Catalog | October 2025

Industrial Automation

EcoStruxure™ Automation Expert

Software-defined Automation

Software version v25.0

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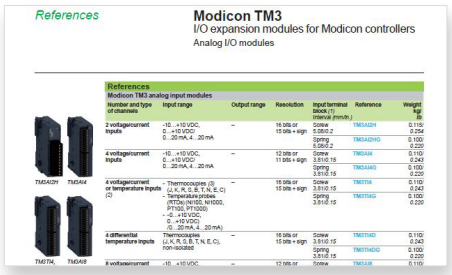

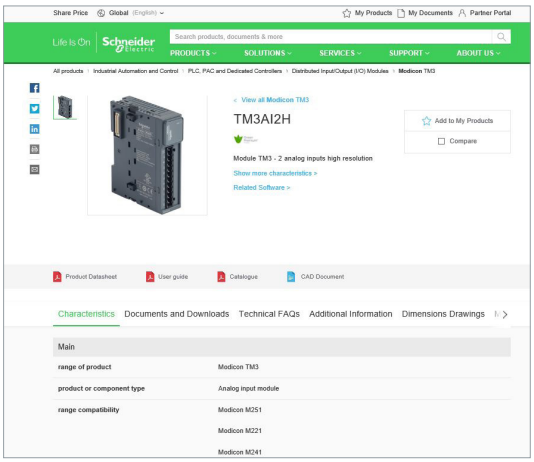

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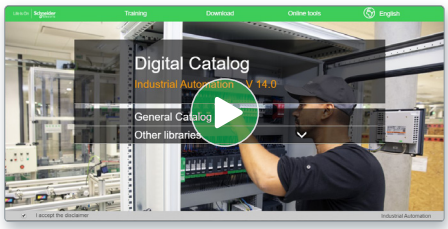

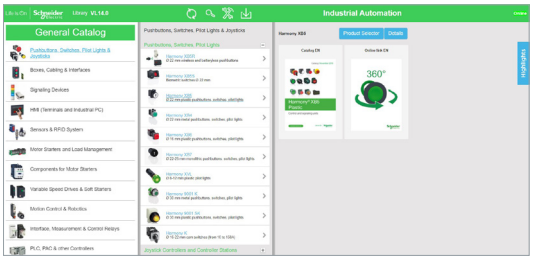

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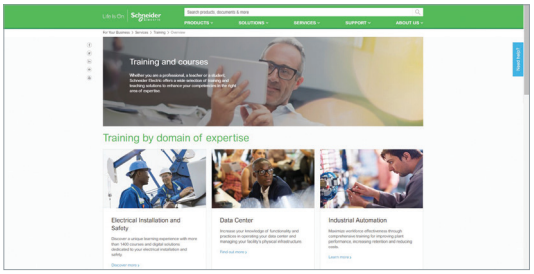

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Industrial automation
EcoStruxure Automation Expert

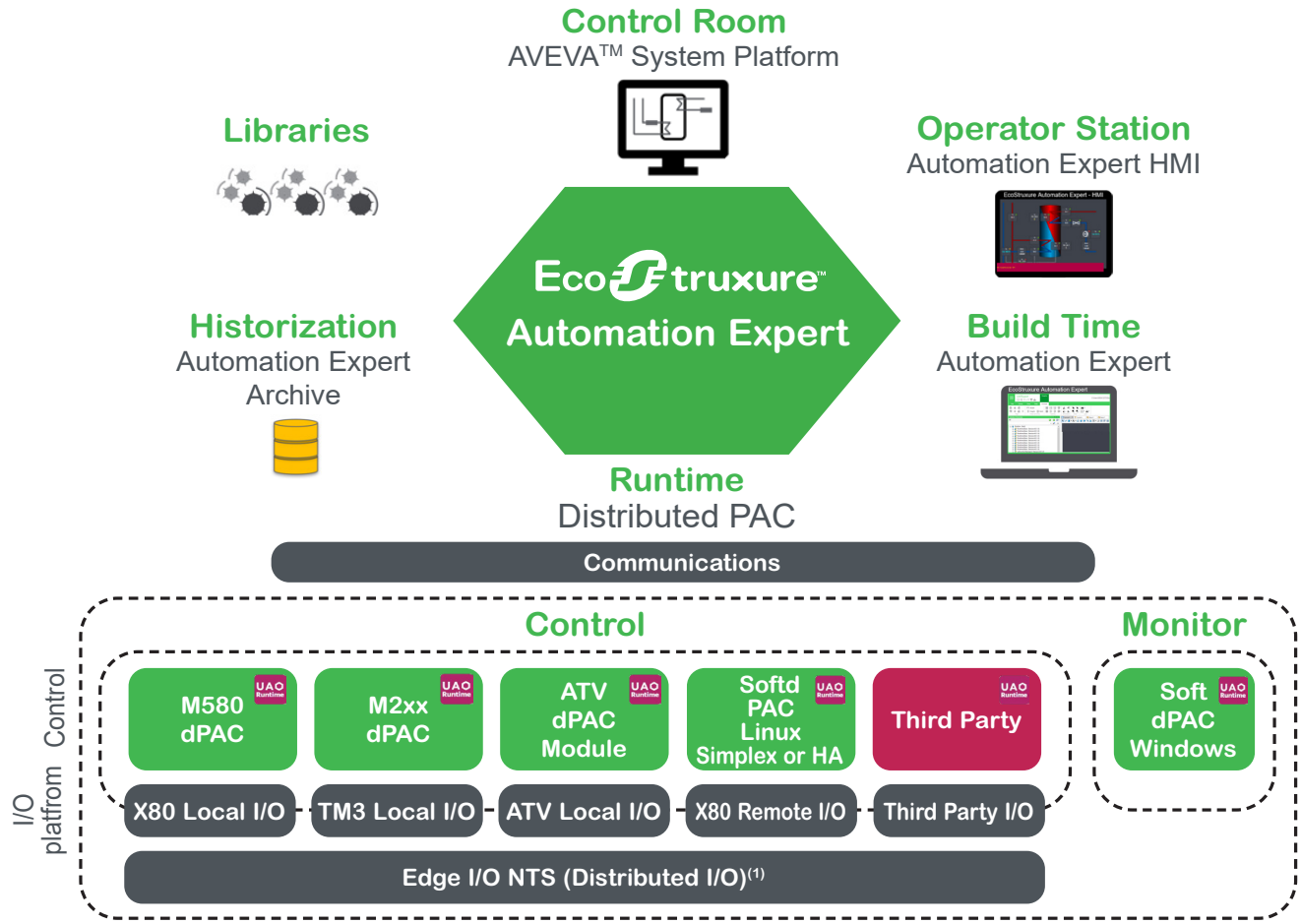
EcoStruxure™ Automation Expert platform

EcoStruxure Automation Expert platform is the unified software platform from Schneider Electric, bringing together your industrial software applications into one environment. This platform will enhance user experience, bringing new and improved capabilities such as collaboration across project teams and data continuity.

In this version, the platform provides functionalities including user management, system management, multi-user, and version control, leveraging a unified environment with a modular approach for all the controls.

EcoStruxure™ Automation Expert

EcoStruxure Automation Expert has been integrated into the Automation Expert platform, strengthen software-defined industrial automation solutions. This innovative approach allows industrial operators to achieve significant improvements over traditional process control systems. It enhances productivity, quality and flexibility throughout the entire life cycle of industrial assets.



(1) Depending on the target controller, Edge I/O NTS is supported over Ethernet IP or Modbus TCP. Please refer to the release note for more details.

- EcoStruxure Automation Expert Build Time encompasses the design, engineering and monitoring of the application.
- Distributed Programmable Automation Controller (dPAC) platforms with the Universalautomation.org Shared Source Runtime engine:
  - ATV dPAC for Altivar
  - Modicon M251 dPAC
  - Modicon M262 dPAC
  - Modicon M580 dPAC
- Plus, innovative new software-based controllers:
  - Soft dPAC for Windows™ , for standalone configurations
  - Soft dPAC for Linux™, for standalone and high availability configurations
- EcoStruxure Automation Expert - HMI, a fully integrated, object-oriented industrial visualization solution
- EcoStruxure Automation Expert - Archive, a centralized solution for the historization of process data, alarms, and trends
- Schneider Electric Libraries, a comprehensive set of software-defined libraries, ranging from basic functions up to segment solutions
- Asset Link for Bulk Engineering to extract data from engineering tools for automated application generation
- Asset Link for AVEVA OMI to create application objects (AppObjects) in the AVEVA System Platform in an automated workflow
- High Availability add-on to create applications that promote continuous operation and minimize downtime in critical applications by using a High Availability Soft dPAC.
- Procedural Automation add-on to create, modify, and execute automated routines, recipes, tasks and complex sequences or procedures.

Note: UniversalAutomation.org is a non-profit organization dedicated to overseeing the implementation of an industrial shared-source runtime execution engine. For more information, please visit universalautomation.org website.

Feature overview

EcoStruxure Automation Expert represents a software-defined approach to designing, building, operating, and maintaining industrial automation systems that offers a unique technology mix.

Complexity mastered

Systems, devices, services, and assets are natively represented as ready-to-use software objects called composite automation types (CATs) that encapsulate internal behaviour and simplify functional interfaces. An object-oriented approach promotes code reuse enables standardization on best practice, and helps manage complexity while providing the fundamental building blocks for the creation of cyber-physical systems. CAT objects follow a type/instance relation and can be combined to create new objects that encapsulate:

- Control logic
- HMI/SCADA visualization
- I/O and device communications
- Simulation and test rigging
- Documentation

Decoupling the application from implementation

EcoStruxure Automation Expert allows the engineer to generate their automation control strategies without the need for the hardware architecture by decoupling the application from the runtime deployment. This allows professionals to focus independently on each task throughout the project lifecycle, combining the best capabilities of classic PLC with DCS control approaches. Applications are portable, reusable, and interoperable across runtime platforms, meaning deployment decisions are made just in time and on the fly, enabling exceptional system agility.

Efficient engineering

EcoStruxure Automation Expert Build Time provides a single, modular engineering environment for all tasks needed to engineer, monitor, and manage the complete automation system including hardware and software, control, and visualization. It automates low value engineering and integration tasks, reducing engineering effort and sources of error by leveraging Asset Link to perform digital engineering. Complex functions can be encapsulated into manageable objects, enabling non-technical users to understand and manage complex systems.
Cross communications are transparent and implicit regardless of physical location, requiring zero engineering consideration.

Common runtime environment

Through the implementation of the shared source Runtime engine provided by universalautomation.org across hardware and software platforms, exceptional re-usability, scalability, and architectural flexibility are now available. Application portability provides cost savings through the decoupling of the lifecycles of software and hardware systems.

Simple system integration

EcoStruxure Automation Expert was designed with the complete lifecycle of an automation system in mind, with functions to facilitate management and monitoring of multiple assets and devices at scale. With a single user environment covering the entire system scope including third-party devices, orchestration of complex, heterogenous systems becomes simpler.

Native IT integration

Modern automation systems generate increased value when coupled with business information and hence wider IT ecosystems. EcoStruxure Automation Expert provides an expandable platform for Industry 4.0 solutions with support for high-level programming, modular systems design, and open standards. Thanks to event-driven execution and object-oriented design, EcoStruxure Automation Expert applies to IT programming language standards.

Feature overview

Cybersecurity

EcoStruxure Automation Expert offers improved cybersecurity support, including credential management. It utilizes secure protocols such as TLS, HTTPS, and OPC UA, along with encryption function blocks to help ensure secure communication between controllers, HMIs, SCADA, and third-party devices.

Since the v22.0 release, Automation Expert conforms to CA SB327 California Connected Devices.
Syslog functionality for ATVd, M580d, and Soft dPAC has been available since earlier versions. We are pleased to announce that users can now enable or disable the audit trail also for M262d, with events accessible in a read-only format by Syslog servers.

The following cybersecurity events are available in accordance with CTI-13:
- Creation / modification / deletion of ID/password
- Successful/unsuccessful device login, device deployment, firmware update, IP address change (device properties)
- Set/Reset security of a device from topology manager
- Modification of system time
- Connection to syslog server

Since the v25.0 release, EcoStruxure Automation Expert has been certified against **IEC 62443-3-3 at SL2**. The Cybersecurity – User Guide help users configure a cybersecure system that is confident and meets IEC 62443-3-3 requirements.

EcoStruxure Automation Expert Platform

EcoStruxure Automation Expert Platform – Multi-user

EcoStruxure Automation Expert platform enhances collaboration across project teams and minimizes merge conflicts when sharing application development with simultaneous multi-users.

The multi-user capability features a reservation mechanism that enables users to reserve specific zones within a project, making them read-only for other users. This can help minimize potential conflicts. Additionally, the system supports recursive zones, allowing zones to contain sub-zones with dependencies. When a user reserves a zone, all dependent zones are automatically reserved as well, to help prevent potential conflicts.

Each device also functions as a zone; when a user accesses a device – such as logging in, deploying, or monitoring – it becomes unavailable to others. Furthermore, the Automation Expert platform hosts the main repository, allowing users to work independently without interruptions from other users' deliveries.

The history of changes is tracked by enabling a commit message before any modifications are delivered. This practice enhances accountability and clarity, as each commit message should contain relevant details about the changes made, such as the purpose of the modification, the specific areas impacted, and any related detail. Teams can maintain a clear record of the project's evolution, fostering collaboration and simplifying future reviews or troubleshooting efforts.

EcoStruxure Automation Expert Platform – System Management

The System Management app enables comprehensive monitoring of control system devices, including their health, security status, and performance. It delivers an exceptional user experience with detailed contextual information, real-time access to system alarms, and event tracking capabilities. These features support efficient diagnostics and maintenance workflows.

EcoStruxure Automation Expert Platform – Advanced System Management

The Advanced System Management app introduces advanced features designed to automate and optimize maintenance operations like self-healing mechanisms for high availability system.

The High Availability Disruption Avoidance is the ability to maintain, at all time, the Edge Controller High Availability, by adding several spares parts controllers to allow self-heal from a controller failure .

When a failure is detected on the High-Availability pair, we minimize call-outs by selecting dynamically the right spare part and then restore the High Availability almost immediately.

EcoStruxure Automation Expert Software

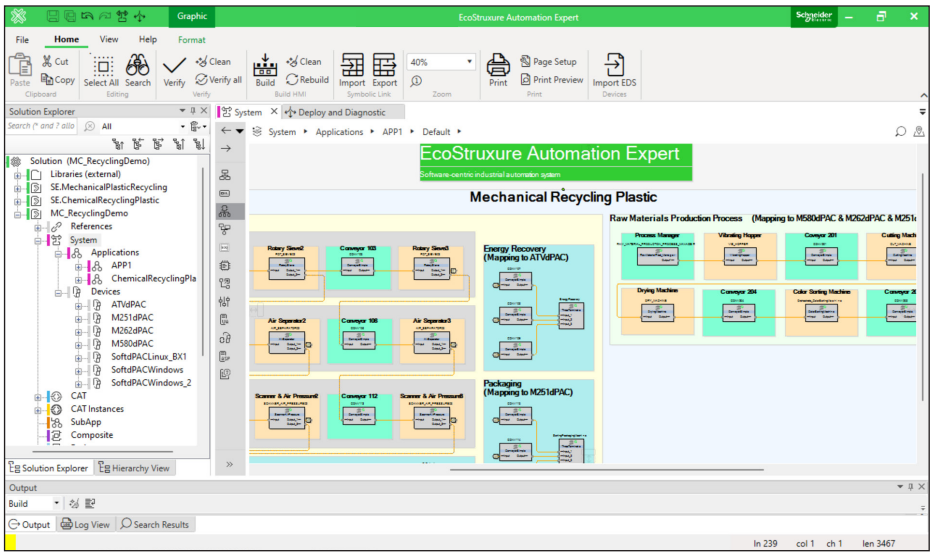
The EcoStruxure Automation Expert software offer includes:

- EcoStruxure Automation Expert Build Time is the main tool for designing, engineering, and monitoring the application.
  - Asset Link for Bulk Engineering to extract data from engineering tools for automated application generation.
  - Asset Link for AVEVA OMI to create application objects (AppObjects) in the AVEVA System Platform in an automated workflow
  - High Availability add-on to create applications that promote continuous operation and minimize downtime in critical applications by using a High Availability Soft dPAC.
  - Procedural Automation add-on to create, modify, and execute automated routines, recipes, tasks, and complex sequences or procedures.
- EcoStruxure Automation Expert HMI Configurator
- EcoStruxure Automation Expert Archive
- Asset-oriented application libraries

EcoStruxure Automation Expert Build Time

EcoStruxure Automation Expert Build Time is an asset-based, fully-integrated engineering environment that allows portable, automation systems to be managed within a single environment. EcoStruxure Automation Expert Build Time provides the capability to:

- Design and manage asset-based applications using object libraries based on multifaceted models such as asset logic, operating modes, HMI symbols and faceplates (including alarms and trends), I/O interface, and asset documentation
- Design the control strategy for process and machine based on asset-oriented objects with single line connections
- Create rich process displays to monitor and control the process from the control room or line terminal by dragging and dropping asset-based objects
- Manage a single solution independently of the number of controllers and HMI stations
- Design the application solution independently of the hardware configuration
- Test and simulate the control and HMI for the whole solution
- Create and modify procedural automation CATs based on S88 state model with graphical editor
- Support multi-user change management through SVN client integration
- Design, configure, and manage network and device topologies
- Flexibly deploy applications to multiple hardware or software platforms based on UniversalAutomation.Org a shared runtime execution engine
- Automatically discover and diagnose compatible runtime devices
- Asset Link for bulk generation of asset instances from AVEVA Engineering or DEXPI files
- Asset Link for bulk generation of asset instances for AVEVA System Platform
- Embedded AVEVA industrial graphic editor in EcoStruxure Automation Expert Build Time to create new AVEVA industrial graphics or to reuse graphics from existing applications
- Secure the automation system by managing authentication with encrypted communication and security certificates at solution and devices level



EcoStruxure Automation Expert V25.0 Build Time

EcoStruxure Automation Expert Software

EcoStruxure Automation Expert – HMI

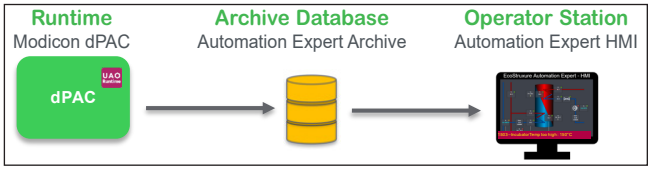
EcoStruxure Automation Expert HMI is a tightly integrated human-machine interface designed for EcoStruxure Automation Expert applications. Its features include:

- Compatibility with Windows™ OS/Linux™ OS panel PCs
- Seamless management of controller and HMI communication
- Support for single/multi operator stations with cloning
- User management for access control
- Multi-language application
- Monitoring of runtime connections

EcoStruxure Automation Expert HMI Client for Window™/Linux™ operating system can be installed on various hardware such as Workstations, Industrial PCs, and Edge Boxes, provided they meet the minimum system requirements. It facilitates effective management of communication between the controller and HMI.
Furthermore, the EcoStruxure Automation Expert HMI Client for Harmony ST6 is compatible with HMIST6200, HMIST6400, HMIST6500, HMIST6600, HMIST6700, HMISTM6400, and HMISTM6200 touch panel screens. It offers seamless management of controller and automatic HMI communication, particularly ideal for a small number of assets.

EcoStruxure Automation Expert – Archive

EcoStruxure Automation Expert Archive enables the connection between the Distributed Programmable Automation Controller (dPAC) platforms configured in your solution and the Archive database, operating as a highly integrated local data historian. It provides minimal engineering effort for historization and retrieval of live process data, alarms, and events to be displayed within Automation Expert HMI and the capability to integrate with larger enterprise data storage systems by Structured Query Language (SQL). It is compatible with Server 2019 and Server 2022 in addition to Windows10, windows11 and Linux operating system.

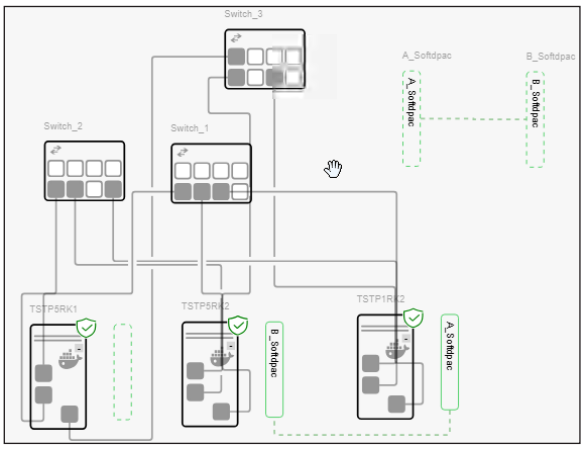


EcoStruxure Automation Expert – AVEVA System Platform integration

EcoStruxure Automation Expert includes native support for System Platform - AVEVA's real-time operations control platform for supervisory, HMI, SCADA, and IIoT applications. EcoStruxure Automation Expert is capable of auto-generating OPC UA-based secure communications between platforms and generate AVEVA System Platform-compatible graphics for clean integration. Furthermore, it now embeds the AVEVA Industrial Graphics editor so that users no longer need to move from EcoStruxure Automation Expert Build Time to AVEVA Build Time, providing unpreceeded integration.

Automation Expert version	Library compatibile version	Platform version for Asset Link	Version for Asset Link and AVEVA Industrial Graphics
V23.0	AVEVA System Platform 2020 R2 SP1	AVEVA System Platform 2020 R2 SP1 or later	No AVEVA Industrial Graphics support
V23.1	AVEVA System Platform 2023	AVEVA System Platform 2020 R2 SP1 or later (New Galaxy creation is possible only with Library compatible version)*	AVEVA System Platform 2023 or later
V24.1	AVEVA System Platform 2023 or R2 SP1	AVEVA System Platform 2020 R2 SP1 or later (New Galaxy creation is possible only with AVEVA System Platform 2023 R2 SP1)*	AVEVA System Platform 2023 or later (New Galaxy creation is possible only with AVEVA System Platform 2023 R2 SP1)*
V25.0	AVEVA System Platform 2023 R2 SP1 P01	AVEVA System Platform 2023 or later (New Galaxy creation is possible only with AVEVA System Platform R2 SP1 P01)*	AVEVA System Platform 2023 or later (New Galaxy creation is possible only with AVEVA System Platform R2 SP1 P01)*

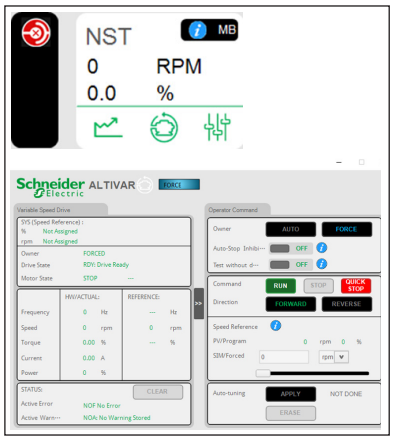
**Only Select Existing Galaxy from the configurator is possible if Library compatible version is not available with the user.*



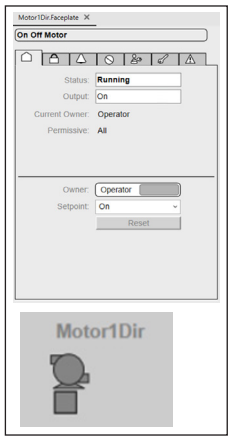
Embedded AVEVA industrial graphic editor in EcoStruxure Automation Expert Build Time

EcoStruxure Automation Expert Software (continued)

EcoStruxure Automation Expert – Libraries



Example of field devices symbol and faceplate on EcoStruxure Automation Expert HMI



Example of Application CAT symbol and faceplate on AVEVA OMI

EcoStruxure Automation Expert includes a set of application libraries with generic process and control models such as motors / valves and segment-based libraries with equipment models that include multiple facets – logic, Automation Expert HMI, AVEVA System Platform template, and documentation within a single package to minimize the engineering time.

EcoStruxure Automation Expert offers a comprehensive set of general application libraries with diverse functionalities for process and control models like motors and valves. This accelerates development cycles, helps reduce errors, and enhances overall software quality with logic, Automation Expert HMI object, AVEVA System Platform template, and documentation, all within a single package.

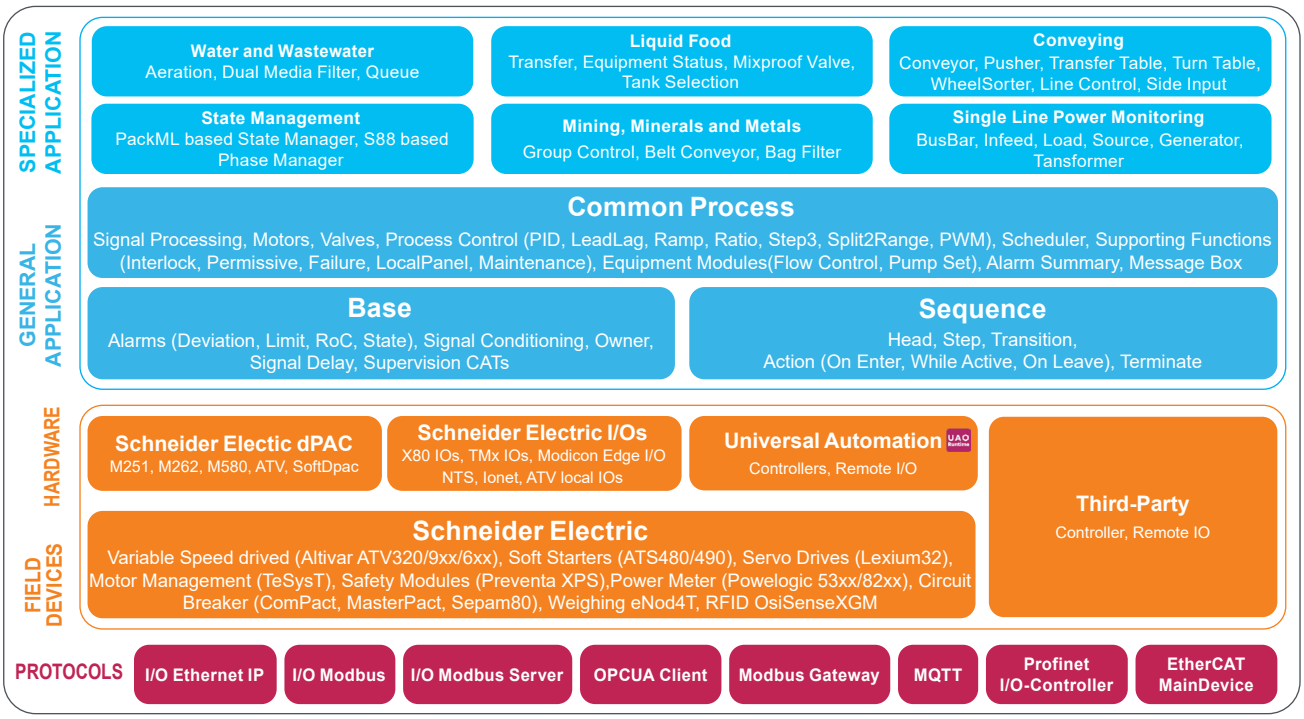
Additionally, specialized application segment-based libraries are provided, enabling developers to streamline their development process with standard functionality. This allows them to focus on adding value to their specific industry or application domain with optimized functions and algorithms tailored to their unique requirements.

EcoStruxure Automation Expert also incorporates a field devices library to facilitate the seamless integration of commonly used Schneider Electric and Technical Partner's field devices via Modbus / Ethernet IP. This library provides the necessary communication mapping, Automation Expert HMI objects for control and diagnostic, and documentation required for their smooth utilization within the application.

On version 25.0, these libraries are included at no extra cost:

- Field Device
- Base and common process
- Sequence management and Phase Management
- Liquid food
- Water and Wastewater (including desalination)
- Mining, Minerals, and Metals
- Single line power monitoring
- Conveying

These libraries include HMI objects that are compatible with Windows and Linux Ubuntu native HMI runtime. Moreover, "plug and produce" software and hardware components from UniversalAutomation.org vendors are fully compatible with EcoStruxure Automation Expert applications, irrespective of the vendor.



With this release the library updates include:

- A modular and hierarchical framework for the application libraries allowing both simplicity and complexity as needed, offering a scalable solution that can be adapted for various industrial automation tasks.
- Transfer and related function blocks in the SE.App2LiquidFood that are used to monitor and manage transfer of liquid materials and their associated sequences that are available in a process. This block works in coordination with phase manager block from App2Procedure to control the sequence blocks from SE.AppSequence library.
- The GroupControl Module in the SE.App2MMM compose of the GroupControl and GroupControlBase CATs designed for efficient management and control of devices in industrial automation scenarios. It allows users to manage and control multiple devices as a group, simplifying the process of coordinating and supervising various elements within a system.

EcoStruxure Automation Expert Software (continued)

EcoStruxure Automation Expert – Libraries (continued)

EcoStruxure Automation Expert libraries

Library name	Short description	Extended description
Runtime.Base	Standard blocks	This library contains the basic function blocks to be used for: ■ Runtime management ■ Arithmetic functions ■ Logic functions ■ Format conversion ■ Event management ■ etc.
SE.App2Base	Elementary blocks of the application	Library with application CATs covering basic application functions like alarms, conditions, owners, and signal conditioning that are used by other application CATs like the ones from SE.App2CommonProcess.
SE.App2CommonProcess	Common process application	Library with application CATs to address common process assets or functions like digital I/O, analog I/O, motors, valves, flow control, etc. These types of object can be used in any industrial application as well as in process control in manufacturing applications.
SE.App2Conveying	Conveying application	Library with application CATs to address common equipment such as conveyors, sorters, transfer tables, and turntables, typically used in logistic hubs and distribution centers.
SE.App2LiquidFood	Liquid and food (CPG)	Library with application CATs to address Liquid and Food applications with mix proof valves; transfer of materials and liquids from a source to a destination; and equipment status function is a crucial component within a system that monitors and reports the operational condition of various equipment.
SE.App2MMM	Mining, Mineral and Metals application	Library with the Group Control application CAT to manage and control multiple devices as a group, simplifying the process of coordinating and supervising various elements within a system.
SE.App2SingleLinePowerMonitoring	Low and medium power monitoring application	Library with application CATs with common functions for electrical objects such as busbars, sources, infeeds, and loads that can be connected to energy management hardware CATs.
SE.App2WWW	State management	Library with application CATs used to monitor and manage control sequences like aeration and dual media filter for Water and Wastewater applications.
SE.App2StateManagement	State management	Library with application CATs to provide state management functionality for generic application (State Manager) as well as ISA-88 based application (Phase Manager). Phase Manager also includes a phase logical interface that accepts commands from external batching interfaces such as AVEVA Batch Management and returns the Phase Manager status.
SE.AppSequence	Sequence Control	Library with a set of application CATs that allows you to create sequential control algorithms with steps and transitions to command control modules. This library works with both SE.AppCommonProcess and t.App2CommonProcess.
SE.DPAC	dPAC hardware controllers	Library containing the dPAC device types
AVEVA.IndustrialGraphicsLibrary	Industrial graphics library	Industrial Graphics are vector-based graphics that can be scaled, animated, embedded into application objects, and deployed. The library contains common industrial equipment. You can modify graphics or add graphics to the library by creating new graphics using the Industrial Graphic Editor.
SE.EAEPortal	AVEVA System Platform Device type	The AVEVA System Platform device type is required by Asset Link for establishing communication and creating the application objects automatically in AVEVA System Platform
SE.FieldDevice	Field device hardware CATs	This library has ready-to-use hardware CATs for motor control, energy management, machine safety, and weighing from Schneider Electric, allowing dPAC communication with these devices by Modbus TCP, Modbus RTU, or EtherNet/IP depending on the device.
SE.HwCommon	Common hardware CAT functions	Library of functions used by the various hardware CAT libraries
SE.IoATV	Variable speed drive I/O services for ATV dPAC	Library of hardware CATs for Altivar I/O (local and modules) used for the Altivar dPAC module hardware configuration

EcoStruxure Automation Expert Software (continued)

EcoStruxure Automation Expert – Libraries (continued)

EcoStruxure Automation Expert libraries (continued)

Library name	Short description	Extended description
SE.IoNet	UDP gateway	Library of hardware CATs to enable UDP communication
SE.IoTMx	TM I/O services for M251d/M262d	Library of hardware CATs for TM3 I/O modules used for M251d and M262d hardware configuration
SE.IoX80	X80 I/O services for M580d/CRd	Library of hardware CATs for X80 I/O modules used for M580d/CRd hardware configuration
SE.ModEdgeIONTS	Edge I/O NTS services for Simplex Linux Soft dPAC	Library of hardware CATs for Modicon Edge I/O NTS
SE.ModbusGateway	Standard Modbus gateway	Library of hardware CATs to enable Modbus TCP communication with import of data description file
SE.Standard	EcoStruxure Automation Expert HMI device type	Library with EcoStruxure Automation Expert HMI device type
Standard.IoEtherNetIP	Standard Ethernet IP scanner functions	Library of hardware CATs used for EIP scanner configuration (Implicit use by the EcoStruxure Automation Expert system when using the EIP scanner and also to add custom EIP connections)
Standard.IoModbus	Standard Modbus functions	Library of hardware CATs to enable Modbus client communication
Standard.IoModbusSlave	Standard Modbus server functions	Library of hardware CATs to enable Modbus server communication
Standard.OPCUAClient	Standard OPC UA client functions	Functions to enable OPC UA client connection, monitor, read, and write data
Standard.EtherCAT	Standard EtherCAT functions	Library for configuring hardware CATs on EtherCAT main device and subdevices to enable communication.
Standard.IoProfinet	Standard PROFINET functions for I/O Controller and I/O device	Library of hardware CATs and function blocks used to enable PROFINET I/O controller and I/O device roles.

Definitions:
- CAT object: A composite automation type (CAT) function block includes objects with multiple facets:
  - Logic to define its operating modes
  - I/O interfaces to exchange data/events with its environment
  - Symbols/faceplates for control and monitoring in the HMI
  - Documentation that is implicitly part of the project online help

- Application CAT: representing application assets or functions
- Hardware CAT: representing hardware devices that can be added to the hardware configuration, for device monitoring and control

EcoStruxure Automation Expert Software (continued)

System requirements

Windows – Engineering, HMI, and Archive

System requirements	Minimum			Recommended		
	Engineering	HMI	Archive	Engineering	HMI	Archive
Processor	1 GHz			2 GHz or higher		
RAM (1)	2 GB	2 GB	2 GB	4 GB	4 GB	4 GB
Hard disk free space (1)	1 GB	1 GB	1 GB	10 GB	10 GB	10 GB
Display resolution	1280x1024			1920x1080 or higher		
Pointing device	Mouse or compatible					
Network access	One Ethernet interface					
Operating system	Microsoft Windows 10 Professional (64-bit) Version 1903 and later, Microsoft Windows 11 Professional Version 21H2 and later, and Microsoft Server Version 2019 (1809 and later)					
.NET framework	.NET 4.8			.NET 4.8 or higher		

(1) Requirement is indicated for each software package. More than one software package can be installed on the same device. In this case, you need to add the respective RAM and hard disk free space requirements together. For example, if you install the HMI and Archive software packages on the same device, the minimum RAM required is 4 GB (2 GB + 2 GB).

Distributed Programmable Automation Controller (dPAC) Platforms

Soft dPAC

Soft dPAC is a Edge Controller with a containerized version of UAO shared source runtime engine designed to execute an application and interact with field devices. This hardware-agnostic controller is versatile, capable of installation on various hardware platforms such as servers, workstations, industrial PCs, or microcomputers, provided they meet the minimum requirements.

Soft dPAC supports both Linux™ and Windows™ operating systems:
- The Linux SoftdPAC is ideal for real-time control when installed in conjunction with a Linux real-time patch.
- The Windows SoftdPAC is best suited for non-critical applications that do not demand real-time control.

In a Linux environment, multiple instances of Soft dPAC can be seamlessly installed on a single host machine, allowing tasks like line expansions to be completed without disrupting ongoing processes. This capability minimizes downtime, thereby enhancing productivity and profitability.

For Windows, one Soft dPAC instance can be installed per host machine.

High Availability Soft dPAC

High Availability Soft dPAC (HA Soft dPAC) represents a software-based high availability industrial automation solution engineered to maintain uptime upon a failure, offering resilience against hardware, software or network failures. This capability effectively minimizes process downtime, making it ideal for demanding applications where uninterrupted process flows are critical.

The integration of the high-availability solution with EcoStruxure Automation Expert software plays a pivotal role in enhancing productivity by significantly reducing process downtime.

High Availability Soft dPAC is a versatile edge controller compatible with a variety of hardware options, such as the Schneider Electric Harmony P6 *i*PC and ASRock™ iEP-5000G Series Industrial IoT Controller. For compatibility with other hardware options, please contact your Schneider Electric representative for further details.

Moreover, High Availability Soft dPAC seamlessly integrates with Modicon X80 IOs using the BMECRD0100 Remote I/O module, which provides comprehensive compatibility and functionality within industrial automation setups.

Essential Edge Controller

HMIBX1A0NDA

Essential Edge Controller, a part of the Harmony *i*PC range with pre-installed Soft dPAC. This versatile controller is tailored to meet a diverse set of control and compute application needs. Its design aims to significantly reduce commissioning time, thereby enhancing the overall customer experience.

Product reference: **HMIBX1A0NDA**

The Essential Edge Controller is an open-to-application edge terminal that runs on Linux operating system. This edge device delivers substantial value for diverse industrial use cases with:
- Pre-installed Soft dPAC Simplex, HMI for immediate deployment
- Capability to run third-party applications on the same hardware

The Essential Edge controller has no embedded I/O; it supports Remote I/O on Modicon Edge I/O NTS, TM3 I/O, and X80 I/O expansion modules.

Performance Edge Controller

HMIP6-BCTO

The Performance Edge Controller, a part of the Harmony *i*PC range with pre-installed Soft dPAC. This Edge controller delivers enhanced performance compared to Essential Edge Controller. It comes with pre-installed Soft dPAC Simplex, HMI, and Archive, to provide smooth integration and remarkable flexibility. Moreover, its capability to host third-party applications on the same hardware empowers users to customize and extend functionality to align with their unique requirements.

The Performance Edge Controller operates on the Linux operating system, offering an efficient platform for industrial automation. It seamlessly integrates with a diverse array of industrial applications, providing effortless integration for the industry.

Product Reference: **HMIP6-BCTO**

It is a configure-to-order product, where the user can choose the processor type (Celeron / i3), Memory size, and accessories.

The Performance Edge controller has no embedded I/O; it supports Remote I/O on Modicon Edge I/O NTS, TM3 I/O, and X80 I/O expansion modules.
This innovative Performance Edge controller is an all-in-one solution, streamlining operations and maximizing efficiency.

NOTE: Please contact your Schneider Electric representative for additional information.

Distributed Programmable Automation Controller (dPAC) Platforms (continued)

Modicon M580 dPAC

BMED581020

A distributed field controller with up to 64 MB ECC RAM for programs and data. The Modicon M580 dPAC supports the robust, high-performance Modicon X80 I/O catalog(1) and is available in standard and conformal coated versions.

Product references:
- **BMED581020: Modicon M580 dPAC (standard)**
- **BMED581020C: Modicon M580 dPAC (conformal coated)**

BMED581020 and **BMED581020C** controllers support:
- Up to 1,408 discrete I/O channels(2)
- Up to 352 analog I/O channels(2)
- Up to 4 racks of local I/O

Modicon M251 dPAC

TM251MDESE

A cost-optimized, low-footprint distributed controller based on the machine-specialized Modicon M251 Logic Controller platform. The Modicon M251 dPAC provides a single Ethernet port for fieldbus, switched dual Ethernet ports for peer communications, and supports the field-proven TM3 I/O system(1).

Product reference:
- **TM251MDESE**: Modicon M251 dPAC

The **TM251MDESE** controller has no embedded I/O; it supports Modicon TM3 I/O expansion modules:
- Up to 112 discrete I/O channels(2)
- Up to 112 analog I/O channels(2)
- Up to 14 Modicon TM3 expansion modules (7 local modules + 7 remote modules) with Modicon TM3 bus expansion modules (transmitter module and receiver module)

It is possible to control up to 4 TeSys U and TeSys D motor starters by connecting a **TM3XTYS4** TM3 module to the Modicon M251 dPAC.

Modicon M262 dPAC

TM262L01MDESE8T

This is the controller for performance machines. It is powered with a non-isolated 24 V DC power supply, has a built-in overload protection, embeds a dual-core processor and a 256 MB memory capacity and supports RSTP protocol.

Product reference:
- **TM262L01MDESE8T**: Modicon M262 dPAC

The **TM262L01MDESE8T** controller has no embedded I/O; it supports Modicon TM3 I/O and Modicon Edge I/O NTS expansion modules:
- Up to 3,000 discrete I/O channels
- Up to 875 analog I/O channels
- Up to 16 Islands with a maximum of 32 modules each.

It is possible to control up to 4 TeSys U and TeSys D motor starters by connecting a **TM3XTYS4** TM3 module to the Modicon M262 dPAC.

(1) Expert/specialist modules are not supported in this release. Please refer to the compatibility list on page 34.
(2) These values are theoretical limits; the device limits are highly dependent on the event load of the user application.

Distributed Programmable Automation Controller (dPAC) Platforms (continued)

Altivar ATV dPAC module

Altivar Process drives slots

VW3A3530D

The ATV dPAC module is distributed controller solution platform, with 12 MB memory for programs and data. It is intended to be used as a slide-in option for ATV600, ATV900, and ATV340 variable speed drive (VSD) families(1). The Altivar ATV dPAC module is powered by the drive and provides dual Ethernet sockets for connection to peer controllers, distributed I/O, or remote secondary devices.

Product references:

- **VW3A3530D**: Altivar ATV dPAC module
- **VW3A1111**: Graphic display terminal

The **VW3A3530D** dedicated controller has no embedded I/O. However, all standard I/O on the respective Altivar Process and Altivar Machine drives can be used and extended with I/O modules:

- Up to 23 discrete I/O
- Up to 7 analog I/O
- Encoder interfaces (ATV900 and ATV340)
- Safety modules (ATV900 and ATV340)

It is possible to control up to 8 Modbus TCP devices, such as Altivar drives and soft starters, TeSys motor starters, remote I/O using a TM3BCEIP bus coupler, PowerLogic meters, or Harmony Hub wireless sensors.

For more information about the input/output capability, refer to *Altivar dPAC Module VW3A3530D user guide*.

(1) For details, please refer to the compatibility table on page 36.

Distributed Programmable Automation Controller (dPAC) Platforms (continued)

Information Technology (IT)/Operational Technology (OT) Communication Protocols

Platform		Soft dPAC High Availability (Linux)	Simplex Soft dPAC (Linux)	Simplex Soft dPAC (Windows OS)	M580 dPAC	M262 dPAC	M251 dPAC	ATV dPAC
OPCUA	Client	–	✓	✓	–	✓	–	✓
	Server	✓	✓	✓	✓	✓	✓	✓
MQTT	Client (Pub/Sub)	–	✓	✓	✓	✓	–	✓
Modbus TCP	Client	✓	✓	✓	✓	✓	✓	✓
	Server	–	✓	✓	✓	✓	✓	✓
Modbus RTU	Client	–	–	–	–	✓	✓	–
	Server	–	–	–	–	✓	✓	–
EtherNet/IP	Scanner (Client)	–	✓	–	✓	✓	✓	–
PROFIBUS DP	Client	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*
ASi-5 / ASi-3		Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*	Through Modbus TCP third party gateway *(1)*
HART		✓	✓	–	–	–	–	–
Open TCP/IP		–	✓	✓	✓	✓	✓	✓
EtherCAT	Main Device (Client)	–	✓	–	–	–	–	–
Profinet	Client (IO-Controller)	–	✓	–	–	–	–	–
	Server (IO-Device)	–	✓	–	–	–	–	–

(1) Refer to the documentation for the compatibility of gateways.

Industrial automation
EcoStruxure Automation Expert
Controllers

Distributed Programmable Automation Controller (dPAC) Platforms (continued)

Selection guide

		High Availability Soft dPAC	Simplex Soft dPAC (Linux OS)	Simplex Soft dPAC (Windows OS)	Modicon M580 dPAC	Modicon M262 dPAC	Modicon M251 dPAC	Altivar dPAC
Applications	Type	Containerized device	Containerized device	Virtualized device	Embedded device	Embedded device	Embedded device	Embedded device
	Specification	For critical real time applications	For real time applications	For non-real time applications	For robust process application	For performance modular machines	For small modular machines	For distributed or Variable Speed Drive centric applications, including mini modular machines
Max Application size (Mbytes)		Scalable[10]	Scalable[10]	Scalable[10]	100MB	100MB	20MB	16MB
Commmunication fieldbus and network performance	Embedded	OPCUA Server (40,000 variables) Modbus TCP Client (64 devices)[1]	OPCUA Server (40,000 variables) OPCUA Client EtherNet/IP (128 devices @20ms RPI)[1] Modbus TCP Client (64 devices)[1] Modbus TCP Server (2300 variables)[1] Profinet Client (IO-Controller) Profinet Server (IO-Device) EtherCAT Main Device	OPCUA Server (40,000 variables) Modbus TCP Client (64 devices)[1] Modbus TCP Server (2300 variables)[1]	OPCUA Server (5000 variables) EtherNet/IP (16 devices @20ms RPI)[1] Modbus TCP Client (24 devices)[1] Modbus TCP Server (1200 variables)[1]	OPCUA Server (5000 variables) EtherNet/IP (32 devices @20ms RPI)[1] Modbus TCP Client (32 devices)[1] Modbus TCP Server (1600 variables)[1] Modbus RTU 115 kbps	OPCUA Server (1000 variables) EtherNet/IP (8 devices @20ms RPI)[1] Modbus TCP Client (16 devices)[1] Modbus TCP Server (800 variables)[1] Modbus RTU 115 kbps	OPCUA Server (2000 variables) OPCUA Client Modbus TCP Client (8 devices)[1] Modbus TCP Server (800 variables)[1]
	Optional	Profibus DP through Modbus TCP third party gateway	Asi-5/Asi-3 through Modbus TCP third party gateway Profibus DP through Modbus TCP third party gateway	Asi-5/Asi-3 through Modbus TCP third party gateway Profibus DP through Modbus TCP third party gateway	Asi-5/Asi-3 through Modbus TCP third party gateway Profibus DP through Modbus TCP third party gateway	Asi-5/Asi-3 through Modbus TCP third party gateway Profibus DP through Modbus TCP third party gateway	Asi-5/Asi-3 through Modbus TCP third party gateway Profibus DP through Modbus TCP third party gateway	–
	Connectivity services	–	MQTT Client (Pub/Sub)	Open TCP/IP MQTT Client (Pub/Sub)	Open TCP/IP	Open TCP/IP	Open TCP/IP	Open TCP/IP MQTT Client (Pub/Sub)
I/O[2]	Discrete I/O channels	1750	13750	–	1408	3448	112	23
	Analog I/O channels	1750	5250	–	352	987	112	7
Type of I/Os	Local/Extension I/O	–	–	–	Up to 1408 discrete I/O channels Up to 352 analog I/O channels Up to 4 Modicon X80 backplane	Up to 448 discrete I/O channels Up to 112 analog I/O channels Up to 14 Modicon TM3	Up to 112 discrete I/O channels Up to 112 analog I/O channels Up to 14 Modicon TM3	Up to 23 discrete I/O channels (depending on drive reference) Up to 7 analog I/O channels (depending on drive reference)
	Remote I/O	Up to 1750 discrete I/O channels[3] Up to 1750 analog I/O channels[3] Up to 16 Modicon X80 backplane	Up to 1750 discrete I/O channels[3] Up to 1750 analog I/O channels[3] Up to 16 Modicon X80 backplane	–	–	–	–	–
	Distributed I/O	–	Up to 12,000 discrete I/O channels Up to 3,500 analog I/O channels Up to 64 islands with a maximum of 32 modules	–	–	Up to 3,000 discrete I/O channels Up to 875 analog I/O channels Up to 16 islands with a maximum of 32 modules	–	–
Compatible expansion I/O module ranges[5]	Local/Extension I/O	–	–	–	4 Modicon X80 backplane	14 Modicon TM3	14 Modicon TM3	Altivar Safety option modules
	Remote I/O	16 Modicon X80 backplane[4]	Modicon CRD, Modicon X80	–	–	–	–	–
	Distributed I/O	Modicon Edge I/O NTS	Modicon Edge I/O NTS	–	Modicon Edge I/O NTS	Modicon Edge I/O NTS	Modicon Edge I/O NTS	Modicon TM3 (Modbus TCP) Modicon Edge I/O NTS (Modbus TCP)
References		**Hardware agnostic[8]**	**Hardware agnostic[8]**	**Hardware agnostic[9]**	**BMED581020 / BMED581020C**	**TM262L01MDESE8T**	**TM251MDESE**	**VW3A3530D[6] / VW3A1111[7]**

(1) Recommended limit
(2) These values are theoretical limits; the device limits are highly dependent on the event load of the user application.
(3) I/O count can increase or decrease depending on the CPU version used on the host ıPC, I/O scan rate or change rate, and the auxiliary application load with connected devices, such as Modbus. The host ıPC processor speed greatly affects the performance capabilities of the controller. The performance limits can be increased when using more powerful ıPC processors, such as the Intel i5/i7 offerings.
(4) BMECRD0100: Ethernet Remote I/O drop adapter for Edge Controller powered by Soft dPAC
(5) Consult the DIA3ED2140109EN and DIA6ED2131203EN catalog for additional information on the I/O compatibility.
(6) Altivar ATV dPAC module
(7) Graphic display terminal for Altivar ATV340
(8) Reference value based on the Harmony P6 Celeron (2 cores)
(9) Minimum requirements available in the section Windows – Software dPAC (page 13).
(10) Maximum application size can increase or decrease depending on the CPU version on the host ıPC. Refer to user guide for minimum hardware specification.

Distributed Programmable Automation Controller (dPAC) Platforms (continued)

System requirements

Linux – Software dPAC

System requirements	Minimum	Recommended	Required for RT control
OS	Debian 10.3, Ubuntu 18.04 and 20.04, or Raspbian 32- or 64-bit		Ubuntu 20.04 with low-latency patch or other distribution with PREEMPT-RT patch
Docker	Docker 19.03.8 and above		
CPU	X86/ARM 1 GHz or higher	Multi-core X86/ARM 1 GHz or higher	Dedicated cores
RAM	256 MB	1 GB	
HDD/SSD	16 GB	32 GB	
Network interface	At least one Network Interface Card (NIC)	Two NICs to isolate control and device networks	One NIC per container for RT fieldbuses
Time synchronization	NTPv4 client	NTPv4 client support with monotonic and drift compensation	

Linux – Software dPAC, High Availability(1)

System requirements	Description	Note
Processor	PC Celeron 4305UE, 2 Core, 2 Threads	Need Multi-core X86 processor. ARM is not supported for v24.1
RAM	SO-DIMM RAM 4 GB	Minimum 4GB. ECC support is optional.
Memory	M.2 SSD Standard Endurance 128 GB	128 GB is not required. However, it is the lowest that was tested.
Network interface	RJ45 GbE Ethernet NIC	Three NICs are needed for redundant network configuration. • One 1 GB speed NIC for interlink connection • Two 100MB for device network
Operating system	Linux	Ubuntu 20.04 (Harmony P6)/22.04 (ASRock) tested

(1) A set of 2 manageable switches compatible with RSTP and having at least 6 physical ports is also needed.

Windows – Software dPAC

System requirements	Minimum	Performance
Processor	1 GHz	2 GHz or higher
RAM(1)	2 GB	4 GB
Hard disk free space(1)	1 GB	10 GB
Display resolution	1280x1024	1920x1080 or higher
Pointing device	Mouse or compatible	
Network interface	One Ethernet interface	
Operating system	Microsoft Windows 10 Professional (64-bit) Version 1903 and later, Microsoft Windows 11 Professional Version 21H2 and later, and Microsoft Server Version 2019 (1809 and later)	
.NET framework	.NET 4.8	.NET 4.8 or higher

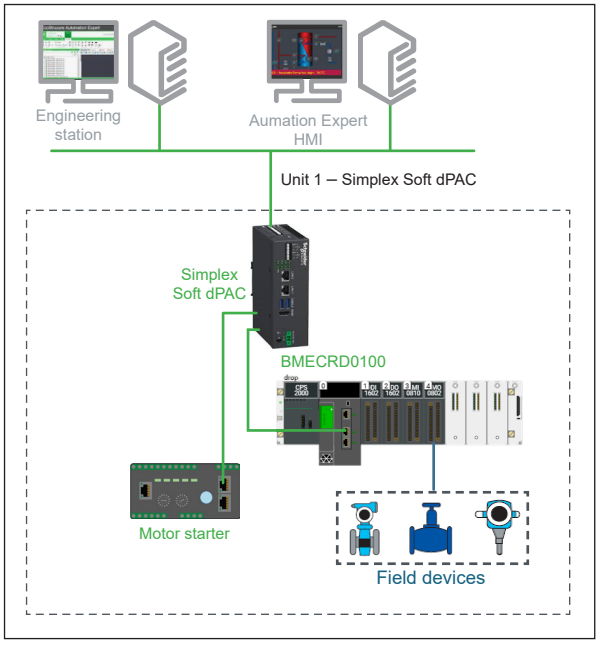
(1) Requirement is indicated for each software package. More than one software package can be installed on the same device. In this case, you need to add the respective RAM and hard disk free space requirements together. For example, if you install the HMI and Archive software packages on the same device, the minimum RAM required is 4 GB (2 GB + 2 GB).

Types of standard architectures

EcoStruxure Automation Expert breaks the dependency between the application software and the hardware platform it runs. Together with its distribution capabilities, EcoStruxure Automation Expert is a unique automation tool to be used in any kind of architecture, from small machines up to complex process architecture.

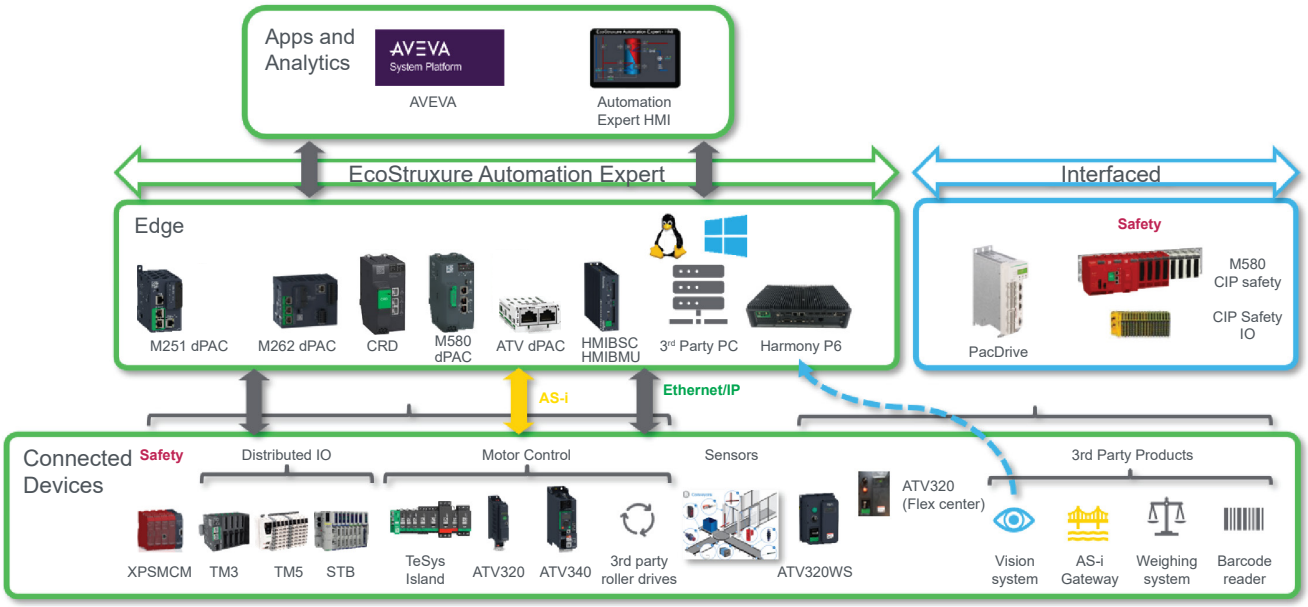
Example of Soft dPAC standard architecture

The architecture for small machines increases engineering efficiency by using the Automatically generated network transparent communications between controller and HMI objects with many-to-many connectivity and communication protocol for field devices.



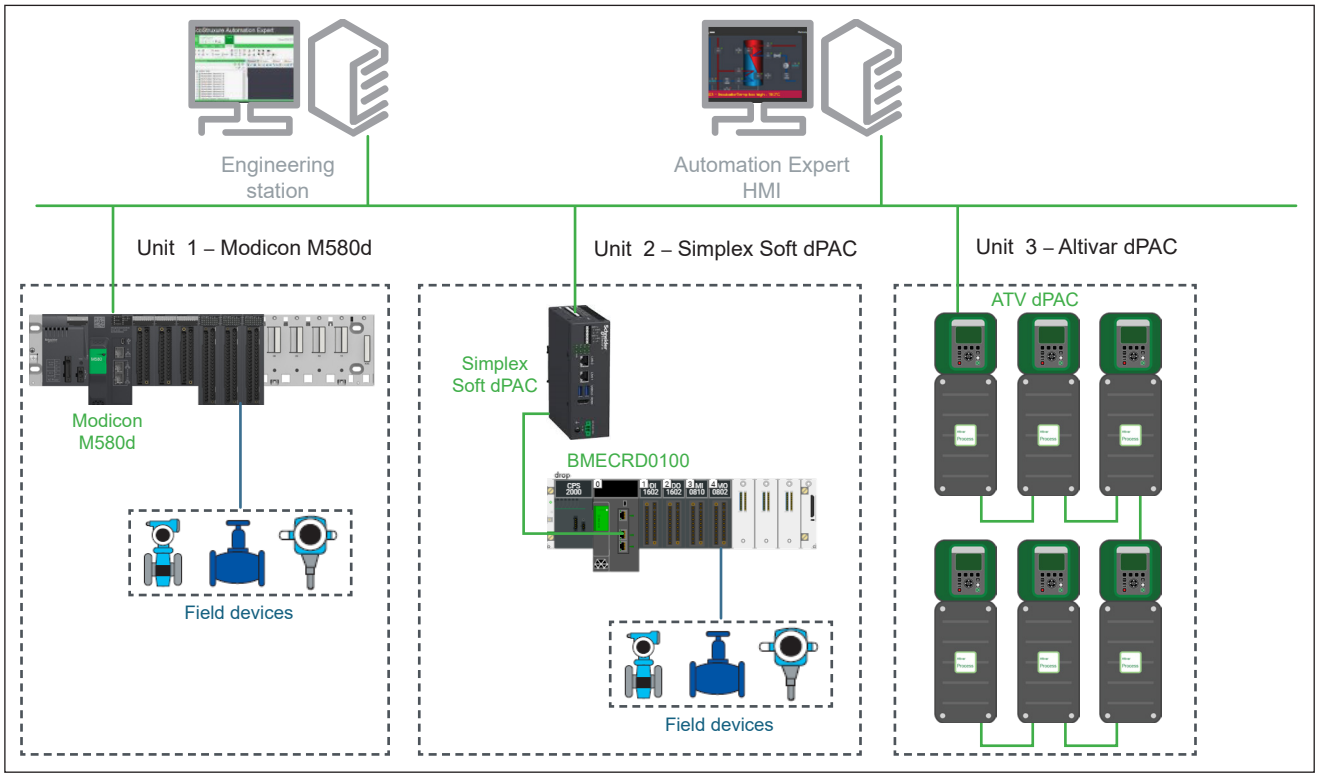
Example of distributed standard architecture

The openness and scalability makes it ready for IT/OT with connectivity AI model by HTTP and apps and analytics in an architecture with distributed controllers.



Example of complex standard architecture

The complex architecture below illustrates the extensive possibilities of distributed control application among the different dPACs. This example is focused on a combination of Modicon M580d and Altivar ATVd dPACs.



Types of Soft dPAC architectures

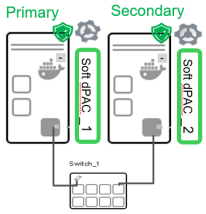
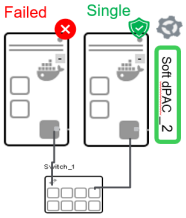
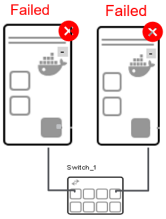
The Soft dPAC HA solution is used for more demanding applications in terms of the availability of the control/command system where no interruption of the process can be tolerated. The Soft dPAC HA solution helps increase productivity by minimizing process downtime.

As a new step in the adoption of software-defined automation principles, EcoStruxure Automation Expert V25.0 introduces High Availability Disruption Avoidance (HADA), an innovative new type of Soft dPAC architecture enabling new ways of increasing plant availability, reducing mean time to repair (MTTR), and enabling system self-healing capabilities, in our path towards autonomous operation.

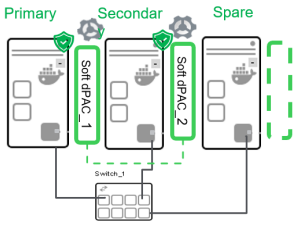
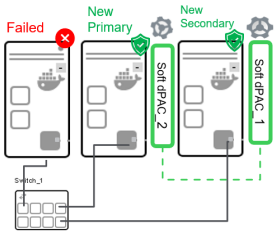
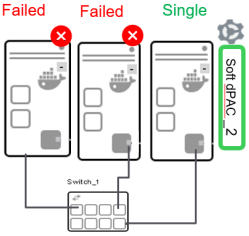
Simplex

All Running	1st Failure	2nd Failure	Comments
		–	• Single point of failure • Control application/controller failure disrupts plant operation

High Availability

All Running	1st Failure	2nd Failure	Comments
			• Primary and secondary are constantly in sync • Avoids single point of failure • Control application continues to run on secondary after 1st failure, help ensuring plant operation • HA state not maintained after 1st failure • 2nd failure disrupts the plant operation

High Availability Disruption Avoidance

All Running	1st Failure	2nd Failure	Comments
			• Primary and secondary are constantly in sync with one or more connected spares available • Control application continues to run on secondary after 1st failure and on spare after subsequent failures, creating new HA pairs • HA state maintained as long as spares are available • No plant disruption as long as spares are available

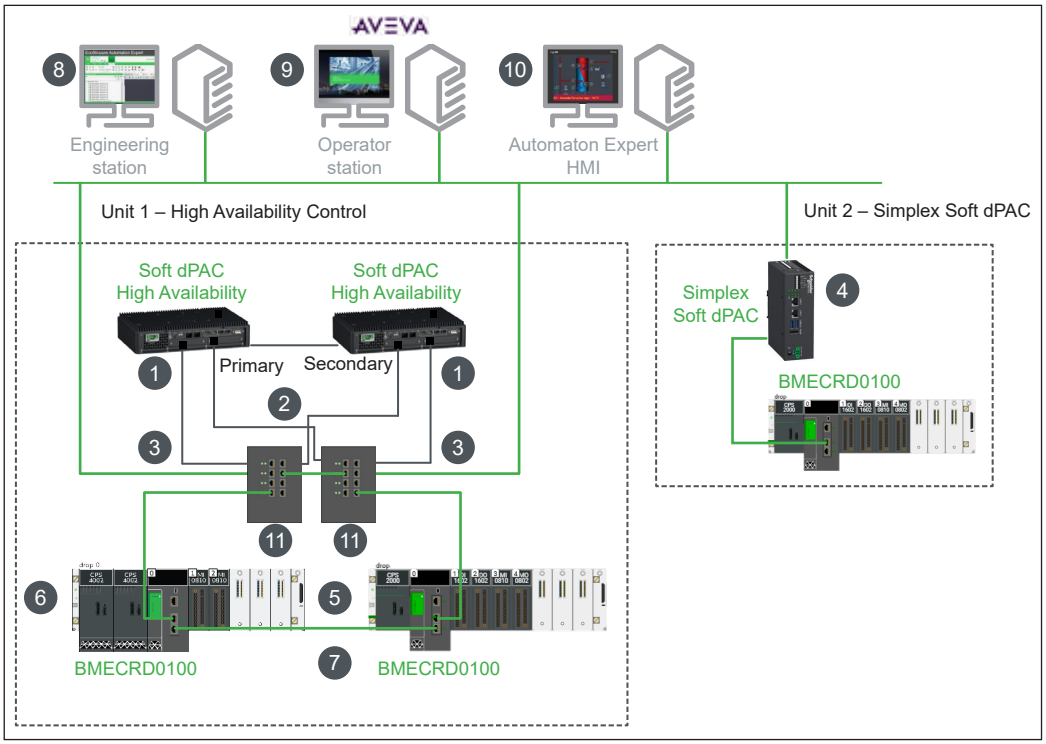
Types of high-availability architectures

High-Availability Soft dPAC based on Ethernet RIO architecture

The high-availability configuration comprises two identical *i*PCs (industrial computers), each hosting a High-Availability Soft dPAC, and configured to run in a Pair where one instance (a Partner) is driving the process while the other Partner is ready to take over control, if the first one stops working.

The two Partners check each other's availability by communicating over two links:
- A dedicated cable (the HA Interlink), and
- The device network, which also carries commands and diagnostics.

In a high-availability Soft dPAC topology based on an Ethernet RIO architecture, devices are hardwired on remote I/O over Ethernet by BMECRD1020 (RIO drop adapter for Modicon X80 I/Os modules). This high-availability system is used for sensitive processes that require a bumpless I/O control takeover time.



1. Linux-based *i*PC pair, each hosting an instance of High Availability Soft dPAC
2. HA Interlink: 1GB/s Network Interface Card (NIC)/connection
3. Redundant network: 100MB/s with NIC bonding
4. Linux-based standalone *i*PC, hosting an instance of non-redundant Soft dPAC
5. Non-redundant Modicon X80 I/O drop with BMECRD0100 RIO drop adapter and redundant power supplies
6. Non-redundant Modicon X80 I/O drop with BMECRD0100 RIO drop adapter and redundant power supplies
7. Remote I/O RSTP - enabled ring network
8. Workstation running EcoStruxure Automation Expert Build Time
9. Workstation running AVEVA System Platform (ASP), AVEVA Operation Management Interface (OMI), and AVEVA historian. Communication is over OPC UA
10. Workstation running EcoStruxure Automation Expert Runtime HMI
11. Managed switches, for example, Modicon switch

Components of a high-availability system

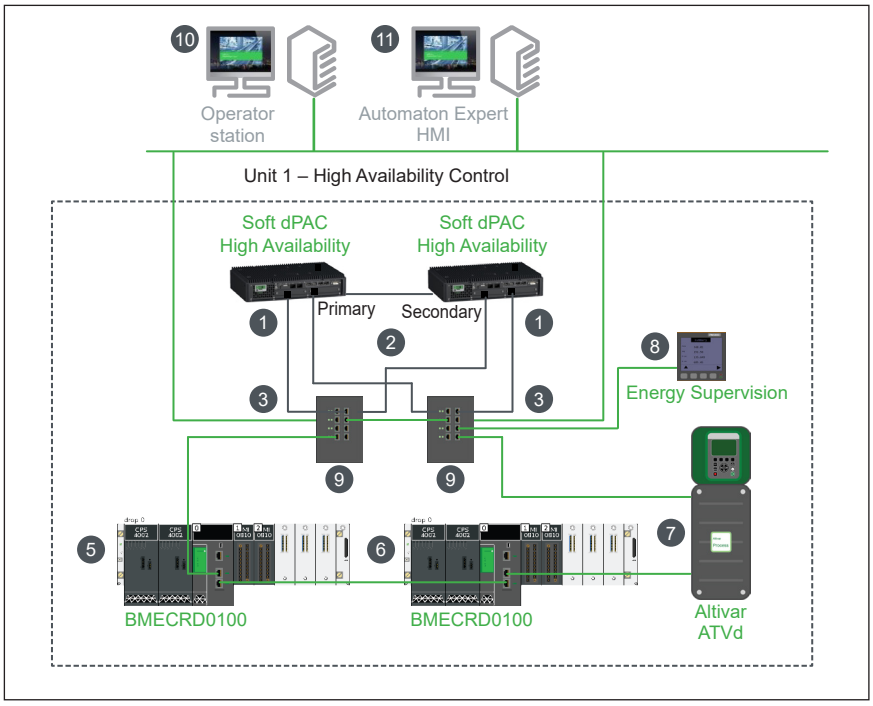
High-Availability Soft dPAC pair

At the heart of a high-availability architecture are two *i*PCS - Preferred Primary and Non-Preferred Primary, with identical hardware configurations, based on Linux software connected via a high-speed (1 Gbps) communication link.
The Preferred Primary device executes the application program and controls the I/Os located in Modicon X80 drops. The Non-Preferred Primary remains in the background. In the event of a detected error affecting the Primary device, the Standby system switches over automatically, changing over the execution of the application program and control of the I/O to the Standby device with an up-to-date data context. Once the changeover is complete, the Standby device becomes the Primary device while the former Primary device is being cleared from the detected error: when clearance is done, the device reconnects to the standby system and acts as the Standby device. The changeover from Primary to Standby is performed smoothly at the outputs and is completely transparent to the process.

Modicon X80 Redundant power supplies and compatible backplanes

For high-availability applications, two BMXCPS●●02 redundant power supplies can be used on the same rack to increase the availability of power supply. They are supported by 6-slot BMEXBP0602 backplane and 10-slot BMEXBP1002 backplane equipped with dual slots marked CPS1 and CPS2. On CPS1 slot, the power supply is initially set as Primary and on CPS2 slot, as Standby. When power stops being supplied in accordance with expected rate, they switch roles so that power can be continuously delivered.
See Modicon X80 modules catalog for more details.

Example of complex high-availability architecture

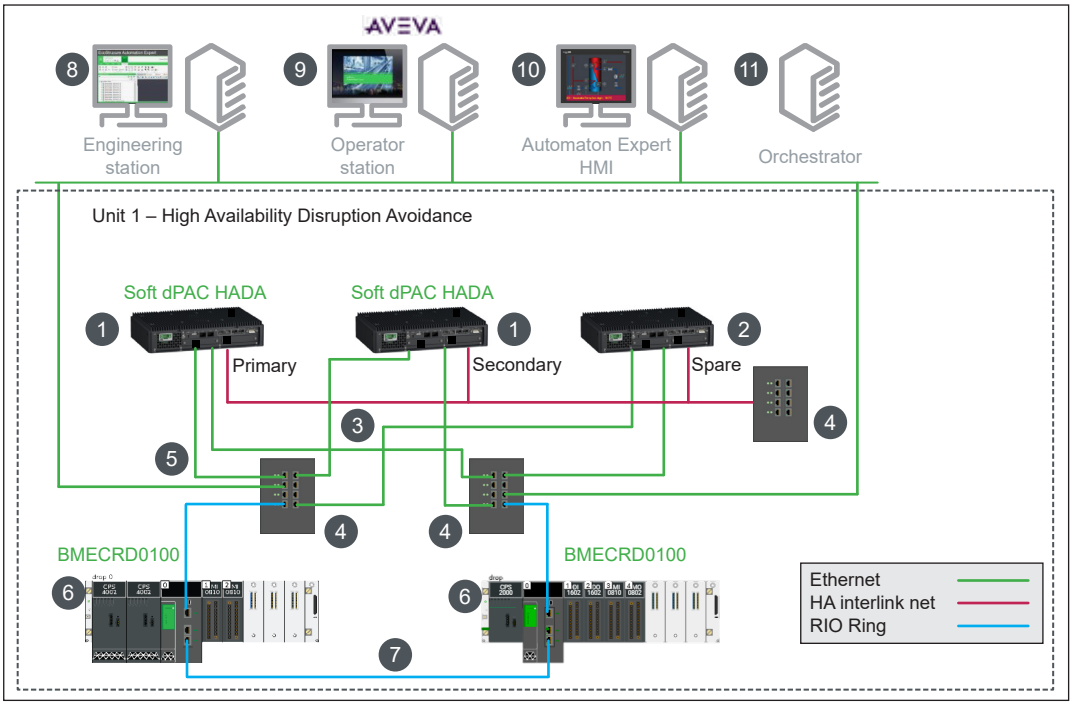


The complex architecture illustrates the extensive possibilities of the High-Availability Soft dPAC in terms of cross-communication, RIO and DIO networks:

1. Linux-based *i*PC pair, each hosting an instance of High Availability Soft dPAC
2. HA Interlink: 1GB/s NIC/connection
3. Redundant network: 100MB/s with NIC bonding
4. Remote I/O RSTP enabled ring network
5. Non-redundant X80 I/O drop with:
   - BMECRD0100 RIO drop adapter
   - Redundant power supplies on the main backplane
6. Non-redundant Modicon X80 I/O drop with BMECRD0100 RIO drop adapter
7. Cross-communication with Altivar ATVdPAC for motor control
8. Modbus TCP devices such as in an Intelligent power (PM5500), motor control center (MasterPact MTZ) or motor controllers (TeSysT)
9. Managed switches
10. Workstation running AVEVA System Platform (ASP), AVEVA Operation Management Interface (OMI), and AVEVA historian
    Communication is over OPC UA
11. Workstation running EcoStruxure Automation Expert Runtime HMI.

Types of high-availability architectures *(continued)*

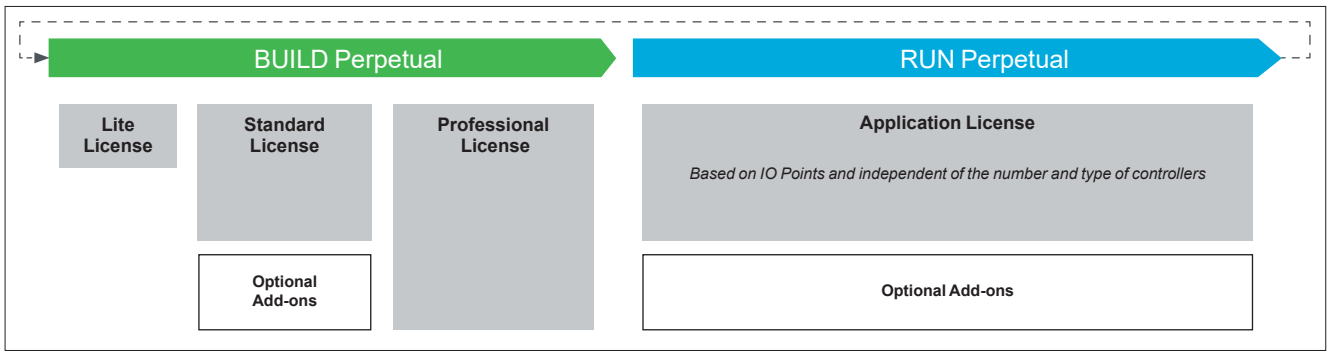
High-Availability Disruption Avoidance architecture



1. Linux-based *i*PC pair, each hosting an instance of High Availability Soft dPAC
2. Linux-based *i*PC spare
3. HADA Interlink network: 1GB/s Network Interface Card (NIC)/connection
4. Managed switch, for example, Modicon switch
5. Redundant network: 100MB/s with NIC bonding
6. Non-redundant Modicon X80 I/O drop with BMECRD0100 RIO drop adapter and redundant power supplies
7. Remote I/O RSTP - enabled ring network
8. Workstation running EcoStruxure Automation Expert Build Time
9. Workstation running AVEVA System Platform (ASP), AVEVA Operation Management Interface (OMI), and AVEVA historian. Communication is over OPC UA
10. Workstation running EcoStruxure Automation Expert Runtime HMI
11. Orchestrator for High Availability Soft dPAC

EcoStruxure Automation Expert – Perpetual licensing

The EcoStruxure Automation Expert offer provides a simplified approach to the software licensing model. The offer has two categories of licenses – **Build** and **Run**.



EcoStruxure Automation Expert – Build license

The **Build** software requires a license per seat to create Automation Expert based applications. The **Build** engineering license provides the capability to create, configure, and manage UAO runtime control applications, HMI, archive, and network/device topologies.

When the user downloads and installs Automation Expert, they benefit from a free Trial version. The Trial version includes a full function demo mode for 42 days unlicensed, capable of deploying a solution in a local simulation. During the trial period, all the software features except the application deployment and features protected by engineering add-on licenses can be used.

The **Build** licenses can be perpetual or subscription-based(1) and are available in three types:

Lite: The Lite engineering license includes an essential set of features designed for entry level machine and small process applications. The limitations of this type of license include no support for optional add-ons and custom library creation.

Standard: The Standard engineering license includes a basic set of features, supports custom library creation and offers the ability to extend features by including add-on licenses.

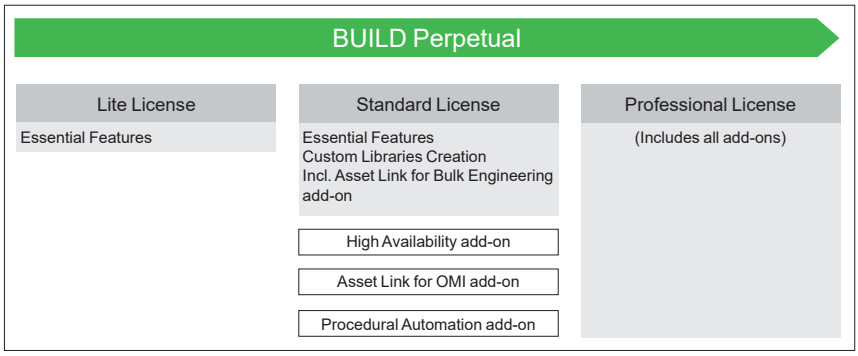
The add-ons that are available with EcoStruxure Automation Expert Standard licenses are:

- Asset Link for AVEVA OMI, optional add-on to create applications objects in the AVEVA System Platform in an automated workflow.
- High Availability Engineering, optional add-on to create applications that promote continuous operation and minimize downtime in critical applications by using high availability soft dPAC.
- Procedural Automation, optional add-on to create automated routines, task and complex sequences or procedures.
- Asset Link for Bulk Engineering, to extract data from engineering tools for automated application generation and is already included in the Standard engineering license v25.0.

Professional: The Professional engineering license includes all currently available features. Any new features released within the first year following the activation date will be included in software updates.

Each commercial license provides:
- The capability to design, develop, simulate with HMI, and commission a complete system
- Collaborative engineering (SVN client) plugin
- Physical topology editor
- Free software updates, within the first 12 months from the activation date
- Support desk from 9 am to 5pm
- Access to private communities on exchange.se.com for p2p support, libraries, project samples, training material, TVDAs, and so on.

(1) For more information, refer to EcoStruxure Automation Expert – Subscription-based licensing



EcoStruxure Automation Expert – Perpetual licensing (continued)

Build license compatibility

Supported platforms	Lite	Standard	Professional
Soft dPAC	✓	✓	✓
Soft dPAC High Availability	–	✓	✓
ATV dPAC	✓	✓	✓
M251 dPAC	✓	✓	✓
M262 dPAC	✓	✓	✓
M580 dPAC	✓	✓	✓
Add-ons (per seat)			
Asset Link for Bulk Engineering	–	✓	✓
Asset Link for AVEVA OMI	–	Optional	✓
High Availability Engineering	–	Optional	✓
Procedural Automation	–	Optional	✓

Engineering license references

The **Build** engineering licenses are available in different types: Lite, Standard, or Professional. Standard and Professional licenses can be perpetual or subscription-based(1) and are currently offered for single seat use only.

Reference	Description
EALBTLC	Lite Engineering License
EALBTC	Standard Engineering License
EALBFC	Professional Engineering License
EALUAOC	Engineering license for UAO vendor

The standard engineering license includes the "Asset Link for Bulk Engineering" add-on and allows for the addition of the following add-ons:

Reference	Description
EALBATC	Add-on for Asset Link for AVEVA OMI
EALBAHC	Add-on for High Availability
EALBAPC	Add-on for Procedural Automation

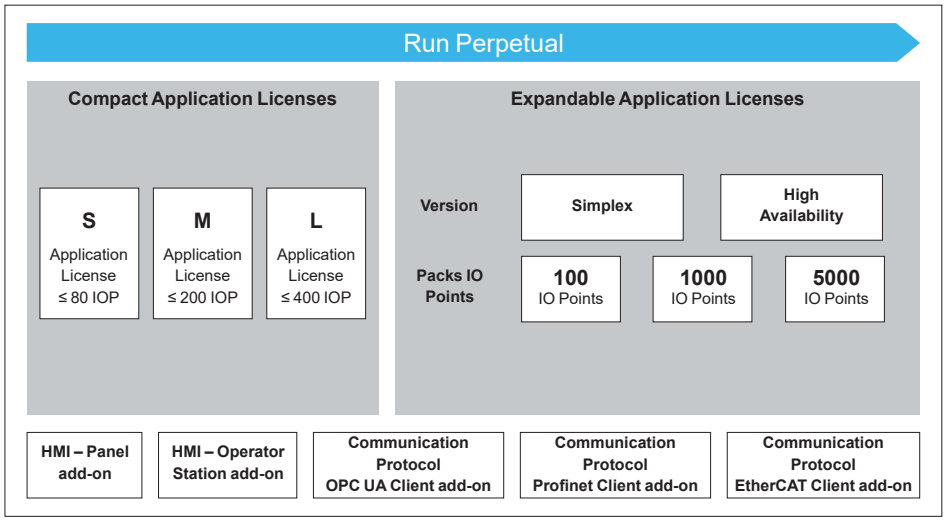
EcoStruxure Automation Expert – Perpetual licensing (continued)

EcoStruxure Automation Expert – Run licenses

In addition to the **Build** engineering license required to create Automation Expert applications, a **Run** application license is also required for the operation and maintenance of the application.

The **Run** application licenses are based on IO Points and are available in a perpetual and subscription-based model. For more information about Subscription-based licensing, refer to (page 25).

The **Run** add-on licenses are optional and are based on the type of HMI platform or communication protocol used in the application.



For exact calculation of the number of devices and controller type for the application license, a software license configurator for EcoStruxure Automation Expert is available on our website.

EcoStruxure Automation Expert – Perpetual licensing (continued)

EcoStruxure Automation Expert – Run Application Licenses

The **Run** application licenses are independent of the number of controllers used in the solution and are available in two types.

- **Expandable Application Licenses**: valid for all types of projects and all types of controllers, designed typically for plant-type of projects where:
  - The number of IOs may evolve in time with production line evolutions or others
  - Special capabilities are needed, like System Management, High-Availability, High-Availability Disruption Avoidance, or Advanced System Management (subscription-based only).

The Expandable licenses are structured in packages of IO Points of 100, 1000, and 5000 IO Points, and the user can stack several packages together in the same solution.

All the Expandable licenses are compatible with all Build licenses and are available in perpetual or subsription-based. For more details about subscription-based refers to (page 25)

Reference	Description
EALPCP	Application Expandable Simplex 100 IO Points
EALPMP	Application Expandable Simplex 1000 IO Points
EALPVMP	Application Expandable Simplex 5000 IO Points
EALPHACP	Application Expandable High Availability 100 IO Points
EALPHAMP	Application Expandable High Availability 1000 IO Points
EALPHAVMP	Application Expandable High Availability 5000 IO Points

- **Compact Application Licenses**: for competitiveness in small projects for machine, discrete and hybrid process, where:
  - The number of IOs is not going to evolve with time
  - There is no need for special capabilities like system management beyond device health and security monitoring, high availability or high availability disruption avoidance and Advanced System Management.

The Compact licenses are available on the maximum number of IO Points they support - small license for maximum 80 IOP, mid-size license for 200 IOPs, and a large license for a maximum of 400 IOPs. The Compact licenses cannot be stacked, one license per solution is needed, covering the full quantity of IOPs in the solution and is only available as perpetual license.

Reference	Description
EALTSP	Application Compact Simplex 80 IO Points
EALTMP	Application Compact Simplex 200 IO Points
EALTLP	Application Compact Simplex 400 IO Points

For exact calculation of the number of IO Points for the application license, a software license configurator for EcoStruxure Automation Expert is available on our website.

EcoStruxure Automation Expert – Perpetual Licensing (continued)

EcoStruxure Automation Expert – HMI license

The Automation Expert HMI license includes rights to both HMI and Archive runtimes. All runtime licenses are perpetual. Different license types are required depending on the platform on which the runtime is installed, as per the following table:

Automation Expert Runtime	Platform	License type
HMI(1)	Harmony ST6 HMI range	1 license per HMI runtime instance
HMI(1)	PC-type HMI (Windows 10/Linux)	1 license per HMI runtime instance

(1) Each license includes both Automation Expert HMI and Automation Expert Archive runtime rights.

Download the HMIBMI, HMIBMO, and HMIP6 ranges catalog

The Automation Expert HMI Runtime licenses are:

Reference	Description
EALH1P	Automation Expert HMI Runtime - Panel (ST6)
EALH2P	Automation Expert HMI Runtime - Operator (*i*PC)

For exact calculation of the number of devices and controller type for the application license, a software license configurator for Automation Expert is available on se.com.

EcoStruxure Automation Expert – Communication Protocol License

EcoStruxure Automation Expert – Communication Protocol license is an optional **RUN** license required to connect to any device using the specified protocol.

The communication protocol OPC UA client provides service function blocks that allow to connect over OPC UA to multiple servers and exchange data with them, including read, write, and monitor data rights.

The communication protocol OPC UA client is available on the following platforms:
- Soft dPAC Linux, includes encrypted communication between client and server.
- Soft dPAC Windows.
- ATV dPAC, includes encrypted communication between client and server.

Reference	Description
EALCUP	Automation Expert – Communication Protocol OPC UA Client

The communication protocol Profinet RT IO-Controller (Client) provides service function blocks that enable the controller to operate as a Profinet IO-Controller, allowing to exchange real time process data with multiple Profinet IO-Devices.

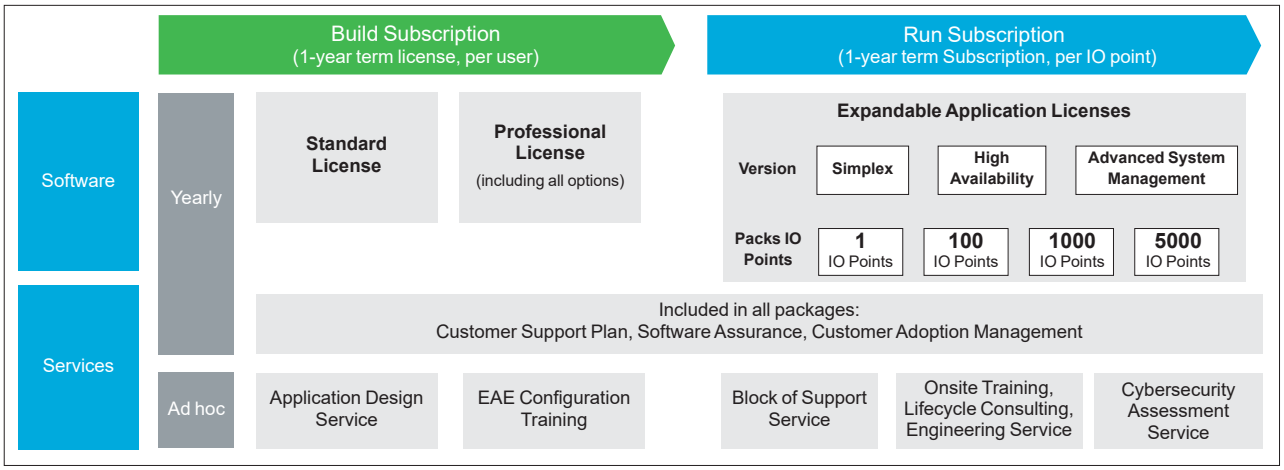
Reference	Description
EALCPP	Automation Expert – Communication Protocol Profinet RT IO-Controller Client

The communication protocol EtherCAT MainDevice (Client) provides service function blocks that allow the controller to function as an EtherCAT main device, managing and communicating with multiple EtherCAT sub devices, allowing to exchange data and precise synchronization with field devices.

Reference	Description
EALCEP	Automation Expert – Communication Protocol EtherCAT Main Device Client

EcoStruxure Automation Expert – Subscription-based licensing

To provide customers with more business and economic model flexibility and reduced obsolescence risk, both **Build** and **Run** licenses are available under a subscription-based model consisting of 1-year termed subscriptions. The subscription-based licenses model is available for project business with end-users.



Each commercial license provides:
- The capability to design, develop, simulate with HMI, and commission a complete system
- Collaborative engineering (SVN client) plugin
- Physical topology editor
- Free software updates
- Support desk from 9 am to 5pm
- Access to private communities on exchange.se.com for p2p support, libraries, project samples, training material, TVDAs, and so on.

Build subscription-based licenses

The Build subscription–based licenses are available in two different types:
- **Standard**: A basic set of features equivalent to Standard perpetual-based license.
- **Professional**: this version includes all available features, including:
  - Asset Link for AVEVA OMI
  - High Availability Engineering

The **Build** subscription-based licenses are offered for single-seat use only. A license is needed per user.

Reference	Description
EALBTS1	Build - Standard Engineering Yearly
EALBTS2	Build - Professional Engineering Yearly

Run subscription-based licenses

The **Run** subscription-based licenses are available in three different types:
- **Simplex:** for applications using simplex or standalone architectures.
- **High Availability:** for applications using high availability architectures.
- **Advanced System Management:** for applications using self-healing mechanism for high availability disruption avoidance

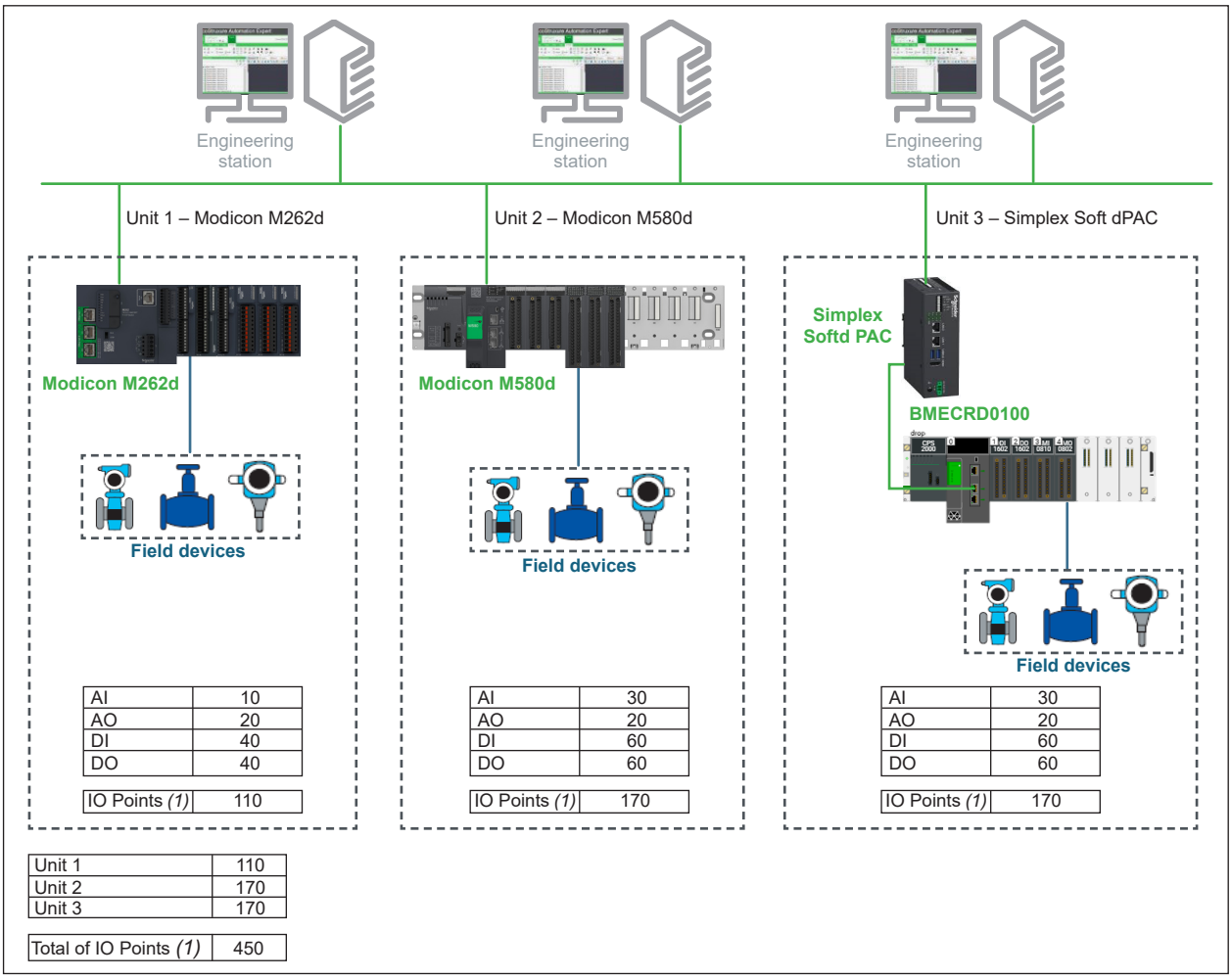
Reference	Description
EALPIY	Application Expandable Simplex 1 IO Point Yearly
EALPCY	Application Expandable Simplex 100 IO Points Yearly
EALPMY	Application Expandable Simplex 1000 IO Points Yearly
EALPVMY	Application Expandable Simplex 5000 IO Points Yearly
EALPHAIY	Application Expandable High Availability 1 IO Point Yearly
EALPHACY	Application Expandable High Availability 100 IO Points Yearly
EALPHAMY	Application Expandable High Availability 1000 IO Points Yearly
EALPHAVMY	Application Expandable High Availability 5000 IO Points Yearly
EALPASIY	Application Expandable Advanced System Management 1 IO Point Yearly
EALPASCY	Application Expandable Advanced System Management 100 IO Points Yearly
EALPASMY	Application Expandable Advanced System Management 1000 IO Points Yearly
EALPASVMY	Application Expandable Advanced System Management 5000 IO Points Yearly

Please contact your Schneider Electric representative for additional information.

In addition to the advantages included in Perpetual licenses, subscription-based licenses include:
- Access to upcoming software releases and features in the scope of your license
- Customer adoption support plan, with a Trusted Advisor that will support you to reduce your time to value with each new release and its features, recommend the appropriate evolutions, and support you on license lifecycle and renewal process.

EcoStruxure Automation Expert Licensing – Architecture

Example of distributed controller architecture



AI	10
AO	20
DI	40
DO	40
IO Points *(1)*	110

AI	30
AO	20
DI	60
DO	60
IO Points *(1)*	170

AI	30
AO	20
DI	60
DO	60
IO Points *(1)*	170

Unit 1	110
Unit 2	170
Unit 3	170

Total of IO Points *(1)*	450

(1) ***IO Points*** *is the metric that provides the size of the EcoStruxure Automation Expert application based on the number of inputs and outputs for each field device, whether they are hardwired or virtual. The IO Points apply to all types of controllers and are independent of the number of controllers used in the solution.*

Build license

Reference	Description	No. of Seats
EALBTLC	EcoStruxure Automation Expert - Lite Engineering License	3

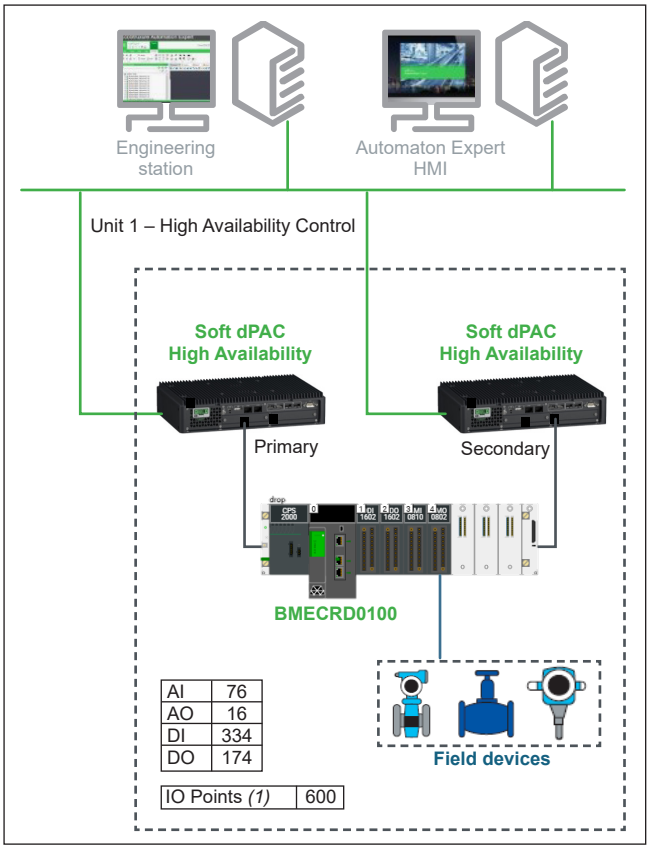
Run license

For all units

Reference	Description	No. of Licenses
EALPCP	Application Expandable Simplex 100 IO Points	5

EcoStruxure Automation Expert Licensing – Architecture (continued)

Example of single high-availability architecture

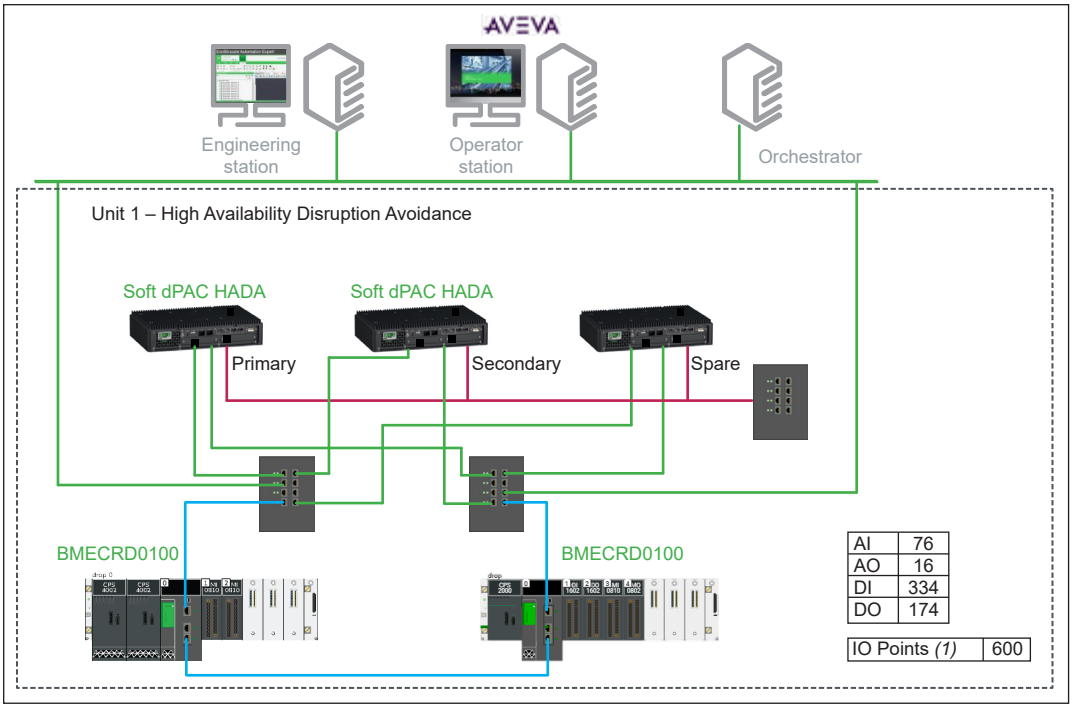


(1) ***IO Points*** *is the metric that provides the size of the EcoStruxure Automation Expert application based on the number of inputs and outputs for each field device, whether they are hardwired or virtual. The IO Points apply for all types of controllers and are independent of the number of controllers used in the solution.*

Build license		
Reference	**Description**	**No. of Seats**
EALBTC	EcoStruxure Automation Expert - Standard Engineering License	1
Add on		
Reference	**Description**	**No. of Licenses**
EALBAHC	EcoStruxure Automation Expert – Addon for High Availability	1
Run license		
Unit 1 – High Availability Control 600 IO Points		
Reference	**Description**	**No. of Licenses**
EALDHACP	EcoStruxure Automation Expert - Application Expandable High Availability 100 IO Points	6
Add on		
Reference	**Description**	**No. of Licenses**
EALH2P	EcoStruxure Automation Expert HMI Runtime Operator	1

EcoStruxure Automation Expert Licensing – Architecture (continued)

High-Availability Disruption Avoidance architecture



(1) ***IO Points*** *is the metric that provides the size of the EcoStruxure Automation Expert application based on the number of inputs and outputs for each field device, whether they are hardwired or virtual. The IO Points apply for all types of controllers and are independent of the number of controllers used in the solution.*

Build license

Reference	Description	No. of Seats
EALBTS2 *(1)*	EcoStruxure Automation Expert - Professional Engineering License	1

Run license

Reference	Description	No. of Licenses
EALPASCY *(1)*	Application Expandable Advanced System Management 100 IO Points Yearly	6

(1) ***Subscription-based license model*** *is available for project business with end-users.*

Industrial automation
EcoStruxure Automation Expert
Product compatibility according to dPAC platform

List of Modicon X80 hardware compatible with Modicon M580 dPAC, Modicon CRD for Simplex/High Availability Soft dPAC (Linux OS)

Type	Reference	Description	Compatibility with Modicon M580 dPAC	Compatibility with Modicon CRD for Simplex/High Availability Soft dPAC (Linux OS)
Rack	BMEXBP0400	4-slot Ethernet backplane	Yes	Yes
Rack	BMEXBP0400H	Ruggedized 4-slot Ethernet backplane	Yes	Yes
Rack	BMEXBP0602	6-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP0602H	Ruggedized 6-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP0800	8-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP0800H	Ruggedized 8-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP1002	10-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP1002H	Ruggedized 10-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP1200	12-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMEXBP1200H	Ruggedized 12-slot Ethernet backplane redundant PS	Yes	Yes
Rack	BMXXBC008K	Backplane extension cable 0.8 m/2.6 ft	Yes	Yes
Rack	BMXXBC015K	Backplane extension cable 1.5 m/4.9 ft	Yes	Yes
Rack	BMXXBC030K	Backplane extension cable 3 m/9.8 ft	Yes	Yes
Rack	BMXXBC050K	Backplane extension cable 5 m/16.4 ft	Yes	Yes
Rack	BMXXBC120K	Backplane extension cable 12 m/39 ft	Yes	Yes
Rack	BMXXBE1000	Standard backplane extender	Yes	Yes
Rack	BMXXBE1000H	Ruggedized Standard backplane extender	Yes	Yes
Rack	BMXXBE2005	Backplane extender kit	Yes	Yes
Rack	BMXXBP0400	4-slot backplane	Yes	Yes
Rack	BMXXBP0400H	Ruggedized 4-slot backplane	Yes	Yes
Rack	BMXXBP0600	6-slot backplane	Yes	Yes
Rack	BMXXBP0600H	Ruggedized 6-slot backplane	Yes	Yes
Rack	BMXXBP0800	8-slot backplane	Yes	Yes
Rack	BMXXBP0800H	Ruggedized 8-slot backplane	Yes	Yes
Rack	BMXXBP1200	12-slot backplane	Yes	Yes
Rack	BMXXBP1200H	Ruggedized 12-slot backplane	Yes	Yes
Power	BMXCPS2000	Standard AC power supply	Yes	Yes
Power	BMXCPS2010	Standard isolated DC power supply	Yes	Yes
Power	BMXCPS3020	High-power isolated 24 to 48 V DC power supply	Yes	Yes
Power	BMXCPS3020H	Ruggedized high-power isolated 24 to 48 V DC power supply	Yes	Yes
Power	BMXCPS3500	High-power AC power supply	Yes	Yes
Power	BMXCPS3500H	Ruggedized high-power AC power supply	Yes	Yes
Power	BMXCPS3522	Redundant 125 V DC power supply	Yes	Yes
Power	BMXCPS3540T	High-power 125 V DC power supply	Yes	Yes
Power	BMXCPS4002	Redundant AC power supply	Yes	Yes
Power	BMXCPS4022	Redundant 24 to 48 V DC power supply	Yes	Yes
SD card	BMXRMS004GPF	Optional M580 SD card 4 GB	Yes	No
Analog I/O	BMEAHI0812	8x current isolated analog inputs, HART	Yes	Yes
Analog I/O	BMXAMI0410	4x voltage/current isolated high-speed analog inputs	Yes	Yes
Analog I/O	BMXAMI0410H	Ruggedized 4x voltage/current isolated high-level analog inputs	Yes	Yes
Analog I/O	BMXAMI0800	8x voltage/current non-isolated fast analog inputs	Yes	Yes
Analog I/O	BMXAMI0810	8x voltage/current isolated fast analog inputs	Yes	Yes
Analog I/O	BMXAMI0810H	Ruggedized 8x voltage/current isolated fast analog inputs	Yes	Yes
Analog I/O	BMXART0814	8x isolated TC/RTD inputs	Yes	Yes
Analog I/O	BMXART0814H	Ruggedized 8x isolated TC/RTD inputs	Yes	Yes
Analog I/O	BMEAHO0412	4x current isolated high-level analog outputs, HART	Yes	Yes
Analog I/O	BMXAMO0210	2x isolated analog outputs	Yes	Yes
Analog I/O	BMXAMO0210H	Ruggedized 2x voltage/current isolated analog outputs	Yes	Yes
Analog I/O	BMXAMO0410	4x voltage/current isolated analog outputs	Yes	Yes
Analog I/O	BMXAMO0410H	Ruggedized 4x voltage/current isolated analog outputs	Yes	Yes
Analog I/O	BMXAMO0802	8x current non-isolated analog outputs	Yes	Yes
Analog I/O	BMXAMM0600	4x analog inputs - 2x analog outputs	Yes	Yes
Analog I/O	BMXAMM0600H	Ruggedized 4x analog inputs - 2x analog outputs	Yes	Yes
Discrete I/O	BMXDAI0805	8x 200…240 V AC non-isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI0814	8x 100...120 V AC isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1602	16x 24 V non-isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1602H	Ruggedized 16x 24 V non-isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1604	16x 100...120 V AC capacitive inputs	Yes	Yes
Discrete I/O	BMXDAI1604H	Ruggedized 16x 100...120 V AC capacitive inputs	Yes	Yes
Discrete I/O	BMXDAI16142	16x 100...120 V AC isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1614	16x 100...120 V AC isolated discrete inputs	Yes	Yes

List of Modicon X80 hardware compatible with Modicon M580 dPAC, Modicon CRD for Simplex/High Availability Soft dPAC (Linux OS)

Type	Reference	Description	Compatibility with Modicon M580 dPAC	Compatibility with Modicon CRD for Simplex/High Availability Soft dPAC (Linux OS)
Discrete I/O	BMXDAI1614H	Ruggedized 16x 100...120 V AC isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1615	16x 200…240 V AC isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDAI1615H	Ruggedized 16x 200…240 V AC isolated discrete inputs	Yes	Yes
Discrete I/O	BMXDDI1602	16x 24 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI1602H	Ruggedized 16x 24 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI1603	16x 48 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI1603H	Ruggedized 16x 48 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI3202KH	Ruggedized 32x 24 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI3202K	32x 24 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDDI6402K	64x 24 V DC sink discrete inputs	Yes	Yes
Discrete I/O	BMXDRA0815	8x isolated relay outputs	Yes	Yes
Discrete I/O	BMXDRA0815H	Ruggedized 8x isolated relay outputs	Yes	Yes
Discrete I/O	BMXDDO1602	16x transistor source 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDO1602H	Ruggedized 16x transistor source 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDO1612	16x transistor sink 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDO1612H	Ruggedized 16x transistor sink 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDRA1605	16x discrete relay outputs	Yes	Yes
Discrete I/O	BMXDRA1605H	Ruggedized 16x discrete relay outputs	Yes	Yes
Discrete I/O	BMXDAO1605	16x 100...240 V AC triac outputs	Yes	Yes
Discrete I/O	BMXDAO1605H	Ruggedized 16x 100...240 V AC triac outputs	Yes	Yes
Discrete I/O	BMXDAO1615	16x 24...240 V AC triac outputs	Yes	Yes
Discrete I/O	BMXDAO1615H	Ruggedized 16x 24...240 V AC triac outputs	Yes	Yes
Discrete I/O	BMXDDO3202	32x transistor source 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDO3202H	Ruggedized 32x transistor source 0.5 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDO6402K	64x transistor source 0.1 A discrete outputs	Yes	Yes
Discrete I/O	BMXDDM16025	8x 24 V DC discrete inputs, 8x discrete relay outputs	Yes	Yes
Discrete I/O	BMXDDM16025H	Ruggedized 8x 24 V DC discrete inputs, 8x discrete relay outputs	Yes	Yes
Discrete I/O	BMXDDM16022	8x 24 V DC discrete inputs, 8x discrete solid state outputs	Yes	Yes
Discrete I/O	BMXDDM16022H	Ruggedized 8x 24 V DC discrete inputs, 8x discrete solid state outputs	Yes	Yes
Discrete I/O	BMXDDM3202K	16x 24 V DC discrete inputs, 16x discrete solid state outputs	Yes	Yes
Expert	BMXEHC0800	8 high-speed counter channels	Yes	Yes
Expert	BMXEHC0800H	Ruggedized 8 high-speed counter channels	Yes	Yes

List of Modicon Edge I/O NTS compatible with Modicon M262 dPAC and Simplex Soft dPAC (Linux OS)

Type Reference	Reference	Description
NIM & Bus Extender	**NTSNEC1200H**	Network interface module, EtherNet/IP, Modbus TCP, 100 Mbps, 2 RJ45, Hardened
NIM & Bus Extender	**NTSNEC1200K**	Network interface module + Base + Termination, EtherNet/IP, Modbus TCP, 100 Mbps, 2 RJ46
Power Supply	**NTSPFD1002HK**	Power supply module + Base, 24 V DC, Field, Hardened
Power Supply	**NTSPFB1002HK**	Power supply module + Base, 24 V DC, Bus and Field, Hardened
Discrete I/O	**NTSDDI1602XK**	Discrete input module + Base, 16 In, 24 V DC, Sink, 1/2/3 Wires
Discrete I/O	**NTSDDI1602XHK**	Discrete input module + Base, 16 In, 24 V DC, Sink, 1/2/3 Wires, Hardened
Discrete I/O	**NTSDDO0802K**	Discrete output module + Base, 8 Out, 24 V DC, 2 A, Source, Protected, External Supply, 1 Wire
Discrete I/O	**NTSDDI1602K**	Discrete input module + Base, 16 In, 24 V DC, Sink, 1 Wire
Discrete I/O	**NTSDDI1642K**	Discrete input module + Base, 16 In, 24 V DC, Source, 1 Wire
Discrete I/O	**NTSDDI0402K**	Discrete input module + Base, 4 In, 24 V DC, Sink, Diagnostics, 1/2/3 Wires
Discrete I/O	**NTSDAI0215HK**	Discrete input module + Base, 2 Isolated In, 100...240 V AC, Sink, 1/2/3 Wires, Hardened
Discrete I/O	**NTSDAI0404HK**	Discrete input module + Base, 4 In, 100...240 V AC, Sink, 1/2 Wires, Hardened
Discrete I/O	**NTSDAI0804K**	Discrete input module + Base, 8 In, 100...240 V AC, Sink, 1 Wire
Discrete I/O	**NTSDDI0602K**	Discrete input module + Base, 6 In, 24 V DC, Sink, 1/2/3 Wires
Discrete I/O	**NTSDDI0802XK**	Discrete input module + Base, 8 In, 24 V DC, Sink, 1/2 Wires
Discrete I/O	**NTSDDO0212HK**	Discrete output module + Base, 2 Isolated Out, 24 V DC, 2 A, Source, Protected, 1/2/3 Wires, Hardened
Discrete I/O	**NTSDDO0602K**	Discrete output module + Base, 6 Out, 24 V DC, 500 mA, Source, Protected, 1/2/3 Wires
Discrete I/O	**NTSDDO1602XK**	Discrete output module + Base, 16 Out, 24 V DC, 500 mA, Source, Protected, 1/2 Wires
Discrete I/O	**NTSDAO0205K**	Discrete output module + Base, 2 Out, 1 A, 100...240 V AC, 1/2/3 Wires

List of Modicon Edge I/O NTS compatible with Modicon M262 dPAC and Simplex Soft dPAC (Linux OS) *(continued)*

Type Reference	Reference	Description
Discrete I/O	NTSDRA0615K	Relay output module + Base, 6 Isolated Out, NO, 2 A, 5 V to 125 V DC, 24 V to 240 V AC
Discrete I/O	NTSDRC0215K	Relay output module + Base, 2 Isolated Out, NO/NC, 2 A, 5 V to 125 V DC, 24 V to 240 V AC
Analog I/O	NTSAMI0400K	Analog input module + Base, 4 In, Current, Voltage, 2 Wires
Analog I/O	NTSAMI0210K	Analog input module + Base, 2 Isolated In, Current, Voltage, 2/3/4 Wires, Loop Power
Analog I/O	NTSAMI0420K	Analog input module + Base, 4 Differential In, Current, Voltage, 2 Wires
Analog I/O	NTSACI0802XK	Analog input module + Base, 8 In, Current, 1/2 wires, Loop Power
Analog I/O	NTSAMI0800K	Analog input module + Base, 8 In, Current, Voltage, 2 Wires
Analog I/O	NTSAMO0400K	Analog output module + Base, 4 Out, Current, Voltage
Analog I/O	NTSAMO0400HK	Analog output module + Base, 4 Out, Current, Voltage, Hardened
Analog I/O	NTSAMO0210K	Analog output module + Base, 2 Isolated Out, Current, Voltage
Analog I/O	NTSART0603K	Temperature input module + Base, 6 Differential In, RTD, Thermistor, 2/3 Wires

List of TM3 hardware compatible with Modicon M251 dPAC and M262 dPAC

Type	Reference	Description
Discrete I/O	TM3DI16/TM3DI16G	16 discrete inputs
Discrete I/O	TM3DI32K	32 discrete inputs, HE10 connection
Discrete I/O	TM3DI8/TM3DI8A/TM3DI8G	8 discrete inputs
Discrete I/O	TM3DQ8T/TM3DQ8TG	8x 0.5 A transistor source discrete outputs
Discrete I/O	TM3DQ16T/TM3DQ16TG	16x 0.5 A transistor source discrete outputs
Discrete I/O	TM3DQ16R/TM3DQ16RG	16x 2 A discrete relay outputs
Discrete I/O	TM3DQ32TK	32x 0.1 A transistor source discrete outputs, HE10 connection
Discrete I/O	TM3DQ8U/TM3DQ8UG	8x 0.3 A transistor sink discrete outputs
Discrete I/O	TM3DQ16U/TM3DQ16UG	16x 0.3 A transistor sink discrete outputs
Discrete I/O	TM3DQ32UK	32x 0.4 A transistor sink discrete outputs, HE10 connection
Analog I/O	TM3AI2H/TM3AI2HG	2 high-resolution analog inputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 16-bit, 1 ms
Analog I/O	TM3AI4/TM3AI4G	4 analog inputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 12-bit, 1 ms
Analog I/O	TM3AI8/TM3AI8G	8 analog inputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 12-bit, 1 ms
Analog I/O	TM3AQ2/TM3AG2G	2 analog outputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 12-bit, 1 ms
Analog I/O	TM3AQ4/TM3AQ4G	4 analog inputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 12-bit, 1 ms
Safety I/O	TM3SAC5R/TM3SAC5RG	CAT3 Safety, 1 function, max. PL d/SIL3, 3 outputs 6 A relays
Safety I/O	TM3SAF5R/TM3SAF5RG	CAT4 Safety, 1 function, max. PL e/SIL3, 3 outputs 6 A relays
Safety I/O	TM3SAFL5R/TM3SAFL5RG	CAT3 Safety, 2 functions, max. PL d/SIL3, 3 outputs 6 A relays
Safety I/O	TM3SAK6R/TM3SAK6RG	CAT4 Safety, 3 functions, max. PL e/SIL3, 3 outputs 6 A relays
Mixed analog I/O	TM3AM6/TM3AM6G	4 analog outputs, 2 analog inputs, +-10 V, 0-10 V, 0-20 mA, 4-20 mA, 12-bit, 1 ms
Thermocouple mixed	TM3TM3/TM3TM3G	2 temperature inputs + 1 analog output TC (J, K, R, S, B, T, N, E, C, L), RTD (NI100, NI1000, PT100, PT1000) (+-10 V, 0-10 V) (0-20 mA, 4-20 mA) 16-bit, 100 ms
Thermocouple input	TM3TI4/TM3TI4G	4 temperature inputs TC (J, K, R, S, B, T, N, E, C, L) RTD (NI100, NI1000, PT100, PT1000), (+-10 V, 0-10 V) (0-20 mA, 4-20 mA) 16-bit, 100 ms
Thermocouple input	TM3TI8T/TM3TI8TG	8 temperature inputs, NTC, PTC, and TC (J, K, R, S, B, T, N, E, C, L), 16-bit 100 ms
Relay I/O	TM3DM8R/TM3DM8RG	8x 2 A relay outputs
Relay I/O	TM3DM24R/TM3DM24RG	24x 2 A relay outputs
Relay I/O	TM3DQ8R/TM3DQ8RG	8x 2 A relays outputs
Other	TM3XREC1	TM3 remote receiver module
Other	TM3XTRA1	TM3 remote transmitter module
Other	TM3XTYS4	TM3 parallel interface for 4 Tesys motor starters
Expert	TM3XHSC202/TM3XHSC202G	High-speed counting, 2 HSC channels, 10 inputs, 8 outputs

List of Altivar hardware compatible with Altivar ATV dPAC

Type	Reference	Description	Compatible
Drive	**ATV340●●●N4**	Altivar Machine drives	Yes
Drive	**ATV340●●●N4E ≤ D22**	Altivar Machine drives	No
Drive	**ATV340●●●N4E ≥ D30**	Altivar Machine drives	Yes
Drive	**ATV630●●●●●** **ATV630●●●●●F**	Altivar Process drives	Yes
Drive	**ATV650●●●●●** **ATV650●●●●●E** **ATV650●●●●●F**	Altivar Process drives	Yes
Drive	**ATV930●●●●●** **ATV930●●●●●C** **ATV930●●●●●F**	Altivar Process drives	Yes
Drive	**ATV950●●●●●** **ATV950●●●●●E** **ATV950●●●●●F**	Altivar Process drives	Yes
Drive	**ATV660●●●●●** **ATV680●●●●●**	Altivar Process drive systems	Yes
Drive	**ATV960●●●●●** **ATV980●●●●●**	Altivar Process drive systems	Yes
Drive	**ATV99●●●●●**	Altivar Process drive systems	Yes
Drive	**ATV6A0●●●●●** **ATV6B0●●●●●**	Altivar Process Modular drives	Yes
Drive	**ATV9A0●●●●●** **ATV9B0●●●●●**	Altivar Process Modular drives	Yes
Drive	**ATV6L0●●●●●** **ATV9L0●●●●●**	Altivar Process liquid-cooled drives	Yes
Mixed I/O	**VW3A3203**	Extended I/O module - 6 digital inputs/ 2 digital outputs/2 analog inputs	Yes
Mixed I/O	**VW3A3204**	Extended relay module - 3 relay outputs	Yes
Encoder	**VW3A3420**	Digital encoder interface module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Encoder	**VW3A3422**	Analog encoder interface module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Encoder	**VW3A3423**	Resolver interface module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Encoder	**VW3A3424**	HTL encoder interface module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Safety	**VW3A3802**	Hardwired safety module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Safety	**VW3A3809**	CIP safety module for Altivar 340 and Altivar 9●● variable speed drives	Yes
Safety	**VW3A3800**	Safety module support extension for Altivar 340 and Altivar 9●● variable speed drives	Yes
Other	**VW3A1111**	Graphic display terminal	Yes
Other	**VW3A1112**	Door mounting kit	Yes
Other	**VW3A1104R10**	Remote mounting cordset	Yes
Other	**TCSXCNAMUM3P**	USB/Mini B USB cable for graphic display terminal	Yes

Industrial automation systems

Schneider Electric offers lifecycle services for your industrial automation systems based on EcoStruxure Automation Expert. Our lifecycle services include field and digital services. We believe, with our advanced processes and tools, we are your trusted expert in field and digital services to help you achieve greater functional safety, efficiency, sustainabilty, and resilience in your plant operations.

We offer services that are designed to address your needs as you plan, install, operate, and optimize your industrial automation systems based on EcoStruxure Automation Expert. These include:

- Consulting services
- Maintenance and support services
- Training Services
- Migration Services

For more information, visit our Industrial Automation Services page.

Consulting services

Consulting services are about bringing our expertise to help find solutions to some of your key operational challenges. Be it about maximizing the business value from your digital transformation initiatives, identifying improvement opportunities in your industrial automation system lifecycle management plans, or improving your cybersecurity posture and compliance, we can help. Take a look at some of our consulting offerings:

Security consulting

Our cybersecurity consultants will help you assess and review your EcoStruxure Automation Expert systems to detect gaps, identify risks, uncover any security malpractices, assess your staff's security competencies, provide emergency response services, and more. For more information, visit our Cybersecurity Services page.

IA lifecycle consulting

Audits performed by our service team provide insights and recommendations to help improve the maintenance plans of industrial automation assets. This service helps identify potential risks to the reliability and maintainability of these assets and plan mitigation actions. Watch the video to learn more about our IA Lifecyle Consulting Service.

Maintenance and support services

Our maintenance and support offerings help you quickly restore your operations in the event of an unplanned downtime incident. They can also help reduce the risk of occurrence and the associated costs. Take a look at some of our maintenance and support offerings:

Extended warranty

The extended warranty offer gives you the option to extend the warranty of selected Schneider Electric hardware by up to three years.

Note: Please contact your Customer Care Center for offer availability.

Spare parts, exchanges, and repairs

These solutions help you to respond, in the most optimal manner, to requests for spare parts for your EcoStruxure Automation Expert system based on Schneider Electric hardware. Services include:

- Parts management service:
  Onsite or shared spares inventory, managed by us, to help ensure parts availability, while optimizing costs.
- Repair:
  Product repairs performed onsite when possible, or at our repair centers.
- Exchange:
  A refurbished product is provided in exchange for a product returned with a detected fault.

Note: Availability of these services may vary depending on the applicable Schneider Electric hardware. Please contact your Customer Care Center for offer availability.

Maintenance and support services (continued)

Maintenance and support contracts

Our Support and Maintenance Service Offers, are a simplified and modular annual support services agreements, designed to provide you with the right level of flexibility and confidence to meet your support and maintenance needs for your industrial automation systems based on EcoStruxure Automation Expert.

Available as Advantage Service Plan (ASP) for Automation Control or as Customer FIRST (CF) Program for Automation Control, they offer a pre-packaged set of services relevant to operating and maintaining an EcoStruxure Automation Expert Systems. For further customization, a set of optional services are available.

The following table provides a snapshot of the plan:

Included Services	Support Levels	
	ASP	CF
	Essential	Primary
Core Support and Services		
Priority Technical Support Access – NBH[a]	SLA[b]	SLA[b]
mySchneider Portal Access – *Premium support*	Yes	Yes
Software Version Update[c]	Yes	Yes
Optional services[d]		
24/7 Priority Technical Support – Phone		
Block of Support Hours		

(a) Normal Business Hours
(b) Service Level Agreement
(c) Excludes labor and hardware
(d) Subject to local availability

With the enhancements to EcoStruxure Automation Expert V25.0 licensing system, we will progressively offer a more digital experience for customers seeking to maintain the currency of their EcoStruxure Automation Expert software. With this experience, customers with our support and maintenance service offers, will be able to update, in a self-service mode, their EcoStruxure Automation Expert software installation, as and when installations are ready. Please contact your Customer Care Center for offer availability.

Application design services

Our Application Design Service leverages our extensive expertise in implementing systems based on EcoStruxure Automation Expert. This service helps you maximize the benefits of software-defined automation while reducing the risks and costs associated with application development.

Included services:

- Remote Application Engineering and implementation assistance by Schneider Electric's experts
- Service delivered by certified engineers with experience in Automation Expert projects and library development.

Typical deliverables:

- Functional design specification
- Custom library and/or CATs
- Tested Automation Expert application

Training services

Our training services are designed for users to take maximum advantage of our industrial automation systems based on EcoStruxure Automation Expert. Our training catalog includes courses on:

- Automation fundamentals
- IEC 61499 concepts
- EcoStruxure Automation Expert Build Time and configuration

For more information, please visit our Learning Services Home Page or send us an email.

Modernization and migration services

Over the years, we have been involved in migrating many major automation systems to Schneider Electric. Our migration services, based on this expertise and complemented by a set of dedicated tools, helps to minimize the risks and costs involved in such upgrades to an open EcoStruxure Automation Expert-based system. The available set of tools and services are outlined below:

Tools and services

Source platforms		Tools and services		
		Reverse engineering	Application conversion service	Wiring systems for Modicon X80
Schneider Electric	Modicon Premium	Yes	2023	Yes
Rockwell Automation	SLC 500	Yes	Yes	Yes
	PLC-5	Yes	Yes	Yes
	ControlLogix	Yes	2023	–

In addition to the above, we can also offer project-specific solutions. Please contact your local service teams for more information.

Industrial automation systems
EcoStruxure Automation Expert
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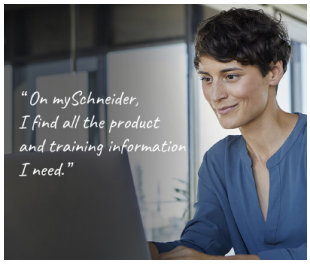

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