![Mitsubishi Electric logo] **MITSUBISHI ELECTRIC**

MC WORKS64

A Suite of 64-bit HMI/SCADA Software Solutions

Next Generation In Automation Software

MC Works64

The Next Generation of HMI/SCADA

Advanced 64-bit multi-core, multi-processor computing on 64-bit Microsoft operating systems is here today. Mitsubishi Electric's MC Works64 suite is a native .NET application that delivers unparalleled HMI/SCADA performance with OPC and BACnet open-standard connectivity.

The MC Works64 suite includes solutions that allow for connectivity from plant floor and building facilities to corporate business systems. Designed from the ground up to take advantage of 64-bit, OPC UA, .NET managed code and SharePoint® technology, MC Works64 allows plant operators and IT professionals to integrate real-time manufacturing and business information into a secure and common Web-enabled visualization dashboard.

Universal Connectivity with BACnet and OPC UA

MC Works64 is the first 64-bit Advanced Workstation (B-AWS) certified by the BACnet Testing Laboratories ensuring maximum integration with the BACnet protocol including BACnet Objects, Trends, Alarms and more. MC Works64 is certified for OPC Unified Architecture (OPC UA) compliance by the OPC Foundation. OPC UA is based on secure, robust and scalable Web services, taking advantage of Windows Communications Foundation (WCF). MC Works64 is truly "OPC-to-the-Core™", exemplifying the next generation of standards-based communications.

Mission-Critical Redundancy

For applications that need to run around the clock and be fail-safe, MC Works64 offers high availability redundancy for the best communication reliability. With automatic failure detection and store-and-forward technology, MC Works64 users can be assured that mission critical real-time data, historical data and alarm information are always available. Mitsubishi Electric redundancy solutions are simple to configure, install and deploy. Tested on Hyper-V and certified for VMware, MC Works64 software redundancy covers all major aspects of data redundancy such as data access, alarms, historical data and security. Expansion to fault-tolerant hardware such as Stratus machines can further secure applications from downtime. In MC Works64, OPC software redundancy provides full automatic switchover for OPC data access (DA), Alarms & Events (A&E), Historical Data Access (HDA) and Security.

Unsurpassed Visualization on Any Device, Anytime, Anywhere

MC Works64 takes advantage of state-of-the-art graphic hardware acceleration through DirectX10, powered by Microsoft Windows 8 and Windows Server 2012. GraphWorX64™, integrated with Windows Presentation Foundation and Silverlight, provides users with a dazzling 2D and 3D view of their operations in real time with live data. Imagine the ability to view how equipment is running from any 3D angle and perspective. It's a whole new powerful approach and a first in HMI/SCADA visualization. Targeting mobile smart devices has never been easier with MC Mobile™, which provides a consistent experience across browsers, tablets and smartphones via Microsoft WinRT and HTML5.

Powerful Web-Based Workbench Configuration

Workbench is the multi-functional, centralized desktop or Web-based environment for all MC Works64 product configurations and is the core of the MC Works64 suite. All MC Works64 and integrated third-party applications can be configured from the unified Workbench, allowing faster development and cost savings in designing any application. Offered in Windows Presentation Foundation (WPF) or Silverlight technology, users have the option to configure from anywhere or operate an application from Workbench Classic (WPF) or AX Portal-SL (Workbench Silverlight's Runtime).

Integrated Project Management

Workbench provides complete and secure project management capability for your application. The Workbench project management features include:

- Pack-and-Go Deployment
- Versioning and Change Management
- Global Search, Organize, Find and Replace
- Project Statistics and Audit Trails
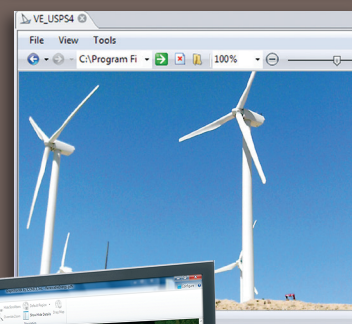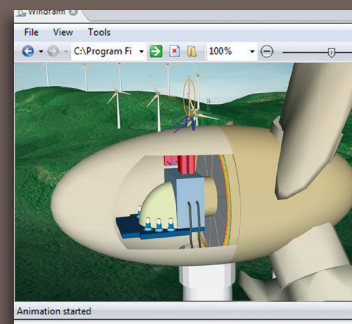
Cloud-Ready Distributed Architecture

The **Cloud Connector** for Azure allows Mitsubishi Electric customers to combine on premise solutions with cloud solutions or fully embrace the virtualized scalability afforded by the cloud while benefiting from the security of IT and firewall friendly communications. With the MC Works64 distributed and modular architecture customers can create hybrid solutions that maintain data integrity and security while delivering KPI dashboards on the cloud.

## Quickly View Assets with GEO-SCADA

EarthWorX64™, MC Works64's geographical information SCADA technology, provides real-time visualization to widely dispersed assets. Mitsubishi Electric's unique SmartPin™ technology allows for an intuitive drill-down capability to quickly view alarm conditions and status for any location around the world. MC Works64 is integrated with Bing, Google and Esri maps or maps conforming to the Web Map Service (WMS) format. Embedded in GraphWorX64, EarthWorX64 can be layered into existing HMI screens and include multiple maps through EarthWorX64 layering.
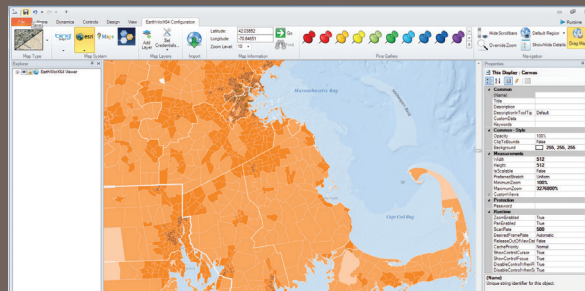
*Esri Population Map with Smart Pin Technology*

Take Visualization and SCADA to New Levels

GraphWorX64™ takes maximum advantage of WPF and Silverlight for rich 2D and 3D HMI and SCADA visualization. Users can build scalable, XAML vector-based graphics that retain details when zoomed. Users can create stunning vector objects or use preconfigured symbols with dynamic properties of rotation or animation. Elegant Smart Tiles to display key metrics as well as referenced and dynamic colors take just a few simple clicks. MC Works64 supports the ability to import 3D models created in Autodesk and other 3D modeling software allowing for reuse of existing 3D content.
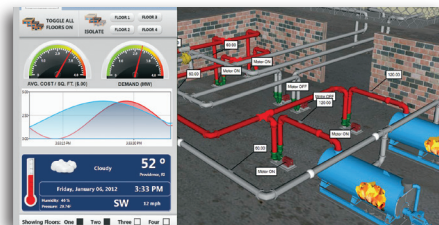
Real-time and Historical 3D Charts and Analysis

TrendWorX64™ is a plant-wide data collection, logging, charting, reporting and analysis solution. Designed to log data to any OLEDB database (e.g. Microsoft SQL Server, Oracle, and others), TrendWorX64 offers the tools you need to trend real-time and historical data from any relational database. TrendWorX64 is an OPC HDA-compliant application and provides open connectivity to any OPC DA and OPC UA data source.
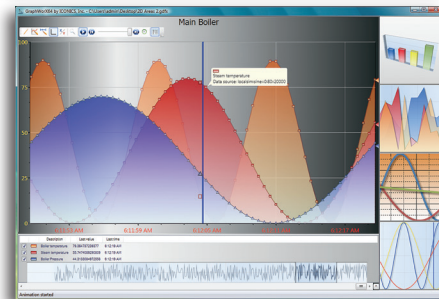
Distributed Alarm Management

AlarmWorX64™ is a distributed, enterprise-wide alarm and events management system capable of handling the most demanding applications. The alarm system offers extensive tools to deliver and view real-time and historical alarm information. AlarmWorX64 includes an OPC Server, Logger and Alarm Viewer that is compliant with OPC A/E and OPC UA/AE industry standards.

S95 Compliant Asset Management

AssetWorX™ is an additional architectural layer within MC Works64 that enables the system to be engineered and operated based on an intelligent asset model configured to represent a customer's enterprise. Distributed assets can be defined according to the S95 standard. The advantages of using AssetWorX include greatly reduced engineering time, operator consistency and easy navigation through the AssetWorX Navigator tree.

Powerful Real-Time Dashboards for all Roles

AX Portal-SL enables the design of user screens as framed dashboards, for ease of use and consistency. Dashboards can be designed for each role in the organization and contain any combination of application views. Powerful commanding provides intuitive, single-click and drag and drop operation between applications windows.

HMI Integrated Database Access and Control

GridWorX64™ allows spreadsheet visualization of information with full read/write support to any database. Use GridWorX64 to access Web services and databases (e.g. Microsoft SQL Server, Oracle, MySQL and many others) and to sort, group and filter results.

Real-time Control Event Scheduling

ScheduleWorX64™ is a scheduling tool for real-time control and event management based on hourly, daily, monthly, seasonal and yearly calendars. Sequencing events through action sets can handle day-to-day control or non-recurring events such as holidays. Scheduling is simple and easy with an intuitive interface that allows creation and reuse of events and multiple schedules.

On-demand Microsoft Excel Reporting

ReportWorX Express is an Excel plug-in that allows the user to pull in data from a variety of sources. Integrating with MC Works64 Security and including support for data types including OPC, OPC UA, TrendWorX Logger Databases, MC Historian, AlarmWorX Logger Databases, Energy Star and AX Quality, ReportWorX Express will satisfy many reporting needs.

Fault Detection and Diagnostics

FDDWorX represents the inclusion of a predictive equipment diagnostic solution that uses Mitsubishi Electric's advanced Fault Detection and Diagnostics (FDD) technology within MC Works64 for users to analyze information to detect and predict faults in equipment and energy efficiency. It incorporates algorithms that weigh the probability of faults and advises personnel of actions to prevent equipment failures.

MC Works64

Improve Your Productivity

The largest cost of any automation project is in engineering the application. For an average project, this can be well over 60 percent of the total expenditure. Taking advantage of 64-bit computing can greatly reduce this effort and shorten the design time, resulting in enormous cost savings and improvement in the bottom line. Mitsubishi Electric is able to constantly deliver software solutions based on the latest Microsoft operating systems. MC Works64 is certified on the latest 64-bit operating systems, including Windows 8 and Windows Server 2012. Key features of Windows 8 come to life within MC Works64 and provide users with the greatest application performance, reliability and flexibility.

Key Features

- Universal Connectivity - OPC UA, BACnet, SNMP and Databases
- Intuitive 2D and 3D XAML, WPF & Silverlight Visualization
- Support for Asset and Tag-based Organization
- Object-oriented Distributed Alarm Management
- Customizable Frame or Canvas Based Visualization
- Silverlight Cross-browser, Cross-platform Visibility
- Hardware-accelerated 3D User Experience
- Native Touch Device Support through Windows Multitouch
- Web-based Development & Configuration
- Compatible with Microsoft Windows 8, 7 and Server 2012
- International Language Support and Extensible API

MC AppBuilder

The MC AppBuilder tool supports designs for the PLC and SCADA. Templates consisting of the function blocks and screen parts realize efficient engineering. Automatically generate monitor screens, tag settings and PLC projects. Automatically create the monitor screen definition information (including symbol parts and face plate parts), OPC tag setting information (including alarms and trend settings), and GX Works2 projects (including sequence programs and label definitions). The easy design helps avoid faults caused by inconsistent tag setting information, etc.

Manage System Configuration with Tree Format

A system tree that shows the plant system configuration can be built and revised by importing a system list (CSV format) prepared with CAD or Microsoft® Visio®, etc., into MC AppBuilder. Manage the plant's system configuration with an intuitive and easy-to-understand tree format.

Reduce Design Hours by Using Templates

Designs that can be shared among device types have been put together as templates that are managed as a library. Assign a template corresponding to the device in the system tree to reduce design steps. Templates include graphic part information such as symbols and face plates, control program information such as function blocks, and various interface information (including default alarms and trend settings).
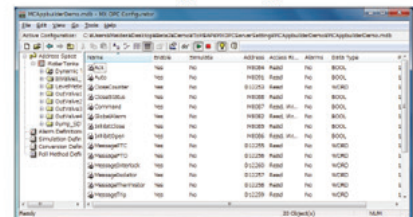

MC AppBuilder
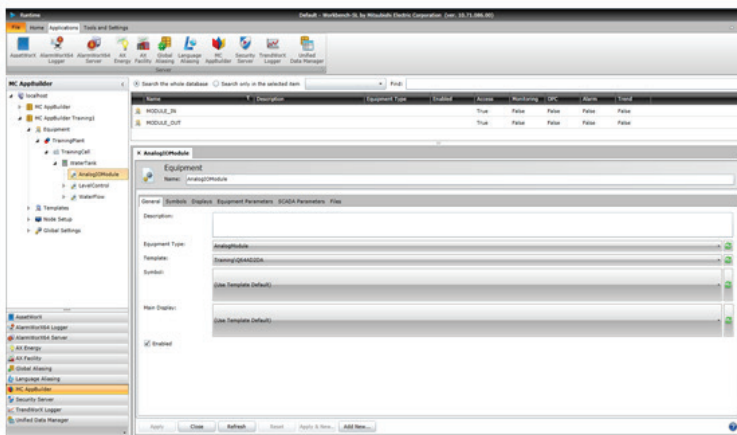
Monitor screen
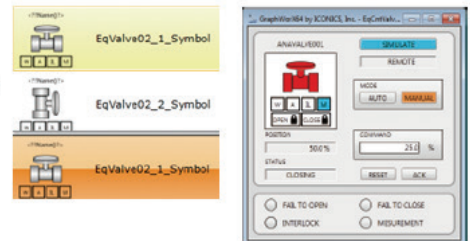
OPC tag setting

PLC Project

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IN**N**OVATE
INT**E**GRATE

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