



EcoStruxure Maintenance Advisor

EcoStruxure™ Maintenance Advisor

Platform for condition-based
maintenance and decision support

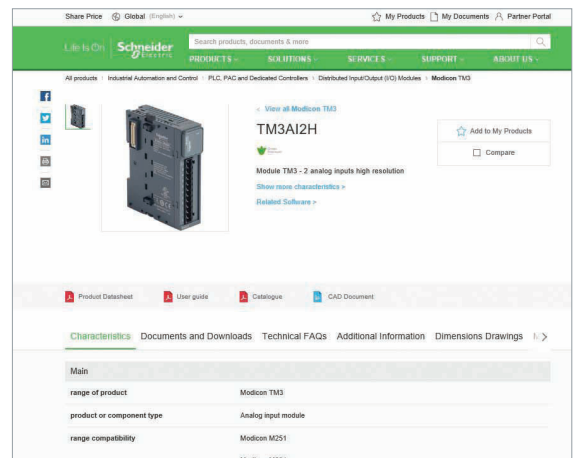
Quick access to product information

Get technical information about your product

References

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

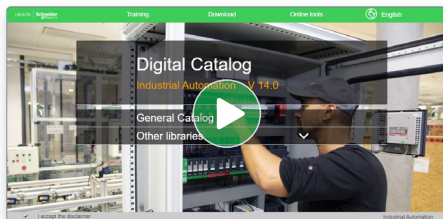
Number and type of channels	Input range	Output range	Resolution	Input format (mA)	Reference	Weight (kg)
2 voltage inputs	-15...+10 VDC 0...10 VDC 0...20 mA, 4...20 mA	16.00V or 12.00V or 0...20 mA, 4...20 mA	16.00V or 12.00V or 3.10V/15	0/20mA 0/20mA 0/20mA	TM3AI2H TM3AI2G TM3AI2D	0.110 0.200 0.100
4 voltage inputs	-15...+10 VDC 0...10 VDC 0...20 mA, 4...20 mA	16.00V or 12.00V or 0...20 mA, 4...20 mA	16.00V or 12.00V or 3.10V/15	0/20mA 0/20mA 0/20mA	TM3AI4H TM3AI4G TM3AI4D	0.110 0.200 0.100
4 differential temperature inputs (I ² C, R, S, T, N, E, C)	Thermopiles or thermistor inputs (RTD: Ni100, Ni1000, PT100, PT1000)	16.00V or 12.00V or 0...20 mA, 4...20 mA	16.00V or 12.00V or 3.10V/15	0/20mA 0/20mA 0/20mA	TM3TI4 TM3TI2 TM3TI0	0.110 0.200 0.100
4 differential temperature inputs (I ² C, R, S, T, N, E, C)	Thermopiles or thermistor inputs (RTD: Ni100, Ni1000, PT100, PT1000)	16.00V or 12.00V or 0...20 mA, 4...20 mA	16.00V or 12.00V or 3.10V/15	0/20mA 0/20mA 0/20mA	TM3TI4 TM3TI2 TM3TI0	0.110 0.200 0.100
8 voltage inputs	-15...+10 VDC	16.00V or 12.00V or 0...20 mA, 4...20 mA	16.00V or 12.00V or 3.10V/15	0/20mA 0/20mA 0/20mA	TM3AI8	0.200



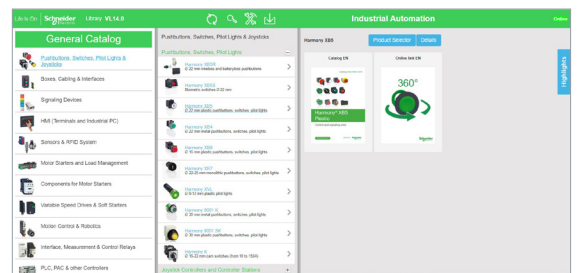
Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

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

Find your catalog



- > With just 3 clicks, you can access the Industrial Automation and Control catalogs, in both English and French
- > Consult digital automation catalogs at [Digi-Cat Online](#)

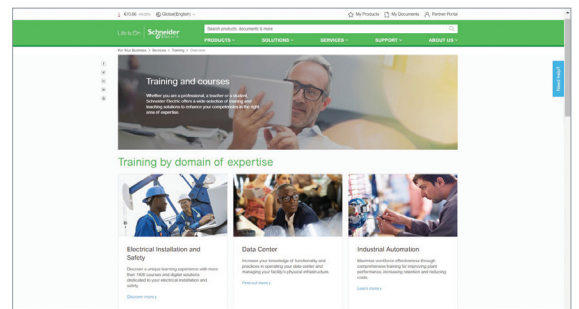


- Up-to-date catalogs
- Embedded product selectors, 360° pictures
- Optimized search by commercial references

Select your training



- > Find the right [Training](#) for your needs on our Global website
- > Locate the training center with the selector tool, using this [link](#)



General contents

EcoStruxure™ Maintenance Advisor

<i>Introduction to EcoStruxure</i>	<i>page 2</i>
■ General presentation	
□ Benefits	
- Improved availability of plant assets	<i>page 4</i>
- Reduced maintenance efforts.....	<i>page 4</i>
- Enhanced workforce productivity and security.....	<i>page 5</i>
□ Features	<i>page 5</i>
■ Components	<i>page 6</i>
■ Installation	
□ Installation	<i>page 7</i>
□ Web browser compatibility.....	<i>page 7</i>
■ References	<i>page 8</i>
■ Product reference index	<i>page 10</i>

Schneider Electric's IoT-enabled, plug-and-play, open, secure, interoperable architecture and platform, in Industries, Infrastructures, Data Centers, and Buildings.

Innovation at every level

EcoStruxure is based on a three-tiered technology stack delivering innovation at every level, from connected products to edge control and apps, analytics, and services.

Together with our hybrid segments approach, this enhances your value around safety, reliability, operational efficiency, sustainability, and connectivity across 6 domains of expertise:

- Power
- IT
- Building
- Machine
- Plant
- Grid

Dedicated architectures and IoT

We tailor our solutions in the form of dedicated reference architectures for plants:

- Management systems
- Power systems
- Data center systems
- Industrial plant and machine systems
- Smart grid systems

The Industrial Internet of Things (IIoT) gives an additional boost to technologies. That's why we provide our customers with an IoT-enabled architecture and platform offering simple, reliable, productive, and cost-efficient solutions.

Cybersecurity solutions

Robust cybersecurity protection is a must, and Schneider Electric's solutions can deliver it, regardless of business type or industry.

The vendor-agnostic services provided by our skilled professionals help to protect your entire critical infrastructure. We help to assess your risk, implement cyber-specific solutions, and maintain your onsite defenses over time, while integrating appropriate IT policies and requirements.

This is our difference and your advantage.

Enhanced safety

With the release of M580 Safety, Schneider Electric further expands the EcoStruxure platform.

This consolidates our position as one of the most trusted industrial safety vendor, with thousands of Modicon and Triconex safety systems protecting the most critical industrial processes globally.

EcoStruxure™ for Industry
Innovation At Every Level



(1) The Schneider Electric industrial software business and AVEVA have merged to trade as AVEVA Group plc, a UK listed company. The Schneider Electric and Life is On trademarks are owned by Schneider Electric and are being licensed to AVEVA by Schneider Electric.

EcoStruxure Maintenance Advisor

Platform for condition-based maintenance and decision support

EcoStruxure™ Maintenance Advisor



EcoStruxure Maintenance Advisor enables maintenance supervisors to monitor the condition of automation assets in real time to provide early insight into impending failure enabling maintenance to act on it proactively thus preventing a failure. Embedded workflow and mobility allows easy dissemination of maintenance decisions from anywhere in the plant.

EcoStruxure Maintenance Advisor solution applies to the following market segments:



Oil & Gas Mining



Minerals & Metals



Water & Waste water



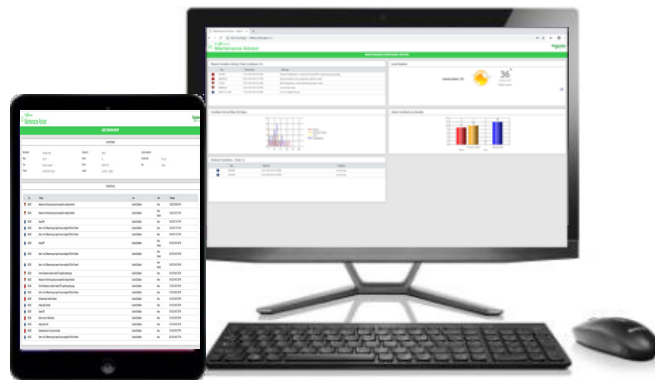
Consumer Packaged Goods



Benefits

Improved availability of plant assets

On average, up to 5 percent of production is lost annually due to unscheduled downtime and poor quality; 80 percent of that downtime is preventable. Maintenance Advisor enables condition-based maintenance preventing unscheduled slowdown and shutdown thus improving asset reliability and availability. Maintenance activities are also captured for the operational life of the asset, providing knowledge management capability for future reference.



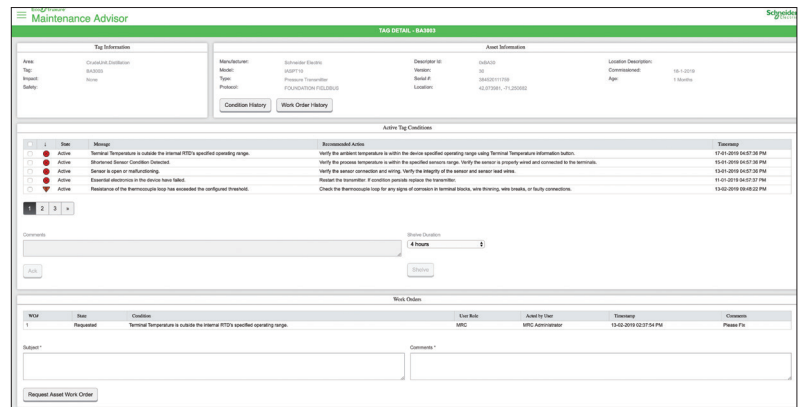
Display of device health



Reduced maintenance efforts

Preventive maintenance is not only labor-intensive. Also, studies have found that up to 63 percent of all instrument periodic maintenance efforts can be avoided.

Maintenance Advisor enables plants to switch from currently prevalent preventive maintenance practice to more effective condition-based maintenance program, which can result in significant operations and maintenance cost savings. According to studies, implementation of condition-based maintenance can result up to 12 percent cost saving in regard to traditional time-based maintenance programs.



Detailed information with tag

+ Condition-based maintenance for profitable operations



Benefits (continued)

Enhanced workforce productivity and security

Preventive maintenance check involves field trips : it results in increased chances of accidents and less safety to workers.

EcoStruxure Maintenance Advisor empowers plant personnel with capability to monitor asset health condition from a remote location. This drastically reduces the need for field trips thus decreasing the probability of an accident.

Common look & feel dashboard for plant wide asset acts as a 'command center' supporting day to day maintenance needs.

It also reduces the training needs. The embedded workflow results in improved collaboration between various teams increases organization efficiency and results in effective and fast response to emerging problems.

i	Tag	State	Message	Area	Manufacturer	Type	Safety	Impact	Timestamp
●	BA3003 (#11)	Active	Shortened Sensor Condition Detected.	CrudeUnit.Distillation	Schneider Electric	Pressure Transmitter	None	None	12/17/2018 10:30:15 AM
●	SRD99101 (#4)	Active	Sensor electronics error, temperature signal too small.	CrudeUnit.Distillation	Schneider Electric	Valve Positioner	None	None	12/06/2018 09:35:27 AM
●	BA3001 (#5)	Active	Friction Problem.	CrudeUnit.Distillation	Schneider Electric	Pressure Transmitter	None	None	12/02/2018 09:35:27 AM
▼	FV1001 (#9)	Active	Bad Configuration, invalid undefined parameter values.	CrudeUnit1.Distillation	Schneider Electric	Valve Positioner	None	None	12/15/2018 09:35:26 AM
▼	EHDEL1	Active	Cycle Count Alarm	CrudeUnit.Distillation	E+H	Hydrostatic Level Transmitter	None	None	12/15/2018 09:35:26 AM
◆	SRD1V12_AM	Active	Low Air Supply Pressure	CrudeUnit2.Distillation	Schneider Electric	Valve Positioner	None	None	12/14/2018 09:35:24 AM



Device condition summary displayed with clear alert pictograms (NAMUR 107 conformant)



Features

EcoStruxure Maintenance Advisor is a vendor-neutral platform to provide condition monitoring for plant-wide assets, with the following main features:

- Single Unified Workspace with a simple architecture for easy access to the most up-to-date status of plant-wide asset conditions and actionable early insight, with clear, concise alerts and recommendations.
- Scalable to the size of your plant, from one to unlimited number of automation devices, whether mechanical, electrical, safety or control devices.
- Supports OPC DA and Fieldbus protocol such as HART, FF etc. protocols.
- Security is leveraged with Windows Active Directory.
- Mobility brings the plant to a mobile workforce, empowering users with the capability to access anything anywhere.
- Streamlines processes thanks to embedded workflow and integration support
- Eliminates paperwork by digitizing maintenance activity assignment and tracking to the correct technique.

EcoStruxure Maintenance Advisor Platform for condition-based maintenance and decision support

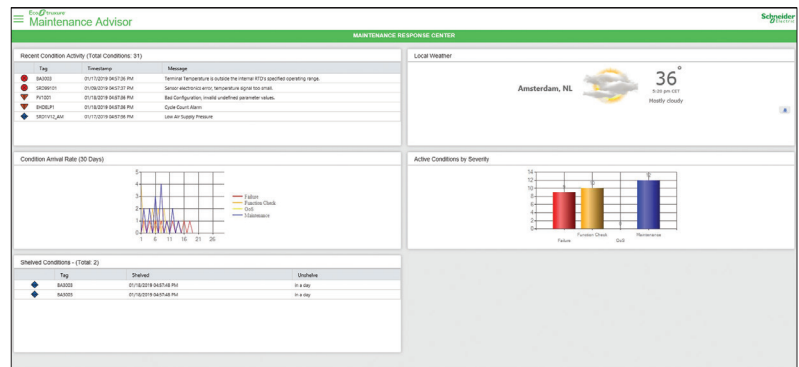
Components

EcoStruxure Maintenance Advisor platform presents the 2 following basic layers:

- Layer 1: Maintenance Response Center (MRC) **1** provides a single-unified workspace for health of plant-wide devices, acting as a “command center for maintenance”.

It offers real-time device health information in an intuitive, easy-to-understand way, with recommended corrective action to enable effective decisions. Context is added to alerts to indicate criticality levels, for example by using standard NAMUR 107, ISA 108 categories.

Smart analytics and comparison with historical data for the operational life of an asset help identify failure modes to reduce time to repair and eliminate unnecessary trips to the field.

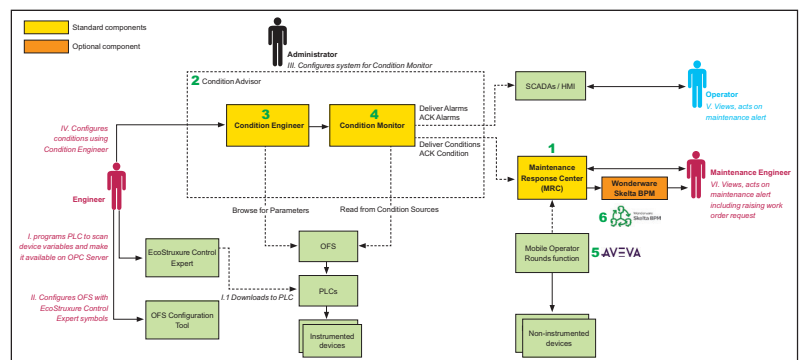


Display of automation device conditions and recommended actions

- Layer 2: Condition Advisor **2** includes 2 components:

- Condition Engineer **3** as a standalone configuration tool used to configure Condition Monitor **(1)**.
- Condition Monitor **4** supports multiple built-in condition monitoring engines which are available to monitor the health of various assets automatically:
 - In the case of intelligent automation assets, Condition Monitor leverages predictive context awareness available in intelligent assets.
 - For configuring non-intelligent assets, Condition Monitor leverages simple to complex rule engines **(1)**.

For stranded, non-instrumented assets, condition monitoring is achieved using AVEVA Mobile Operator Rounds function (formerly Intelatrac) **5** to digitize operator rounds maintenance requests and record-keeping **(2)**.



The optional Wonderware Skelta BPM **6** provides tools to act on maintenance decisions for proactive action.

- (1) Configuration deals with expressing simple or complex rules depending on the automation device and/or plant topology. It may be performed by Schneider Electric engineers as an additional service: contact our Customer Care Center (<https://pasupport.schneider-electric.com/Home.asp>) or our website <https://www.se.com/ww/en/work/support/>.
- (2) AVEVA is member of Schneider Electric's TPP (Technology Partner Program). For more information about AVEVA tools, see <https://www.se.com/ww/en/work/solutions/software/aveva/>.





Installation

According to the type of assets, EcoStruxure Maintenance Advisor can be integrated within various environments for condition-based maintenance on a plant-wide scale:

Non intelligent assets



Intelligent assets



Maintenance Advisor platform is purchased in the form of a perpetual license (one-time payment) managed by OneLicensing brick. As the software price is based on the number of assets you need to monitor, you will have to select:

- The software Standard kit license (**ZMAKSQLSTD**).
The software kit license can be updated with additional licenses (**ZMAU●●●**) when necessary, to adjust to software evolution.
- A volume license, based on how many devices you need to monitor (**ZMAA●●●**: up to 250, 1,000, 2,500, 5,000, 25,000, or unlimited number of devices). The volume license can be upgraded if the predefined number of devices is too far from your actual need or if your plant has evolved since first purchase (**ZMAAADD●●●**: additional 250 or 1,000 devices).

You can also try a demo license with the software Express kit license (**ZMAKSQLEXP**), limited in number of assets (250 assets) and activated by a time-based license (6 months: **ZMATLTFU**, 1 year: **ZMAT1YEAR250**).

The software can be complemented with optional Wonderware Skelta BPM workflow. The Skelta software is included within both Standard and Express kits (**ZMAKSQLSTD** and **ZMAKSQLEXP**), but you need to purchase an additional license to activate it (**ZMAAWF5**).

Standard deployment of the MRC requires two Windows (1) systems Server 2016:

- One system running Microsoft Domain Controller (can be avoided if customer already has a Domain Controller),
- Other system containing Internet Information Services (IIS) which hosts the MRC web application, SQL Server 2019 (Standard or Express depending on use case) which is used for the Asset Repository.

While the domain controller must reside on its own computer, all other components (Internet Information Server, SQL Server Standard Edition, and Wonderware Skelta Workflow BPM) can reside on the same computer or on any combination of computers (physical or virtualized).

Web browser compatibility

EcoStruxure Maintenance Advisor is a web application that can be run with the following browsers:

- Desktop: Internet Explorer 11
- Windows (2): Internet Explorer 11
- iPad: Safari
- Android tablets: Google Chrome

(1) Recommended
(2) With Windows 10

References

EcoStruxure Maintenance Advisor media kit options

Maintenance Advisor kit with SQL Standard and Workflow

Description	Software included	Hardware requirements	Reference
Recommended for asset count more than 250	<input type="checkbox"/> Maintenance Advisor 1.5	- Active Directory Server - 2GB RAM;	ZMAKSQLSTD
	<input type="checkbox"/> SQL Standard 2019	- C drive with 100GB minimum hard disk space	
	<input type="checkbox"/> Wonderware Skelta BPM 2017 (1)	- Internet Information Server - 4GB RAM; C drive with 100GB minimum hard disk space	
Condition Advisor	<input type="checkbox"/> Condition Engineer	Workstation-class hardware with:	
		- Dual core processor	
		- 8 GB RAM	
	<input type="checkbox"/> Condition Monitor	Workstation-class hardware with:	
	<50,000 conditions	- Dual core processor	
		- 8 GB RAM	
		- 100 GB min hard disk space	
		>50,000 conditions	
		Server-class hardware with:	
		- Quad core processor	
		- 16 GB RAM	
		- 100 GB min hard disk space	

Maintenance Advisor kit with SQL Express and Workflow

Recommended for asset count less than 250, 6 months free trial license (for customer trial use) and 1 year license for internal demo	<input type="checkbox"/> Maintenance Advisor 1.5	- Active Directory Server - 2GB RAM;	ZMAKSQLEXP
	<input type="checkbox"/> SQL Express 2019	- C drive with 100GB minimum hard disk space	
	<input type="checkbox"/> Wonderware Skelta BPM 2017 (1)	- Internet Information Server - 4GB RAM; C drive with 100GB minimum hard disk space	
		- SQL Express Server 2019 - 8GB RAM minimum; 16GB recommended; C drive with 100GB minimum hard disk space; D drive with 100GB minimum hard disk space	

Maintenance Advisor license per number of assets

Description	Paper license type	Reference
Maintenance Advisor perpetual license	250 devices	ZMAA250
	1,000 devices	ZMAA1000
	2,500 devices	ZMAA2500
	5,000 devices	ZMAA5000
	25,000 devices	ZMAA25000
	Unlimited nb of devices	ZMAAUNLIMITED
Maintenance Advisor license update	250 devices	ZMAU250
	1,000 devices	ZMAU1000
	2,500 devices	ZMAU2500
	5,000 devices	ZMAU5000
	25,000 devices	ZMAU25000
	Unlimited nb of devices	ZMAUUNLIMITED
Maintenance Advisor additional devices license	250 additional devices	ZMAUADD250
	1,000 additional devices	ZMAUADD1000
Maintenance Advisor additional devices license	250 devices	ZMAAADD250
	1,000 devices	ZMAAADD1000

(1) The Wonderware Skelta BPM software is activated by purchasing an additional license (see page 9).

References (continued)

Maintenance Advisor demo licenses

Description	Volume configuration	Purpose	Reference
Maintenance Advisor 6 months free trial license	250 devices	Customer trial / Proof of concept	ZMATLTFU
Maintenance Advisor 1 year license	250 devices	For internal demo	ZMAT1YEAR250

Optional Wonderware Skelta BPM workflow

Description	Paper license type	Reference
License for Wonderware Skelta BPM 2017 activation	5 users	ZMAAWF5



Z	
ZMAA1000	8
ZMAA250	8
ZMAA2500	8
ZMAA25000	8
ZMAA5000	8
ZMAAADD1000	8
ZMAAADD250	8
ZMAAUNLIMITED	8
ZMAAWF5	9
ZMAKSQLEXP	8
ZMAKSQLSTD	8
ZMAT1YEAR250	9
ZMATLTFU	9
ZMAU1000	8
ZMAU250	8
ZMAU2500	8
ZMAU25000	8
ZMAU5000	8
ZMAUADD1000	8
ZMAUADD250	8
ZMAUUNLIMITED	8

Life Is On



Learn more about our products at
www.schneider-electric.com

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

Design: Schneider Electric
Photos: Schneider Electric

Schneider Electric Industries SAS

Head Office
35, rue Joseph Monier - CS 30323
F-92500 Rueil-Malmaison Cedex
France

DIA6ED2200601EN
October 2020 - V1.0