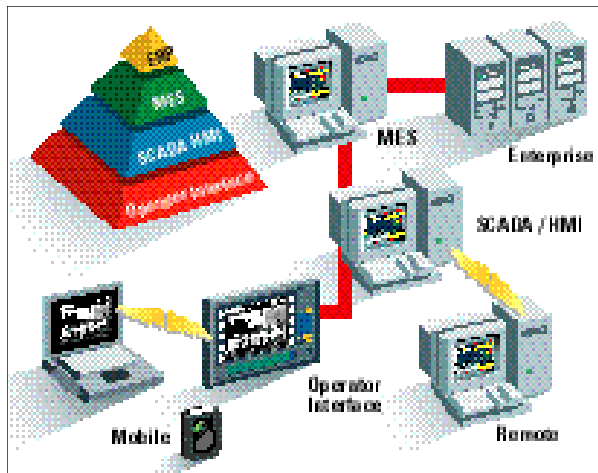# CIMPLICITY HMI Overview

What is CIMPLICITY?

CIMPLICITY® is a powerful family of easy to use, supervisory monitoring and control software. The CIMPLICITY family of software includes products such as CIMPLICITY HMI, HMI for CNC, Tracker, and Batch Management System. CIMPLICITY allows you to consolidate the collection of data from the various sensors and devices in your facility. Once collected, CIMPLICITY allows you to then transform data into dynamic text, alarm, and graphic displays for your

users. Users then have access to live information required to make the decisions needed to improve quality and productivity resulting in greater profitability. CIMPLICITY also connects to your enterprise level systems allowing you to distribute production requirements to the shop floor and feedback production results. The two-way information flow of CIMPLICITY allows you to construct an integrated plant floor information system. With CIMPLICITY you are truly "Integrating People With The Process."

CIMPLICITY HMI

• Data Collection and Consolidation

• Dynamic Graphical User Interface to the Facility

• Framework for Enterprise System Integration

Expanding Solutions to Meet Customer Needs

More Than Just an HMI

CIMPLICITY HMI breaks the mold of traditional HMI Systems. Developed with over 25 years of knowledge and experience implementing manufacturing systems, CIMPLICITY HMI is one of the most technologically advanced, open systems designed HMI products available. GE Fanuc took the years of experience gained working with true client server, multi-tasking, multi-user operating systems and brought it to the Microsoft Windows NT® world. As a member of the Microsoft Developers Network (MSDN), and Microsoft Solution Provider, GE Fanuc engineers worked with Microsoft engineers to fully understand their technologies and future visions. Designed as a native 32-bit application based on the Microsoft Win32 standard, CIMPLICITY HMI is not hampered by the legacy of 16-bit code as many other products on the market. At GE Fanuc, we have always worked in a 32-bit world—from our heritage with VMS and Unix-based systems, to today's Microsoft technologies —it's just natural for us.

Since GE Fanuc fully adopted the Microsoft standards into our product design we are accelerating the advancement of the product at a rapid rate in the market. And the results show in the product. CIMPLICITY HMI is capable of satisfying your most demanding applications. With connectivity into your enterprise systems—MES applications, remote, web, and wireless product options—CIMPLICITY HMI extends the reach of your monitoring and control system to a large number of users.

True Client / Server Architecture

CIMPLICITY HMI is designed from the ground up with a true client/server architecture that allows you to implement solutions from a single node to a complete enterprise wide solution.

CIMPLICITY is designed in two main components — Servers and Viewers. CIMPLICITY Servers are responsible for the collection and distribution of your system data. CIMPLICITY Servers can seamlessly share data between each other while providing users a view of the processes being monitored. CIMPLICITY Viewers allow for additional users to view and interact with the system. Viewers do more than just view—you can perform control actions from them as well. The beauty and strength of CIMPLICITY lies in its architecture. You can easily add Servers and Viewers to your CIMPLICITY system architecture without the need to replicate your point database from node to node. This greatly reduces the time and effort required to implement and maintain a system. You can start small, and build on your success without limits.

Technology Standards That Assure Your System's Future

GE Fanuc is a Microsoft® Solution Provider which means our engineers are trained and certified for the latest Microsoft technologies. Microsoft is famous for its "alphabet soup" of acronyms for its technologies—OLE, COM, DCOM, ODBC, OPC, ActiveX®, DNA, and more. CIMPLICITY HMI is designed to take full advantage of these technology standards. But we also understand that you probably don't care about acronyms—you just want systems that are easy to install, easy to develop, easy to maintain, and won't be obsolete tomorrow. That's the important aspect about adopting technology standards. As Microsoft evolves their technologies, CIMPLICITY HMI will evolve as well.

CIMPLICITY HMI was the first HMI ActiveX container on the market. ActiveX objects are self-contained applications that can interact with other applications. ActiveX technology saves you development time by allowing you to drag and drop objects to create your applications. CIMPLICITY HMI provides its own ActiveX objects such as trends, alarm viewers, XY plots, SPC charts, and recipes, while also being an open container for third party ActiveX objects as well.

Client Server Architecture

CIMPLICITY HMI Product Overview

*Positioned for Microsoft® Windows® 2000*

On October 27, 1998, Microsoft announced the evolution of Windows NT ® to the Windows 2000 product line. With the insight gained from being part the MSDN, GE Fanuc was able to design the CIMPLICITY HMI product to take advantage of Microsoft's future product vision long before this announcement.

The Windows 2000 Server and Windows 2000 Advanced Server products are designed to support symmetric multi-processing (SMP) (Running two or four CPUs in a single computer). CIMPLICITY HMI is the first HMI product designed to take advantage of the capabilities of SMP.

Product Structure

CIMPLICITY HMI is available in 50 (non-networked), 75, 150, 300, 700, 35,000 and No Limit I/O count Servers. I/O count is based on actual device points collected by the node. Virtual points (those points which only reside in the computer's memory) are not counted. For added flexibility, any CIMPLICITY HMI system can access points from another system. Points accessed from other systems do not count towards the total I/O count. Viewers are used to view data from servers and have no limit to the number of values they can display.

CIMPLICITY HMI also offers Development and Runtime Systems. Development and Runtime options are available for all systems. Development systems allow you to create new projects and can also function as a runtime system.

Product Structure
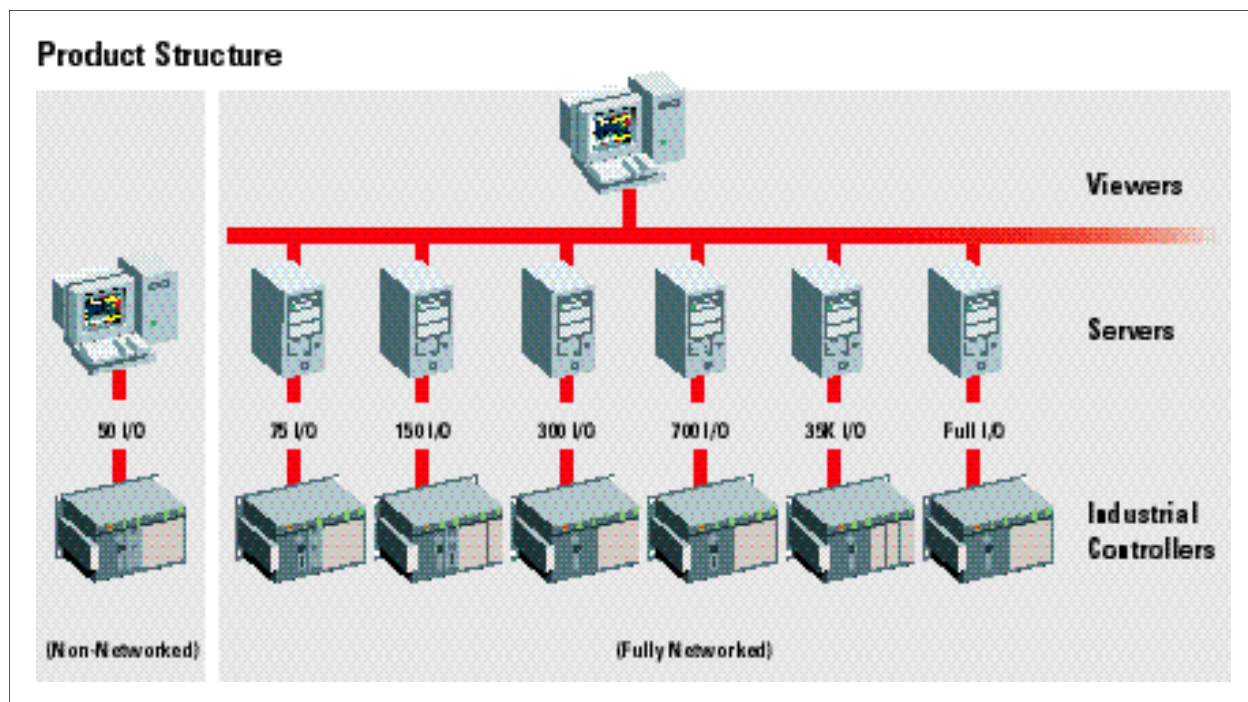
What Type of System Do I Need?

CIMPLICITY Development Servers

Whether you are beginning with a single node, or plan on a complete enterprise wide system, you will need to start with a CIMPLICITY Server. If you are a first time customer, you will need to start with a CIMPLICITY Development Server since this allows you to develop your project and application. Development Servers also allow you to run your project. For a single node application, a Development Server is all you will need.

CIMPLICITY Runtime Servers

Runtime Servers allow you to run copies of projects that were created on a Development Server. If you have several areas or applications you can create them on a Development Server and then deploy them on Runtime Servers. This is often the case with OEMs or users with multi-node systems.

CIMPLICITY Viewers

Viewers allow you to add additional users to your system. Viewers receive their information from CIMPLICITY Servers (Development or Runtime). You must have a CIMPLICITY Server before you consider the purchase of any Viewers. A Viewer is able to receive information from any of the CIMPLICITY Servers on your network.

CIMPLICITY Development Viewers

Development Viewers are offered to allow you to modify an existing project without the need to physically go to the Development Server. You cannot develop a project with only a Development Viewer. You must have a Development Server that connects to a Development Viewer.

Applications

CIMPLICITY HMI software can provide an important tool to many industries, including automotive, aerospace, oil and gas, chemical, petrochemical, food processing, beverage, pharmaceuticals, pulp and paper, pipelines, metals, water and wastewater treatment, transportation, semiconductor and much more.

CIMPLICITY Support and Services

GE Fanuc provides technical support for registered CIMPLICITY Software users under warranty or under a technical support software agreement.

GE Fanuc can provide expert consulting services to assist you in the specification, design, and implementation of your CIMPLICITY HMI system. Our team of engineers have a vast range of experience helping our customers and integrators implement their monitoring and control system solutions. Let us bring this experience to your project.

Ordering Information

For further information about CIMPLICITY Software products, consult your local GE Fanuc Automation Representative or CIMPLICITY Software Distributor.

CIMPLICITY Workbench™ and Power Tools™

Workbench™

As the power and flexibility of a product increases, the requirement for a focus on ease-of-use also increases. CIMPLICITY HMI provides a Workbench™ and a set of Power Tools™ which bring ease-of-use in developing and maintaining your applications to a new level. The Workbench provides an integrated development environment that supports the comprehensive set of

Power Tools. The Workbench provides ease-of-use features such as drag-and-drop configuration, intelligent defaults, progressive disclosure dialogs, configuration printouts, and pop-up tool tips. Coupled with the Power Tools, you can significantly reduce integration time resulting in lower project implementation and maintenance costs.

Workbench

The Workbench is patterned after the Microsoft Windows Explorer. The Workbench window is divided into a left- and right-hand side. On the left is a folder/file tree that contains the Power Tools. By clicking on the appropriate folder or Power Tool on the left, you can view the corresponding configuration items on the right. For example, by selecting the Screens folder you can view the list of screens configured in the system on the right. You can open the Equipment folder and navigate down to a particular Device and view all of the points associated with it. With the Workbench you have a new perspective on your configuration offering you more power and flexibility than ever before.

The hierarchy of objects and folders on the left has been designed to organize your Power Tools into meaningful and time-productive groups. For example, the items such as Devices and Ports that are associated with Device Communications are now logically grouped into a folder. Once these are configured you may never need those tools again. That sub-tree can then be closed and you can put away those tools.

Drag-and-Drop

The intuitive layout of the Workbench provides a great benefit for reviewing and understanding your project's configuration. But the ease-of-use improvements don't stop there! The Workbench provides drag-and-drop capabilities. From the list of configured points you can simply drag and drop the points of interest into the CIMPLICITY Point Control Panel or create a Quick Trend. Developing, testing, and maintaining your projects has never been easier.
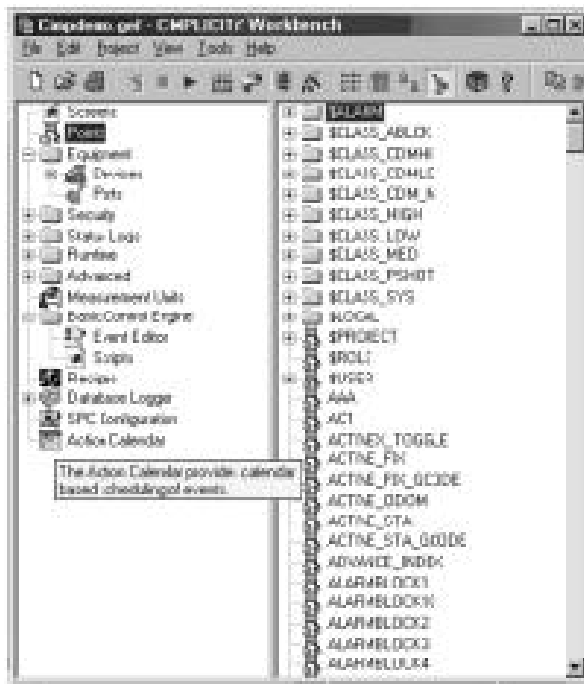
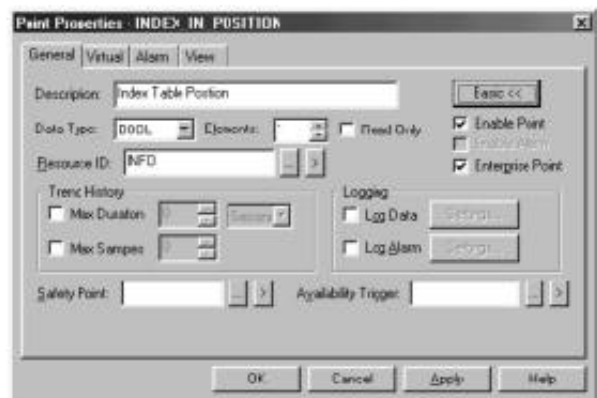## *Basic/Advanced Point Configuration*

When you have one of the most powerful and sophisticated HMI software packages available on the market, that power can sometimes be overwhelming to the first time user. For this reason we have Basic/Advanced Point configuration modes. You can easily toggle between modes. When in Basic mode you are only presented with the configuration fields which are required to collect and alarm for a point. This mode reduces the number of possible configuration fields you see from approximately 64 down to 14! But in doing this we did not strip out any of the power behind CIMPLICITY HMI. All that power is still available by simply toggling the configuration over to Advanced Mode. In Advanced Mode you obtain access to all of the point configuration capabilities.

Progressive Disclosure

As part of the Basic/Advanced Point Configuration changes we have also introduced a concept which we call "Progressive Disclosure." Progressive Disclosure is another way of simplifying Point Configuration. As you enter configuration information into the displayed fields, CIMPLICITY HMI will automatically display additional configuration fields if appropriate. For example, if you select to log information on a point, additional fields are displayed allowing you to select logging criteria.

Intelligent Defaults

Point configuration has been improved with the introduction of Intelligent Defaults for certain configuration fields. Coupled with the Basic/Advanced feature and Progressive Disclosure, configuration has never been easier.

Basic and Advanced Point Configuration

CIMPLICITY HMI
Workbench and
PowerTools

# CIMPLICITY Workbench™ and Power Tools™

CIMPLICITY Power Tools

The CIMPLICITY Power Tools are a comprehensive set of monitoring and control software tools. The Power Tools consist of software options and ActiveX objects that provide the functionality you need to construct and integrate your most demanding applications. The CIMPLICITY Power Tools are designed to work within the open system framework of CIMPLICITY HMI.

Power Tool Included	Description
Alarm Viewer	Interactive ActiveX Alarm Viewing Object
Basic Control Engine	VBA Compliant Scripting Language
Data Logger	Data Logging via ODBC
Dynamic Measurement Systems	Dynamically Switch Between English and Metric Units
Point Control Panel	Dynamically View and Set Point Data
Point Cross Reference	Determine Where Points are Used In Your System
Quick Trends	Pop-up Trends for Any Points on a Screen
Real Time and Historical Trends	Interactive ActiveX Object for Viewing Trend Data
Series 90™ PLC Fault Tables	View PLC Faults
SmartObjects™	Reusable Graphic and Scripted Objects
XY Plots	ActiveX Object for Plotting Multiple X-Y Data
Purchased Options	
Action Calendar	Calendar Based Control
Historical Data Analyzer	Comprehensive Data Summarization
HMI for CNC	Integration with GE Fanuc CNC Controllers
Integrators Toolkit	APIs to Interface with Points, Alarms, Device Communications
Marquee	Display Alarms and Messages to Marquee Devices
Pager	Send Alarm Information to Alphanumeric Pagers
Recipes	Device Independent Recipe Management
Report Manager	Report Generation and Management From Process Data
Server Redundancy	Complete Mission Critical Redundancy Support
SPC	ActiveX Statistical Process Control Charts and Reports
System Sentry	Constantly Watches HMI and System Parameters
WebGateway	Send CIMPLICITY HMI Data to Web Pages

Power Tools Are Built to the Latest Industry Standards

CIMPLICITY Workbench™ and Power Tools™
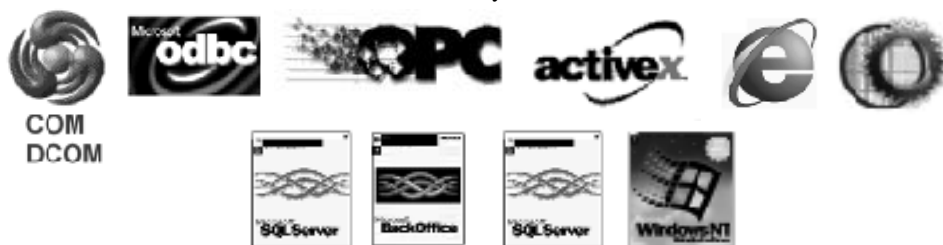
## Base Power Tools: *CimEdit and CimView*

As a major innovator in the industry, GE Fanuc introduced CimEdit and CimView as the first ActiveX HMI graphics container. The object oriented graphics editor, CimEdit, and the run-time viewer, CimView, are easy to learn and use. They blend industry standards with advanced interface designs to provide you with an intuitive package that lets you perform operations easily and naturally. Tight

integration of all CIMPLICITY HMI functionality makes system design, configuration, and operation simple. The Windows interface of CIMPLICITY HMI allows you to be productive, right out of the box—there is no complex set-up, installation or programming to learn. Crisp graphics and smooth animation make CimEdit and CimView a pleasure to work with.

CimEdit

CimEdit provides the ability to import OLE, Windows Metafile and ActiveX objects. Trending, SPC Charts and Alarm Viewer are examples of CIMPLICITY ActiveX objects. Third party OLE and ActiveX objects such as Excel™ spreadsheets and charts, bitmaps, video clips and sound files can also be included in your screens.

Windows users will quickly notice the toolbars located around the screen. These provide the tools to create and modify your screens. Once objects are created, they can be resized, rotated or moved using the "handles" that appear when the object is selected.
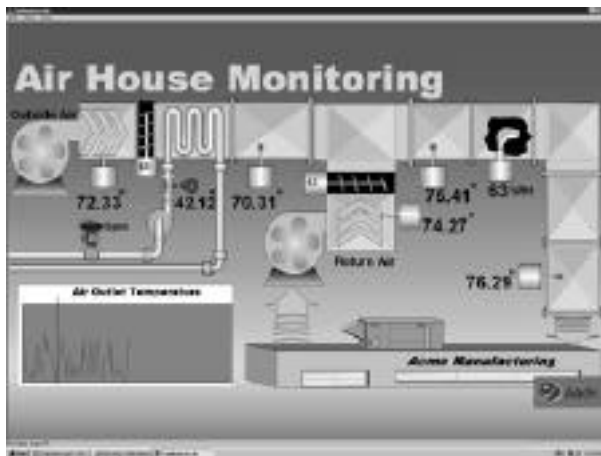
Once the objects are placed on the screen, another toolbar provides a powerful set of alignment tools. Objects can be aligned automatically with a configurable grid, or aligned in groups using the object alignment tools, which include the ability to space objects evenly as well as align them in relation to each other. With this combination of graphic tools, drawing screens that accurately depict a production process is very simple.

Any object can be animated by double clicking on an object to bring up its property pages. These property pages allow you to choose from a wide variety of animation and control functions. The object's property pages also allow you to navigate quickly and specify animation attributes including rotation, fill, movement, color and text annunciation, geometry, scaling, events, procedures and scripts.

CimEdit Features

- **Interactive, dynamic configuration** allows you to add or modify point configuration data from anywhere within CimEdit.

- **A Point Browser** dialog box gives you the ability to access any CIMPLICITY point on the entire network, and use this point to animate an object.

- **Standard Object** shapes are provided for use in your system, including squares and rectangles, circles and ellipses, lines, polylines, arcs, pies, and cords. Position, style, color and rotation are some of the attributes which can be defined.

- **OLE and ActiveX embedded objects** give your screens more power. Trend charts, spreadsheet charts, multimedia presentations, and live motion video can all provide power and extensibility to your system. OLE and ActiveX in-place editing of embedded objects allows you to view your screen as a single document without popping up other application windows. OLE and ActiveX drag-and-drop support means you can just drag an OLE and ActiveX object from one document to another. Drag Excel charts into CimEdit. Drag objects from one CimEdit screen to another.

- **A Drag and Drop Library of over 2000 Symbols and Wizards** makes creating screens a snap. The CIMPLICITY Object Explorer allows you to easily drag and drop the symbols and SmartObjects™ into the screens you are creating.

You can also add to the library by creating your own set of SmartObjects. SmartObjects are easily created with standard CIMPLICITY objects through Group Editing and Expression Variables. Group Editing provides the ability to edit properties of objects within a group without ungrouping the objects. Expression Variables provide the ability to use variables anywhere an expression or point can be used. A variable can be replaced with either a string or numeric value. The substitution of a variable can take place at either edit time or at run time.

Animation

- **Movement and Rotation** are two animations which can be performed on objects.

- **Interior and Border Animation** provides you the ability to animate the internal and outline aspects of objects. Interior Animation allows for color and pattern changes. Border Animation changes the line surrounding the object. Because CIMPLICITY is based on Microsoft's 32-bit design, it supports the full spectrum of Microsoft colors including the most advanced 24-bit True Color.

- **Visibility Animation** allows an object's visibility to be controlled by an expression. If an object is invisible it cannot be selected.

- **Scalable Objects** provides the ability to change the size of an object based on the value of a point. The object can be scaled independently in the X and Y directions.

- **Filled Objects** allows you to fill from top, bottom, left, right, or bi-directional. Bi-directional fill is a unique feature which allows you to configure a single object which can fill in two directions from a center point. This is ideal for bi-polar bargraphs.
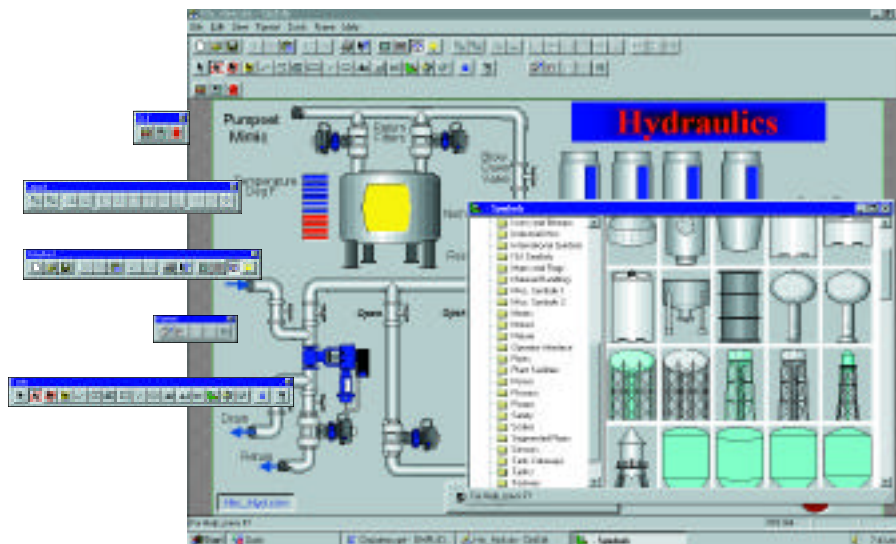
- **Events** can be configured to handle

  - *Key Pressed*

  - *On Mouse Down, On Mouse Up on an object*

  - *On Screen Open or On Screen Close*

  - *On Timed (Periodically while the object is active)*

  - *On Condition (when an expression evaluates to true)*

  - *While Key Down*

  - *While Mouse Down*

- **Frame Animation** is a compound object which allows a series of "frames" to be defined. Each frame can consist of different objects. A particular frame is displayed based on the value of an expression. This allows areas of the screen to change like a "film strip".

- **Hold Last Value** can be defined on a project basis. This feature allows you to configure the system to hold the last known values of points in your CimView screens if the points go into an Unavailable State. Text points in this state will display in a configured color (determined for the entire project).

- **Metafile Import** allows Windows Metafile objects produced by programs such as AutoCAD® and PowerPoint® to be cut and pasted into CimEdit. The imported images can be decomposed into CIMPLICITY objects and can be fully animated. This is in contrast to bitmap imports which remain as single static objects.

- **Point Search & Replace** allows you to search the screen for a point and highlight all objects that contain the point. You can then replace point identifiers within a CimEdit screen by simply typing over the name in a list of points used in the screen.

- **Scripting** allows Basic Control Engine Scripts to be run from a CimView procedure.

- **Undo/Redo** allows you to undo and redo a series of modifications to graphic screens.

- **Online Help** provides comprehensive, indexed documentation, which is just a keystroke away at any time.

- **Object Help** can be configured for any object on the screen. This help can then be accessed by the operator at any time using the right mouse button.

- **Dynamic Screen Testing** allows you to test screen editing changes in CimEdit without changing your original screen. By using the test button on the standard menu bar, you can automatically start a CimView window to view your edits without committing to them.

CimView

CimView is the powerful, graphics run-time portion of CIMPLICITY HMI where the features you used in CimEdit come to life. Powerful animation techniques give smooth, flicker-free animation to your graphic screens. With CimView you will see your process information displayed in both textual and graphic format. Alarms, video clips, pop-up windows, and the large selection of animation features help you transform your process data into process information, allowing you to improve your quality, productivity and profitability.

With CimView you can:

- View easy-to-interpret process graphics and text information.

- Access powerful scripts by pressing a key or clicking on an object.

- Get a description of the animation and actions associated with an object with a click of the mouse.

- Display help text with a click of the mouse.

- Display screens from other applications via OLE Automation.

CIMPLICITY HMI Workbench and PowerTools

CIMPLICITY Workbench™ and Power Tools™

Base Power Tools: *Alarm Management*

CIMPLICITY HMI provides Alarm Management capabilities based on over 25 years of GE Fanuc's experience in developing multi-user, multi-tasking supervisory monitoring and control systems. Long before the introduction of Windows and fancy graphic screens, GE Fanuc was providing alarm management solutions to our customers. It is from this strong heritage that the CIMPLICITY Alarm Management was developed.

Routing of alarms to the correct users is critical in a multi-user system. In addition, as the size of your system grows, the need to sort and filter alarms by priority, the resource they are associated with, the time they were generated, or which device generated them grows. The Alarm Management provides you with this advanced sorting and filtering capability. Filter setups can be saved for repeated use in the future.

The Alarm Viewer is your window into CIMPLICITY Alarm Management. As an ActiveX object, the Alarm Viewer can be embedded into your CimView screens, allowing you to create a single seamless interface for your process. You can view alarms from your node, or alarms generated by other CIMPLICITY Servers, providing a "global" alarm view.

Alarm Viewer supports both a static and dynamic mode. In static mode, you are in control of the scrolling of the alarms. This allows you to concentrate on the current situation without the screen constantly changing. In static mode, CIMPLICITY HMI software continues to monitor and record all new alarm events. Your static alarm view can be updated to show current alarms with the click of the mouse.

The dynamic mode allows you to see new alarms as they occur. Embedded as an ActiveX object, a dynamic Alarm Viewer provides you with the current information you need to go along with the graphical information on your screen.

Alarm Viewer also supports the advanced feature of Alarm Blocking, which generates a hierarchy of alarms, and displays only the primary alarms while preventing nuisance alarms from being generated.

Features

• Static and Dynamic Alarm Modes

• Can be embedded as an ActiveX object into CimView screens

• Sort and Filter Alarms by multiple parameters including:

  • *ID*

  • *Resource*

  • *Device*

  • *Time*

  • *Priority*

• Supports Alarm Acknowledgment and Deletion

• Configurable Display for Alarm Fields

• Alarm Blocking

CIMPLICITY Workbench™ and Power Tools™

Base Power Tools: *Basic Control Engine*

The CIMPLICITY Basic Control Engine provides flexibility for developing and implementing application solutions with CIMPLICITY software. This module *combines the power of the CIMPLICITY event handler with Visual Basic® styled scripting language, allowing you to script and program applications and routines from simple to complex.*

Features

The Basic Control Engine option consists of three main components—the Event Editor, the Program Editor and the actual Basic Control Engine. The Event Editor allows you to define actions to take in response to events that occur in a process. An event can be defined as a changing point, alarm state or even based on the time of day. One event may invoke multiple actions, or one action may be invoked by many events.

The Program Editor provides sophisticated development tools that allow you to create programs with a Visual Basic for Applications compliant programming language. These programs are then executed as actions in response to events. The programming language has a rich set of over 600 standard basic functions. The Program Editor provides the commands you would expect with a Visual Basic for Applications language and also provides an object interface to CIMPLICITY points, alarms, and the error logger, further enriching the language.
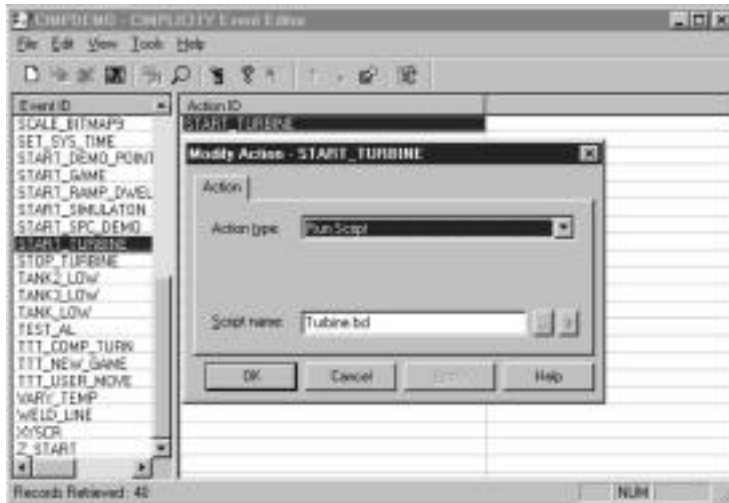
The Program Editor is a major productivity tool over programming in C or C++. The object interface to CIMPLICITY points can set or read point values in 1 or 2 basic calls versus the 15 or more calls which would be required to perform the same functionality with C or C++. The Program Editor presents a Multi-Document Interface to you for creating programs. Multiple scripts can be debugged and run in parallel or sequentially. The Program Editor supports setting watch points, examining and modifying variables, walking object data structures, stepping through the program, and generating execution traces.

Specific CIMPLICITY commands for creating programs include:

- Browse for existing points

- Edit existing points

- Create new points

- Set points

- Get point names and values from users at runtime

- Generate alarms

- Update alarm status

- Log status

The Basic Control Engine monitors for events and executes the configured actions. The Basic Control Engine is based on a multi-threaded design which allows the system to invoke and execute multiple Visual Basic programs concurrently.

Based on an event, the following actions can occur:

- Set point values

- Acknowledge or clear alarms

- Create log file entries

- Invoke specific user-defined actions

- Invoke Visual Basic programs to execute user defined logic

Basic control programs can be compiled as executables for faster execution.

Queued Script Execution

CIMPLICITY HMI's Basic Control Engine is more advanced than other packages on the market by providing for multi-threaded scripting (e.g. more than one script can be executed at the same time). Queued Script Execution further extends the power of the Basic Control Engine by allowing you to specify the order in which you want your scripts to be executed.

CIMPLICITY Workbench™ and Power Tools™

Base Power Tools: *Database Logger*

CIMPLICITY Database Logger uses the standard ODBC interface to log data to Microsoft Access Database Files, Microsoft SQL Server database* or an Oracle* database. This data can include alarms,

events and point values. From the database, you can retrieve the information for reports and a wide variety of ODBC-compliant applications. Database Logger runs only on CIMPLICITY Servers, but Viewers can access logged data from a Server.

You don't need to know about SQL or database internals to configure the database logging option. Simply select the items you want to log and the conditions under which you want them logged. The CIMPLICITY Database Logger takes care of the rest.

You can control precisely which data will be logged to your database. Select any combination of the point value, alarm state, or change in value. You can log individual points in detail, or you can group points together for trend analysis.

In addition, you can define multiple tables with different logging conditions and attributes to meet different needs within your facility.

You can configure database maintenance actions automatically to occur either periodically, or based on database size. Examples of maintenance actions are:

• Export the data to a CSV formatted file, then purge the data from the database.

• Execute a custom SQL or DOS command to purge the data from the database.

Note: Microsoft Windows 95 does not support the Microsoft SQL Server Database; Microsoft Windows NT on the DEC Alpha platform does not support Microsoft Access. Logging to Oracle requires an INTERSOLV ODBC driver, Version 3.01; INTERSOLV 919-461-4200.
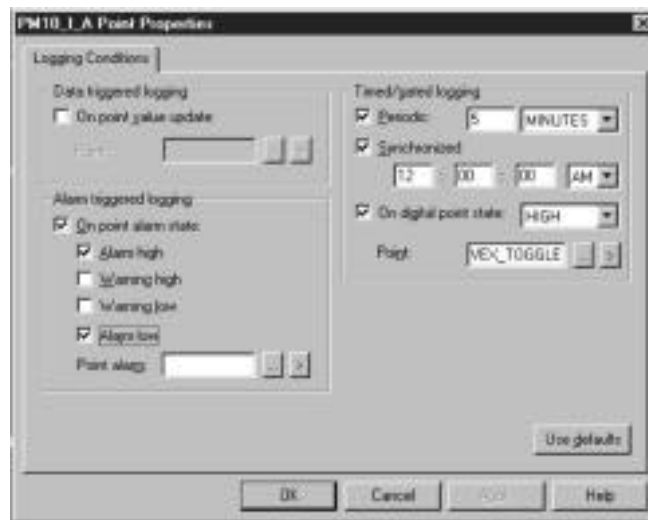
Store and Forward

Store and Forward is a powerful feature unique to the CIMPLICITY Database Logger. It supports logging data from one node to another CIMPLICITY node. If the network connection between nodes is lost for any reason, the local node can store the logged data until the network connection is re-established. Once reestablished, the local data is sent off to be logged in the central database.

Reporting

Because data is logged to a database, you can take advantage of the query features of the database to retrieve data for a variety of reports. For example, you can:

- Generate separate reports for events, alarms and point data.

- Generate reports for all available data or a specific time period.

- Export retrieved data to other products such as spreadsheets for further analysis.

Additional Features

- Logged CIMPLICITY data is available to any user on the network with sufficient privilege. CIMPLICITY Software is not required to view this data.

- Database Logging takes advantage of the multi-threaded capability of Windows NT to increase database throughput.

- You can log data from remote CIMPLICITY systems without interrupting the remote system.

- The database is updated dynamically, which insures that reports contain accurate, timely information.

Which Database Is Right For My Application?

To answer this question you need to consider the databases that are supported - Microsoft Access, Microsoft SQL Server, and Oracle. Microsoft Access is a product that Microsoft designed for the office environment. In general, this database should only be considered for single node, non-continuous applications with minimal logging requirements. The database was simply not designed for today's industrial applications.

GE Fanuc recommends Microsoft SQL Server or Oracle for your data logging applications. These databases are designed with the robustness required to support continuous data logging and volumes experienced with most monitoring and control applications.
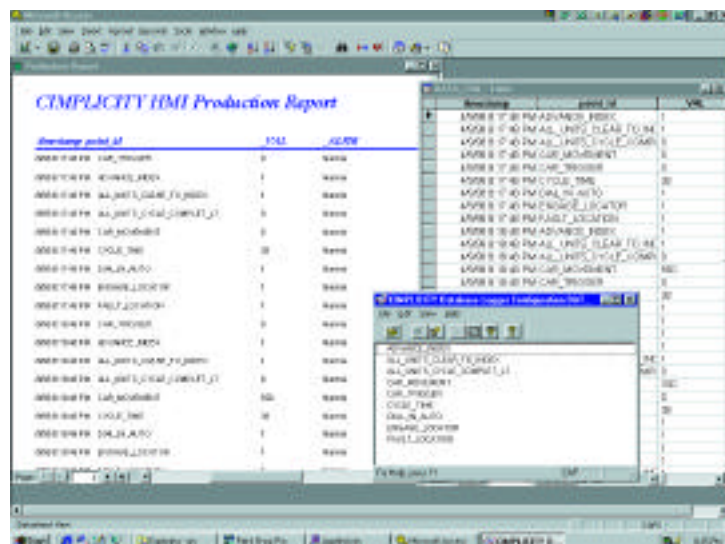
Base Power Tools: *Point Control Panel*

The CIMPLICITY Point Control Panel provides a listing of the points in your system, complete with dynamically updating values and alarm status.

This unique feature allows you to verify the data collection and alarm configuration of your system without configuring a single graphics screen, simplifying system implementation and maintenance.

Point Control Panel is easy to access. From the Workbench you can simply select a group of points, right mouse-click, and select it to bring the selected points in. In addition, you can also invoke the Point Control Panel from CimView screens. By simply clicking the right mouse button while over the screen, you can select to have all the points on the screen displayed in the Point Control Panel.

The Point Control Panel gives you the ability to:

• View local and remote points.

• Set local and remote points.

• Enable and disable alarm generation.

• Modify alarm limits.

Designed with the Microsoft Windows Style Guide in mind, you will find your interaction with this module natural and intuitive.

With the Point Control Panel you can filter which points you want to see. You can sort points by their names, which device they are collected from, or the resources they are associated with. You can then save your setup filtering parameters for repeated use.

Integrators and end users alike will find the exclusive functionality of the CIMPLICITY Point Control Panel indispensable. Check out your point and alarm configuration by viewing data values and alarm status before configuring a single screen. System checkout and troubleshooting is a snap with this innovative feature.
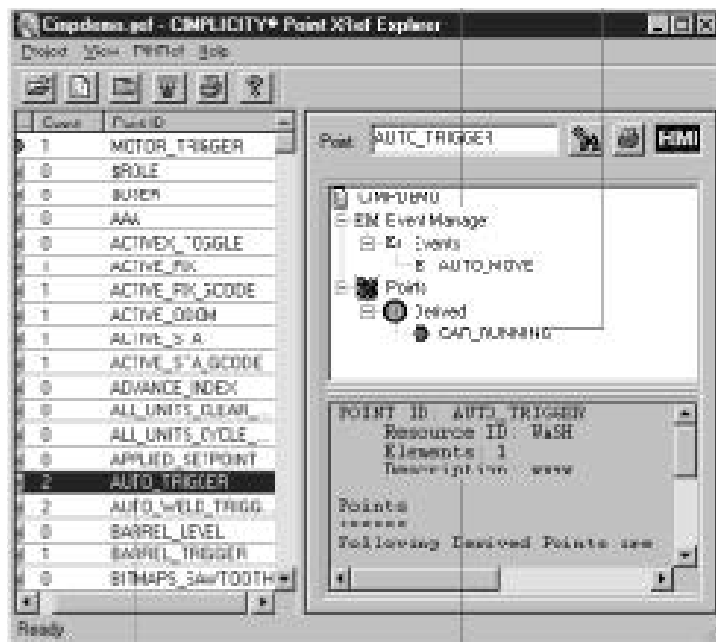

CIMPLICITY HMI
Workbench and
PowerTools

CIMPLICITY Workbench™ and Power Tools™

Base Power Tools: *Point Cross Reference*

Point Cross Reference is a feature that simplifies the development and maintenance of your CIMPLICITY HMI projects. With the Point Cross Reference tool you can see where and how CIMPLICITY Points are used within your project. You can see where a point is used in the following:

- *Point Configuration*
- *Event Manager Events and Actions*
- *Database Logging*
- *Basic Control Engine Scripts*

Point Cross Reference is a powerful tool that can greatly reduce the time required to commission a project.
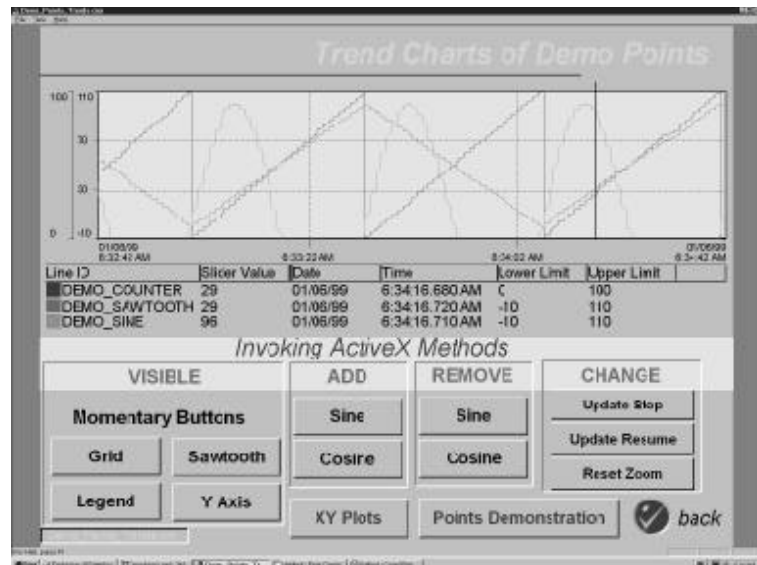
Graphic Power Tools: *Trending*

CIMPLICITY HMI Trending sets the standard for data analysis capabilities in the industry. Designed from the ground up to incorporate Microsoft's ActiveX technology, this module offers trending capabilities with superior flexibility and power. Based on GE Fanuc's long standing tradition for open architecture systems, Trending allows you to analyze data collected by your CIMPLICITY System or data from other third-party software packages. With Trending you can compare data from current process parameters to data from past processes, allowing you to quickly identify and correct process problems to increase production and productivity.

Features

- Fully Integrated With CimView

- Multiple Charts Per Graphic Screen

- Default Parameters For Easy Setup; Fully Configurable by the User

- Unlimited Number of Pens Per Chart

- Configurable Colors, Fonts, Line Styles and Legend

- Pens Can Represent Multiple Data Sources On The Same Chart.

- Current and Historical Data

- Third Party Data Files (CSV)

- Trend Array Points

- Different Plotting Rates Per Pen

- Dynamically Switch Pens

- Separate Axis Available For Each Pen

- Scroll Forward and Backward Through Plotted Data

- Smooth and Step Lines

- User Definable Labels for Pen Lines

- Dynamically Change Trends at Runtime

CIMPLICITY Workbench™ and Power Tools™

Graphic Power Tools: *Quick Trends*

How often have you had a problem in your process and thought to yourself, "I wish I could just pull up a trend on this process variable and watch what is going on." With CIMPLICITY Quick Trends your wish is a reality. With Quick Trends a trend chart is only a point and click away! From within CimView you can select any point which is included in the screen and have a Quick Trend pop up for the point. From the CIMPLICITY Workbench or the Point Control Panel you can simply select points you want to trend and have a Quick Trend pop up and show you how those points are changing.

CIMPLICITY Workbench™ and Power Tools™
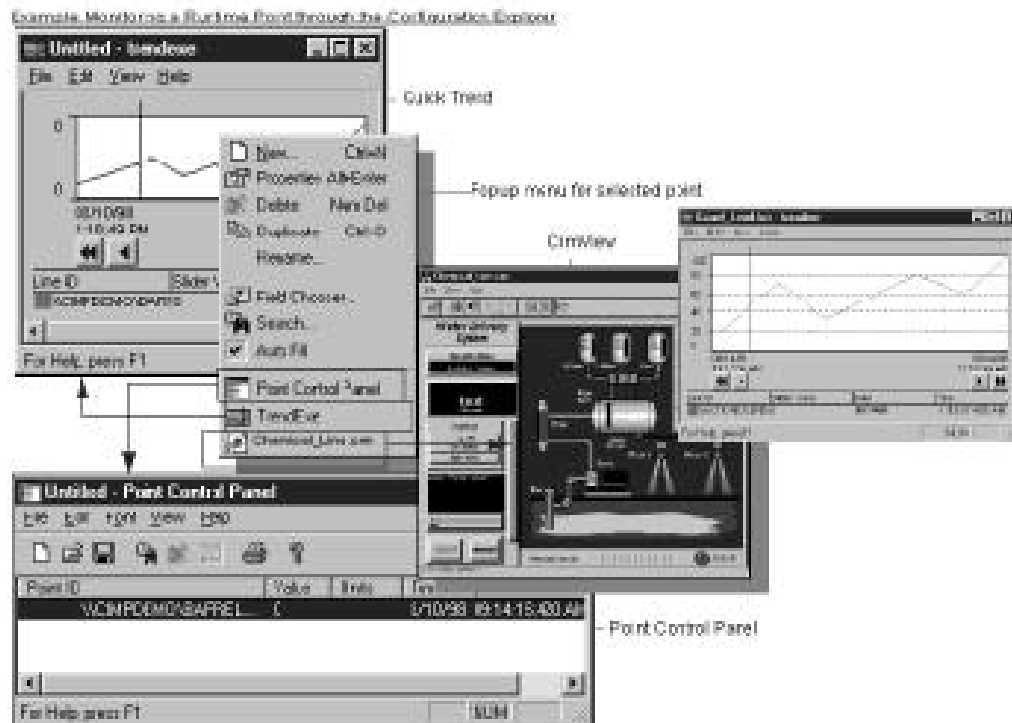
Graphic Power Tools: *XY Plots*

CIMPLICITY HMI supports XY Plotting of your process data. As an ActiveX object, XY Plots can be easily inserted into CimEdit/ CimView. XY Plots provide the ability to chart two or more variables against each other. XY Plots are very flexible and allow you to

define multiple X or Y axes. Ever wanted to plot Temperature vs. Pressure to see if the old college text-books were right? Now you can!

XY Plots provide an interface to the Basic Control engine through ActiveX methods. You can use the Basic Control Engine to feed data you want to be plotted.

CIMPLICITY Workbench™ and Power Tools™
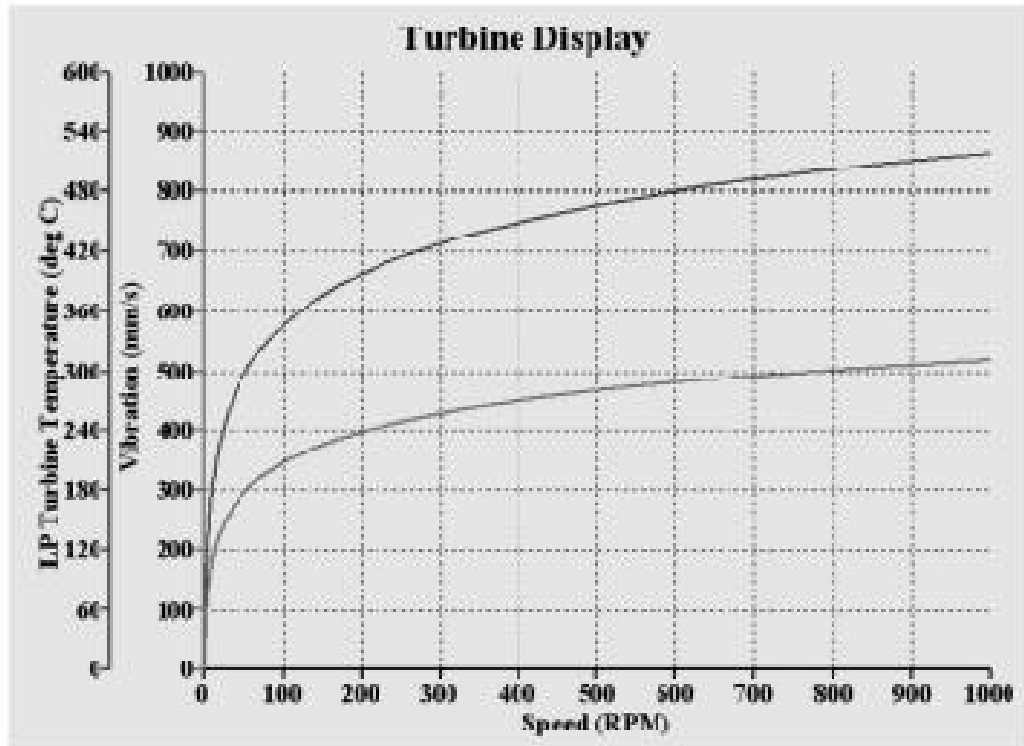
Graphic Power Tools: *Symbols and SmartObjects™ Library*

SmartObjects extends the COM (Component Object Model) based design of CIMPLICITY HMI to a new level. Both creation and maintenance of your system are easier with SmartObject technology. With SmartObjects you can create objects which can easily be dragged and dropped from the CIMPLICITY

Object Explorer into your screens. When dropped, you can be automatically prompted for required configuration information, such as the points to associate to the animation of the object. The advanced capabilities of SmartObjects allows you to construct objects that can automatically create the complete point configuration associated with the SmartObject.

The new technology provided by SmartObjects includes:

Linked Objects

Linked Objects save you valuable time by providing you with the ability to change a single object and have those changes reflected throughout the system. With Linked Objects you create a master object. As you create new screens, you reference this object. If you ever want to change the object, simply modify the master and then let CIMPLICITY HMI finish the job by updating every screen with a link to the master object in the entire project. With linked objects you can easily create templates which can be used over and over again, reducing system design and maintenance costs.

Linked Scripts

Linked Scripts are similar to Linked Objects. If you associate a script to a master object, the script is carried through to each screen which references it. If you ever need to change the script, the changes will then be reflected in all of the reference screens.

Object Model

The Object Model is a unique feature that provides an extensive external programming interface for CimEdit and CimView. The Object Model provides you with the ability to programmatically create and modify any screen with the same capabilities provided from CimEdit. The Object Model also allows you to have complete control of CimView from either a script embedded in CimView or from any Visual Basic application. If you are looking for a way to greatly reduce the time required to create new systems based on design and requisition data, the Object Model provides this capability.
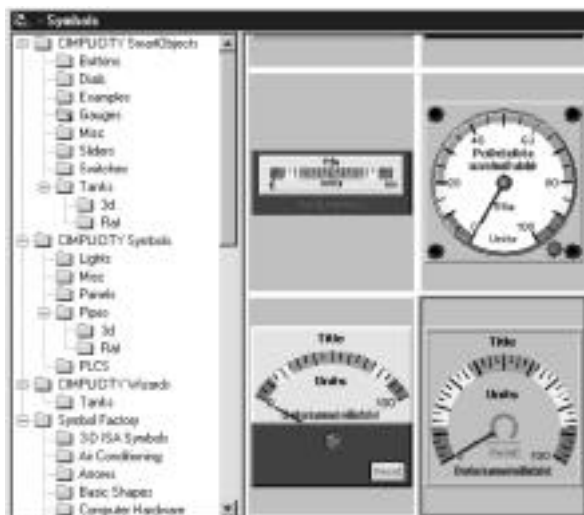
System Points

CIMPLICITY HMI provides a wide range of pre-defined system points that include a wide variety of topics such as alarms, date and time, project, and computer information. System points increase your development productivity by exposing internal system information to you. Since this information is exposed as CIMPLICITY points, it can be used by the standard CIMPLICITY HMI components such as CimView, CimEdit, and the Basic Control Engine.

CIMPLICITY was built from the ground up to handle the most demanding multi-user applications. In a multi-node system the need to obtain system information from a server versus the local viewer is key. With the implementation of System Points, GE Fanuc has delivered this important distinguishing feature. The list below summarizes the system points provided. The nomenclature of $Project refers to the server node while $Local refers to the computer where you are currently working.

Point	Description
$USER	Logged On User
$ROLE	Role of the Logged On User
$LOCAL.COMPUTER	Computer Name
$LOCAL.WINUSER	Windows User Name
$PROJECT.COMPUTER	Server Computer Name
$PROJECT	Project Name
$PROJECT.AVAILABLE	Project Availability
$PROJECT.LOGGEDIN	Logged In Status
$PROJECT.DEVICES	Number of Devices Online
$PROJECT.USERS	Number of Users
$PROJECT.DATETIME	Server Date and Time in Seconds from 1/1/1970
$PROJECT.DATE.YEAR	Current Year (1970-2039)
$PROJECT.DATE.MONTH	Current Month (1-12)
$PROJECT.DATE.DAY	Current Day in Month (1-31)
$PROJECT.DATE.WEEKDAY	Current Day in the Week (1-7)
$PROJECT.DATE.DAYOFYEAR	Current Day in the Year (1-356)
$PROJECT.DATE.WEEK	Current Week in the Year (1-52)
$PROJECT.DATE.HOUR	Current Hour in the Day (0-23)
$PROJECT.DATE.HOUR12	Current Hour on a 12-hour Clock (1-12)
$PROJECT.DATE.MINUTE	Minutes Past the Hour (0-59)
$PROJECT.DATE.SECOND	Seconds Past the Minute (0-59)
$PROJECT.DATE.SECOFDAY	Seconds Past Midnight (0-59)

CIMPLICITY Features

Point	Description
$PROJECT.DATE.AMPM	0 for AM, 1 for PM
$LOCAL.DATE.TIME	Local Date and Time in Seconds from 1/1/1970
$LOCAL.DATE.YEAR	Current Year (1970-2039)
$LOCAL.DATE.MONTH	Current Month (1-12)
$LOCAL.DATE.DAY	Current Day in Month (1-31)
$LOCAL.DATE.WEEKDAY	Current Day in the Week (1-7)
$LOCAL.DATE.DAYOFYEAR	Current Day in the Year (1-356)
$LOCAL.DATE.WEEK	Current Week in the Year (1-52)
$LOCAL.DATE.HOUR	Current Hour in the Day (0-23)
$LOCAL.DATE.HOUR12	Current Hour on a 12-hour Clock (1-12)
$LOCAL.DATE.MINUTE	Minutes Past the Hour (0-59)
$LOCAL.DATE.SECOND	Seconds Past the Minute (0-59)
$LOCAL.DATE.SECOFDAY	Seconds Past Midnight (0-59)
$LOCAL.DATE.AMPM	0 for AM, 1 for PM
$USER.ALARMS	Alarm Count by User
$ALARM.TOTAL	Alarm Count
$ALARM.ACKED	Alarms Acknowledged
$ALARM.UNACKED	Alarms Unacknowledged
$ALARM.DELETED	Alarms Deleted
$ALARM.RESET	Alarms Reset
$ALARM.GENERATED	Alarms Generated
$ALARM.GENPERSEC	Alarms Generated per Second
$CLASS<Alarm class name>.ALARMS	Alarm Count by Class
$CLASS<Alarm class name>.UNACKED	Unacknowledged Alarm Count by Class

Dynamic Measurement Systems

Some parts of the world use grams, meters and liters while others use pounds, feet and gallons. The English versus Metric measurement systems have always presented a problem to integrators and OEMs who would like to design a system for today's global world. CIMPLICITY Dynamic Measurement Systems allows you to do just that. Now you can develop your CIMPLICITY HMI projects so you can dynamically switch between measurement systems. You can use the pre-configured English and Metric systems, or even configure your own measurement systems. At runtime you can simply switch measurement systems with a point and click. Now your screens will change not only the values displayed, but any associated units as well.

CIMPLICITY Features

Configuration Import/Export

The Configuration Import/Export utility is an integral part of the CIMPLICITY Server for Windows based products, and enhances the existing Point configuration modules by allowing you to import and export point configuration data via Comma Separated Variable files.

For example, you can:

• Manage your point configuration data using an application such as Microsoft Excel, Microsoft Access, a text editor, or a database report writer, then use this utility to import the data into your CIMPLICITY HMI data files.

• Export your CIMPLICITY HMI configuration data to a third party application to create customized configuration reports.

• Export configuration data from a UNIX or VMS based CIMPLICITY system and import it into a Windows NT or Windows 95 System.

Features

• Data is read from and written to text files in CSV format to insure compatibility with a wide variety of third party spreadsheet and database applications.

• You may import and export data in Full Set or Reduced Set format. The Full Set format contains all the fields supported by Import/Export. The reduced set format allows you to share the CIMPLICITY HMI configuration with your GEFanuc PLC configuration. The data in this format can be used by Logicmaster™ 90 to populate its point database.

• You can use this utility to easily replicate configuration information from one device to several. By importing data into a spreadsheet or database, you can modify the configuration of many points in a short time.

• You can configure multiple systems using the same point information. For example, you can use a spreadsheet to create and modify point data, then import the data into both your CIMPLICITY point database and PLC programming software.

• When importing data into your CIMPLICITY HMI configuration, you can choose to add a prefix to all the points in the import file at run time.

• When exporting data from your CIMPLICITY HMI configuration, you can choose to delete point prefixes.

• The ability to add and delete point prefixes when running the Import/Export utility will let you maintain unique Point IDs within CIMPLICITY HMI, while allowing you to use the same base point names on multiple PLCs.

DDE Interface to Applications

The CIMPLICITY DDE Interface uses the Microsoft standard Dynamic Data Exchange (DDE) to provide Microsoft Windows products with easy access to CIMPLICITY point data. You can integrate your favorite software package that supports DDE with the CIMPLICITY DDE Interface to monitor, analyze, report, or modify CIMPLICITY point data. Since many existing products currently support DDE, this provides an extremely powerful and flexible tool. In addition to the DDE Interface, CIMPLICITY provides DDE Client communications for data collection from third party devices. Please refer to the Device Communication section of this catalog for information on DDE Client communications.

Features

As a DDE Server, the CIMPLICITY DDE Interface provides easy access to live data using the standard DDE communication mechanism. Data is exchanged in the common clipboard text format.
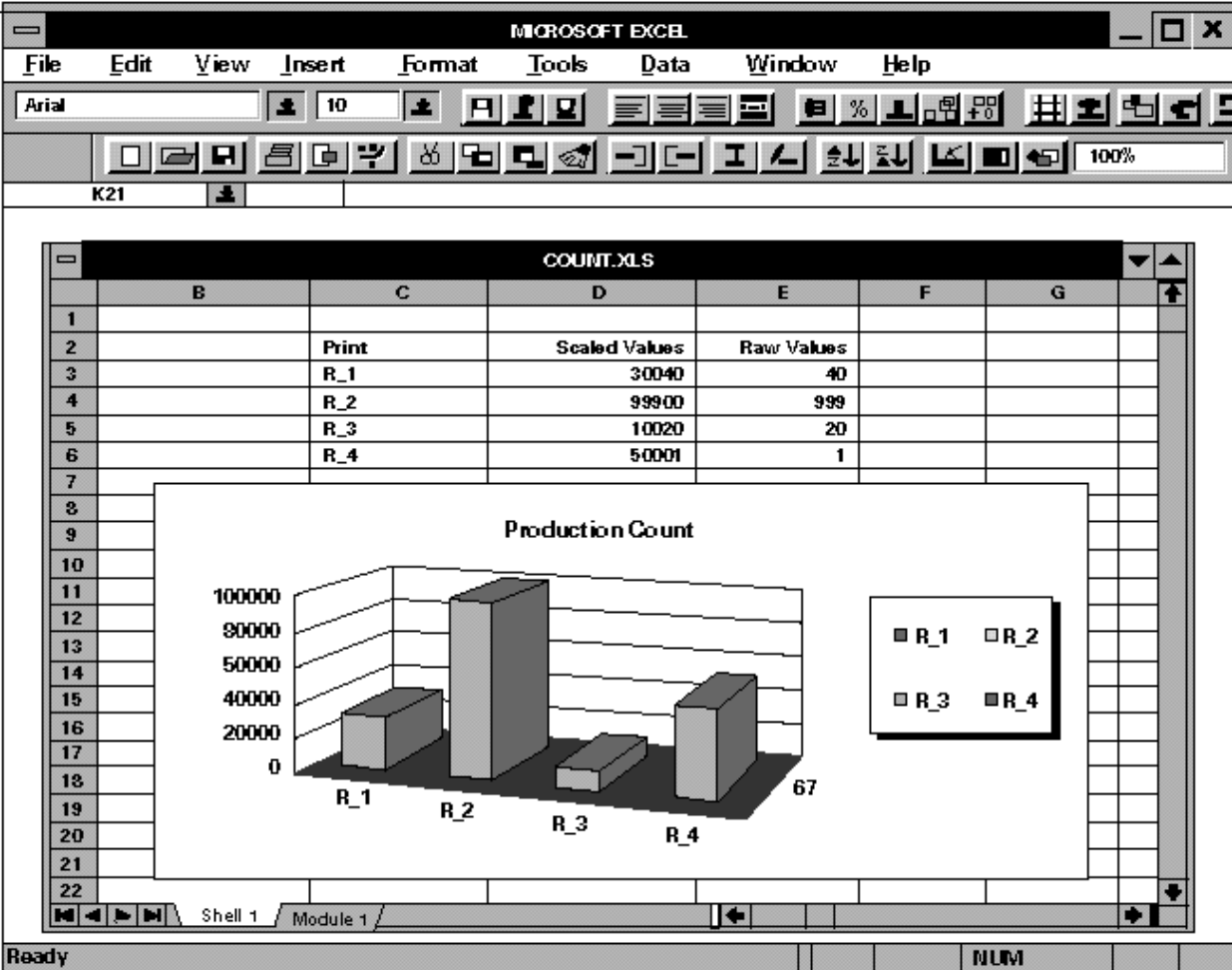
CIMPLICITY Features

Using the CIMPLICITY DDE Interface, you can:

• Request a single copy of CIMPLICITY point information.

Many point attributes are supported, including the following:

- *Value*
- *Warning Limits*
- *Data Type*
- *Display Format*
- *Raw Value*
- *Display Limits*
- *Elements*
- *Engineering Units Label*
- *Alarm State*
- *Data Size*
- *Configured Initial State*
- *Alarm Limits*
- *Warning State*
- *Data Length*

• Request continual updates of point value and/or point state information.

Your Microsoft Windows DDE client application will receive updated data when the point value or state changes.

• Retrieve the engineering units value or the raw value for a point.

• Retrieve point values with the following data types:

- *Analog*
- *Digital*
- *Floating Point*
- *Character String*

• Modify the current value of a CIMPLICITY point via a DDE Poke command.

• Access point data from any CIMPLICITY node on your network by simply specifying the node name in combination with the point name for any point on the network.

• Request and set array point values, including individual elements, the entire array, or a subset of the array. You can specify that array values be retrieved and sent in column or row order.

• Retrieve information about the CIMPLICITY DDE Server through the DDE System topic. Information is provided which lists the supported DDE topics, formats, system items and general help information.

244

Option Power Tools: *CIMPLICITY Action Calendar*

The CIMPLICITY Action Calendar allows you to implement calendar-based control operations. With the Action Calendar you can dynamically create, maintain and execute a calendar schedule of manufacturing events and corresponding actions. With the Action Calendar you can turn on lights, heat and equipment based on a schedule which you configure and maintain through simple point and click actions.

Action Calendar Configuration and Operation

Configuration of the Action Calendar is easy. The Action Calendar allows you to define different types of days—production, weekend, holidays. You can configure the events and corresponding actions you want to occur on the different types of days you create. Once your schedule is created, you can easily modify it to accommodate any changes required.

The Action Calendar executes the events and actions you have specified. Want to change a schedule? No problem. The Action Calendar accepts dynamic changes or overrides to your schedule.

Action Calendar Benefits

How do you measure the benefits of a feature not available in other products? Saving time and money is one way. Through the CIMPLICITY Action Calendar's simple point and click configuration interface you can easily setup a schedule of events to be executed throughout the day. With the competition, specialized programming would be required to match the Action Calendar's functionality. The CIMPLICITY Action Calendar saves you considerable time in configuring your system, but it does not stop there. You save time every day with the ability to easily alter your schedule to meet your production needs. And we all know that in today's world, time is money!

The CIMPLICITY Action Calendar allows you to reduce operating expenses. With the Action Calendar you can reduce energy costs by adjusting manufacturing and facility support equipment to the production schedule. It provides the ability to turn lights and heat on and off based on user defined work, weekend, or holiday schedules, so you can adapt your production operations to flexible work shifts. The Action Calendar helps you cut costs and improve productivity. You can optimize your production or maintenance activities by scheduling calendar-based events to occur according to a schedule which you pre-define and control.

The CIMPLICITY Action Calendar is yet another reason why CIMPLICITY HMI stands above the competition. No other package offers the ability to define a flexible calendar to execute scheduled actions to the production floor.

Action Calendar—What do I Purchase?

The Action Calendar Power Tool is sold as an option for CIMPLICITY HMI Servers and Viewers. The Action Calendar is installed on HMI Servers where you want the control to occur. In addition, the Action Calendar can be purchased for HMI Viewers to allow the schedule to be reviewed or modified remotely. The Action Calendar will allow schedule configuration changes from Development and Runtime Systems on both HMI Servers and Viewers.

CIMPLICITY HMI Workbench and PowerTools

CIMPLICITY Workbench™ and Power Tools™

Option Power Tools: *Historical Data Analyzer*

The Historical Data Analyzer provides a powerful set of tools to maximize the value of your CIMPLICITY data. The Historical Data Analyzer includes

enhanced data logging functions, historical data viewing, and data modification and recalculation. These functions can be set up at configuration without the need for complex C programming or SQL query commands.

Are you faced with questions like—

• "What were the average daily emissions from process X?"

• "What was the maximum temperature the process has achieved over the last week?"

• "What are the accumulated production totals for the last month?"

The CIMPLICITY Historical Data Analyzer can provide answers to your questions.

Automatic Recalculation

The Historical Data Analyzer does more than just collect data. It automatically recalculates the results of your queries as new data is collected. While other systems might allow you to log data into a database, the only way you can create summarizations is through C language programming and SQL commands.

The CIMPLICITY Historical Data Analyzer not only solves the problem of automatic re-calculation, but it allows you to send the resultant data back to CIMPLICITY HMI as point information. This means the data can be viewed in graphic screens like any other CIMPLICITY point data. Historical Data Analyzer data can also be trended in screens as well. Again, you can accomplish all these tasks without any programming.

In some industries, users have to be able to modify data after it is collected. The Historical Data Analyzer can tackle this job with ease. Your configured calculations can be rerun automatically to generate new results, and you can add comments to the collected or modified data without writing any programs.
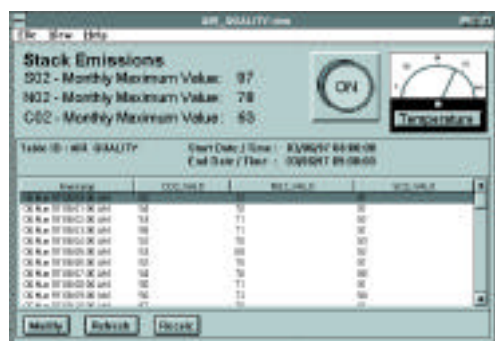
Types of Calculations

The Historical Data Analyzer's advanced summarization functions let you select the type of analysis you wish to be performed automatically on your collected data at specified time periods. These calculations include:

• Average

• Accumulator

• Rate of Change

• Minimum Value

• Maximum Value

• Last Valid Value

Time periods can be standard periods such as minutes, hours, days, weeks, months, or years.

User Access

You can easily embed the Historical Data Analyzer OLE Control in a CIMPLICITY CimEdit/CimView screen and view and edit your data using this interface. You can also modify collected data or add comments. Finally, you may initiate a recalculation of all data dependent on modified values.

Competitive Advantages

Other products must rely on custom programming and detailed knowledge of SQL to provide functionality similar to that provided by the CIMPLICITY Historical Data Analyzer. With the Historical Data Analyzer all you need to do is configure your data analysis rather than code and compile a custom-built solution. Ease of use, power, and flexibility—you'll find them all in the CIMPLICITY Historical Data Analyzer.

Databases Supported

The Historical Data Analyzer uses standard CIMPLICITY logged data. It works seamlessly with Microsoft Access, Microsoft SQL Server, and Oracle databases.

Option Power Tools: *Integrator's Toolkit*

The CIMPLICITY Integrator's Toolkit includes four powerful Application Programming Interfaces (APIs) that enable users to develop custom applications that integrate seamlessly with CIMPLICITY HMI. By providing the same tools that GE Fanuc's own developers use to create new CIMPLICITY applications, these tools set the standard for open, extensible monitoring and control systems. New device communications interfaces or applications that access CIMPLICITY run-time point and alarm data can also be built using standard Microsoft C/C++ and the Microsoft Developers Studio®.

Device Communications Toolkit

The Device Communications Toolkit provides an interface to CIMPLICITY HMI project configuration data and run-time functions, making it an excellent tool for developing custom I/O device communications interfaces. You can create new device communications functions by writing the custom functions required to define a device model and read and write device data. The toolkit provides the overall framework in which these functions are called.

The Device Communications Toolkit provides the following advanced features:

- Management of multiple polling rates
- Retry following communications error
- Alarm on communications failures
- Support for unsolicited PLC data
- Automatic poll after set point
- Interface to project configuration
- CIMPLICITY HMI dynamic configuration

Point Management API

The CIMPLICITY Point Management API provides all the tools you need to develop sophisticated applications that access the CIMPLICITY run-time point data base. In addition, the Point Management API provides important point configuration data and tools that will help you organize your application.

Through the API, you can create and manage "shopping lists" of points. Each list may contain any of the following request types:

- Snap Shot: get the current value for the point

- On-Change: get the current point value and receive updates automatically when the point's value changes

- On-Alarm: get the current alarm state of the point and receive an update automatically when the point's alarm state changes

- Timed: receive the current point value periodically

- Set point: set the value of the point

CIMPLICITY distributed architecture provides access to remote projects as well as to the local project.

Alarm Management API

The Alarm Management API consists of the core Alarm Management API and its extensions, the Alarm Interested Process API and the Alarm Viewer API. These powerful tools provide the interface to CIMPLICITY HMI's run-time alarm system.

The Alarm Management API lets you generate custom application alarms independent of alarms based on points. With this interface you can generate, update, and clear alarms.

The Alarm Management API also provides an Alarm Manager Extension for use in cases where tight coupling of alarm management systems among third-party packages is required. For example, you can incorporate time critical alarms from a turbine control system with this tool.

The Alarm Interested Process API can be used to develop extended alarming functions and to generate special application alarms. By creating an "Alarm Interested Process," you can set your application to receive notification of all new alarms and changes to alarm states.

The Alarm Viewer API, the second extension within the Alarm Management API, lets you develop an alarm viewer similar to CIMPLICITY but customized to your own needs.

Login API

The Login API is designed to allow you to develop and implement your own login dialog to CIMPLICITY HMI. While the HMI product provides security protection through a standard login dialog, high security applications may require even more advanced user ID and password verification dialogs. You can create login dialogs with the flexibility, style and security you require that can be executed from CimView or from scripts within the BCE (Basic Control Engine). With the Login API you can now create a user interface to meet your most demanding login needs.

CIMPLICITY HMI Integrator's Toolkit

- **Point Management API**
- **Alarm Management APIs**
- **Device Communications Toolkit**

Provide the tools to create and Link Third Party / Custom Software With CIMPLICITY

CimView Graphics, Alarms, Trends, etc...	**Send and Receive Point Information** To Third Party Software	**Send and Receive Alarm Information** To Third Party Software

Point Management API   **Alarm Management APIs**

CIMPLICITY HMI Real Time Point Database

CIMPLICITY Device Communications

Device Communications Toolkit

PLC/Device   **Devices**   **PLC**

Option Power Tools: *Marquee*

The Marquee product option may be the most economical way to share system information with a large number of users. Marquee devices have been used for years in the automotive industry. With marquees mounted in the aisle ways, users can easily obtain current status information about a process. If there is a production or process problem, it is displayed for all users in the area to see. Operators and maintenance personnel immediately know about problems and can respond faster to help reduce downtime.

GE Fanuc has taken the many years of experience gathered in interfacing to various marquee devices, and bundled it into the Marquee product option. The Marquee product option provides the ability to send informational and alarm messages to multi-line marquee display devices.

The Marquee option can save you time and money in implementing a system to distribute critical information to your workforce. The Marquee option is fully configurable. No custom coding is required to retrieve alarm or message information. You can determine which set of CIMPLICITY alarms you want to send to the actual marquee device. For each Marquee message, you assign a message ID, Alarm ID, alarm state, message header, message footer, message text, the marquees on which to display the message, the attributes associated with the message, and any CIMPLICITY point values to be displayed with the message.

While GE Fanuc does not endorse or claim compatibility with all marquees, the CIMPLICITY Marquee driver works with marquees produced by UTICOR Technology, Inc., Total Control Products, Inc., Static Controls Corporation and American Ledgible, Inc.

Marquee—yet another example of how CIMPLICITY HMI helps Integrate People With The Process!

CIMPLICITY Workbench™ and Power Tools™

Option Power Tools: *CIMPLICITY OPC Server*

Following GE Fanuc's commitment to Open System standards, the introduction of OPC Server to the CIMPLICITY HMI product line now provides users with yet another method for sharing their system data. While the OPC Client capabilities of the product allow for easy integration of third party device communication drivers, the OPC Server provides the same open integration capabilities to third party software packages that wish to receive data from CIMPLICITY.

OPC (OLE for Process Control) is an emerging standard that is rapidly gaining acceptance among vendors of HMI and process automation products. As one of the first vendors to release support for OPC, GE Fanuc demonstrates its commitment to open systems and the support of new, open technologies. OPC is a new standard that builds on the success and strength of the Microsoft operating systems and OLE (Object Linking and Embedding). The design of OPC was initiated in 1995, and was targeted at providing a standard for interoperability among control applications, field systems and devices, and business and office applications. OPC is endorsed by Microsoft and the OPC Foundation which developed the technical specification. The OPC Foundation now includes over 140 members with broad representation from the process control industry, including GE Fanuc Automation.

OPC Benefits

- Cost savings in application integration by providing a simple plug and play interface for multiple vendors

- Technology that is more robust and is faster than DDE

- Freedom to select vendors who provide the best of class solution rather than being captive to a single vendor with a proprietary product

- Standard supported by Microsoft
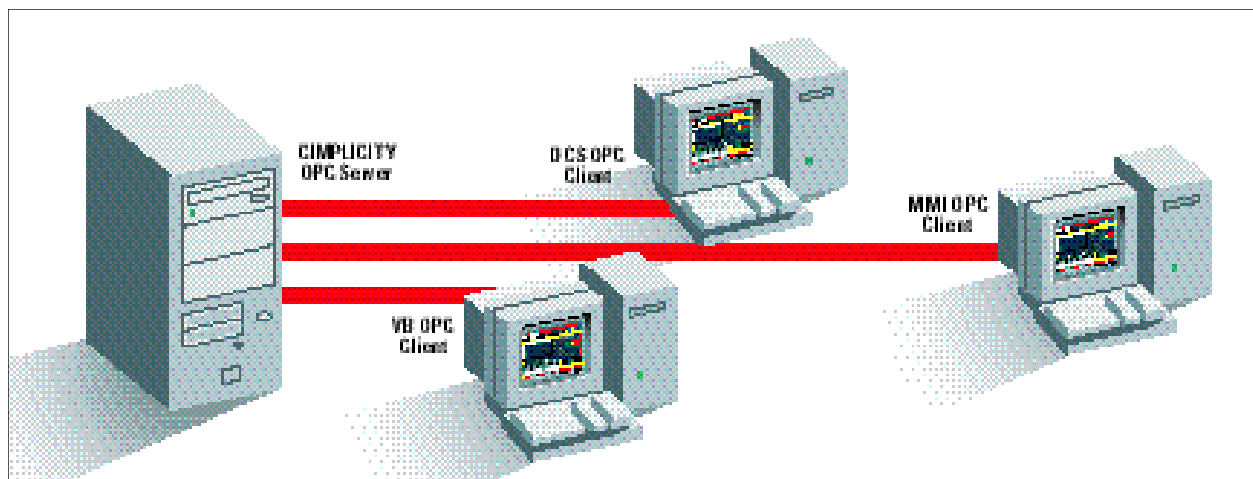
With the CIMPLICITY OPC Server you have an open system approach to integrating CIMPLICITY HMI with your other software applications.

Option Power Tools: *CIMPLICITY Pager*

The CIMPLICITY Pager, based on Netcon's FirstPAGE technology, allows complete integration of your CIMPLICITY HMI alarms with any standard external paging systems based on the standard IXO and TAP protocols. This includes Sky-Tel and local city paging systems. It's ideal for applications where operators must move freely around the facility.

Do you have these types of concerns?

- "What is the current production count?"

- "How can I be alerted if a critical process is trending out of spec before it's too late?"

- "Has a process shut down?"

- "Do I need to call the plant to check up on a condition?"

CIMPLICITY Pager keeps you connected.
Get ahead of problems before they become a crisis!

CIMPLICITY Pager features also include:

- On line configuration of users and paging numbers.

- The ability to enable or disable users from receiving pages.

- Escalating pages linked to alarm states and other conditions.

- Filtering of pages based on CIMPLICITY resources, alarm classes or alarm IDs.

- Dynamic on-line configuration.

- CIMPLICITY Basic Control Engine interface for automatically sending pages, changing a user's pager number or disabling a page.

- Customizable pager messages.

- Configuration templates for fast setups.

- Support of distribution lists.

Architecture

CIMPLICITY Pager is an Option Module which is purchased for each HMI that requires server alarms. HMI's client/server architecture allows users to centralize pages from a single node.

CIMPLICITY Pager supports external pagers through modems. With the purchase of CIMPLICITY Services and Support, CIMPLICITY Pager can be connected to in-house paging systems. Please contact your CIMPLICITY sales representative for an implementation and support quotation.

Process Information in the Palm of Your Hand

CIMPLICITY Pager Software IC646NPG900 installed

CIMPLICITY Workbench™ and Power Tools™
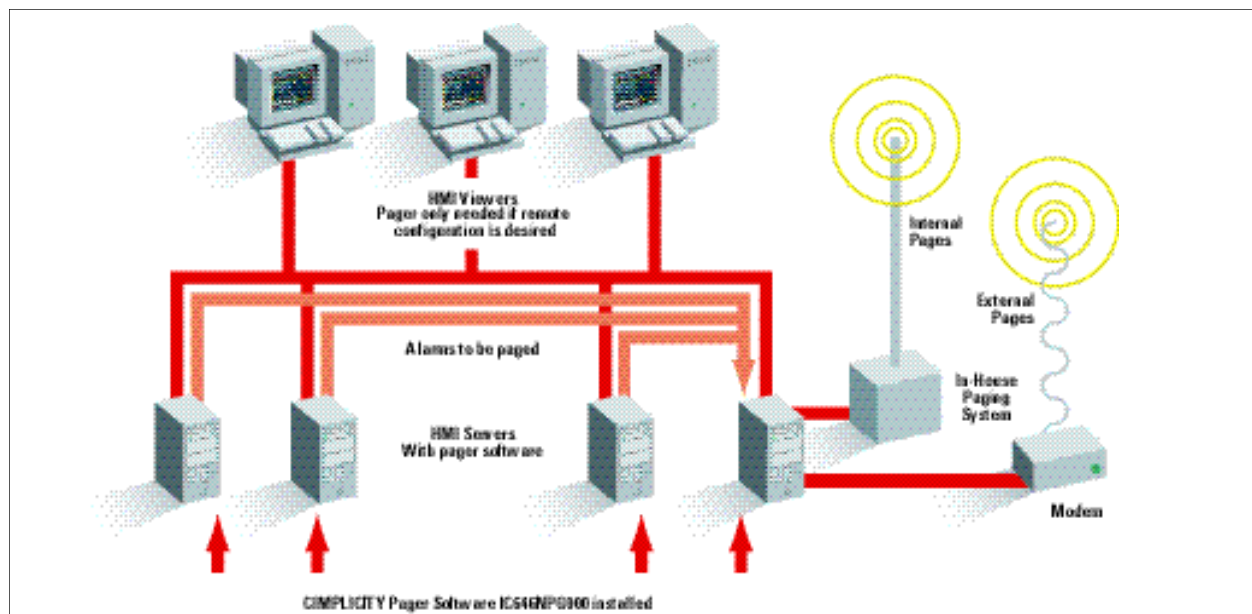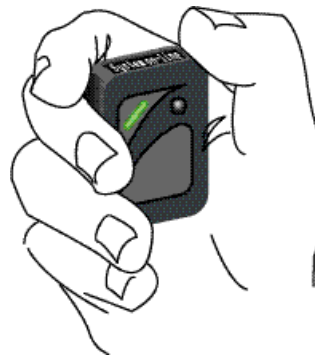
Option Power Tools: *Recipes*

CIMPLICITY Recipes is a powerful, yet easy to use option module which allows you to create, maintain, upload and download Recipes to your production processes. With CIMPLICITY Recipes, the cost and complexity of designing and managing your Recipes is greatly reduced. You will find it easy to download Recipes through CimView. In addition, you can design and maintain your recipes through a Windows based interface. Ease of use, coupled with power and flexibility, makes CIMPLICITY Recipes the natural choice.

CIMPLICITY Recipes has been designed with the flexibility required to fulfill batch and discrete part processing requirements. A recipe is a group of set-points that are used together in a group for changing a process.CIMPLICITY Recipes can perform manual as well as automatic uploads and downloads of Recipes based on system events.

The user interface for creating and configuring recipes was designed following the Microsoft User Style Guide. The result is a simple and intuitive user interface. Recipe architectures are laid out as a tree structure similar to the directory layout style you are familiar with under the operating systems. This lay-out provides you with a high level overview, while allowing you to quickly see details in a corresponding table with the click of the mouse.

CIMPLICITY Recipes allows you to maintain device independent Recipes, sending a common set of para-meter values to the equipment of your choice. In contrast to some competitors' systems, you no longer must maintain separate Recipes for each piece of equipment. This simple and intuitive configuration process can save you hours of setup and on-going maintenance of your Recipes.

RecipeConfig-Bread

File   Edit   View   Tools   Tree   Grid   Help

	ID	Units	New Line	Old Line	White	Raisin	Rye
1	Yeast	oz	PT_1	PT_700_PLC1	2	2	2
2	Water	Gals	PT_2	PT_701_PLC1	20	30	23
3	Milk	Gals	PT_3	PT_703_PLC1	40	35	40
4	Sugar	Lbs	PT_4	PT_704_PLC1	15	15	13
5	Shortening	Cups	PT_5	PT_705_PLC1	10	10	12
6	Salt	TSP	PT_6	PT_706_PLC1	1	1	1
7	Flour	Lbs	PT_7	PT_707_PLC1	50	50	0
8	Raisins	Cups	PT_9	PT_112_PLC1	0	10	0
9	Molasses	Cups	PT_10	PT_113_PLC1	0	0	10
10	Rye Flour	Lbs	PT_11	PT_114_PLC1	0	0	50
11	Caraway Seeds	Tbs	PT_12	PT_712_PLC1	0	0	13
12	Temperature	Deg F	PT_13	PT_1310_PLC2	425	425	420
13	Mix Time	Min	PT_14	PT_1908_PLC2	15	15	17.5
14	Bake Time	Min	PT_15	PT_2506_PLC2	25	25	29

Tree structure:
- Bread
  - Parameter Attributes
    - ID
    - Data Type
    - Units
    - Low Limit
    - High Limit
    - Default Value
    - Default Source Point
  - Recipes
    - White
    - Raisin
    - Rye
  - Maps
    - New Line
    - Old Line

Bread

Features

Recipes Configuration Interface

CIMPLICITY Recipes has an easy to use configuration interface rich with the following capabilities that let you:

- Create and manage Recipe Parameters, Recipes and Maps side-by-side in a spreadsheet format.

- Import and export Recipe Groups from/to CSV format files.

- Archive Recipe Groups.

- Automatically reconcile Recipe Groups to accommodate changes in the Group's structure and layout.

- Compare Recipes.

- Manually Upload Recipes.

- Manually review/modify parameters and Download Recipes.

- Create Recipe Parameter Files, which supply the information required to automatically Upload and Download Recipes.

Recipe in CimView

Recipe objects can also be embedded in CimView screens (using OLE Controls). These objects let a run-time user:

- Manually Upload Recipes.

- Manually review/modify parameters, then Download Recipes.

Basic Control Engine Interface for Recipes

Recipes provides a Scripting interface (using extensions to the Basic Control Engine) that lets you do the following:

- Automatically Upload and Download Recipes based on system events, such as point changes from a shop floor device.

- Import and export Recipe Groups from/to CSV format files.

CIMPLICITY Workbench™ and Power Tools™

Design Highlights

The best way to understand the power of CIMPLICITY Recipes is through a simple example of how recipe configurations are maintained. Recipe configurations are maintained in Recipe Groups.

Conceptually, a Recipe Group is like a table. The layout of a Recipe Group contains information such as the Parameters, which define the components used to produce the product. The Parameters and their Units would be the first two columns of the table. Other columns in the table would contain the Maps and Recipes.

In the example on the next page, the Recipe Group is "Bread". It contains the Recipes to make White, Raisin and Rye bread. These breads have similar ingredients and processes so they are stored in one Recipe Group. Parameters (column 1) list the ingredients used to make bread, along with process parameters such as temperature, mix time, and baking time. Parameters can have Units associated with them (column 2). Maps (columns 3 and 4) specify the points where the values are to be downloaded. Maps do not have to be contiguous areas of memory, and can span several PLCs. Maps can also specify virtual points—those points which are used by the user at the system level but do not exist in any PLC. Recipes (columns 5-7) contain the actual values to be downloaded to produce a particular product.

At runtime, you can download a recipe by specifying the Recipe Group, Recipe and Map. You can specify that you want to make Rye bread on the Old or New Production Line. Of course, this can be done through a CimView screen with the click of the mouse. This flexibility, the ability to chose which recipe to download to which equipment, provides you with the power you need to manage and control your production processes.

Summary

CIMPLICITY Recipes provides you with the following:

- Simple User Interface for Operators and Engineers

- Flexible Design Allowing Similar Recipes to be Maintained as a Group

- Recipes Which Can Span Multiple Programmable Devices

- Recipes Which Can Span Multiple Brands of Programmable Devices

- Manual and Automatic Upload and Download of Recipes

- Comparison of Recipes

- Automatic Reconciliation of Recipe Groups

- Import/Export of Recipes to CSV Files

Recipe Group: Bread

ID	Units	New Line	Old Line	White	Raisin	Rye
Yeast	oz	PT_1	PT_700_PLC1	2	2	2
Water	Gals	PT_2	PT_701_PLC1	20	30	23
Milk	Gals	PT_3	PT_703_PLC1	40	35	40
Sugar	Lbs	PT_4	PT_704_PLC1	15	15	13
Shortening	Cups	PT_5	PT_705_PLC5	10	10	12
Salt	TSP	PT_6	PT_706_PLC1	1	1	1
Flour	Lbs	PT_7	PT_707_PLC1	50	50	0
Raisins	Cups	PT_8	PT_112_PLC1	0	10	0
Molasses	Cups	PT_9	PT_113_PLC1	0	0	10
Rye Flour	Lbs	PT_10	PT_114_PLC1	0	0	50
Caraway Seeds	Tbs	PT_11	PT_712_PLC1	0	0	13
Temperature	Deg F	PT_12	PT_1310_PLC2	425	425	420
Mix Time	Min	PT_13	PT_1908_PLC2	15	15	17.5
Bake Time	Min	PT_14	PT_2506_PLC2	25	25	29

Option Power Tools: *Report Manager*™

Report Manager™ *provides a simple and unique solution to your basic reporting needs. What makes Report Manager unique is that it functions without a database. You preconfigure the reports you want produced on a timed or event basis and Report Manager will run in the background collecting and formatting the data for your report(s). Report Manager provides you with a suite of programs that easily accommodate your process related reports.*

While Report Manager works independently without a database, CIMPLICITY HMI still supports full data logging through ODBC to Microsoft SQL Server, Access or Oracle databases satisfying your most demanding reporting needs.

Report Manager Features

• Unattended background reporting is provided by a built-in scheduler. It provides for the execution of periodic, daily, weekly, monthly, and yearly reports. In addition, it monitors events and can trigger a report based on an event.

• Report Manager maintains its own historical database within the reports being generated. For example, minimum, maximum, average, standard deviation, and total values are stored as the reports are generated.

• The Report Designer uses point and click methods for easy report template generation. An integrated point browser displays all CIMPLICITY points for quick and easy inclusion.

• A report sectioning feature enables the creation of complex reports in an easy fashion. Summary reports which require data from previous reports are built by standard functions.

• Calculation functions, e.g., add, subtract, divide and multiply can be performed within the report.

• The duration between events can be tracked; calculations can be performed on the duration.

• Page numbering (with footer and header section) is provided.

• Individual printer selection per report. Single line printing is supported.

• The Integrated Report Viewer becomes an integral part of a user display.

• The Integrated Report Viewer provides quick access to archived report files. Reports can be compared easily inside the Viewer.

• Values can be entered after the report has been generated, e.g., laboratory data or values that were (I/O) off-line when the report was made.

• A synchronization flag can be set to signify report completion. This flag can be used to reset totalizers.

• Report files are stored in ASCII text files for easy access by any third party package.

• Date, time and decimal separator are internationalized.

• Support for the graphical character set is provided.

• Minimal system resources are required to run Report Manager.

CIMPLICITY HMI Workbench and PowerTools

EASY AS
1,2,3 *!*

1 Easy to Design

Design your report template in a matter of minutes. Use the intuitive point and click features, such as the CIMPLICITY Point Browser, design validator, report previewer, and keywords to replace the traditional custom programming or macros approach. Before final installation, reports can be tested in accelerated time mode to verify your design.

2 Easy to Execute

Produce your report from either the Scheduler, or from CIMPLICITY HMI. The Scheduler executes your report template periodically, for instance every hour, or based on an event such as a process alarm. In addition, the Scheduler monitors process conditions and prevents unnecessary reports from being produced. Your reports are automatically archived and printed without operator intervention.

3 Easy to View

Retrieve your electronically stored reports easily by using simple queries! The Viewer allows quick and convenient access to any report at any time. In fact, you can even display multiple reports simultaneously for accurate comparison. Your reports are now accessible to modern communication methods, such as email, fax, LANs, and WANs.

Report Manager — What Do I Purchase?

Report Manager has two components — The Report Manager Suite and the Integrated Report Viewer. The Report Manager Suite is purchased for Servers where you wish to generate reports. This part of the software allows you to configure the reports you wish to see, gathers the requested data from CIMPLICITY HMI as it is collected, and places the collected data into the report(s). In addition, the Report Manager Suite includes an Integrated Report Viewer which is the part of the software that displays your configured reports. Therefore, for HMI Servers that will be generating reports, the Report Manager Suite is all that is required.

The Integrated Report Viewer is an option for HMI Viewers or for HMI Servers that allows you to see reports generated by a Report Manager Suite running on a server. The Integrated Report Viewer provides a window which allows you to call-up and review any of the reports which have been generated by the Report Manager Suite.

If your application requires that fixed types of reports be generated on a timed or event basis, then Report Manager can provide your solution. It is important to understand that while Report Manager is a powerful and flexible option, it is not appropriate for all reporting application needs. Since it does not operate off of a database, ad hoc queries are not supported. If your reporting applications will require ad hoc queries, then CIMPLICITY Data Logging to a Microsoft SQL Server, Microsoft Access or an Oracle database would be the appropriate approach.

CIMPLICITY HMI Workbench and PowerTools

CIMPLICITY Workbench™ and Power Tools™

**Option Power Tools:** *Server Redundancy Option*

CIMPLICITY HMI is an industry leader in mission critical operation capability. Server Redundancy is an option for CIMPLICITY HMI for Windows NT that *provides for the automatic switch over from your primary system to a secondary system in the event of a computer failure. With support for redundant Ethernet cabling between computers, Server Redundancy offers you a complete redundancy solution.*

With Server Redundancy, you are operating with more that just two parallel systems. Point values, alarms and data logging are kept synchronized between the systems. In normal operation, data collection to devices is performed only by the primary system which keeps the secondary system up to date. This reduces the data collection load on your devices, improving response time. In the event of a failure, the secondary system automatically begins collecting data from the devices.

Alarm management is treated similarly. Under normal operation, alarms are acknowledged on the primary system, and the secondary system is then automatically updated. In the event of a failure of the primary system, you switch over to the secondary system where the alarm status reflects the current situation.

Server Redundancy
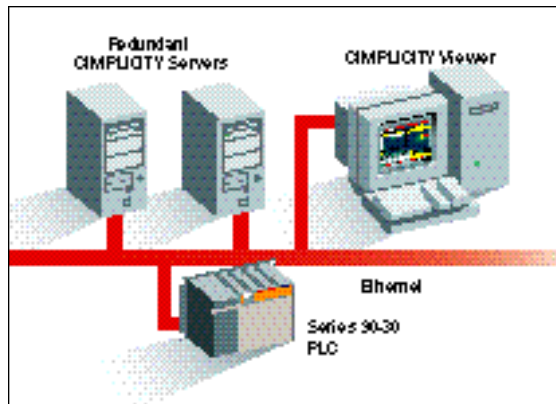
Database logging occurs on both systems. In the event of a failure with the primary system, the database on the secondary system has the same content as the primary system and continues the data logging process. You continue to have full access to previously logged data. Once the primary system is restored, you can use utility functions to re-synchronize the databases.

CIMPLICITY Viewers can connect to a Server Redundant system. In normal operation, the Viewers connect to the primary server. In the event of a failure of the primary systems, the Viewers automatically connect to the secondary server. You are not required to change your login, and the switch-over is virtually transparent as new values are now provided by the secondary system. Alarms are generated, alerting you to the failure of the primary system, so corrective action can be taken.

What to Purchase

GE Fanuc supports redundancy only on the Windows NT operating system. Redundant applications are not supported on Windows 95 or Windows 98. Server Redundancy requires pairs of CIMPLICITY HMI Servers for Windows NT with the same I/O count size. The Redundancy Option is purchased once for each pair of redundant servers. Each server must be licensed for the same point count. The primary server must be a Development Server. The secondary server may be a run-time or development server. The following CIMPLICITY options are not supported in Server Redundancy configurations: SPC, Recipes, Historical Data Analyzer and Tracker. Development Viewers cannot be used in Redundancy configurations. The following communication Interfaces are supported with Server Redundancy: Series 90 TCP/IP, CCM2, Genius, SNPX, Allen-Bradley Communications, Allen-Bradley Data Highway Plus, Applicom, DDE Client, Modbus Plus, Modbus RTU and Modbus TCP/IP.

Option Power Tools: *SPC*

As competition increases worldwide, the ability to maintain your product quality while improving cycle

times and delivery becomes increasingly important. CIMPLICITY SPC can provide the tools to create and maintain your competitive edge.

X Bar R Chart
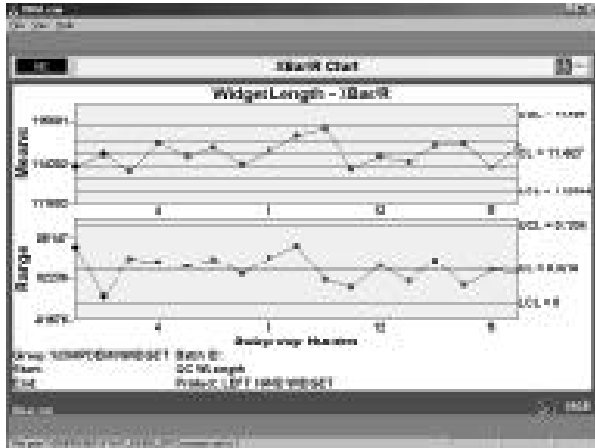
How can SPC improve my process?

A successful quality control program can be broken down into four major phases.
These are:

- Measurement – The ability to collect large amounts of accurate data

- Analysis – The ability to transform this data into meaningful information

- Improvement – The ability to use your information to change your process and increase quality

- Control – The ability to monitor your process continually and react to new information as it appears to maintain quality levels

The CIMPLICITY SPC option provides the tools you will need to accomplish these tasks. With CIMPLICITY HMI, data collection can be accomplished automatically from process sensors, or manually through a variety of means such as keyboard input, touch screen displays, bar code scanners, etc. Once the data is collected, SPC provides the industry standard set of statistical tools which allow you to analyze the data and transform it to useful information. Round the clock, CIMPLICITY HMI with the SPC option can be collecting, analyzing, and, through alarms, warning you of potential quality problems. With the measurement and analysis phases automated, you are free to concentrate on the improvement phase of your quality program. CIMPLICITY HMI and SPC are also critical during the control phase, allowing you to monitor the changes you've made and verifying the results.

CIMPLICITY SPC Tools

The CIMPLICITY HMI SPC option provides the tools you will need to perform SPC analysis on your process data. These tools include the following types of charts and printed reports:

- X Bar R
- X Bar S
- X Individual
- Histogram
- Pareto

Histogram Chart

CIMPLICITY Workbench™ and Power Tools™
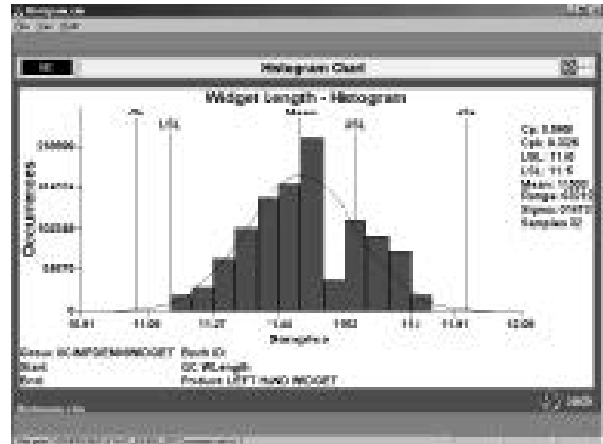
Based on Microsoft's design standards, CIMPLICITY SPC charts are designed as ActiveX control objects, which means you can easily add them to your CimView screens. This integrated approach to application development (alarms, graphics, trending, and SPC on the same screen) provides you the power and flexibility you need to analyze your processes accurately.

CIMPLICITY SPC also provides centralized configuration, an important time-saving feature. Centralized configuration allows you to configure and maintain all of the various quality characteristics and specification limits for your processes easily. Although your SPC charts may be spread across several different screens on your HMI system, centralized configuration reduces the time you spend maintaining your configuration. You have more time to focus on how to improve your processes.

CIMPLICITY SPC analysis occurs continuously as new data is collected. For X bar R, X bar S, and X individual charts, the collected data is processed and checked against the industry standard Western Electric rules. These checks include:

• N Subgroups in a row, same side of center line.

• N subgroups in a row, all increasing or decreasing.

• N subgroups in a row, alternating up and down.

• 2 out of 3 subgroups in a row in Zone A or beyond (same side of center).

• 4 out of 5 subgroups in a row in Zone B or beyond (same side of center).

• N subgroups in a row in Zone C, above or below center.

• N subgroups in a row beyond Zone C, above or below center.

Pareto charts analyze and sort the various defects reported into a chart showing the top ten quality problems. This graphical depiction allows you to see quickly which areas you might want to concentrate on first to have the largest overall impact on your quality.

Pareto Chart
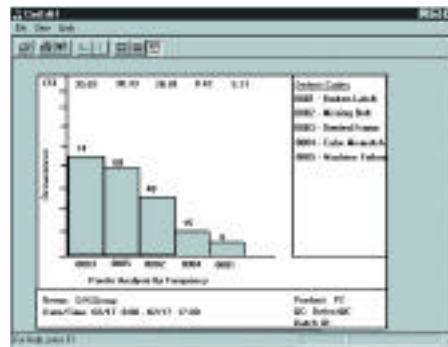
Benefits

CIMPLICITY HMI with the SPC option provides the following key benefits:

• Measurement – Paper data collection is eliminated, resulting in labor savings.

• Accuracy – Automated data collection prevents data entry errors.

• Analysis – Automatic, continuous monitoring of data and alarm generation helps identify potential quality problems.

• Improvement – Automated data collection of experimental and new process data helps users pursue continuous improvement goals.

• Control – PLCs and CIMPLICITY software allow the user to control as well as monitor a process automatically.

• Customer satisfaction – You gain your customer's confidence by establishing a world class quality program.

Option Power Tools: *System Sentry*

The CIMPLICITY System Sentry allows you to monitor the most important part of your system—the computer—to identify resource limits before they become a problem. Running continuously in the background, the System Sentry is always monitoring the status of your system. The System Sentry will monitor both your CIMPLICITY processes as well as key operating system and network parameters. The System Sentry can monitor the status of the computer it is running on as well as other NT computers on the network. The System Sentry is available on Windows NT based systems only.

The System Sentry is a revolutionary tool in the HMI and SCADA world. If you are an experienced user of monitoring and control systems, at one time or another you probably wondered how you could establish a baseline of your system's operation and compare it to current operations. Now you can do this with the System Sentry. If you make changes or modifications to your system such as adding new devices, points, or alarms, the impact on system performance can be directly measured and monitored.

CIMPLICITY parameters and statistics such as alarm frequency, device communications, data collection and throughput, inter-process communications, data logging, point management and user registration are all monitored and recorded. In addition to this type of information from CIMPLICITY, critical information from the operating system and network such as CPU performance, memory consumption, process time, etc. can also be monitored and recorded to provide you a complete and up-to-date status on the health of your system.

With the System Sentry you can monitor changes which occur to your system over time. You can benchmark how your system is operating when implemented, and determine the impact of changes as your system evolves.

If you experience problems with your system, the System Sentry will allow our CIMPLICITY Helpdesk to quickly analyze and diagnose what may be the root cause of your problems.

As the size and complexity of your system grows, wouldn't it be nice to know you can now monitor its health so you are aware of potential problems?

System Sentry—What do I purchase?

The System Sentry option module is purchased and installed on a CIMPLICITY Server node in your system. System Sentry is provided in three convenient sizes – 1, 5, and 10 node connections. The additional node connections allow you to monitor the status of other Windows NT nodes in your system. If you have more than 10 nodes you want to monitor, simply purchase additional System Sentrys for the number of nodes you want to monitor.
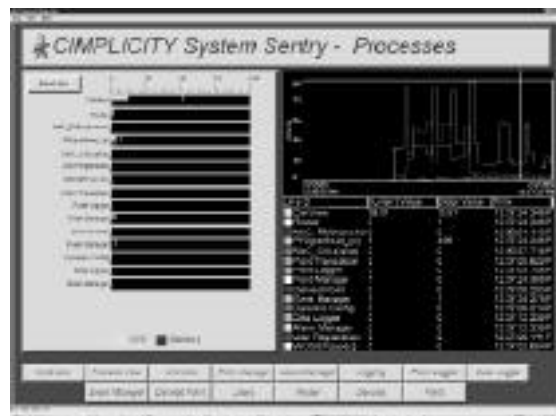
CIMPLICITY Batch Management System

The Market-Leading, ISA-S88.01 Compliant Software Application for Modular Batch Automation

For performing simple unit-level operations or highly complex, multi-structured tasks in a network environment, CIMPLICITY® Batch Management System with OpenBatch provides the capabilities you need.

With OpenBatch, you can:
- *Create and manage master recipes.*
- *Execute recipes automatically.*
- *Collect detailed electronic batch record data about your process and generate detailed reports.*
- *Exchange batch and recipe information with corporate information systems.*
- *Simulate your entire batch process.*

OpenBatch has been designed from the ground up as an open solution. Incorporating the most current Microsoft® ActiveX® and COM technologies, OpenBatch integrates seamlessly with a wide variety of software applications and can be used to control multiple types of PLCs, DCSs and PC-based controllers within one process. OpenBatch allows you to make the most of your current investment, while continuing to choose best-of-breed solutions that meet your needs.

OpenBatch is the ideal choice to enhance the performance of batch manufacturing in any of the process industries, including:

- Specialty chemicals
- Pharmaceuticals
- Biotechnology
- Food and beverage
- Consumer goods
- Petrochemicals
- Pulp and paper
- Metals and mining
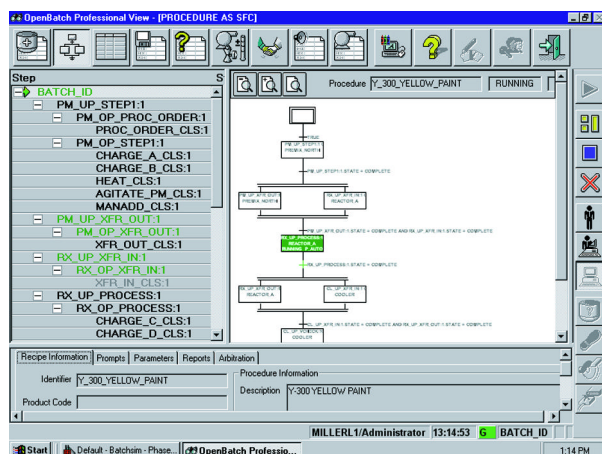
The CIMPLICITY Solution

Combine the CIMPLICITY Batch Management System with OpenBatch and CIMPLICITY HMI, and you can readily control your entire process. CIMPLICITY HMI provides an easy-to-configure graphical environment for non-batch process elements, and direct access to information and control actions in the process-connected device. You can create custom screens in CIMPLICITY HMI that incorporate a range of OpenBatch functions, from simple operator prompts to advanced features like unit binding.

A Full-Featured Software Architecture

With OpenBatch, you can configure physical and procedural models, execute recipes using a variety of process-connected devices, and integrate control actions with a diverse selection of software.

An OpenBatch system consists of:

• **Equipment Editor**—for specifying physical equipment.

• **Recipe Editor**—for specifying procedural strategy.

• **View**—for communicating with the OpenBatch server.

• **Server**—for executing recipes and coordinating communications.

• **Simulator**—for testing recipes against equipment specifications.

• **Archiver**—for translating real-time batch data to any ODBC compliant database.

• **Report Editor**—for creating and customizing detailed reports.

Meeting the ISA-S88.01 Batch Standard

OpenBatch is based squarely on the modular batch automation principles developed by the ISA-S88 committee. By separating the procedural aspects of a batch process from its physical aspects, modular batch automation offers unprecedented power, flexibility, and ease of use. With OpenBatch, you can create new recipes and modify existing ones at the click of a mouse. In addition to ISA-S88.01 compliance, OpenBatch is consistent with NAMUR batch control standards.

Procedural Model	Physical Model
Procedure	Process Cell
Unit Procedure	Unit
Operation	Equipment Module
Phase	Control Module
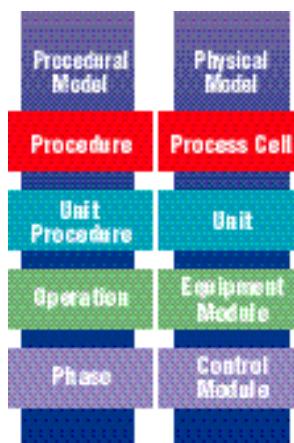
OpenBatch Architecture
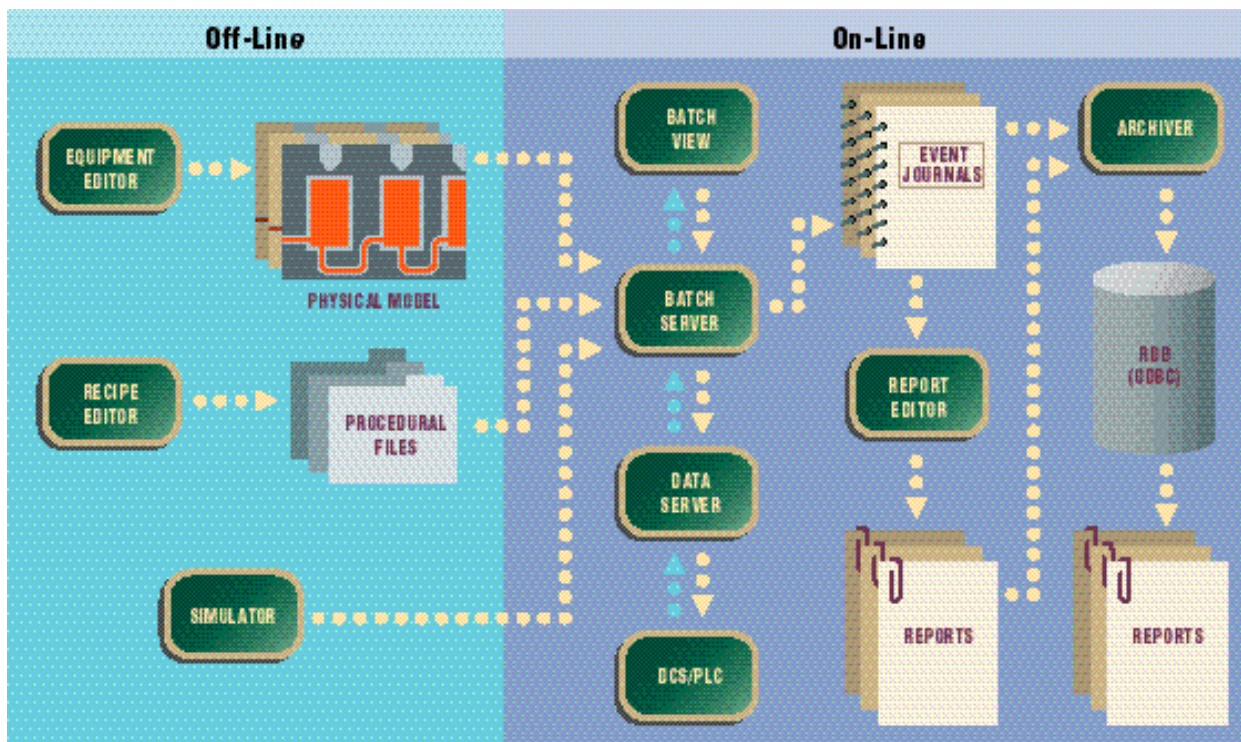
CIMPLICITY Tracker

Tracker Manufacturing Execution System (MES) for WIP Tracking

By giving you the ability to monitor the progress of each serialized and non-serialized item that moves through your production or packaging process, CIMPLICITY® Tracker creates exciting new opportunities for raising productivity. An open architecture system based on Windows NT®, CIMPLICITY Tracker gives you the detailed, continuous flow of information you need to optimize your manufacturing process, while managing inventory levels and locations, scheduling resources, and routing materials much more effectively.

With CIMPLICITY Tracker, you can:

• Dynamically collect and store data associated with a specific product or carrier, including subassembly part numbers, process parameters, time stamps, and quality measurements.

• Determine the location of all tracked items and display data with each item.

• Provide control commands to production equipment to process and route materials without programming.

• Support inspection and rework as well as production, assembly and packaging operations.

Create Exciting New Opportunities For Raising Productivity With CIMPLICITY Tracker.
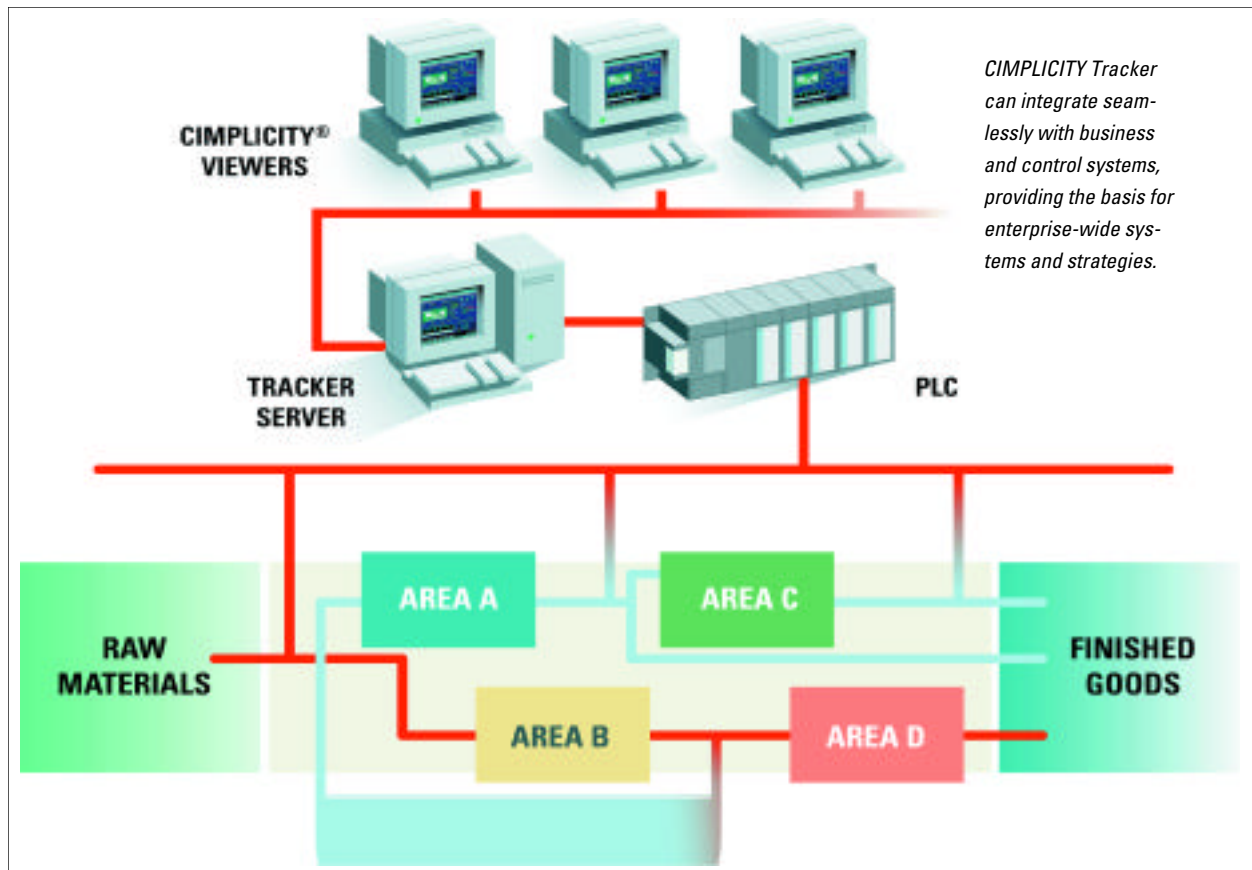
CIMPLICITY Tracker can integrate seamlessly with business and control systems, providing the basis for enterprise-wide systems and strategies.

Manage Your Work in Progress

With its robust set of features, CIMPLICITY Tracker readily accommodates a variety of production processes, making it simple to implement and operate a comprehensive work-in-progress tracking system.

• Tracker accepts data from a variety of automated sensors and readers. It can collect data stored in bar codes, RF-tags and mechanical tag systems.

• Tracker graphic screens display tracking paths and item information and reflect process control commands.

• Tracker maintains detailed data for all jobs in the system, including content, status, location and production process counts.

• Tracker also maintains data for carriers. Cycle counts, repair information and carrier status are kept online. Tracker accommodates different types of carriers within a single system, allowing you to track products even when they are transformed by the manufacturing process.

Readily Adaptable for Thousands of Applications

CIMPLICITY Tracker sets the stage for a variety of production flow adjustments, from minor modifications to major system redesign. By automating tracking and routing, Tracker can significantly increase your return on your existing equipment. For instance:

• Tracker can be used to send defective materials automatically to a rework area and scrapped materials to a recycling area.

• Tracker can improve painting operations by helping to group batches of products requiring the same color, improving efficiency, reducing set up and eliminating rework.

• Tracker can help automate maintenance operations by monitoring carriers that are due for adjustment or inspection. Tracker can automatically route those carriers needing additional work to a repair center.

Taking It to the Next Step

Experienced GE Fanuc engineers can help you develop and implement strategies that apply Tracker information to optimize manufacturing flow. We can work with you to

• Define system architectures.

• Define, document, and implement the tracking model.

• Define and implement control.

• Perform on-site installation and start-up assistance.

• Determine the selection and placement of sensor devices.

• Provide project and program management.

CIMPLICITY HMI
Tracker

CIMPLICITY HMI for CNC

Option Power Tools: *HMI for CNC*

CIMPLICITY HMI for CNC brings the same high level of monitoring and control to CNCs that have been standard for PLCs, while allowing system integrators to seamlessly combine CNCs and PLCs in the same application.

CIMPLICITY HMI for CNC provides a complete user interface to the following GE Fanuc controllers:

- Series 15MB/TB
- Series 16MB/TB
- Series 18MB/18TB
- Series 21MB/21TB
- Series 15TB Dual Path
- Series 16MB/TB Dual Path
- Series 18TB Dual Path
- Series 160i, 180i, 210i
- PowerMate i-D
- PowerMate i-H
- PowerMate H

The HMI is connected to the CNC via a fiber optic link supported by a high speed serial bus (HSSB). There is no need for an HSSB interface when using the NC Board, which is installed directly in a personal computer.
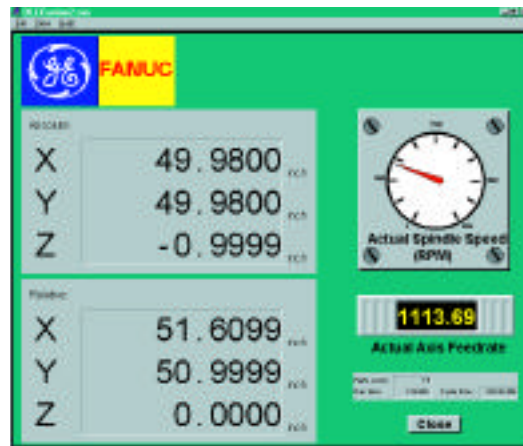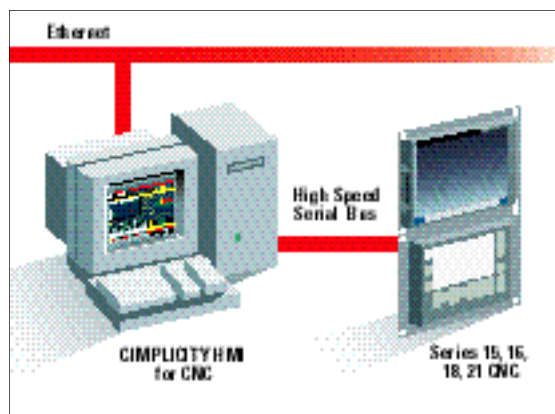
Are you faced with questions like–

- "How do I collect data from my GE Fanuc CNCs and use them to generate reports?"
- "How do I develop a common user interface for all my machine applications?"
- "How do I integrate my GE Fanuc CNCs and my programmable controllers?"
- "How do I connect to my factory network and send information throughout my factory?"
- "How do I build a flexible machining center for cell control application?"

CIMPLICITY HMI for CNC can provide answers to questions like these.

CIMPLICITY HMI offers an outstanding value for system integration. The ability to communicate from the same HMI with both Open CNC controllers and PLCs allows system integrators to make free use of both technologies in developing advanced applications. CIMPLICITY HMI provides the operator with a complete "window into the process" that shows both CNC and PLC data on the same screen.

Types of Data Available

CIMPLICITY HMI for CNC provides access to a variety of data from within the CNC. These data items include:

• Axis positions—relative, absolute, machine and distance to go

• PMC/BMI bits

• Pitch error compensations

• Macro variable data

• Active program number

• Active program sequence number

• Skip data

• Actual axis feed rate

• Actual spindle speed

• Tool offset table

• Work offset table

• Parameter table

Data items can be used to build custom user interface screens, to generate alarms, and to show trends. They can also be logged for additional analysis. In addition, data can be used by other separate HMI options to perform tasks like SPC analysis.

In addition to these data items, CIMPLICITY HMI for CNC also includes support for:

• Active operator messages

• Active CNC alarm messages

• Program upload and download

User Access

CIMPLICITY HMI for CNC provides prebuilt and preconfigured screens that can be readily adapted to individual applications. A complete QuikStart project is supplied to speed system development and start-up. QuikStart can be used "as-is" or, using CIMPLICITY HMI's powerful import/export capabilities, can be copied and expanded to collect additional data from the CNC.

Client/server support is inherent with the CIMPLICITY HMI. Adding the HMI for CNC option extends this support to the data available within the CNC. As a result, enterprise-wide solutions are as easy to build as single-machine solutions.

Competitive Advantages

With CIMPLICITY HMI for CNC, you can develop a single, consistent user interface across your factory devices—incorporating GE Fanuc CNCs as well as programmable controllers from GE Fanuc and others.

Data from both sources can be collected and merged together for analysis and reporting purposes, for production tracking, for quality control, and to support equipment maintenance.

System Architecture

CIMPLICITY HMI for CNC provides seamless integration across multiple manufacturing systems. Using a plant-wide Ethernet network, a CIMPLICITY HMI for CNC can share its data with another CIMPLICITY HMI. The CIMPLICITY HMI can then in turn collect data from GE Fanuc or other brands of programmable controllers and share that data with the CIMPLICITY HMI for CNC.

For More Information

For more information on GE Fanuc Open CNC products including the controllers and the HSSB technology, as well as CIMPLICITY HMI and CIMPLICITY HMI for CNC, please contact your GE Fanuc CNC sales representative.

CIMPLICITY FactoryWeb

FactoryWeb

FactoryWeb extends the reach of your CIMPLICITY system. You can now access your system via the web. In addition to the FactoryWeb products, CIMPLICITY PocketView extends the reach of CIMPLICITY by providing access to mobile users in the facility.

Web access is provided through two options—the WebGateway and WebView. These options allow

users to view CIMPLICITY information in standard Microsoft Internet Explorer or Netscape Web browsers. PocketView provides information out to mobile users.

The table below compares the standard CIMPLICITY Viewer to WebView, PocketView and WebGateway. In addition, the sections that follow outline the functionality of these products.

Product Selection Guide

	Std. Viewer	WebView	PocketView	WebGateway
Targeted Users	Operators	Casual Users, Remote Users	Mobile Users	Casual Users, Remote Users
Primary Functional Use	Direct interaction with process	Viewing process information	Viewing process information, mobile data gathering	Viewing point information
Viewer Functionality	Full	Partial	Partial	Partial
Screens	CimView	CimView	CimView	HTML Pages
Licensing	Per Seat	Shared	Dedicated	Unlimited
Data Access	Read/Write	Read/Write	Read/Write	Read/Write
Information Types	Point, alarms, graphics	Points, alarms, graphics	Points, alarms, graphics	Points, (graphics through 3rd party ActiveX objects)

WebGateway

The CIMPLICITY WebGateway lets you access your CIMPLICITY HMI data anywhere in the world over the Internet. From your office, home or hotel room, your CIMPLICITY HMI data is only a phone call away. This exciting new option is configured to work with your Microsoft Internet Server.

The WebGateway lets you create web documents (standard HTML format) containing textual

CIMPLICITY data values. You can also include graphical representations of your process as bitmaps or dynamic ActiveX controls to further enhance your screens. Dialing in from a remote location, you can then view your process status and perform set points. The WebGateway option supports viewing your CIMPLICITY HMI system data in either a Microsoft Internet Explorer or Netscape Navigator web browser.

ActiveX Control

With ActiveX, you can leverage the large number of graphical objects being developed by hundreds of third-party suppliers. These dynamic objects can be linked to your CIMPLICITY data to provide a graphical representation of your process.

Multiple User Support

The WebGateway lets you provide support for multiple users. Of course, CIMPLICITY HMI's security features filter the access and set point capabilities of multiple-user Internet connections as it does with standard multiple-user systems.

Support Services

GE Fanuc offers a wide range of expert application engineering services to help you design, install, and implement a CIMPLICITY WebGateway Internet system. From equipment selection to writing web documents, GE Fanuc can be there every step of the way. Just contact your CIMPLICITY distributor or local GE Fanuc sales engineer for more information on how GE Fanuc can help you implement a system that exceeds your expectations.

Benefits

The WebGateway offers a host of impressive benefits:

• Excellent remote monitoring capabilities.

• Integration of facility information to the desktop.

• Exceptional value — concurrent user pricing (pay per active connects, not all nodes).
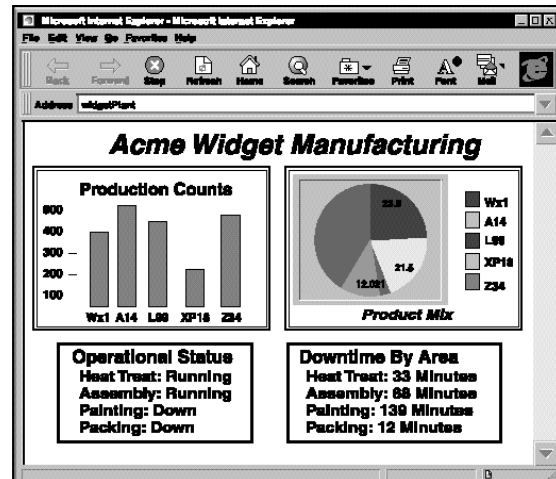
CIMPLICITY WebGateway and Microsoft Internet Server

CIMPLICITY FactoryWeb
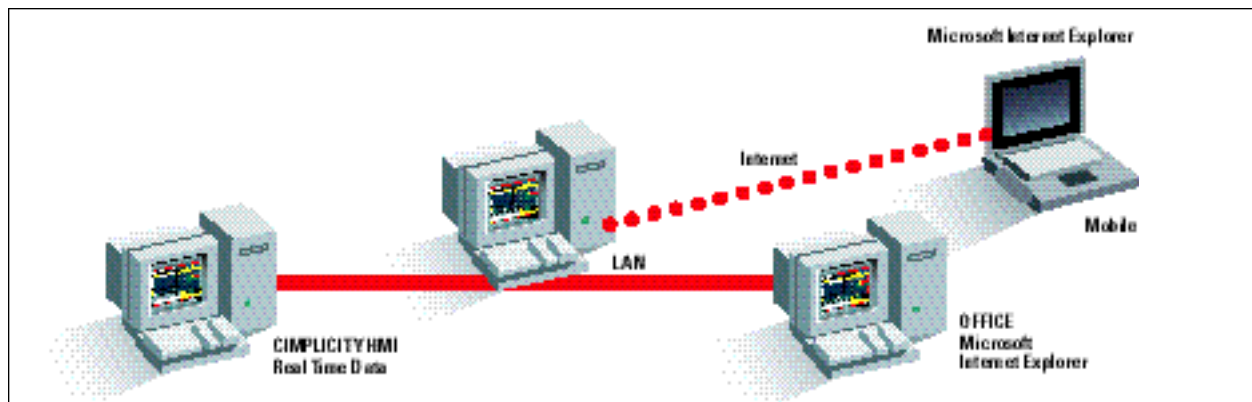
WebView

WebView is designed to extend the reach of CIMPLICITY information to users via the Internet or Intranet. WebView employs Thin Client technology. In simple terms, this means that the bulk of the processing required to provide a user their graphics is performed on a server node, and just the graphic images of the user interface are sent out to the actual user's web browser. One of the main advantages of the WebView option is that it requires no CIMPLICITY software installed on the user's computer. All that is needed is a Microsoft Internet Explorer or Netscape Navigator browser. The CIMPLICITY screens are transmitted from the CIMPLICITY Server out to the Internet browser.

WebView Benefits:

- Easily Expand Your User Base – If you have a web browser, you have access to your HMI system.

- Location Independence – Internet or Intranet Access.

- Lower Administration Costs – No CIMPLICITY software required on users computers.

- No New Screen Creation Needed – Your existing CIMPLICITY screens are sent out to WebView with no alterations required.

WebView or Standard Viewer—Which One Should I Use?

WebView is ideal for sharing CIMPLICITY information with a group of casual users. WebView uses shared licensing. When a user is connected to the Server and viewing data, they are using the WebView license. When they are finished, that license is freed up for the next person. WebView allows users such as plant management, finance, or engineering to obtain access to the process data needed to make their decisions. While WebView is ideal for the casual user of CIMPLICITY, GE Fanuc recommends the standard CIMPLICITY Viewers for dedicated operators who depend on CIMPLICITY for running and interacting with the process.

WebView or WebGateway?

The technology used in WebView differs slightly from the WebGateway. With the WebGateway, you create web pages (HTML documents) which can contain point information as text or can be animated in ActiveX objects. With WebView you do not need to create HTML documents. WebView will "slice off" the graphics of your existing CimView screens and send them out to the web browser.

The WebGateway is a very efficient and economical method for sharing CIMPLICITY point information with a large number of users. A typical use of the WebGateway would be the sharing of production counts or process data to a large number of users. If you need to share more detailed information, including alarms or process graphics, then WebView is the preferred method.

Web Access to Your CIMPLICITY System

270
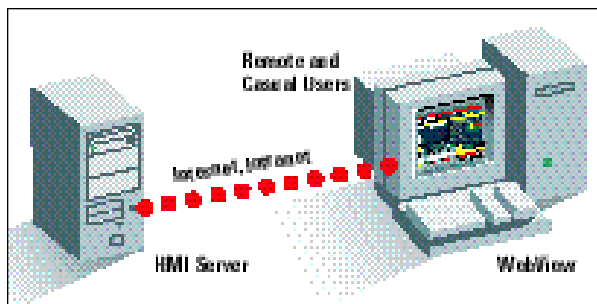
PocketView

PocketView provides unprecedented mobile access to your CIMPLICITY system. Using the latest wireless Ethernet and Windows CE technology, PocketView allows users such as maintenance personnel, delivery persons, quality technicians, or data entry persons access to your system.

PocketView is provided as a hardware/software bundled solution. With PocketView, CIMPLICITY software is pre-installed on a palmtop computer. Your PocketView license is installed on a CIMPLICITY Server.

PocketView benefits:

• User Mobility – Wireless Ethernet communications allows unprecedented mobility.

• Quick Access to Critical Information – Mobile users can easily connect and view or enter process information.

• No New Screen Creation Needed – Your existing CIMPLICITY screens are sent out to PocketView with no alterations required. Note: You can also design specific screens for the palmtop screen format.

PocketView—Extending the Reach of CIMPLICITY!

Mobile Access to CIMPLICITY Information

CIMPLICITY I/O Communications
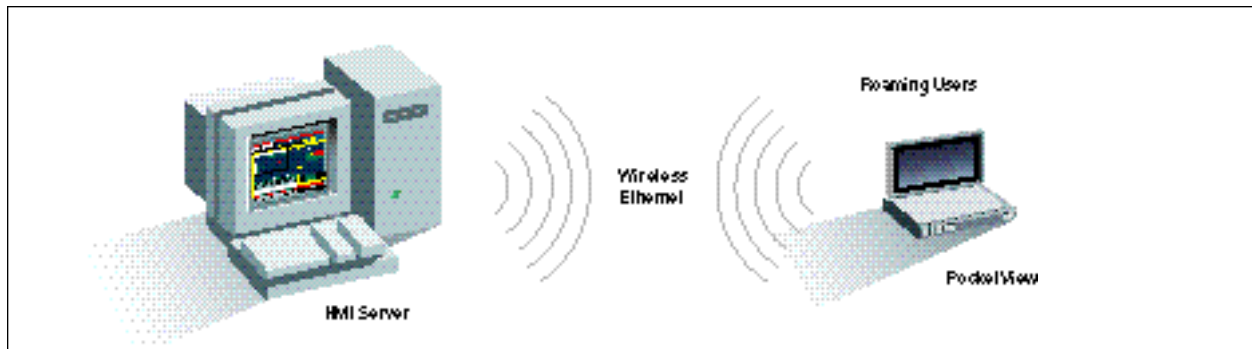
CIMPLICITY I/O Communications Product List

CIMPLICITY is designed to support devices from a variety of suppliers through its own native driver API as well as open industry standards including DDE, AdvancedDDE, and OPC. The CIMPLICITY I/O Communications Product List that follows is the current listing of CIMPLICITY drivers and Third Party communications products for use with CIMPLICITY HMI. The list includes CIMPLICITY products that are available as of Release 4.0.

The third party OPC and DDE I/O Servers and third party CIMPLICITY drivers are provided as a reference only based on current information at the time of publication. You must contact the listed software provider for pricing, sales, support and detailed technical information.

Please consult the GE Fanuc web site at www.gefanuc.com for the latest I/O communications capabilities.

The Communications Product column contains one of the following:

• A CIMPLICITY part number for a CIMPLICITY Driver that can be ordered from GE Fanuc. In this case the CIMPLICITY Product name and part numbers are listed.

• A Third Party Reference which may be:

   • *A third party CIMPLICITY I/O Driver*

   • *An OPC Server*

   • *An AdvancedDDE Server*

   • *A DDE Server*

All third party references will include an index number in parenthesis that identifies the vendor for this driver. See the listing of Third Party OPC/DDE Servers and CIMPLICITY Drivers in the next section for the vendor name and contact information.

• Call for availability—contact your sales channel for a quote.

The columns NT/I, 95, and NT/A show availability for the product on Windows NT (Intel), Windows 95 and Windows NT (Dec Alpha) respectively.

CIMPLICITY I/O Communications Products

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
ABB	MOD30, MODCELL	XMODBUS	YES	YES	N/A	OPC Client (20)
	DPU, IMPRS, MDAR, MMCO	Serial to Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
	Advant		YES	YES	N/A	OPC Client (34)
	Advant Masterpiece	Serial Ethernet	YES	YES	N/A	DDE Client (13)
	Procontic CS31	Arcnet	YES	N/A	N/A	DDE Client Communications (11)
		SPA BUS	YES	N/A	N/A	DDE Client Communications (11)
	ACS600, DCS600, ACS1000 Drives	DDCS Network	YES	YES	N/A	OPC Client (33)
Addi-Data	Digital/Analog PC Boards	Digital/Analog PCBoards	N/A	YES	N/A	AdvancedDDE Client Communications (2)
Allen-Bradley	SLC-5/04 PLC-5	Data Highway Plus (KTX)	YES	N/A	N/A	Allen-Bradley Communications Part No.: IC646NEA000
	SLC-5/04 SLC-5/05 PLC-5, 3, 2 PLC/5-250	Ethernet	YES	N/A	N/A	Allen Bradley Communications Part No.: IC646NEA000
	SLC-5/04 PLC-5, 3, 2 PLC-5/250	Data Highway Plus (KT)	YES	N/A	N/A	Allen-Bradley Data Highway Plus Part No.: IC646NDH000
	SLC-50/x PLC-5	RS-232	YES	YES	YES	Allen-Bradley DF-1 Communications Part No: IC646NDF000
	2750-AS	RS-232	YES	N/A	N/A	Allen-Bradley Intelligent Antenna Communications Part No.: IC646NRF000
	PLC-5C	ControlNet	YES	N/A	N/A	AdvancedDDE Client (14) OPC Client (14)
	PLC-5, PLC/5-250	Ethernet	N/A	YES	N/A	AdvancedDDE Client (14) OPC Client (14)
	SLC-5/0x	RS-232 via Dial-out and Radio Modems	YES	YES	N/A	AdvancedDDE Client (3)

CIMPLICITY I/O Communications Products

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Allen-Bradley	SLC-5/04 PLC-5, 3, 2 PLC-5/250	DH+	N/A	YES	N/A	AdvancedDDE Client (14) OPC Client (14)
Analog Devices	6B Series	Serial	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
April	PLC	JBUS	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	1000 Series	Ethernet	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Aromat	FP Series	Aromat Computer Link	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
ASI	Controllers	Serial	YES	YES	N/A	DDE Client (13)
BACnet		ARCNET, Ethernet	YES	N/A	N/A	OPC Client (21)
Baker	CAC 8510 RTU	Serial	YES	YES	N/A	DDE Client (3)
Barber Colman	MACO 8000 MACO 4000 MACO 5000 MACO 6000 Advantage EZ	RS-232 RS-485	YES YES	YES YES	N/A N/A	DDE Client (13)
Baslar	BEI-DFPR	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Beckwith	M-2001	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Bitronics	MTWIE1	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Bristol Babcock	RTU	BSAP	YES	YES	N/A	AdvancedDDE Client (3)
		OPEN BSI	YES	YES	N/A	OPC Client (22)
		OPEN ENTERPRISE	YES	YES	N/A	OPC Client (22)
CANOpen		CANOpen	YES	YES	N/A	OPC Client (23) OPC Client (24)
Conitel	2020, 3000, 2100H, C-300	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Contrex	CX1000	Binary Link	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
Control Data Corp	Type I, Type II	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Cooper	CL4C, CL-5A	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Cutler Hammer	D/50, D/300	Serial	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Daniels	Flow Meters	Serial	YES	YES	N/A	AdvancedDDE Client Communications (3)
DeviceNet	Open	DeviceNet	YES	N/A	N/A	OPC Client (25)
			YES	YES	N/A	OPC Client (24)
			YES	YES	N/A	OPC Client (23)
			YES	YES	N/A	AdvancedDDE Client (14)
DNP 3.0						Call for availability
Elsag Bailey	Net 90 Infi-90	RS-232	YES	YES	N/A	AdvancedDDE Client Communications (15)
	Net 90	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
	Freelance 2000		YES	YES	N/A	OPC Client (35)
Endres Hauser	Memolog	Serial	YES	YES		AdvancedDDE Client (10) OPC Client (10)
Enron	PLC	Serial	YES	YES	N/A	AdvancedDDE Client (3)
Echelon		LonWorks	YES	YES	N/A	OPC Client (21)
Eurotherm	Drives		N/A	YES	N/A	DDE Client Communications (8)
Festo	PLC 405 Series	Serial	YES	YES	N/A	AdvancedDDE Client Communications (16)
Fieldbus	Open	Fieldbus	YES	N/A	N/A	OPC Client (37)
			YES	YES	N/A	OPC Client (23)
			YES	YES	N/A	OPC Client (24)
Fisher-Rosemont	ROC364, ROC312 ROC407	RS-232	YES	YES	N/A	AdvancedDDE Client Communications (3)
	Delta-V Provox		YES	YES	N/A	OPC Client (9)
	Axs4		YES	YES	N/A	DDE Client (31)
	Provox	Ethernet	YES	YES	N/A	DDE Client (13)
	Univox MicroProvox Provox	Serial	YES	YES	N/A	DDE Client (13)
FloPro		FloNet	YES	N/A	N/A	FloPro Communications Part No: IC646NEF000
Foxboro	I/A Series	TCP/IP	YES	YES	N/A	Call for availability
	760 Series	Serial	YES	YES	N/A	Call for availability

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
GE	3720 Power Meter	Serial	YES	YES	YES	MODBUS RTU Communications Part No. IC646NMR000
	DDP, DFM, DLP	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
GE Fanuc	Series 90™	Ethernet	YES	YES	YES	Series 90™ Ethernet Communications Provided with Server
	Series 90™ Series Six Genius Blocks Field Control	GENIUS®	YES	YES	N/A	GENIUS Communications Provided with Server
	Series 90™ Series 90 Micro	Series 90™ SNP/SNP-X	YES	YES	YES	Series 90™ SNP Provided with Server
	Series 90	SNP-X via dial-out modems	YES	YES	N/A	AdvancedDDE Client Communications (3)
	Series 90™ Series Six Series Five	CCM-2	YES	N/A	YES	CCM-2 Communications Provided with Server
	VersaMax™	SNP	YES	YES	YES	Series 90 Protocol provided with server
GEC	KCEG140, KVAR, LFCB102	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Gensym	G2	Via @aGlance	YES	N/A	N/A	Call for availability
Giddings & Lewis	PLC	ARCNET	YES	YES	N/A	AdvancedDDE Client Communications(3)
Harris	RTU RTU 5000	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Hitachi	S10 Series	Serial	YES	YES	N/A	AdvancedDDE Client Communications (16)
Hewlett Packard	3396 Integrator	Serial	YES	YES	N/A	AdvancedDDE Client Communications (3)
Honeywell	IPC 620	Serial	YES	YES	N/A	Honeywell IPC 620 Communications Part No. IC646NGM000
	TDC-2000	Data Hiway via PCNM	YES	YES	N/A	Call for availability
	TDC-3000	Local Control Network	YES	YES	N/A	Call for availability
	DRP3000 UDC3000 UDC5000	Serial	YES	YES	N/A	Call for availability

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Honeywell	S9000E, 620LC, IPC620	Ethernet	YES	YES	N/A	AdvancedDDE Client Communications (17)
	SDS		YES	YES	N/A	OPC Client (23)
	TotalPlant		YES	YES	N/A	OPC Client (36)
Interbus-S	Open	Interbus-S	YES	YES	N/A	OPC Client (26)
			YES	YES	N/A	OPC Client (24)
			YES	YES	N/A	OPC Client (23)
Intermec	Bar Code Reader		YES	YES	N/A	DDE Client Communications (5)
	Bar Code Printer		YES	YES	N/A	DDE Client Communications (5)
IDEC		Computer Link	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
Johnson Controls	DX9100 Unitary Ctrls.	N2	YES	N/A	N/A	Johnson Controls N2 Bus Communications Part No:IC646NGJ000
Kloeckner-Moeller		SucomA	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Koyo	DL Series	DirectNet	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
	SG, SL, DL Series	K Sequence	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
Landis & Gyr	Gyr-8979RTU, MPS-9000	Tasnet NIM	YES	N/A	N/A	TASNET NIM Interface (19)
Landis & Staefa	Apogee System	Ethernet	YES	N/A	N/A	OPC Client (38)
LONWorks		LONWorks	YES	YES	N/A	OPC Client (21)
Magnetek	GPD 515 Drives	Serial	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
Merlin Gerin		Batibus	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Mitsubishi	A2A, A3U, A4U	TCP/IP	YES	N/A	N/A	Mitsubishi TCP/IP Communications Part No: IC646NGB000
	A-Series	Serial	YES	YES	N/A	Mitsubishi A-Series Serial Communications Part No: IC646NME000
	FX, FX0, FX0n, FX2C	RS-232, and FX NET RS-485	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)

CIMPLICITY I/O Communications Products

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Modicon	984, 884, 384, 584, 184, M84 Quantum	Modbus RTU	YES	YES	YES	Modbus RTU Communications Part No: IC646NMR000
	984, 884, 384, 584, 184, M84 Quantum	Modbus Plus	YES	N/A	YES	Modbus Plus Communications Part No: IC646NMD000
	Quantum	TCP/IP	YES	YES	YES	Modbus TCP/IP Communications Part No: IC646NMX000
		Modbus RTU Slave	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
		Modbus RTU/ASCII with Dial-out Modem support	YES	YES	N/A	AdvancedDDE Client Communications (3)
Moore	APACS	TCP/IP	YES	N/A	N/A	Call for availability
		Local Instrument Link via ICI-320	YES	YES	N/A	Call for availability
Motorola	Moscad	Serial	YES	YES	N/A	AdvancedDDE Client Communications (3)
National Instruments	Fieldpoint		YES	YES	N/A	OPC Client (27)
	E Series DAQ Boards		YES	YES	N/A	OPC Client (27)
OMRON	CV-Series	TCP/IP	YES	YES	N/A	OMRON TCP/IP Communications Part No: IC646NGT000
	C-Series CV-Series	Host Link	YES	YES	N/A	OMRON Host Link Communications Part No: IC646NGL000
	C-Series CV-Series Alpha	Sysmac Link	YES	YES	N/A	AdvancedDDE Client Communications (4)
Open	Open	Interbus-S	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Open	Open	Serial, Ethernet	YES	YES	N/A	Descartes Omniserver Part No: IC646NDS000 (development), IC646NDS300 (run-time)
Open	Open	Serial	YES	YES	N/A	DDE Client Communications (18)
Open	Marquee	Serial	YES	YES	YES	Marquee Driver Part No.: IC646NMA000

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Open		CANOpen	YES	YES	N/A	OPC Client (23) OPC Client (24)
Open	Open	DeviceNet	YES	N/A	N/A	OPC Client (25)
			YES	YES	N/A	OPC Client (24)
			YES	YES	N/A	OPC Client (23)
			YES	YES	N/A	AdvancedDDE Client (14)
Open	Open	Fieldbus	YES	YES	N/A	OPC Client (37), (23), (24)
Opto-22	Opto-22 Controllers	AC37, Arcnet, Ethernet, Serial	YES	YES	N/A	AdvancedDDE Client (12) OPC Client (12)
	Optomux	RS-422	YES	YES	N/A	OPC Client (29)
	Brain Board	RS-422	YES	YES	N/A	AdvancedDDE (3)
Philips	PC 20	Serial	N/A	YES	N/A	AdvancedDDE Client Communications (14,2)
Phoenix		Interbus-S	YES	YES	N/A	AdvancedDDE Client Communications (6)
PLC Direct	DL230/240 DL330/340 DL430/440	DirectNET	YES	YES	N/A	AdvancedDDE Client Communications (10)
		K Sequence	YES	YES	N/A	AdvancedDDE Client Communications (10)
Profibus		DP Master, PPI, FMS	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
		DP Master, PPI, FMS,	YES	YES	N/A	OPC Client (26), (32)
		DP Slave	YES	YES	N/A	OPC Client (25), (32)
		DP	YES	YES	N/A	OPC Client (30), (24), (32)
Redac	70H	Tasnet NIM	YES	N/A	N/A	TASNET NIM Interface (19)
Reliance	Automax	Ethernet	YES	YES	N/A	AdvancedDDE Client Communications (1)
		PCLink	YES	YES	N/A	AdvancedDDE Client Communications (14)
SAIA		SBUS	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Sartorious	Weighing Bridge	Serial	N/A	YES	N/A	AdvancedDDE Client Communications (14,2)
SATT Control	PLC	SattBus Network	N/A	YES	N/A	AdvancedDDE Client Communications (14,2)
Schlumberger	Meters	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
SECS II	Open	Serial	YES	N/A	N/A	SECS Equipment Communications Part No.IC646NSC000
Seriplex	Seriplex I/O	Seriplex Bus	YES	N/A	N/A	Seriplex I/O Communications Part No: IC646NSX000
Sharp	PLC	TCP/IP	YES	N/A	N/A	Sharp TCP/IP Communications Part No: IC646NGS000
Siemens/TI	TI-505/525 TI-5x5	Serial RS-232	YES	YES	N/A	Siemens/TI Communications Part No.: IC646NTN000
	TI-5x5	TI Direct Serial RS-232	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	TI-545	Ethernet H1	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	TI-5x5	TCP/IP	YES	YES	N/A	OPC Client (29)
	TI-5x5	TIWAY Host Adapter via RS-232	YES	YES	N/A	OPC Client (10) AdvancedDDE Client (10)
Siemens	S5	3964, 3964R	YES	YES	N/A	AdvancedDDE Client Communications (14,2)
	S5	3964, 3964R	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S5	AS511	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S5	Sinec® H1	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S5	Sinec® L2/S5	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S5, S7	Profibus FMS	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S5	Profibus DP	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	S7-300/400	Profibus MPI	YES	YES	N/A	Advanced DDE Client (2)
	S7-200	Profibus PPI	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
	Simacs Deltamacs	Deltamacs Network	N/A	YES	N/A	AdvancedDDE Client Communications (2)
Siemens	Drives	RS-232/485	YES	YES	N/A	DDE Client (3, 11)
Siemens Landis Division	APOGEE System	Ethernet	YES	N/A	N/A	OPC Client (38)

Manufacturer	Device	Protocol	NT/I	95	NT/A	Communications Product
Square/D	SY/Max	SY/Net	YES	YES	N/A	Square/D Communications Part No.: IC646NQD000
Tasnet	Various	Serial to Network Interface	YES		N/A	TASNET NIM Interface (19)
Telemechanique		Uni-Telway	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
		EthWay	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
		FIPWAY®	YES	YES	N/A	Applicom Communications Part No: IC646NAP000
Toshiba	T-Series, EX-Series	Serial	YES	YES	N/A	AdvancedDDE Client (10) OPC Client (10)
Total Control Products, Inc	Marquee	RS-232	YES	YES	N/A	Marquee Driver Part No.: IC646NMA000
Toyoda	Toyopuc	Ethernet	YES	N/A	N/A	Toyopuc Ethernet Communications Part No: IC646NTY000
TRW	9550	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
UTICOR Technology	Marquee	RS-232	YES	YES	N/A	Marquee Driver Part No.: IC646NMA000
Valmet	Series 3, Series 5	Tasnet NIM	YES	YES	N/A	TASNET NIM Interface (19)
Westinghouse	PC700/900 PC1100/1200 NL1075	Serial	YES	YES	N/A	AdvancedDDE Client Communications (16)
Yokogawa	Micro-XL	Serial				Call for availability

CIMPLICITY I/O Communications

Third Party OPC/DDE Servers and CIMPLICITY Drivers

GE Fanuc provides the following list of companies that offer DDE Servers and CIMPLICITY Drivers as a reference for users of CIMPLICITY Software. The companies listed below sell and support products that communicate with various manufacturing devices. Contact these companies directly for detailed product information, availability, pricing, and support.

The CIMPLICITY DDE (Dynamic Data Exchange) Client communications software supports the exchange of data with DDE Servers. CIMPLICITY DDE is compatible with applications that follow Microsoft's standard for DDE Communications. CIMPLICITY is also compatible with DDE Servers that support the AdvancedDDE standard and these servers provide better throughput. Companies that support AdvancedDDE are identified with an (*).

(1)   Advanced Engineering, Inc *
      513 Autumn Springs Court.
      Franklin, Tenn. 37067
      (615) 771-6500
      (615) 771-6501

(2)   ATS Applied Tech Systems B.V. *
      P.O. Box 4993
      2003 EZ
      Haarlem, The Netherlands
      wwilmsen@ats.nl
      + 31 23 5 35 25 44

(3)   Automation Solutions *
      930 Gemini
      Houston, TX 77058
      (281) 286-6017
      (281) 286-6902 (fax)

(4)   CimQuest*
      (609) 293-1115
      (609) 293-1116 (fax)
      http://www.cimquest.com

(5)   Data Technologies
      P.O. Box 5820
      Linwood, WA 98046
      (206) 776-5729
      (206) 776-5720 (fax)

(6)   DiCam Inc*
      21301 Powerline Rd. #309
      Boca Raton, FL 33433
      (561) 487-1880
      (561) 487-8126

(7)   Echelon
      4015 Miranda Avenue
      Palo Alto, CA 94304
      (415) 855-7421
      (415) 855-6153

(8)   Eurotherm Drives, Inc
      9225 Forsyth Park Drive
      Charlotte, NC 28273
      (704) 588-3246
      (704) 588-3249 (fax)

(9)   Fisher Controls International Inc.
      P.O. Box 190
      Marshalltown, IA 50158
      515-754-3011
      www.fisher.com

(10) KEPWare, Inc. *
      25 Bridge Street
      Yarmouth, Maine 04096
      (207) 846-5881
      (207) 846-5947
      http://www.kepware.com

(11) Klinkmann Automation
      P.O Box 38
      SF-00371 Helsinki, FINLAND
      + 358 0 513 322
      + 358 0 513 541 (fax)

(12) Opto-22 *
      43044 Business Park Drive
      Temecula, CA
      (909) 695-9299

(13) Qualitrol Software Toolbox *
      3030-B Whitehall Park Drive
      Charlotte, NC 28273
      1-888-665-3678
      (704) 587-9767 (fax)
      (704) 587-9545 (international)
      http://www.softwaretoolbox.com

(14) Rockwell Software *

(15) RoviSys Company
      1455 Danner Drive
      Aurora, Ohio 44202
      (216) 562-8600

(16) Specter Instruments *
      3913 Todd Lane Bldg. 104
      Austin, TX 78744
      (512) 326-1011
      (512) 326-1019 (fax)
      http://www.specterinstruments.com

(17) Standard Automation and Control
      2450 South Shore Blvd. Suite 100
      League City, TX 77573
      (281) 334-3293
      (281) 334 4324 (fax)

(18) TAL Technologies
      Software Wedge
      2027 Wallace Street
      Philadelphia, PA 19130
      (215) 763-7900
      (215) 763-9711 (fax)

(19) TASNET, Inc.
      5271 102nd Ave North
      Pinelas Park, FL 33782
      (813) 544-1555

(20) ABB Instrumentation
      1175 John Street
      West Henrietta, NY 14586
      (716) 292-6050
      www.abb.com

(21) Innovex Technologies
      526 Braddock Avenue
      Turtle Creek, PA 15145
      (412) 829-7279
      (412) 829-7405 (FAX)
      www.innovextech.com

(22) Bristol Babcock
      1100 Buckingham Street
      Watertown, CT 06795
      (860) 945-2200
      www.bristolbabcock.com

(23) Hilscher GMB
      Rheinstrasse 78
      Hattersheim Germany
      + 49 6190-99070
      www.hilscher.com

(24) Synergetic Microsystems Inc.
      2506 Wisconsin Avenue
      Downers Grove, IL 60515
      (630) 434-1770
      www.synergetic.com

(25) SST Industrial Communication
         Technologies
      50 Horthlan Road
      Waterloo, Ontario
      Canada N2V 1N3
      (519) 725-5136
      www.sstech.on.ca

(26) Applicom International
      One Hallide Plaza Suite 505
      San Francisco, CA 94102
      (415) 956-1665

      43, rue Mazagran
      76320 Caudebac-les-Elbeuf
      France
      + 33 2 32 96 04 20
      www.applicom-int.com

(27) National Instruments
      11500 B North Mopac Expressway
      Austin TX 78759
      Canada N2V 1N3
      512-794-0100
      www.natinst.com

(29) Eldridge Engineering
      708 W. 20th Avenue
      Spokane, WA 99203
      509-838-7517
      www.eldridgrrng.com

(30) Softing GMBH
      Richard-Reitzner-Allee 6
      Haar Germany D85540
      +49 89-4565-6362
      www.softing.com

(31) Fisher Rosemount Systems
      12000 Portland Avenue South
      Burnsville, MN 55337
      (612) 895-2000

(32) ifak system GMBH
      Steinfeldstrasse 3
      39179 Barleban, Germany
      + 49 39203-81920
      www.ifak-system.com

(33) ABB Industrial Systems, Inc
      P.O. Box 22685
      Rochester, NY 14692-2685
      (716) 273-7246
      www.advantocs.com

(34) ABB Industrial Systems, AB
      S-721 67 Vasteras Sweeden
      + 46 21 34 00 00
      www.advantocs.com

(35) Elsag Bailey Process Automation
      29801 Euclid Avenue
      Wickliffe, OH 44902
      (509) 838-7517
      www.ebpa.com

(36) Honeywell Inc
      Industrial Automation and Control
      16404 N. Black Canyon Highway
      Phoenix, AZ 85023
      (602) 313-5586
      www.iac.honeywell.com

(37) Smar Equipamentos Industriais Ltda.
      Av. Antonio Furlan Jr., 1028
      Sertaozinho - SP - Brasil
      CEP 14.160-000
      +55 16 645 3599
      http://www.smar.com

(38) Siemens Building Technologies,
      Landis Division
      Buffalo Grove, IL
      Christopher Hollinger
      (847) 215-1000 Ext. 5991
      e-mail: chris.hollinger@us.landisstaefa.com