EcoStruxure Machine SCADA Expert

EcoStruxure™ Machine SCADA Expert

Lite SCADA software for Harmony GTU/iPC including data management
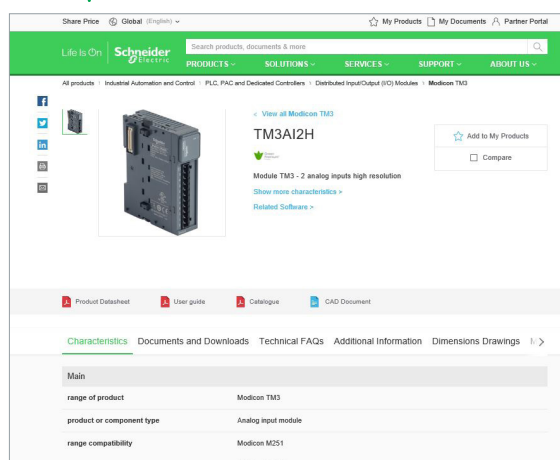
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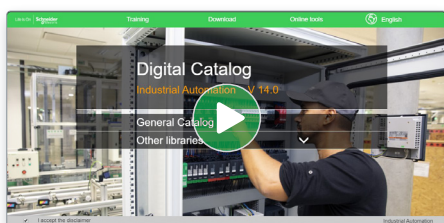
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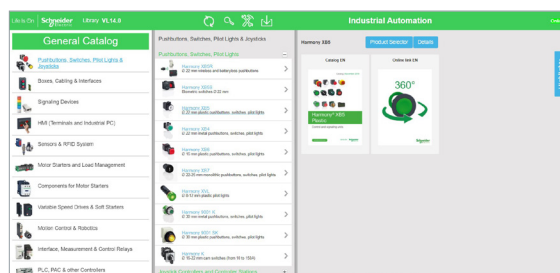
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General contents

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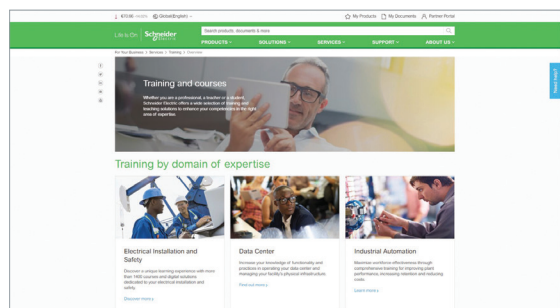
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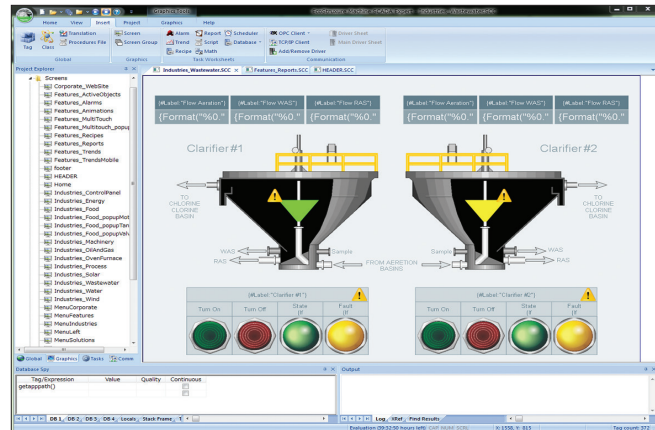## EcoStruxure Machine SCADA Expert

EcoStruxure Machine SCADA Expert enables you to use the key features of Microsoft operating systems and build a full-featured SCADA or HMI project for your industrial automation business.

For applications ranging from complex machine control and monitoring to plant supervision and SCADA, EcoStruxure Machine SCADA Expert with Harmony *i*PC/ Harmony GTU Open Box bundle makes industrial operations smooth and stress-free.

EcoStruxure Machine SCADA Expert is designed in a modern, ribbon-based Windows interface to provide an integrated and user-friendly development environment.

EcoStruxure Machine SCADA Expert supports capabilities like scripting, animation, E-mail, recipes, security, tags database, multi-touch, alarms, trends, scalablity, multi-language, FDA traceability, PDF export, and so on.

EcoStruxure Machine SCADA Expert development environment

Saves time

> Quick and easy installation on Harmony iPCs

> Fully tested and validated bundle means that testing and commissioning days can be saved

> Build applications with ready-to-use PackML and OEE templates

> Generate reports compliant with CFR21 automatically

> Minimize migration time from FactoryTalk™ to EcoStruxure Machine SCADA Expert by automatically converting FactoryTalk ME/SE applications to EcoStruxure Machine SCADA Expert (graphical interface, communication interface, tags, etc.) using the Import Wizard

> Information at a Glance using Business Inteligence Dashboard Template

Business Intelligence Dashboard Template

EcoStruxure Machine SCADA Expert
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Cost-effective

> Track and analyze the performance of your data with embedded EcoStruxure Machine SCADA Expert historian and OEE templates

> Single point of contact for hardware/software/operating system integration and support

> Access SCADA level software with all its benefits and receive alarms by e-mail
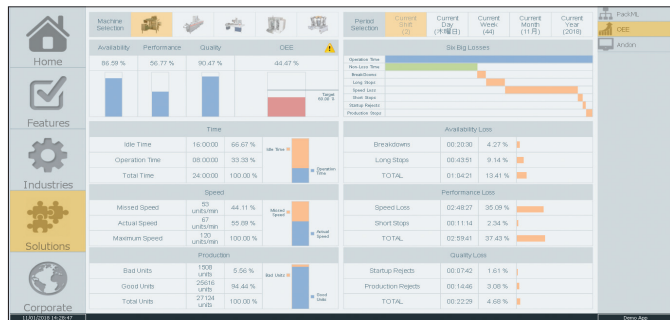
> Easy maintenance of machine with long-term hardware supply and availability

> Buy EcoStruxure Machine SCADA Expert as per your requirement with size-based license pricing

EcoStruxure Machine SCADA Expert Runtime environment

Good connectivity and data management
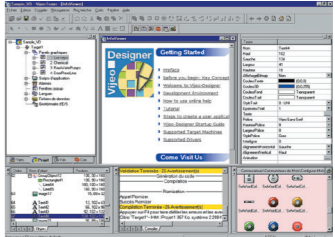
> Realize the power of the IoT with EcoStruxure Machine SCADA Expert's extensive IT and OT driver library and data management capabilities (connection between ERP, MES, third-party historians, and the plant floor)

> Supports over 250 native communication drivers for PLCs, temperature controllers, motion controllers, bar code/2D/RFID readers, and many more devices

> Native OPC interface, including OPC UA, OPC DA, OPC XML, and OPC .NET to communicate with OPC servers

> With EcoStruxure Machine SCADA Expert Mobile access, you can use your tablet or smart phone to connect remotely

Open architecture
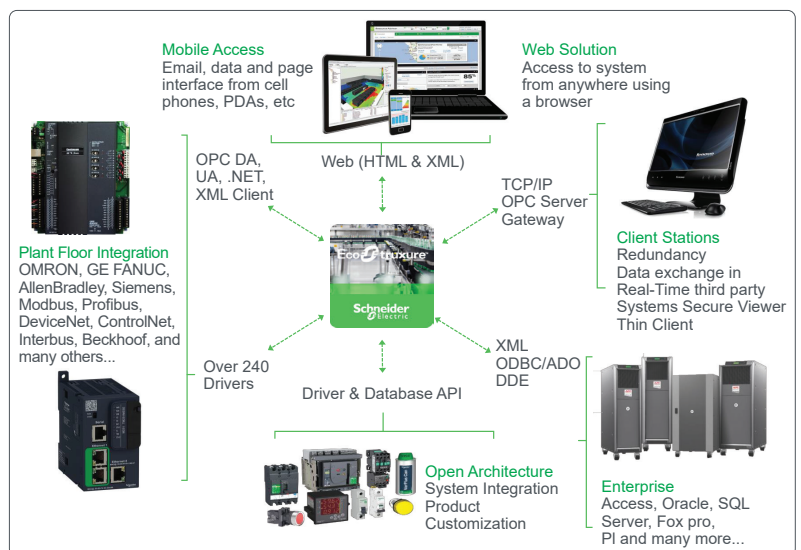
Open architecture and easy-to-configure database interface

Applications		Touchscreen Configuration software with UI design and gestures	Configuration software for data-intensive and complex visualization	Classic Configuration software for the complete HMI range
Compatible products	Type	Harmony STO Color Harmony ST6 Harmony GTU Premium Box Harmony iPCs Windows compatible computers	Harmony G5U2, Harmony iPCs	Harmony STU and Harmony GTO (1) Harmony GK/GTU (1)/GTUX and Magelis XBTGH (1) Harmony Panel PCs and Box PCs (HMIBMP, HMIBMU)
	Maximum number of targets	1	1	32
	Operating system on terminals	Proprietary for Harmony STO Color, Harmony ST6 and Harmony GTU Windows Operating System for Harmony iPCs	Harmony G5U: Windows Embedded 7 Standard Harmony iPCs: Windows Embedded 7 Standard, Windows 7 SP1, Windows 8.1, Windows 10 IoT Enterprise	Proprietary for Harmony STU/GTO, Harmony GK/GTU/GTUX, Magelis XBTGH
Functions	Reading/writing of PLC variables	Yes	Machine Control: 1,500 tags Line Management: 4,000 tags Line Management Plus: 32,000 tags Supervision: 64,000 tags	Yes, up to 8,000 internal and external variables
	Display of variables	Yes	Yes, depending on the number of Tags	Yes
	Data processing	Yes	Yes, with VBScript or Built-in Scripting	Yes, using expression editor or Java programming
	Sharing of variables between HMI applications	–	Yes, via TCP/IP, OPC, Driver or Database	Up to 300 variables between 8 terminals, without router PLC Proprietary protocol above TCP/IP
	Saving of variables to external database	–	Yes, with relational database (any SQL Database, MS Access and Excel CSV file)	Yes, with the Intelligent Data Service extension
Internationalization		16 languages supported by 26 type of fonts	Multi-language (depending on the OS)	Up to 15 languages supported by 34 Western alphabets, 4 Asian alphabets and 2 Middle Eastern alphabets embedded in the application
Development of graphic applications	Native library of graphic objects	Yes	Yes, user customizable	Yes
	Curves and alarms	Yes	Yes	Yes, with log
	Scripts	Block Script	VB Script and Built-In scripting	Java
Communication between HMI application and PLCs		Via I/O drivers: Schneider Electric or third-party protocols (Mitsubishi, Omron, Rockwell Automation, Siemens)	Via I/O drivers: Schneider Electric or third-party protocols (Over 250 Drivers: Mitsubishi, Omron, Rockwell Automation, Siemens)	
Uploading of applications		–	Yes	–
Simulation of HMI applications		Yes	Yes	
Recipe management		Yes, up to 256 recipes, 600,000 ingredients in total	Yes, built-in tools with local file or with SQL DB	Yes, up to 32 groups, 1,024 ingredients for 256 recipes per group, proprietary or CSV format, complete multilingual support for labels and ingredients
Report and barcode printing		–	Report is a built-in function that executes the specified Report worksheet and sends the output to hard disk, printer, or PDF.	On the fly alarms, log data. Up to 9,999 active alarms, records, or logs Main USB Barcode supported for Harmony with Windows OS and Main Serial Barcode supported for other Harmony.
Screen capture		Yes, for Harmony iPCs in PNG format	Yes	Yes, Harmony GTO/GTU, and Harmony Panel PCs and Box PCs (HMIBMP, HMIBMU) in JPEG format
Access security		Password protected	Linked to user profiles	
Interface languages		Screens in 9 languages: English, French, German, Italian, Portuguese, Spanish, Traditional Chinese, Simplified Chinese, Korean and documentation in electronic format available in 4 languages: English, French, German, Italian	Screens, online help, and documentation in electronic format available in 5 languages: English, German, French, Chinese, Japanese	Screens, online help, and documentation in electronic format available in 7 languages: English, French, German, Italian, Portuguese, Simplified Chinese, and Spanish
OS compatibility		Windows 7, Windows 8, Windows 8.1, Windows 10 (32-bit/64-bit)	Windows 7, Windows 8.1, Windows 10 (64-bit), WES7 (64-bit)	Windows 8.1, Windows 10 Professional, Windows 7 Business (32-bit/64-bit)
Software type		**EcoStruxure™ Operator Terminal Expert**	**EcoStruxure™ Machine SCADA Expert**	**Vijeo Designer™**
Pages		For more information, please refer to DIA5ED2140703EN catalog.	For more information, please refer to page 8	For more information, please refer to DIA5ED2130614EN catalog.

(1) Magelis XBT and Harmony GTO/GTU terminals behave transparently on restoration of power.
(2) Depending on the compatible product.

EcoStruxure™ Machine SCADA Expert
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Presentation

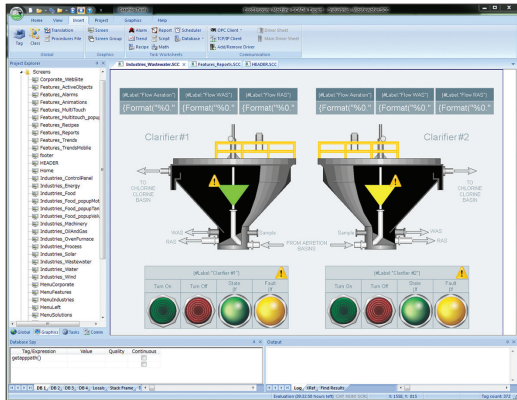EcoStruxure Machine SCADA Expert is a powerful software suite for developing HMI, SCADA, and OEE/Dashboard projects that can be deployed anywhere. EcoStruxure Machine SCADA Expert bundled with Harmony *i*PCs/Harmony GTU Open Boxes provides smart SCADA solutions. This software supports English, German, French, Chinese, and Japanese languages.

The EcoStruxure Machine SCADA Expert software project includes project tags database to manage data, configurable drivers to communicate, animated human-machine interface (HMI) screens, overall equipment effectiveness (OEE) dashboards, and optional modules (alarms, events, trends, recipes, complete database interface, security system, etc.).

The project developed can either be run locally on your development workstation or downloaded and run on a remote computer. The project runtime server processes I/O data from connected devices according to your project parameters and then responds to, displays, and/or saves the data.

EcoStruxure Machine SCADA Expert supports numerous features for creating and managing projects for various industrial automation businesses, allowing you to:
- Monitor machines, run VB scripts, generate reports (PDF, XML, HTML, etc.), receive alarm notifications, and follow trends without having to pay for a full SCADA
- Monitor applications remotely through a Web client or tablet and receive alarms via e-mail
- Save time by generating 21CFR part 11 projects with traceability and e-signature
- Improve efficiency with built-in OEE dashboard
- Store production data in local databases (SQL)
- Protect information with database and overall redundancy
- Make use of the Windows environment with EcoStruxure Machine SCADA Expert compatibility
- Thin client function where screen monitoring from Web browser is based on HTML5/dedicated viewer
- Provide necessary tools that allows the user to create a dashboard based on the queries created
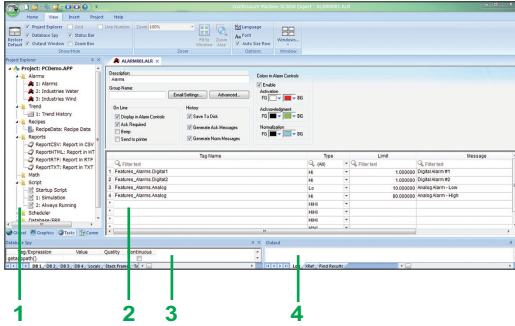
EcoStruxure Machine SCADA Expert components

The EcoStruxure Machine SCADA Expert suite comprises several individual components that can be installed on various platforms to perform different functions. The architecture of the finished EcoStruxure Machine SCADA Expert project depends upon the components installed, where they have been installed, and how they are connected to each other. The following table lists the available components.

Software components

Component	Features	Platforms
EcoStruxure Machine SCADA Expert	Project development environment - Tag integration - Remote management of project runtimes - Project runtime - Agent to allow remote management - Project thin client	- Windows - Windows Server - Windows Embedded Standard
Mobile Access Runtime	Enables the project runtime to serve HTML5-enhanced project screens to tablets and smart phones	- Internet Information Services (IIS) for Windows - Any CGI-enabled web server (e.g. Apache)
Secure Viewer	Project thin client, as a standalone program	- Windows - Windows Server - Windows Embedded Standard

EcoStruxure Machine SCADA Expert
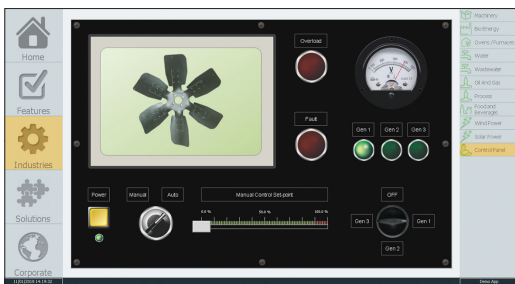Lite SCADA software for Harmony GTU/iPC
including data management

EcoStruxure Machine SCADA Expert Buildtime environment

EcoStruxure Machine SCADA Expert Runtime environment

FDA traceability

Security system

Electronic signature

Configuration

The complete EcoStruxure Machine SCADA Expert includes both the project development and the project runtime environments. EcoStruxure Machine SCADA Expert incorporates a modern, ribbon-based Windows interface to provide an integrated and user-friendly development environment.

The project development environment allows you to design, develop, troubleshoot, deploy, and maintain EcoStruxure Machine SCADA Expert projects. The user interface for the EcoStruxure Machine SCADA Expert development environment includes:

1 Project Explorer: Organizes all the screens, worksheets, and other items that comprise your project and presents them in an expandable tree-view.

2 Screen/Worksheet Editor: Uses the powerful object-oriented screen editor to create and edit a variety of screens and worksheets for the projects.

3 Database Spy: Debugging window that allows you to monitor and force values to project tags, execute and test functions, and execute and test math expressions.

4 Output (LogWin): Displays additional information about the project.

The project runtime environment runs the project, communicates with external databases and devices, and serves project screens to thin clients.
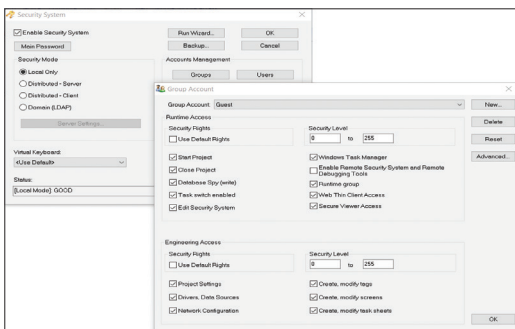
Key features

FDA traceability

With built-in FDA traceability and e-signature features, projects that fully comply with U.S. Food and Drug Administration regulations (21 CFR Part 11) can be created. These features are often used in food and pharmaceutical applications, but they can also be used in any application where traceability is required.

■ Security system: The security system for the whole application can be enabled or disabled with the "Enable Security System" check-box.

■ Electronic signature (E-Sign): The objects and animations enable you to perform a task during runtime and enforce an electronic signature (E-Sign) to execute the task.
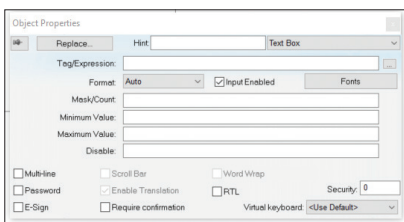
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Lite SCADA software for Harmony GTU/iPC including data management

Standards

Technician

Key features (continued)

Standards

Supports common industry standards for developing projects that are compatible with any format. TCP/IP, ActiveX/.NET, OPC (client and server), ODBC/ADO, COM/DCOM, OLE, DDE, XML, SOAP, and HTML are all supported.

Drivers

The EcoStruxure Machine SCADA Expert includes over 250 built-in communication drivers for most PLCs, temperature controllers, motion controllers, barcode/RFID readers, and other devices. These drivers enable the integration of multiple devices and systems from the plant floor to the ERP/Cloud in a seamless manner. Also, the Schneider Electric driver toolkits provide the flexibility to build your own drivers.

Mobile access thin clients

With this feature, you can remotely view project screens on several different types of thin client. The HTML5-enabled Mobile Access also allows you to access projects from almost any other computer or mobile device. A high level of security can be achieved on plant-floor stations using the standalone Secure Viewer.

OLE for Process Control (OPC)

As an alternative to the built-in drivers for direct communication with PLCs, several different versions of OLE for Process Control (OPC) can also be used to manage your devices. This software includes support for OPC DA (server or client), OPC HDA (server), OPC UA (server or client), OPC .NET (client), and OPC XML/DA (client).

Companion products *(1)*

EcoStruxure Secure Connect Advisor provides a secure connection between remote display units on the work site (via SiteManager Embedded) and computers or smart devices in the office (via LinkManager) over a secure central server (GateManager). With EcoSruxture Secure Connect Advisor, maintenance personnel can access Schneider Electric software and update it remotely and securely via the HMI, PLC, and other connected devices as if they were on site. Troubleshooting and repair can also be performed remotely upon request.

References

EcoStruxure Machine SCADA Expert is compatible with Harmony *i*PCs and Harmony GTU Open Boxes. The software licensing and activation process is managed by e-mail as follows:

1 On purchase of the product, the EcoStruxure Machine SCADA Expert activation key is provided in paper format.
2 After installing the project development or runtime software, a unique site code will be generated.
3 Send an e-mail with the activation key and site code to SiteKeyLicense.Support@schneider-electric.com requesting the site key, which will be sent in an e-mail.
4 Input the site key on your computer or target device to activate the EcoStruxure Machine SCADA Expert.

EcoStruxure Machine SCADA Expert supports the following execution modes:
■ Evaluation mode enables you to use all the engineering and runtime features of the product. When EcoStruxure Machine SCADA Expert is installed on the computer for the first time, the product runs for forty hours in Evaluation mode and then automatically converts to Demo mode.
■ Demo mode enables you to download projects to remote stations and run then for testing or demonstration. You can execute runtime tasks and use debugging tools, which will shut down automatically after running continuously for two hours.
■ Licensed for Engineering only mode enables all development options for an unlimited time. You can execute runtime tasks and use debugging tools continuously for 72 hours. This license can be used for development and testing only.
■ Licensed for Runtime only mode enables all runtime tasks and debugging tools for an unlimited time, but cannot create or modify screens/worksheets.
■ Licensed for Engineering + Runtime mode enables all development options, runtime tasks, and debugging tools for an unlimited time.

(1) For more information, please refer to "EcoStruxure Secure Connect Advisor catalog" DIA5ED2190101EN.

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References *(continued)*

EcoStruxure Machine SCADA Expert
Lite SCADA software for Harmony GTU/iPC
including data management

EcoStruxure Machine SCADA Expert references

Description	License type	Compatible with	Reference
DVD references			
EcoStruxure Machine SCADA Expert for Supervision, 64,000 Tags	Buildtime DVD	HMIPW●7●●, HMIPV●7●●, HMIPU●7●●, HMIPP●7●●, HMIPW●5●●, HMIPU●9●●, HMIPP●9●●, HMIPP●10●●, HMIPT●7●●, HMIPR●7●●, HMIPSP●●, HMIPEP●●, HMIPSO●●, HMIBU●●, HMIBP●●, HMIBMU●●, HMIBMP●●, HMIR●O, HMIG5UL8B *(1)*	**HMIVXLBT64KDV80**
EcoStruxure Machine SCADA Expert for Line Management Plus, 32,000 Tags	Buildtime DVD		**HMIVXLBT32KDV80**
EcoStruxure Machine SCADA Expert for Line Management, 4,000 Tags	Buildtime DVD		**HMIVXLBT4KDV80**
EcoStruxure Machine SCADA Expert for Machine Control, 1,500 Tags	Buildtime DVD		**HMIVXLBT1KDV80**
Paper license references			
EcoStruxure Machine SCADA Expert for Supervision, 64,000 Tags	Buildtime license	HMIPP●7●●, HMIPW●5●●, HMIPU●9●●, HMIPP●9●●, HMIPP●10●●, HMIPT●7●●, HMIPR●7●●, HMIPSP●●, HMIPEP●●, HMIPSO●●, HMIBU●●, HMIBP●●, HMIBMU●●, HMIBMP●●, HMIR●O, HMIG5UL8B *(1)*	**HMIVXLBT64KLV80**
EcoStruxure Machine SCADA Expert for Line Management Plus, 32,000 Tags	Buildtime license		**HMIVXLBT32KLV80**
EcoStruxure Machine SCADA Expert for Line Management, 4,000 Tags	Buildtime license		**HMIVXLBT4KLV80**
EcoStruxure Machine SCADA Expert for Machine Control, 1,500 Tags	Buildtime license		**HMIVXLBT1KLV80**
EcoStruxure Machine SCADA Expert for Supervision, 64,000 Tags	Runtime license		**HMIVXLRT64KLV80**
EcoStruxure Machine SCADA Expert for Line Management Plus, 32,000 Tags	Runtime license		**HMIVXLRT32KLV80**
EcoStruxure Machine SCADA Expert for Line Management, 4,000 Tags	Runtime license		**HMIVXLRT4KLV80**
EcoStruxure Machine SCADA Expert for Machine Control, 1,500 Tags	Runtime license		**HMIVXLRT1KLV80**
EcoStruxure Machine SCADA Expert USB hard key	USB dongle		**HMIVXLUSBL**
PanelBuilder Import Wizard, PanelMate Import Wizard and FactoryTalk Import Wizard are included	Import Wizard licenses		**HMIVXLTK**
Thin Client License for Secure Viewer and Mobile Access	Thin Client License		**HMIVXLTC**
Upgrade Buildtime license from 32,000 tags to 64,000 tags	Paper license		**HMIVXLUG64KBT**
Upgrade Buildtime license from 4,000 tags to 32,000 tags	Upgrade license		**HMIVXLUG32KBT**
Upgrade Buildtime license from 1,500 tags to 4,000 tags	Upgrade license		**HMIVXLUG4KBT**
Upgrade Runtime license from 32,000 tags to 64,000 tags	Upgrade license		**HMIVXLUG64KRT**
Upgrade Runtime license from 4,000 tags to 32,000 tags	Upgrade license		**HMIVXLUG32KRT**
Upgrade Runtime license from 1,500 tags to 4,000 tags	Upgrade license		**HMIVXLUG4KRT**
Version up license for Supervision (Build time), 64000 Tags	Version up license		**HMIVXLVU64KBT**
Version up license for Line Management Plus (Build time), 32000 Tags	Version up license		**HMIVXLVU32KBT**
Version up license for Line Management (Build time), 4000 Tags	Version up license		**HMIVXLVU4KBT**
Version up license for Machine Control (Build time), 1500 Tags	Version up license		**HMIVXLVU1KBT**
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Version up license for Machine Control (Runtime), 1500 Tags	Version up license		**HMIVXLVU1KRT**

(1) For EcoStruxure Machine SCADA Expert V8.1.

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