

EcoStruxure Operator Terminal Expert

EcoStruxure™ Operator Terminal Expert

Configuration software for Harmony ranges supporting gestures and intuitive user interface designs



Harmony

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Advanced operator interface and industrial relays

Harmony operator interface and industrial relays enhance operational efficiency and equipment availability across industrial and building applications. Harmony includes intelligent connected products and edge terminals that visualize, gather and process data, enabling informed operator decisions

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- [Harmony Signaling Devices](#)
- [Harmony Electrical Relays](#)
- [Harmony Safety](#)

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References

Modicon TM3
I/O expansion modules for Modicon controllers
Analog I/O modules

Number and type of channels	Input range	Output range	Resolution	Input format (internal product)	Reference	Weight (kg)
2 voltage/current inputs	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	16.00V or 12.00V 4 sign	16.00V or 12.00V 4 sign	0200-2 0200-3 0200-4	TM3AI2H TM3AI2G TM3AI2D	0.110 0.204 0.100
4 voltage/current inputs	-15...+10 VDC 0...10 VDC 0...20 mA A, 20 mA	16.00V or 12.00V 4 sign	16.00V or 12.00V 4 sign	0200-2 0200-3 0200-4	TM3AI4H TM3AI4G TM3AI4D	0.110 0.204 0.100
4 differential temperature inputs (I, K, R, S, T, E, C, J, Pt100, Pt1000, RTD, PTC100)	Thermopiles or thermopiles (I, K, R, S, T, E, C, J, Pt100, Pt1000, RTD, PTC100)	16.00V or 12.00V 4 sign	16.00V or 12.00V 4 sign	0200-2 0200-3 0200-4	TM3TI2H TM3TI2G TM3TI2D	0.110 0.204 0.100
4 differential temperature inputs (I, K, R, S, T, E, C, J, Pt100, Pt1000, RTD, PTC100)	Thermopiles or thermopiles (I, K, R, S, T, E, C, J, Pt100, Pt1000, RTD, PTC100)	16.00V or 12.00V 4 sign	16.00V or 12.00V 4 sign	0200-2 0200-3 0200-4	TM3TI4H TM3TI4G TM3TI4D	0.110 0.204 0.100
8 voltage/current	-15...+10 VDC	16.00V or 12.00V 4 sign	16.00V or 12.00V 4 sign	0200-2 0200-3 0200-4	TM3AI8H TM3AI8G TM3AI8D	0.110 0.204 0.100

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TM3AI2H

Module TM3 - 2 analog inputs high resolution

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Product Datasheet User guide Catalogue CAD Document

Characteristics Documents and Downloads Technical FAQs Additional Information Dimensions Drawings >

Main

range of product Modicon TMI

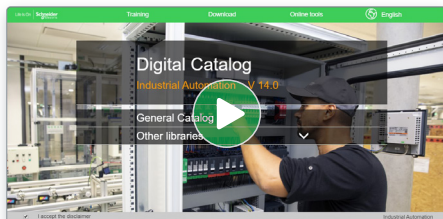
product or component type Analog input module

range compatibility Modicon M251

Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

- Characteristics, Dimensions and drawings, Mounting and clearance, Connections and schemas, Performance curves
- Product image, Instruction sheet, User guide, Product certifications, End of life manual

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EcoStruxure™ Operator Terminal Expert

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EcoStruxure Operator Terminal Expert

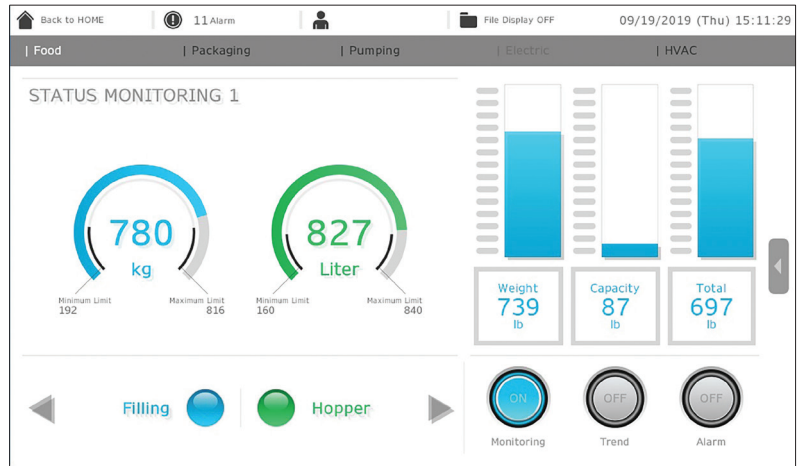
Configuration software for Harmony ranges supporting gestures and intuitive user interface designs

EcoStruxure™ Operator Terminal Expert



EcoStruxure Operator Terminal Expert allows you to create and edit application screens that control automation systems for Harmony GTU (Premium and Open Box)/STO color/GTO (1)/ST6/STM6 terminals, and Harmony industrial PCs (Panel and Box).

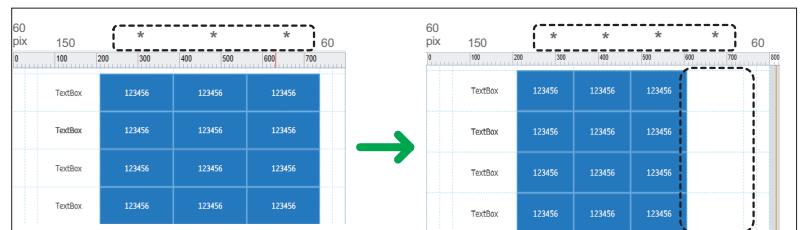
EcoStruxure Operator Terminal Expert features a modern and simple-to-use user interface, easy-to-access functions and information, and a multi-platform working environment. It also shortens design time by providing pre-made navigation framework.



EcoStruxure Operator Terminal Expert Demo screen

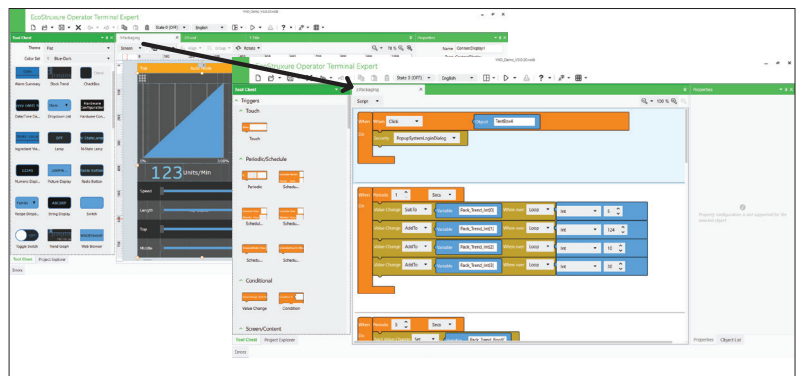
Faster design

- Responsive grid design allows easy adaptation of the application irrespective of different screen resolutions



Automatic grid adjustment

- Scripting made easy for everyone using a graphical drag and drop editor

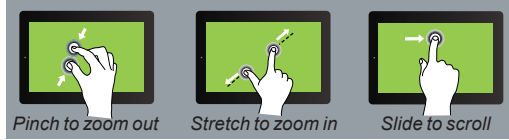


Block scripting

(1) Harmony GTO is supported only by software versions prior to V3.1 Service Pack 1.

Intuitive operation

- > Multi-touch zoom in/zoom out, slide, pinch, and stretch options similar to smartphones for enhanced user experience (1)



Touch screen gestures

- > Multiple screens displaying various information can be viewed in a single screen



Multi-Screen

- > High quality graphics and quick adaptation of themes



Themes

(1) Available on supported Harmony GTU, Harmony iPC, and other PCs.

Applications

Touchscreen configuration software with UI design and gestures

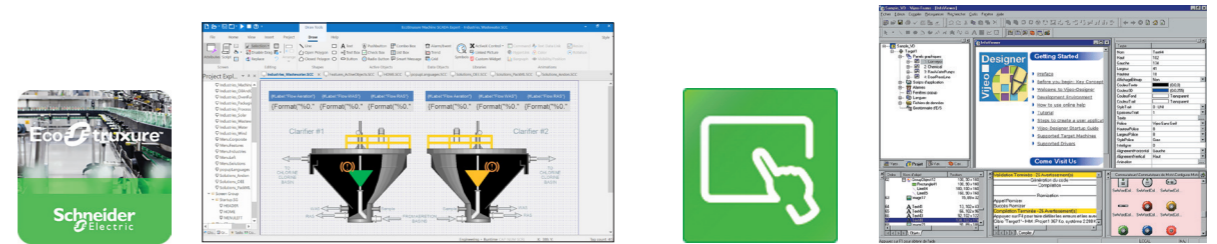


Compatible products	Type	Harmony STO Color Harmony ST6/STM6 Harmony GTU (Premium and Open Box) Harmony iPCs Windows compatible computers
	Maximum number of targets	1
	Operating system on terminals	Proprietary for Harmony STO Color, Harmony ST6/STM6 and Harmony GTU Windows operating system for Harmony iPCs
Functions	Reading/writing of PLC variables	Yes
	Display of variables	Yes
	Data processing	Yes
	Sharing of variables between HMI applications	–
	Saving of variables to external database	–
Internationalization		16 languages supported by 26 font types
Development of graphic applications	Native library of graphic objects	Yes
	Curves and alarms	Yes
	Scripts	Block Script
Communication between HMI application and PLCs		Via I/O drivers: Schneider Electric or third-party protocols (Mitsubishi, Omron, Rockwell Automation, Siemens)
Uploading of applications		–
Simulation of HMI applications		Yes
Recipe management		Yes, up to 256 recipes, 600,000 ingredients in total
Report and barcode printing		–
Screen capture		Yes, for Harmony iPCs in PNG format
Access security		Password protected
Interface languages		Screens in 9 languages: English, French, German, Italian, Portuguese, Spanish, Traditional Chinese, Simplified Chinese, and Korean and documentation in electronic format available in 4 languages: English, French, German, and Italian
OS compatibility		Windows 7, Windows 8, Windows 8.1, Windows 10 (64-bit)
Software type		EcoStruxure™ Operator Terminal Expert
Pages		For more information, please refer to page 11

(1) Magelis XBT and Harmony GTO/GTU terminals behave transparently on restoration of power.
(2) Depending on the compatible product.
(3) Supported by EcoStruxure Machine SCADA Expert V8.1 and later versions.

Configuration software for data-intensive and complex visualization

Classic configuration software for the complete HMI range



Compatible products	Type	Harmony HMIG5U21 (3), 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	32
	Operating system on terminals	Harmony HMIG5U21 (3): Windows 10 IoT Enterprise 2019 LTSC 32bit Harmony iPCs: Windows 8.1, Windows 10	Proprietary for Harmony STU/GTO, Harmony GK/GTU/GTUX, Magelis XBTGH
	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
	Yes, depending on the number of tags		Yes
	Yes, with VBScript or built-in scripting		Yes, using expression editor or Java programming
	Yes, via TCP/IP, OPC, driver or database		Up to 300 variables between 8 terminals, without router PLC Proprietary protocol above TCP/IP
	Yes, with relational database (any SQL Database, MS Access and Excel CSV file)		Yes, with the Intelligent Data Service extension
	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
	Yes, user customizable		Yes
	Yes		Yes, with log
	VB Script and built-in scripting		Java
	Via I/O drivers: Schneider Electric or third-party protocols (over 250 drivers: Mitsubishi, Omron, Rockwell Automation, Siemens)		
	Yes		–
	Yes		
	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 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.
	Yes		Yes, Harmony GTO/GTU, and Harmony Panel PCs and Box PCs (HMIBMP, HMIBMU) in JPEG format
	Linked to user profiles		
	Screens and user interface available in 5 languages: English, German, French, Chinese, and Japanese		Screens, online help, and documentation in electronic format available in 7 languages: English, French, German, Italian, Portuguese, Simplified Chinese, and Spanish
	Windows 8.1, Windows 10 (64-bit)		Windows 8.1, Windows 10 Professional, Windows 7 Business (32-bit/64-bit)
	EcoStruxure™ Machine SCADA Expert		Vijeo Designer™
	For more information, please refer to the DIA5ED2171201EN catalog.		For more information, please refer to the DIA5ED2130614EN catalog.

EcoStruxure Operator Terminal Expert

Configuration software for Harmony ranges supporting gestures and intuitive user interface designs



Presentation

The cross-platform EcoStruxure™ Operator Terminal Expert can be used to create HMI applications that control automation systems for:

- Harmony GTU (Premium and Open Box)
- Harmony GTO (2)
- Harmony STO (Color)
- Harmony ST6/STM6
- Harmony industrial PCs (Panel and Box PCs)
- Windows compatible computers

EcoStruxure Operator Terminal Expert supports English, French, German, Italian, Portuguese, Spanish, Japanese, Traditional Chinese, Simplified Chinese, and Korean languages and provides access to new application types.



EcoStruxure Operator Terminal Expert Demo screen

EcoStruxure Operator Terminal Expert runs on any PC with Windows 7, Windows 8, Windows 8.1, or Windows 10 operating system. This supports WYSIWYG (1) of the developed application and the PLC variables (I/O, internal bits and words), and also helps ensure that the application runs securely on Harmony GTU/STO color/GTO (2) /ST6/STM6 terminals or Harmony industrial PCs.

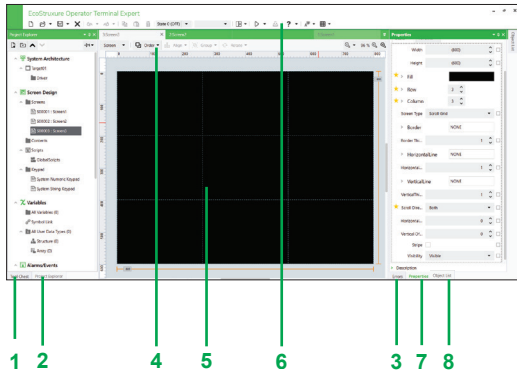
EcoStruxure Operator Terminal Expert supports features for creating and organizing HMI applications:

- Intuitive and simple-to-develop user interface
- Gesture experience by multi-touch, zoom in/zoom out, slide, and stretch
- Templates and theme design selection
- Graphic configuration by Universe “System Architecture” view
- Windows 7 (64-bit), Windows 8/8.1 (64-bit), Windows 10 (64-bit) support

Configuration

EcoStruxure Operator Terminal Expert is an intuitive configuration software that is used to process HMI projects quickly and easily using the 8 configurable windows:

- 1 Tool Chest
- 2 Project Explorer: HMI Content Design, Data Management, Scripts and Actions, System Architecture
- 3 Error window or Feedback zone
- 4 Generic command or Document toolbar
- 5 Editor or Document view
- 6 Application tool bar
- 7 Properties
- 8 Object List



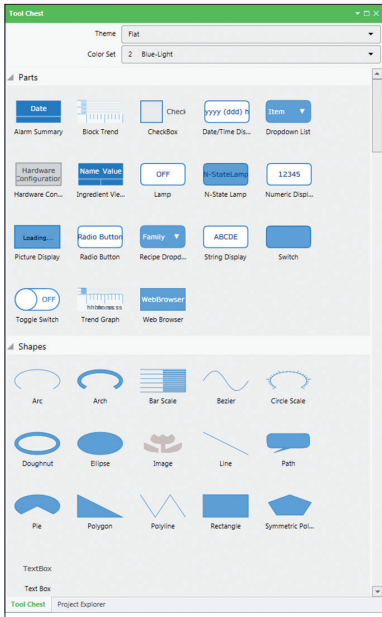
EcoStruxure Operator Terminal Expert window

The software also offers a complete set of application management tools for:

- Up to 256 recipes with 600,000 ingredients in total
- Full simulation mode for testing the application from the design office
- Retrieval of symbol files for PLC variables generated by TwidoSuite, PL7, Concept, ProWORX 32, and Unity Pro software

(1) What You See Is What You Get (on the screen of the target terminal).

(2) Harmony GTO is supported only by software versions prior to V3.1 Service Pack 1.



Parts and Shapes



Predefined Images

Graphics editor

The graphics editor offers interface consistency for simple and more sophisticated objects. This helps application developers to easily create views based on:

- Parts:
 - switches (toggle, radio, selector), lamps
 - text or number fields
 - alarm, trends, recipe ingredient viewer, web browser (1), etc.
- Shapes to be configured:
 - lines, rectangles, ellipses, arcs
 - polylines, polygons, Bézier curves, scales
 - text and images, etc.

Object animations

9 types of graphic-object animations support the rapid creation of animated mimics on the basis of:

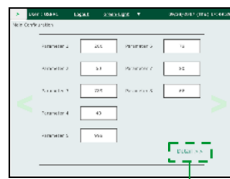
- Pressing the touch panel
- Changing of color
- Filling
- Movement
- Rotation
- Size
- Visibility
- Display of associated value
- Object redesign

Predefined Images library

The graphic objects library contains objects for efficiently organizing around the business segments. Using the simple “drag and drop” method, images can be positioned with the mouse on the mimic being created.



Slide navigation



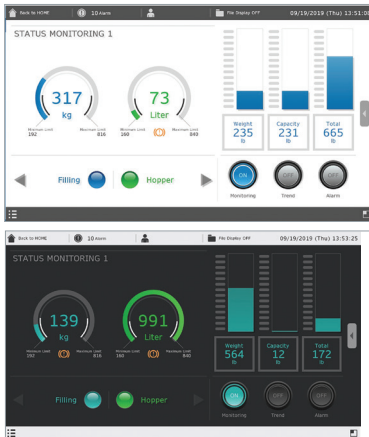
More information appears

Key features

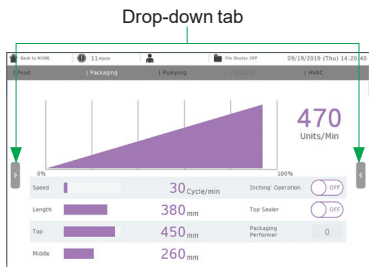
Runtime Navigation

- Automatic menu generation
- Efficient usage of space: permanent or hidden menus, scroll within the menu that is independent of the rest of the screen
- Less engineering: all information on one screen, free of hierarchies
- More intuitive operation: Icons instead of text, dynamic update of an icon representing the page in the menu

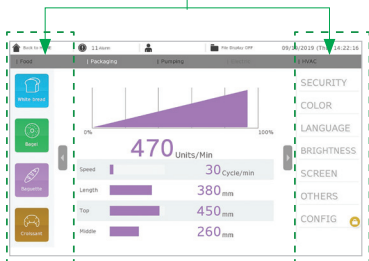
(1) Supported in Harmony GTU / iPCs.



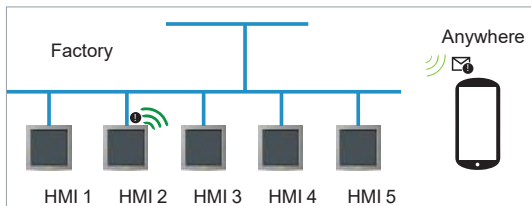
Themes



Hidden information



Layout Objects (DockPanel)



Web Server API

Key features (continued)

Themes and Color set

- Theme (Studio/Flat themes) and color (10 sets) to preset design
- Quick customization and design consistency between themes
- Product differentiation

Layout Objects (DockPanel)

- Embed several pages in one screen and navigate independently in each section
- Screens are automatically resized to fit into the frame
- Frame sizes can be dynamically changed to show different content

Web Viewer

- Visualize and operate the HMI screen remotely with mirroring function
- Runs on standard browsers like Chrome, Safari and Edge for devices (PC, Tablet, Smart phone)
- Easy configuration and able to have up to 3 to 5 remote connections depending on hardware type
- With Web Viewer and Harmony STM6 Gateway Box, the HMISTM6 display panel can become a Faceless HMI for applications that doesn't need a full time operator screen
- Supported by Harmony ST6/STM6/GTU (Premium and Open Box), Harmony iPCs and other PCs

Web Server API

- Interface for browsers, both desktop and mobile:
 - Enables delivery of information independent of time and place to any HTML5 browser
 - Enables fast HMI agnostic development of specific customer/use case tailored UI
- WebSockets for subscription based notifications (events) like alarm notifications, system error notifications, etc.
- User Management support (user name/password)
- Supported only by Professional Buildtime license and applicable to all hardware with Ethernet port options

Communication protocols between HMI application and PLCs

Communication is established between the HMI application and the connected control equipment using a communication protocol (driver) that is selected when creating the application in EcoStruxure Operator Terminal Expert.

Communication protocols

EcoStruxure Operator Terminal Expert supports the following protocols:

- Schneider Electric SA
 - EcoStruxure Augmented Operator Advisor
 - Machine Expert Network
 - Modbus SIO/TCP Master
 - Modbus TCP Master via USB
 - PacDrive
 - Uni-Telway
 - Zelio Logic Smart Relays
- Siemens AG
 - SIMATIC S7 Ethernet/MPI Direct
 - TIA Portal Ethernet
- Rockwell Automation Inc.
 - EtherNet/IP
 - DF1
 - DH-485
- Mitsubishi Electric Corporation
 - Various series controllers
- OMRON Corporation
 - Various series controllers
- Emerson
 - Industrial Automation/Control Technique Modbus SIO/TCP Master
 - Process Management ROC Plus Ethernet/SIO
- CAN in Automation
 - CANopen Slave
- PROFIBUS International
 - PROFIBUS DP Slave
- Crouzet Automation
 - Millennium 3 FBD
- Modbus Organization SIO/TCP Master/Slave

All Schneider Electric drivers provide IEC access to input bits/words and output bits/words: Modbus (RTU and TCP/IP), Modbus Plus (GMU and USB), Uni-Telway, Xway.

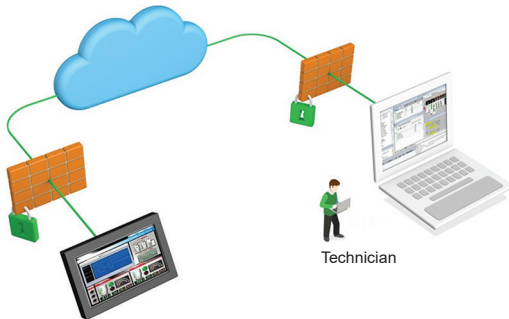
The direct I/O access authorizes access to hardware input and output registers.

Communication protocols between HMI application and PLCs (continued)

PLC symbols link (1)

EcoStruxure Operator Terminal Expert supports the following configuration tools:

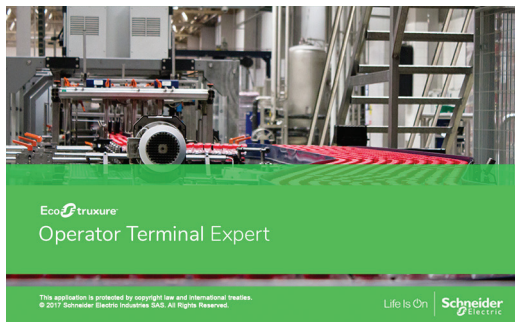
- Schneider Electric SA
 - Modbus SIOMaster(SMBP format)
 - PacDrive (XML format)
 - Modbus TCP Master(XVM/XSY format)
 - SoMachine Network
- OMRON Corporation
 - CS/CJ/NJ Series EtherNet/IP(TXT format)
- Rockwell Automation
 - EtherNet/IP(L5K format)
- Siemens AG
 - TIA Portal Ethernet(AP format)



EcoStruxure Secure Connect Advisor concept

Companion products (2)

EcoStruxure™ Secure Connect Advisor provide 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 EcoStruxure Machine 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.



EcoStruxure Operator Terminal Expert

References

The EcoStruxure Operator Terminal Expert configuration software is compatible with Harmony GTU/STO7/GTO (3)/ST6/STM6 terminals and Harmony iPCs. The software (4) can be downloaded from our website www.se.com or purchased as USB Media Installer (5).

EcoStruxure Operator Terminal Expert commercial licenses are available in two formats.

- Printed license: delivered by regular mail with ID authorization
- Digital license: ID authorization delivered via email to the email address registered while ordering the license

All EcoStruxure Operator Terminal Expert licenses comprise:

- User documentation in electronic format, including:
 - Online help for the software
 - User Manual for the supported targets
 - Setup Manual for the different protocols supported
- Supported communication protocols

A dedicated web portal www.se.com/licensing is available for easy registration and management of software licenses that allows more control over your license(s).

- Instant license activation and easy account management
- Online view of license status from anywhere

(1) Including import of structured variables such as UDTs and ARRAY (of UDT).

(2) For more information, please refer to "[EcoStruxure™ Secure Connect Advisor catalog](#)".

(3) Harmony GTO is supported only by software versions prior to V3.1 Service Pack 1.

(4) After installation, the trial version of the software is available for 42 days and will have to be activated with the commercial license.

(5) USB Media Installer is available for V3.2 only.

EcoStruxure Operator Terminal Expert

Configuration software for Harmony ranges supporting gestures and intuitive user interface designs

References (continued)				
Printed Buildtime licenses				
Description	License type/No. of Stations	Application transfer cable		Reference
		PC side port	Terminal side	
EcoStruxure Operator Terminal Expert Professional Single license	Single/1	USB/ Ethernet	Harmony GTU Harmony GTO (1)	HMIPELCZLSPMZZ
EcoStruxure Operator Terminal Expert Professional Group license	Group/3		Harmony STO7 Harmony ST6 Harmony STM6	HMIPELCZLGP MZZ
EcoStruxure Operator Terminal Expert Professional Team license	Team/10		Harmony iPCs and other PCs	HMIPELCZLTPMZZ
EcoStruxure Operator Terminal Expert Professional Entity license	Entity/100			HMIPELCZLEPMZZ
EcoStruxure Operator Terminal Expert Basic Single license	Single/1		Harmony STO7 Harmony ST6 Harmony STM6	HMIEELCZLSPMZZ
Digital Buildtime licenses (2)				
Description	License type/No. of Stations	Application transfer cable		Reference
		PC side port	Terminal side	
EcoStruxure Operator Terminal Expert Professional Single license	Single/1	USB/ Ethernet	Harmony GTU Harmony GTO (1)	HMIPELCZLSPA ZZ
EcoStruxure Operator Terminal Expert Professional Group license	Group/3		Harmony STO7 Harmony ST6 Harmony STM6	HMIPELCZLGP A ZZ
EcoStruxure Operator Terminal Expert Professional Team license	Team/10		Harmony iPCs and other PCs	HMIPELCZLTP A ZZ
EcoStruxure Operator Terminal Expert Professional Entity license	Entity/100			HMIPELCZLEPA ZZ
EcoStruxure Operator Terminal Expert Professional 3 months Single license	Fixed term Single/1			HMIPEXCZLSRA ZZ
EcoStruxure Operator Terminal Expert Basic Single license	Single/1	–	Harmony STO7 Harmony ST6 Harmony STM6	HMIEELCZLSPA ZZ
Printed Runtime licenses				
Description	License type/No. of Stations	Compatible with		Reference
		PC side port	Terminal side	
EcoStruxure Operator Terminal Expert Runtime license for Windows	Single/1	Harmony iPCs and other PCs		HMIRTCZLSPMZZ
EcoStruxure Operator Terminal Expert Web Viewer Runtime Single License	Single/1	Harmony GTU Harmony ST6		HMIWRT001
EcoStruxure Operator Terminal Expert Web Viewer Runtime Team License	Team/10	Harmony STM6 Harmony iPCs and other PCs		HMIWRT010
EcoStruxure Operator Terminal Expert Web Viewer Runtime Entity License	Entity/100			HMIWRT100
Digital Runtime license				
Description	License type/No. of Stations	Application transfer cable		Reference
		PC side port	Terminal side	
EcoStruxure Operator Terminal Expert Runtime Single license for Windows	Single/1	USB/ Ethernet	Harmony iPCs and other PCs	HMIRTCZLSPA ZZ
USB Media Installer (3)				
Description				Reference
EcoStruxure Operator Terminal Expert USB Media Installer				HMI BTUSB32

(1) Harmony GTO is supported only by software versions prior to V3.1 Service Pack 1.

(2) Please contact Schneider Electric Customer Care Center to check if the digital licenses are distributed/available in your country.

(3) USB Media Installer is available for V3.2 only.

H	
HMIEELCZLSPAZZ	11
HMIEELCZLSPMZZ	11
HMIBTUSB32	11
HMIPELCZLEPAZZ	11
HMIPELCZLEPMZZ	11
HMIPELCZLGPAZZ	11
HMIPELCZLGPMZZ	11
HMIPELCZLSPAZZ	11
HMIPELCZLSPMZZ	11
HMIPELCZLTPAZZ	11
HMIPELCZLTPMZZ	11
HMIPEXCZLSRAZZ	11
HMIRWCZLSPAZZ	11
HMIRWCZLSPMZZ	11
HMIWRT001	11
HMIWRT010	11
HMIWRT100	11

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Learn more about our products at
www.se.com/EcoStruxure Operator Terminal Expert

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

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Photos: Schneider Electric

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