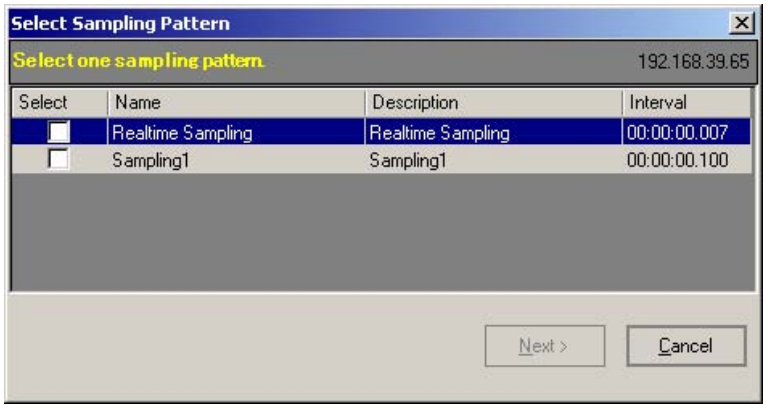
3. Enter the SPU Unit IP address and name, then click OK.



After clicking OK, the selected SPU Unit will appear in the Connection dialog.

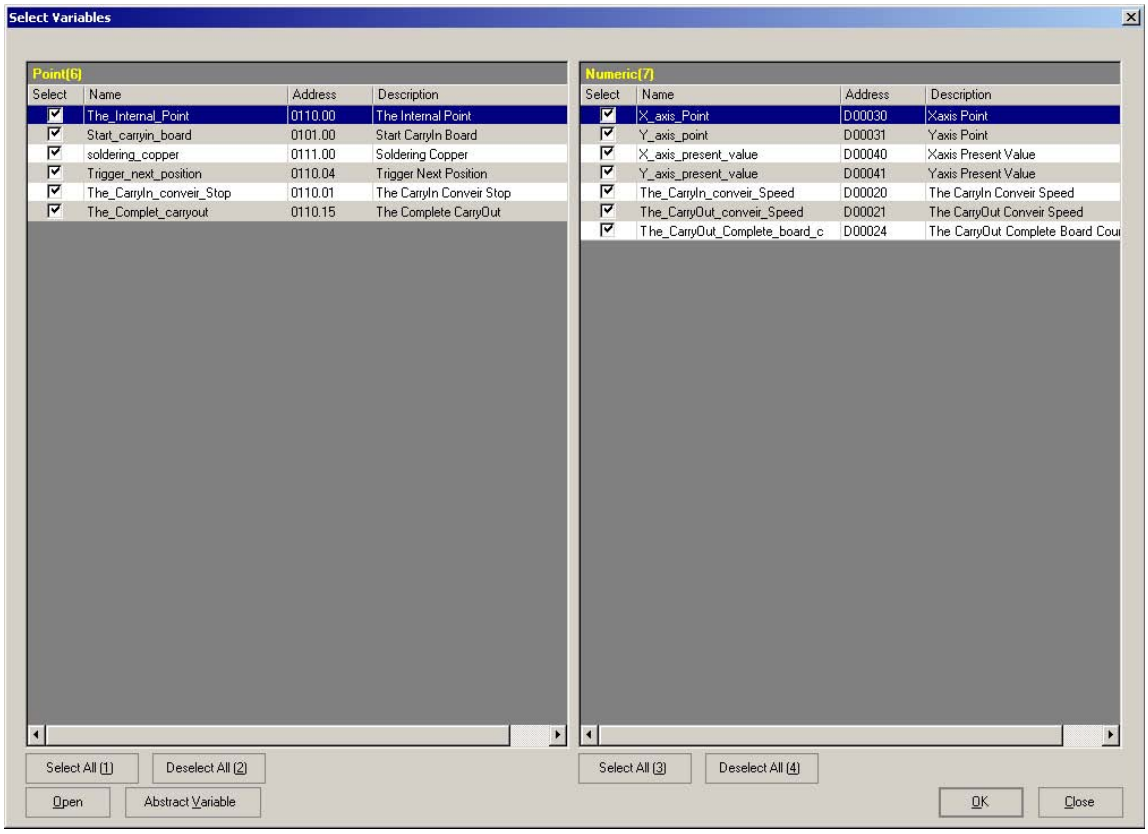


4. Select the desired SPU Unit, and click Connect. The Select Sampling Pattern dialog will be displayed:



Note The dialog displays all of the collection patterns for the selected SPU Unit.

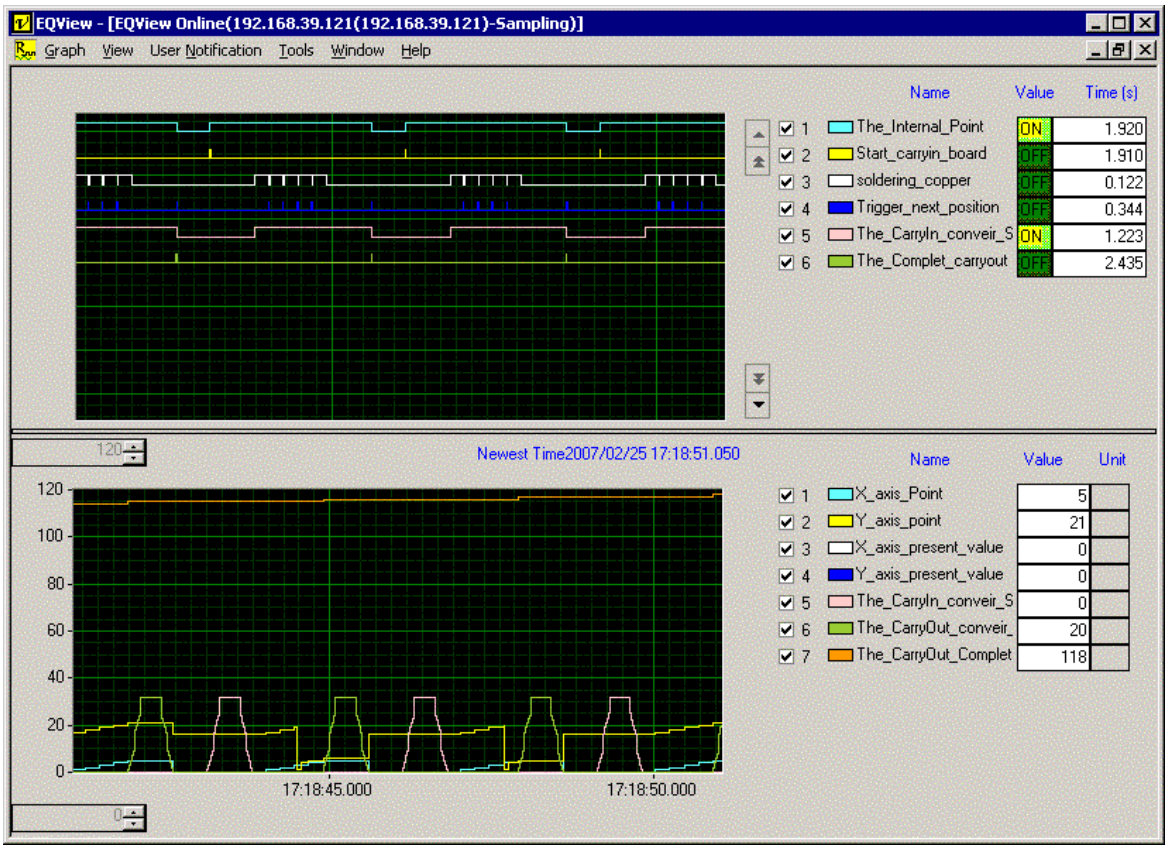
5. Click the checkbox for the collection pattern to be graphed, then click Next. The Select Variables dialog will be displayed.



All of the SPU Unit variable settings will be displayed. Initially, all the variables are selected:

- A maximum of 64 status and value variables can be selected.
- Sort variables by clicking the table headings.
- Select all variables by clicking Select All.
- Clear all selections by clicking Deselect All.
- For more details reagarding abstract variables, refer to 4-4 Abstract Variables.
- If the same data collection variables are selected more than once, all selections after the first will be disregarded.

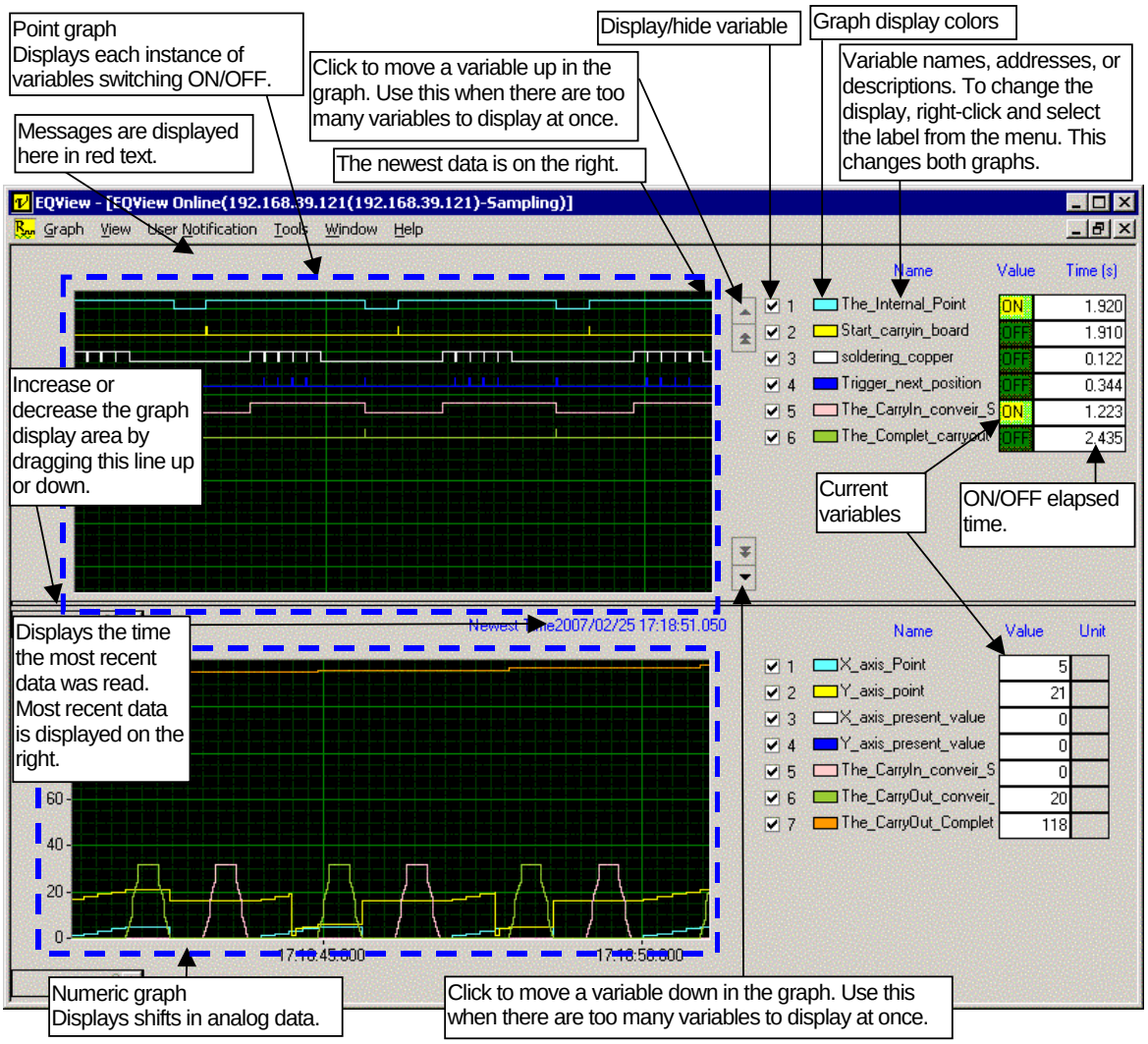
6. After selecting the variables, click OK. The online trend graph will be displayed:



For more details regarding online trend graphs, refer to the following explanations.

4-2 Displaying a Graph

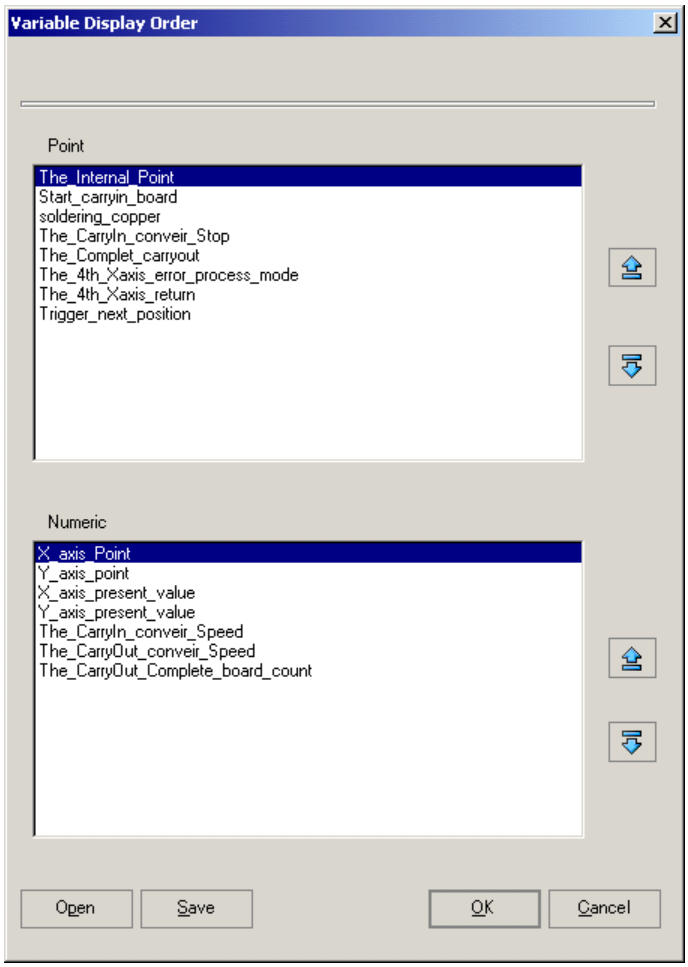
Below is a typical online trend point graph and numeric graph display. The newest data is displayed on the right:



4-3 Variable Display Order

Follow the steps below to change the variable display order, and save the changes:

1,2,3… 1. Select View | Variable Order. The Variable Display Order dialog will be displayed:



2. Select a variable, and click Up or Down , then click OK.

- Click Save to save the current variable display order to a file.
- Click Read and select a saved file to display a graph with that variable order. Variables not included in the saved file will be displayed after the saved variables.

4-4 Abstract Variables

Abstract variables are variables generated by performing operations on collected data. Abstract variables are also selected from the Select Variables dialog the same as standard variables.

Operators include ON Time & OFF Time (to calculate durations), and ON Count & OFF Count (to calculate number of ONs/OFFs).

Abstract variables are available for online trend, historical trend, and overlay graphs. They are not available for comparison graphs.

Abstract variable functions include the following:

- Show abstract variables (opens the Abstract Variables dialog)
- Create abstract variable
- Edit/delete abstract variables
- Save abstract variables to a file
- Read abstract variables from a file

Note At present, abstract variable files created in online trends can only be used in online trends, and those created in historical trends can only be used in historical trends.

4-4-1 Operators

Arithmetic Operators

- + (addition)
- - (subtraction)
- / (division)
- x (multiplication)

Example

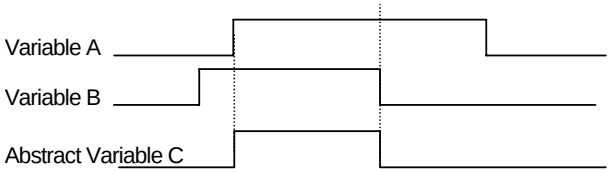
Abstract Variable A = Variable B / Variable C x 100

Logical Operators (Point Graphs Only)

- NOT
- AND
- OR
- XOR

Example

Abstract Variable C = (Variable A) AND (Variable B)

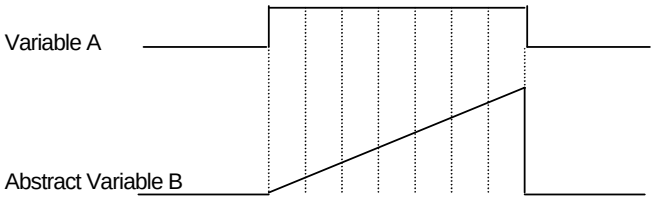


ON Time/OFF Time

These calculate the ON or OFF duration of a specified variable.

Example

Abstract Variable B = ON Time (Variable A)

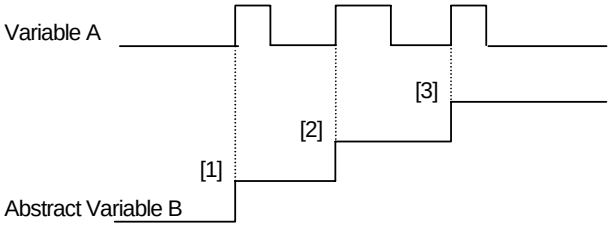


ON Count/OFF Count

These calculate the number of ONs or OFFs of a specified variable.

Example

Abstract Variable B = ON Count (Variable A)

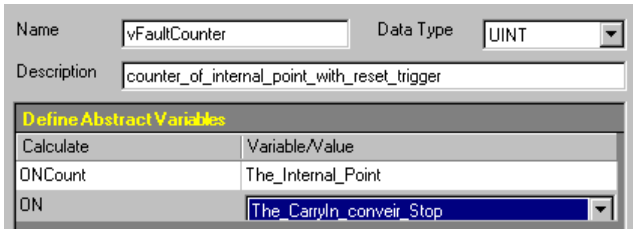


ON Count/OFF Count Reset Conditions

The ON count and OFF count values are reset to 0 (zero) when user-specified reset conditions are met.

Example

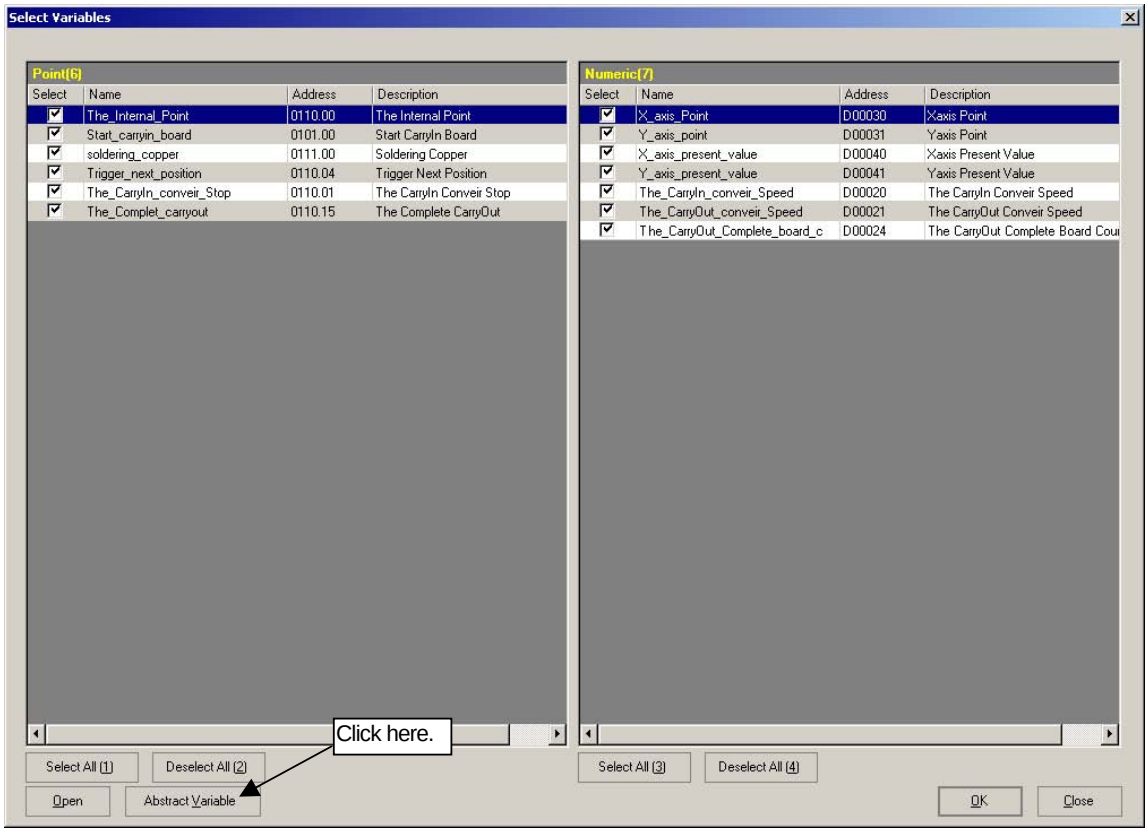
vFaultCounter is reset to 0 (zero) when the variable named The_CarryIn_conveir_Stop switches from OFF to ON:



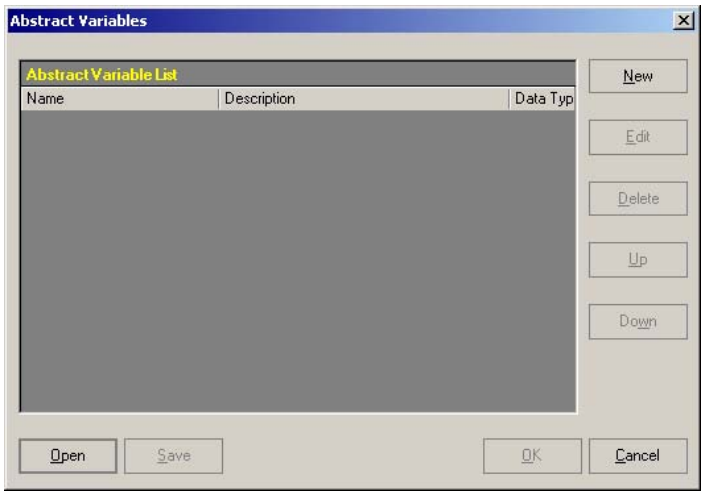
4-4-2 Abstract Variables Dialog

Creating, editing and all other abstract variable operations are performed from the Abstract Variables dialog. Follow these steps to open the Abstract Variables dialog:

1,2,3… 1. In the Select Variables dialog (refer to 4-1 Creating an Online Trend Graph for details), click Abstract Variable:



The Abstract Variables dialog will be displayed:



The dialog looks like this the first time it is displayed. Once abstract variables have been created, they will be displayed in the list.

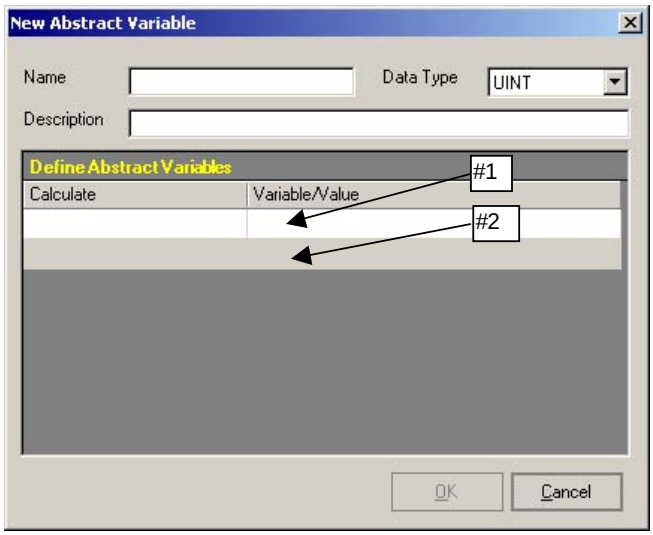
2. To define a new abstract variable, click New.

To edit or delete, select the variable to edit or delete, then click the desired button.

4-4-3 Defining Abstract Variables

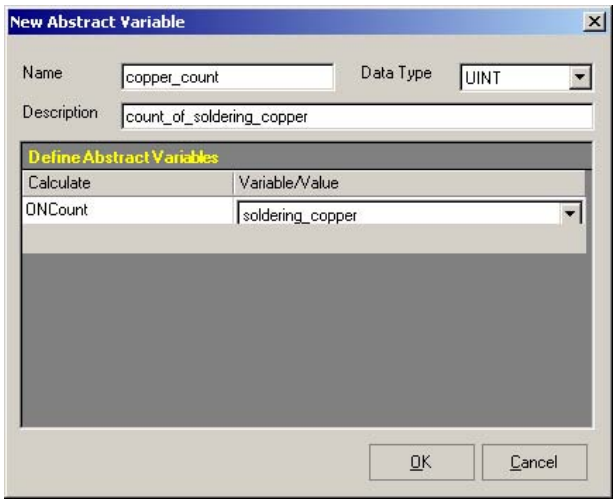
Follow these steps to define an abstract variable:

1,2,3… 1. In the Abstract Variables dialog, click New. The New Abstract Variable dialog will be displayed:



Item	Description
Name	Enter the name of the new abstract variable here. Names can be up to 50 characters long. The first character must be a letter. After that, letters, numbers, or "_" (underscore) can be used.
Data Type	Choose one of these variable types: BOOL (point variable) UINT (default) UDINT, INT, DINT, REAL, LREAL Changing the data type from point to numeric, or numeric to point clears variable definitions #1 and #2 in the dialog shown above.
Description	Enter the variable description here. Descriptions can be up to 50 characters long. The first character must be a letter. Spaces and the following characters cannot be used: [# \ / = > < + - * % & | ^ ' " ,].
Calculate (#1)	Choose one operator (optional): NOT ON Time (calculates duration of ON status for variable) OFF Time (calculates duration of OFF status for variable) ON Count (calculates the number of ON statuses) OFF Count (calculates the number of OFF statuses) Data Type = BOOL: only NOT can be selected. Data Type = [numeric value]: ON Time, OFF Time, ON Count, OFF Count can be selected. Specifying any of these options when nothing had been previously specified clears the variable/constant #1. In addition, Calculate #2 and Variable/Value #2 will be cleared, and nothing can be entered in that line. However, if ON Count or OFF Count are entered the Reset conditions are set for #2.
Variable/Value (#1)	If an operator is not entered in Calculate #1, variables (including abstract variables) are displayed here. Values can also be input directly. If an operator is entered in Calculate #1, only point variables (including abstract variables) can be selected. Direct input is not possible in this case.
Calculate (#2)	If an operator is not entered in Calculate #1, an operator cannot be entered in Calculate #2. If the result of #1 is a numeric value, choose an arithmetic operator (+, -. x, /) for Calculate #2. If the result of #1 is BOOL, enter AND, OR, or XOR for Calculate #2. If #1 is ON Count or OFF Count, select ON or OFF.
Variable/Value (#2)	If the result of #1 is a numeric value, only numeric variables (including abstract variables) can be selected. Values can also be input directly. If the result of #1 is BOOL, only point values can be selected. Direct input is not possible in this case. If #1 is ON Count or OFF Count, only collected data variables can be selected.

Example



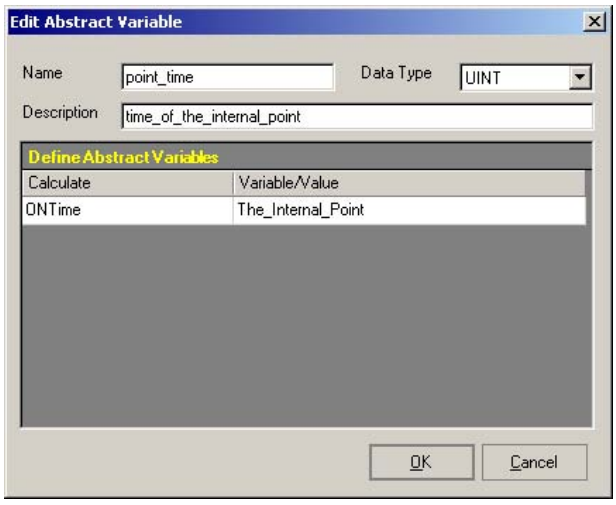
Note This abstract variable calculates the number of times a variable called soldering_copper is ON (i.e. how often something is soldered).

2. After setting all the details, click OK. The newly defined abstract variable will be displayed in the Abstract Variables dialog.
3. After entering the abstract variables in the Abstract Variables dialog, click OK. Any abstract variable in the Abstract Variables dialog can be selected.

4-4-4 Editing Abstract Variables

Follow these steps to edit abstract variables:

1,2,3… 1. In the Abstract Variables dialog, select the variable to be edited, then click Edit. The Edit Abstract Variable dialog will be displayed:



Item	Description
Name	Displays the name of the abstract variable to be edited. Variable names cannot be duplicated. Other naming restrictions are the same as for defining new variables. (Refer to Defining Abstract Variables, above.)
Data Type	Set the variable type. Variables cannot be converted from BOOL to numeric or from numeric to BOOL.
Description	Refer to 4-4-3 Defining Abstract Variables, above.
Calculate (#1)	
Variable/Value (#1)	
Calculate (#2)	
Variable/Value (#2)	

2. After editing, click OK.

4-4-5 Saving Abstract Variables

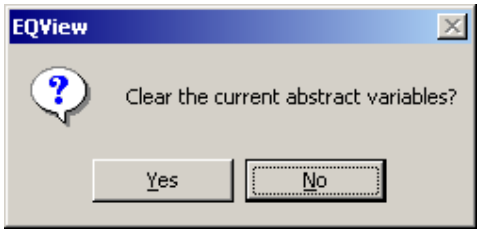
Follow these steps to save abstract variables. of All the abstract variables in the Abstract Variables dialog will be saved to a CSV file:

1,2,3… 1. Click Save in the Abstract Variables dialog. A standard Windows Save dialog will be displayed.
2. Enter the file name and location, then click Save.

4-4-6 Opening Abstract Variable Files

Follow these steps to open an abstract variable file:

1,2,3… 1. Click Open in the Abstract Variables dialog. A confirmation dialog will be displayed to clear the current abstract variables:



2. Confirm clearing the current contents of the Abstract Variables dialog by clicking Yes. A standard Windows Open File dialog will be displayed.
3. Select the .csv file to open, then click Open. The abstract variables data will appear in the Abstract Variables dialog.

Note At present, abstract variable files made in an online trend graph can only be used with online trend graphs, and those created in an historical trend graph can only be used with historical trend graphs.

4-5 User Notification

After setting the user notification, either a message in the upper left of the online trend graph or a FINS command will appear when the specified user notification conditions occur. User notification is not limited to alarms or problems, but can be set to notify the user about any event.

Note The user notification feature is not guaranteed to be accurate.

Example

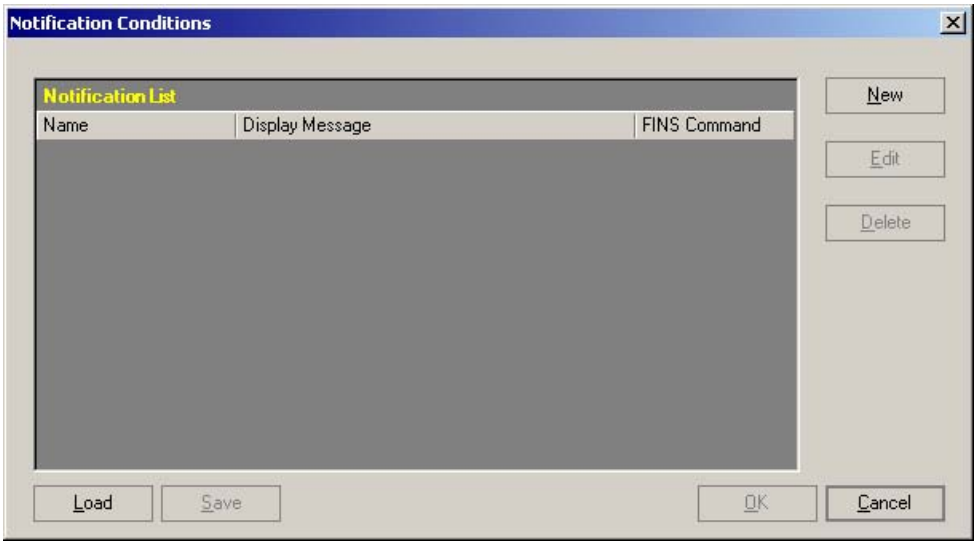
Notify the user when the temperature exceeds a certain point. At notification, the user can refer to the manual for more details. User notification functions include:

- Display notification conditions and settings (Notification Conditions dialog)
- Define notification conditions
- Edit/delete notification conditions
- Save notification conditions to a file
- Open saved notification conditions from a file
- Save the notification history to a file
- Display the notification history

4-5-1 Notification Conditions Dialog

Defining, editing and all other functions start from the Notification Conditions dialog. Follow the steps below to open or use the Notification Conditions dialog:

1,2,3… 1. In the online trend display, select User Notification | Set Triggers. The Notification Conditions dialog will be displayed:



The first time the Notification Conditions dialog is displayed, it will be empty (as shown above). After notification conditions have been set, the conditions will be displayed.

2. To define notification conditions, click New.

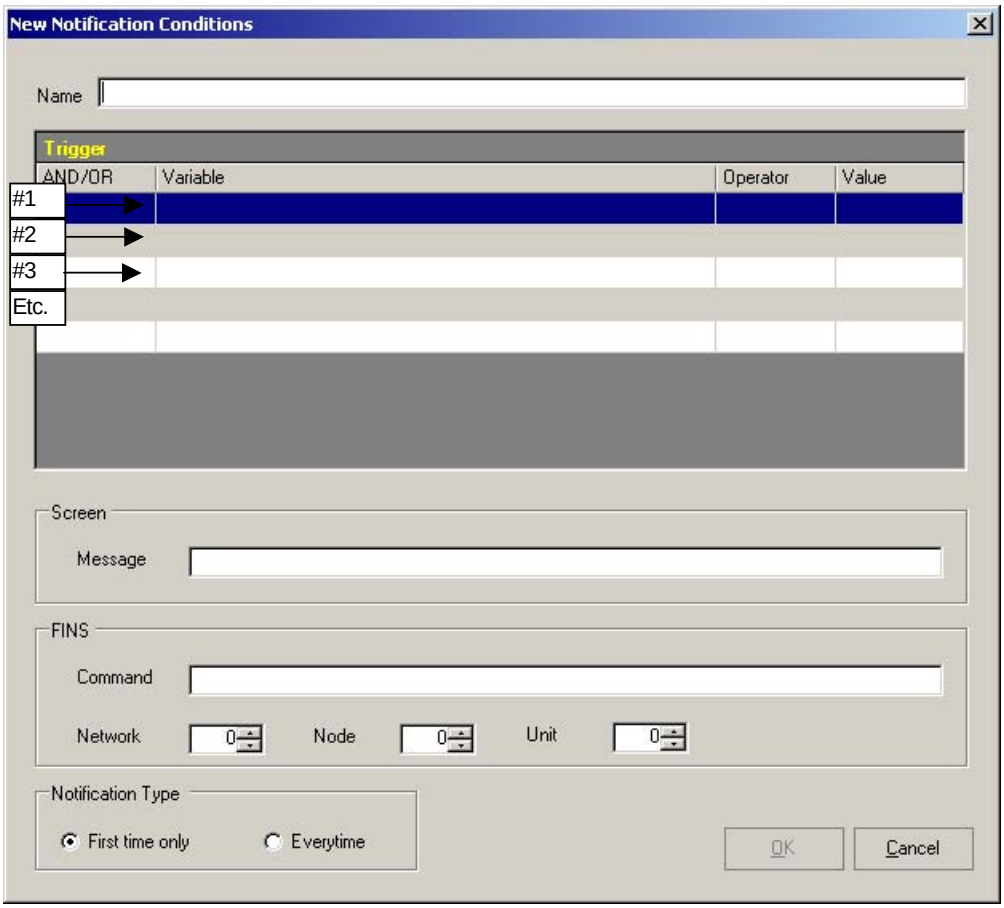
To edit or delete existing conditions, select a notification condition, then click the desired button.

4-5-2 Defining Notification Conditions

Follow these steps to define notification conditions.

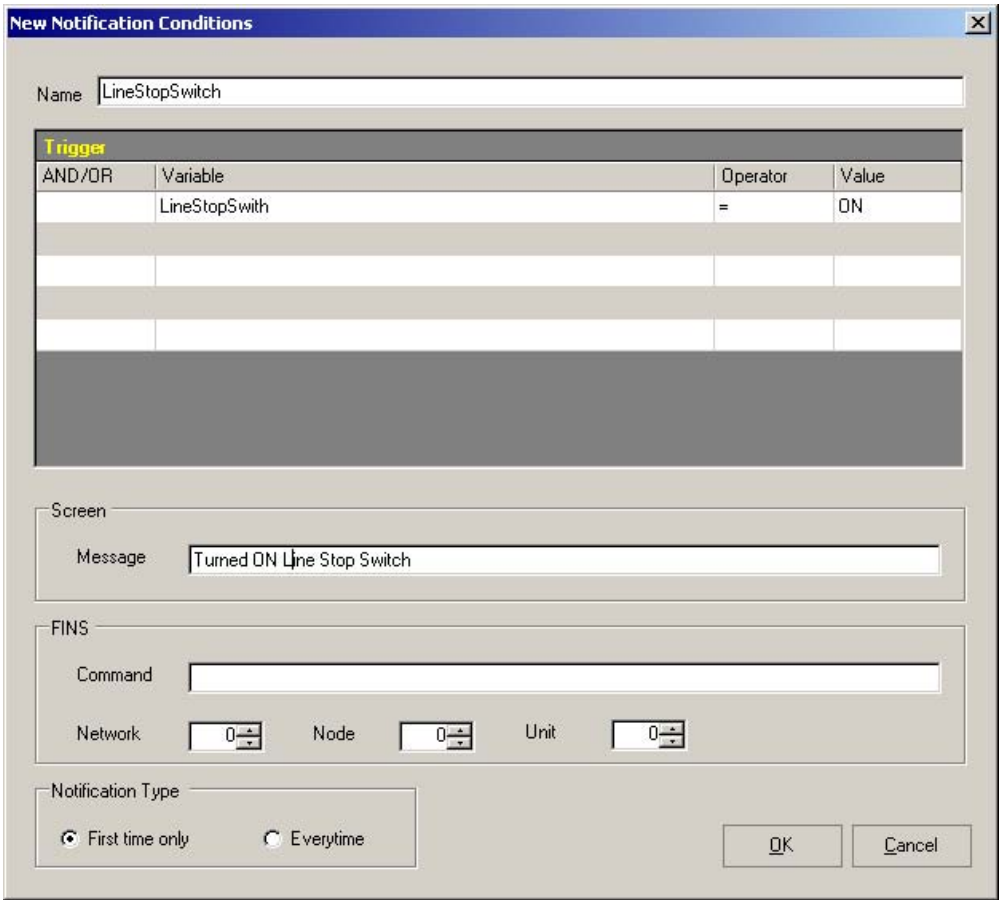
Note Before setting notification conditions, execute the FINS Communications Test from FinsGateway. Confirm that the FINS network number, node number, unit number and command are all correct. Incorrect FINS commands will adversely influence the user notification functionality.

1,2,3… 1. In the Notification Conditions dialog, click New. The New Notification Conditions dialog will be displayed:



Item	Description
Name	Enter a name for the new condition. Any character may be used except commas (,).
AND/OR (#1)	Not user-selectable.
Variable (#1)	Select any variable (including abstract variables) from the Select Variables dialog.
Operator (#1)	Choose one of the following operators according to the data type of variable (#1). Boolean: +, < > Numeric: =, <, <=, >=, >, <>
Value (#1)	Choose one of the following operators according to the data type of variable (#1). Boolean: ON/OFF Numeric: Any valid value
AND/OR (#2)	Select AND, OR, or XOR
Variable (#2)	Refer to the explanation for Variable (#1)
Operator (#2)	Refer to the explanation for Operator (#1)
Value (#2)	Refer to the explanation for Value (#1)
Screen Message	When the notification conditions occur, this message will be displayed in the message area (above the graph area) in the online trend display. Any character may be used except commas (,). The message will be prefixed with the date/time: [yyyy/mm/dd] [hh:mm:ss] [message]
FINS Command	Enter the FINS command to be sent. The command consists of numbers 0-9 and uppercase letters A-F, and must be a minimum of four characters. When entering a FINS command, be sure to include Network number, Node number, and Unit number.
Network	Enter the FINS network number (0-254).
Node	Enter the FINS node number (0-254).
Unit	Enter the FINS unit number (0-254).
Notification Timing	Set the notification timing. Select First time only to send the notification the first time only. Example: Condition OFF -> Condition ON (1) -> Condition ON (2) -> Condition OFF. Notification sent for (1) only. Example: Condition OFF -> Condition ON (1) -> Condition OFF -> Condition ON (2). Notification sent for (1) and (2) Select Everytime to send the notification everytime the condition occurs over any interval. Regardless of which setting is selected, notification will occur a maximum of 100 times each time a graph is opened

2. Set all the details for the new notification conditions:

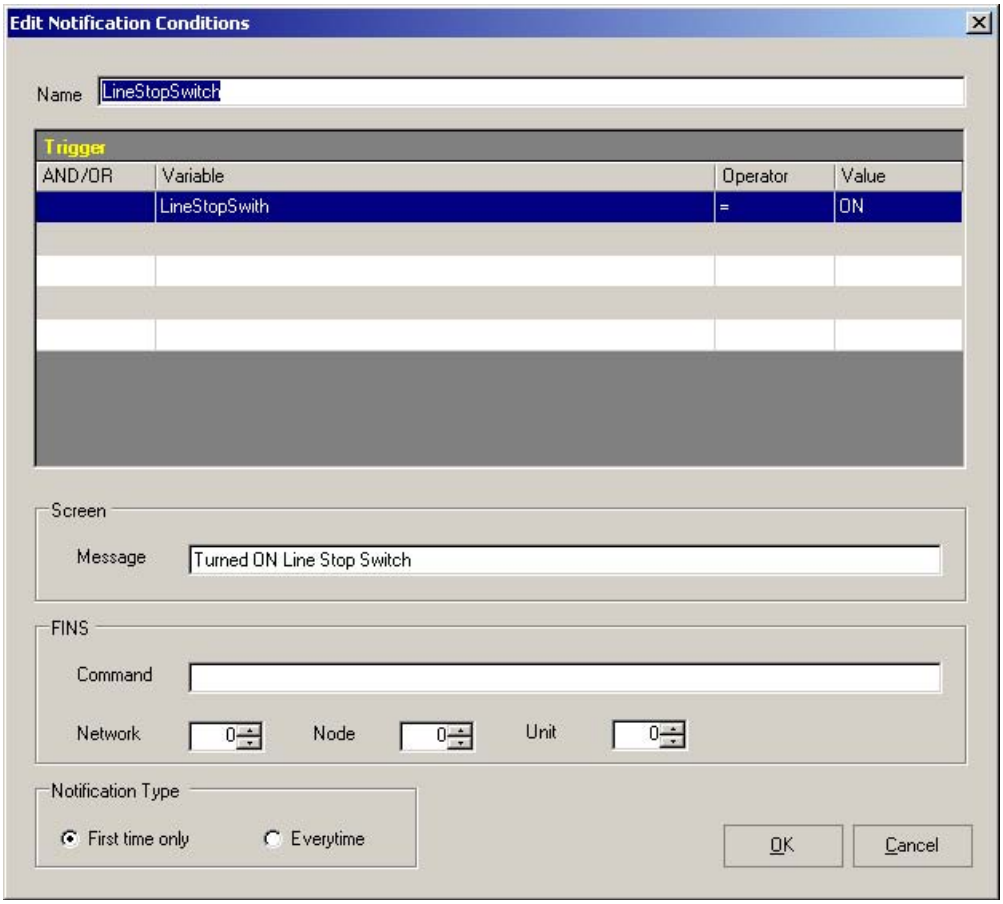


3. After setting the details above, click OK. The new notification conditions will appear in the Notification Conditions dialog.
4. After completing all the settings in the Notification Conditions dialog, click OK. All the conditions in the Notification Conditions dialog will become active, and the online trend graph will be displayed.

4-5-3 Editing Notification Conditions

Follow these steps to edit existing notification conditions:

1,2,3… 1. Select the conditions to be edited, then click Edit. The Edit Notification Conditions dialog will be displayed:



Note The remaining steps are the same as defining new notification conditions. Refer to 4-5-2 Defining Notification Conditions for details.

2. After all edits are complete, click OK. The edits will appear in the Notification Conditions dialog.

4-5-4 Saving Notification Conditions

Follow these steps to save all notification conditions in the Notification Conditions dialog to a CSV file:

1,2,3…

1. In the Notification Conditions dialog, click Save. A standard Windows Save dialog will be displayed.
2. Enter a filename and location, then click Save.

4-5-5 Opening Notification Condition Files

Follow these steps to open a notification conditions file:

1,2,3…

1. In the Notification Conditions dialog, click Load. A confirmation dialog will be displayed to clear the previous contents of the Notification Conditions dialog:

2. Confirm clearing the contents of the Notification Conditions dialog by clicking Yes. A standard Windows Open File dialog will be displayed.
3. Select the .csv file to open, then click Open. The notification conditions data will appear in the Notification Conditions dialog.

4-5-6 Notification History

A notification history file (*.csv) is created every time the notification conditions occur.

Filename and Path

[install directory]\log\NotificationYYYYMMDD.csv

File Format

The history file contains the complete contents of the notification conditions file as well as the times and dates of notifications:

Item	Description
Date/time	Notification date and time in the computer format
Name	Notification conditions name
Occurrence	Notification method (first occurrence / *)
Message	Message from the display
Command	FINS command
Network	FINS target network number
Node	FINS target node number
Unit	FINS target unit number
1st Variable	Variable name (#1)
1st Operator	Operator (#1)
1st Value	Value (#1), either calculated or input
2nd AND/OR	AND/OR (#2) condition
2nd Variable	Variable name (#2)
2nd Operator	Operator (#2)
2nd Value	Value (#2), either calculated or input
3rd AND/OR - 5th Value	Refer to the explanations above for the second variable details

Opening Notification History Files

Follow these steps to read a notification history file:

1,2,3…

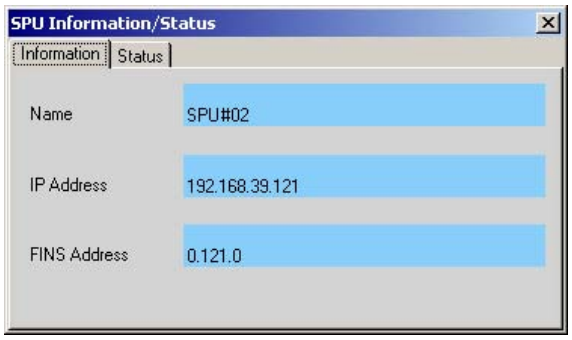
1. In the online trend display, select User Notification | History. A standard Windows Open File dialog will appear.
2. Select the history file (*.csv) and click Open. The notification history file will be displayed in MS Excel or another application used to read CSV files. If no application is set for CSV files, the file will be opened in Note-Pad.

4-6 SPU Unit Data

EQView can be used to display SPU Unit status, and to start/stop data collection.

4-6-1 Displaying SPU Unit Data

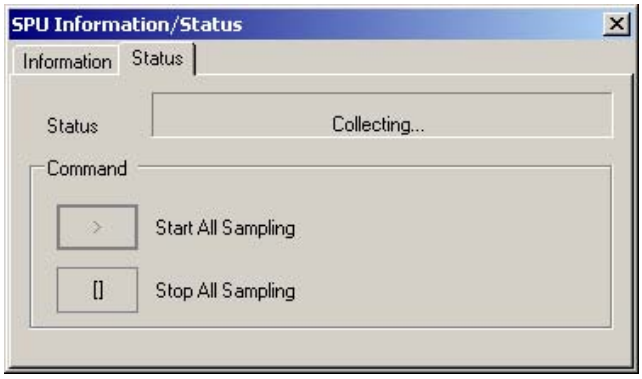
1,2,3… 1. Select Tools | SPU Information. The SPU Information/Status dialog will be displayed:



The connected SPU Unit name, IP address and FINS address will be displayed.

4-6-2 SPU Unit Status and Data Collection

1,2,3… 1. Select Tools | SPU Information. The SPU Information/Status dialog will be displayed.
2. Click the Status tab. The SPU Unit status will be displayed:



3. To begin collecting SPU Unit data, click the button for Start All Sampling. To stop data collection, click the button for Stop All Sampling.

Note To close the SPU Information/Status dialog, click Close .

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SECTION 5
Historical Trend Graphs

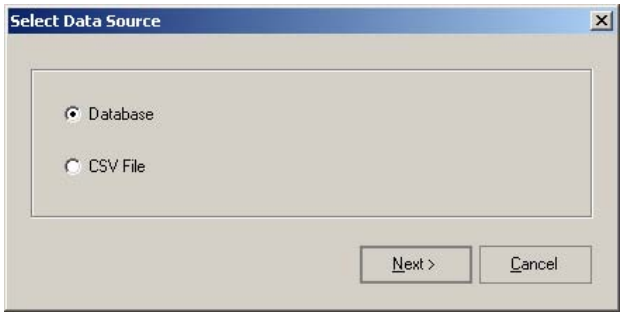
5-1 Creating an Historical Trend Graph

Create historical trend graphs using data from a database or a CSV file. Multiple graphs can be displayed simultaneously.

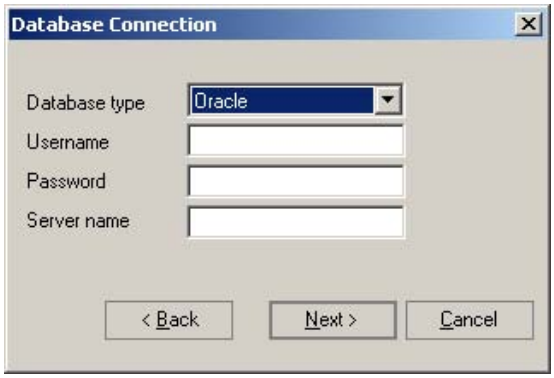
5-1-1 Database Data

1,2,3…

1. Select Programs | OMRON | EQView | Historical Trend/Comparison (default name) from the Start menu. The EQView main window will be displayed.
2. In the EQView main window, select Graph | Historical Trend | New. The Select Data Source dialog will be displayed:

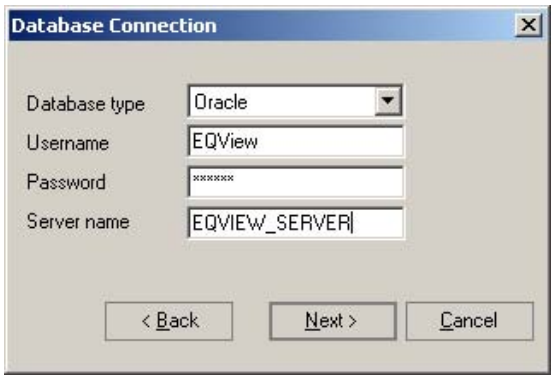


3. Select Database for the data source, and click Next. The Database Connection dialog will be displayed:



4. After selecting the database type and setting all the required details, click Next.

Oracle

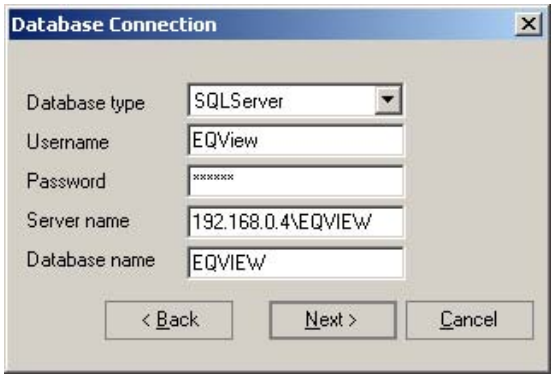


Username: Enter the registered database username.

Password: Enter the registered database password.

Server name: Enter the Oracle TNS service name.

SQLServer



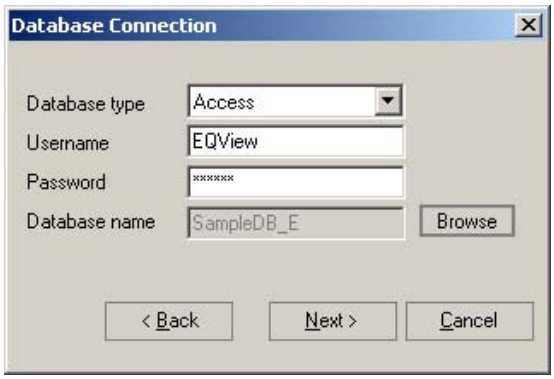
Username: Enter the registered database username.

Password: Enter the registered database password.

Server name: Enter the SQLServer.

Database name: Enter the database name.

Access

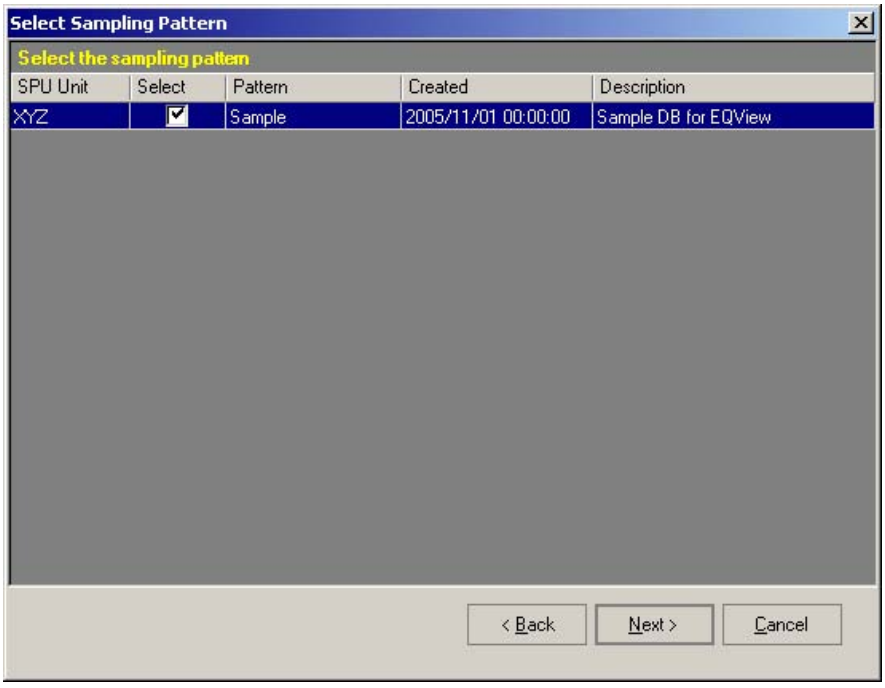


Username: Enter the registered database username.

Password: Enter the registered database password.

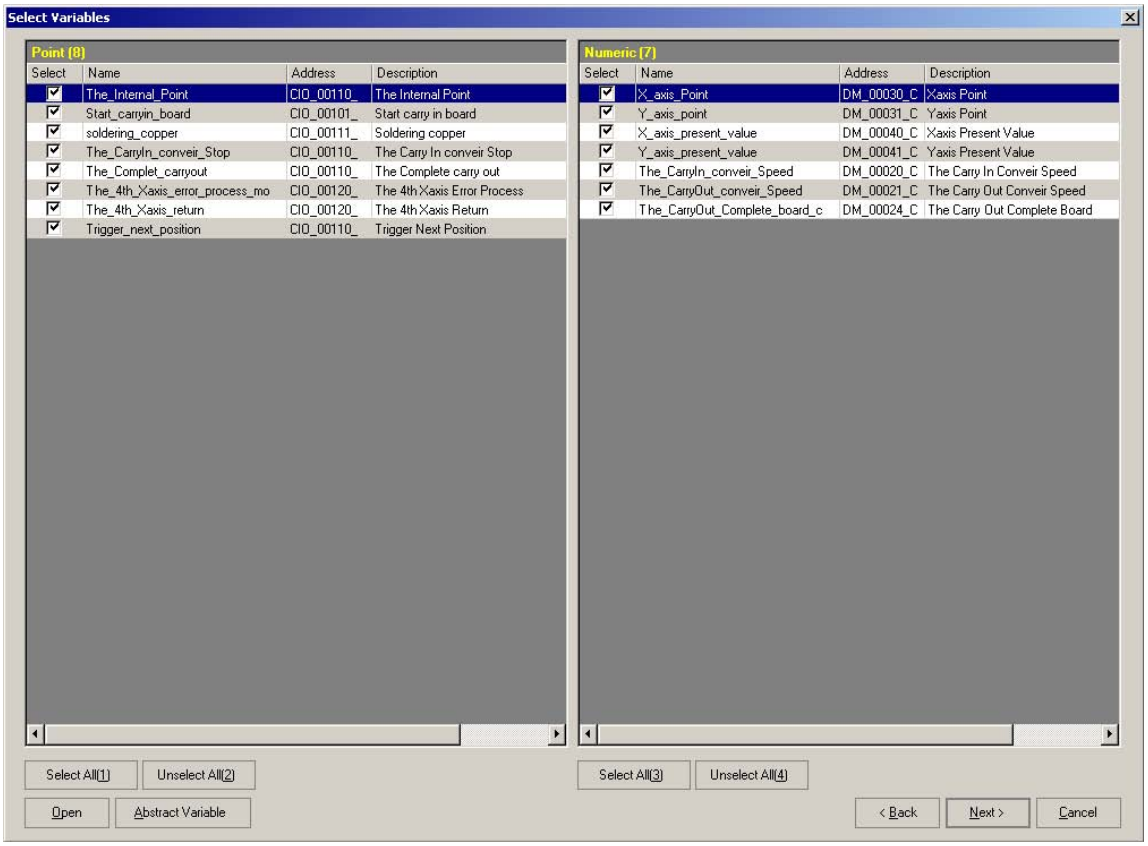
Database name: Enter the name of the Access file to use.

5. After setting the necessary data, click Next. The Select Sampling Pattern dialog will be displayed:



6. Select the data to be graphed, then click Next:

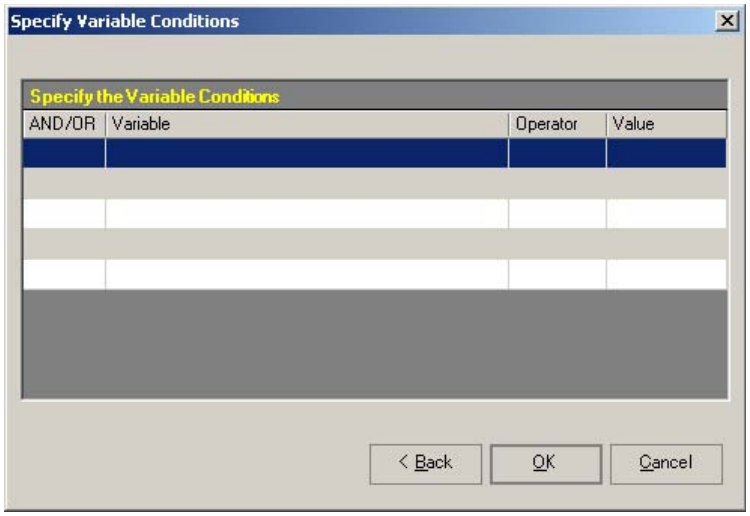
7. Select the period to be graphed (start and end times), then click Next:



- Click to check or uncheck specific items to sort the data to be graphed.
- Click Select All to check all variables.
- Click Unselect All to deselect all variables.

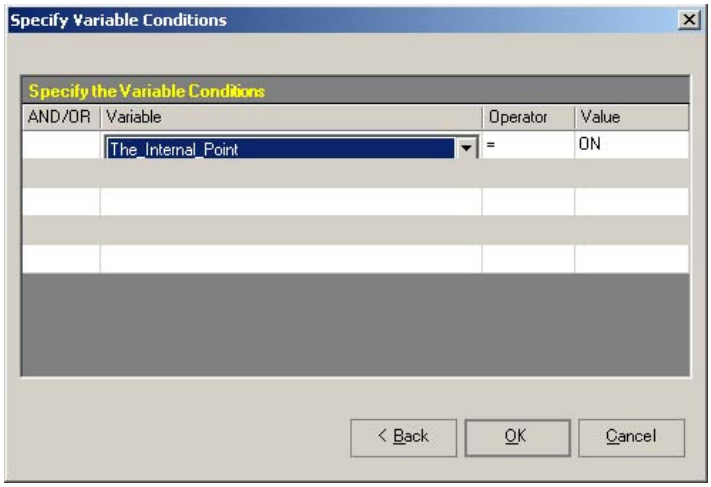
For more details regarding abstract variables, refer to 4-4 Abstract Variables.

8. Select the variable conditions to be graphed, then click Next:



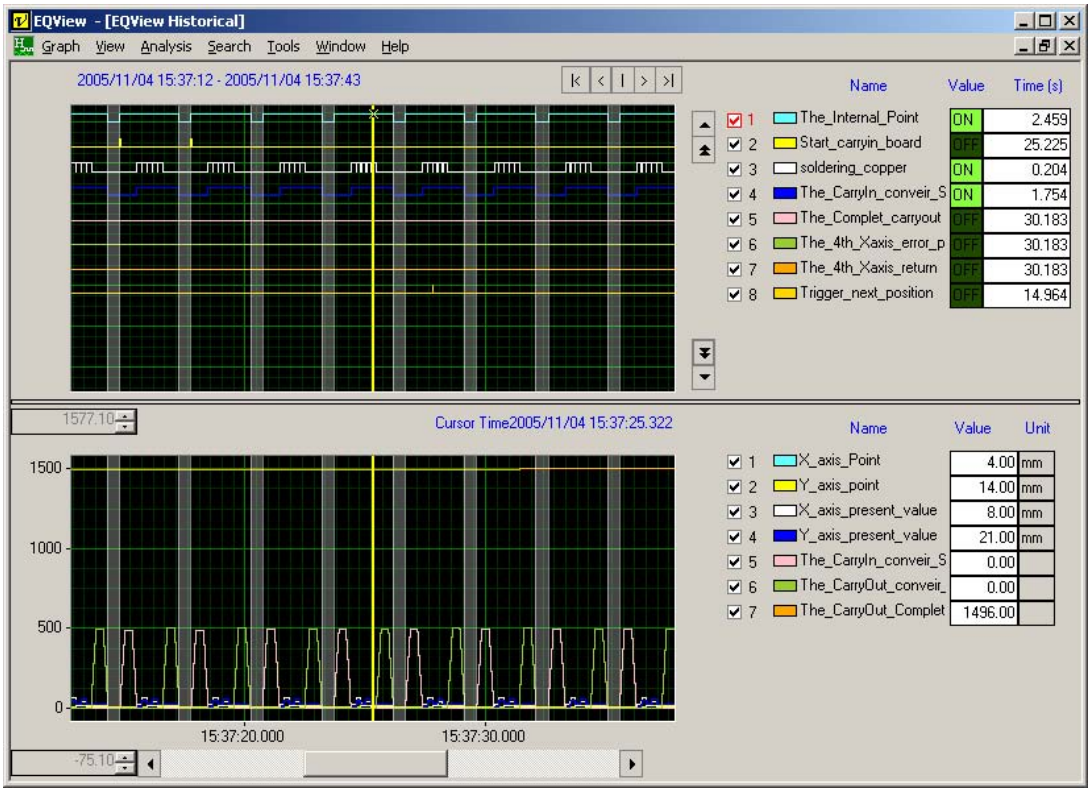
Select from zero to five variable conditions (using AND/OR after the first variable). Only the variables to which the specified conditions apply will be graphed. If no conditions are specified, all checked variables will be graphed.

Example Settings

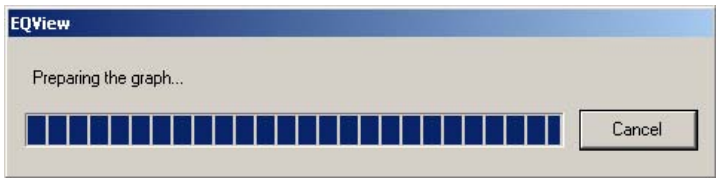


In this example, only data in which the The_Internal_Point variable is ON will be read. Sections where this condition does not occur are graphed in white in the graph in the next step.

9. After specifying the variable conditions, click OK. The historical trend graph will be displayed. Refer to 5-2 Historical Trend Graph Operations for more details:

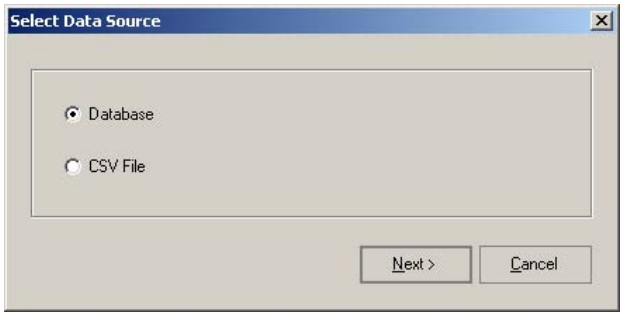


To cancel the graph before it is displayed, click Cancel on the progress bar:

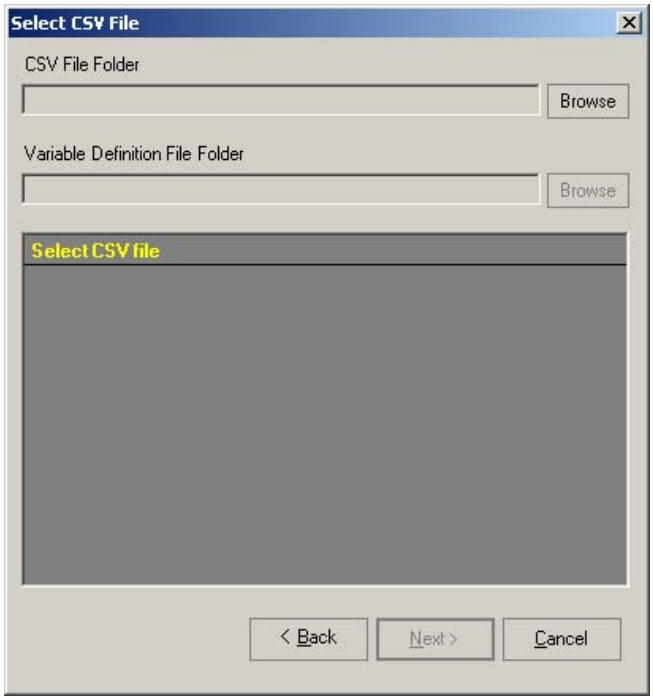


5-1-2 CSV File Data

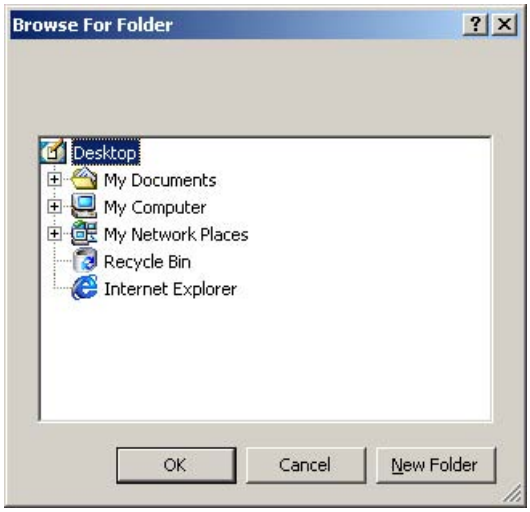
1,2,3… 1. Select Programs | OMRON | EQView | Historical Trend/Comparison (default name) from the Start menu. The EQView main window will be displayed.
2. In the EQView main window, select Graph | Historical Trend/Comparison | New. The Select Data Source dialog will be displayed:



3. Select CSV File, then click Next. The Select CSV File dialog will be displayed:

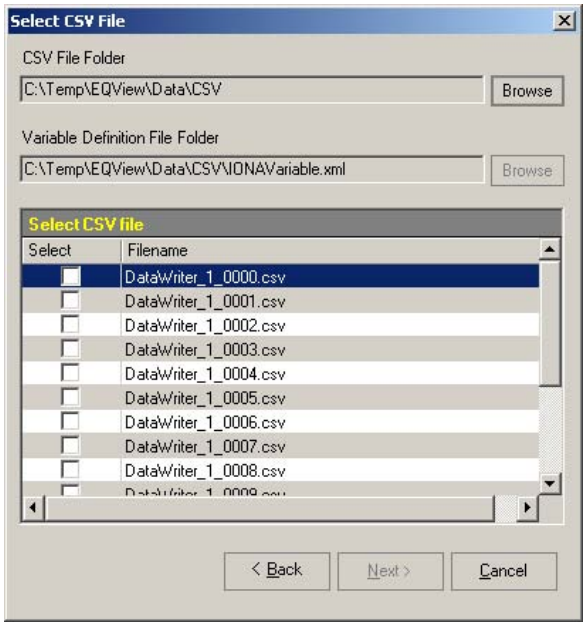


4. Click Browse to the right of the CSV File Folder field. The Browse For Folder dialog will be displayed:



Note CSV files with a maximum of 255 columns (a maximum of 251 individual variables) can be opened. If the file exceeds this limit, set the SPU Unit to reduce the number of variables.

5. Select the desired CSV file, then click OK to return to the Select CSV File dialog. The selected file will be displayed:



If the variable definition (*.xml) file is saved in the same folder as the CSV file, it will automatically be selected.

If the variable definition file is stored in a different folder, click Browse next to the Variable Definition File Folder field, then select the variable definition (*.xml) file.

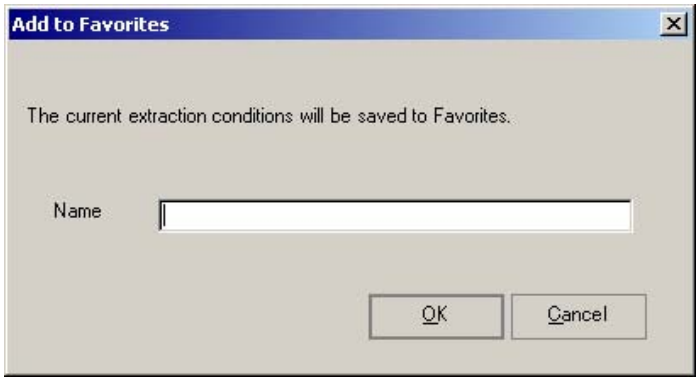
6. Check the data to be graphed, then click Next. To continue, follow the steps in 5-1-1 Database Data, starting from step 5.

5-1-3 Saving Extraction Conditions

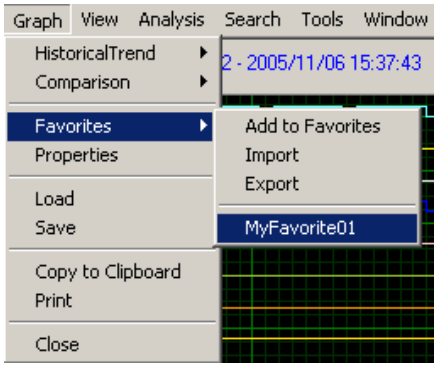
Extraction conditions can be bookmarked or exported to a file.

Adding to Favorites

1,2,3… 1. In the EQView main display, select Graph | Favorites | Add to Favorites. The Add to Favorites dialog will be displayed:



2. Enter a title, then click OK. To open a bookmarked graph, select Graph | Favorites | [bookmark]:



Exporting to a File

1,2,3… 1. In the EQView main display, select Graph | Favorites | Export. The Save dialog will be displayed.
2. Enter a filename and location, then click Save. The graph settings will be saved as an *.xml file.

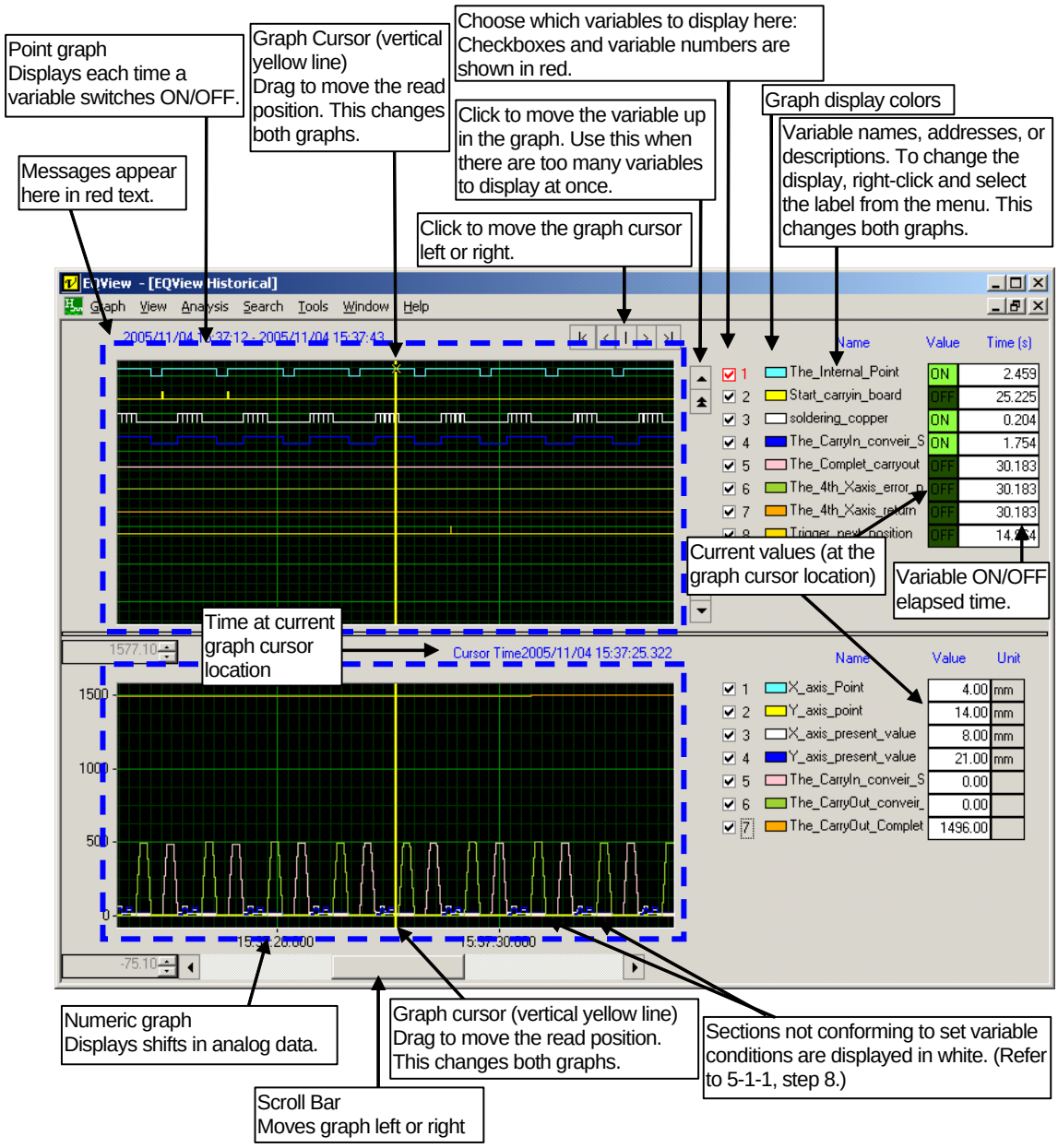
Importing a File

To open saved extraction conditions, select Graph | Favorites | Import in the EQView main window.

5-2 Historical Trend Graph Operations

5-2-1 Displaying a Graph

The following shows an example of typical historical trend point and numeric graphs:

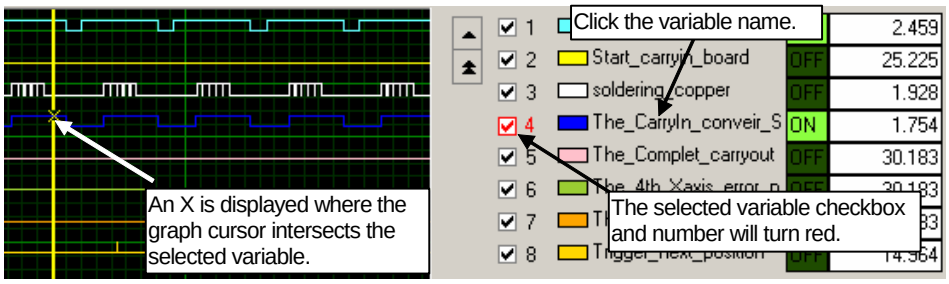


If the graphed data exceeds the upper limit of the graph, the graph will only display from the oldest data to the graph upper limit.

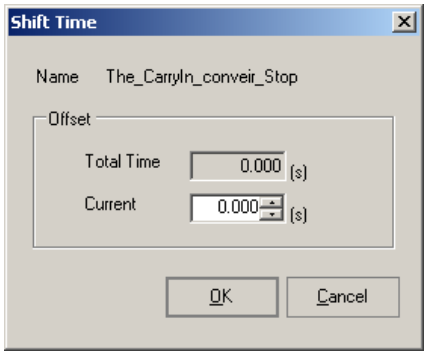
5-2-2 Horizontal Shift

Individual variables can be shifted left or right in the graph. This allows comparison of variables by aligning ON times, then comparing the timing of later changes. This function is available for point graphs only.

1,2,3… 1. Select the name of the variable to be shifted, then select Graph | Shift Variables (an X will appear where the graph cursor intersects the variable, and the selected variable checkbox and number will turn red):



The Shift Time dialog will automatically be displayed:

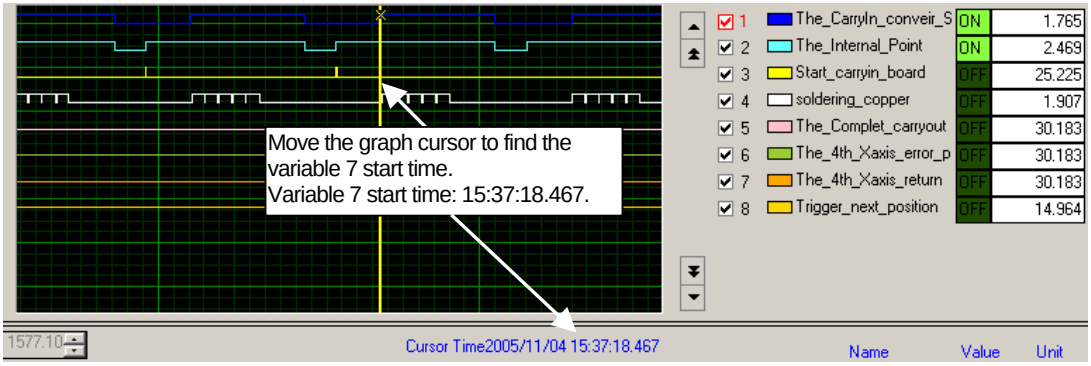


2. Check the time to be shifted by moving the graph cursor, enter the time to be shifted in seconds in the Current field, then click OK. To shift to the left, enter a negative value.

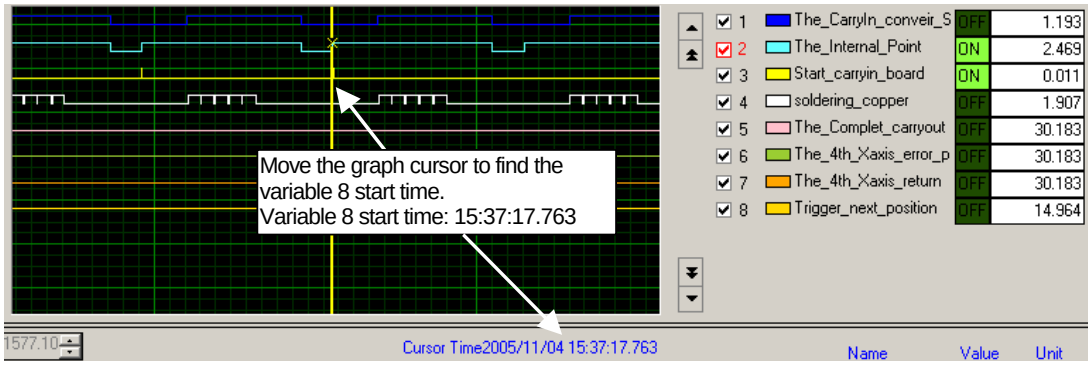
Example

Shift the start time for variable 8 (Y_axis_position_complete) to the start time for variable 7 (X_axis_position_complete).

1,2,3… 1. Move the graph cursor to find the start time for variable 7:



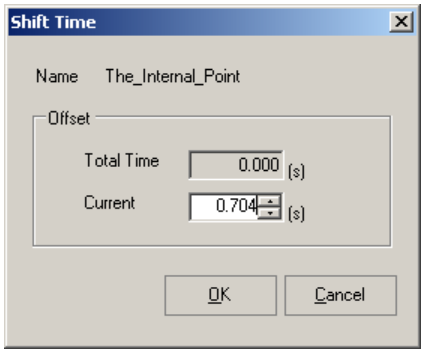
2. Move the graph cursor to find the start time for variable 8:



3. Calculate the time difference:

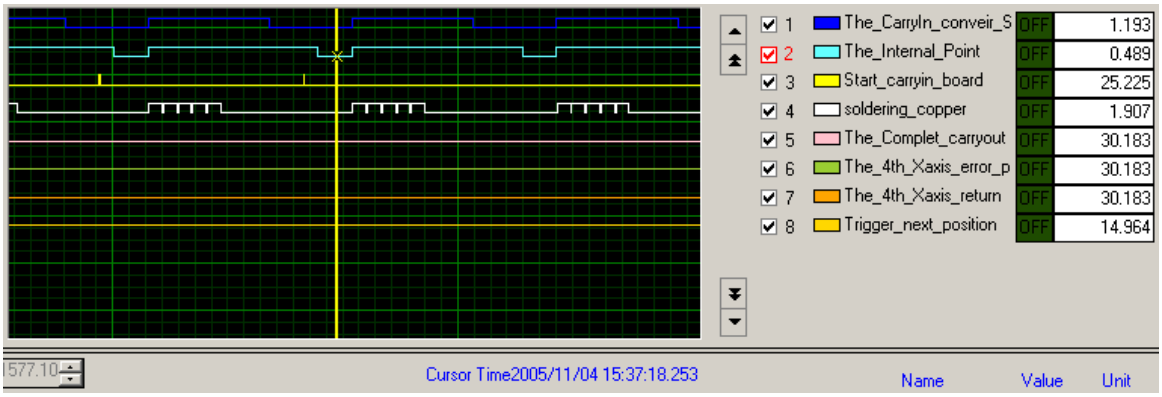
15:37:18.467 - 15:37:17.763 = 0.704 seconds

4. Click variable 8 (Y_axis_position_complete), and select Graph | Shift Variables. (An X will appear where the graph cursor intersects the variable, and the selected variable checkbox and number will turn red). The Shift Time dialog will be displayed:



5. In the Current field, enter 0.704, then click OK.

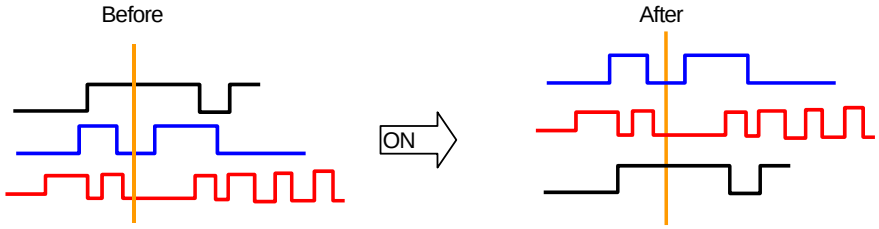
6. The start position for variable 8 (Y_axis_position_complete) will align with the start position for variable 7 (X_axis_position_complete):



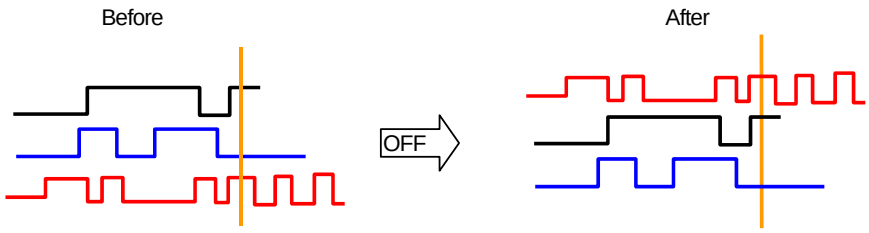
5-2-3 Variable Display Order

The variable display order can be changed by the following three methods:

- Sort Variables Manually: Manually change the display order in the Variable Order dialog. The new display order can be saved for later use.
- Sort by ON Order: Automatically sorts the point variables after the cursor (including points under the cursor) according to the order in which the variables change from OFF to ON. Points before the cursor will be displayed at the bottom of the graph:



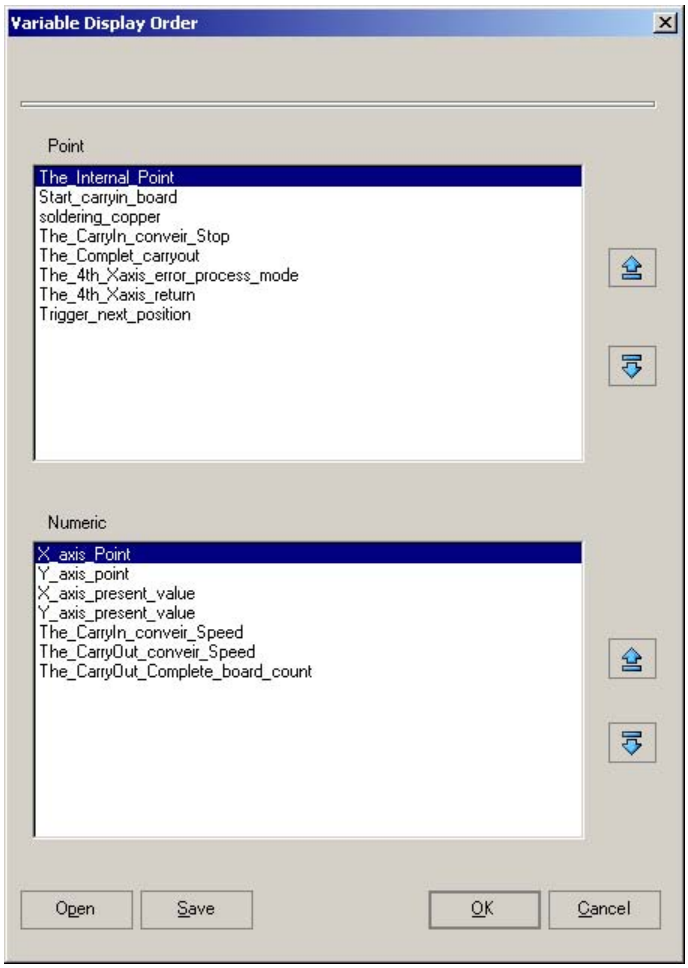
- Sort by OFF Order: Automatically sorts point variables after the cursor (including points under the cursor) according to the order in which the variables change from ON to OFF. Points before the cursor will be displayed at the bottom of the graph:



Sort Variables Manually

Follow the steps below to change the variable display order:

1,2,3… 1. Select View | Variable Order | Sort Variables Manually. The Variable Display Order dialog will be displayed:



2. Select a variable, click  (up) or  (down), then click OK.
3. Click Save to save the new variable order to a file.

To open an existing variable order file, click Read and select the file. If there are variables in the graph not included in the file, the variables not in the file will be displayed below the defined variables.

Sort by ON Order

1,2,3… 1. Drag the graph cursor to the position where the points are to be aligned.
2. Select Graph | Variable Order | ON Order.

Variables after the cursor (including points under the cursor) will be displayed in the order in which they change from OFF to ON. Points that occur before the cursor will be displayed at the bottom of the graph.

Sort by OFF Order

1,2,3… 1. Drag the graph cursor to the position where the points are to be aligned.
2. Select Graph | Variable Order | OFF Order.

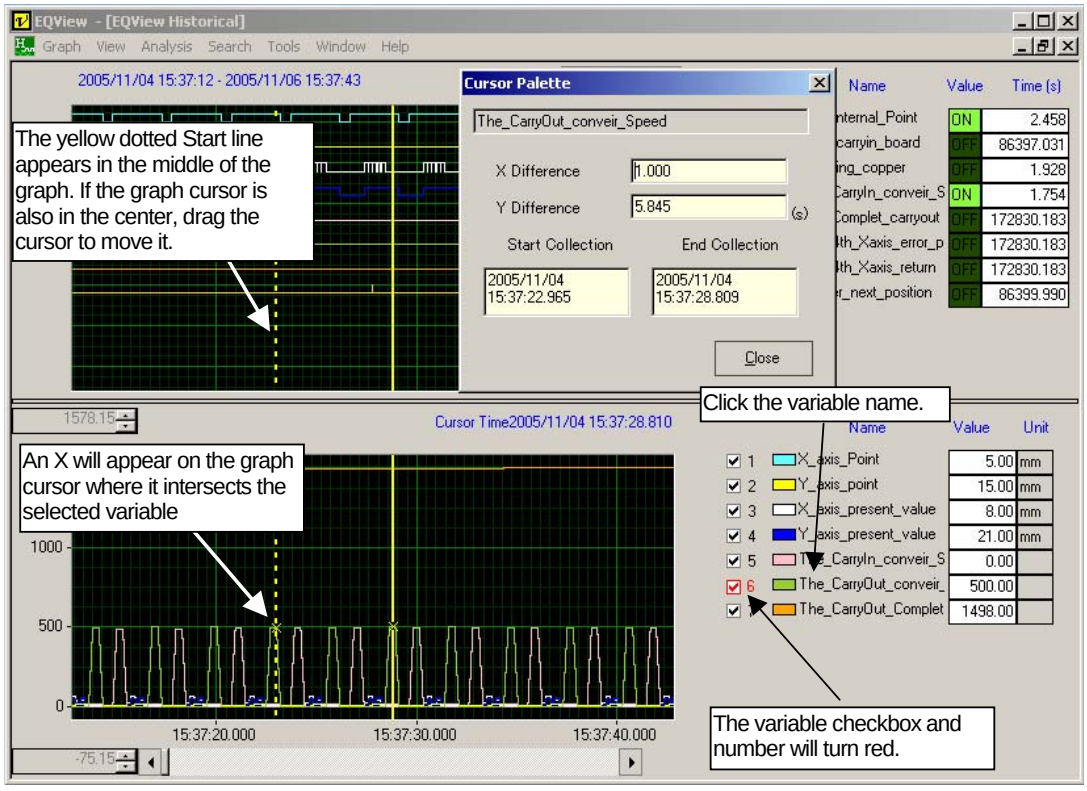
Variables after the cursor (including points under the cursor) will be displayed in the order in which they change from ON to OFF. Points that occur before the cursor will be displayed at the bottom of the graph.

5-2-4 Cursor Palette

The difference in X and Y axes between two selected variables can be displayed in the cursor palette to show the time difference between the two variables as well as the difference in the values. The dotted yellow line is the start position; and the graph cursor is the end position.

1,2,3… 1. Click a variable to select it. Then drag the graph cursor to any position on the graph (an X will appear on the graph cursor where it crosses the selected variable, and the variable checkbox and number will turn red).
2. Select View | Cursor Palette.

The Cursor Palette dialog will be displayed. The dotted yellow Start line will appear in the center of the graph. The graph cursor may also be in the center of the graph. If so, just drag the cursor so that both are visible:



The time difference (in seconds) and the difference in values between the selected start and end positions, and the start and end times will be displayed in the Cursor Palette dialog.

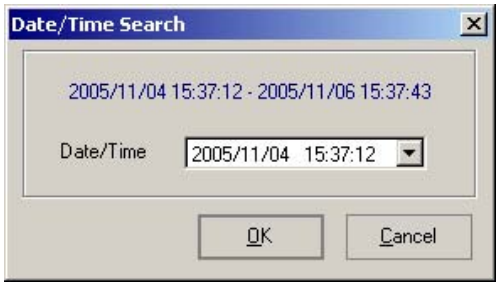
5-2-5 Searching

Search for a time or a variable. The graph cursor will move to the location of the search results (positioned in the center of the graph).

Note In Search mode, the graph cursor can only be moved within the search range. To exit Search mode, select Search | Exit Search Mode.

Time Search

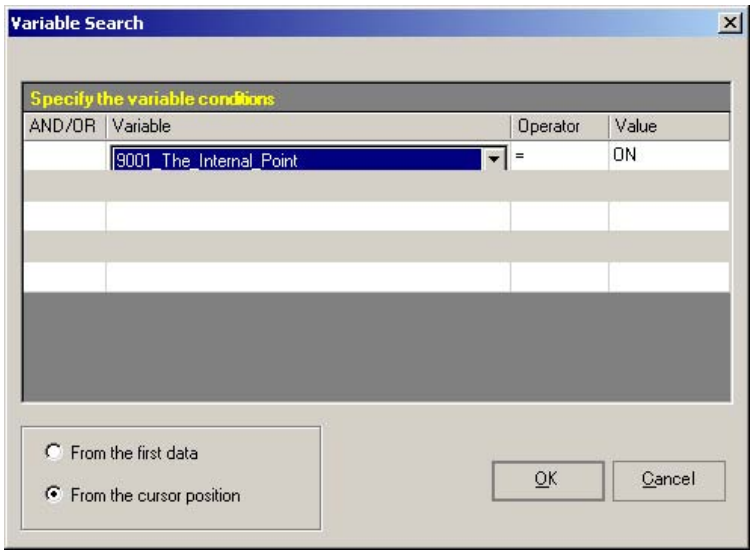
1,2,3… 1. In the historical trend display, select Search | Date/Time Search. The Date/Time Search dialog will be displayed:



2. Enter the time and date, then click OK. The graph cursor will move to that position, which will be displayed in the center of the graph.

Variable Search

1,2,3… 1. In the historical trend display, select Search | Variable Search. The Variable Search dialog will be displayed:



2. Enter a maximum of five variables (including operators and values), using AND/OR from the second line to connect the search parameters.

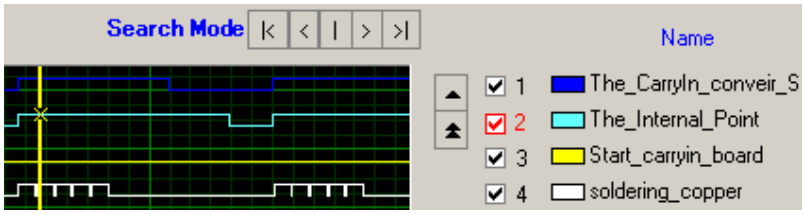
3. Select From the first data or From the cursor position.

- If From the first data is selected, the search will start at the first data position in the graph.
- If From the cursor position is selected, the search will start from the graph cursor position.

4. Click OK. The graph cursor will move to the position that matches the search conditions, which will be displayed in the center of the graph.

Navigating in Search Mode

In search mode, the Search Mode bar is displayed in the upper right of the point graph (to the left of the variable list). The buttons in the Search Mode bar perform the functions described below. In search mode, the graph cursor can only be moved within the search range:



: Move to the oldest position

: Move back one position

: Move to the center position

: Move ahead one position

: Move to the newest position

Exiting Search Mode

To exit search mode, select Search | Exit Search Mode.

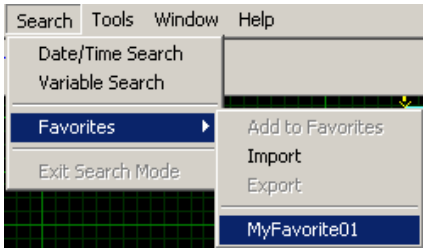
5-2-6 Saving Search Parameters

Search parameters can be saved for later use as a bookmark or as a file.

Adding to Favorites

1,2,3… 1. In the EQView main display, select Search | Favorites | Add to Favorites. The following dialog will be displayed:

2. Enter a title, then click OK.
3. To open a bookmark, click Search | Favorites | [bookmark]:



Exporting to a File

1,2,3…

1. In the EQView main window, select Search | Favorites | Export. The Save dialog will be displayed.
2. Enter a filename and location; then click Save. The search parameters will be saved as an *.xml file.
3. To open a search parameters file, select Search | Favorites | Import from the EQView main window.

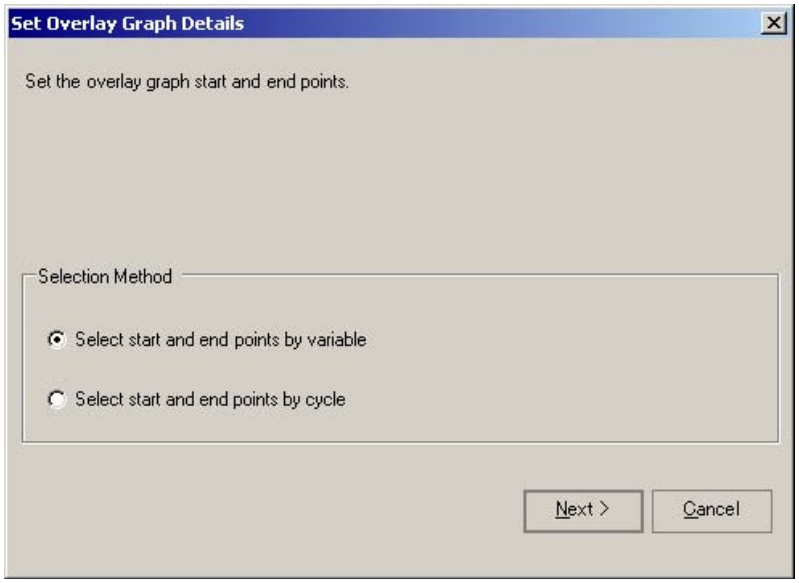
SECTION 6
Overlay Graphs

6-1 Creating an Overlay Graph

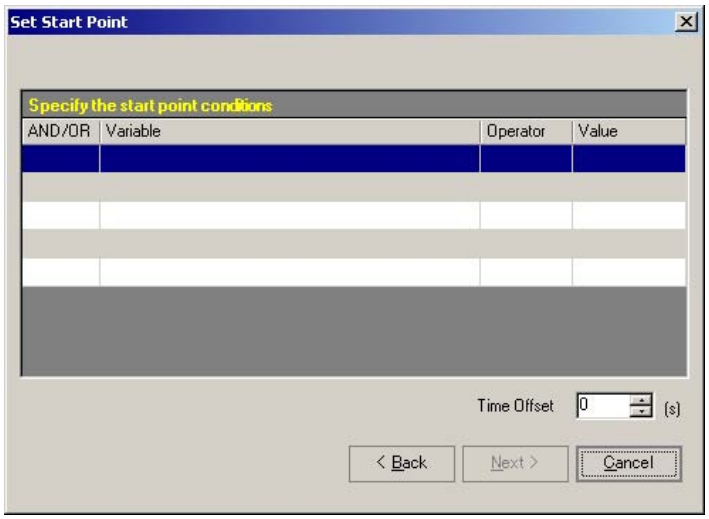
Overlay graphs are used to compare data and identify differences in time or other values. Collect data that conforms to specified conditions across several data cycles and overlay them on one graph. This enables identifying where differences in time or other values lie in each data cycle. Overlay graphs are created after creating historical graphs. Multiple graphs can be displayed simultaneously.

Defining Start and End Points by Variables

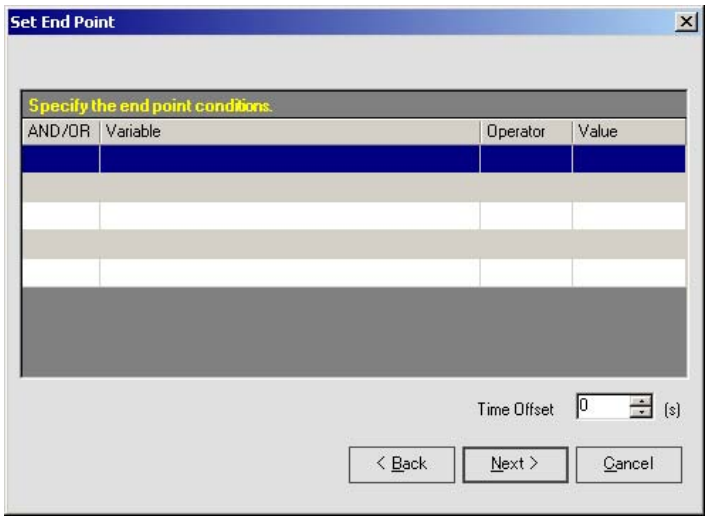
1,2,3… 1. Create an historical trend graph. Refer to 5-1 Creating an Historical Trend Graph for details.
2. In the historical trend graph display, select Analysis | Overlay Graph | Show. The following dialog will be displayed:



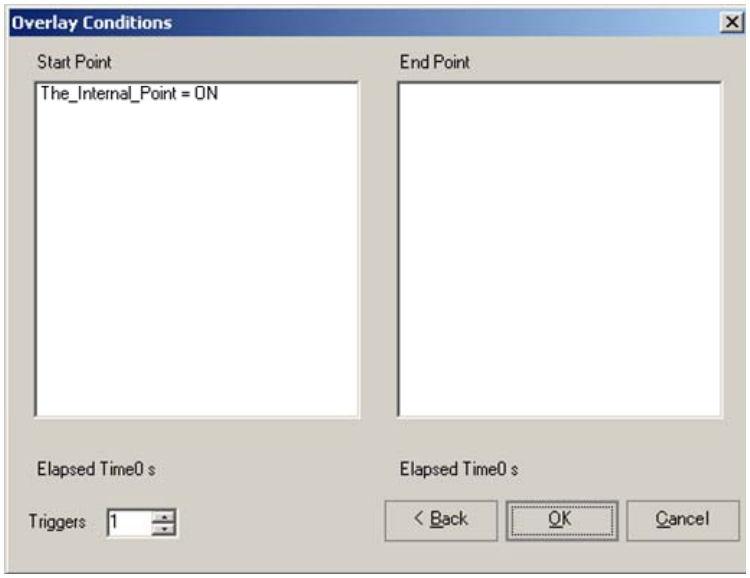
3. Specify Select start and end points by variable, then click Next. The Set Start Point dialog will be displayed:



4. Set the start point variable conditions. (This step is required.) If desired, set the Time Offset (the time to wait from the occurrence of the variable conditions). After setting the start point conditions, click Next. The Set End Point dialog will be displayed:



5. Set the end point variable conditions. (This step is optional.) If desired, set the Time Offset. If an end point is not defined, the time elapsed from the start point will be used. After setting the end point conditions, click Next. The following dialog will be displayed:

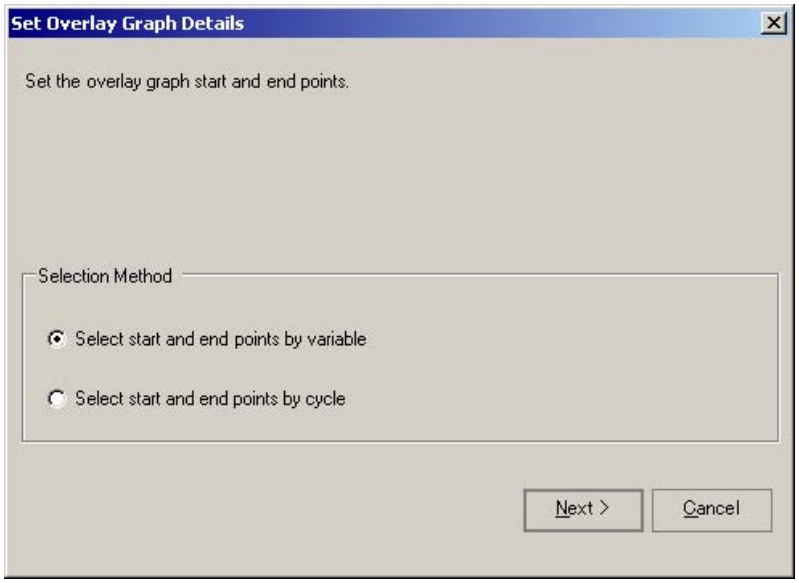


6. Confirm the start and end points, and set the trigger number, if desired. If all the settings are correct, click OK. The overlay graph will be displayed.

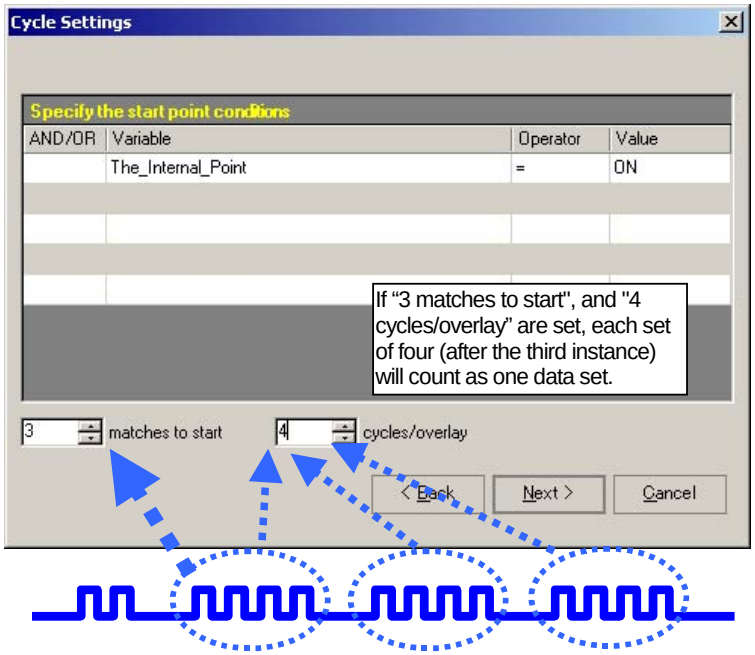
Note The default Triggers setting is 1. In this case, the interval between one start point and one end point will be counted as one data cycle. If Triggers is set to 2, two start-stop cycles will be counted as one data cycle.

Defining Start and End Points by Cycle

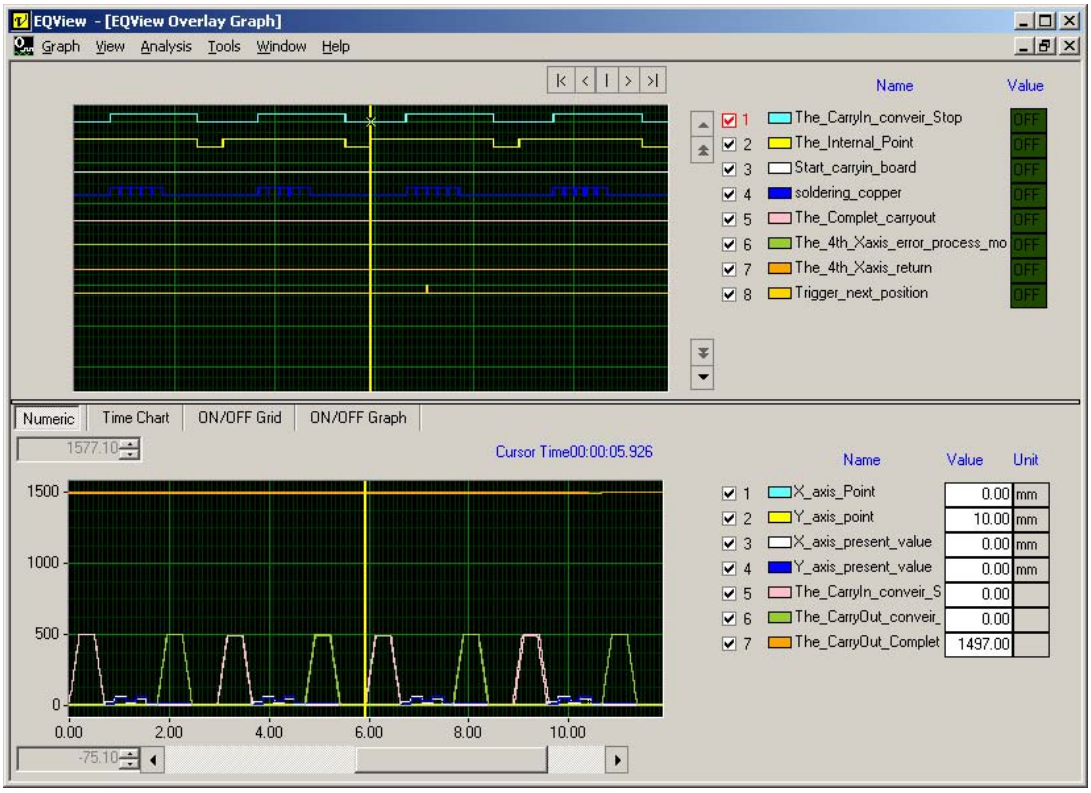
1,2,3… 1. Create an historical trend graph. Refer to 5-1 Creating an Historical Trend Graph for details.
2. In the historical trend graph display, select Analysis | Overlay Graph | Show. The following dialog will be displayed:



3. Specify Select start and end points by cycle, then click Next. The following dialog will be displayed:

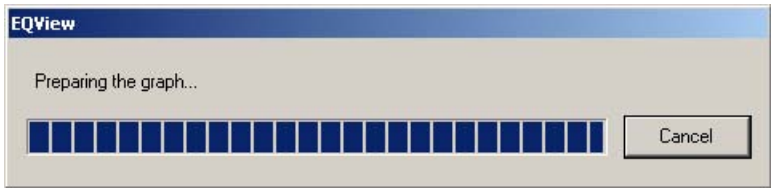


4. Define the cycle start point as a variable condition. (This step is required.) Only one point can be set here. The start point condition is also used as the end point. Next, set the cycle conditions. After setting all the conditions, click Next:



Data outside the start and end points will be overlaid, even with the end point undefined.

Click Cancel on the progress bar to cancel the overlay graph before it is displayed:



6-1-1 Saving Overlay Graph Conditions

Settings used to create an overlay graph can be saved either as a bookmark or exported to a file.

Adding to Favorites

1,2,3… 1. In the EQView main display, select Analysis | Overlay Graph | Favorites | Add to Favorites. The Add to Favorites dialog will be displayed:

2. Enter a title, then click OK. The settings of the overlay graph currently displayed will be saved as a bookmark. To open the bookmark, select Analysis | Overlay Graph | Favorites | [bookmark].

Exporting to a File

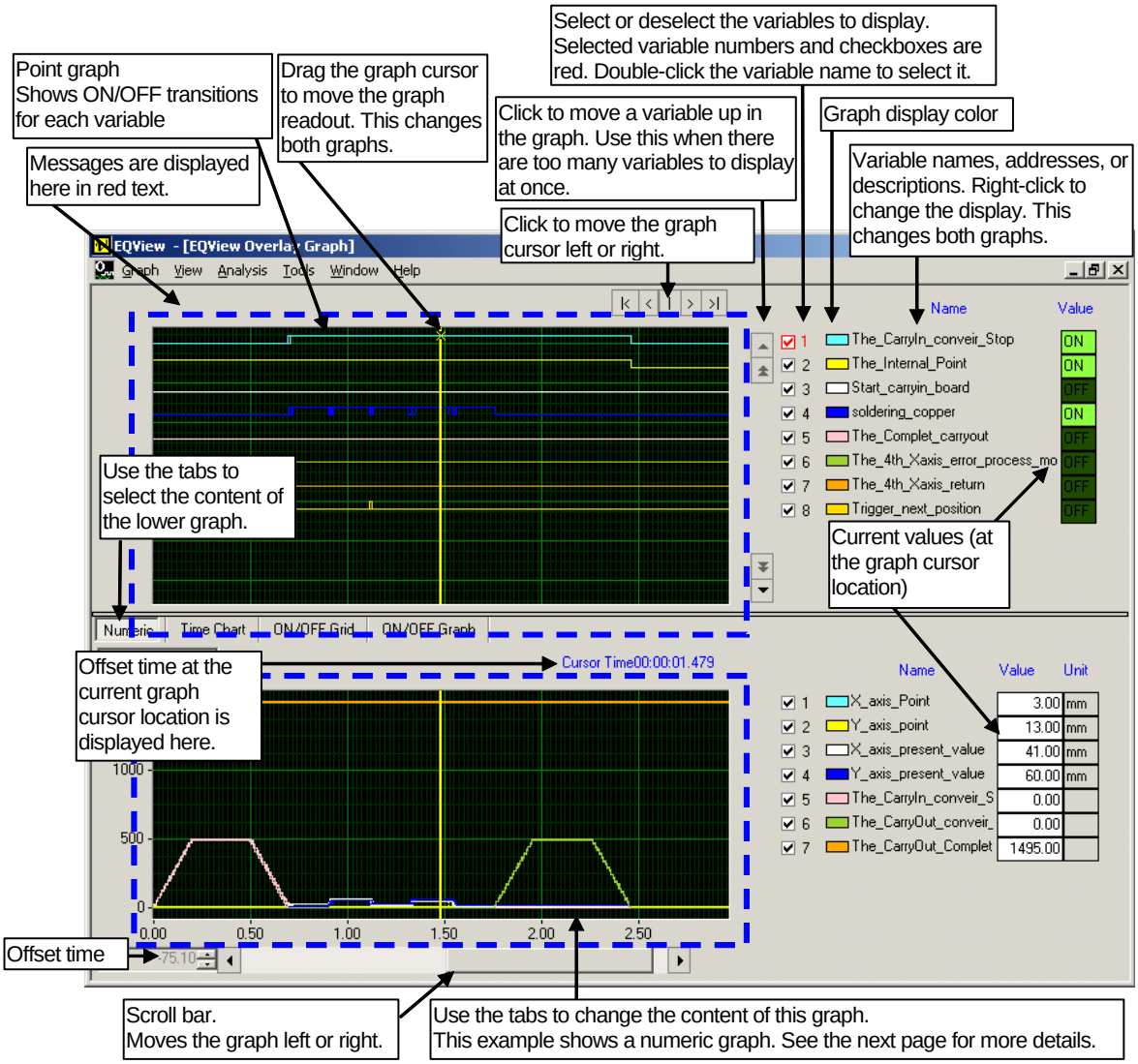
1,2,3… 1. In the EQView main display, select Analysis | Overlay Graph | Favorites | Export. The Save dialog will be displayed.
2. Enter the filename and location, then click Save. The settings will be saved as an *.xml file.

To open saved settings, in the EQView main display, select Analysis | Overlay Graph | Favorites | Import.

6-2 Overlay Graph Operations

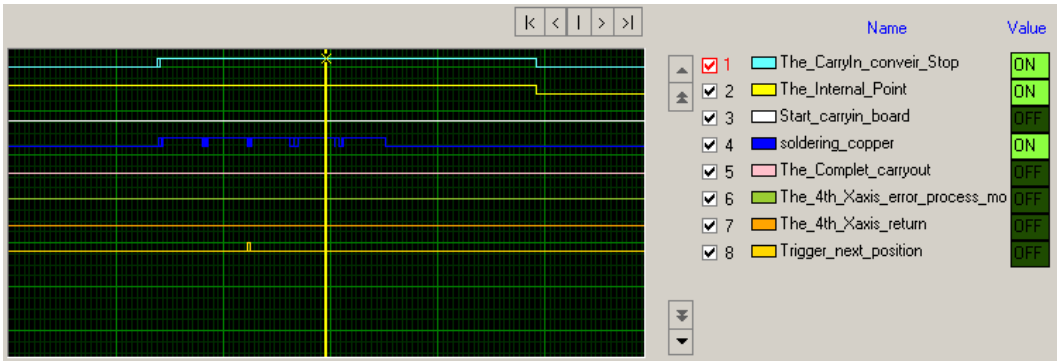
6-2-1 Displaying a Graph

A typical overlay graph includes a point graph, a numeric graph, a time chart, and an ON/OFF time chart or an ON/OFF graph, depending on the tab selected:



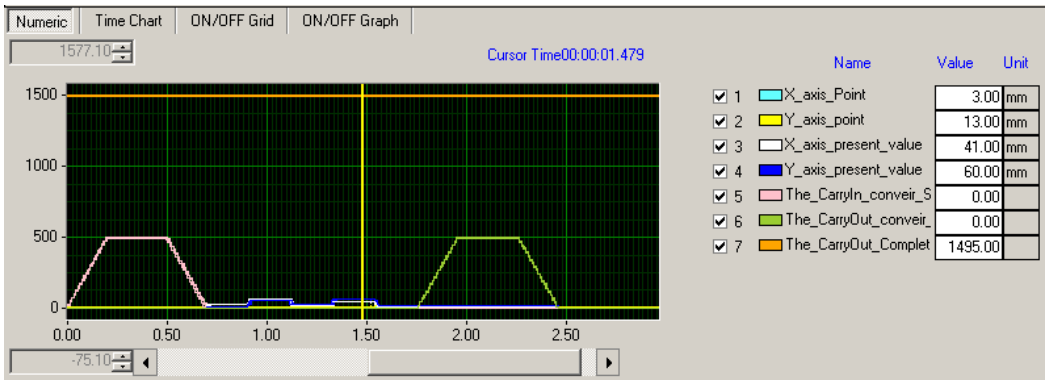
Overlay Point Graph

This graph overlays the point data from each cycle. Use this graph to identify time differences in each cycle:



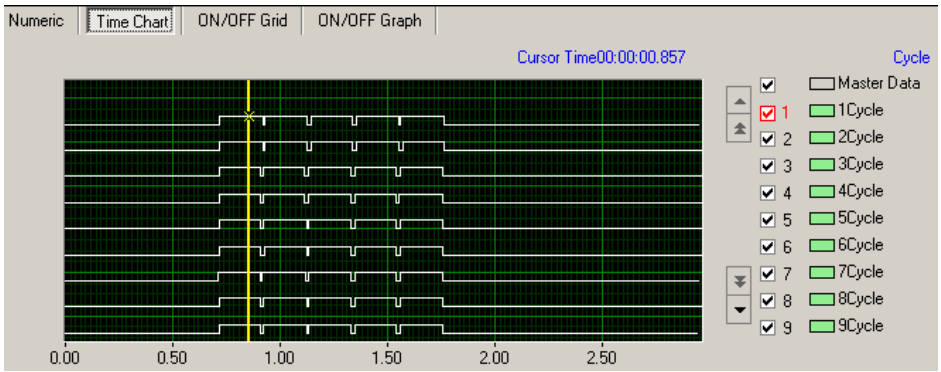
Overlay Numeric Graph

This graph overlays the numeric data from each cycle. Use this graph to identify value differences in each cycle:



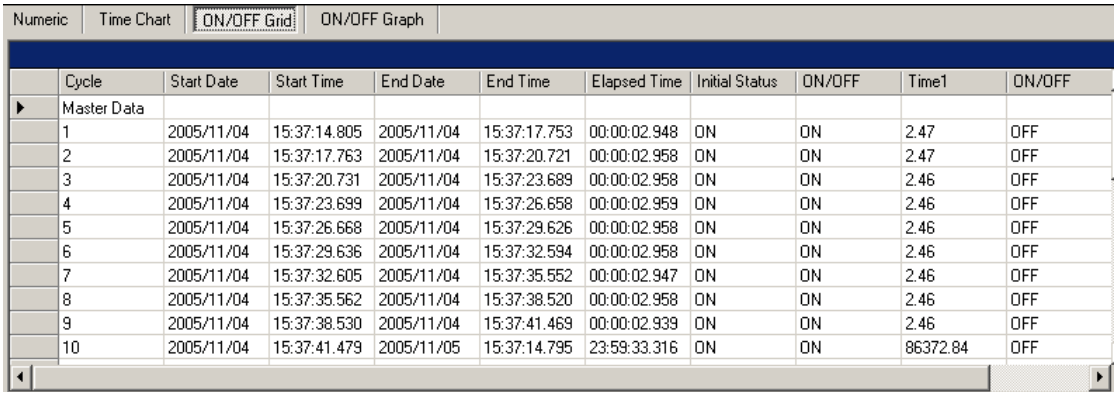
Overlay Time Graph

This graph (Time Chart) analyzes the point data from each cycle and generates a time chart. Use the list to the right of the point graph to select which variables to analyze. Use this graph to identify time differences in each cycle. Use the checkboxes on the right to select the cycles to display:



Overlay ON/OFF Time Table

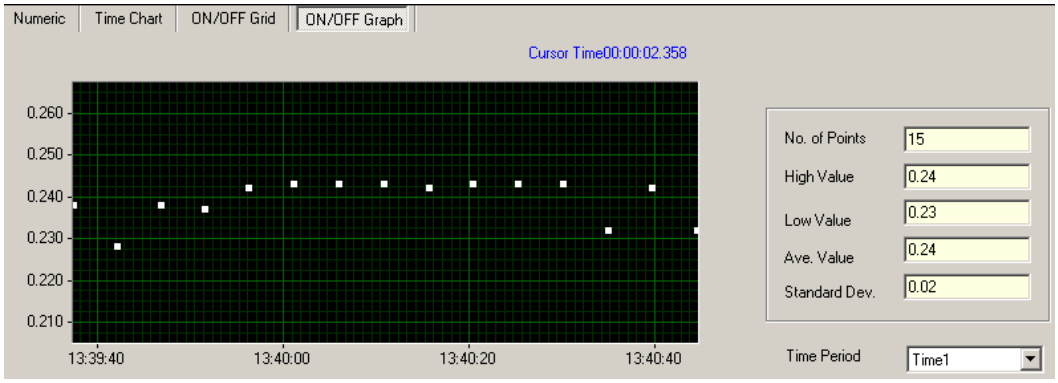
This table (ON/OFF Grid) is created by analyzing the point data for each cycle and displaying the ON/OFF times for each variable in a table:



Cycle	Start Date	Start Time	End Date	End Time	Elapsed Time	Initial Status	ON/OFF	Time1	ON/OFF
Master Data									
1	2005/11/04	15:37:14.805	2005/11/04	15:37:17.753	00:00:02.948	ON	ON	2.47	OFF
2	2005/11/04	15:37:17.763	2005/11/04	15:37:20.721	00:00:02.958	ON	ON	2.47	OFF
3	2005/11/04	15:37:20.731	2005/11/04	15:37:23.689	00:00:02.958	ON	ON	2.46	OFF
4	2005/11/04	15:37:23.699	2005/11/04	15:37:26.658	00:00:02.959	ON	ON	2.46	OFF
5	2005/11/04	15:37:26.668	2005/11/04	15:37:29.626	00:00:02.958	ON	ON	2.46	OFF
6	2005/11/04	15:37:29.636	2005/11/04	15:37:32.594	00:00:02.958	ON	ON	2.46	OFF
7	2005/11/04	15:37:32.605	2005/11/04	15:37:35.552	00:00:02.947	ON	ON	2.46	OFF
8	2005/11/04	15:37:35.562	2005/11/04	15:37:38.520	00:00:02.958	ON	ON	2.46	OFF
9	2005/11/04	15:37:38.530	2005/11/04	15:37:41.469	00:00:02.939	ON	ON	2.46	OFF
10	2005/11/04	15:37:41.479	2005/11/05	15:37:14.795	23:59:33.316	ON	ON	86372.84	OFF

Overlay ON/OFF Graph

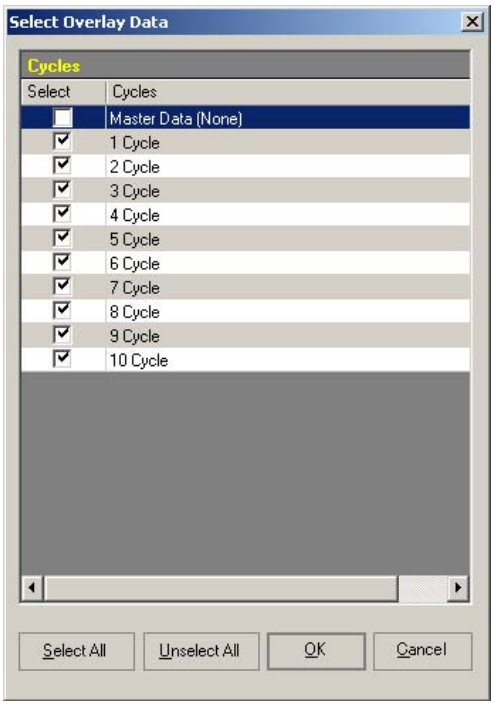
This graph analyzes the point data from each cycle and plots ON/OFF transitions within a specified time period (in this case “Time1”):



6-2-2 Selecting the Cycles

To select or deselect the cycles to include in the overlay graph, follow the steps below:

1,2,3… 1. On the overlay graph display, select Analysis | Overlay Graph | Select Overlay Data. The Select Overlay Data dialog will be displayed:



- To select all cycles, click Select All.
- To deselect all cycles, click Unselect All.

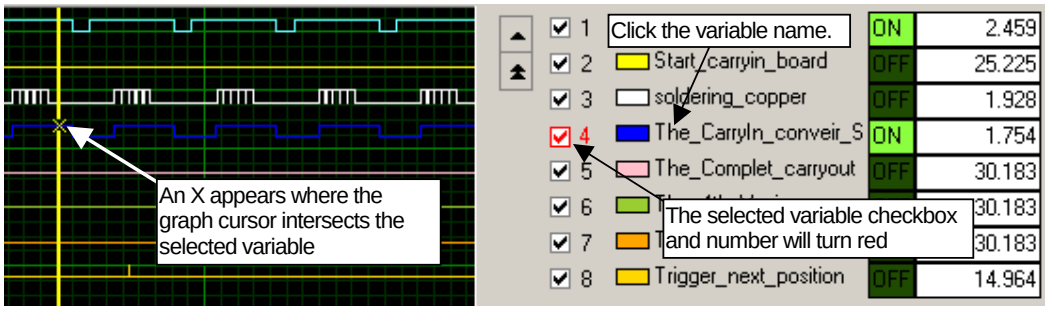
2. Select the cycles to be graphed by clicking the checkboxes. Only the checked cycles will be displayed on the overlay graph. After selecting all the cycles to graph, click OK.

Note Highlight multiple items by selecting a point, then holding down the Shift key and using the up/down arrow keys. Click the mouse once and all highlighted items will be checked or unchecked.

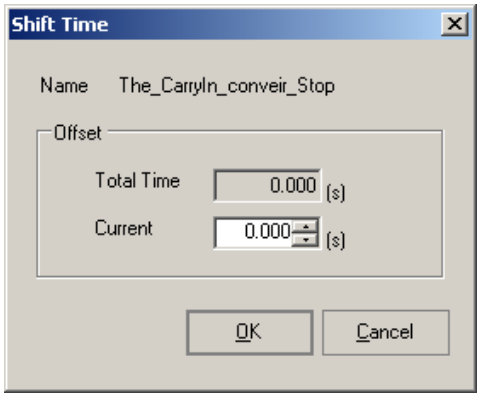
6-2-3 Horizontal Shift

Individual variables can be shifted left or right in the graph. This enables comparison of variables by aligning ON times, then comparing the timing of later changes. This function is available for point graphs only.

1,2,3… 1. Select the name of the variable to be shifted, then select Graph | Shift Variables (an X will appear where the graph cursor intersects the variable, and the selected variable checkbox and number will turn red):



The Shift Time dialog will be displayed:



2. Check the time to be shifted by moving the graph cursor. Enter the time to be shifted in seconds in the Current field, then click OK. To shift to the left, enter a negative value. Refer to 5-2-2 Horizontal Shift for details.

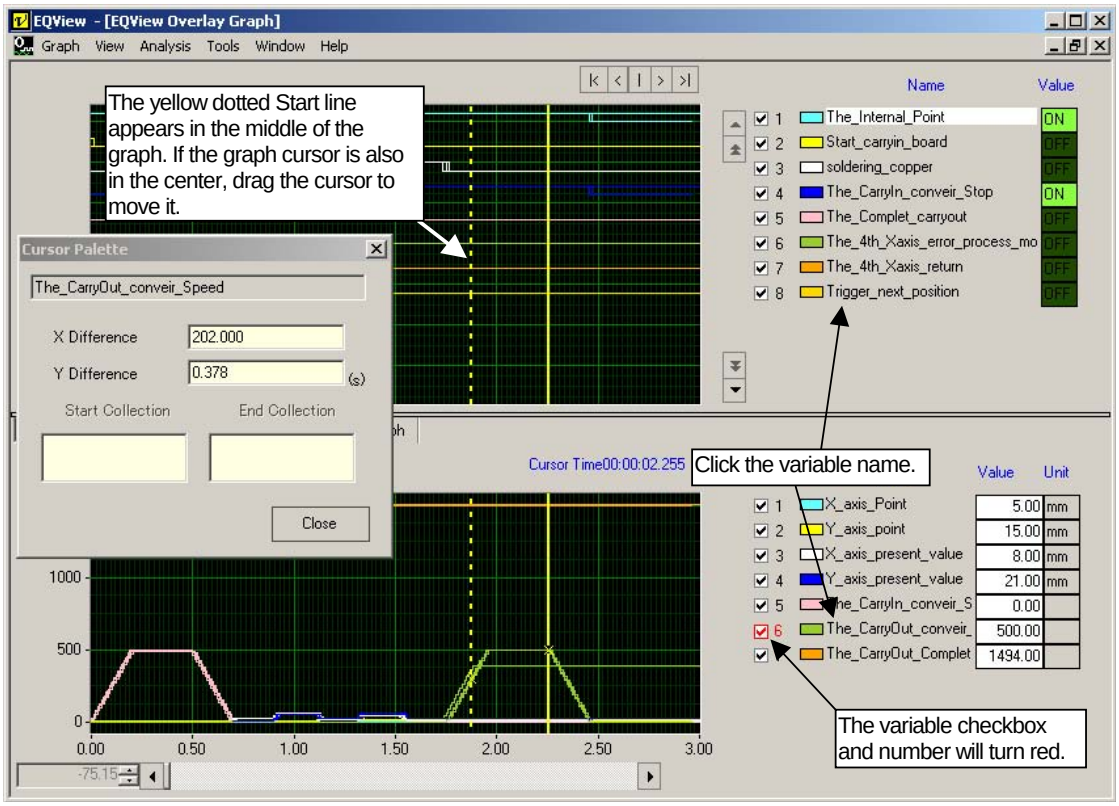
6-2-4 Cursor Palette

The difference in X and Y axes between two selected variables can be displayed in the cursor palette to show the time difference between two variables as well as the difference in values. The dotted yellow line is the start position, the graph cursor is the end position.

Note Start and end times for data collection are not shown in overlay or comparison graphs.

1,2,3…

1. Click to select a variable, then drag the graph cursor to any position on the graph (an X will appear on the graph cursor where it crosses the selected variable, and the variable checkbox and number will turn red).
2. Select View | Cursor Palette. The Cursor Palette dialog will be displayed. A dotted yellow start line will appear in the center of the graph. The graph cursor may also be in the center of the graph. In this case, just drag the cursor so that both will be visible:



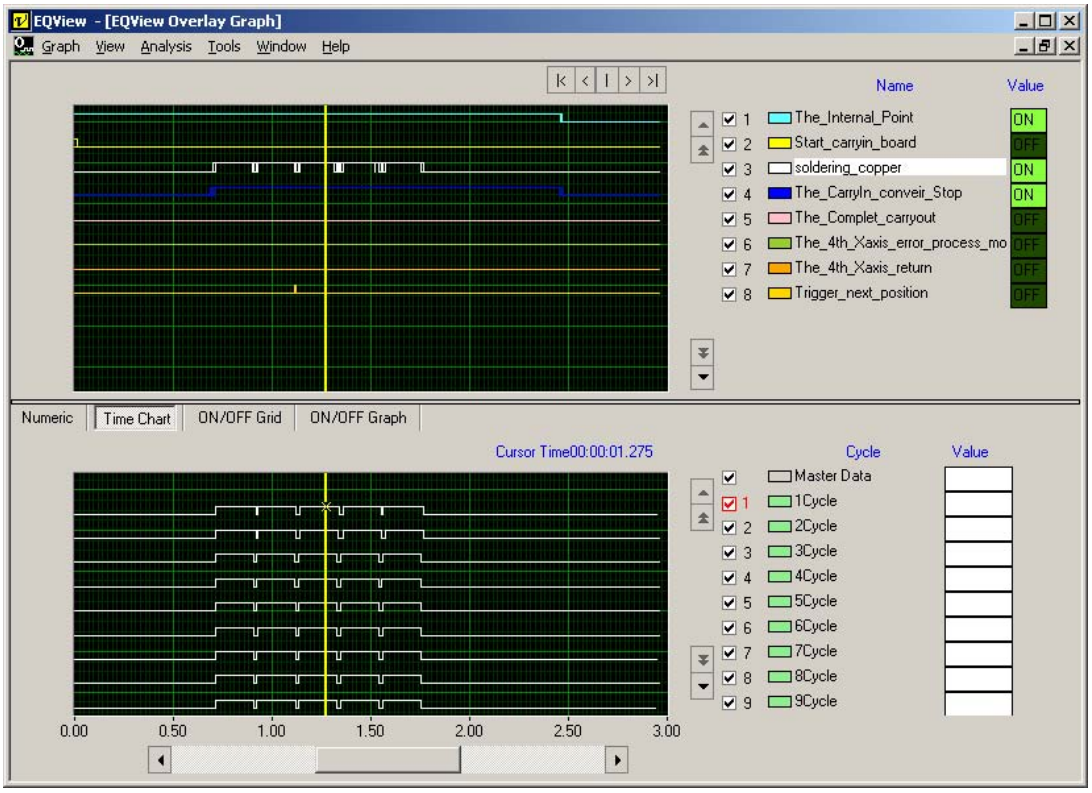
The time difference (in seconds) and value difference between the selected start and end positions, as well as the start and end times will be displayed in the Cursor Palette dialog.

6-2-5 Master Data

Data from any cycle can be saved as master data. Open this master data into a graph to compare it with the current cycle. Saved master data can also be used to perform threshold value comparisons. (Refer to 6-2-7 Threshold Values.)

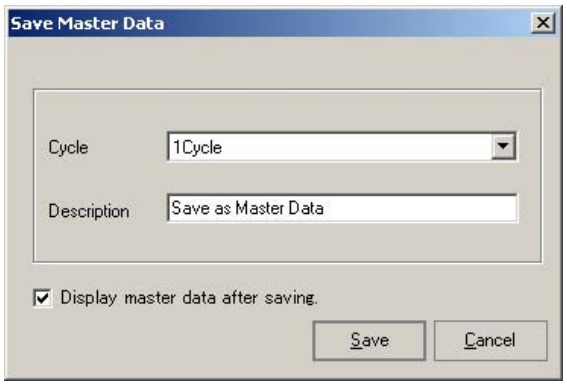
Saving Master Data

1,2,3… 1. In the overlay graph display, display a time chart graph by clicking the Time Chart tab. Choose the cycle to use as master data:



2. Select Analysis | Overlay Graph | Save Master Data. The Save Master Data dialog will be displayed.

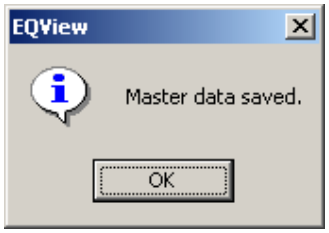
Example



3. Select the cycle to be saved, then click Save.

Note Checking Display master data after saving. adds the master data to the graph.

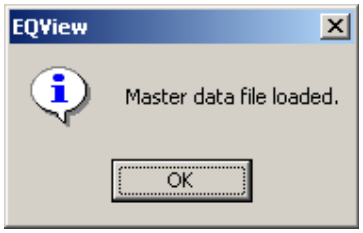
4. A standard Windows Save dialog will be displayed. Enter the filename and location, then click Save.
5. The master data will be saved as a *.dat file. The following confirmation will be displayed when the file has been saved:



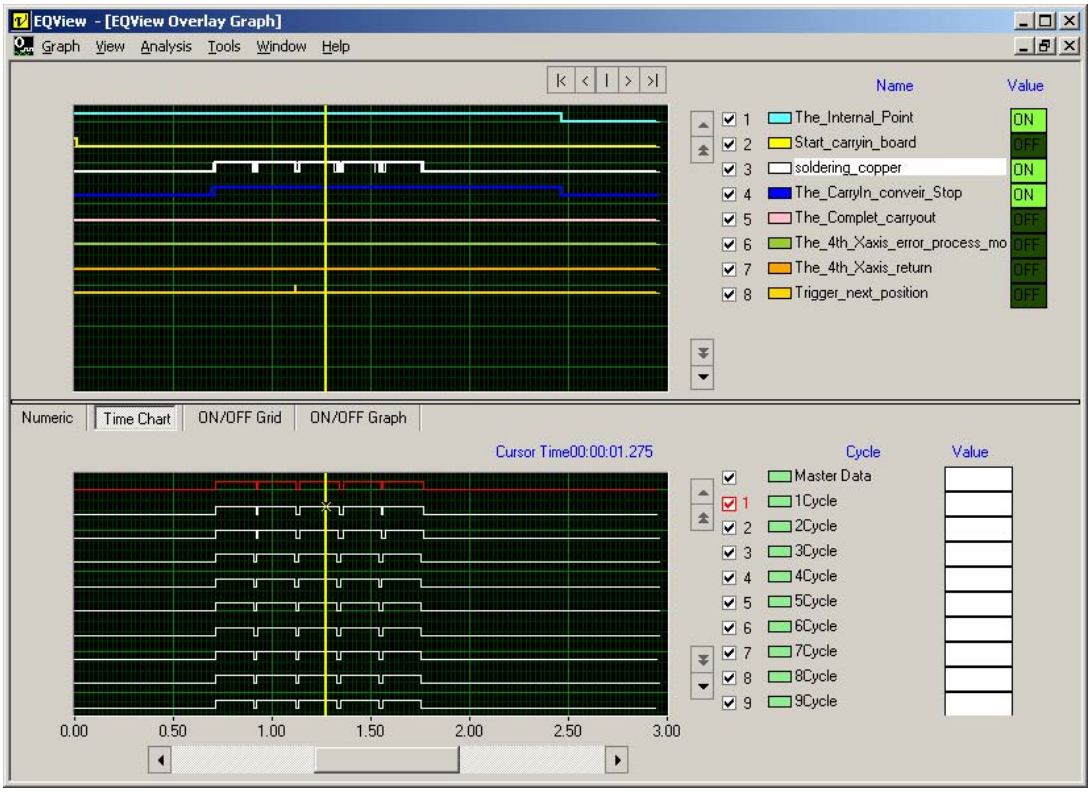
Opening Master Data Files

1,2,3…

1. Select Analysis | Overlay Graph | Load Master Data. A standard Windows Open File dialog will be displayed.
2. Select the *.dat file to open, then click Open. The following confirmation will be displayed:



3. Click OK. The master data will be displayed in the graph:



Clearing Master Data

Follow these steps to clear the master data from the graph:

1,2,3… 1. Select Analysis | Overlay Graph | Clear Master Data. The master data will be cleared from the graph.

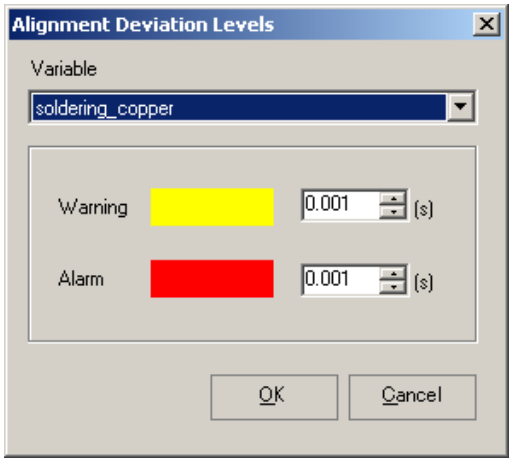
6-2-6 Deviation Analysis

Deviation analysis compares the master cycle to other cycles to identify timing differences.

Setting the Alignment Deviation Levels

Set the time deviation levels as follows:

1,2,3… 1. Select Tools | Alignment Deviation Levels. The Alignment Deviation Levels dialog will be displayed:



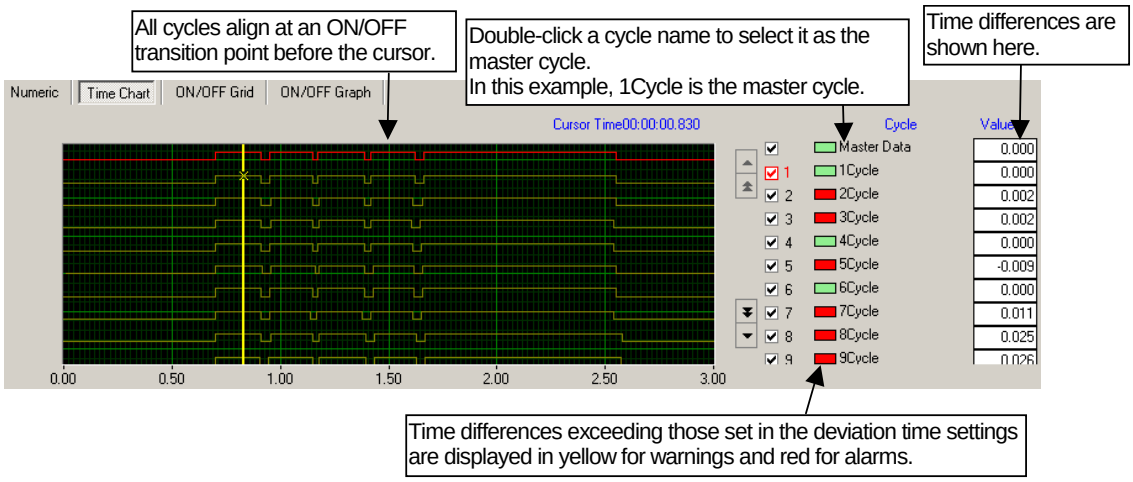
2. Set the Warning time difference (yellow) and the Alarm time difference (red), then click OK.

Aligning the Graph

1,2,3…

1. Click the Time Chart tab to display the time chart graph.
2. Double-click the cycle to be used as master data.
3. Select Analysis | Overlay Graph | Align.

All cycles will align at the position just before the graph cursor at an ON/OFF transition point on the master cycle. Time differences greater than the Warning setting will be displayed in yellow, and differences greater than the Alarm setting will be displayed in red:



6-2-7 Threshold Values

Opening saved master data into a graph allows comparison of current cycles to the master data. Values that differ from the master values by more than a specified amount are displayed in red.

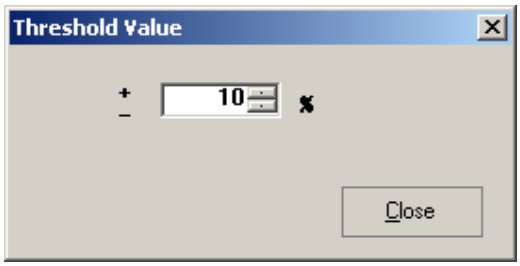
Note Threshold value comparisons differ from deviation analysis in that only saved master data can be used for comparison. Current cycles cannot be used for threshold values.

Setting Threshold Values

Follow these steps to set the threshold values to be compared:

1,2,3…

1. Select Tools | Threshold Value. The Threshold Value dialog will be displayed:

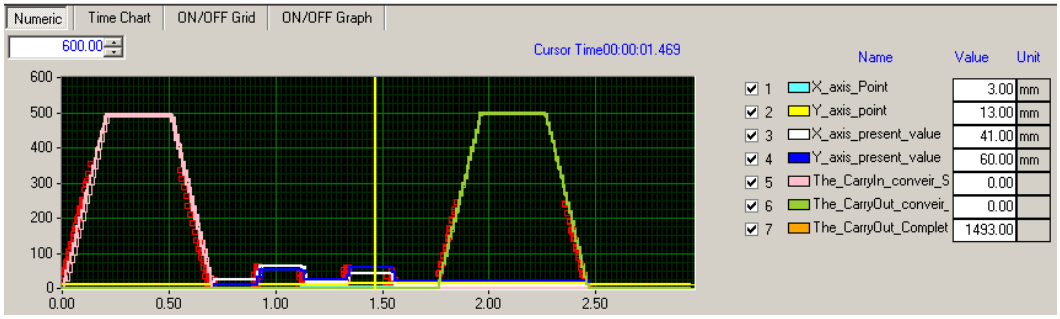


2. Set the threshold value (maximum 30%), then click Close.

Comparing Threshold Values

1,2,3…

1. Click the Numeric tab to display a numeric graph.
2. Select Analysis | Overlay Graph | Load Master Data to open the master data file to be used. (Refer to 6-2-5 Master Data.)
3. Select Analysis | Overlay Graph | Compare Thresholds. Values that differ from the master values by more than a specified amount are displayed in red:



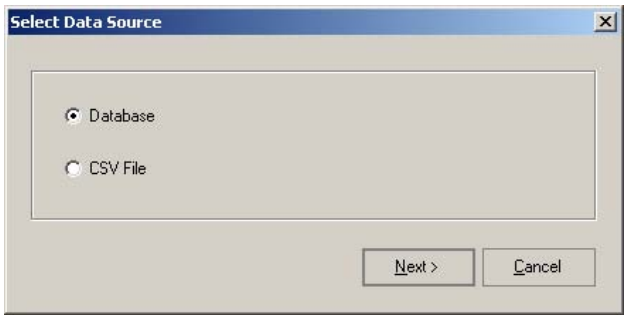
SECTION 7
Comparison Graphs

7-1 Creating a Comparison Graph

Comparison graphs display data stored in a database or CSV file, allowing the user to compare data according to file, day, or user-specified ID (key) data. Multiple graphs can be displayed simultaneously.

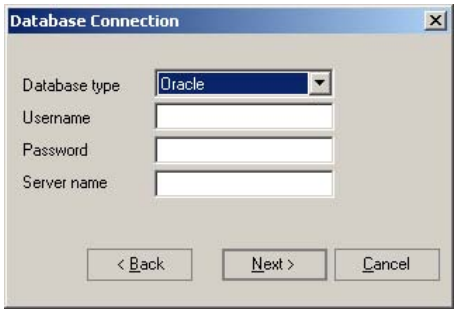
7-1-1 Comparing ID (Key) Data

1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView display will be displayed.
2. In the EQView, select Graph | Comparison | New. The following dialog will be displayed:



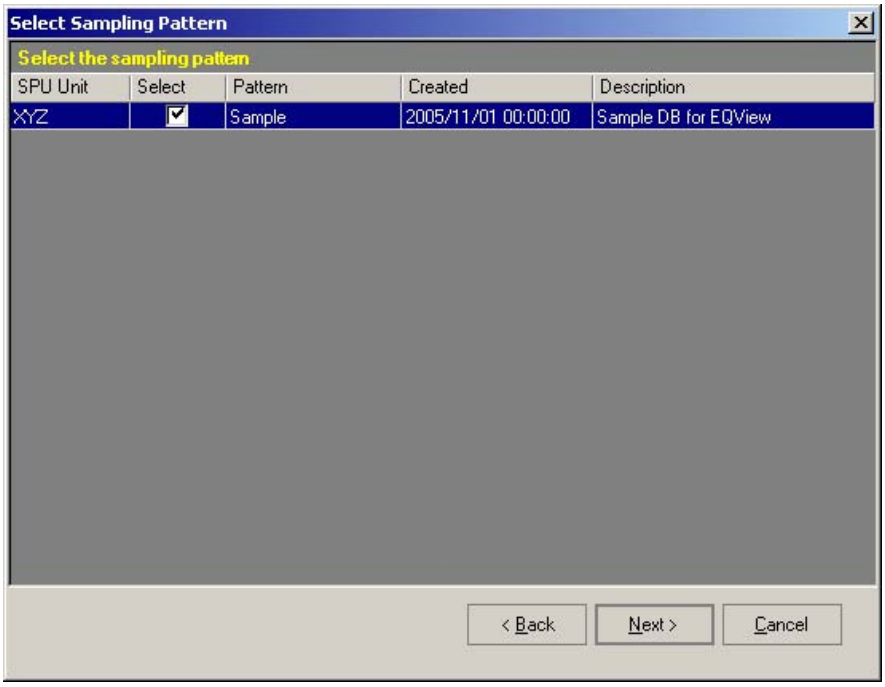
- Select Database to graph data stored in the database.
- Select CSV file to graph data stored in a CSV file. Refer to 7-1-4 Comparing Files for more details.

3. After selecting Database or CSV File, click Next. The following dialog will be displayed:

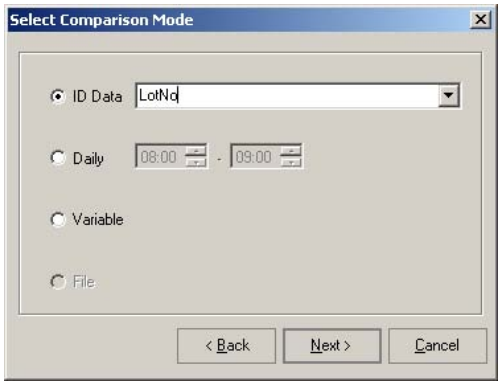


Note This example shows selecting a database as the data source. If CSV File was selected, refer to 7-1-4 Comparing Files.

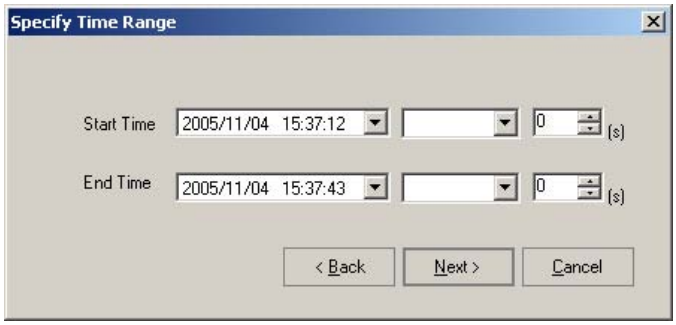
4. Select the database type and enter the username, password, and data server as needed, then click Next:



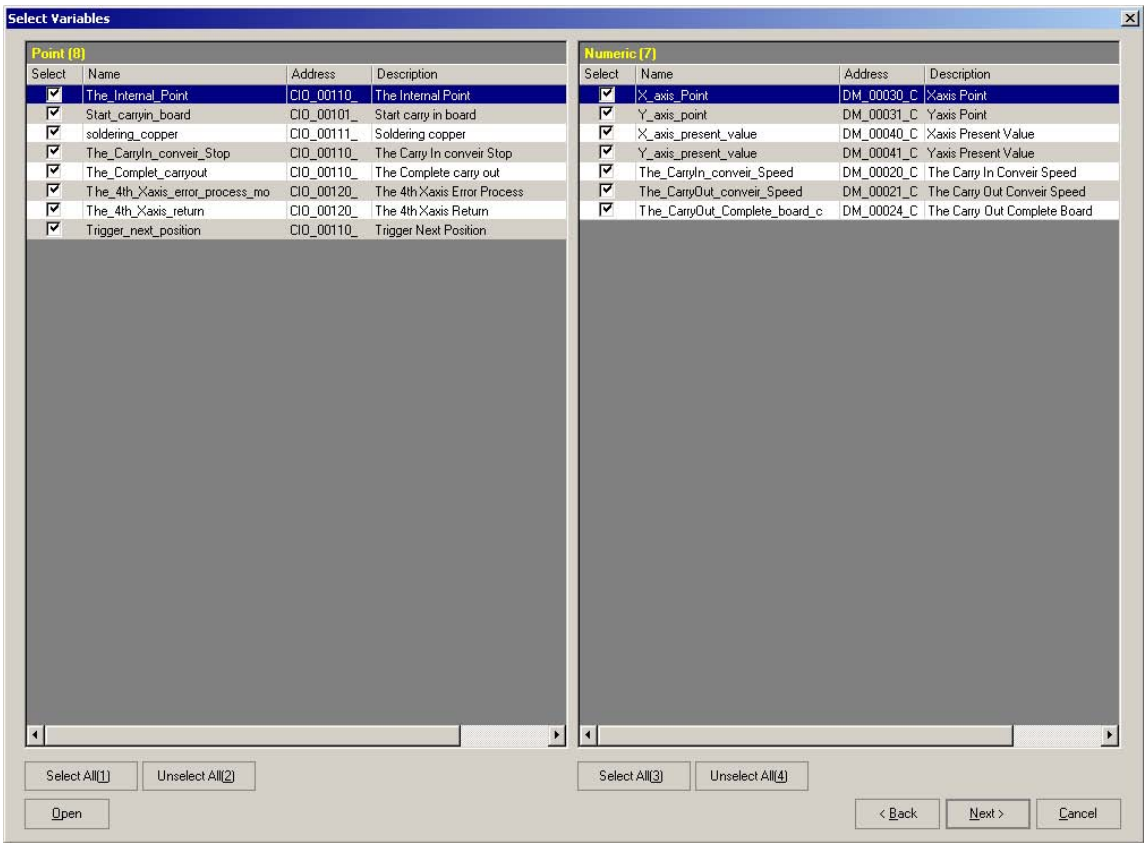
5. After selecting the data patterns to graph, click Next. (Multiple data patterns can be selected.)



6. Click ID Data, select the ID number from the drop-down menu, then click Next:

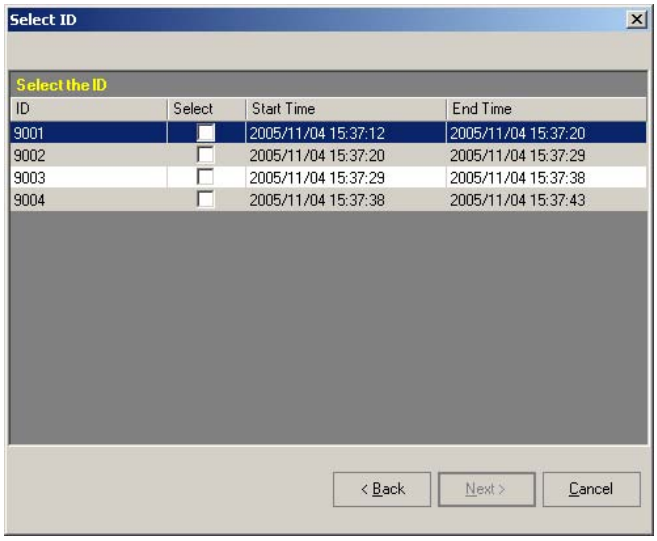


7. Set the graph start and end times, then click Next:

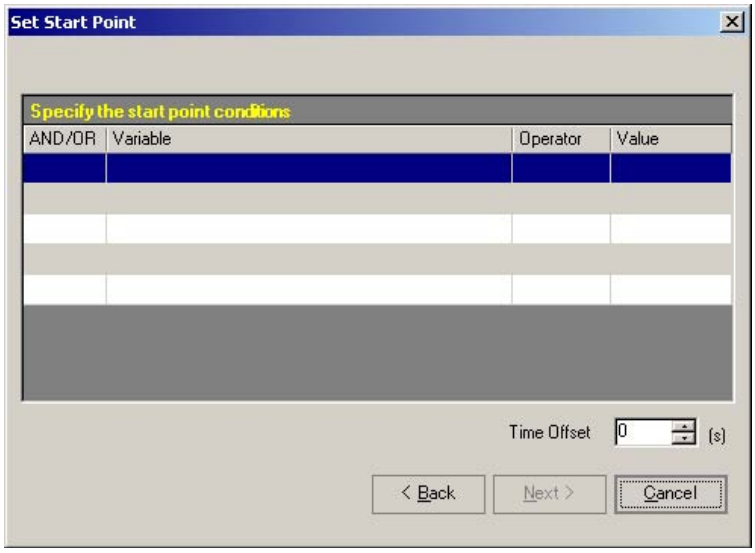


8. Select the variables to be graphed, then click Next. In order to set the start and end points, the target variables must be selected first:

- Click individual variables to graph them.
- Click Select All to select all variables.
- Click Unselect All to deselect all variables.
- For more on abstract variables, refer to 4-4 Abstract Variables.

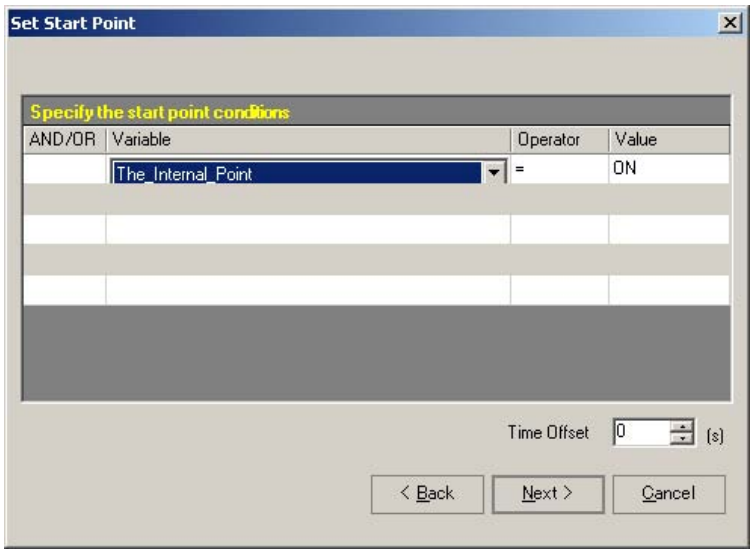


9. After selecting the ID data to compare, click Next:

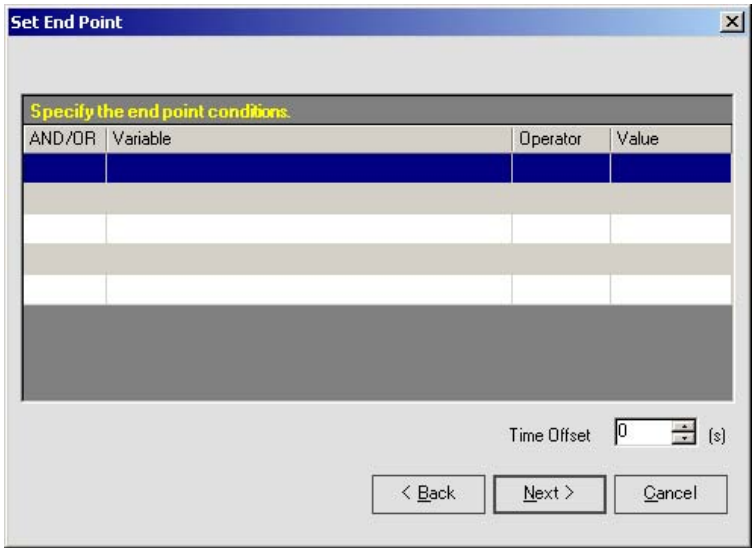


Define up to five variable conditions (using AND/OR after the first). Leave these selections blank if they are not needed. Data will be extracted and graphed according to the conditions defined.

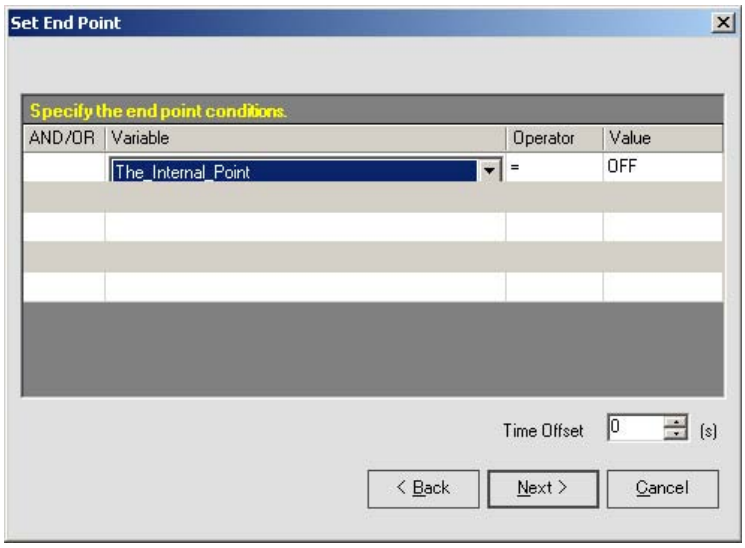
Example



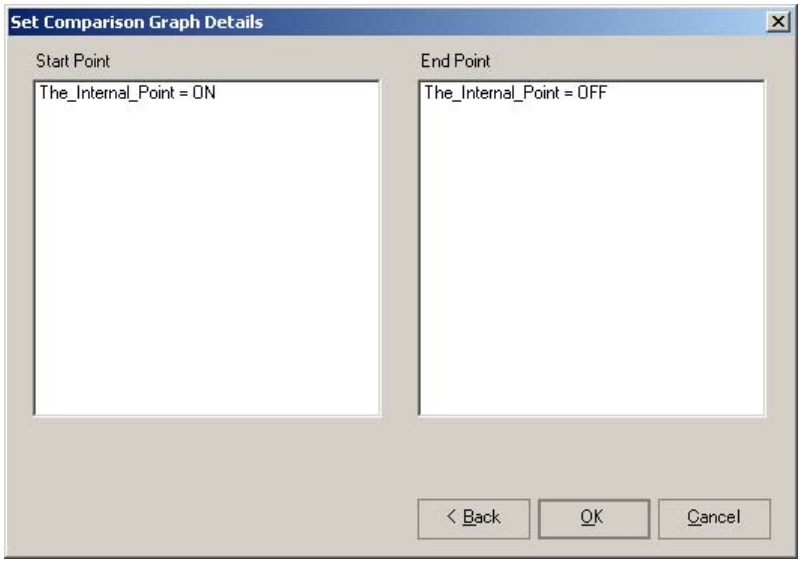
10. Set the start conditions, then click Next. The end point setting dialog will be displayed, but the end point setting is optional:



Example



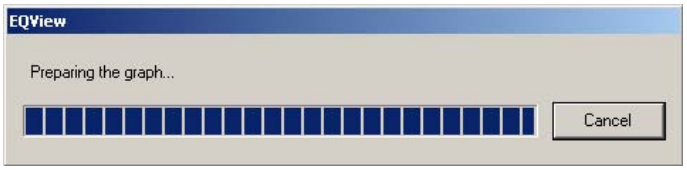
11. Set the end point if desired, then click Next:



12. Confirm the start and end conditions, and click OK. The comparison graph will be displayed. Refer to 7-2 Comparison Graph Operations for more details:

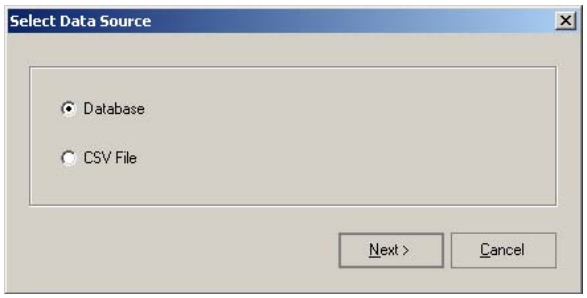
In this graph, ID data 9001 and 9002 for the variable named The_Internal_Point are overlaid for easy comparison. This is particularly useful for comparing changes in product costs, for example.

Click Cancel on the progress bar to cancel the display of the comparison graph:



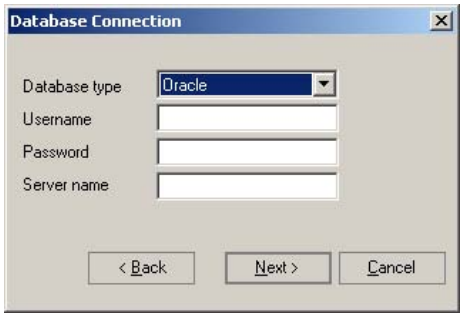
7-1-2 Comparing Days

1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView display will be displayed.
2. In the EQView, select Graph | Comparison | New. The following dialog will be displayed:



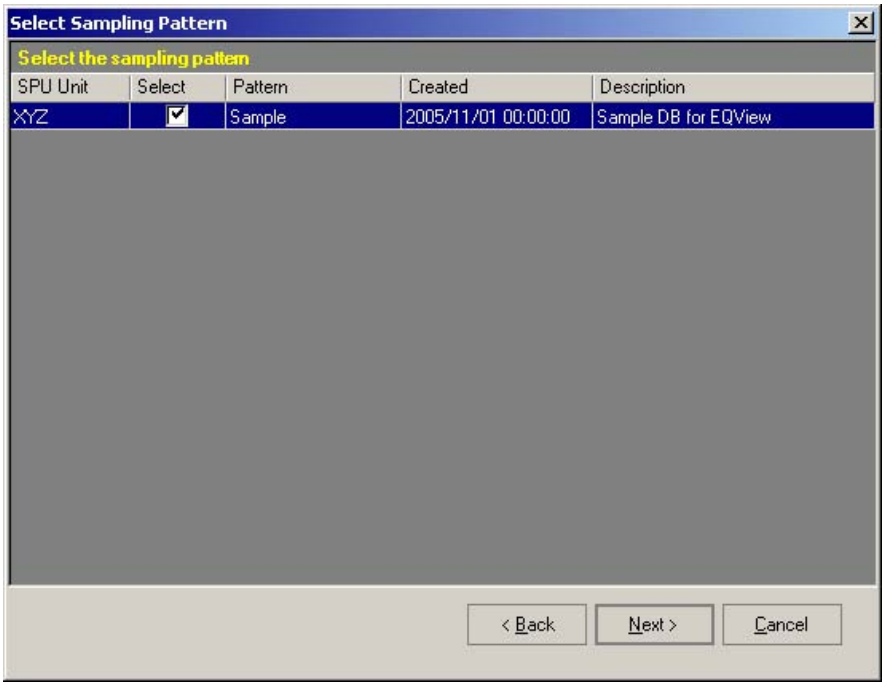
- Select Database to graph data stored in the database.
- Select CSV File to graph data stored in a CSV file. Refer to 7-1-4 Comparing Files for more details.

3. After selecting Database or CSV File, click Next. The following dialog will be displayed:

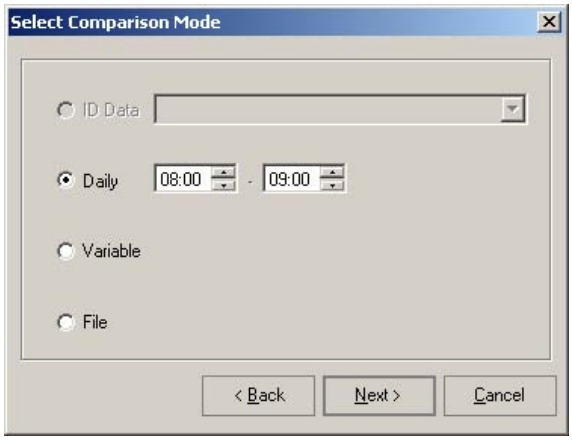


This example shows selecting a database as the data source. If CSV File was selected, refer to 7-1-4 Comparing Files.

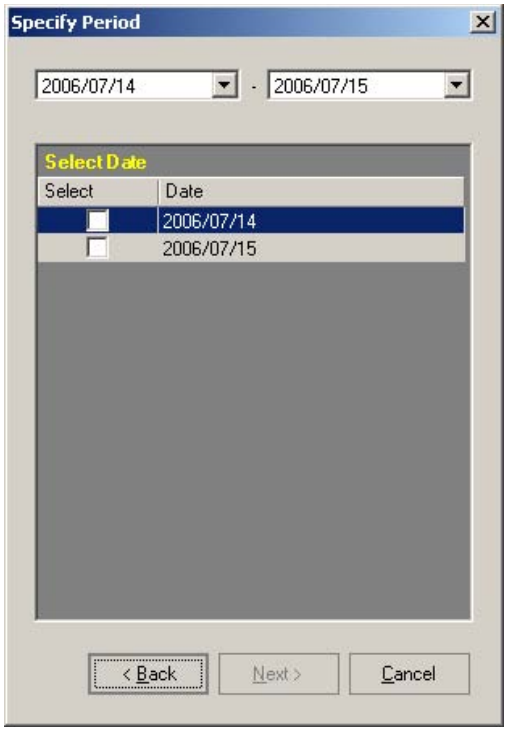
4. Select the database type and enter the username, password, and data server as needed, then click Next:



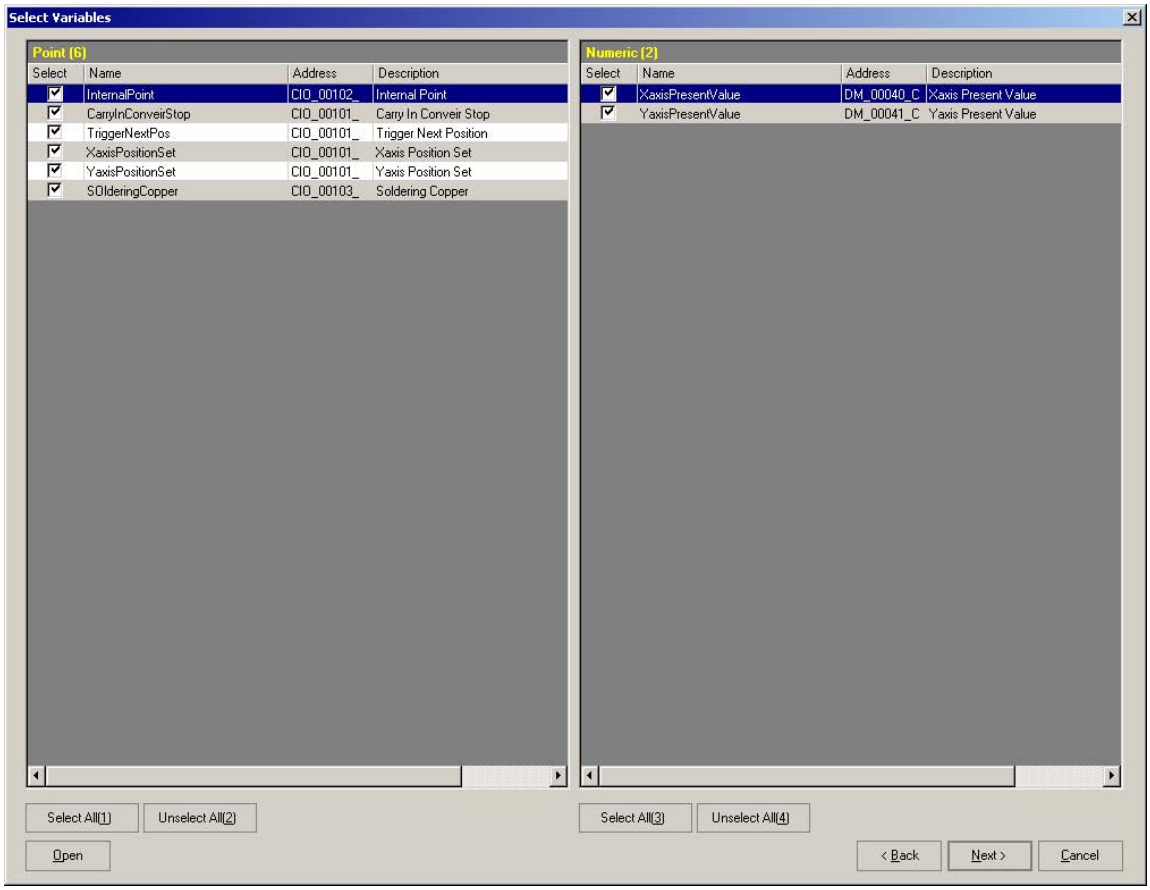
5. After selecting the data patterns to graph, click Next.



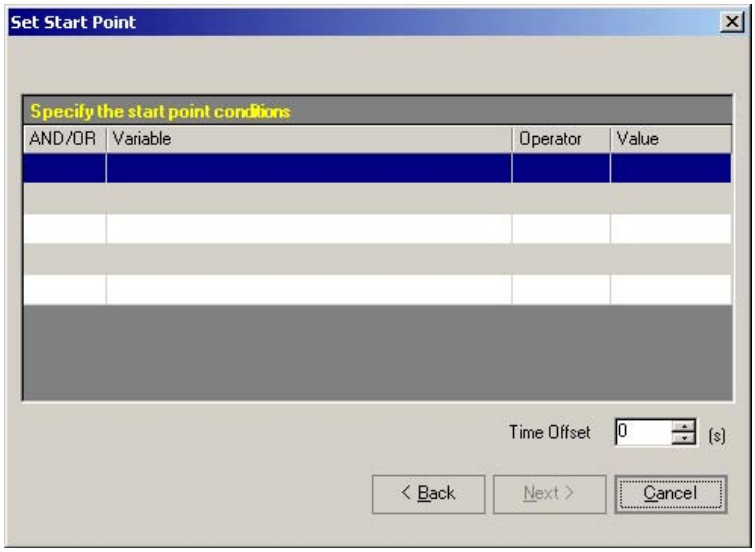
6. Select Daily, set the start and end times, then click Next:



7. Select the dates to compare, then click Next:



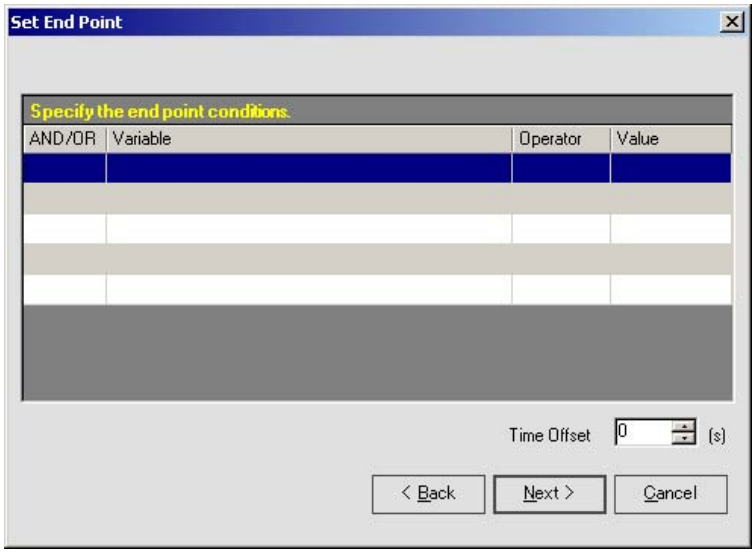
8. Select the variables to be graphed, then click Next. For more on abstract variables, refer to 4-4 Abstract Variables:



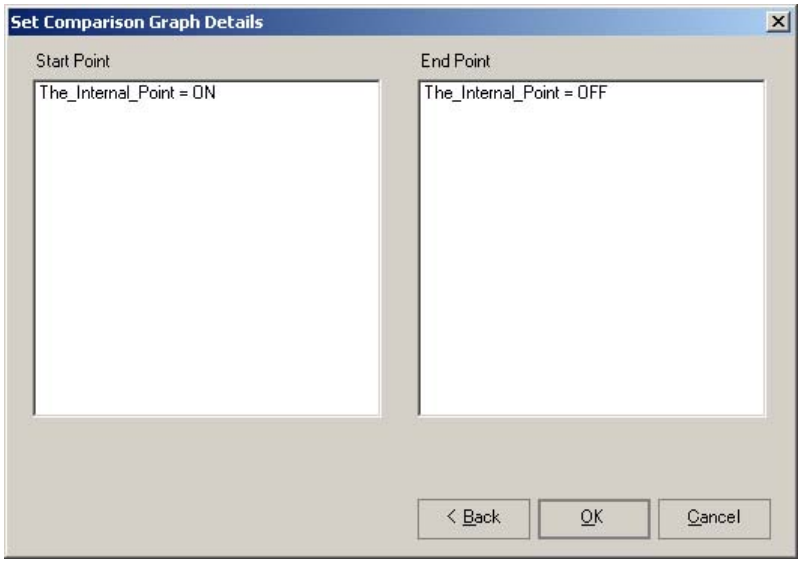
Define up to five variable conditions (using AND/OR after the first). Leave these selections blank if they are not needed. Data will be extracted and graphed according to the conditions defined

Note In order to set the start and end points, the target variables must be selected first.

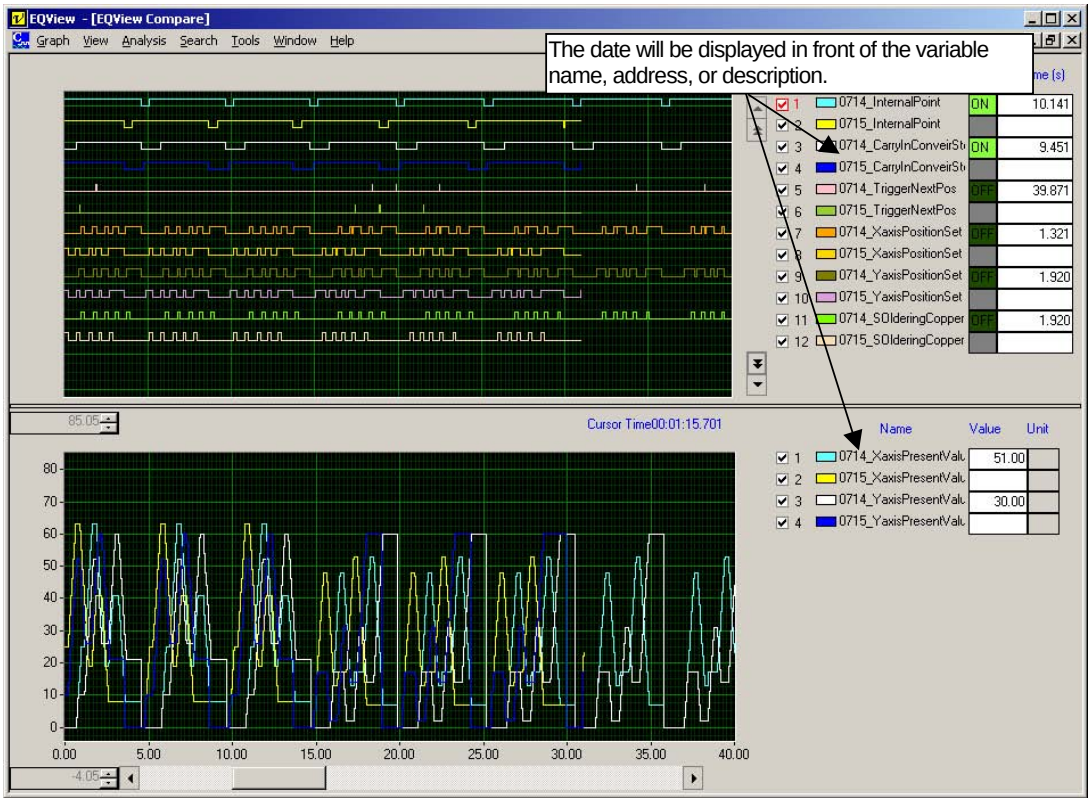
9. Set the start conditions, then click Next. The Set End Point dialog will be displayed, but the end point setting is optional:



10. Set the end point if desired, then click Next:

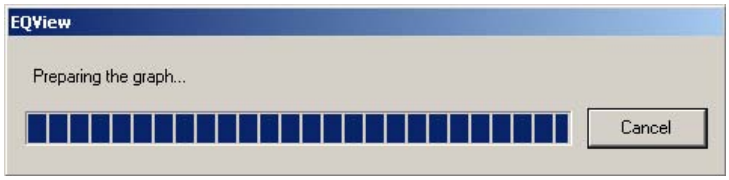


11. Confirm the start and end conditions, and click OK. The comparison graph will be displayed. Refer to 7-2 Comparison Graph Operations for more details:



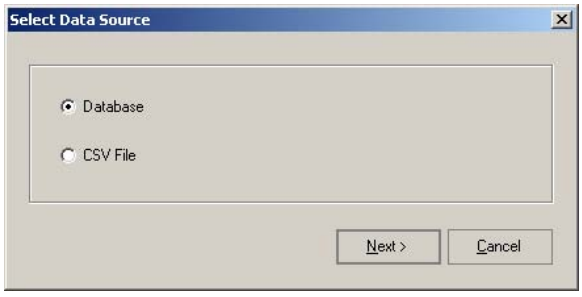
In this graph, the dates 7/14 and 7/15 for the time slot labeled CarryIn_ConveirS are overlaid for easy comparison. This is particularly useful for comparing changes in the same time slot over several days.

Click Cancel on the progress bar to cancel the display of the comparison graph:



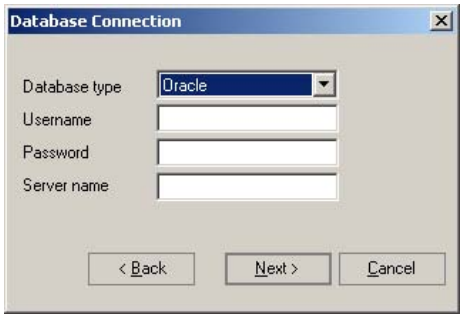
7-1-3 Comparing Variables

1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView display will be displayed.
2. In the EQView display, select Graph | Comparison | New. The following dialog will be displayed:



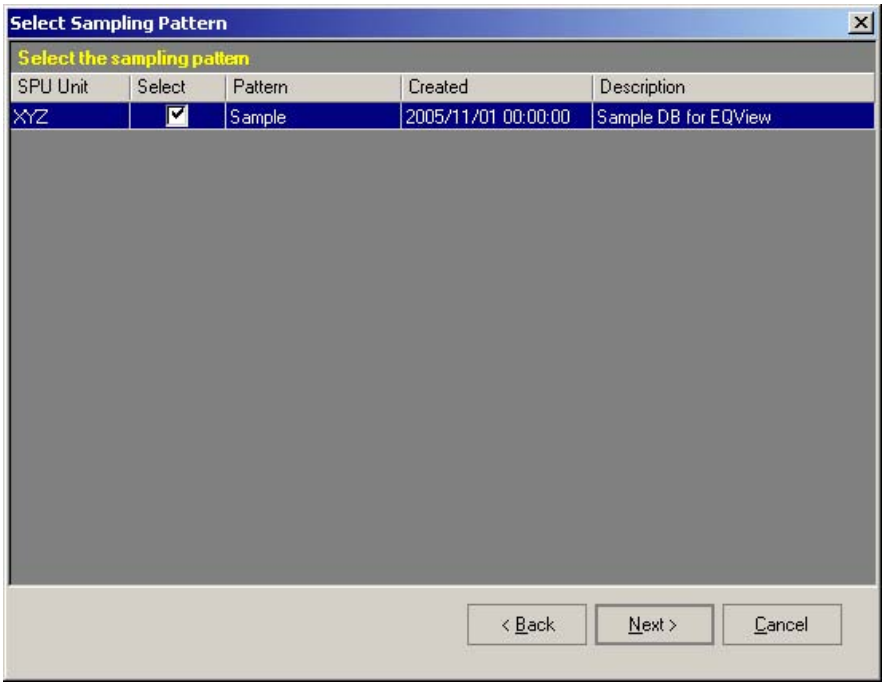
- Select Database to graph data stored in the database.
- Select CSV File to graph data stored in a CSV file. Refer to 7-1-4 Comparing Files for more details.

3. After selecting Database or CSV File, click Next. The following dialog will be displayed:

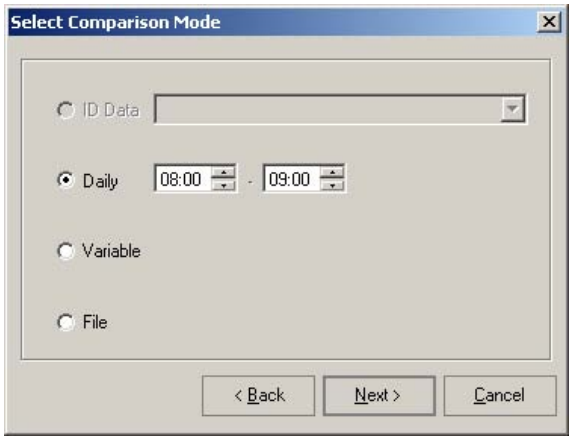


Note This example shows selecting a database as the data source. If CSV File was selected, refer to 7-1-4 Comparing Files.

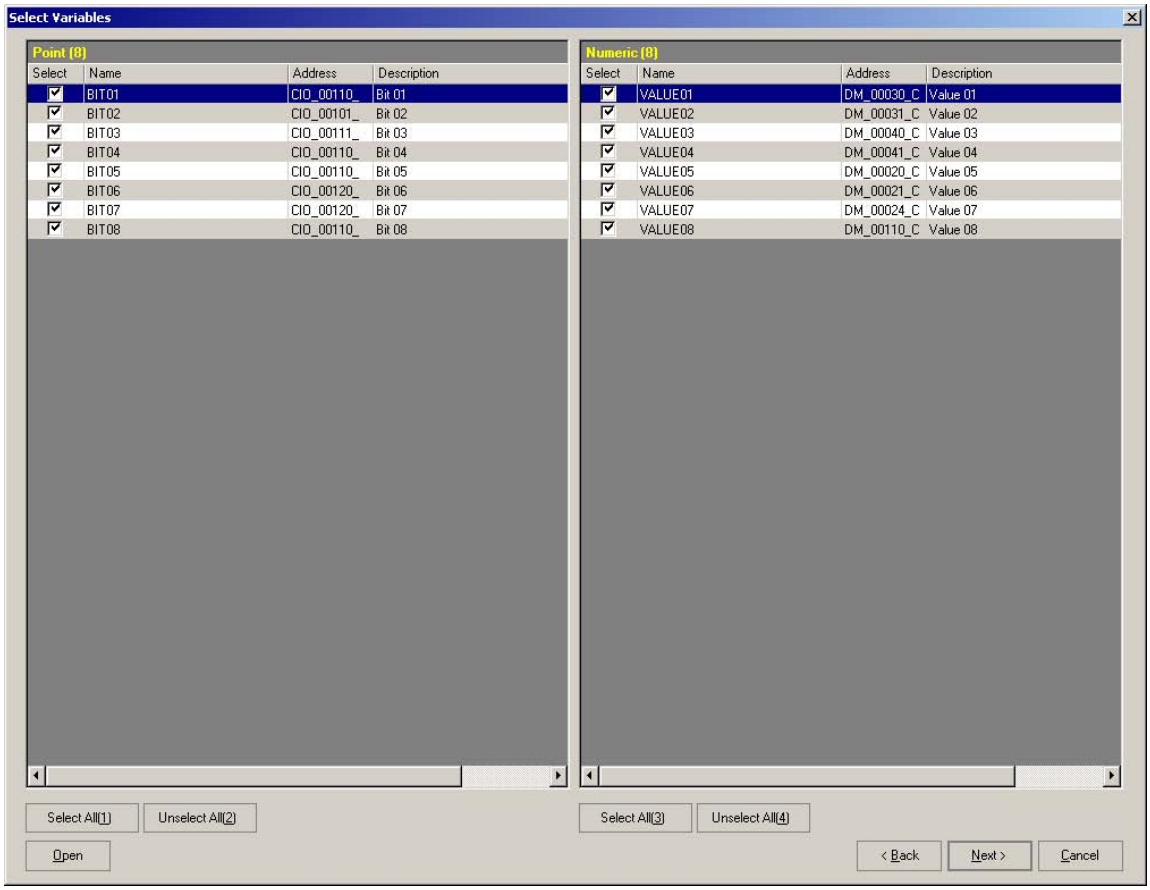
4. Select the database type and enter the username, password, and data server as needed, then click Next:



5. After selecting the data patterns to graph, click Next:

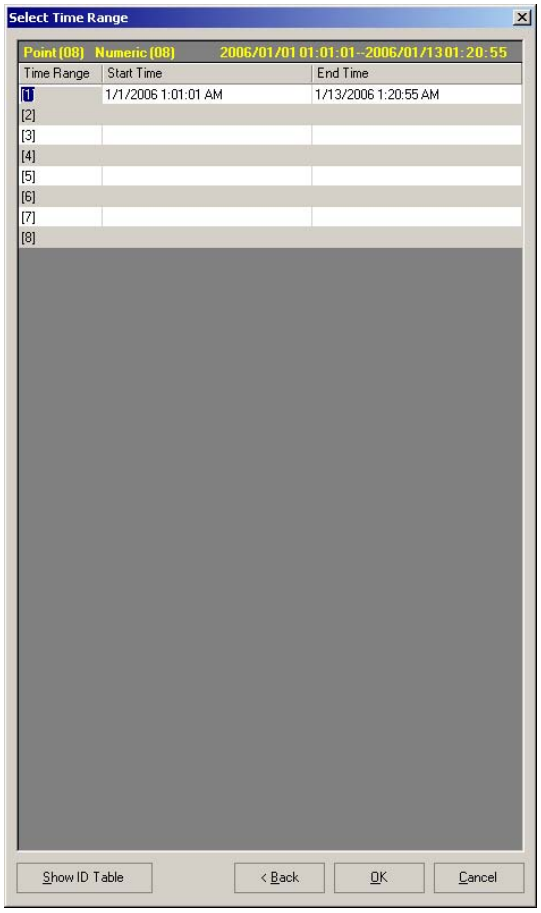


6. Select Variable, then click Next:



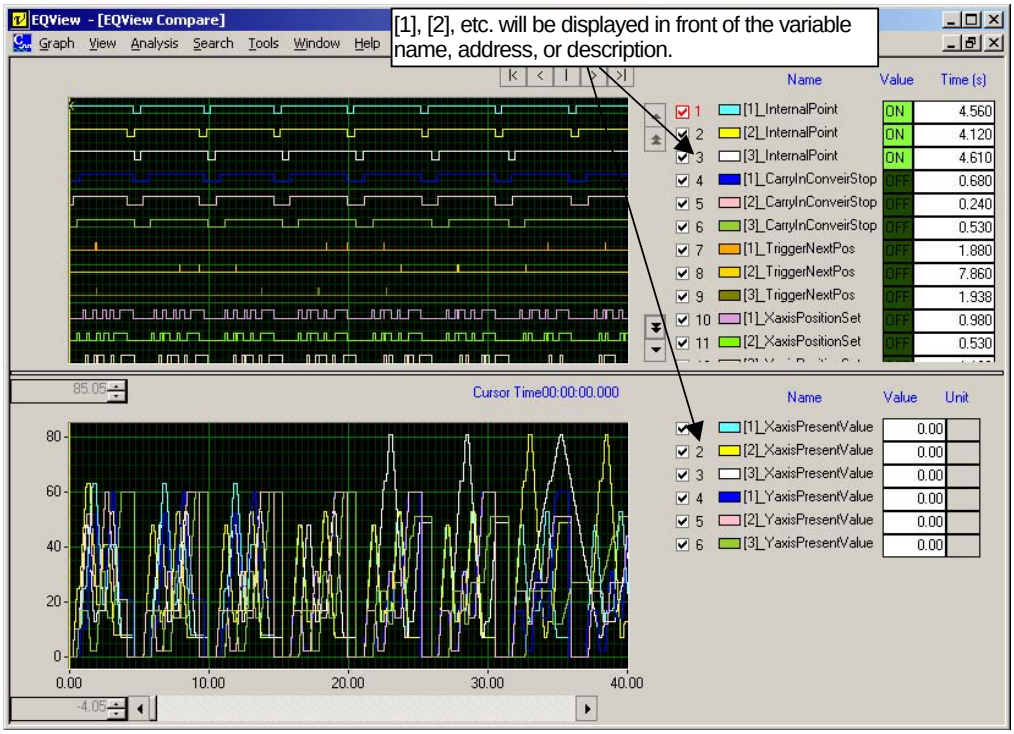
Note In order to set the start and end points, the target variables must be selected first.

7. After selecting the variables to be graphed, click Next. For more on abstract variables, refer to 4-4 Abstract Variables:



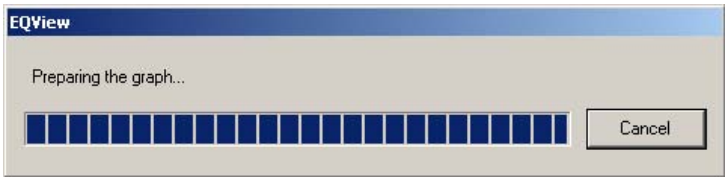
8. Select the start and end times. The first period in the list handles the start time as the oldest data and the end point as the newest data. Data will be extracted and graphed according to the start and end times selected.

9. After setting the start and end times, click OK. The comparison graph will be displayed. Refer to 7-2 Comparison Graph Operations for more details:



In this graph, the data for the variable labeled InternalPoint has been overlaid for periods 1, 2, and 3 for easy comparison. This is particularly useful for comparing changes for specific variables across periods.

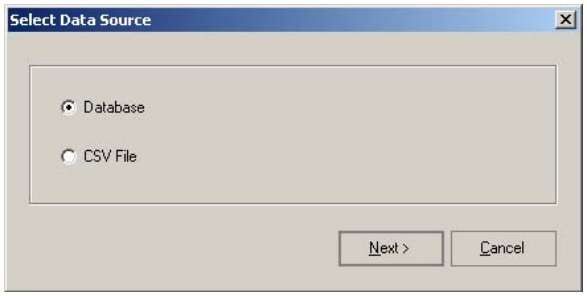
Click Cancel on the progress bar to cancel the display of the comparison graph:



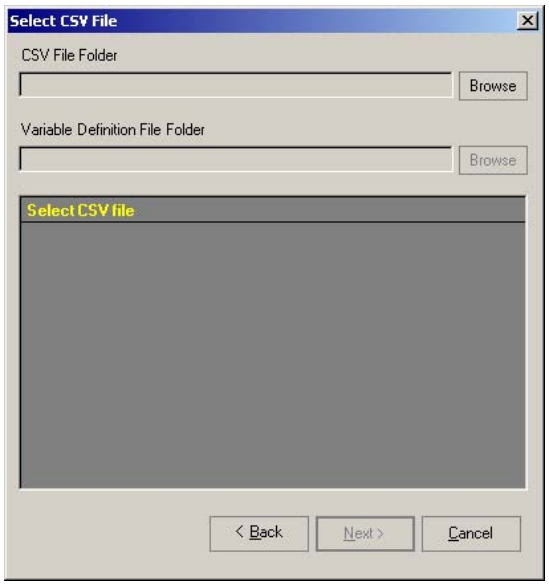
7-1-4 Comparing Files

1,2,3... 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView main window will be displayed.

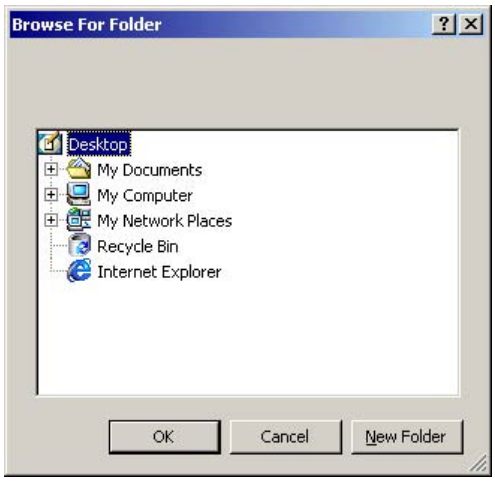
2. In the EQView main window, select Graph | Comparison | New. The Select Data Source dialog will be displayed:



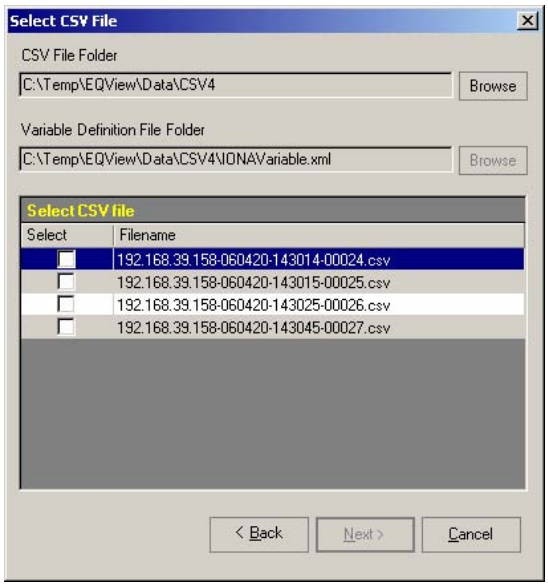
3. Select CSV File, then click Next. The following dialog will be displayed:



4. Click Browse for the CSV file folder field. The Browse For Folder dialog will be displayed:

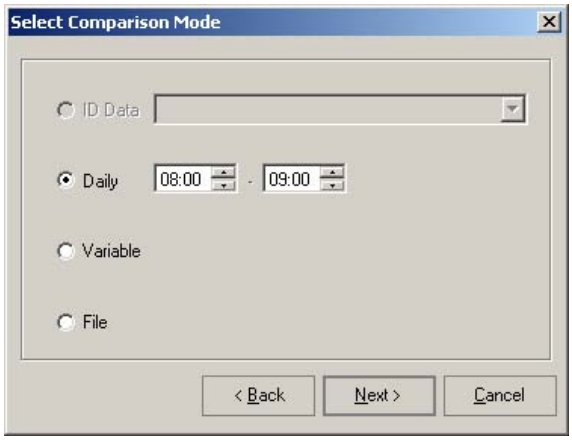


5. Select the folder where the CSV file is saved, then click OK. The CSV files in that folder will be displayed in the Select CSV File dialog. If the variable information (*.xml) file is saved in the same folder, it will be displayed automatically:

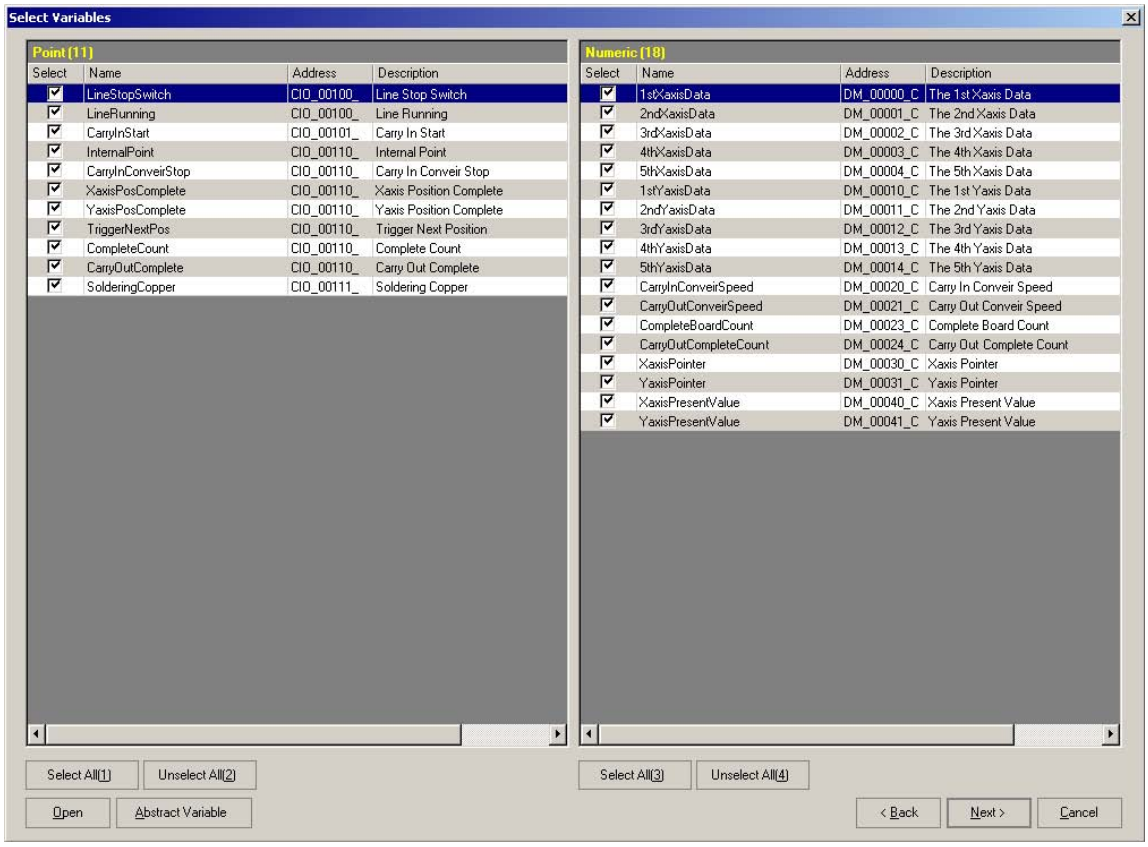


If the variable definition file is saved in a different folder, click Browse for the variable definition file folder field, and select the variable information (*.xml) file.

6. After selecting the CSV file for comparison, click Next. The following dialog will be displayed:

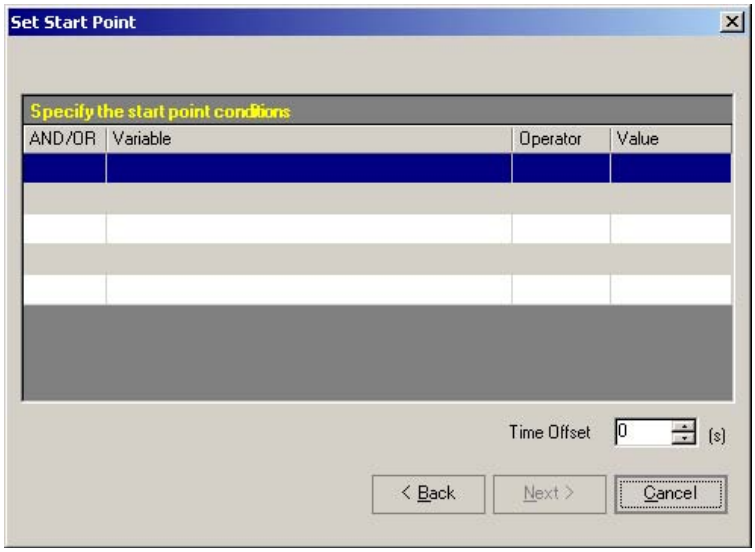


7. Click File. Then, click Next. The following dialog will be displayed:



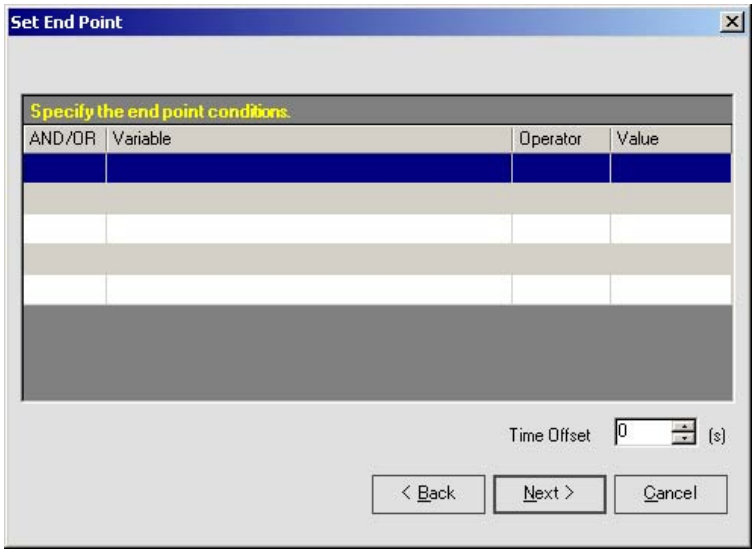
Note In order to set the start and end points, the target variables must be selected first.

8. After selecting the variables to be graphed, click Next. For more on abstract variables, refer to 4-4 Abstract Variables:

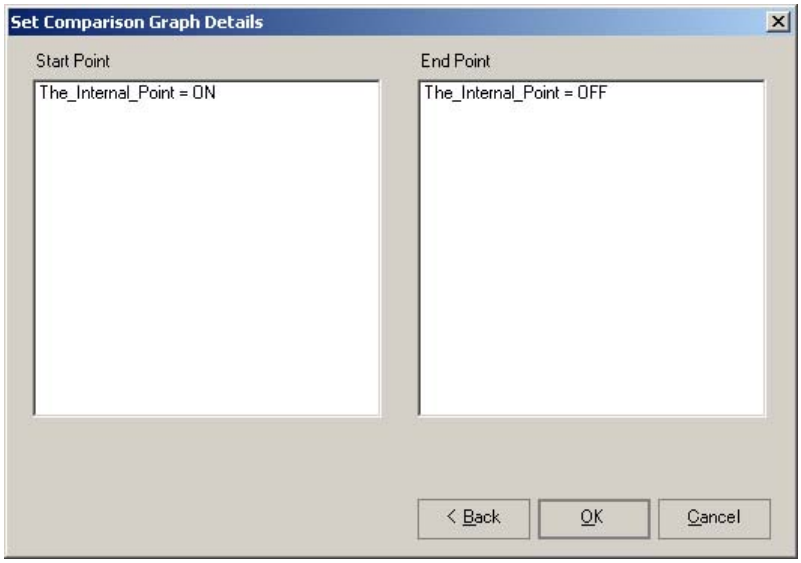


Define up to five variable conditions (using AND/OR after the first). Leave these selections blank if they are not needed. Data will be extracted and graphed according to the conditions defined.

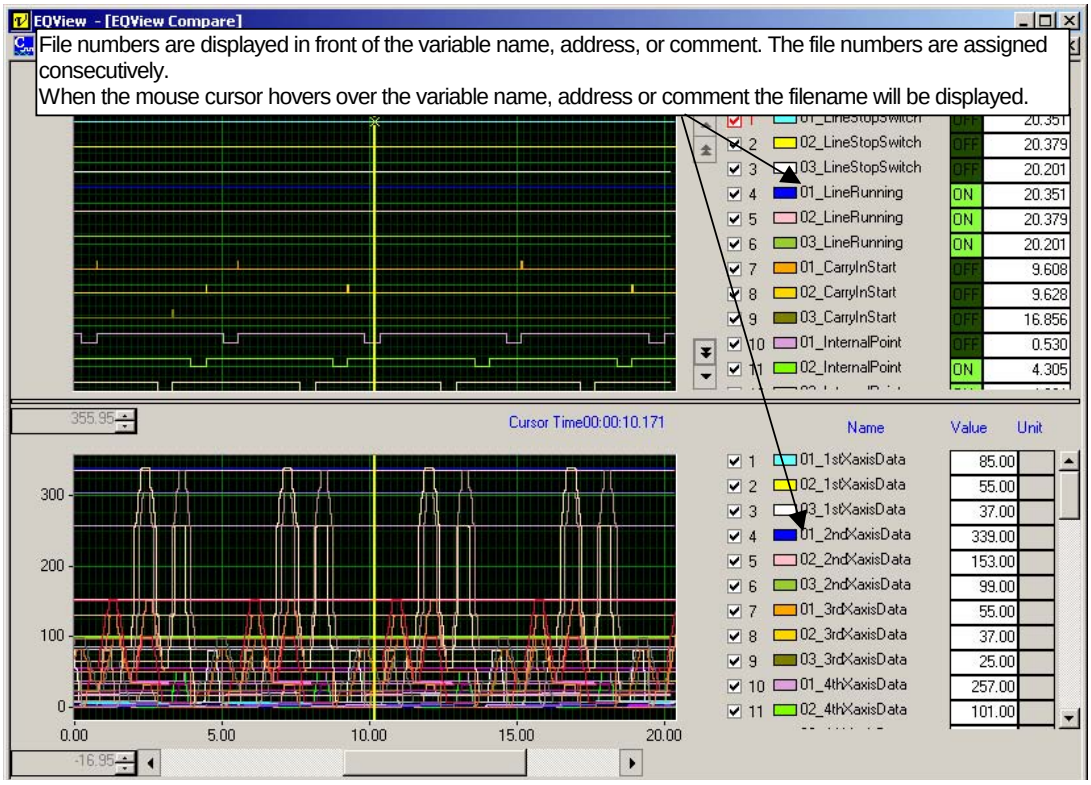
9. Set the start conditions, then click Next. The Set End Point dialog will be displayed, but the end point setting is optional:



10. Set the end point if desired, then click Next:



11. Confirm the start and end conditions, then click OK. The comparison graph will be displayed. Refer to 7-2 Comparison Graph Operations for more details:



In this graph, all the variables from each selected file are overlaid for easy comparison. This is particularly useful for comparing the same variable across multiple files.

7-1-5 Saving Comparison Conditions

The settings used to create the ID, daily, or variable comparison graphs can be saved either as a bookmark or a file.

Adding to Favorites

1,2,3… 1. In the EQView main window, select Graph | Favorites | Add to Favorites. The following dialog will be displayed:

2. Enter a title, then click OK.

To open a bookmark, select Graph | Favorites | [bookmark].

Exporting to a File

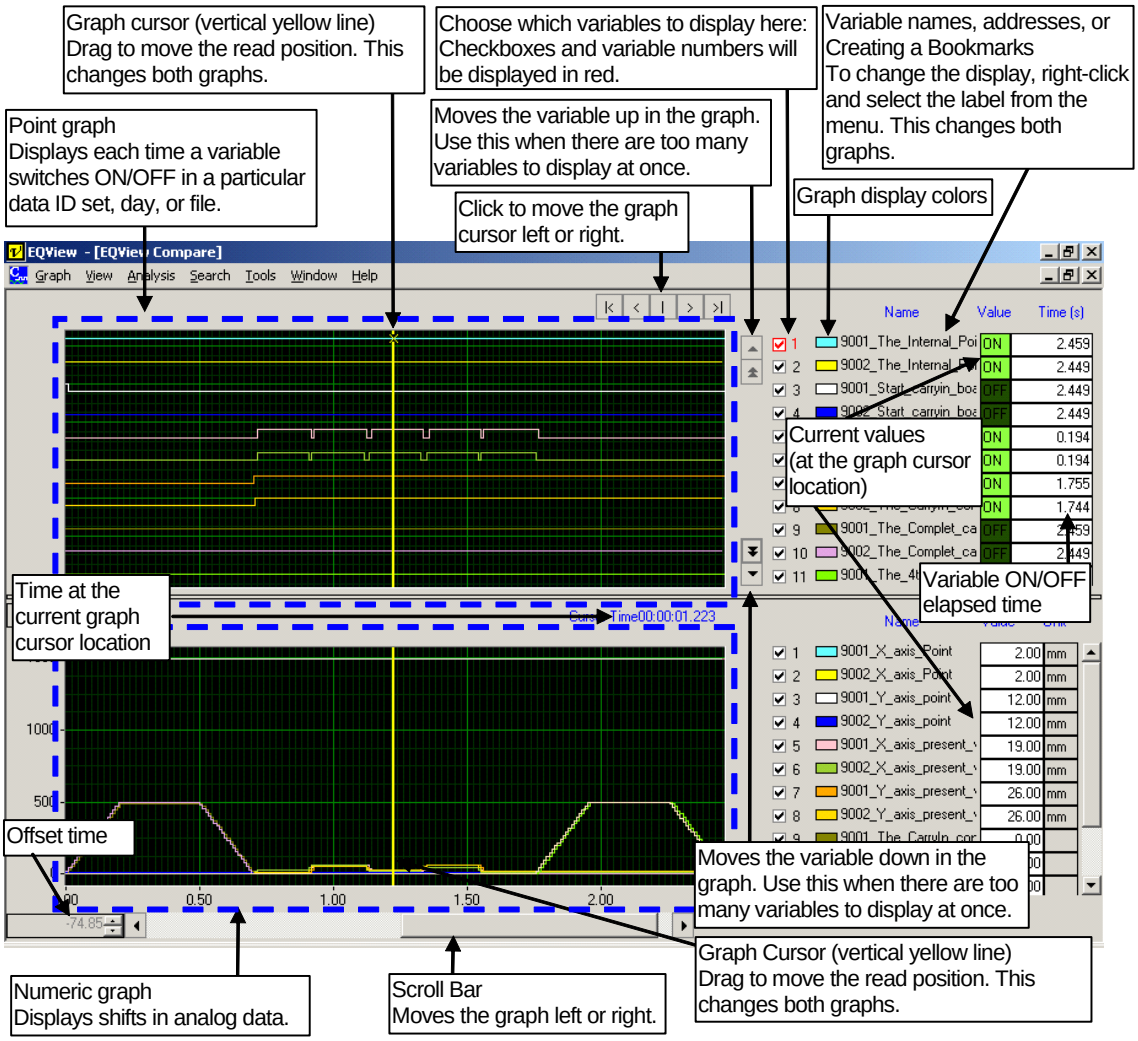
1,2,3… 1. In the EQView main window, select Graph | Favorites | Export. The Save dialog will be displayed.
2. Enter a filename and location, then click Save. The settings will be saved as an .xml file.

To open saved settings, select Graph | Favorites | Import in the EQView main window.

7-2 Comparison Graph Operations

7-2-1 Displaying a Graph

A typical comparison graph includes both a point graph and a numeric graph. This example shows an ID comparison graph. For more details regarding the various comparisons, refer to 7-1-1 through 7-1-4:

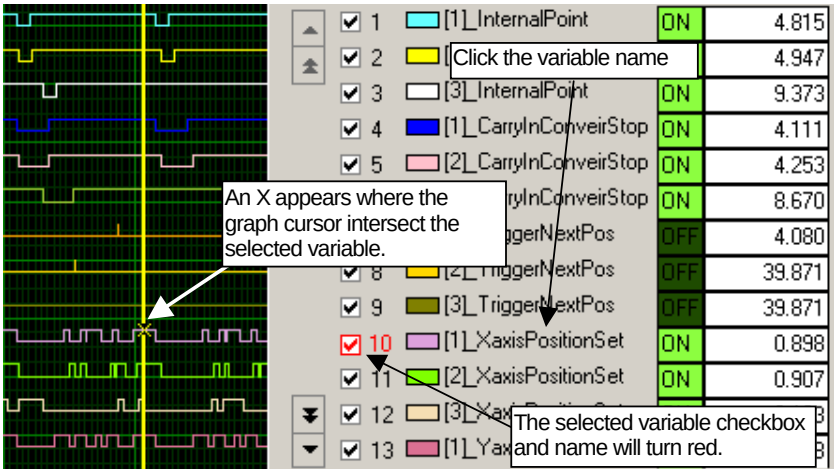


If the graphed data exceeds the upper limit of the graph, the graph will display the data from the oldest data to the graph upper limit.

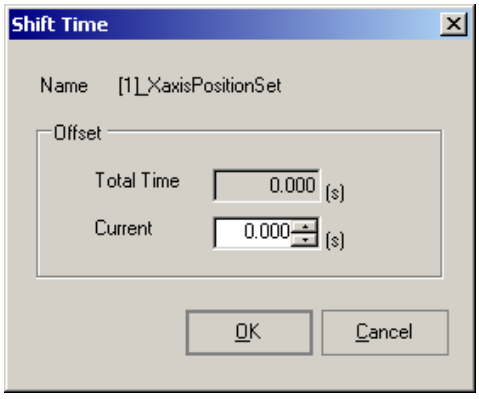
7-2-2 Horizontal Shift

Individual variables can be shifted left or right in the graph. This enables comparison of variables by aligning the ON times, then comparing the timing of later changes. This function is available for point graphs only.

1,2,3… 1. Select the name of the variable to be shifted, then select Graph | Shift Variables. (An X will appear where the graph cursor intersects the variable, and the selected variable checkbox and number will turn red.)



2. The Shift Time dialog will be displayed:



3. Confirm the amount of time to shift by moving the graph cursor. Enter the time shift in seconds in the Current field, then click OK. To shift to the left, enter a negative value. Refer to 5-2-2 Horizontal Shift for more details.

7-2-3 Variable Display Order

Refer to 5-2-3 Variable Display Order for details regarding changing the order in which variables are displayed.

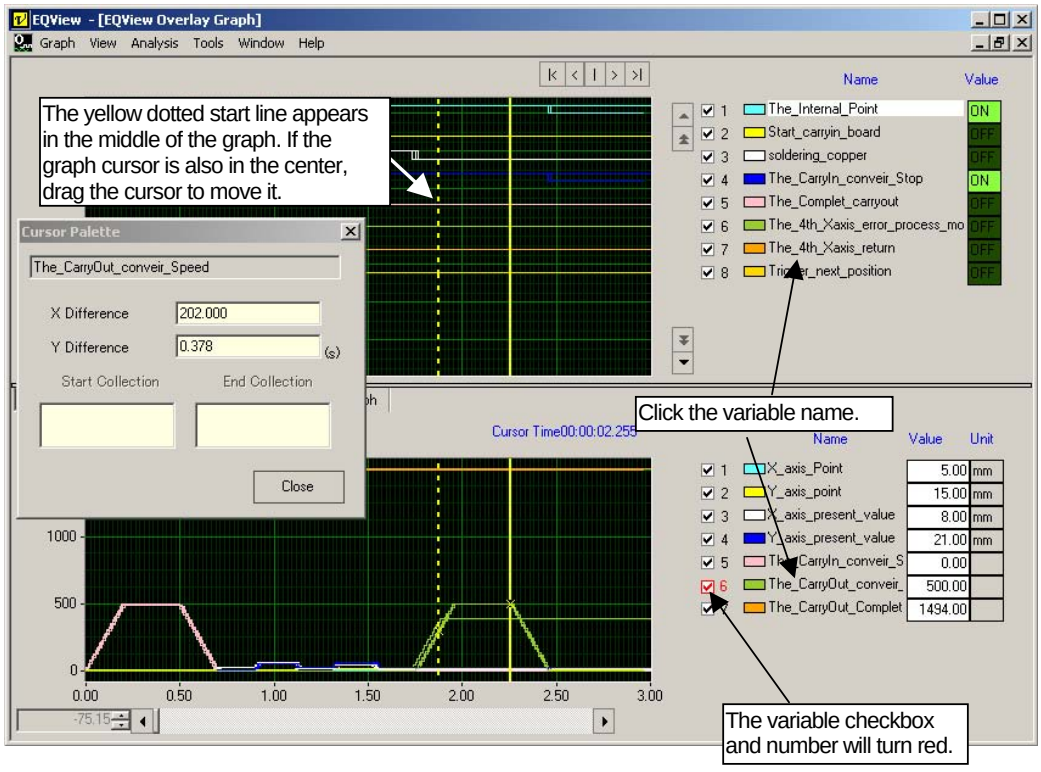
7-2-4 Cursor Palette

The difference in X and Y axes between the two selected variables can been displayed in the cursor palette to show the time difference between the two variables as well as the value difference. The dotted yellow line is the start point; the graph cursor is the end point

Note Data collection start and end times are not shown in overlay or comparison graphs.

1,2,3…

1. Click to select a variable, then drag the graph cursor to any position on the graph (an X will appear on the graph cursor where it crosses the selected variable, and the variable checkbox and number will turn red).
2. Select View | Cursor Palette. The Cursor Palette dialog will be displayed. A dotted yellow start line will appear in the center of the graph. The graph cursor may also be in the center of the graph. If it is, drag the cursor so that both are visible:



The time difference (in seconds) and the value difference between the selected start and end points, as well as the start and end times, will be displayed in the Cursor Palette dialog.

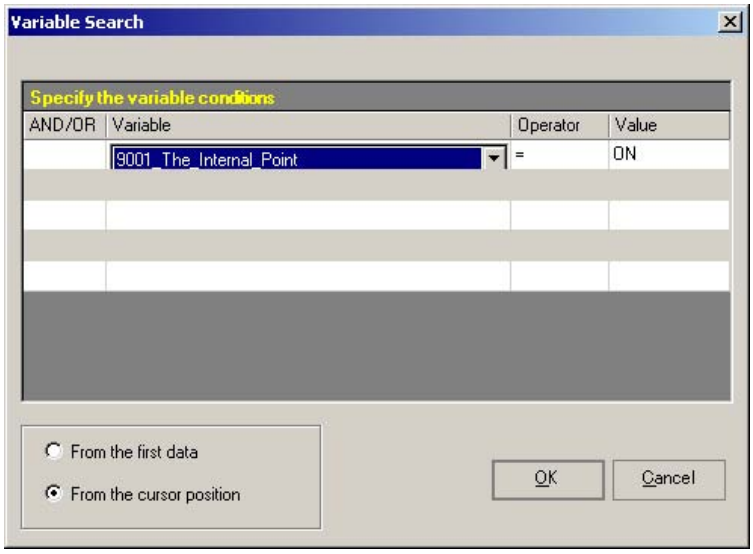
7-2-5 Searching

Searching within a comparison graph is done by variables. The graph cursor moves to the location of the search results and the results are shifted to the center of the graph.

Note In search mode, the graph cursor can only be moved within the search range. To exit search mode, select Search | Exit Search Mode.

Variable Search

1,2,3… 1. In the comparison graph display, select Search | Variable Search. The following dialog will be displayed:



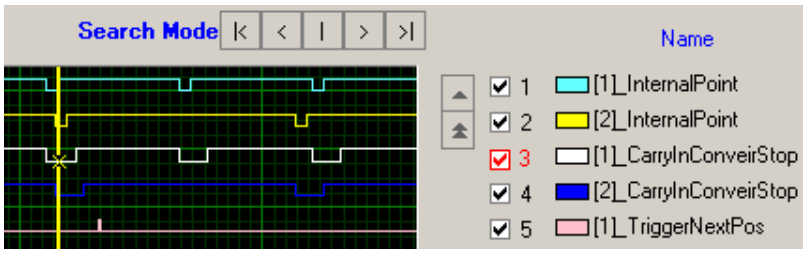
2. Enter a maximum of five variables (including operators and values), using AND/OR from the second line to connect the search parameters.
3. Select From the first data or From the cursor position.

- If From the first data is selected, the search will start at the first data point in the graph.
- If From the cursor position is selected, the search will start from the current graph cursor position.

4. Click OK. The graph cursor will move to the position th at matches the search conditions, which will be displayed in the center of the graph.

Navigating in Search Mode

In search mode, the Search Mode bar is displayed in the upper right of the point graph (to the left of the variable list). The buttons on the Search Mode bar perform the following functions:



: Move to the oldest position

: Move back one position

: Move to the center position

: Move ahead one position

: Move to the newest position

Note In search mode, the graph cursor can only be moved within the search range.

Exiting Search Mode

To exit search mode, select Search | Exit Search Mode.

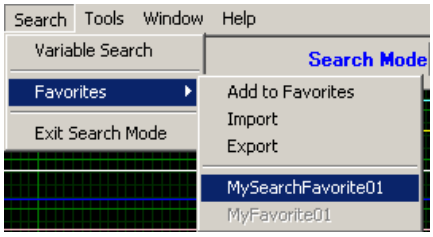
7-2-6 Saving Search Parameters

Search condition settings can be saved for later use. Search conditions can be saved as a bookmark or as a file.

Adding to Favorites

1,2,3… 1. In the EQView main display, select Search | Favorites | Add to Favorites. The following dialog will be displayed:

2. Enter a title, then click OK. To open a bookmark, click Search | Favorites | [bookmark]:



Exporting to a File

1,2,3… 1. In the EQView main window, select Search | Favorites | Export. The Save dialog will be displayed.
2. Enter a filename and location, then click Save. The search parameters will be saved as a *.xml file.

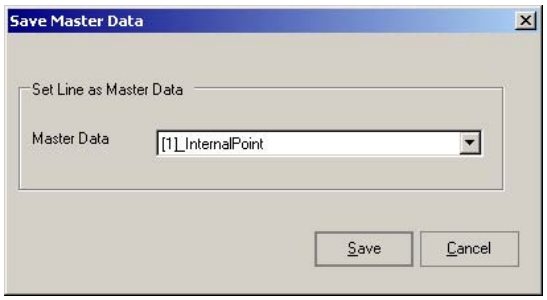
To open a search parameters file, select Search | Favorites | Import from the EQView main window.

7-2-7 Master Data Files

Any line on the comparison graph can be saved as master data. Saved master data can then be opened into a graph to compare it with other data. Save normal lot, product, or condition data. Open it as needed to compare current conditions with the master data to identify discrepancies at a glance.

Saving Master Data

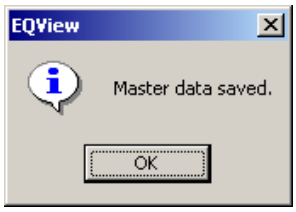
1,2,3… 1. On the comparison graph display, select Analysis | Master Data | Save. The Save Master Data dialog will be displayed:



Note A variable selected from a point graph will be saved as point data; a variable selected from a numeric graph will be saved as numeric data.

2. Select the line to be saved as master data, then click Save. A standard Windows dialog will be displayed.

3. Enter a filename and location, then click Save. The master data will be saved as a *.dat file. The following confirmation will be displayed when the file is saved:

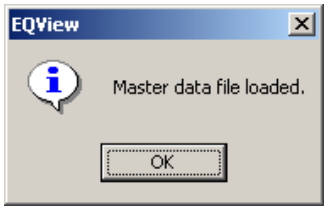


Note The default file name is [variablename].dat, where [variablename] is the name of the variable being saved.

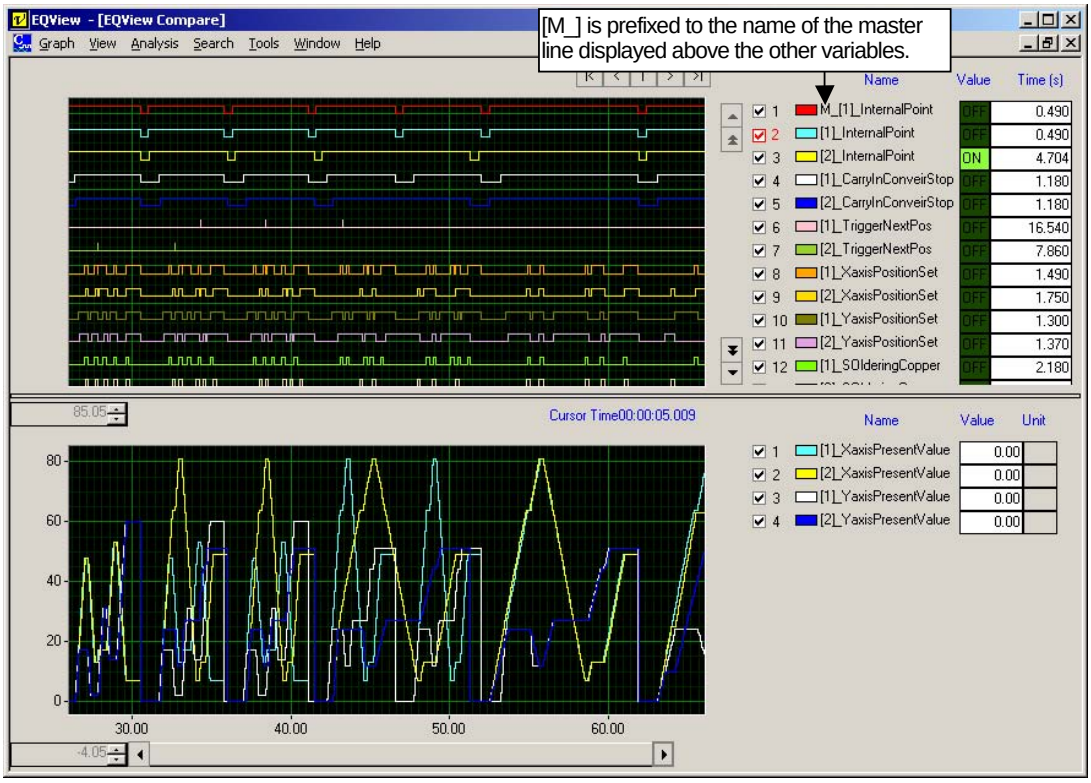
Opening Master Data Files

1,2,3…

1. On the comparison graph display, select Analysis | Master Data | Load. A standard Windows Open File dialog will be displayed.
2. Select a master data (*.dat) file, then click Open. When the data file opens, the following confirmation will be displayed:



3. Click OK. [M_] will be appended to the master data name, and the name will be displayed above the existing variables:



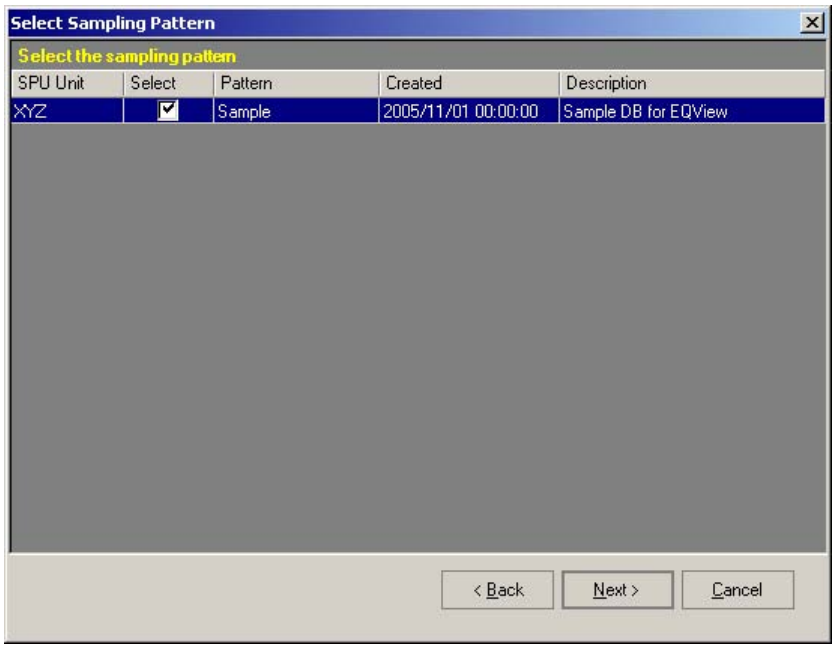
Note Master data with the same name as another variable can still be opened in the same graph.

7-2-8 Adding a Line to a Graph

Data from a database or CSV file can be added to another graph.

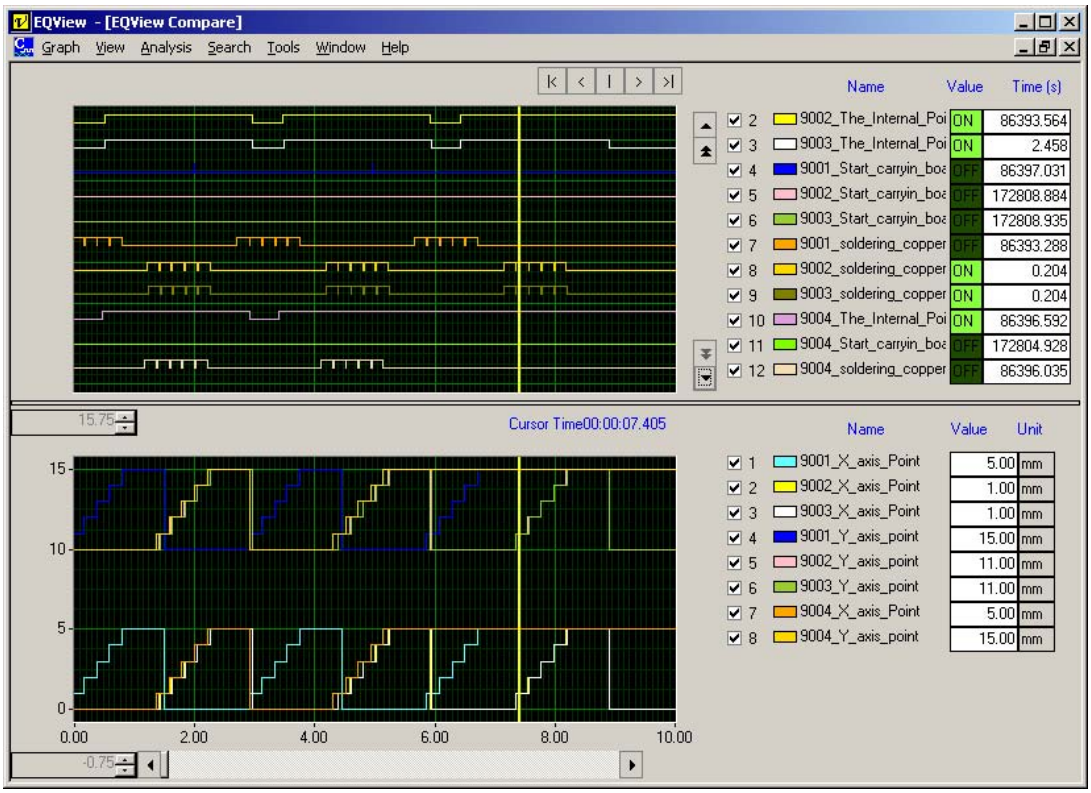
Note Use this function to add data from a variety of sources and identify discrepancies.

1,2,3… 1. In the comparison graph display, select Analysis | Line | Add. The Select Sampling Pattern dialog will be displayed:



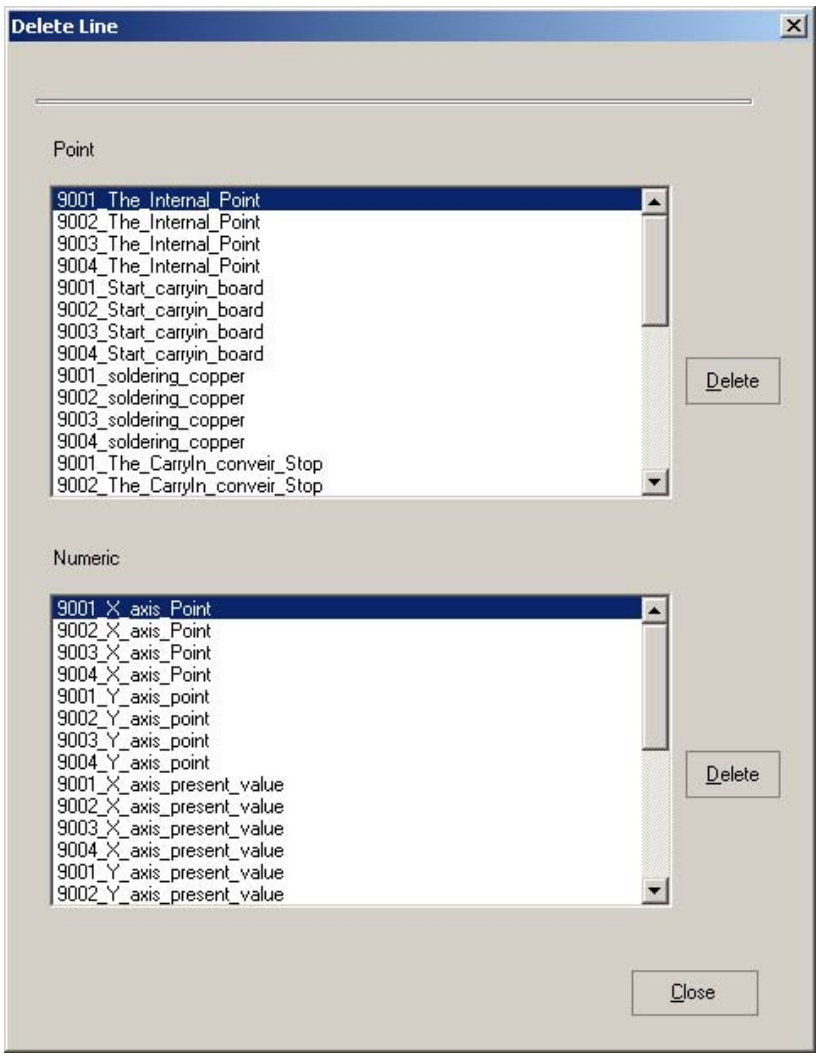
2. Follow the steps in 7-1 Creating a Comparison Graph to display a comparison graph. The selected variables will be displayed below the other variables as shown below.

In the example below, the data labeled 9004 has been added:



7-2-9 Deleting a Line from a Graph

1,2,3… 1. In the comparison graph display, select Analysis | Line | Delete. The Delete Line dialog will be displayed:



2. Select the line to be deleted, then click Delete. The selected line will be deleted from the graph.

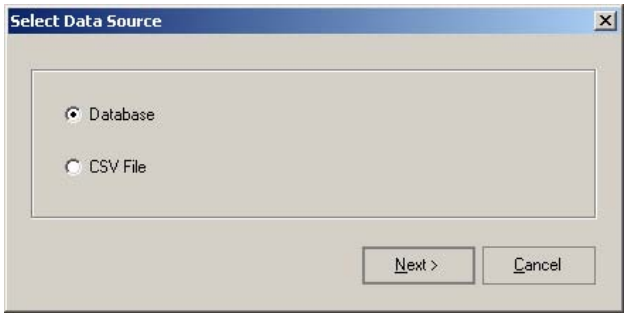
SECTION 8
Variable Catalogs

8-1 Creating a Variable Catalog

Variables displayed in graphs can be saved in catalog files. Users working with a limited number of variables can save time and effort by saving those variables to a file. When creating a graph, saved variables can be selected from the Select Variables dialog, simplifying the variable selection process.

Variable catalogs are created by graphing variables from a database or CSV file, selecting them from the graph, and then creating the file:

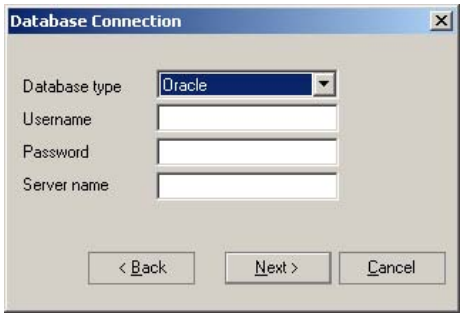
1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Create Variable Catalog. The following dialog will be displayed:



- Select Database to graph data from a database.
- Select CSV File to graph data from a CSV file.

If selecting a CSV file, refer to 5-1-2 CSV File Data.

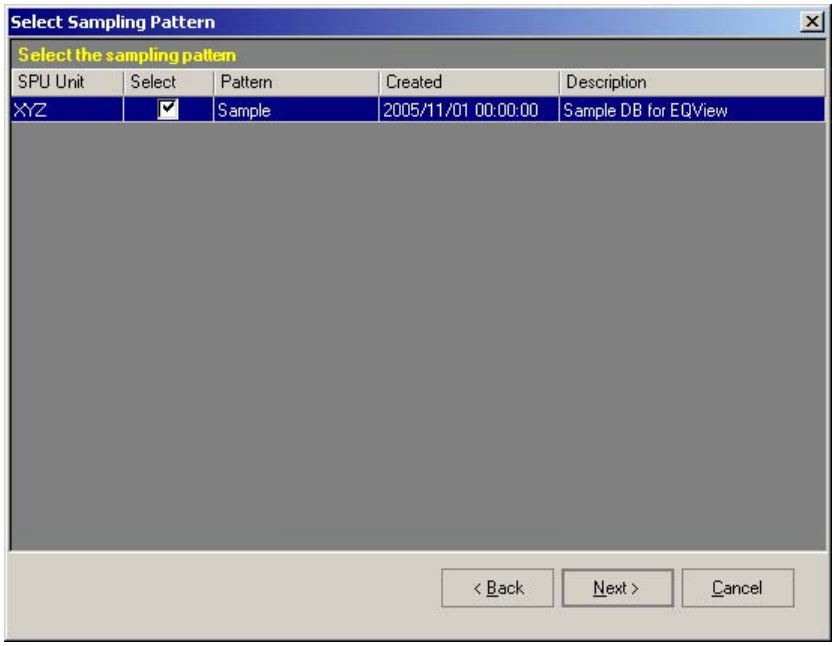
2. After selecting Database or CSV File, click Next. The following dialog will be displayed:



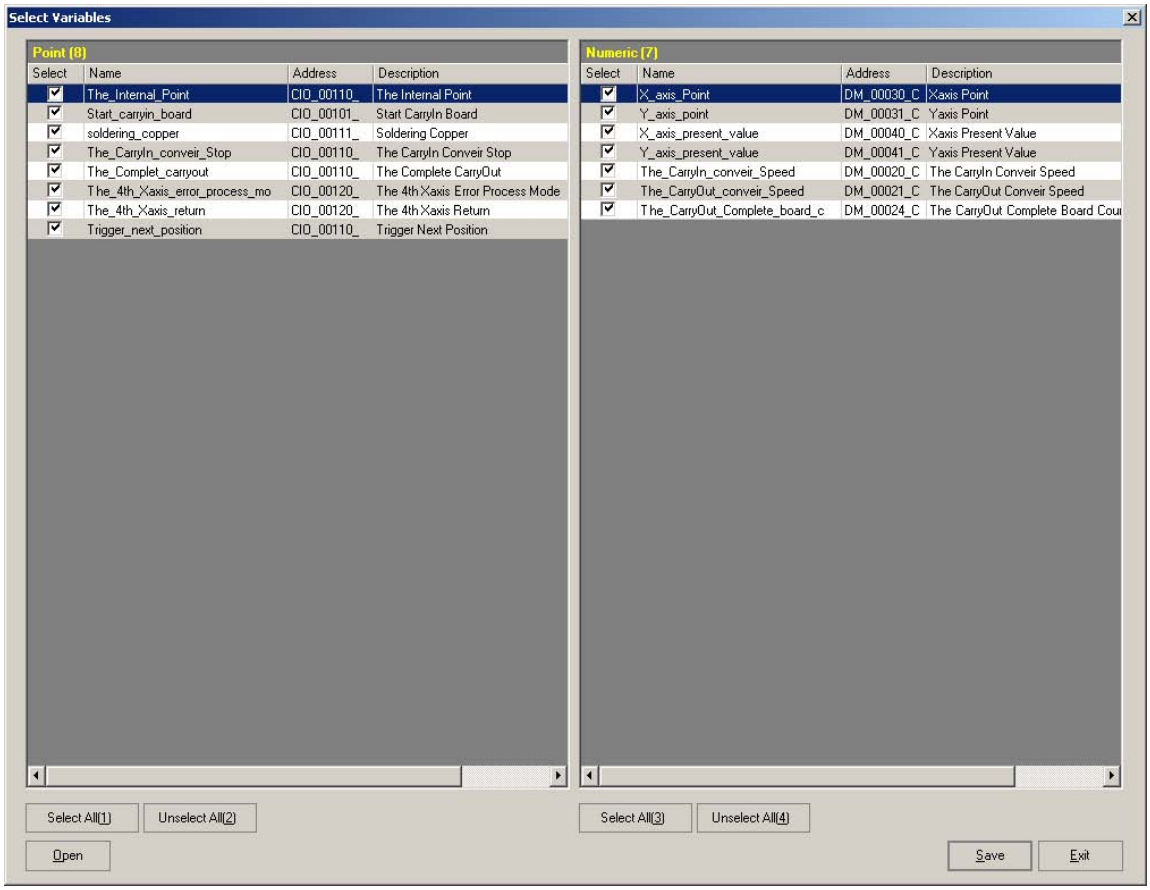
- This example shows selecting a database as the data source.

Note The system remembers the last read data source, and enters the database type, username, password and server name automatically.

3. After selecting the database type and entering all the required information, click Next. Multiple data patterns can be selected:



4. Select the data pattern to be graphed, then click Next:



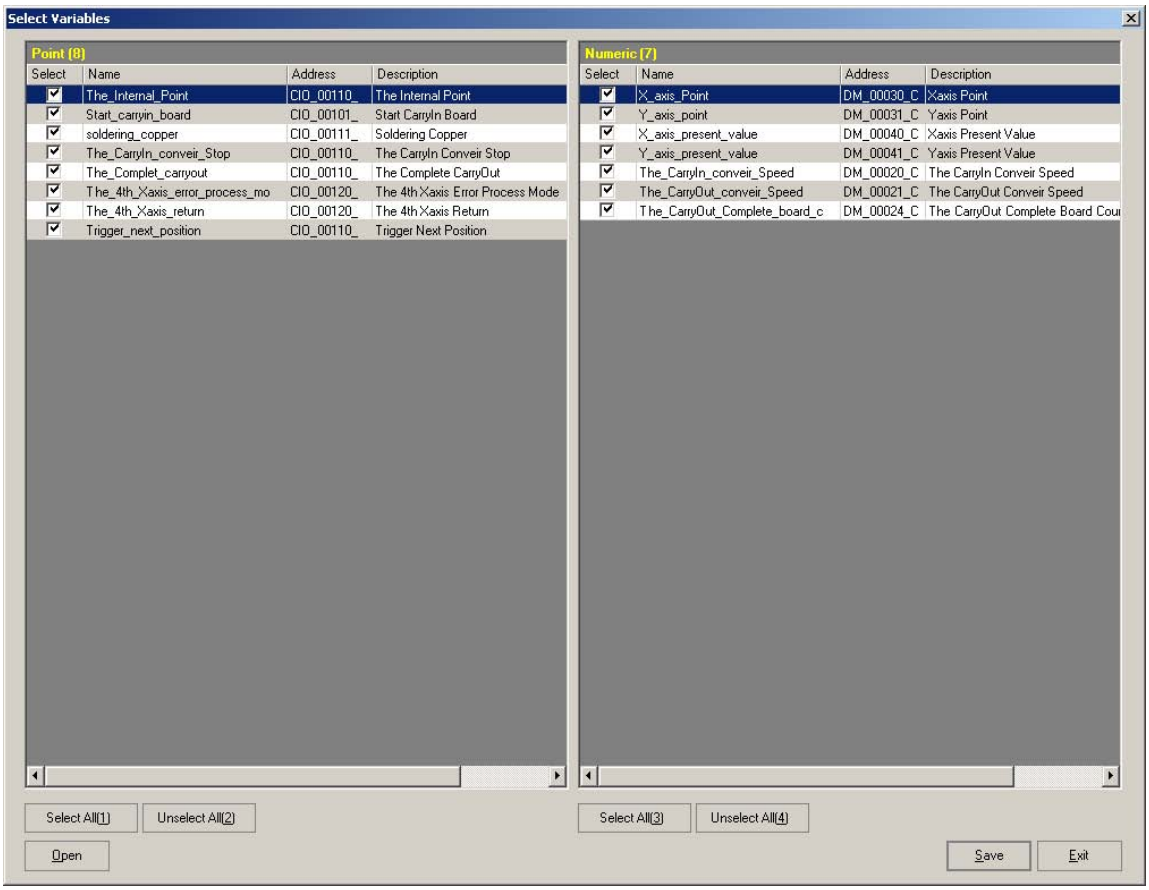
5. Select the variables to be graphed, then click Save. For more on abstract variables, refer to 4-4 Abstract Variables. A standard Windows Save dialog will be displayed.
6. Enter the filename and location, then click Save. The variable catalog will be saved as a CSV file.
7. When the save is complete, the following confirmation will be displayed:

Saved files can be opened and edited by clicking Open in the Select Variables dialog. For more details, refer to the following explanation.

8-2 Using a Variable Catalog

Open a variable catalog from the Select Variables dialog, to simplify selecting the variables to graph:

1,2,3… 1. When creating a graph, the Select Variables dialog will be displayed:



2. Click Open. A standard Windows Open File dialog will be displayed.
3. Select the Variable Catalog (*.csv file), then click Open. The contents of the variable catalog will be displayed in the Select Variables dialog.

SECTION 9
Linking ID Data

9-1 Overview

The key values (STRING data) included in the collection data can be used to link to a lot ID, product ID, model number, or other identifying data. This key value is called the ID data, and the data linked to it is called the linked data.

An ID table can be included in the database. The ID table indicates the relationships between the ID data and some meaningful linked data. The linked data can be displayed in historical trend graphs and comparison graphs.

The example here shows linking the ID data to product ID data. The example collection data and ID table are as shown here:

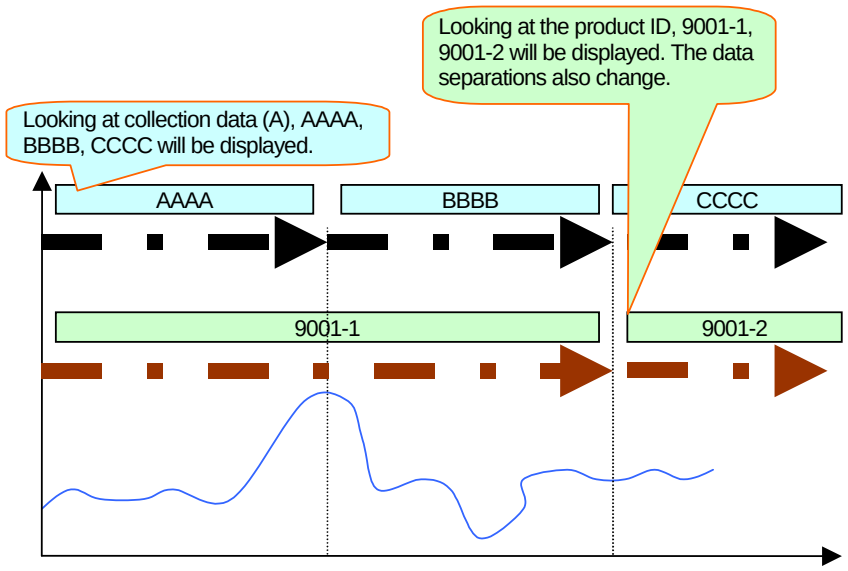
Collection Data

Time	Collection Data (B) ID Data	Collection Data (A)
2006/01/01 00:00:01	AAAA	100
2006/01/01 00:00:02	AAAA	120
2006/01/01 00:00:03	AAAA	130
2006/01/01 00:00:04	BBBB	90
2006/01/01 00:00:05	BBBB	100
2006/01/01 00:00:06	BBBB	110
2006/01/01 00:00:07	CCCC	95
Etc.	Etc.	Etc.

ID Table (User-defined)

ID Data	Product ID
AAAA	9001-1
BBBB	9001-1
CCCC	9001-2
DDDD	9001-2

The data display will be as shown here:

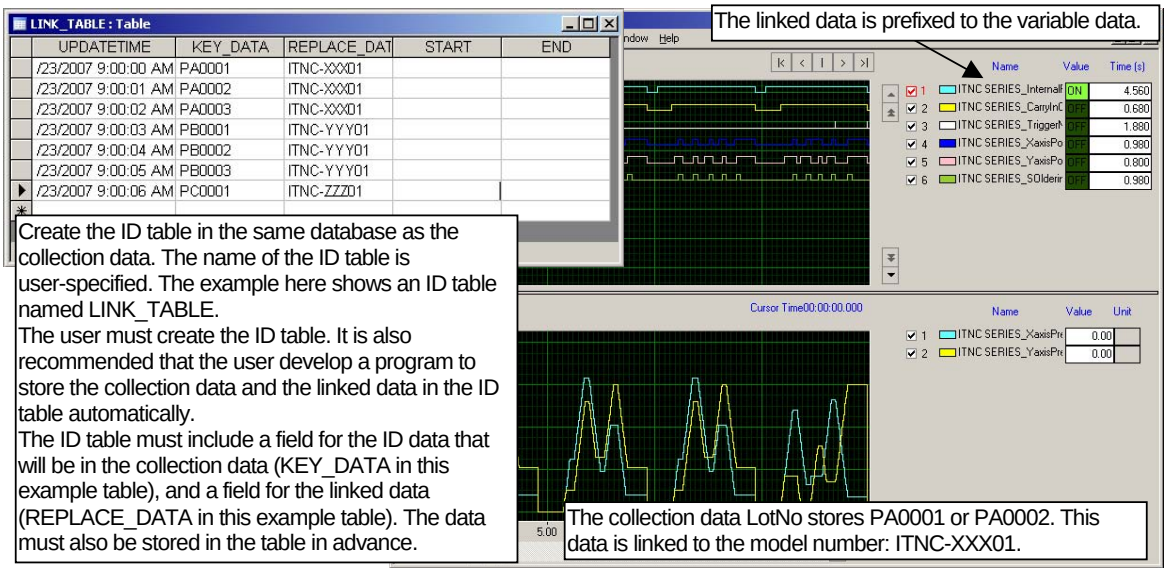


Example

The following example shows the display when linking the key data to the model number:

ID Table Setting

Graph Display

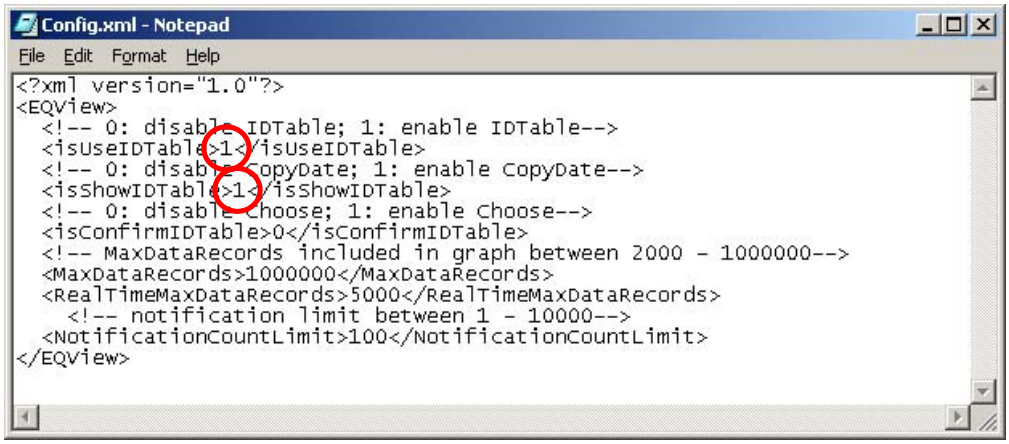


9-2 Editing the Settings File

The EQView settings file (Config.xml) can be edited using NotePad or a similar program:

1,2,3…

1. From the Start menu, select Programs | Accessories | NotePad.
2. Open the Config.xml file in the EQView installation folder:



3. Change the 0 to 1 in <isUseIDTable>.
4. Change the 0 to 1 in <isShowIDTable>.
5. Save Config.xml and close Notepad.

Note EQView will not run if the settings file is changed incorrectly. If editing the settings file, ensure that the changes are correct. Backing up the Config.xml file before editing is recommended.

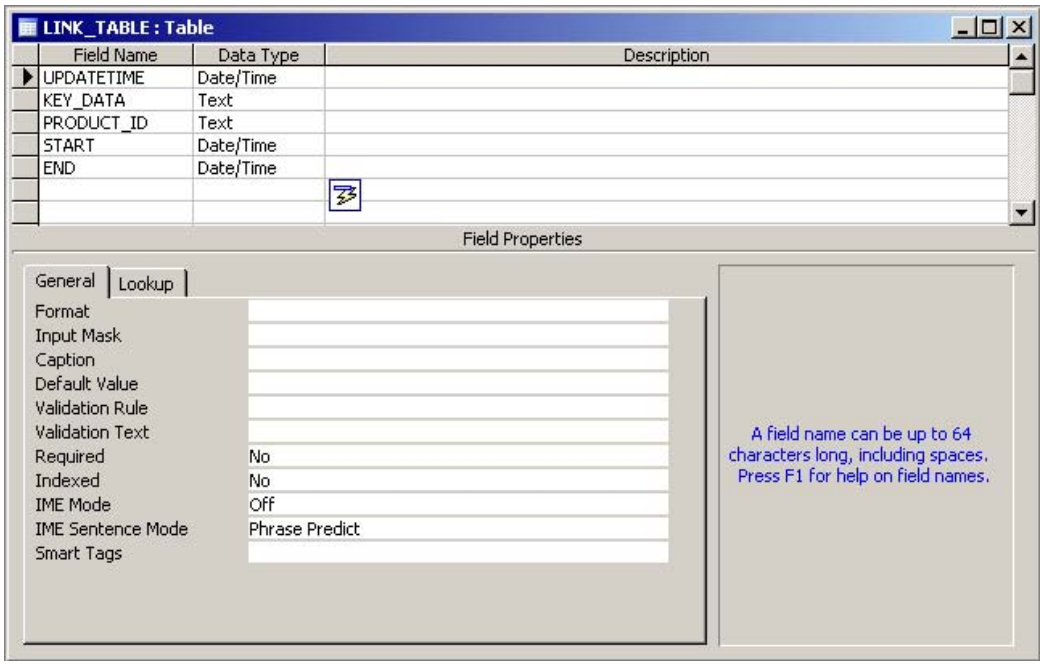
9-3 ID Table

9-3-1 Preparing the ID Table

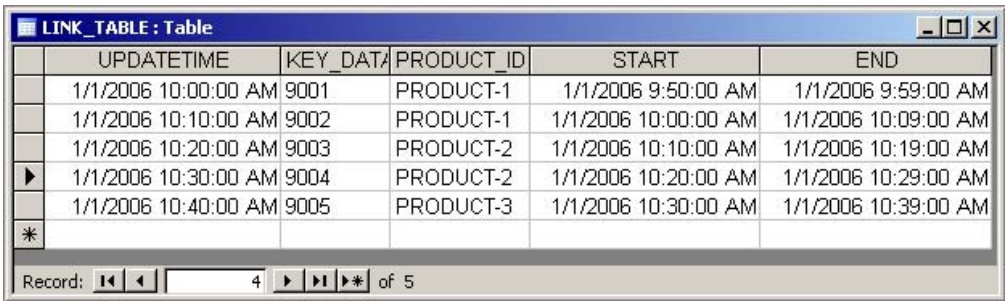
EQView does not make an ID table. To use an ID table, the user must make the table beforehand and store it in a database. Include both of the following in the ID table:

Data	Field Name	Data Type	Function
Update time	UPDATETIME	Date/Time	When the linked data is displayed, it is sorted by this field in ascending order.
ID data	User-specified	Character string	This is the key data included in the collection data (STRING variable), and used for linking.

Example: Linked Data Created Using Microsoft Access



Data Link Table



LINK_TABLE : Table

	UPDATETIME	KEY_DATA	PRODUCT_ID	START	END
	1/1/2006 10:00:00 AM	9001	PRODUCT-1	1/1/2006 9:50:00 AM	1/1/2006 9:59:00 AM
	1/1/2006 10:10:00 AM	9002	PRODUCT-1	1/1/2006 10:00:00 AM	1/1/2006 10:09:00 AM
	1/1/2006 10:20:00 AM	9003	PRODUCT-2	1/1/2006 10:10:00 AM	1/1/2006 10:19:00 AM
▶	1/1/2006 10:30:00 AM	9004	PRODUCT-2	1/1/2006 10:20:00 AM	1/1/2006 10:29:00 AM
	1/1/2006 10:40:00 AM	9005	PRODUCT-3	1/1/2006 10:30:00 AM	1/1/2006 10:39:00 AM
*					

Record: 4 of 5

Note It is recommended that the user develop a program to store the collection data and the linked data in the ID table automatically.

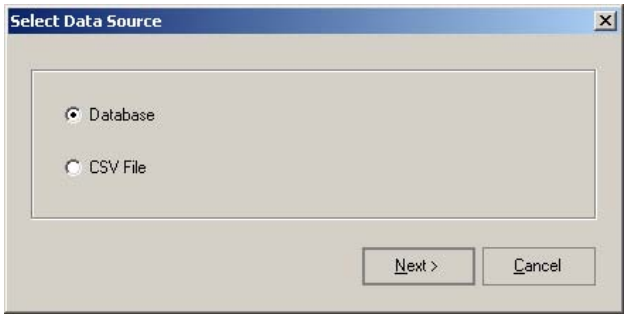
9-3-2 Using an ID Table

Linked data can be used in historical trend graphs and comparison graphs.

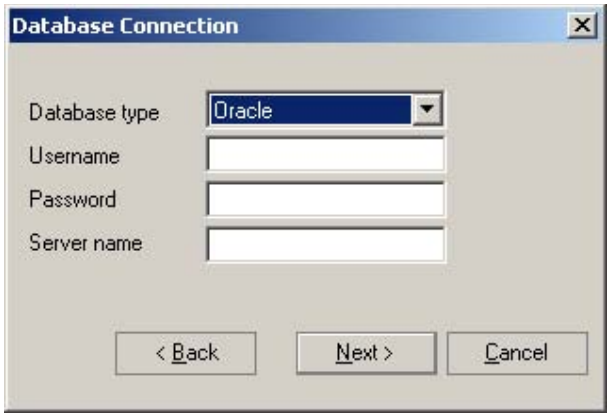
Linked Data

Linked data can be used in comparison graphs (comparison by ID) if Database is selected as the data source in the Select Data Source dialog:

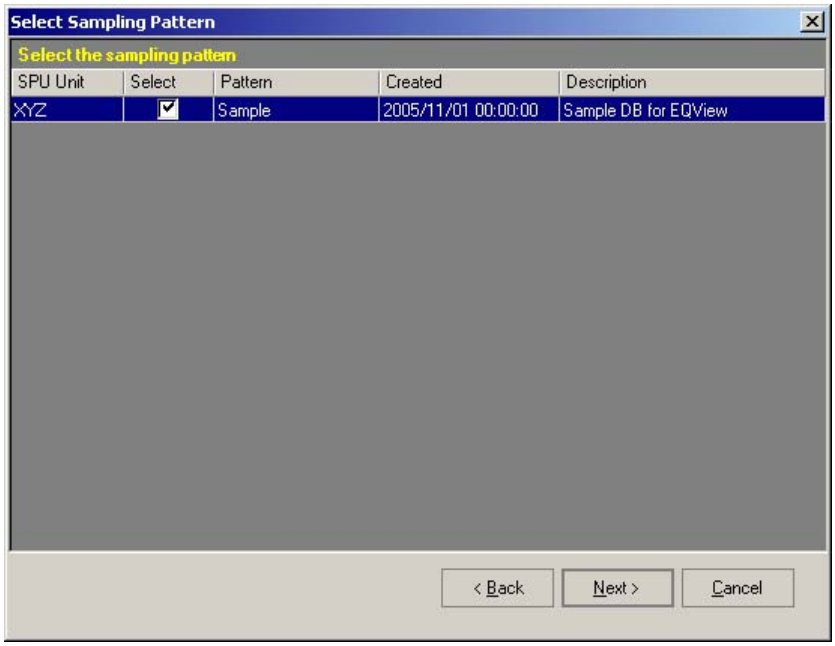
1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView main window will be displayed.
2. In the EQView main window, select Graph | Historical Trend | New. The following dialog will be displayed:



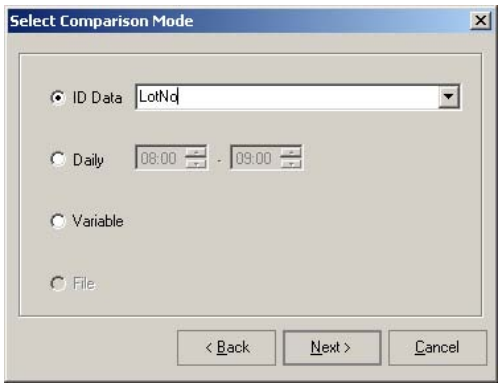
3. Select Database, then click Next. The following dialog will be displayed:



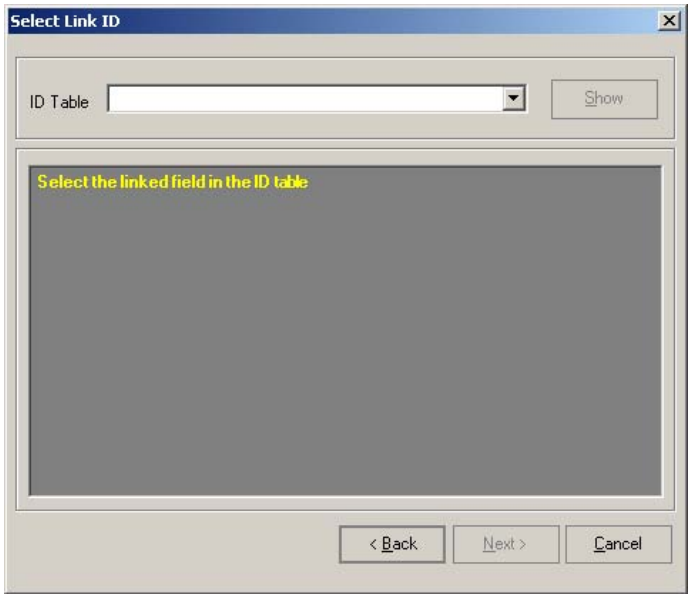
4. Select the type of database and enter the settings necessary for that database type. Then, click Next. The Select Sampling Pattern dialog will be displayed:



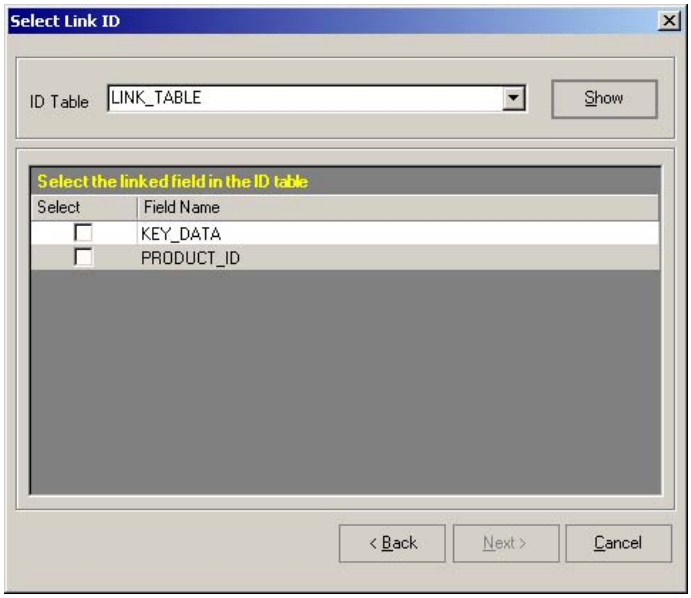
5. Select the pattern to graph, then click Next:



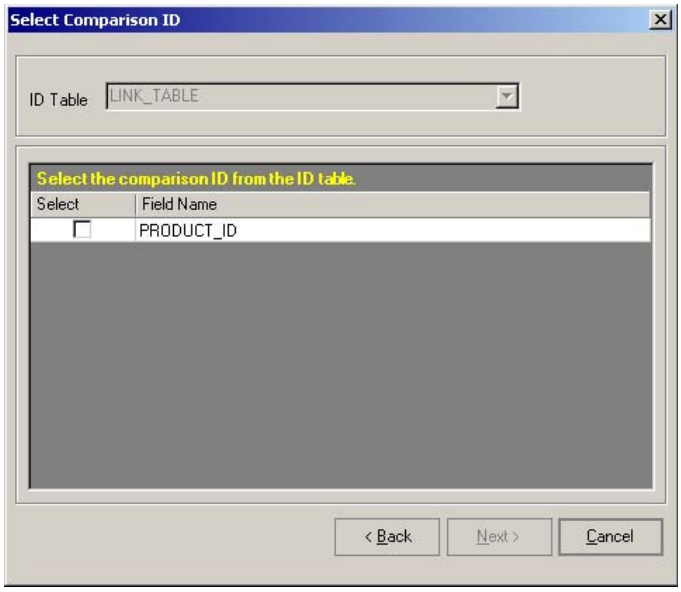
6. Select ID Data, specify the ID data from the pulldown selection box, and click Next:



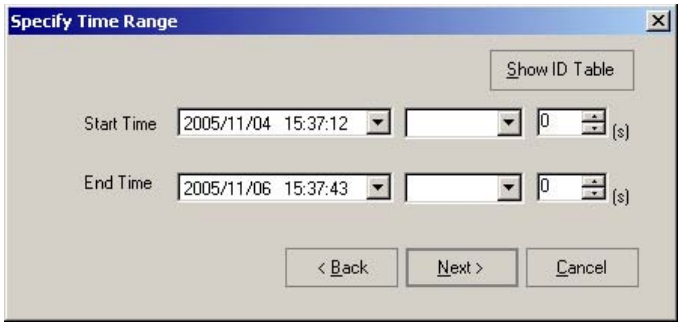
7. Select the ID table to use, and click Show. In this example, the LINK_TABLE ID table is selected:



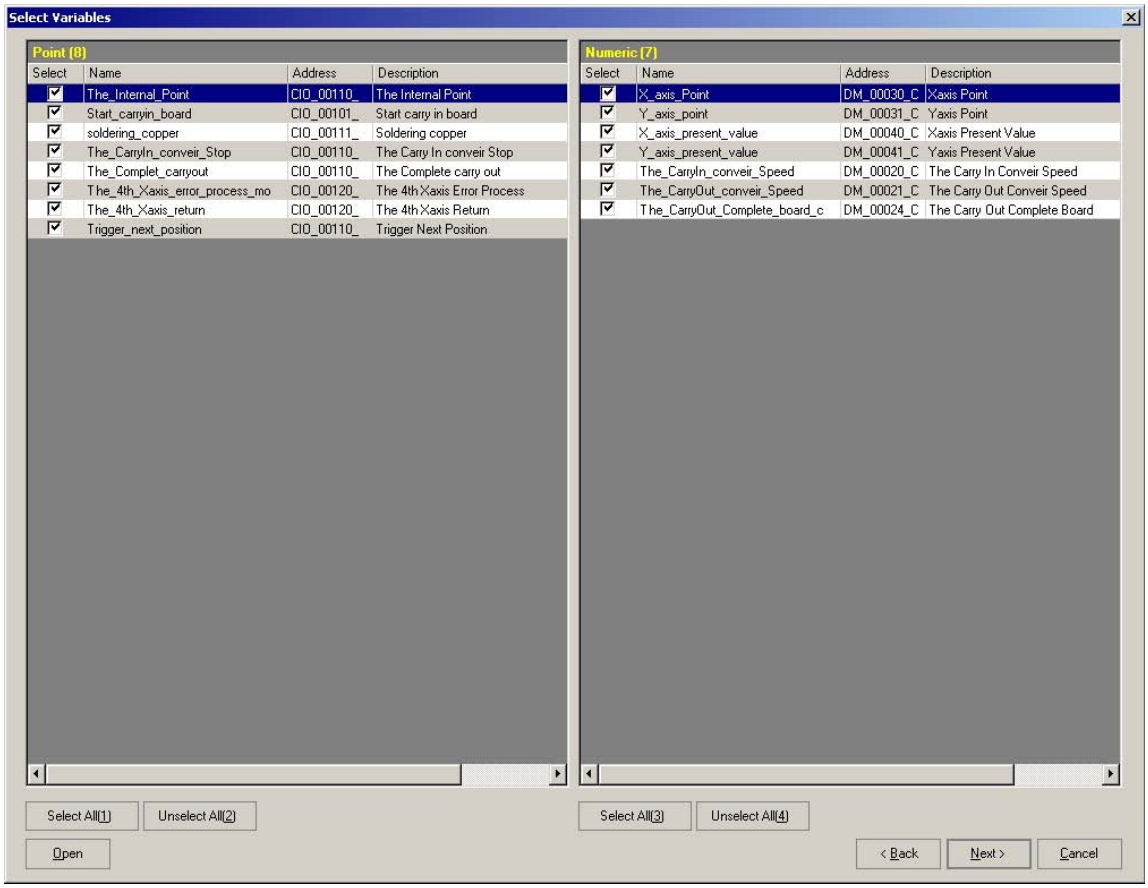
8. Select the comparison ID data, and click Next. In this example, PRODUCT_ID is selected:



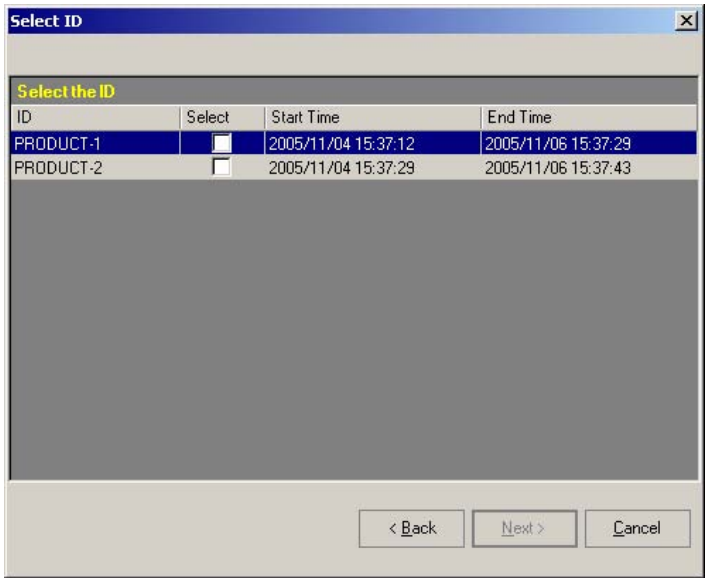
9. Select the linked data, and click Next:



10. Set the time range to graph, and click Next:

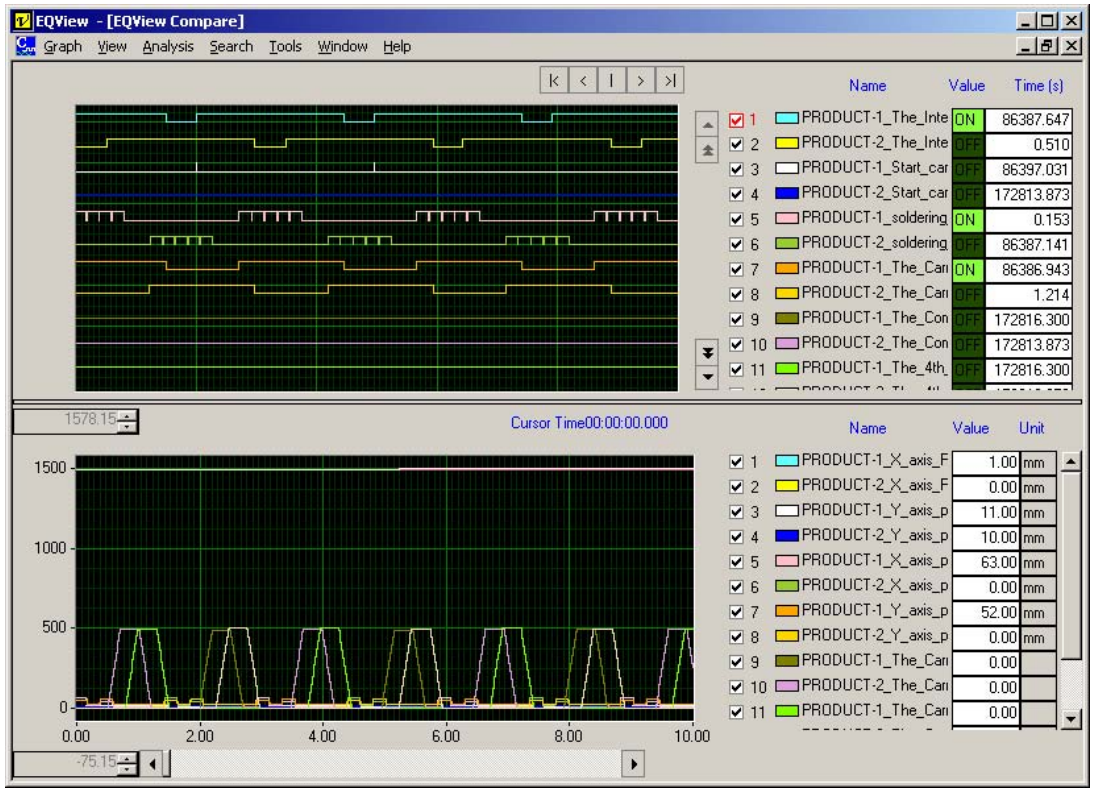


11. Select the variables to graph, and click Next:



12. Select the linked data to compare, and click Next.
13. The remaining steps are the same as graphing without using linked data.

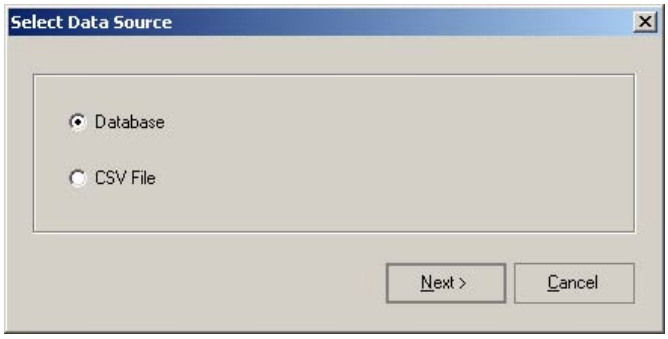
In this example, the comparison graph would appear as shown here. The data is comared by PRODUCT_ID as included in the linked data:



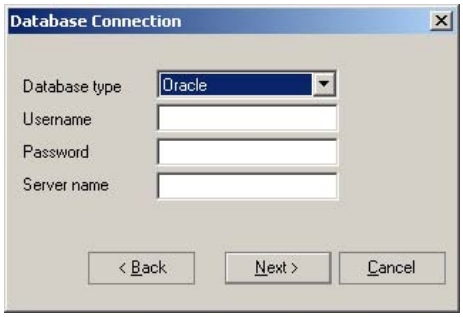
Date/Time Data

When selecting Database as the data source, the ID table date/time data can be used for historical trend graphs. Using this feature enables using the date/time data linked in the ID table to specify the time range of the data to graph. This simplifies the time range setting, and reduces the total number of settings required.

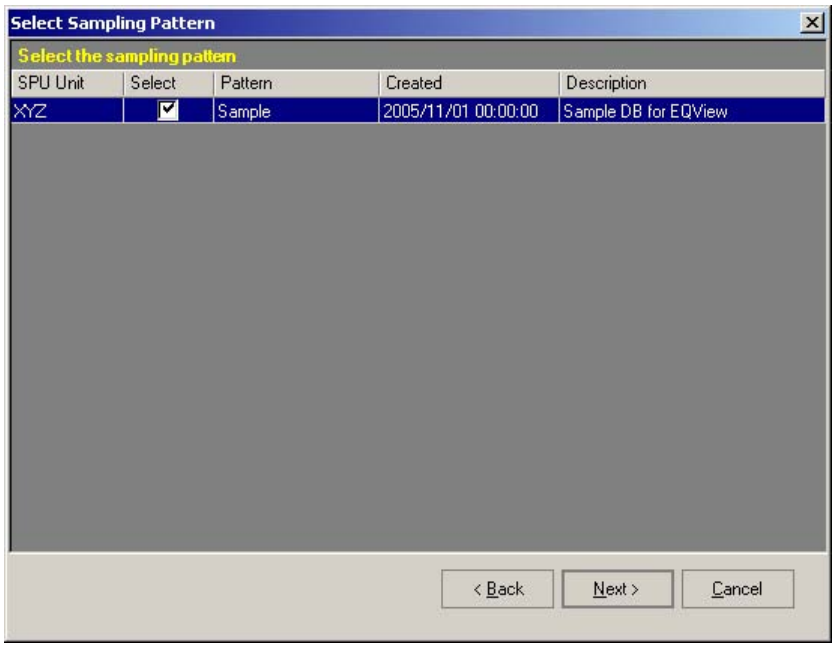
1,2,3… 1. From the Start menu, select Programs | OMRON | EQView | Historical Trend (Comparison) (default name). The EQView main window will be displayed.
2. In the EQView main window, select Graph | Historical Trend | New. The following dialog will be displayed:



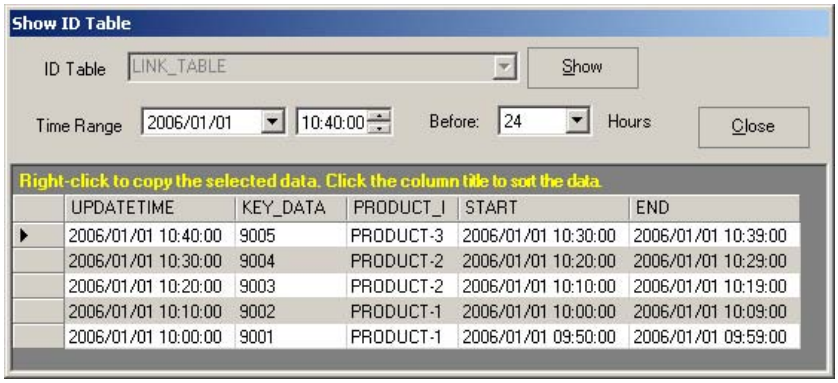
3. Select Database, and click Next. The following dialog will be displayed:



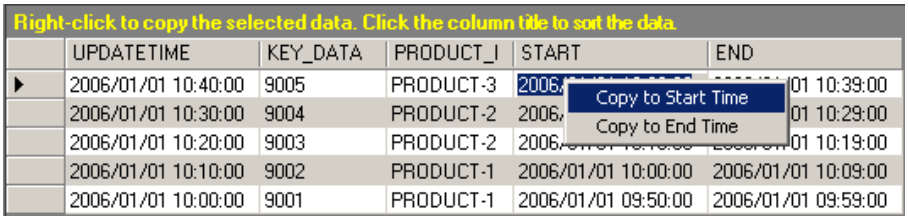
4. Select the type of database, and specify the settings required for that database type. Then click Next. The Select Sampling Pattern dialog will be displayed:



5. Select the data pattern to be graphed, and click Next:



6. Right-click the date/time data:



- Select Copy to Start Time to copy the selected date/time to the Start Time of the Specify Time Range dialog.
- Select Copy to End Time to copy the selected date/time to the End Time of the Specify Time Range dialog.

7. The remaining steps are the same as for graphs without linked data.

SECTION 10
Troubleshooting

10-1 Online Trend Graphs

Online Trend Graphs work by connecting simultaneously with the SPU Unit, FINS communications, and the Windows network. If there would be a connection failure, an “Unable to read SPU Unit data” message will be displayed in the Online Trend display. Refer to the following table for the most common error messages, probable causes, and suggested corrective actions:

Error Message	Probable Cause	Corrective Action
Unable to read SPU Unit data. Check LAN and SPU Unit.	There is network interference.	Check the cables, hub, and other connections to confirm that the network is free of interference.
	The SPU Unit power supply is OFF.	Apply power to the SPU Unit.
	The SPU Unit data collection settings have been changed.	Close the Online Trend display, and restart EQView.
Unable to refresh graph.	The SPU Unit has stopped collecting data.	Start the SPU Unit data collection.
User notification failure.	The notification limit has been reached.	Close the Online Trend display, and restart EQView
	There is trouble with the FINS network.	Confirm that the FINS address is correct.

10-2 Other Troubleshooting

Graphs other than online trend graphs read data from the EDMS data management middleware, associated databases and CSV files. The following table lists the most common errors, probable causes and suggested corrective actions:

Error Message	Probable Cause	Corrective Action
Unable to connect to database.	The database system is not running.	Start the database system, and restart EQView.
	If the database is connected remotely, there may be a network problem preventing connection to the database.	Correct the network problem, and restart EQView.
	There is a problem with the database causing errors during data retrieval.	Correct the problem with the database, and restart EQView.
	Unknown data table.	Confirm that the data table was created with the EDMS data management middleware.
Unable to read CSV file.	No variable file (IONAVariable.xml).	Prepare a variable file using the EDMS data management middleware.
	Unknown file format.	Confirm that the data table was created with the EDMS data management middleware.
Insufficient memory.	Too many variables to graph.	Reduce the number of variables.
	Graph range is too long.	Shorten the graph time range.

10-3 Performance Issues

EQView data search and graphing capabilities are affected by the following factors:

- Operating Environment

  The operating environment includes the capabilities of the computer, network, database, and other factors.
- SPU Unit Load

  The load on the SPU Unit includes the SPU Unit cycle time, the number of variables being sampled, the collection patterns being used, etc.
- Number of variables being graphed and length of the time range.

The searching and graphing performance does not require any specific values for these factors. Instead, be sure to test the application before actual implementation to confirm that the required capabilities are met by the system. Completely test all of the above factors and design the system to achieve the required performance. Some examples of actual trials that can be performed are given below:

Refresh an Online Trend Graph

- Set the SPU Unit as follows:

  Increase the length of the data collection frequency.

  Decrease the number of variables stored as data.

  Etc.
- Select the variables to graph

  Decrease the number of variables selected.

  Reduce the number of operations performed.

  Etc.

Set the Graph Data Conditions

- Variable time range settings

  Reduce the variable time ranges.
- Graphed variable selection

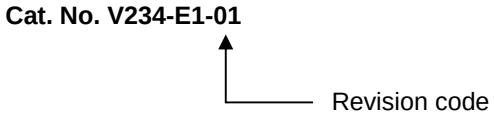
  Reduce the number of variables graphed.

  Reduce the number of operations performed.

  Etc.

Revision History

A manual revision code appears as a suffix to the catalog number on the front cover of the manual.



The following table outlines the changes made to the manual during each revision. Page numbers refer to the previous version.

Revision code	Date	Revised content
01	April 2007	Original production