Mitsubishi SCADA Software
MC Works64

The Next Generation in Automation Software
GLOBAL IMPACT OF MITSUBISHI ELECTRIC

Changes for the Better
We bring together the best minds to create the best technologies. At Mitsubishi Electric, we understand that technology is the driving force of change in our lives. By bringing greater comfort to daily life, maximising the efficiency of businesses and keeping things running across society, we integrate technology and innovation to bring changes for the better.

Mitsubishi Electric is involved in many areas including the following:

Energy and Electric Systems
A wide range of power and electrical products from generators to large-scale displays.

Electronic Devices
A wide portfolio of cutting-edge semiconductor devices for systems and products.

Home Appliance
Dependable consumer products like air conditioners and home entertainment systems.

Information and Communication Systems
Commercial and consumer-centric equipment, products and systems.

Industrial Automation Systems
Maximising productivity and efficiency with cutting-edge automation technology.
Mitsubishi Electric PA integrated solution

iQ MELViz PlantSuite

iQ PlantSuite integrates the high-performance SCADA into the factory automation products Mitsubishi Electric proudly presents to the world. Mitsubishi Electric proposes iQ PlantSuite, the process automation (PA) integration solution for monitoring and control.

OVERVIEW

What is MC Works64? ................................................................. 4
Constructing a display ............................................................ 8
Constructing a system ............................................................ 14
Advanced functions .............................................................. 19
Options ................................................................................. 24
Solutions ............................................................................... 26
Product List ........................................................................... 34
Support .................................................................................. 40
The Next Generation in Automation Software

MC Works 64

e-F@ctory’s SCADA software
Create an advanced, integrated monitoring system for FA equipment.

MC Works 64 Server
- Basic function
  2D and 3D graphics
  Table format display
  Script
  Alarm & event
  Trend
  Project management tool

- Advanced function
  GraphWorX64
  GridWorX64
  ScriptWorX64
  AlarmWorX64
  TrendWorX64
  Workbench (Classic/-SL/Desktop)
  Design support tool
  Schedule management
  Map information
  High-speed data collection
  Message notification
  Recipe management
  Personalised monitoring displays

Optional
- Form
- Data conversion

Optional
- High-speed, reliable data collection
- Energy monitoring
- Preventive maintenance
- Quality control
- Message notification

Compatible database
- Microsoft® SQL, Oracle®, MYSQL®, SAP,
  ×64 OLE DB, ×64 ODBC

OPC server
- Compatible model
  DeviceXPlorer
  OPC server
  (Partner product)
  MX OPC Server
  Modbus® OPC server
- Compatible communications
  OPC UA,
  OPC DA, HDA, A&E
  BACnet™
  SNMP

- Compatible communications
  MC Historian
  AX Energy
  AX Facility
  AX Quality
  MC Alarm64 MMX

Ethernet

Modbus®-compatible equipment

OPC UA

MELSEC

e-F@ctory

GOT2000(RM)
FR-F800 inverter
MR-J4 AC servo
MDU breaker
EcoMonitorPro
Energy measuring unit
Electronic multi-measuring instrument

Q Series
L Series
iQ-F Series
F Series

iQ-R Series

iQ-R Series

MELSEC
e-F@ctory’s SCADA software
Create an advanced, integrated monitoring system for FA equipment.

The Next Generation in Automation Software

Internet/intranet

Modbus®-compatible equipment

MELSEC
Q Series
iQ-R Series

BACnet™-compatible equipment

Server

2D and 3D graphics
Table format display
GridWorX64
GraphWorX64
Script ScriptWorX64
Alarm & event AlarmWorX64
Trend TrendWorX64
Project management tool
Form
Data conversion
ReportWorX Lite
BridgeWorX Lite

Design support tool
Schedule management
Map information
High-speed data collection
Message notification
Recipe management
Personalised monitoring displays

MC AppBuilder
ScheduleWorX64
EarthWorX64
MC Historian Express
AlertWorX
RecipeWorX
KPIWorX

High-speed, reliable data collection
Energy monitoring
Preventive maintenance
Quality control
Message notification
MC Historian
AX Energy
AX Facility
AX Quality
MC Alarm64 MMX

Compatible database
Microsoft® SQL, Oracle®, MYSQL®, SAP,
×64 OLE DB, ×64 ODBC

OPC server

- Compatible model
DeviceXPlorer
OPC server
OPC server
Modbus® OPC server

- Compatible communications
OPC UA,
OPC DA, HDA, A&E
BACnet™
SNMP

3G/4G

Client
- Web monitoring
Optional
WebHMI Client*
AX Portal*

MC Works64

Client
- Mobile monitoring
Optional
MC Mobile*

*: This function is installed on a server.
Mitsubishi SCADA MC Works64 provides a highly-functional monitoring control system together with rich factory automation products.
MC Works64 provides the solutions for a variety of the needs in monitoring control.

**Enhancement of visibility and operability**

**Improve the aesthetics and usability of your monitoring control**
It may be difficult to effectively represent equipment monitoring using only 2D graphics. On the other hand, 3D graphics can enhance the visibility with its stereoscopic displays. 3D graphics allow you to have monitor views from various angles. This enables you to know the condition of equipment quickly and accurately, have instinctive monitoring views and make intuitive control.

**Enhancement of reliability**

**Construct a highly reliable system that continues operation even during problematic times**
MC Works64 enables you to construct redundant server systems and server-and-client systems. It is possible to utilize two servers, a control server and a standby server, to enhance the reliability of the system and to reduce the communication load on the network. It is possible to embody a configuration suitable for the system size, from a stand-alone system to a large-scale system.

**Reducing engineering labor**

**Make efficient use of preset equipment lists to construct graphics or programs**
Various equipment lists are available to automatically generate graphics, programs, and OPC tag settings. The design support tool prevents incorrect tag settings, thus enhancing the design quality. Standard templates facilitate system configuration.
Visualizing energy

Save energy and reduce costs across the entire plant and improve production efficiency

By monitoring energy consumption, energy use can be reduced over time.
Energy consumption can be visualized through the integration of Mitsubishi Electric’s energy measurement equipment and AX Energy, an energy analysis and visualization tool.
The lineup of Mitsubishi Electric’s energy-saving equipment, that includes the inverter with enhanced motor control, will reduce energy consumption at your plant.

Preventive maintenance

Use the collected equipment data to provide preventative maintenance

Mitsubishi Electric’s MES interface module can be used to collect information on production control. AX Facility can then display and analyze the diagnosis and equipment failure information. These products automatically collect the information on the condition of equipment from a large amount of data, using it for the improvement of: the availability factor, preventive maintenance, fault prediction etc.
You can monitor the video images from CCTV on a screen. As you monitor graphics at the same time, the system operation will be secure and safe.

This view satisfies the needs for simultaneous monitoring of multiple types of data and pictures brought by a highly functional system.

This multi-monitor display shows graphics, alarms, trends, camera views, and more over several monitors, enabling simultaneous monitoring. (You can use six monitors at the maximum.)

In the multi-view screen display, you can use one monitor to view two or more windows further improved monitoring. (You can view four windows at the maximum.)
Enhancing visibility

**2D and 3D graphics, GraphWorX64**

You can create high definition 2D and 3D graphics. It may be difficult to effectively represent equipment monitoring using only 2D graphics. On the other hand, 3D graphics can enhance the visibility with their stereoscopic displays. You can control enlargement, reduction, rotation, and parallel movement of 3D graphics to monitor anything; from the facility as a whole to individual device details. When an alarm occurs, you can zoom in to the problematic part of the device. Thus, you do not need to move around from a screen display to another screen display, monitoring the facility without any interruption thanks to the parallel movement. You can use 2D graphics for a real-time screen display to view the condition of a device, operation and measurement data. You can import 2D and 3D CAD data etc. to create graphics.

Enhancing visibility/reducing symbol design time

**Symbol Library, GraphWorX64**

A set of pre-made symbols are available, known as the Symbol Library, which can reduce time spent on creating graphics. Custom symbols can be created and registered to the Symbol Library. The Symbol Library has more than one thousand types of high definition 2D and 3D symbols which cover a variety of industries including water treatment, building management, food, chemicals, and more.

An animation function is also included. You can register a tag to a symbol to change colors and display numbers, reducing the labor for creating a script.

### Specifications of GraphWorX64

<table>
<thead>
<tr>
<th>Screen</th>
<th>Support</th>
<th>Layer</th>
<th>Zoom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen size/resolution</td>
<td>Unlimited</td>
<td>Window (Menu on/off, scroll bar, option, move, resize)</td>
<td></td>
</tr>
<tr>
<td>2D shapes</td>
<td>2D drawing</td>
<td>Straight line, curve, arc, multiple straight lines, rectangle, ellipse, polygon, text, label</td>
<td></td>
</tr>
<tr>
<td>2D image</td>
<td>Expansion</td>
<td>JPG, JPEG, PNG, GIF, TIFF, JFIF, BMP, ICO, WMF, EMF, SVG, SVS, DWG, DXF</td>
<td></td>
</tr>
<tr>
<td>2D advancement</td>
<td>Reference</td>
<td>JPG, JPEG, PNG, GIF, TIFF, JFIF, BMP, ICO, WMF, EMF, SVG, SVS, DWG, DXF</td>
<td></td>
</tr>
<tr>
<td>2D symbol</td>
<td>Advancement</td>
<td>1,500 or more</td>
<td></td>
</tr>
<tr>
<td>3D shapes</td>
<td>3D drawing</td>
<td>Cube, sphere, surface, polygon, torus, cone, column, terrain, pipe, comment</td>
<td></td>
</tr>
<tr>
<td>3D import</td>
<td>Import</td>
<td>AutoCAD® Binary (.dwg), XAML (.xaml), 3D Studio (.3ds), COLLADA (.dae), OBJ (.obj)</td>
<td></td>
</tr>
<tr>
<td>3D advancement</td>
<td>Advancement</td>
<td>Polygonal reduce - 3D symbol mesh size reduce</td>
<td></td>
</tr>
<tr>
<td>3D symbol</td>
<td>300 or more</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Fill</td>
<td>RGB, Gradients, image tile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Line</td>
<td>RGB, Gradients, image tile</td>
<td></td>
</tr>
<tr>
<td>Effect/format</td>
<td>General</td>
<td>Opacity, inclination, drop shadow, brilliance, blur</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>Line format, linewidth, line vertex, line joint</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rectangle</td>
<td>Roundness (X, Y)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ellipse</td>
<td>Radius (X, Y)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polygon</td>
<td>Vertex control</td>
<td></td>
</tr>
<tr>
<td>Dynamics</td>
<td>Text</td>
<td>Process point, data input, time/date</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Button</td>
<td>Button, check box, radio button, display button</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dimension</td>
<td>Size, position, rotation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color</td>
<td>Object fill color, object line color, disable, hide, text background color, text foreground color, text border color</td>
<td></td>
</tr>
<tr>
<td>Selection</td>
<td>Selection</td>
<td>State, range</td>
<td></td>
</tr>
<tr>
<td>Selection control</td>
<td>Script</td>
<td>Window (Close a window)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Navigation</td>
<td>Show in rear, show in front, refresh display, popup menu, object display setting, view setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alising</td>
<td>Global alias setting, language setting, local alias setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>Write value, toggle value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td>Start application</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Script</td>
<td>Start script</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Database upload, start form (ReportWorX), start transaction (BridgeWorX)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>Login/logout dialog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.NET Controls</td>
<td>Module</td>
<td>GraphWorX64, GridWorX64, AlarmWorX64, TrendWorX64, EarthWorX64, AX Energy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td>Pipe, scale, smart tile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Video</td>
<td>Static protocol (WMV, AVI, MPEG, MOV, MP4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Streaming</td>
<td>HTTP, HTTPS, MS-WMSP (MMS and RTSIP)</td>
<td></td>
</tr>
<tr>
<td>GEO-SCADA</td>
<td>Smart pin, push pin (EarthWorX64)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Enhancing visibility/reducing the labor for illustration

**CAD compatible** GridWorX64

You can use 2D and 3D preset objects to quickly create displays and reduce engineering time. You can import AutoCAD® data and other existing data to construct a screen display.

When you monitor a large amount of data, it may be effective to organize the values on a grid in the spreadsheet format. You can use GridWorX64 to realize the visualization of data by customizing data sets and using a large-size grid. During design, you can easily set data sources in a grid, reducing the scripting for illustration. During runtime, an operator can sort, group, and filter data in real time for monitoring. As a result of sorting, an operator may find some critical data. By grouping data, an operator can quickly organize the data for improved visualization.

### Specifications of GridWorX64

<table>
<thead>
<tr>
<th>Specification</th>
<th>GridWorX64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refresh</td>
<td>Manual, Automatic</td>
</tr>
<tr>
<td>Maximum value</td>
<td>Row (Unlimited (One million rows or less recommended)), Column (Unlimited (One hundred columns or less recommended))</td>
</tr>
<tr>
<td>Variable format</td>
<td>Background, Foreground, Font Size, Font Weight, Font Family, Font Style</td>
</tr>
<tr>
<td>Data format</td>
<td>Boolean value, character string, time and date, 16-bit integer, 32-bit integer, double unsigned 16-bit integer, unsigned 32-bit integer, unsigned 64-bit integer, OPC UA status code</td>
</tr>
<tr>
<td>Support</td>
<td>Filter, Grouping, Sort</td>
</tr>
</tbody>
</table>

Reducing the labor for illustration

**Script** ScriptWorX64

This is a server application to execute VBA (Visual Basic® for Applications) scripts. You can set time triggers, data triggers, and other various conditions to execute scripts. Watchdog monitoring, an automatic recovery function and an execution queue function are available. These enable easy implementation of complicated periodical processes and event-dependent processes.

An example of the process to store production achievement data

**Batch processing**

**ScriptWorX64**

This is an example of the process to store production achievement data. The process includes batch processing, periodical execution, and script execution.

1. **Batch processing completion flag (data trigger)**: The completion flag triggers the process.
2. **Plc server**: The process starts with the PLC server.
3. **Script execution**: The script is executed periodically to compare the achievement data with the table and store the data.
4. **Storing the achievement data**: The achievement data is stored in the database.
5. **Achievement data storage table**: The data is stored in a table.
Enhancing visibility/a variety of screen display formats

<table>
<thead>
<tr>
<th>Alarm &amp; event</th>
<th>Alarm WorX64</th>
</tr>
</thead>
</table>

Quickly attend to any situation by monitoring alarm tag data and issuing alarm notices.

In addition, the software collects alarm information from the alarm server and stores it in a database; logging it in the alarm history. Alarm controls can be used to display data real-time and historical alarm information on the graphics. An operator can filter alarm information during operation to view only necessary data. By altering the conditions to match the user’s needs (e.g. sort and combine alarm charts) alarms can be analyzed efficiently.

■ Specifications of Alarm WorX64

<table>
<thead>
<tr>
<th>OPC connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC UA</td>
</tr>
<tr>
<td>OPC Classic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm WorX64 Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic alarm type</td>
</tr>
<tr>
<td>Advanced alarm type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm area</td>
</tr>
<tr>
<td>Alarm template</td>
</tr>
<tr>
<td>Relevant value</td>
</tr>
<tr>
<td>Online change</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm WorX64 Logger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logger type</td>
</tr>
<tr>
<td>Logger setting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-setting</td>
</tr>
<tr>
<td>Redundancy</td>
</tr>
<tr>
<td>Database table management</td>
</tr>
<tr>
<td>Printer logging</td>
</tr>
<tr>
<td>Conversion logging</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm WorX64 Viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data type</td>
</tr>
<tr>
<td>Integration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-grid</td>
</tr>
<tr>
<td>Multi-tab</td>
</tr>
<tr>
<td>Custom format</td>
</tr>
<tr>
<td>Filter</td>
</tr>
<tr>
<td>Grouping</td>
</tr>
<tr>
<td>Sort</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MC Alarm64 MMX (Optional Package)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail Notifications for alarms</td>
</tr>
</tbody>
</table>

Enhancing visibility/a variety of screen display formats

<table>
<thead>
<tr>
<th>Trend</th>
<th>Trend WorX64</th>
</tr>
</thead>
</table>

It is also possible to view real-time and historical trend data. Real-time data is collected directly from the OPC server and is shown as a real-time trend. On the other hand, historical data is stored in the database and logged as a trend history. The logged data will be shown as a historical trend. You can add trend graphs to graphic displays to supply trend data to operators alongside other important data.

You can view multiple data items in one trend display and can split or overlap a view/s. In addition, you can pause a trend display, add display data, and change a display scale.

■ Specifications of Trend WorX64

<table>
<thead>
<tr>
<th>OPC connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC UA</td>
</tr>
<tr>
<td>OPC Classic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trend WorX64 Logger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logger type</td>
</tr>
<tr>
<td>Logger setting</td>
</tr>
<tr>
<td>Max. capacity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-logging group</td>
</tr>
<tr>
<td>Multi-database group</td>
</tr>
<tr>
<td>Save and transfer</td>
</tr>
<tr>
<td>Start/stop status</td>
</tr>
<tr>
<td>Database table management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trend WorX64 Viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data type</td>
</tr>
<tr>
<td>Integration</td>
</tr>
<tr>
<td>Trend count</td>
</tr>
<tr>
<td>Time and rate</td>
</tr>
<tr>
<td>Time and date</td>
</tr>
<tr>
<td>Plot type</td>
</tr>
<tr>
<td>Pen type</td>
</tr>
<tr>
<td>Support</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Bad Quality marker</td>
</tr>
<tr>
<td>Multi-grid</td>
</tr>
<tr>
<td>Multi-tab</td>
</tr>
<tr>
<td>Multi-chart</td>
</tr>
<tr>
<td>Custom format</td>
</tr>
<tr>
<td>Trend stop</td>
</tr>
<tr>
<td>Alarm line</td>
</tr>
<tr>
<td>Ideal pen</td>
</tr>
</tbody>
</table>
Workbench (Classic/-SL/Desktop) is a project management tool that allows a user to organize all of MC Works64’s related products from a single location. These include a variety of applications including GraphWorX64, AlarmWorX64 and MC Historian.

Workbench-SL is a management tool based upon Microsoft® Silverlight®. As this environment utilizes a web browser, it is possible to create displays and organize a project on machines that do not have MC Works64 installed.

A separate development license for the client is required.

Workbench Desktop is the latest addition to the MC Works64 project management family. It boasts ease of use through an easy to navigate project tree and drag-and-drop functionality. This allows for the intuitive, visual construction of an MC Works64 project.

By supporting both local and remote access, the Workbench series of applications provide a high amount of freedom for developing systems and displays.

Enhancing visibility/global application

Workbench Desktop
It is possible to develop a project using intuitive operations, such as drag-and-drop.

Workbench-SL
It is possible to develop in a web-based environment.

Switching display language
During runtime it is possible to change the current display language. This global function supports a wide variety of languages including: English, Japanese, Chinese, Spanish etc.

Language Pack
The default language for the Workbench (Classic / -SL/Desktop) environment is English. However, after installing an additional language pack it is possible to view the configuration environment in Japanese or Chinese.
Data from databases can be extracted and used to create various types of reports including: daily, weekly, monthly and yearly reports. This software can create a form in the Microsoft® Excel® format and can also save files in HTML and PDF formats. In addition, you can register multiple form format templates. MC Works64 includes a simplified version of this software called ReportWorX Express that supports OPC, TrendWorX64 Logger Database, MC Historian, AlarmWorX64 Logger Database, Energy Star and AX Quality. Among them, ReportWorX Lite (optional package) is recommended. ReportWorX Lite can create forms in Japanese, but its menu environment supports English only.

RecipeWorX is a tool that allows for the easy management of ingredients and recipe lists. You can specify multiple parameters at once in a recipe list including; defining the ingredients, mixing time, processing time etc. New parameter values can be downloaded to the device to update a working recipe or current values can be uploaded from the device and displayed on screen. By combining this with ScheduleWorX64 (see P21), it is also possible to create schedules that change the current recipe automatically.
MC Works64 supports server and client systems and redundancy. You can use two servers to configure a control server and a standby server, enhancing the reliability of a system and reducing the communication load on a network. MC Works64 can be configured to suitably match the needs of the system; be it a standalone or large scale system.

 Enhancement of reliability  
 **Server & client**

MC Works64 supports server and client systems and redundancy. You can use two servers to configure a control server and a standby server, enhancing the reliability of a system and reducing the communication load on a network. MC Works64 can be configured to suitably match the needs of the system; be it a standalone or large scale system.

 Compatibility with Internet environments  
 **Web monitoring**  **WebHMI (optional package)**

WebHMI uses your MC Works64 server as a web server. This allows operators to monitor and manipulate data over the Internet or Intranets. Almost all of the functions available in MC Works64 can be used in any client type.
Compatibility with Internet environments

**Mobile monitoring | MC Mobile (optional package)**

MC Mobile is the mobile software that monitors important applications of a building or a plant. It is easy to set up and use MC Mobile efficiently. The user can have access to, and monitor, important data anytime, anywhere and from any terminal. The manager, the engineer, the maintenance worker and the operator can: access and monitor data in real-time, view data on alarms, trends, energy, quality, production information etc. MC Works64 supports server and client systems and redundancy. MC Mobile is compatible with mobile terminals using the following technologies; Microsoft® Windows Phone® and Surface®, Apple® iPhone® and iPad®, Android® phones and tablets, or HTML5.

**MELSOFT MC Mobile (application)**

MC Mobile is a client application for use with mobile devices. This dedicated application optimizes the displays to match the device that is being used. Available for compatible OS versions of iOS®, Android®, Windows® and can be downloaded and installed from the App Store®, Google Play® or the Windows Store.

Supported versions: Android® 4.0 or higher, iOS® 7.0 or later, iPhone®, iPad®, iPod Touch®, Windows Phone® 8.1, Windows® 8.1, 10 and 10Mobile.

**Inter-functional linkage**

**Database**

MC Works64 is compatible with SQL, SAP, MySQL®, OLE DB, ODBC and other databases. MC Works64 is bundled with SQL Server® 2014 Express (English version).
Centralized integration management

You can use McAfee® ePolicy Orchestrator (ePO) to optimize and simplify management processes. ePO enables you to use a sole centralized management console to monitor and control all security functions.

Inquiry
McAfee Embedded Solution Sales Division
E-mail: MFE_JPN_BD@McAfee.com

BridgeWorX integrates information from different data sources and can transfer data to different target systems. BridgeWorX realizes the data transfer between the programmable controller on a production site and the SQL server in an MES system and the data transfer among ERP applications. BridgeWorX has a transaction diagram that enables you to set up data transfer. You do not need any knowledge about programming to set up the transaction diagram, simply drag-and-drop and use the help of a wizard to supply the necessary information.

Perfect protection from unfavorable applications

Application Control expands the applicable scope to Java®, ActiveX®, Controls, scripts, batch files and dedicated codes, enhancing the controllability of application components.

A sure protection of integrated systems and legacy systems

Application Control has such compact designing that it is applied to kiosk terminals, POS terminals, and other dedicated devices, operating with a RAM less than 10 MB and a minimum CPU. Its unique protection layer is expanded to Microsoft® Windows NT®, Windows® 2000 system and other legacy systems.

Simplifying patch application processes that can be troublesome

McAfee® Application Control enables you to temporarily delay a patch application until a regular patch application cycle. Even in a case where you worry about some vulnerabilities that do not have correction patches released, white listing can block such programs that make use of those vulnerabilities, thus allowing you can cope with them.

Inter-functional linkage

<table>
<thead>
<tr>
<th>Data conversion</th>
<th>BridgeWorX Lite (optional)</th>
</tr>
</thead>
</table>

McAfee® Application Control

McAfee® Application Control provides means for efficiently blocking malicious applications on servers, desktops, and integrated equipment. Different from simple white listing, Application Control uses a dynamic trust model, which saves you the troublesome labor usually required to update the list of trusted applications.

Centralized integration management

You can use McAfee® ePolicy Orchestrator (ePO) to optimize and simplify management processes. ePO enables you to use a sole centralized management console to monitor and control all security functions.

Inquiry
McAfee Embedded Solution Sales Division
E-mail: MFE_JPN_BD@McAfee.com
Enhancing connectivity

**Connection to a PLC and other equipment**

MC Works64 supports the connection for equipment including programmable controllers via OPC servers and other networks. MC Works64 can connect to the OPC servers that are compatible with OPC UA and OPC Classic (DA, HDA, A/E). An OPC server connects to a programmable controller by way of several types of network. It is recommended that a DeviceXPlorer OPC server (partner product) is applied. In addition, when a programmable controller is connected by way of an MES interface, it is possible to directly connect to an SQL server with MC Works64 to read or write data.

**OPC server connection**

**MX OPC Server**
Software that is able to communicate with the MELSEC PLC.

**MX OPC UA Server**
Supports OPC UA functionality.
Add MX OPC UA Server
- Monitor and operate the equipment with OPC UA
- Support the auto-generation for the Setting of OPC UA Server in MC AppBuilder

**DNP3.0 Support**
Support for the DNP3.0 protocol in MX OPC Server
- Monitor and operate the equipment for DNP3.0

**MELSEC iQ-R Series Process CPU, MELSEC iQ-F Series**
Enhancement of Support H/W in MX OPC Server

**Partner product**

**DeviceXPlorer OPC Server**
DeviceXPlorer OPC Server is the communication software that is compatible with MELSEC-Q Series, C Controller, Motion Controller, and GOT (HMI).
This software can use Ethernet, CC-Link and a variety of types of network to access production information.

**Compatible models**
MELSEC iQ-R Series, iQ-F Series, Q Series, L Series, QnA Series, A Series, FX Series, GOT, Mitsubishi CNC, EcoWebServer III, E-Energy, EcoMonitor, MSCM

**Compatible networks**
Ethernet, serial, CC-Link, CC-Link IE, MELSECNET/H

**Supported regions**
Japan, China, Asia (other than Japan and China), Europe, North America, South and Central America, Africa

**Takebishi Corporation**

Inquiry
29, Mameda-cho, Nishi-kyogoku, Ukyo-ku, Kyoto 615-8501, Japan
TEL: +81-75-325-2171
E-mail: fa-support@takebishi.co.jp
URL: http://www.faweb.net/
BACnet™ and SNMP are both supported. You can use BACnet™ to connect a BACnet™-compatible device and utilize it in an MC Works64 server.

You do not need a gateway or a communication program for a direct connection between a programmable controller and MES.

- To store and control a variety of information in a plant involving production plans, quality, energy, and more on a seamless network
- To use a field network to collect detailed information up to end terminals
- To use an open network to simply gather information on the facility using a third-party’s programmable controller for a machine tool

Connection to the MES interface module

MELSEC iQ-R/MELSEC-Q MES interface

Connection to other networks

BACnet™

- Illumination controller
- Air-conditioning controller

You do not need a gateway or a communication program for a direct connection between a programmable controller and MES.

- To store and control a variety of information in a plant involving production plans, quality, energy, and more on a seamless network
- To use a field network to collect detailed information up to end terminals
- To use an open network to simply gather information on the facility using a third-party’s programmable controller for a machine tool
MC AppBuilder

**Design support / GX Works2 / GX Works3 linkage**

**What is MC AppBuilder?**
MC AppBuilder is an engineering support tool that enables you to easily construct a plant system where MC Works64 and a Mitsubishi programmable controllers are used. MC AppBuilder is bundled with MC Works64 as standard.

**Automatically generating a monitoring screen, a PLC project and setting tags**
MC AppBuilder automatically generates a monitoring screen (including symbol parts and face plate parts), OPC tag settings (including alarms and trend settings) and a PLC project (including PLC programs and label definitions). This automatic generation makes your designing easy, reducing the labor for the registration of tag settings. In addition, this function enhances the affinity with Mitsubishi Electric’s automation equipment.

**Using templates* to reduce the labor for designing**
You can gather the common design details for each type of equipment into a template that can be saved into the Symbol Library. You can assign an applicable template to a piece of equipment in the system tree, thus reducing design labor time. Templates are not only provided by the manufacturer but also registered, and reused, by the customers from their own know-how.

*Templates include symbols, face plates, and other graphic parts information as well as function blocks and other program information and each type of interface information (alarms and trend settings).

**Easy renewal of a system**
It is easy to add and remove equipment from a system. When renewing a system, this reduces design labor.

**Simplifying the monitoring of energy measurement equipment**
In MC AppBuilder you can import measurement point information created by the EcoWebServer III setting tool, Mitsubishi Electric’s energy-saving data collection server, thus automatically generating a monitoring screen and OPC tag settings. This link with the EcoWebServer III setting tool reduces the labor required to create these settings.

**Easy creation of GOT(HMI) screen displays**
Symbols and face plates are integrated for creating GOT, contributing to the reduction of the labor for creating GOT screen displays. See the list of template libraries (see P20) for the GOT screen displays integrated with MC Works64.

---

**A tree format for the managing the system configuration**
You can import an equipment list (in CSV format) that is created with CAD or Microsoft® Visio® to construct a system tree showing the equipment configuration of a plant. This intuitive tree format enables you to take management of the equipment configuration of a plant.

---

**Easy renewal of a system**
It is easy to add and remove equipment from a system. When renewing a system, this reduces design labor.

**Simplifying the monitoring of energy measurement equipment**
In MC AppBuilder you can import measurement point information created by the EcoWebServer III setting tool, Mitsubishi Electric’s energy-saving data collection server, thus automatically generating a monitoring screen and OPC tag settings. This link with the EcoWebServer III setting tool reduces the labor required to create these settings.

**Easy creation of GOT(HMI) screen displays**
Symbols and face plates are integrated for creating GOT, contributing to the reduction of the labor for creating GOT screen displays. See the list of template libraries (see P20) for the GOT screen displays integrated with MC Works64.
## Supported Equipment List

- MELSEC iQ-R Series CPU (including the CC-Link IE built-in model)
- MELSEC iQ-R Series Process CPU (including redundant configuration)
- MELSEC Q Series CPU (Basic model, high-performance model, universal model and universal model high-speed type)
- MELSEC Q Series Process CPU (Excluding universal model)
- MELSEC Q Series Universal CPU
- MELSEC L Series CPU

### List of template libraries

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Component</th>
<th>Compatibility with GOT screen display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>Displays the input status from a connected sensor.</td>
<td>Symbol</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face plate</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Function block</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>Fan</td>
<td>Controls ON/OFF switching of a fan.*3</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>Controls ON/OFF switching of a motor.*3</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Pump</td>
<td>Controls ON/OFF switching of a pump.*3</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Valve</td>
<td>Controls Open/Close switching of a valve.*3</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Damper</td>
<td>Controls Open/Close switching of a damper.*3</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>FanVSD</td>
<td>Specifies a fan speed to control ON/OFF switching.</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>MotorVSD</td>
<td>Specifies a motor speed to control ON/OFF switching.</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>PumpVSD</td>
<td>Specifies a pump speed to control ON/OFF switching.</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td>Shows measurement values from an analog measuring instrument.</td>
<td>● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td>Shows measurement values from a measurement module supporting CC-Link (an electronic multi-measuring instrument).</td>
<td>● ● ● ●</td>
<td></td>
</tr>
</tbody>
</table>

### Supported Equipment List

- Q64AD2DA
- Q64DAH
- Q66DA_G
- Q62DAN
- Q68DAIN

### Example: Control Valve

1. Face plate
2. Symbol
3. Function block

![Example Image](image_url)
You can follow a schedule to automatically change building lighting, air-conditioning, plant facility and so forth. By referring to a schedule you can set up tag values for daily, weekly, and monthly schedule management.

### Specification of ScheduleWorX64

<table>
<thead>
<tr>
<th>Schedule type</th>
<th>General, weekly, holidays, seasonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>One time</td>
<td>Override, exceptional</td>
</tr>
<tr>
<td>View</td>
<td>Day, week, month, timeline</td>
</tr>
<tr>
<td>Support</td>
<td>Outlook® format</td>
</tr>
<tr>
<td></td>
<td>Remote setting</td>
</tr>
<tr>
<td></td>
<td>Live monitor mode</td>
</tr>
<tr>
<td></td>
<td>Security</td>
</tr>
<tr>
<td></td>
<td>Manual override</td>
</tr>
</tbody>
</table>

You can use Bing Maps and other map systems via the Internet to display geographical information for wide area monitoring. You can monitor business bases and plants distributed around the world on a single map. In addition, when you use a pin, you can view detailed information and alarm statuses. You can also use GPS data for monitoring.

### Specifications of EarthWorX64

<table>
<thead>
<tr>
<th>Map</th>
<th>Bing® (Shade, No Shade), Hybrid, Aerial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Esri® Imagery, World Boundaries, Streets, Topographic, Canvas, National Geographic, Oceans</td>
</tr>
<tr>
<td></td>
<td>Google® Roadmap, Satellite, Terrain, Hybrid</td>
</tr>
<tr>
<td></td>
<td>OGC WMS Custom</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EarthWorX64 Viewer</th>
<th>Zoom Level 1-16, A scope is specifiable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Layer Opacity Available, Visibility Available-dynamics allocation available (initial value: show)</td>
</tr>
<tr>
<td></td>
<td>Capacity Information Bing®, Esri®, OGC WMS Provider Address, Additional Parameters</td>
</tr>
<tr>
<td></td>
<td>Smart pin Allocation GraphWorX64 object, latitude/longitude, Setting Dialog Size [Add/delete row/column], Color [in smart icon], Data collection [OPC, OPC UA, Global Aliasing, Language Aliasing, simulation, expression, Local Aliasing], Tool tip [Settable, data accepted]</td>
</tr>
<tr>
<td></td>
<td>Pushpin Allocation GraphWorX64 object, latitude/longitude, Setting Fill, zoom, shadow</td>
</tr>
</tbody>
</table>
Microsoft Azure®, the Cloud service by Microsoft®, is supported. You can store data and server applications on the Cloud to construct a flexible system.

1. How to use Microsoft Azure® as a communication route
   Merit  You can monitor a subject easily and safely.

2. How to have a server application on Microsoft Azure®
   Merit  You can save the labor for the management of a server personal computer.

MC Historian Express is a simplified version of the optional data collection tool MC Historian (see P24). Using its own data storage format means that a commercial database engine is not required and it provides fast data collection. This Express version is available as part of the standard MC Works64 license.

Configurations:
- : MC Historian Express will use MC Works64 license tags for logging.
- : The maximum number of possible logging tags are 5000.
These applications link alarms with email and SMS notifications. Users can receive messages containing information such as: the date and time that the alarm occurred, the type of alarm and the alarm name.

Using AlertWorX, a standard feature of MC Works64, it is possible to notify a single user via a simple configuration. Additionally, the optional package MC Alarm64 MMX allows for much more advanced settings. For example, depending on the type of alarm that occurs a different group of users can be notified; such as the operators or the engineers. Within that, the operators that are notified can be changed depending on the current work shift. It is possible to automatically change the notifications destination at the time the alarm occurs.

During runtime mode, it is possible to create a personalized monitoring display. There are a variety of widgets available (device symbols, alarms, trends etc.) that can be arranged on the screen as desired in order to display the necessary data. After creating these displays it is possible to save them and reload them at a later time; either for viewing or further customization.
A high performance and high reliability data logger that can collect 100,000 points per second* (by comparison, the collection performance of the TrendWorX64 is 20,000 points per second*). It is also possible to log the result of a calculation based upon a user-defined formula. Long term logging is possible thanks to a high-compression logging feature. High reliability can be ensured through redundancy and distributed processing. Depending on the target application there are 3 available versions; standard (SD), enterprise (ET) and redundant (RT).

A simplified version of MC Historian is freely available in both MC Works64 and MC Mobile packages called MC Historian Express.

<table>
<thead>
<tr>
<th>Features/Specifications</th>
<th>MC Historian SD/ET/R (Optional packages)</th>
<th>MC Historian Express (MC Works64 Standard Package)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-speed Logging</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Performance Calculations</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Powerful Compression Filtering</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Save data into an HDD file</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>(TrendWorX data is saved into an SQL database)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redundant</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Distributed Architecture</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Maximum Tag Count</td>
<td>No Limit</td>
<td>5000</td>
</tr>
<tr>
<td>Tag Counting Method</td>
<td>Counted as MC Historian Tags</td>
<td>Counted as MC Works64 Tags</td>
</tr>
</tbody>
</table>

* Depends on the system configuration.

It is possible to visualize and analyze CO2 emissions and the consumption of energy, including electricity and gas, based on plant, facility and device leading to energy savings and cutting costs. You can express daily and monthly energy consumption in the form of a graph, and you can easily switch their views. You can also use Microsoft® Excel® to create a form in the format of your choice.
You can use a web browser to monitor screens created in MC Works64, AX Energy, AX Facility and AX Quality. You can divide a screen for the integral view of these functions.

Preventive maintenance
AX Facility

It is possible to use prior knowledge on equipment faults to create a resource that improves recovery times. It is possible to analyze the causes of facility troubles together with their frequency to know their trends, providing aid for preventive maintenance. You can use Microsoft® Excel® to create a form in the format of your choice from the result of analysis.

Quality control
AX Quality

AX Quality creates management charts for the analysis of quality control and process capacity, reducing the labor of onsite operators and managers. AX Quality provides SQC/SPC data analysis, SQC charts, reports, and SPC rule-based alarms.

Web monitoring
AX Portal

You can use a web analysis screen programming support tool to monitor screens created in AX Portal.
Mitsubishi Electric FA integrated solution

e-F@ctory is the Mitsubishi Electric solution for improving the performance of any manufacturing enterprise by enhancing productivity, and reducing the maintenance and operations costs together with seamless information flow throughout the plant.
Automotive Industry

MC Works64 can be applied at every process in an automotive plant to create a complete monitoring control system. For production control, the yield and facility information based on each process is stored on a database server in MC Works64 via the integrated programmable controller and the MES interface.

Advanced functions
Options
Product list
Solutions
Constructing a display
Constructing a system

Comprehensive management control
Line monitor
Error display

Wide screen monitor

Information Ethernet
Control Ethernet

System configuration (with an MES interface module)

System configuration (with CC-Link IE)
MC Works64 can be applied for the monitoring control of an assembly plant of electrical machinery and electronics. The programmable controller of each process uses the 2D codes inscribed on work to collect the product ID. Each process' yield is stored in the MC Works64 database using the MES interface which manages each unit of work. Based upon recipe data, production information and quality information in the database, it is possible to create various forms (such as assembly yields and quality records) to secure traceability.
We recommend MC Works64 for the monitoring control of building and plant air-conditioning and facilities. This provides a variety of solutions: monitoring control linked to an air-conditioning controller, the visualization of energy with EcoWebServer III and energy measurement equipment. It also provides an energy-saving solution linked to a high-efficiency inverter and a building’s wire-saving network.
Food and Beverage

We propose MC Works64 for the monitoring control of production processes of a food/beverage plant ranging from the upstream processes (the PA control of compound processes etc.) to the downstream processes (the factory automation control of packing, transport, etc.) as well as for the monitoring control of utilities.

The monitoring control by MC Works64 involves server redundant and server and client configuration to construct a system where the load distribution is enabled in a highly reliable network. In addition, you can use a CC-Link IE Control network to connect a programmable controller for integration and, furthermore, you can use a MELSECNET/H remote I/O network to distribute and connect I/Os, thus realizing the configuration of a hierarchical network system.

Preparation process  Fermentation/preservation process  Filtering process

Utility

Power reception, boiler, freezing machine, compressor, water reception, drainage, etc.

System configuration
We propose MC Works64 for the monitoring control of each process and utility at a steel plant. Redundant CPUs enable you to construct a highly reliable system. A CC-Link IE Control network connects a programmable controller for integration. Moreover, you can use a MELSENET/H remote I/O network to connect distributed I/Os for the construction of a hierarchical network system.
The use of MC Works64 can provide a total solution. This includes process and utility monitoring control and production control for a plant producing industrial chemicals, high-functional materials and medical products.
MC Works64 can be applied to an incineration power plant for monitoring and controlling: the incinerator, the boiler, utilities, gas treatment, and power generation processes. Redundant CPUs, a CC-Link IE Control network and redundant MC Works64 servers can construct a high reliability system. Mitsubishi Electric proposes a total solution ranging from the process monitoring control with redundant CPUs to the visualization of generated energy with MC Works64.
## Product List

### Basic products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Model</th>
<th>Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC Works4 CL</td>
<td>SW3DND-MCWCL-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Works4 LT</td>
<td>SW3DND-MCWCL-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Graph4 CL</td>
<td>SW3DND-MCGCL-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Graph4 LT</td>
<td>SW3DND-MCGLT-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Alarm4 CL</td>
<td>SW3DND-MCACL-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Alarm4 LT</td>
<td>SW3DND-MCALT-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
<tr>
<td>MC Historian R</td>
<td>SW3DND-MCCHR-ET</td>
<td>15, 50, 100, 150, 500, 1000, 5k, 15k, 50k, 100k, 250k</td>
<td></td>
</tr>
<tr>
<td>MC Historian C</td>
<td>SW3DND-MCCHR-ET</td>
<td>15, 50, 100, 150, 500, 1000</td>
<td></td>
</tr>
</tbody>
</table>

### Function list

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC Works4 CL</td>
<td></td>
</tr>
<tr>
<td>MC Works4 LT</td>
<td></td>
</tr>
<tr>
<td>MC Graph4 CL</td>
<td></td>
</tr>
<tr>
<td>MC Graph4 LT</td>
<td></td>
</tr>
<tr>
<td>MC Alarm4 CL</td>
<td></td>
</tr>
<tr>
<td>MC Alarm4 LT</td>
<td></td>
</tr>
<tr>
<td>MC Historian R</td>
<td></td>
</tr>
<tr>
<td>MC Historian C</td>
<td></td>
</tr>
</tbody>
</table>

### Additional information

- **ReportWorX Express** is an on-demand form tool that runs with 32/64 bit Microsoft® Excel®.
- Purchase DeviceXPlor for OPC servers and FrameWorX for OPC UA data conversion and Global Alarming for OPC UA data conversion.
- Purchase ReportWorX Lite for the outputs in HTML, PDF, or other formats and for automatic daily/monthly form outputs.
Selecting basic products

1. If you will use graphics, alarms, and trend functions, select MC Works64.
2. If you will use only graphic functions, select MC Graph64.
3. If you will use only alarm functions, select MC Alarm64.
Example: Select MC Works64 when you need graphics, alarms, and trend functions.

Selecting server functions

1. If you will use graphics, alarms, and trend functions, select MC Works64.
2. If you will use only graphic functions, select MC Graph64.
3. If you will use only alarm functions, select MC Alarm64.
Example: Select MC Works64 when you need graphics, alarms, and trend functions.

Selecting server development versions/runtime versions

1. If you will use a development version on a server (the tag count depends on dynamic tags), select DV.
2. If you will use a runtime version (display function) on a server (the tag count depends on dynamic tags), select RT.
3. If you will use a runtime version (display function) on a server (the tag count depends on static tags), select LT.
Example: Select MC Works64 [DV] when you need a development version (the tag count depends on dynamic tags).

Selecting redundant servers

1. If redundant servers are required, select two licenses or a redundant version of the product.
2. If redundant servers are not required, only select simple license products.
Example: Select MC Works64-DL (two licenses) when you need redundant servers.

Selecting MC Historian servers (if you do not need data collection or if the collection speed is 50k points per minute or less, use the trend functions of MC Works64. Go to 3.)

Example: MC Historian ET OL

Selecting redundant servers

1. If redundant servers are required, select the two license ET or the one-license R.
2. If redundant servers are not required, only select simple license SD.
Example: Select MC Historian ET [two licenses] or MC Historian R [one license] when you require redundant servers.

Selecting MC Works64/MC Historian client (if you do not need a client, go to 4.)

Example: MC Works64 CL RT

Selecting writeable and read-only clients

1. If a client is required for development or editing values from a display as necessary, select CL.
2. If you do not need to write from a display (read-only), select RO.

Selecting remote collector (if you do not need a remote collector, go to 5.)

Example: MC Historian C

A remote collector refers to a function that uses a personal computer other than the server to collect data and sends data to the server.

Selecting MC Mobile (if you do not need mobile device monitoring, go to 7.)

Example: MC Mobile ET OL

Selecting OPC servers

1. If you will use an MX OPC server, select “–” (an MX OPC server is bundled).
2. If you will not use an MX OPC server, select OL (MX OPC Server is not bundled).
Example: Select MC Works64-DL (two licenses) when you need a DeviceXplor OPC server.

Selecting OPC servers

1. If you will use an MX OPC server, select “–” (an MX OPC server is bundled).
2. If you will not use an MX OPC server, select OL (MX OPC Server is not bundled).
Example: Select MC Works64-DL (two licenses) when you need a DeviceXplor OPC server.

Example: Select MC Mobile [CL] when you purchase additional MC Mobile licenses for operation and display functions (1, 5, 25, 100, or 500 licenses).

Selecting an MC Works64 license authentication type (Select one of the two.)

1. If you will use different personal computers for development and runtime (display function) and you want to use one license, select MC Works USB Key (a USB key is used for H/W license authentication).
2. If you will use the same personal computer for development and runtime (display function), use the Internet for the S/W license authentication.

Selecting an MC Works64 license authentication type (Select one of the two.)

1. If you will use different personal computers for development and runtime (display function) and you want to use one license, select MC Works USB Key (a USB key is used for H/W license authentication).
2. If you will use the same personal computer for development and runtime (display function), use the Internet for the S/W license authentication.

Additional purchase of MC Mobile licenses (if you do not need these licenses, go to 7.)

Example: MC Mobile CL

Selecting an MC Works64 license authentication type (Select one of the two.)

1. If you will use different personal computers for development and runtime (display function) and you want to use one license, select MC Works USB Key (a USB key is used for H/W license authentication).
2. If you will use the same personal computer for development and runtime (display function), use the Internet for the S/W license authentication.

Addition Japanese-language and Chinese-language package products (if you do not need a Japanese-language or Chinese-language package, go to 9)

1. If you need a Japanese-language or Chinese-language package, select MC Works4-Language Pack.
2. If you do not need a Japanese-language or Chinese-language package, select “–”.

Adding MC Alarm MMX (if you do not need MC Alarm MMX, go to 10)

1. E-mail notification with advanced features are necessary (including a schedule, alarm acknowledgement, etc.), select MC Alarm MMX LT
2. Only basic e-mail notification features are necessary, select CL. (Note: E-mail features are included in the standard features of MC Works64)

Selecting BridgeWorX Lite (if you do not need BridgeWorX Lite [data conversion function] go to 11)

1. If you need BridgeWorX, select BridgeWorX Lite.
2. If you do not need BridgeWorX, select “–”.

Selecting ReportWorX Lite (if you do not need any full-fledged form handling processes, end here.)

1. If you need ReportWorX, select ReportWorX Lite.
2. If you do not need ReportWorX, select “–”.

Selecting remote collectors

1. If your MC Historian server does not have a redundant configuration, select C.
2. If your MC Historian server has a redundant configuration, select CR.
Example: Select MC Historian C when your MC Historian server does not have a redundant configuration.
<table>
<thead>
<tr>
<th>Product name</th>
<th>Model</th>
<th>Asset</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX Energy SV</td>
<td>SW3DND-AXESV-E</td>
<td>5</td>
<td>Energy monitoring&lt;br&gt; +MC Historian SD (including 5 tags)&lt;br&gt; +ReportWolf (1 report)&lt;br&gt; (MC Works64 license needs to be purchased separately.)</td>
</tr>
<tr>
<td>AX Energy 2</td>
<td>SW3DND-AXE-E</td>
<td>5</td>
<td>Energy monitoring&lt;br&gt; +MC Works64 DV (including 75 tags)&lt;br&gt; +MC Historian SD (including 5 tags)&lt;br&gt; +1 MC Works64 CL RT&lt;br&gt; +ReportWolf (1 report)</td>
</tr>
<tr>
<td>AX Energy AS</td>
<td>SW3DND-AXEAS-ET</td>
<td>100, 500</td>
<td>10, 100, 5,000 tags added to MC Works64&lt;br&gt; +MC Works64 CL RT&lt;br&gt; +ReportWolf (1 report)</td>
</tr>
<tr>
<td>AX Facility SV</td>
<td>SW3DND-AXFSV-E</td>
<td>5</td>
<td>Preventive maintenance&lt;br&gt; +MC Historian SD (including 5 tags)&lt;br&gt; +ReportWolf (1 report)</td>
</tr>
<tr>
<td>AX Facility 2</td>
<td>SW3DND-AXF-E</td>
<td>5</td>
<td>Preventive maintenance&lt;br&gt; +MC Works64 DV (including 75 tags)&lt;br&gt; +MC Historian SD (including 5 tags)&lt;br&gt; +1 MC Works64 CL RT&lt;br&gt; +ReportWolf (1 report)</td>
</tr>
<tr>
<td>AX Facility AS</td>
<td>SW3DND-AXFAS-ET</td>
<td>1, 100, 500, 1,000, 5,000 tags added to MC Works64&lt;br&gt; 1, 100, 500, 1,500, 5,000, 10,000 tags added to +MC Historian&lt;br&gt; (MC Works64 license and AX Facility license needs to be purchased separately.)</td>
<td></td>
</tr>
<tr>
<td>AX Quality SV</td>
<td>SW3DND-AXQSV-E</td>
<td>—</td>
<td>Quality control (MC Works64 license and AX Facility license needs to be purchased separately.)</td>
</tr>
<tr>
<td>AX Quality 2</td>
<td>SW3DND-AXQ-E</td>
<td>—</td>
<td>Quality control&lt;br&gt; +MC Works64 (including 150 tags)&lt;br&gt; +MC Historian (including 150 tags)</td>
</tr>
<tr>
<td>AX Portal SV</td>
<td>SW3DND-AXPSV-E</td>
<td>—</td>
<td>Web monitoring&lt;br&gt; +MC Works64 CL LT (1 client)&lt;br&gt; (MC Works64 license needs to be purchased separately.)</td>
</tr>
<tr>
<td>AX Portal ET 2</td>
<td>SW3DND-AXPET-E</td>
<td>—</td>
<td>Web monitoring&lt;br&gt; +MC Works64 DV (including 15k tags)&lt;br&gt; +MC Works64 CL RT (25 clients)</td>
</tr>
</tbody>
</table>

* AX Energy/AX Facility is licensed depending on the analysis (asset) count not on the tag count.
* MX OPC Server does not support Japanese. If you want to use Japanese, purchase DeviceXplor OPC server.
* You can assign AX Quality’s functions to all the tags of MC Historian.
Selecting AnalytiX® products

1. Energy monitoring - Selecting AX Energy (if you do not need AX Energy, go to 3.)

   Example: AX Energy SV

   Consider (1) as shown below.

(1) Selecting the availability of MC Works64 licenses and OPC servers

1. If you have MC Works64 licenses and want AX Historian SD (5 tags), ReportWork (1 report), and AX Energy (5 assets), select SV.
2. If you select AX Works licenses (75 tags), ReportWork (1 report), and AX Energy (5 assets) and use MX OPC server, select SV.
3. If you select AX Works licenses (75 tags), ReportWork (1 report), and AX Energy (5 assets) and do not use a MX OPC server, select OL.

Example. Select AX Energy [OL] when you select AX Works64 licenses and AX Energy and use a DeviceXPlorer OPC server.

2. Adding AX Energy tag/asset (if you do not need to add this, go to 3.)

   1. If you want to add MC Works64 (10, 1,000 or 5,000 tags) and AX Energy (1, 100 or 500 assets), select AX Energy AS.
   2. If you do not want to add tags/assets, select "–".

3. Preventive maintenance - Selecting AX Facility (if you do not need AX Facility, go to 5.)

   Example: AX Facility SV

   Consider (1) as shown below.

(1) Selecting the availability of MC Works64 licenses and OPC servers

1. If you have MC Works64 licenses and want AX Facility SD (5 tags), ReportWork (1 report), and AX Facility (5 assets), select SV.
2. If you will use an MX OPC server, select "–" (an MX OPC server is bundled).
3. If you will not use an MX OPC server, select OL (MX OPC Server is not bundled).

Example. Select AX Facility [OL] when you use a DeviceXPlorer OPC server.

4. Adding AX Facility tags and assets (if you do not need to add these, go to 5.)

   1. If you want to add MC Works64 (10 or 1,000 tags) and AX Facility (1 or 100 assets), select AX Facility AS.
   2. If you do not add tags/assets, select "–".

5. Quality control - Selecting AX Quality (if you do not need AX Quality, go to 6.)

   Example: AX Quality SV

   Consider (1) as shown below.

(1) Selecting the availability of MC Works64/MC Historian licenses and OPC servers

1. If you have MC Works64/MC Historian licenses and want AX Quality, select SV.
2. If you select MC Works64 licenses (150 tags), AX Historian licenses (150 tags), and AX Quality and use an MX OPC server, select "–".
3. If you select MC Works64 licenses (150 tags), AX Historian licenses (150 tags), and AX Quality and do not use a MX OPC server, select OL.

Example. Select AX Quality [OL] when you select MC Works64 licenses, AX Historian licenses and AX Quality and use a DeviceXPlorer OPC server.

6. Web monitoring - Selecting AX Portal (if you do not need AX Portal, go to 7.)

   Example: AX Portal ET OL

   Consider (1) and (2) as shown below.

(1) Selecting AX Portal depending on the availability of MC Works64 licenses

1. If you have MC Works64 licenses and want to select MC Works64 CL LT (1 license), select SV.
2. If you want to select MC Works64 CL LT (5 licenses), select ET.

Example. Select AX Portal [ET] when you purchase MC Works64 CL LT as a set.

(2) Selecting OPC servers

1. If you will use an MX OPC server, select "–" (an MX OPC server is bundled).
2. If you will not use an MX OPC server, select OL (MX OPC Server is not bundled).

Example. Select AX Portal [OL] when you select MC Works64 CL LT and AX Portal and use a DeviceXPlorer OPC server.

7. Additional client license (if you do not need to add these, end here.)

   1. If an additional client license is needed for AX Energy, AX Facility, AX Quality (not limited to only display in a Web browser), select MC Works64 CL RT.
   2. If an additional client license is needed for AX Energy, AX Facility, AX Quality (limited to display only in a Web browser), select MC Works64 CL RT.
   3. If an additional client license is needed for AX Portal, select MC Works64 CL LT.
   4. If no additional clients are necessary, select "–".

Example. AX Energy [OL] when you select MC Works64 licenses and AX Energy and use a DeviceXPlorer OPC server.
### System requirements

<table>
<thead>
<tr>
<th>Item</th>
<th>MC Works64</th>
<th>MC Graph64</th>
<th>MC Alarm64</th>
<th>MC Historian</th>
<th>MC Mobile</th>
<th>AX Energy</th>
<th>AX Facility</th>
<th>AX Quality</th>
<th>AX Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>Dual/Multi Core 64-bit processor 2 GHz or higher recommended</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>4 GB (8 GB or larger recommended)</td>
<td>Free space of 160 GB or larger</td>
<td>Free space of 4 GB or larger</td>
<td></td>
<td>4 GB (10 GB or larger recommended)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hard disk drive (for installation)</strong></td>
<td>Free space of 4 GB or larger</td>
<td>Free space of 4 GB or larger</td>
<td>Free space of 4 GB or larger</td>
<td></td>
<td>Free space of 20 GB or larger (50 GB or larger recommended)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Virtual memory (for operation)</strong></td>
<td>512 MB or larger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Disk drive</strong></td>
<td></td>
<td>DVD-ROM drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td>Microsoft® SQL Server®</td>
<td></td>
<td></td>
<td></td>
<td>Microsoft® SharePoint® Server 2012®</td>
<td>Microsoft® SharePoint® Server 2010 and SharePoint® Foundation 2010®</td>
<td>Microsoft® Office Excel® (2003 or later)²</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NET Framework</strong></td>
<td>Microsoft® .NET Framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Web browser</strong></td>
<td>Microsoft® Internet Information Services (IIS) 7.0 or later</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other requirements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Microsoft® Silverlight®-compatible browser (Internet Explorer® etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For the details of the compatibility with specific versions, see the table below.
2. Necessary to view browser screens
3. Necessary to use forms
4. Compatible with AX Portal
5. Necessary for automatically generating sequencer projects with MC AppBuilder

### OS compatibility

<table>
<thead>
<tr>
<th>OS</th>
<th>MC Works64</th>
<th>MC Graph64</th>
<th>MC Alarm64</th>
<th>MC Historian</th>
<th>MC Mobile</th>
<th>AX Energy</th>
<th>AX Facility</th>
<th>AX Quality</th>
<th>AX Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows® 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows® 8 &amp; 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows® 7 SP1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server® 2012R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server® 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server® 2008 SP1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server® 2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Compatible with Pro and Enterprise editions
2. Compatible with Professional, Enterprise and Ultimate editions
3. MC AppBuilder will be operating out of warranty on a Windows Server® system OS.

### Database compatibility (data storage)

<table>
<thead>
<tr>
<th>Database</th>
<th>MC Works64</th>
<th>MC Graph64</th>
<th>MC Alarm64</th>
<th>MC Historian</th>
<th>MC Mobile</th>
<th>AX Energy</th>
<th>AX Facility</th>
<th>AX Quality</th>
<th>AX Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server® 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL Server® 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL Server® 2008 R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. When using AX Energy with SQL Server® Express, it will operate for 180 days in demo mode.
2. It is possible to use the Express (free) version of the software. However, please note that there are some restrictions in SQL Server® Express. (Database size: maximum 10GB. Please check Microsoft®’s home page for more information)

### Web browser compatibility (screen display)

<table>
<thead>
<tr>
<th>Web browser</th>
<th>MC Works64</th>
<th>MC Graph64</th>
<th>MC Alarm64</th>
<th>MC Historian</th>
<th>MC Mobile</th>
<th>AX Energy</th>
<th>AX Facility</th>
<th>AX Quality</th>
<th>AX Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer® 8-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firefox® 3 or later</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safari®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google Chrome®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other web browsers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Only the Silverlight®-version HMI screen is displayed.
Steps for starting up MC Works64

Registration of license (Software key)

Order

Purchase

Install product into PC

Mitsubishi Electric Corp.

License Certificate
1. Product Name
2. Customer Key
3. Product Registration No.

MC Works64

Register license

Startup

Acquire license file from Mitsubishi Electric website
http://www.mcworkslicensing.com/

* Refer to the manual enclosed with the product for details.

DVD file list

Double-click "Default"

Mitsubishi Electric Corp.

License Certificate
1. Product Name
2. Customer Key
3. Product Registration No.

Refer to the "4 Software Licensing"

Registration of license (Hardware key)

Order

Purchase

Install product into PC

Mitsubishi Electric Corp.

License Certificate
1. Product Name
2. Customer Key
3. Product Registration No.

MC Works64

Register license

Startup

Register product information on Mitsubishi Electric website
http://www.mcworkslicensing.com/

* Refer to the manual enclosed with the product for details.
Extensive global support coverage providing expert help whenever needed

Global FA centers

China
- Shanghai FA Center
  MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD.
  PT. MITSUBISHI ELECTRIC INDONESIA Cikarang Office
  Jl. Kenari Raya Blok G2-07A Delta Silicon 5, Lippo Cikarang Bekasi 17550, Indonesia
  Tel: +62-21-2961-7797 / Fax: +62-21-2961-7794

Vietnam
- Hanoi FA Center
  MITSUBISHI ELECTRIC VIETNAM COMPANY LIMITED
  Hanoi Branch
  6 Floor, Detch Tower, 8 Ton That Thuyet Street, My Dinh 2 Ward, Nam Tu Liem District, Hanoi, Vietnam
  Tel: +84-4-3937-8075 / Fax: +84-4-3937-8076

Indonesia
- Indonesia FA Center
  PT. MITSUBISHI ELECTRIC INDONESIA
  Cikarang Office
  Jl. Kenari Raya Blok G2-07A Delta Silicon 5, Lippo Cikarang Bekasi 17550, Indonesia
  Tel: +62-21-2961-7797 / Fax: +62-21-2961-7794

Korea
- Korea FA Center
  MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD.
  8F, Gwangseong Hangang Xi-tower A 401, Yangcheon-ro, Gangdong-gu, Seoul 157-801, Korea
  Tel: +82-2-3980-0100 / Fax: +82-2-3980-0101

Thailand
- Thailand FA Center
  MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD.
  12th Floor, Su/City Building, Office Tower 1 , No. 896/19 and 20 Ramkhamhaeng Road, Khet Yannawa, Bangkok 10120, Thailand
  Tel: +66-2682-6522 / Fax: +66-2682-6020

Aisan
- ASEAN FA Center
  MITSUBISHI ELECTRIC ASIA PTE. LTD.
  307, Alexandra Road, #05-01/04, Singapore 159943
  Tel: +65-6473-2308 / Fax: +65-6476-7439

Europe
- Europe FA Center
  MITSUBISHI ELECTRIC EUROPE B.V.
  Polish Branch
  ul. Krakowska 50, 32-083 Bałtow, Poland
  Tel: +48-12-347-65-00 / Fax: +48-12-630-47-01

Brazil
- Brazil FA Center
  MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA.
  Avenida Adelino Cardana, 293 20 andar Belaville, Barueri SP Brazil
  Tel: +55-11-4689-3000 / Fax: +55-11-4689-3016

India
- India FA Center
  MITSUBISHI ELECTRIC INDIA PVT. LTD.
  Pune Branch
  Emerald House, EL-3, J. B. Block, M.I.D.C Bhosari, Pune- 411028, Maharashtra, India
  Tel: +91-20-2710-2000 / Fax: +91-20-2710-2100

Mexico
- Mexico FA Center
  MITSUBISHI ELECTRIC AUTOMATION, INC.
  Mexico Branch
  Manzana Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo, Mexico, C.P.54030
  Tel: +52-55-3067-7500

Japan
- Japan FA Center
  MITSUBISHI ELECTRIC CORPORATION Nagoya Works
  500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.
  Tel: +1-847-478-2100 / Fax: +1-847-478-2253

North America
- North America FA Center
  MITSUBISHI ELECTRIC AUTOMATION, INC.
  20 Rama 3 Road, Kwaeng Bangpongpang, Khet Yannawa, 12th Floor, SV.City Building, Office Tower 1, No. 896/19 and 8F , Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Tel: +886-2-2299-9917 / Fax: +886-2-2299-9963

North America FA Center
- North America FA Center
  MITSUBISHI ELECTRIC CORPORATION Nagoya Works
  500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.
  Tel: +1-847-478-2100 / Fax: +1-847-478-2253

Oceania
- ASEAN FA Center
  MITSUBISHI ELECTRIC ASIA PTE. LTD.
  307, Alexandra Road, #05-01/04, Singapore 159943
  Tel: +65-6473-2308 / Fax: +65-6476-7439

Russia
- Russia FA Center
  MITSUBISHI ELECTRIC CORPORATION Nagoya Works
  500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.
  Tel: +1-847-478-2100 / Fax: +1-847-478-2253

U.S.A.
- U.S.A. FA Center
  MITSUBISHI ELECTRIC CORPORATION Nagoya Works
  500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.
  Tel: +1-847-478-2100 / Fax: +1-847-478-2253
CC-Link Partner Association (CLPA) - Actively promoting worldwide adoption of CC-Link networks

Proactively supporting CC-Link, from promotion to specification development

The CC-Link Partner Association (CLPA) was established to promote the worldwide adoption of the CC-Link open-field network. By conducting promotional activities such as organizing trade shows and seminars, conducting conformance tests, and providing catalogs, brochures and website information, CLPA activities are successfully increasing the number of CC-Link partner manufacturers and CC-Link-compatible products. As such, CLPA is playing a major role in the globalization of CC-Link.

Visit the CLPA website for the latest CC-Link information.
URL: www.cc-link.org

Global influence of CC-Link continues to spread

CC-Link is supported globally by CLPA. With offices throughout the world, support for partner companies can be found locally. Each regional CLPA office undertakes various support and promotional activities to further the influence of CC-Link/CC-Link IE in that part of the world. For companies looking to increase their presence in their local area, CLPA is well placed to assist these efforts through offices in all major regions.
Trademarks and Registered Trademarks

- Oracle and Java are the registered trademarks of Oracle Corporation, its subsidiaries, or its associates in the US and in other countries.
- Google, Android, Google Chrome and Google Play are the registered trademarks or the trademarks of Google Inc.
- Apple, Safari, iPhone, iPad, iPod touch, App Store and iOS are the registered trademarks or the trademarks of Apple Inc. in the US.
- IOS is a trademark or registered trademark of Cisco in the US. and other countries and is used under license.
- MySQL is either a registered trademark or a trademark of MySQL AB.
- Firefox is the trademark or the registered trademark of Mozilla Foundation in the US and in other countries.
- Esri is the registered trademark or the trademark of Esri in the US and in other countries.
- AutoCAD is the trademark or the registered trademark of Autodesk, Inc. in the US and in other countries.
- McAfee is the registered trademark or the trademark of McAfee, Inc., a corporation in the US, or its associates in the US or in other countries.
- Ethernet is the trademark of Xerox Corporation in the US.
- MODBUS is the registered trademark of Schneider Electric SA.
- Anywire is the registered trademark of Anywire Corporation.
- AnalytiX is the registered trademark of ICONICS, Inc.
- The other company names and product names described in this document are the trademarks or the registered trademarks of each of the companies.
YOUR SOLUTION PARTNER

Mitsubishi Electric offers a wide range of automation equipment from PLCs and HMs to CNC and EDM machines.

A NAME TO TRUST
Since its beginnings in 1870, some 45 companies use the Mitsubishi name, covering a spectrum of finance, commerce and industry.

The Mitsubishi brand name is recognized around the world as a symbol of premium quality.

Mitsubishi Electric Corporation is active in space development, transportation, semi-conductors, energy systems, communications and information processing, audio visual equipment and home electronics, building and energy management and automation systems, and has 237 factories and laboratories worldwide in over 121 countries.

This is why you can rely on Mitsubishi Electric automation solution - because we know first hand about the need for reliable, efficient, easy-to-use automation and control in our own factories.

As one of the world’s leading companies with a global turnover of over 4 trillion Yen (over $40 billion), employing over 100,000 people, Mitsubishi Electric has the resource and the commitment to deliver the ultimate in service and support as well as the best products.

* Not all products are available in all countries.
<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Sales office</th>
<th>Tel/Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>MITSUBISHI ELECTRIC AUTOMATION, INC. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A.</td>
<td>Tel: +1-847-478-2100 Fax: +1-847-478-2253</td>
</tr>
<tr>
<td>Mexico</td>
<td>MITSUBISHI ELECTRIC AUTOMATION, INC. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edom. Mexico, C.P.54030</td>
<td>Tel: +52-55-3067-7500</td>
</tr>
<tr>
<td>Brazil</td>
<td>MITSUBISHI ELECTRIC DO BRASIL COMERCIO E SERVIÇOS LTDA. Avenida Adelino Cardana, 293, 21 andar, Belo Horizonte, Barueri SP, Brazil</td>
<td>Tel: +55-11-4689-3000 Fax: +55-11-4689-3016</td>
</tr>
<tr>
<td>Germany</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. German Branch Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany</td>
<td>Tel: +49-2102-486-0 Fax: +49-2102-486-1120</td>
</tr>
<tr>
<td>UK</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K.</td>
<td>Tel: +44-1707-28-8760 Fax: +44-1707-27-8695</td>
</tr>
<tr>
<td>Ireland</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. Irish Branch Westgate Business Park, Ballymount, Dublin 24, Ireland</td>
<td>Tel: +353-1-4198800 Fax: +353-1-4198890</td>
</tr>
<tr>
<td>Italy</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. Italian Branch Centro Direzionale Colleoni-Palazzo Sirio Vale Colleoni 7, 20864 Agrate Brianza(Milano) Italy</td>
<td>Tel: +39-039-6053-312 Fax: +39-039-6053-312</td>
</tr>
<tr>
<td>Spain</td>
<td>MITSUBISHI ELECTRIC EUROPE, B.V. Spanish Branch Carretera de Rubí, 76-80-Apdo. 420, 08190 Sant Cugat del Vallés (Barcelona), Spain</td>
<td>Tel: +34-935-65-3131 Fax: +34-935-89-1579</td>
</tr>
<tr>
<td>France</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. French Branch 25, Boulevard des Bouvets, 92741 Nanterre Cedex, France</td>
<td>Tel: +33-1-55-68-55-68 Fax: +33-1-55-68-57-57</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. Czech Branch Avenir Business Park, Radlicka 751/13e, 158 00 Praha5, Czech Republic</td>
<td>Tel: +420-251-551-470 Fax: +420-251-551-471</td>
</tr>
<tr>
<td>Poland</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland</td>
<td>Tel: +48-12-347-65-00 Fax: +48-12-630-47-01</td>
</tr>
<tr>
<td>Sweden</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. (Scandinavia) Fjellvägen 8, SE-22736 Lund, Sweden</td>
<td>Tel: +46-8-625-10-00 Fax: +46-46-39-70-18</td>
</tr>
<tr>
<td>Russia</td>
<td>MITSUBISHI ELECTRIC (RUSSIA) LLC St. Petersburg Branch Piskarevsky pr. 2, bl.2, II &quot;Sch&quot;, BC &quot;Benua&quot;, office 720, 195027 St. Petersburg, Russia</td>
<td>Tel: +7-812-633-3497 Fax: +7-812-633-3499</td>
</tr>
<tr>
<td>Turkey</td>
<td>MITSUBISHI ELECTRIC TURKEY A.Ş Umraniey Branch Senfali Mahallesi Nutuk Sokak No.5, TR-34775 Umraniey/Istanbul, Turkey</td>
<td>Tel: +90-216-526-3990 Fax: +90-216-526-3995</td>
</tr>
<tr>
<td>UAE</td>
<td>MITSUBISHI ELECTRIC EUROPE B.V. Dubai Branch Tel: +971-4-3724716 Fax: +971-4-3724721</td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>ADRIO TECHNOLOGIES 20 Waterford Office Park, 189 Wilkoppen Road, Fourways, South Africa</td>
<td>Tel: +27-11-658-8100 Fax: +27-11-658-8101</td>
</tr>
<tr>
<td>China</td>
<td>MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China</td>
<td>Tel: +86-21-2322-3030 Fax: +86-21-2322-3000</td>
</tr>
<tr>
<td>Taiwan</td>
<td>SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan Tel: +886-2-2299-2499 Fax: +886-2-2299-2509</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD. 7F-9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 07528, Korea</td>
<td>Tel: +82-2-3660-9530 Fax: +82-2-3664-8372</td>
</tr>
<tr>
<td>Singapore</td>
<td>MITSUBISHI ELECTRIC ASIA PTE. LTD. 307, Alexandra Road, Mitsubishi Electric Building, Singapore 159943 Tel: +65-6743-2308 Fax: +65-6746-7439</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD. 12th Floor, S.V.City Building, Office Tower 1, No. 896/19 and 20 Rama 3 Road, Kwaeng Bangklongphong, Khet Yanawra, Bangkok 10120, Thailand Tel: +66-2862-6522 Fax: +66-2862-6020</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>MITSUBISHI ELECTRIC VIETNAM COMPANY LIMITED Hanoi Branch 6th Floor, Detech Tower, 8 Ton That Thuyet Street, My Dinh 2 Ward, Nam Tu Liem District, Hanoi, Vietnam Tel: +84-4-3937-8075 Fax: +84-4-3937-8076</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>PT. MITSUBISHI ELECTRIC INDONESIA Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia Tel: +62-21-3192-5461 Fax: +62-21-3192-3943</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>MITSUBISHI ELECTRIC INDIA PVT. LTD. Pune Branch Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune-411026, Maharashtra, India Tel: +91-20-2710-2000 Fax: +91-20-2710-2100</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia Tel: +61-2-9684-7777 Fax: +61-2-9684-7245</td>
<td></td>
</tr>
</tbody>
</table>

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO 14001 (standards for environmental management systems) and ISO 9001 (standards for quality assurance management systems).