

EcoStruxure Control Expert V16.2 Modicon M580 Controller V4.40

Release Notes

Original instructions

RN0000000110.05

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Before You Begin

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

⚠ WARNING

UNGUARDED EQUIPMENT

- Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only you, the user, machine builder or system integrator can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine and, therefore, can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, you should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

Start-up and Test

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check are made and that enough time is allowed to perform complete and satisfactory testing.

⚠ WARNING

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and temporary grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Remove all temporary grounds from incoming power lines.
- Perform all start-up tests recommended by the manufacturer.

Operation and Adjustments

The following precautions are from the NEMA Standards Publication ICS 7.1-1995:

(In case of divergence or contradiction between any translation and the English original, the original text in the English language will prevail.)

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer's instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer's instructions and the machinery used with the electrical equipment.
- Only those operational adjustments required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

About the Book

Document Scope

This document presents a history of of Control Expert software releases, including Modicon M580 controller firmware releases and a description of improvements made to each firmware release.

The M580 firmware update procedure can be found in the *Modicon M580 Controller Firmware Installation Guide*.

NOTE: Schneider Electric firmware is continuously reviewed and updated to maintain a high level of reliability of its products.

Ensure your installation is up to date with the newest firmware versions to help protect your infrastructure against cybersecurity threats and to experience improved performance.

For further information, visit the Schneider Electric Cybersecurity Support Portal: <https://www.se.com/ww/en/work/support/cybersecurity/overview.jsp>.

Validity Note

This document has been updated for EcoStruxure Control Expert 16.2 and Modicon M580 firmware versions up to and including version 4.40.

Related Documents

Title of Documentation	Reference Number
Modicon M580, Hardware Reference Manual	EIO0000001578 (ENG) EIO0000001579 (FRE) EIO0000001580 (GER) EIO0000001582 (ITA) EIO0000001581 (SPA) EIO0000001583 (CHS)
Modicon M580 Frequently Used Architectures, System Guide	HRB62666 (ENG) HRB65318 (FRE) HRB65319 (GER) HRB65320 (ITA) HRB65321 (SPA) HRB65322 (CHS)
Modicon M580 Complex Topologies, System Guide	NHA58892 (ENG) NHA58893 (FRE) NHA58894 (GER) NHA58895 (ITA) NHA58896 (SPA) NHA58897 (CHS)
Modicon M580 Hot Standby, Frequently Used Architectures, System Guide	NHA58880 (ENG) NHA58881 (FRE) NHA58882 (GER) NHA58883 (ITA) NHA58884 (SPA) NHA58885 (CHS)
EcoStruxure Automation Device Maintenance, Firmware Upgrade Tool, Online Help	EIO0000004033 (ENG) EIO0000004050 (CHS) EIO0000004048 (FRE) EIO0000004046 (GER) EIO0000004049 (ITA) EIO0000005090 (POR-BRA) EIO0000004047 (SPA) EIO0000005089 (TUR)
Fimrware Compatibility Rules -	EIO0000002634 (ENG) EIO0000004937 (FRE)

Title of Documentation	Reference Number
	EIO0000004938 (GER) EIO0000004939 (ITA) EIO0000004940 (SPA) EIO0000004941 (CHS)
Modicon M580, Safety Manual	QGH46982 (ENG) QGH46983 (FRE) QGH46984 (GER) QGH46985 (ITA) QGH46986 (SPA) QGH46987 (CHS)
Modicon M580, Safety System Planning Guide	QGH60283 (ENG) QGH60284 (FRE) QGH60285 (GER) QGH60287 (ITA) QGH60286 (SPA) QGH60288 (CHS)
EcoStruxure Control Expert Safety Block Library	QGH60275 (ENG) QGH60278 (FRE) QGH60279 (GER) QGH60280 (ITA) QGH60281 (SPA) QGH60282 (CHS)
Modicon M580, Hot Standby System Planning Guide for Frequently Used Architectures.	NHA58880 (ENG) NHA58881 (FRE) NHA58882 (GER) NHA58883 (ITA) NHA58884 (SPA) NHA58885 (CHS)
Modicon M580, Controller Firmware Installation Guide	EIO0000004992 (ENG)
Modicon M580, Controller Firmware History Release Notes	RN0000000110 (ENG)
Modicon M580, Safety Related Application Conditions Verification Plan	EIO0000004540 (ENG)
Modicon M580, Controller FPGA Upgrade User Guide	EIO0000005298 (ENG)
Modicon M580, RIO Installation	EIO0000001584 (ENG)

Product Related Information

⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected devices prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires except under the specific conditions specified in the appropriate hardware guide for this equipment.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

LOSS OF CONTROL

- Perform a Failure Mode and Effects Analysis (FMEA), or equivalent risk analysis, of your application, and apply preventive and detective controls before implementation.
- Provide a fallback state for undesired control events or sequences.
- Provide separate or redundant control paths wherever required.
- Supply appropriate parameters, particularly for limits.
- Review the implications of transmission delays and take actions to mitigate them.
- Review the implications of communication link interruptions and take actions to mitigate them.
- Provide independent paths for control functions (for example, emergency stop, over-limit conditions, and error conditions) according to your risk assessment, and applicable codes and regulations.
- Apply local accident prevention and safety regulations and guidelines.¹
- Test each implementation of a system for proper operation before placing it into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

¹ For additional information, refer to NEMA ICS 1.1 (latest edition), *Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control* and to NEMA ICS 7.1 (latest edition), *Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems* or their equivalent governing your particular location.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Only use software approved by Schneider Electric for use with this equipment.
- Update your application program every time you change the physical hardware configuration.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

General Cybersecurity Information

In recent years, the growing number of networked machines and production plants has seen a corresponding increase in the potential for cyber threats, such as unauthorized access, data breaches, and operational disruptions. You must, therefore, consider all possible cybersecurity measures to help protect assets and systems against such threats.

To help keep your Schneider Electric products secure and protected, it is in your best interest to implement the cybersecurity best practices as described in the [Cybersecurity Best Practices](#) document.

Schneider Electric provides additional information and assistance:

- [Subscribe to the Schneider Electric security newsletter.](#)
- [Visit the Cybersecurity Support Portal web page to:](#)
 - [Find Security Notifications.](#)
 - [Report vulnerabilities and incidents.](#)
- [Visit the Schneider Electric Cybersecurity and Data Protection Posture web page to:](#)
 - [Access the cybersecurity posture.](#)
 - [Learn more about cybersecurity in the cybersecurity academy.](#)
 - [Explore the cybersecurity services from Schneider Electric.](#)

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Terminology Derived from Standards

The technical terms, terminology, symbols and the corresponding descriptions in the information contained herein, or that appear in or on the products themselves, are generally derived from the terms or definitions of international standards.

In the area of functional safety systems, drives, and general automation, this may include, but is not limited to, terms such as *safety*, *safety function*, *safe state*, *fault*, *fault reset*, *malfunction*, *failure*, *error*, *error message*, *dangerous*, etc.

Among others, these standards include:

Standard	Description
IEC 61131-2:2007	Programmable controllers, part 2: Equipment requirements and tests.
ISO 13849-1:2023	Safety of machinery: Safety related parts of control systems. General principles for design.
EN 61496-1:2013	Safety of machinery: Electro-sensitive protective equipment. Part 1: General requirements and tests.
ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 14119:2013	Safety of machinery - Interlocking devices associated with guards - Principles for design and selection
ISO 13850:2015	Safety of machinery - Emergency stop - Principles for design
IEC 62061:2021	Safety of machinery - Functional safety of safety-related electrical, electronic, and electronic programmable control systems
IEC 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: General requirements.
IEC 61508-2:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Requirements for electrical/electronic/programmable electronic safety-related systems.
IEC 61508-3:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Software requirements.
IEC 61784-3:2021	Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General rules and profile definitions.
2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive

In addition, terms used in the information contained herein may tangentially be used as they are derived from other standards such as:

Standard	Description
IEC 60034 series	Rotating electrical machines
IEC 61800 series	Adjustable speed electrical power drive systems
IEC 61158 series	Digital data communications for measurement and control – Fieldbus for use in industrial control systems

Finally, the term *zone of operation* may be used in conjunction with the description of specific hazards, and is defined as it is for a hazard zone or danger zone in the Machinery Directive (2006/42/EC) and ISO 12100:2010.

NOTE: The aforementioned standards may or may not apply to the specific products cited in the present documentation. For more information concerning the individual standards applicable to the products described herein, see the characteristics tables for those product references.

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Product Information

Overview

EcoStruxure Control Expert is a unique software solution for developing, configuring, and commissioning the Modicon range: Modicon M340, M580, M580 Safety, MC80, Momentum, Premium, Quantum applications.

M580 Standard Controller Firmware V4.40

The firmware version 4.40 of the Modicon M580 Programmable Automation Controller (PAC) is exclusively compatible with Modicon M580 Standard (non-safety-related) controllers.

Safety controllers are not supported in this release.

NOTE: To update M580 controller firmware to version 4.x or later, use EcoStruxure Automation Device Maintenance (EADM) which is the new common utility tool used for updating firmware in many Schneider Electric industrial automation products.

To view the download procedure, refer to: [EcoStruxure Automation Device Maintenance Firmware Upgrade Tool](#).

For more information about firmware compatibility, exceptions and for guidelines, refer to the *Firmware Compatibility Rules, Modicon M580, Modicon Momentum, and Modicon X80 I/O Modules*. For modules that are field upgradable, upgrade the module firmware to the latest available version. To help avoid cybersecurity vulnerabilities, it is in your best interest not to downgrade a firmware.

NOTE: To upgrade M580 controller firmware from version 3.x or earlier to V4.x or to downgrade M580 controller firmware from version 4.x to V3.20, a specific procedure is required.

To download the procedure, refer to: [Modicon M580 FW History Installation Guide](#).

Integrity of Your Software

In the downloaded version of EcoStruxure Control Expert from www.se.com, verify that the signature of the .iso file corresponds to the signature of the .iso file on www.se.com.

EcoStruxure Control Expert – Installation Note

In our efforts of continuous improvement, major releases such as EcoStruxure Control Expert V16.2 may have some minor releases thereafter to improve reliability, add minor features or add hardware that may not have been available at the time of the major release. Minor releases will update the existing installed version on your machine to which they belong.

Product Identification

You can see the installed software version in the **Help > About EcoStruxure Control Expert** menu of EcoStruxure Control Expert.

Release History

Version	Release Date
EcoStruxure Control Expert V16.2	04/2025
EcoStruxure Control Expert V16.1 NOTE: Removed from commercialization.	12/2024

System Requirements

To install and use EcoStruxure Control Expert, observe the minimum and recommended computer configuration and system requirements in the *EcoStruxure™ Control Expert, Installation Manual*.

Installation Instructions

Overview

For information on how to install EcoStruxure Control Expert 16.2, refer to EcoStruxure™ Control Expert, Installation Manual or contact your local representative.

Licensing Information

There is a 30-day trial licence. To get a permanent licence, contact your local representative.

Software Information V16.2

Software Information

EcoStruxure Control Expert V16.1 Status

EcoStruxure Control Expert V16.1 is removed from commercialization. For more information, contact your local representative.

All the information that applied to EcoStruxure Control Expert V16.1 apply to EcoStruxure Control Expert V16.2. Refer to [Software Information V16.1](#), page 22.

Software Versions

Description	Version
EcoStruxure Control Expert Classic	16.2
EcoStruxure Control Expert (Topology Manager)	16.2
License Manager	V3.0.0.0
Floating License Manager	V3.0.0.0

Software and Firmware Compatibility

For more information about software and hardware compatibility, please refer to *Compatibility Rules* in the *EcoStruxure Control Expert Application Versions and Controller Firmware* user guide.

New Features and Other Enhancements

New Features

EcoStruxure Control Expert Classic and EcoStruxure Control Expert (Topology Manager) V16.2 implements these enhancements:

- TÜV Certification achieved for EcoStruxure Control Expert V16.2.
- Enhanced support of Modicon M580 controller firmware V4.40.
- Modicon Edge I/O NTS support implemented in EcoStruxure Control Expert Classic.
- Comprehensive support of Modicon M580 BMENOC0302(H) module.
- Bandwidth limit calculation adjustment for the controller and the Modicon M580 BMENOC0302(H) communication module over backplane with Serial Network Access Protocol (SNAP).
- Manageable download script creation for IKEv2 for Modicon M580 BMENOC0302(H) module in EcoStruxure Control Expert Classic and EcoStruxure Control Expert (Topology Manager).
- Programming environment. Customizable FBD comment color selection options.
- Uninstalling EcoStruxure Control Expert 16.2 removes the DTMs that were installed with this version. The installation packages of these DTM Libraries are provided in the *DTM_Installers* folder of the EcoStruxure Control Expert installation package (.iso). You can use them to individually remove or reinstall DTMs.

Mitigated Anomalies

EcoStruxure Control Expert Mitigated Anomalies

Internal reference	Short description
PEP0663196R	The customer experienced a download issue, preventing them from installing any applications. To resolve this, they performed a reset using the rotary switch on the controller's rear. This action placed the controller in NO CONF mode. Following this, the M580 Safety 6040 system crashed after the customer's application was downloaded.
PEP1052047R	Changes lowercase char to uppercase char of project name.
PEP1079685R	Incorrect behavior configuring digital I/O module (using Device Data Type (DDT) mapping) on remote Quantum drop with Modicon M580.
PEP1115232R	Windows 11 issue when text cursor is enabled.
PEP1120933R	BMENOR2200 module DTM compatibility issue.
PEP1128793R	Windows 11 V22H2 encounters random crash after STA or STU files opening.
PEP1135492R	Cannot start simulator on same port after crash. Users encounter an issue where the simulator cannot be restarted on the same port immediately following a crash. This requires users to change the port or wait for a period of time before restarting the simulation.
PEP1141452R	BMENOR2200 module cannot import BMXNOR2200.3 module configuration file.
PEP1147173R	EcoStruxure Control Expert crashes when using Windows 11 magnifier tool.
PEP1152152R	Not able to install in Windows 2019 server physical machine.
PEP1165692R	Incorrect GCC compilation application migration from EcoStruxure Control Expert V14.1.
PEP1167872R	Status bar should be in yellow NOT BUILT after opening the STA file with libset version changed.
PEP1172952R	To be able to modify various controller passwords through an Application Programming Interface (API).
PEP1176612R	Display located variables inside DDT structure with Excel tool.
PEP1204652R	DTM Browser Right Click Communication Issue: Unknown error on MOL after DTM property has been checked. To fix this issue, the DTM will store the change in its internal data cache, which will not cause EcoStruxure Control Expert to receive a modification signal.
PEP1205932R	Modicon X80 rack power consumption calculation is now corrected.
PEP1141852R	Modicon M580 BMENOC0302(H) Gateway IP address: Fixed this issue by considering 0.0.0.0 Gateway as valid when DHCP is either enabled or disabled.
PEP1207732R	BMENOC0401: Difficulty to configure an AVT32 when adding it under a BMENOC0401.
PEP1213012R	EcoStruxure Control Expert 15.3 - Incorrect variable forced using animation table.
PEP1220632R	EcoStruxure Control Expert 16.1 - PSx DTM Library - Issue during the installation of EcoStruxure Control Expert.
PEP1252092R	EcoStruxure Control Expert (Topology Manager):- Deploy is not performed but is shown as Completed successfully .

Known Operational Anomalies

EcoStruxure Control Expert

Internal reference	Short description
PEP1068101R	Building an empty application with DTM variable tags on BMENOR2200H takes a long time.
PLCCE-11858	The installation of EcoStruxure Control Expert Diff tool is not successful due to License Manager V2.10.0.0.
PLCCE-13019	M580 Safety CIP devices cannot be fully configured using EcoStruxure Control Expert (Topology Manager).
PLCCE-4412	EcoStruxure Control Expert DIFF tool does not work.

Internal reference	Short description
PEP1107753R	In EcoStruxure Control Expert V16, the Ethernet IP configuration for the 140NOC77100 cannot be edited.
-	To provide a more user-friendly experience, the Deployment View feature in EcoStruxure Control Expert (Topology Manager) has been temporarily removed.
PLCDTM-2087	EcoStruxure Control Expert V16.2 - Crash memory low with 1 application is running during field bus discovery.

Hardware/Firmware Information V4.40

Hardware/Firmware Information

Version Identification

M580 Standard Controller Firmware V4.40

Description	Firmware version
BMEP581020, BMEP581020H BMEP582020, BMEP582020H BMEP582040, BMEP582040H BMEP583020 BMEP583040 BMEP584020 BMEP584040 BMEP585040, BMEP585040C BMEP586040, BMEP586040C BMEH582040, BMEH584040, BMEH586040	V4.40
BMENOC0301 / BMENOC0311 communication module	V2.22
BMENOC0321 control network module	V1.10
BMENUA0100 OPC UA module	V2.03.05
BMENOP0300 IEC 61850 communication module	V2.71
BMENOR2200H advanced remote terminal unit (RTU) module	V4.01 (BME), V1.7 (BMX)
BMENOS0300 network option switch module	V1.04
EcoStruxure Control Expert	V16.2
BMENOC0302(H) high performance ethernet communication module	V1.01
BMECRA31310 redundant remote I/O adapter module	V1.02
BMECRA31210 redundant remote I/O adapter module	V2.08

New Features

Modicon M580 Standard Controller Firmware V4.40

Modicon M580 Standard Controller Firmware V4.40 implements these enhancements:

- Secure decommissioning of the controller via the Modicon M580 embedded webpage.
- Support for Modicon Edge I/O NTS configuration through specific DTM.
- Support for Modicon Edge I/O NTS redundant owner with Ethernet/IP communication.
- Support of BMENOC0302(H)

BMENOC0302(H)

BMENOC0302(H) network modules act as an interface between the Modicon M580 controller and other Ethernet network devices via the Modbus/TCP and EtherNet/IP communication protocols.

- Modbus/TCP and EtherNet/IP protocols operating simultaneously.
- Increased data exchange size up to 16KB IN / 16KB OUT.
- Ring topologies on two Ethernet ports using Rapid Spanning Tree Protocol (RSTP), RSTP can be enabled/disabled.
- Support for HotStandby architecture with IP/IP+1 or fixed IP A/IPB.
- Priority handling of Ethernet packets using QoS (Quality of Service).
- Automatic module configuration recovery using Fast Device Replacement (FDR) Service.
- Embedded Web server for application monitoring and module diagnostics: this is an HTML5 Web server that can be read by any device (PC, tablet, smartphone) with the majority of operating systems (Android, iOS, Windows).
- Sharing data between controllers.
- Network management controller using Simple Network Management Protocol (SNMP) v3.
- NTP v4 Client.
- IPSec (IKEv2) initiator and responder.
- Rack Viewer/Program Viewer/Alarm Viewer.
- Support Modicon Edge I/O NTS DTM
- Harsh version available

Limitations

Limitations

BMECRA31310(H) is not compatible with BMENOC0302(H).

In this current release, it is not possible to configure BMECRA31310(H) with BMENOC0302(H) or BMECRA31310(H) and Modicon Edge I/O NTS in the same application.

NOTE: BMENOC0302(H) and Modicon Edge I/O NTS can be configured together in the same application. There is no limitation between these two references.

Mitigated Anomalies

M580 Standard Controller Firmware V4.40

Internal reference	Short description
PEP0542714R	DTM generic device family, no documentation.
PEP0638753R	REDUNDANCY_BIT needs correction in user guide.
PEP1096321R	Extensions for M580 are not visible on EADM using firmware 4.20.
PEP1119137R	Random errors in counters observed since firmware version 4.10.
PEP1168132R	M580 -BMEX58X0X0 controller firmware SV4.20 NTP summertime issue.
PEP1205892R	FW 4.20 - M580 PV 28 - Loss of date when power up.
PEP1212532R	M580 - PWS_DIAG does not work with FW V4.30.
–	HSBY : Modification of the Modbus DIO scanner for enhanced use in HSBY environment.

Release Notes History: M580 Firmware Versions

Software Information V16.1

Software Information

Version Status

EcoStruxure Control Expert V16.1 is removed from commercialization. For more information, contact your local representative.

All the information that was applying to EcoStruxure Control Expert V16.1 apply to EcoStruxure Control Expert V16.2.

Description	Version
EcoStruxure Control Expert Classic	16.1
EcoStruxure Control Expert (Topology Manager)	16.1
License Manager	V3.0.0.0
Floating License Manager	V3.0.0.0

Merged Hotfixes

The following hotfixes are merged into EcoStruxure Control Expert 16.1:

Controlexpert_V153_HF014 Refence ATV9x inside TM
ControlExpert_V153_HF016 CE installation issue
ControlExpert_V160_HF001 M580 Safety
ControlExpert_V160_HF005 BMENOR2200.3
ControlExpert_V160_HF007 HALT removing EFB
ControlExpert_V160_HF008 EDS conversion 3 Bytes format
ControlExpert_V160_HF009 ECE V16.0 DTM installation
ControlExpert_V160_HF010 BMXNOC0401 EDS management
ControlExpert_V160_HF011 CE installation issue
ControlExpert_V160_HF012 DFB modification Online and error "E1092" opening STA

New Features and Other Enhancements

Multi-User Functionality with EcoStruxure Control Expert (Topology Manager)

EcoStruxure Control Expert (Topology Manager) v16.1 includes a new *Multi User Functionality* that supports multiple users during offline project development.

Characteristics of this functionality:

- Multiple users can create, modify, or delete different sections, program units, and derived function blocks in the same control project.
- Multiple users can manage tasks for the same control project.
- Multiple users can create variables for the same control project.

- This functionality is applicable to non-safety-related Modicon M580 controllers.
- This functionality works with multi-user projects.
- This functionality is available through an add-on license with EcoStruxure Control Expert (Topology Manager).

Limitations:

- The functionality does not support M580 Safety controllers.
- It is not available with standalone EcoStruxure Control Expert Classic.
- A controller-module connection to multiple users is not possible.
- Multiple users cannot use this functionality to make online or build changes.
- Multiple users cannot modify or delete variables in the same control project.
- Multiple users cannot create, modify, or delete different Event or SR sections in the same control project.

DTM Browser

Copy and Paste for Generic Modbus: A copy-and-paste operation can replicate a DTM that is based on a configured generic Modbus device. Copy requests and their associated input and output bytes and paste the information into a new DTM. The new DTM, therefore, contains the same requests and input and output bytes as the copied DTM.

Limitation: This feature is available for projects created from EcoStruxure Control Expert 16.1 and DTM version 3.20.

New Features

EcoStruxure Control Expert (Topology Manager) v16.1 implements these enhancements:

ID	Description
PLCCE-11246	Support Syslog with Security Editor
PLCCE-10893	ATV DTM management improvement in EcoStruxure Control Expert (Topology Manager)
PLCCE-10887	EcoStruxure Control Expert (Topology Manager) cybersecurity improvement
PLCCE-10070	EcoStruxure Control Expert (Topology Manager) module display refinement
PLCCE-10067	EcoStruxure Control Expert (Topology Manager) user interface improvement
PLCCE-9177	Shortcut for Forcing Variables
PLCCE-8460	Allow customer to upgrade the BMECRA31310(H) without stopping production
PLCCE-8432	SFC readability improvement
PLCCE-7664	LL984 is allowed for M580 low-end controllers
PLCCE-6347	Consistent name of EcoStruxure Control Expert executables
PLCCE-3810	Deliver a .Net demo solution in the UDE directory
PLCCE-2382	Support BMENOR2200H module with front Ethernet ports in EcoStruxure Control Expert (Topology Manager)
PLCCE-926	Support BMEECN0100H module

Mitigated Anomalies

EcoStruxure Control Expert Mitigated Anomalies

This release addresses the following issues:

ID	Description
PEP1108953R PEP1108954R	The following security vulnerability has been addressed in this release: CVE-2024-10083.
PEP1121214R	The following security vulnerability has been addressed in this release: CVE-2024-2658.
PEP1112432R	Attached application returns code generation error on build.
PEP1114695R	Error occurred when performing 'A < B < C + D' in ST section.
PEP1114433R	UMAS connection over HTTPS with BMENUA0100 control port address.
PEP1108012R	15.X, S_NEG_REAL block issue.
PEP1097606R	M580 SV4.20 6040 HALT + EC10 resulted in inoperable equipment.

ID	Description
PEP1108944R	EcoStruxure Control Expert Topology Manager had an initialization issue while logging on domain user.
PEP1102912R	EcoStruxure Control Expert Topology Manager - Incorrect rule applied managing IP of BMENOR220H module.
PEP1086426R	FollowUp-SNMP setting of 140CRA31200 could not be validated on EcoStruxure Control Expert.
PEP1096934R	EC10 on EcoStruxure Control Expert 16 or EcoStruxure Control Expert 15.3 HF6B for 6040.
PEP1096769R	Installation was unsuccessful if Floating License Manager 2.10 was already installed.
PEP1095921R	Installation was unsuccessful if License Manager 2.10 was installed.
PEP1016744R	Rosemount HART DTM adding was unsuccessful (license initialize).
PEP1087003R	TeSys Island Function block generated an error with only 6040 and 5040 controllers.
PEP1087062R	Import was not possible in Functional View in EcoStruxure Control Expert when online.
PEP1030347R	Rendered inoperable during operate D3051 HART DTM.
PEP1090959R	DHCP rolename was an issue with HSBY and AHI/AHO modules.
PEP1087963R	Rebuild all was unsuccessful for "E1092 data types do not match..."
PLCCE-3109 PEP0671736R	New Tool to facilitate security editor policy migration.
PLCCE-7741 PEP1041807R	Attached Concept app was missing logic and DFB after conversion.
PLCCE-4183 PEP1050267R	Topology Manager did not assign ATV to M580 DIO port type.
PLCDTM-1520 PEP1051637R	Duplicated path on EDS file was generated from EcoStruxure Control Expert.
PLCCE-7417 PEP1051584R	BMENUA0100 - READ_NUA_DDT DFB was an issue.
PLCCE-4392 PEP1057660R	Data Editor Variables - Sort "Alias" / "Alias of" column.
PLCCE-4588 PEP1059551R	Issue Error 91 object variable was detected when opening STB through EcoStruxure Control Expert.
PLCDTM-1485 PEP1063433R	EcoStruxure Control Expert initializations exceeded connections to TeSys Island.
PLCCE-7980 PEP1086549R	BYTE_TO_UINT execution error was detected in simulator.
PLCCE-7981 PEP1086668R	Code was not executed correctly in DFB on physical controller.
PLCCE-7982 PEP1088123R	Exporting DTX did not use correct path.
PLCCE-8425 PEP1088961R	Protocols supported and required in the DTM Properties should have been grayed out in Topology Manager Mode.
PLCCE-10066 PEP1094006R	Copy/Pasting SFC Transitions with sections: "Clear all" transition did not work.
PLCDTM-1143 PEP1096926R	Copy/Paste was not supported for Generic Modbus DTM.
PLCDTM-1513 PEP1100132R	IOPL Generation ended with error.
PLCDTM-1488 PEP1109635R	EthernetIP devices could not have same IP under BMENOC03x1.
PLCCE-11326 PEP1110001R	Program Unit (PU) section caused controller to crash and halt.
PLCCE-10101 PEP1110812R	Protected Engineering Link - Popup was not coherent.
PLCCE-12365 PEP1112814R	BMEP584040S SV3.20: management of force bit was incorrect.

ID	Description
PLCCE-11959 PEP1113453R	EcoStruxure Control Expert could not change Action name directly in SFC.
PLCCE-11601 PEP1113752R	DTM Devices updated with DTM Services was lost on Rebuild All .
PLCCE-10809 PEP1113794R	Change Configuration On the Fly (CCOTF) for HART modules was allowed.
PLCCE-13214 PEP1119632R	Animation table - Refresh did not operate correctly.
PLCCE-12675 PEP1121792R	Needed admin right to update DTM catalog.
PLCCE-11208 PEP1124292R	OFS3.63-Client variables were incorrect after adding new Program Unit variables.
PLCCE-12460 PEP1128953R	Security Editor login was not possible.
PLCCE-11327 PEP1131372R	Installation was unsuccessful with the latest Windows Security Patch on VM.
PLCCE-12080 PEP1137592R	DFB animation was unsuccessful on M580 Safety controllers.
PLCCE-11696 PEP1138832R	Add/remove BMENOR2200H - hardware configuration was incorrect.
PLCCE-11856 PEP1143233R	EcoStruxure Control Expert inoperable when doing build all ProLeiT project.
PLCCE-11960 PEP1145273R	DTM Browser sorting translation.
PLCCE-12576 PEP1145912R	BMENUA0100 module could not be removed from network manager.
PLCCE-12081 PEP1152492R	The user should have been informed on a dialog box when trying to delete a step with an Action section.
PLCCE-9867 PEP1108012R	S_NEG_REAL block had an issue.

Known Operational Anomalies

EcoStruxure Control Expert

ID	Description
PEP1068101R	It takes a long time to build an empty application with DTM variable tags BMENOR2200H.
PLCCE-11858	The installation of EcoStruxure Control Expert is not successful owing to License Manager 2.10.0.0.
PLCCE-11890	[TM] Import .ece from older version in 16.1 - Edit EcoStruxure Control Expert and Build is unsuccessful due to Firmware Password.
PLCCE-13019	Safety - CIP devices cannot be configured completely by Toplogy Manager.
PEP1107753R	Cannot edit Ethernet IP configuration for the 140NOC77100.
PLCCE-3810	(Feature related to UDE): Disclaimer: limited tests on this feature (only M580 based) – It is only an example not a TVDA.
PLCCE-6976	While launching CE Classic there is a popup saying "the trial license will expire in 30 days, do you want to launch License Manager? but License Manager becomes inoperable.
PEP115232R	W11 issue with Text Cursor enabled.
PLCCE-13547	Cefsharp library error appears when launching EcoStruxure Control Expert Classic for the first time.

ID	Description
PLCCE-13521	TM crashes when a DTM is selected in the Deployment View and the Build is launched.
PLCCE-13564	Incorrect functioning when configuring digital I/O module (using Device DDT mapping) on remote Quantum drop with M580.

Hardware/Firmware Information V4.30

Hardware/Firmware Information

Version Identification

M580 Standard Controller Firmware V4.30

To help avoid cybersecurity vulnerabilities, use V4.30 version of M580 with the following firmware versions:

Description	Firmware version
BMEP581020, BMEP581020H BMEP582020, BMEP582020H BMEP582040, BMEP582040H BMEP583020 BMEP583040 BMEP584020 BMEP584040 BMEP585040, BMEP585040C BMEP586040, BMEP586040C BMEH582040, BMEH584040, BMEH586040	V4.30
BMENOC0301 / BMENOC0311 communication module	V2.22
BMENOC0321 control network module	V1.10
BMENUA0100 OPC UA module	V2.03.05
BMENOP0300 IEC 61850 communication module	V2.71
BMENOR2200H advanced remote terminal unit (RTU) module	V4.01 (BME), V1.7 (BMX)
BMENOS0300 network option switch module	V1.04
Control Expert	V16.1

BMECRA31310 / BMECRA31310H Redundant Remote I/O Adapter Module

Use BMECRA31310 / BMECRA31310H with the following version of modules:

Description	Firmware version
BMECRA31310 / BMECRA31310H redundant remote I/O adapter module	V1.02
MCSESR redundant switch	V7.1.10
BMENOC0301 / BMENOC0311 communication module	V2.22
BMENOC0321 control network module	V1.10
BMENUA0100 OPC UA module	V2.03.05
BMEAHI0812 analog input HART module BMEAHO0412 analog output HART module	V1.50IR20

Description	Firmware version
BMENOS0300 network option switch module	V1.04
Control Expert	V16.1

New Features

M580 Standard Controller Firmware V4.30

The new features supported in this release are:

- The support of Redundant Remote I/O Adapter Module - BMECRA31310(H).
- The support of Modicon Edge I/O NTS as a third party I/O device. It can be managed using a generic DTM, or dedicated communication function blocks.
- The support of SD card protection, to help prevent loading any application from the SD card that can cause security issues.
- The improvement of diagnostic with the new 0x79 crash code and extended diagnostic crash log.

Limitations

Limitations

Inoperable Equipment

- Do not upgrade to firmware version 4.01 or later of any of the following Modicon M580 commercial references with product version (PV) 3 or earlier:
 - BMEP581020 / BMEP581020H
 - BMEP582020 / BMEP582020H
 - BMEP582040 / BMEP582040H
 - BMEP583020
 - BMEP583040
 - BMEP584020
 - BMEP584040

Any other controllers with a PV 3 are compliant with firmware version 4.x or later.

- If you intend to upgrade the M580 controller with firmware version 4.01 or later and you are using a M580 RTU module, first upgrade the RTU module to firmware version 03.02.02 or later and test your application.
- If you intend to upgrade the M580 controller with firmware version 4.01 or later and you are using a BMENOC0301 or BMENOC0301 or BMENOC0311 module, first upgrade the BMENOC module to firmware version 02.20 or later and test your application.
- If you intend to upgrade the M580 controller with a firmware version 4.01 or later and you are using a BMENOC0321 module, first upgrade the BMENOC0321 module to firmware version 1.09 or later and test your application.

BMECRA31310 / BMECRA31310H Redundant Remote I/O Adapter Module

- M580 Safety controllers do not support BMECRA31310 as redundant remote I/O adapter modules.
- Difference of number of switches between LAN-A & LAN-B must not exceed 16.
- NOS module is not supported behind BMECRA31310 (single and dual).
- DIO cannot be connected on service port of BMECRA31310.
- SNMPV3 does not support confidentiality and integrity.

Mitigated Anomalies

M580 Standard Controller Firmware V4.30

The following table below shows product change requests (PCRs) that have been addressed in the M580 controller firmware V4.30:

Internal reference	Short description
PEP1091582R	BMEH584040-SV4.20: Clock could not be set beyond 2038/03/01
PEP1098223R	The following security vulnerability has been addressed in this release: CVE-2024-11425
PEP1097901R	M580 SW114 was greater than 100 %
PEP1109692R	M580 SV4.20: READ_VAR inoperable until power cycle
PEP1148333R	BMEH58•040 Sv3.22 should have exited the primary state when Comcore became inoperable
PEP1086682R	M580 robustness improvements were made
PEP1113795R	System disconnection when CCOTF was done on PLC5
PEP1073740R	ECE 15.3: CSA error was detected after performing a MOL

Internal reference	Short description
PEP1130792R	BMXERT1604T: There was a time stamping issue with M580 FW4.xx
PEP1071060R	M580 FW4.10 USB connection prioritisation did not exist

Known Operational Anomalies

BMECRA31310 / BMECRA31310H Redundant Remote I/O Adapter Module

In specific conditions in large applications, Control Expert, raises a low memory error and asks you to save, close and reopen the application.

M580 V04.21

Introduction

Firmware version 04.21 is compatible only with the Modicon M580 Safety controllers and inherits all the developments from M580 firmware 3.20 to 4.20, including improvements and limitations.

EcoStruxure Automation Device Maintenance (EADM) is a common utility tool used for updating firmware in many Schneider Electric Industrial Automation products and can be downloaded here: <https://www.se.com/ca/en/download/document/EADM/>

Firmware Version 04.21 Improvements

Firmware Version	Publication Date	Internal Reference	Description
04.21	07/2024	PEP0655210R	New system word %SW176 for the forced discrete bits counting status for program-SAFE variables.
		PEP0658003R	Fix for M580 HSBY Safety which loses CRA Drops on swap from PRIMARY->STANDBY.
		PEP0668333R	Fix for M580 Safety BMENOC0301 -MBP_MSTR with incorrect value.
		PEP1035307R	Fix for BMEP586040S which stops responding after multiple online changes.
		PEP1041757R	The following security vulnerability has been addressed in this release CVE-2022-45789
		PEP1041761R	The following security vulnerability has been addressed in this release: CVE-2022-45788
		PEP1057000R	The following security vulnerability has been addressed in this release: CVE-2022-37300
		PEP1057004R	The following security vulnerabilities have been addressed in this release: - CVE-2020-35198 - CVE-2020-28895
		PEP1057005R	The following security vulnerability has been addressed in this release: CVE-2022-37301
		PEP1057020R	The following security vulnerability has been addressed in this release: CVE-2021-22779
		PEP1057021R	The following security vulnerability has been addressed in this release: CVE-2021-22786
		PEP1057022R	The following security vulnerabilities have been addressed in this release: CVE-2019-6841

Firmware Version	Publication Date	Internal Reference	Description
			- CVE-2019-6842 - CVE-2019-6843 - CVE-2019-6844 - CVE-2019-6846 - CVE-2019-6847
		PEP1057023R	The following security vulnerability has been addressed in this release: CVE-2023-5736
		PEP1057024R	The following security vulnerability has been addressed in this release: CVE-2023-6408
		PEP1057025R	The following security vulnerabilities have been addressed in this release: - CVE-2018-7240 - CVE-2018-7241 - CVE-2018-7242
		PEP1057026R	The following security vulnerabilities have been addressed in this release: - CVE-2023-25620 - CVE-2023-25619
		PEP1057027R	The following security vulnerabilities have been addressed in this release: - CVE-2023-25620 - CVE-2023-25619
		PEP1057620R	Fix for BMEP582040S which stops responding on startup with automatic start in RUN.
		PEP1060889R	The following security vulnerabilities have been addressed in this release: - CVE-2023-0286 - CVE-2022-4304 - CVE-2023-0215 - CVE-2022-4450
		PEP1098224R	The following security vulnerability has been addressed in this release: CWE-131: Incorrect Calculation of Buffer Size, a vulnerability on the web server has been fixed.
		PEP1057001R	The following security vulnerabilities have been addressed in this release: - CVE-2021-22789 - CVE-2021-22790 - CVE-2021-22791 - CVE-2021-22792
		N.A.	The execution time of the BMEP582040S and BMEH582040S controllers has been improved by 400%, at the same level as the BMEP584040S and BMEH584040S.

M580 V04.20

Limitations

EADM is a common utility tool used for updating firmware in many Schneider Electric Industrial Automation products and can be downloaded here:
<https://www.se.com/ca/en/download/document/EADM/>

Inoperable Equipment

- Do not upgrade with firmware version 4.01 or later any of the following Modicon M580 commercial references with a product version (PV) 3 or earlier: BMEP581020(H), BMEP582020(H), BMEP582040(H), BMEP583020, BMEP583040, BMEP584020, BMEP584040.

- If you intend to upgrade the M580 controller with a firmware version 4.01 or later, and you are using a Modicon M580 RTU module in association, first upgrade the RTU module to firmware version 03.02.02 or later and test your application.
- If you intend to upgrade the M580 controller with a firmware version 4.01 or later, and you are using a Modicon BMENOC0301 or BMENOC0311 module in association, first upgrade the BMENOC module to firmware version 02.20 or later and test your application.
- If you intend to upgrade the M580 controller with a firmware version equal to or greater than 4.01, and you are using a Modicon BMENOC0321 module in association, first upgrade the BMENOC module to firmware version 1.09 or later and test your application.

NOTE: Product version (PV) can be found on the product label. Current software version (firmware version) running on the product can only be found in connected mode with: *EcoStruxure Automation Device Maintenance* (EADM) or *EcoStruxure Control Expert*.

NOTE:

- A controller updated with software version (firmware version) 4.01 or later can be downgraded to earlier firmware versions using a specific downgrade tool. Contact your local Schneider Electric service representative.
- Updating from firmware version 3.20 or earlier to firmware version 4.01 or later must be done following a two-steps specific procedure. For instructions, refer to the [M580 Firmware Installation Guide](#).
- Unity Loader cannot be used when using firmware version 4.01 or later. Instead, use of the EADM tool version 3 or later is necessary.
- Controllers with firmware version 4.01 and later can execute applications generated by earlier EcoStruxure Control Expert versions using earlier application versions. No modification or rebuild is needed.

Firmware Version 04.20 Improvements

Firmware Version	Publication Date	Internal Reference	Description
04.20	11/2023	N.A.	Improvement of Cybersecurity: New Secure Engineering link modes. Support of HTTPS communication between M580 controller and Control Expert.
		N.A.	Improvement of SYSLOG events recovery: The SYSLOG events are stored in the M580 non-volatile memory, they can be recovered and downloaded from the M580 webpage using an HTTPS connection.
		PEP0588260R PEP0588280R PEP1056784R	The following security vulnerability has been addressed in this release: • CWE-924: Improper Enforcement of Message Integrity During Transmission in a Communication Channel
		PEP0649547R	Bug fix of BMEP584040 I/O Scanner control bit (DIO_CTRL) that had been working incorrectly by resetting the bit repeatedly between 0 and 1 without effect.
		PEP1035211R	The following security vulnerability has been addressed in this release: • CVE-2023-6408
		PEP1042827R	New Cybersecurity M580 V04.20 feature enabling external access to SYSLOG from web pages.
		PEP1052186R	The following security vulnerability has been addressed in this release: • CVE-2018-7855
		PEP1056782R	The following security vulnerability has been addressed in this release: • CVE-2022-45789
		PEP1058570R	Bug fix of Control Expert V15.2 & M580 Hot Standby v3.20, which were non-operational on application download.
		PEP1060888R	The following third-party components have been updated to address cybersecurity vulnerabilities. OpenSSL: • CVE-2023-0286 • CVE-2022-4304 • CVE-2023-0215 • CVE-2022-4450
		PEP1069770R	Bug fix of M580 V04.10 unable to connect via TFTP to EF OPCUA client

NOTE:

- EcoStruxure Control Expert V16.0 is required to use the new features of M580 controller Firmware version 4.20 (i.e., select M580 controller V04.20 as the application level).
- Firmware version 4.20 is compatible only with the Modicon M580 Standard offers (Standalone and Hot Standby controllers). The Modicon M580 Safety offer is not supported by this release.

V04.20 M580 Controller Firmware New Features

V04.20 new feature include:

- Secure Communication Drivers
- Engineering Link Modes
- Security Editor Whitelist, page 35
- Security Editor Password, page 35
- SYSLOG Events Recovery, page 35

Secure Communication Drivers

HTTPS and **HTTPS via USB** are new drivers that support secure engineering links.

NOTE: For clarity, two pre-existing drivers have been renamed:

- TCPIP is now *Modbus TCP*
- USB is now *Modbus TCP via USB*

Engineering Link Modes

Depending on the level of targeted cybersecurity, you can select one of the following three **Engineering Link Modes**:

- **Full Access:**

The controller behaves as in previous firmware versions. Secure and non-secure communications are accepted.

- For Control Expert communication, the controller accepts the non-secure drivers **Modbus TCP** and **Modbus TCP via USB** or secure drivers **HTTPS** and **HTTPS via USB**.
- For SCADA or controller to controller communication, **Modbus TCP** (port 502) is accepted.

- **Filtered (default):**

A hybrid mode you can use to apply cybersecurity on the engineering link, and non-secure connectivity on links to SCADA or other controllers.

- For Control Expert communication, the controller accepts the secure drivers **HTTPS** and **HTTPS via USB**.
- For SCADA or controller to controller communication, **Modbus TCP** (port 502) or **UMAS** (OFS) are accepted.

NOTE: In **Filtered** mode, the controller accepts the unsecure drivers **Modbus TCP** and **Modbus TCP via USB** but only with **Connection mode** set to **monitoring** in the options of the project. Monitoring mode is a read only mode, where it is not possible to download an application to the controller or stop the controller.

- **Enforced:**

This mode provides the highest level of security. Only secure protocols are accepted by the controller:

- For Control Expert communication, the controller accepts only the secure drivers **HTTPS** and **HTTPS via USB**.
- For SCADA or controller to controller communication, **Modbus TCP** (port 502) or **UMAS** (OFS) are **NOT** accepted.

Security Editor Whitelist

A **Certificate Whitelist** is introduced to the **Security Editor** and includes the following features:

- **Add:** Use this command to configure the IP address of the M580 controller on which you want to create a secure engineering link.
- **Get Certificate:** Use this command to retrieve HTTPS certificate from the device.
- A dialog where you can trust the certificate and add it to Windows certificate store.
- **View Certificate:** Use this command to display and verify the certificate.
- **Remove:** Use this command to remove a certificate from the whitelist.

Security Editor Password

A password expiration date can be configured in **Security Editor**.

The SecurityAdmin user now must configure a password at installation if security is enabled.

SYSLOG Events Recovery

SYSLOG events are stored in the M580 controller in non-volatile memory. They can be recovered and downloaded from the M580 web page using an HTTPS connection.

M580 V04.10

Firmware Version 04.10 Improvements

Firmware Version	Publication Date	Internal Reference	Description
04.10	02/2023	PEP0537170R	Improve M580 SD card diagnostic in %SW97 for application mismatch
		PEP0664538R	Improve M580 SD card diagnostic in %SW97 for missing SD card
		PEP1014002R	Fix M580 Forced bit counter decrement in %SW102 and %SW108 when over limit of 1024
		PEP0650241R	Add system time catchup bit status %SW73.4 in Time Stamping feature
		PEP1030630R	Improvement of robustness for some Modbus commands
		PEP1030267R VMT-7905	Improvement of cyber security protection (CVE-2022-45788)
		PEP1031147R	Restriction of "Initialize %MWi on cold start" option to not reset %SW138 and %SW141
		PEP1044835R	Fix a regression since 4.02 affecting reconfiguration of submodules with FDR and FTP
		PEP0541853R	Improvement of M580 diagnostics in DiagFiles
		PEP1051545R / PEP1051547R VMT-9330 / VMT-9331	Improvement of cyber security linked to UMAS protocol
		NA	M580 controller start-up time with firmware version 4.10 and later is increased by 50% compared to firmware version 3.20.

NOTE:

- Firmware version 4.10 replaces version 4.02, which is no longer available. EcoStruxure Automation Device Maintenance (EADM) version V3.1.147 or later is required to perform the firmware upgrade operation.
- EcoStruxure Control Expert V15.3 is required to use the new features introduced with the M580 controller Firmware version 4.10 (select M580 controller V4.10 as application level).
- Firmware version 4.10 is compatible only with the Modicon M580 Standard offer (Standalone and Hot Standby). The Modicon M580 Safety offer is not supported.

M580 V04.02

Firmware Version 04.02 Improvements

Firmware Version	Publication Date	Internal Reference	Description
04.02	09/2022	PEP1036111R	Fix a regression since 4.01. When using Modbus FC 15 to write multiple coils to M580 controller the result of the operation is not predictable.
		N.A.	Fix a regression since 4.01. It is not possible to update firmware of X-bus only in-Rack modules through the controller backplane: • X-bus modules with Ethernet front port access are not impacted. • For BMXNOM0200 module firmware update, M580 rack power supply must be reset manually after the operation.

NOTE:

- Firmware version 4.02 replaces version 4.01, which is no longer available. Use version 4.02 or later in place of version 4.01.
- EcoStruxure Control Expert V15.2 is required to use the new features introduced with M580 controller firmware version 4.01 (select M580 controller V4.00 as application level).
- Firmware version 4.02 is compatible only with the Modicon M580 Standard offer (Standalone and Hot Standby). The Modicon M580 Safety offer is not supported.

M580 V04.01

Firmware Version 04.01 Improvements

Firmware Version	Publication Date	Internal Reference	Description
04.01	07/2022	N.A.	Improvement of cybersecurity protection: secure firmware update with EcoStruxure Automation Device Maintenance
		N.A.	Improvement of cybersecurity protection: HTTPS for Data Storage, webpage access and firmware update (Self-Signed certificates)
		N.A.	Implementation of a new feature: SNMPv 3 (NoAuthNoPriv only)
		N.A.	Implementation of a new feature: NTPv4 client/server and NTPv4 server only for better time precision and resiliency
		N.A.	Implementation of a new feature OPC UA Client as Elementary Function Blocks (EF) compliant to PLCopen Standard
		N.A.	Improvement of event log: update SYSLOG version RFC 3164 to RFC 5424
		N.A.	Implementation of a new feature: support BMENUA0100(H) Firmware version 2.01 for customized unique role name

Firmware Version	Publication Date	Internal Reference	Description
		N.A.	Implementation of a new feature: new Controller Device DDT type "T_BMEP58_ECPU_EXT2" including NTPv4 diagnostics
		N.A.	Removed Controller Device DDT type "T_BMEP58_ECPUPRP_EXT" (only for application version >4.00)
		N.A.	Removed HTTP protocol
		N.A.	Removed FTP protocol for Data Storage and firmware upload
		N.A.	Removed: SNTP (only for application version >4.00)
		PEP0677514R VMT-4976	Improvement of cyber security protection. M580_CE v15 SP1 Denial of Service
		PEP0676721R VMT-4978	Improvement of cyber security protection. M580 Denial of Service
04.01	07/2022	PEP0670929R	Improvement of cyber security protection. M580 BadAlloc Multiple RTOS vulnerabilities Refer to CVE-2020-35198 - CVE-2020-28895 for more details
		PEP0660997R VMT-4659	Improvement of cyber security protection. M580_Integer Underflow Denial of Service
		PEP0636127R VMT-3285	Improvement of cyber security protection. M580 Denial of Service Refer to CVE-2021-22779 for more details
		PEP0635317R PEP0604347R VMT-2983	Improvement of cyber security protection. M580 information disclosure Refer to CVE-2021-22786 for more details
		PEP1005826R VMT-5538	Improvement of cyber security protection M580 XSS vulnerabilities contained in JQuery Refer to CVE-2020-11022 and CVE-2020-11023 for more details
		PEP0591421R	Improvement: new SYSLOG event, Hot Standby system states (Primary/ Standby/Wait)
		PEP0667293R	Fix: M580 controller receiving zone disorder for multiple READ_VAR calling
		N.A.	Increases robustness of controller: new diagnostic mechanism (history traceability) with essential system word information for better support purpose from Schneider Electric
		PEP0647567R	Fix: Cold start (instead of warm start) on power up issue with BMEP5820X0 PV15 FW3.20
		PEP0667554R	Fix: M580 Hot Standby losing CRA Drops on swap from Prim->Stby when performing online change on an application using more than 70 EDS files.
		PEP0669774R	Fix: a M580 DIO_CTRL bit not working as expected for the Modbus TCP IO Scanner
		N.A.	Fix: After a Power ON, the standby has MS and NS LED steady red
		PEP1013234R	Fix: %SW49 freezes and was not updated as expected.
04.01	07/2022	N.A.	Fix: String_to_real conversion when 'generate with LD link animation' option unchecked
		PEP1009430R	Fix regression from 2.90 to 3.20 in BMEP582040 - IO SCANNING, missing devices in the IO scanner
		N.A.	Fix: Write Only IO Scanning function between 2 NOCs giving incorrect status in DDT SCANNER_OK variable and DIO_Health[x] variable
		N.A.	Fix regression from 3.10 to 3.20 in BMEH6040, BMENUA0100 is abnormally disconnected after each swap by application.
		N.A.	Fix: Drop loss after drop power cycle
		PEP1025228R	Fix: M580 - crashes in 0xEC10 due to EtherNet/IP stack

NOTE:

- Firmware version 4.01 replaces version 3.30, which is no longer available for non-safety-related controllers. Use version 4.01 or later in place of version 3.30.
- EcoStruxure Control Expert V15.3 is required to use the new features introduced with M580 controller firmware version 4.01 (select M580 controller V4.00 as application level).
- Firmware version 4.01 is compatible only with the Modicon M580 Standard offer (Standalone and Hot Standby). The Modicon M580 Safety offer is not supported.

M580 V03.30

Firmware Version 03.30 Improvements

Firmware Version	Publication Date	Internal Reference	Description
03.30	12/2021	N.A.	Improvement: support of the Modicon M580 Safety commercial reference BMEP586040S

NOTE: Firmware version 3.30 is only available for safety processor BMEP586040S.

M580 V03.22

Firmware Version 03.22 Improvements

Firmware Version	Publication Date	Internal Reference	Description
03.22	05/2022	N.A.	Manufacturing tests support for new hardware PV25.
		PEP0647567R	Fix unexpected "Cold start" at power up issue for all M580 controllers.

NOTE:

- Firmware version 3.22 is not available in se.com.
- In Modicon M580 Hot-Standby systems, level of Firmware version in both controller "A" and "B" must be equal. Controller PV 25 with Firmware version 3.22 can be downgraded to earlier software versions (Firmware version).

Firmware Version 03.22 Limitations

M580 Safety controllers are not supported.

M580 V03.20

Firmware Version 03.20 Improvements

Firmware Version	Publication Date	Internal Reference	Description
03.20	11/2020	PEP0531707R	Implementation of a new feature: data memory protect settings in the variable editors
		PEP0546432R VMT-1385	Improvement of cyber security protection. Refer to CVE-2019-6848 for more details
		PEP0546433R VMT-1386	Improvement of cyber security protection. Refer to CVE-2019-6849 for more details
		PEP0575205R	Improvement of cyber security Increases robustness of controller on access to the webserver
		PEP0536845R	Fix a SNMP answer data regression since 2.80
		PEP0574971R VMT-1950	Resolved a remote Denial Of Service while using a specific Python script; controller went into an stop managed exception. refer to CVE-2020-7543 for more details
		PEP0573933R	Increases robustness of controller communication EF on big number of simultaneous connections.
		N.A.	CFB: error when reading a TOD variable (Error when retrieving local variable type despite variable well declared)
		N.A.	Increases robustness of controller for SFC section on warmstart
		PEP0569506R / VMT-1705	Corrected a stop managed exception vulnerability of the controller caused by a specific UMAS command. Refer to CVE-2020-7537 for further details.
		N.A.	Increases robustness of Hot Standby system, in case of very long task period (to prevent de-synchronization)
		N.A.	Improvement of the reliability of the controller workload diagnostic value
		PEP0558372R	Increases robustness of controller against memory leak issue, on some types of LLDP frames occurrence.
03.20	11/2020	PEP0556173R	Increases robustness of controller against removal of a device accessible through a gateway.
		PEP0591264R	Removed diagviewer message "HSBY: Degraded hsby data transfer"
		PEP0539539R	Implementation of the "monotonic time" black channel for safety systems.
		PEP0593227R	Remove the 6 extension racks unexpected limitation.
		PEP0558717R	Correction to align the SYSLOG events messages text with online documentation.
		N.A.	Enhancement of the performance when in parallel branches in SFC language.
		N.A.	Fix an incorrect display of the links in FBD section on the program viewer using the webserver.
		PEP0572529R	Improvement of cyber security protection on webserver
		N.A.	Implement new version of safety coprocessor.
		N.A.	Restored the error reporting service of the send_email function block.
		PEP0547752R	Fix a Hot Standby device_ddt EIO_ERROR status that was toggling.
		PEP0582003R	Implementation of the capability to recover from a long catchup state without stopping the process
		PEP0547404R	Implementation of the safety monotonic time principle
03.20	11/2020	N.A.	Implementation of a new feature: SFC "final scan"
		PEP0611715R	Improvement of cyber security memory read protection
03.20	11/2020	PEP0537170R	Improvement of controller device DDT about SD Card diagnostics

Firmware Version	Publication Date	Internal Reference	Description
		N.A.	Increases robustness of heavy safety systems (managed exception after few hours running)
		PEP0563955R	Enhancement of the reliability of the Hot Standby device_DDT "SYNC" diagnostic for BMEH586040 controllers.
		PEP0595913R	Fix a NOC disconnection (IP lost) on app transfer following several online modifications
		PEP0531779R	Fix variable initialization issue after init on SFC

M580 V03.10

Firmware Version 03.10 Improvements

Firmware Version	Publication Date	Internal Reference	Description
03.10	11/2019	N.A.	Improvement: support of the CIP Safety protocol for the standalone Safety controllers BMEP582040S and BMEP584040S
		PEP0536229R PEP0536224R PEP0549596R PEP0535816R	Improvement of cyber security protection: Denial of service on invalid inputs on firmware upgrade
		PEP0545693R	Improvement of cyber security protection: Denial of service: Operating System reinforcement
		N.A.	Improvement: optimization of the max start-up delay between wait and run-primary state on Hot Standby controller when no peer controller is connected
		N.A.	Improvement: safety controller NTP time update via BMENOC0301.4 or BMENOC0311.4
		PEP0546973R	Improvement of cyber security protection: Denial of Service on invalid inputs

M580 V02.90

Firmware Version 02.90 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.90	07/2019	PEP0532740R PEP0533497R PEP0448402R PEP0518846R PEP0518847R PEP0518848R PEP0515689R PEP0527486R	Improvement of cyber security protection: Denial of service on invalid inputs
		PEP0532557R	Fixes a byte swap issue following Modbus I/O scanning modification. When the I/O scanner of the controller writes data to any devices, swap of byte might appear in specific conditions. This issue was present on legacy versions.
		PEP0533499R	Improvement of cyber security protection: Unauthenticated write data request
		PEP0435529R	Enhancement: The controller informs the NOR that it's in summer time. %S58.

Firmware Version	Publication Date	Internal Reference	Description
		PEP0454883R	
		PEP0454883R	Adjust the behavior of the controller in case of data checksum error (reboot instead of exception stop).
		PEP0504969R	Harmonizes the behavior of the variables initialization on all controller ranges.
		PEP0535827R	Increases robustness of controller when loading an application level V1.10 in controller with V2.8
02.90	07/2019	N.A.	Improvement of the robustness on swap on Safety Hot Standby controller.
		PEP0527907R	Improves the behavior of I/O scanner lines control bits when the M580 scans a Schneider M221 controller.
		PEP0448852R	Improves the readability of the RIO diagnostics
		PEP0448852R	Improves the robustness of the Standby Safety controller following CCOTF and application transfer from Primary to Standby.
		PEP0530147R	The incorrect cabling on the coax side of the 140CRA31908 was not detected. The fix of this issue requires a 140CRA firmware V2.40 and the OS V2.90
		N.A.	New feature to prevent downgrade firmware. Firmware version < 2.90 in the controllers with PV referenced below.
		PEP0515685R	Improvement of cyber security protection: Denial of service on invalid application transfer
		PEP0530708R N.A.	Improves the robustness following modification online. (when replacing wire between 2 FBs by variable)
		PEP0534509R	Improvement of cyber security protection: Denial of service on HTTP request
		N.A.	Improves the firmware upgrade robustness with Unity Loader
		PEP0532226R	Fixes M580 - %SW87 - the Number of Queries not matching between client and server
		PEP0450104R	Improvement of cyber security protection: Buffer overflow in FTP service
		PEP0426709R	Fixes that backup LED is reported incorrectly in web page.
		PEP0505171R PEP0505170R	Improvement of cyber security protection: Unauthenticated modification of application
		PEP0505165R	Improvement of cyber security protection: Denial of Service on controller reservation
02.90	07/2019	PEP0515694R	Improvement of cyber security protection: Unauthenticated application transfer
		N.A.	Improves robustness during big amount of project downloads
		N.A.	Enriches the event log (SYSLOG protocol) when the firmware of the controller has been upgraded

NOTE: To be able to select the M580 V2.90 controller and its features in Control Expert V14.0 applications, installation of the following hot fix for Control Expert V14.0 is required: "ControlExpert_V140_HF_PMEPXM0100_HF0312169E"

NOTE:

- The following table lists the controller PV references that cannot be downgraded to Firmware versions earlier than V2.90 (due to new hardware). Unity Loader will not perform such a downgrade.
- Controllers with PV later than the ones referenced below need to be upgraded to Firmware version 2.90 or later.
- Like any new firmware, a program generated by versions earlier than V14 of Unity Pro / Control Expert will be accepted.

Commercial Reference	Short Description	New Product Version	New Software Version
BMEH582040	M580 HSBY CPU LEVEL 2 FOR R IO	11	2.90
BMEH582040C	C M580 HSBY CPU LEVEL 2 FOR R IO	10	2.90
BMEH582040K	M580 LEVEL 2 HSBY CPU KIT	10	2.90
BMEH584040	M580 HSBY CPU LEVEL 4 FOR R IO	11	2.90
BMEH584040C	C M580 HSBY CPU LEVEL 4 FOR R IO	10	2.90
BMEH584040K	M580 LEVEL 4 HSBY CPU KIT	10	2.90
BMEH586040	M580 HSBY CPU LEVEL 6 FOR R IO	11	2.90
BMEH586040C	C M580 HSBY CPU LEVEL 6 FOR R IO	10	2.90
BMEP581020	M580 processor level 1 for D IO	14	2.90
BMEP581020H	M580 hardened processor level 1 for D IO	14	2.90
BMEP582020	M580 processor level 2 for D IO	14	2.90
BMEP582020H	M580 hardened processor level 2 for D IO	14	2.90
BMEP582040	M580 processor level 2 for D & R IO	14	2.90
BMEP582040H	M580 hardened processor level 2 for D & R IO	14	2.90
BMEP583020	M580 processor level 3 for D IO	14	2.90
BMEP583040	M580 processor level 3 for D & R IO	15	2.90
BMEP584020	M580 processor level 4 for D IO	15	2.90
BMEP584040	M580 processor level 4for D & R IO	14	2.90
BMEP585040	M580 processor level 5 for R IO	9	2.90
BMEP585040C	C M580 processor level 5 for R IO	8	2.90
BMEP586040	M580 processor level 6 for R IO	8	2.90
BMEP586040C	C M580 processor level 6 for R IO	8	2.90

M580 V02.80

Firmware Version 02.80 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.80	02/2019	PEP0477261R	LED ERR blinks in storm condition
		PEP0448055R	Controller Device DDT Network Health bit now returns to 1 when issue of Storm/Network disappears
		PEP0481942R	BME*58*0*0 controllers do not lose anymore I/O scanning tick
		PEP0437710R	BME*58*0*0 controllers - enable CIP requests when sender / receiver is a controller
		PEP0472830R PEP0475431R PEP0441086R	Improvement of cyber security protection.

Firmware Version	Publication Date	Internal Reference	Description
		PEP0433539R PEP0456402R	
		PEP0478160R	Prevent a controller firmware to be loaded in a BMXNOR module (destructive)
		PEP0423915R	New feature: force eRIO drops outputs to fallback state (like %S9 for local I/Os)
		PEP0423150R	Diagnostic Viewer improvement
		PEP0495030R	Improvement of the safe communication avoiding I/O fallbacks
		N.A.	Improvement of the safe communication avoiding I/O fallbacks on %SW128 usage
		N.A.	Avoid having a possible Safe task Halt (%SW125=5AF3) following an Init safe
		N.A.	Improvement of the startup sequence if the Hot Standby link is not healthy (damaged, broken or unplugged...): if controller B is controlling the I/Os (Primary), then at startup, controller A might take the Primary role with a NULL context instead of starting in Standby mode.
		PEP0496873R	Improvement of the startup sequence with "auto start in run" and reset from the power supply, to avoid a possible 3 red LEDs managed exception.
		PEP0500049R	Correction of a network redundancy diagnostic issue (in the controller DDDT) when the controller is connected to an STB DIO loop.

NOTE: For Firmware version 2.80 and later, the Unity Pro offer is re-named EcoStruxure Control Expert.

M580 V02.70

Firmware Version 02.70 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.70	07/2018	PE-P0300614R	New feature: manage time stamped events on user defined trigger (external sources such as power breaker...)
		PE-P0337045R	Addition of 2 diagnostic messages in the primary diagnostic viewer concerning counterpart controller: "becomes standby" & "no more standby"
		PE-P0411281R	Improve SD Card driver robustness
		PE-P0439440R	Enhance cybersecurity features regarding Run/Stop input and reservation mechanism management
		PE-P0440866R	Enhance cybersecurity features regarding buffer overflow in TFTP service
		PE-P0441146R	Enhance cybersecurity coding rules on instruction "STRNCPY"
		PE-P0441227R	Enhance cybersecurity coding rules for Software Development Lifecycle
		PE-P0447659R	Enhance cybersecurity regarding controller memory robustness
		PE-P0329819R	Enhance "READ VAR" robustness against multiple fast disconnection / reconnections of Ethernet cable on NOC module
		PE-P0434129R	Improve NTP service to fix the "RTC = 2085+" issue
		PE-P0471161R	When using NTP service, the controller now displays correct information in the % SW53
		PE-P0434129R	When using NTP service, the controller now always keeps RTC updated on power cycle
		PE-P0432934R	Enhance robustness regarding FTP access to SD card (could lead to HALT)

Firmware Version	Publication Date	Internal Reference	Description
		PE-P0439586R	Enhance robustness regarding Modbus server on reception of partial request
		PE-P0439147R	Enhance memory robustness when Magelis HMI configured by Vijeo Designer writes to unlocated variable
		PE-P0428446R	Correct IP address assignment to a BMEAH10812 after a controller power cycle if one or both of the ETH ports on the controller are disabled
		PE-P0461343R PE-P0460854R	Correct FDR synchronization on Hot Standby controller switchover: could lead to Hot Standby synchronization status to "OFF", PMESWT0100 not restarting after controller switchover

M580 V02.60

Firmware Version 02.60 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.60	05/2018	N.A.	Improvement: support of the reference BMEP582040S

NOTE:

- Firmware version 2.60 is only available for safety processors BMEP584040S.
- Downgrading the BMEP584040S can only be executed by Schneider Electric support services.

NOTICE

INOPERABLE EQUIPMENT

Do not downgrade a BMEP584040S to the Firmware version 2.40.

Failure to follow these instructions can result in equipment damage.

M580 V02.50

Firmware Version 02.50 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.50	04/2018	PEP0314683R	Correction of a problem related to frozen variables that might happened after a SFC initialization in seldom cases
		PEP0428256R	Internal Modbus server robustness enhancement against malformed Frame
		PEP0412883R	ECC activation (Error Correcting Code) – see notes
		PEP0422526R	Fix of i/o scan that didn't work due to an RST_ACQ
		PEP0431488R	Internal HTTP server robustness enhancement against malformed Frame
		PEP0419392R	Restore SYSLOG function that was not available anymore since v2.30
		PEP0434189R	Increase of backup application speed
		N.A.	Update processor settings based on the latest manufacturer recommendations

Firmware Version	Publication Date	Internal Reference	Description
		N.A.	Enrich the diagnostic file information to ease and make more efficient problem resolution by R&D
		N.A.	Fixes seldom "3 red LEDs" behavior on rack reset (CPS button)

NOTE: An Error Correcting Code mechanism improves the robustness of the controller against memory bit flips (soft errors) during its lifetime. This feature allows the controller to reach a level of robustness that exceeds the quality standard and might also impact the cycle time of the controller. Ensure that the application cycle time after upgrade conforms with application requirements.

NOTICE

INOPERABLE EQUIPMENT

Do not power off the controller when upgrading the controller to 2.50 or later from an earlier version (or vice versa).

Failure to follow these instructions can result in equipment damage.

M580 V02.41

Firmware Version 02.41 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.41	10/2017	N.A.	Improvement: support of the CCOTF (Configuration Changes On The Fly) function in S908 drops behind a 140CRA31908. The minimum requirements for this function are: - Unity Pro v12.0 Hot Fix or Unity Pro v13.1 or later (Unity Pro v13 does not support CCOTF on S908) 140CRA31908 FW version 2.30 or later 140CRP93xxx FW version 2.10 or later 140CRA93xxx FW version 2.03 or later - BME584040 or BMEx585040 or BMEx586040 FW version 2.41 or later
		PE-P0358607R	Improve robustness on power cycle when tasks cycle periods are close to 1ms
		PE-P0423246R	Improve the robustness of cancelling a communication function block when used in a FAST task. Reminder: avoid using communication function block in FAST tasks.
		PE-P0341973R	Improve robustness of the system when 2 breakpoints are used consecutively within the same ST section
		PE-P0418125R	Evolution of "device DDT" mode behavior, so that the I/O power supply validity is evaluated before the logic (like in "topological" mode).
		PE-P0391470R	Fixes the incorrect information displayed in the webpage concerning the DHCP feature: even if enabled, the webpage was displaying it disabled.
		PE-P0314563R	Prevent the system to go to HALT when large number of communication function blocks are used (80 or more per cycle) and when the execution cycle duration is close to the configured period.
		PE-P0358247R	Optimize the performances when %SW90 is used to expand the default number of communication requests possible per cycle
		PE-P0427510R	Avoid a rare situation where the controller might go to the NO CONF state upon power cycle in case of very large application (memory close to be full)
		PE-P0428228R	Robustness improvement of the communication system in case of heavy loads

NOTE: Firmware version 2.41 is available only for processors level 40 and later. The impact of performances introduced in v2.30 has been resolved and is back to normal.

M580 V02.30

Firmware Version 02.30 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.30	04/2017	PEP0348778-R	Improve the robustness of the redundant system to avoid a very seldom case where the RIO bumped on 1 cycle after a controller switchover triggered by a complete loss of visibility the RIO network by the primary (both the 2 controller ETH ports disconnected)
		PEP0348925-R	Prevent any RIO drop disconnection in rare cases of a misformed DHCP telegram
		PEP0333697-R	Change the behavior of the NTP management in order to avoid the system time to shift one hour less when BMXNOR0200H is set as NTP client.
		PEP0337384-R	Improve robustness on proprietary FC90 Modbus server in controller
		PEP0339111-R	Implement a new algorithm against TCP sequence number vulnerability giving now unpredictable random TCP sequence numbers
		PEP0348361-R	Change the behavior of the SCHEDULE function block to be aligned with the user documentation: Sunday was assign to bit 7 in WEEK instead of 0
		PEP0350099-R	Improve SYSLOG system where some events described in user manual were not recorded (Application and configuration upload / download)
		PEP0358247-R	Improve robustness of the internal communication system to avoid it being overloaded by too many requests that resulted into diminished communication performances
		PEP0387751-R	Improve robustness of the system against very seldom cases where specific DTM files loaded into the controller lead to a controlled stop unexpectedly.
		UNI-TY00081595	Increase robustness of the system when sending communication FC90 requests via WRITE_CMD_MX that could lead to a controlled stop unexpectedly
		UNI-TY00083596	Increase the robustness of the web server (rack viewer part) to avoid, in very seldom case, to trigger a controlled stop of the controller unexpectedly
		UNI-TY00084328	Increase the robustness of the redundant system related to Ethernet IP scanner & adapter services that might stop after intensive controller swaps
		UNI-TY00084413	Fix a seldom behavior in the firmware download processing that could lead to the following error message "Flash upgrade error: S_False"
		UNI-TY00084448	Fix a very seldom case of system-controlled stop (managed exception state EC10) when downloading a new firmware in the controller
		UNI-TY00084826	Fix a seldom issue that lead to a unexpected state in the module re-configuration after a hot swap due to high frequency of explicit communication EF activation (READ_VAR, WRITE_VAR...) – typically less than 50ms.

NOTE: Firmware version 2.30 is available only for processors level 40 and later. It may impact performances under specific operating conditions (up to +30% of scan time measured) due to enhancements concerning operating system cybersecurity.

After updating the processor version from an existing application, check if this impact appears and study the potential consequences in the system.

M580 V02.20

Firmware Version 02.20 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.20	09/2016	N.A.	Fix a communication server issue when many communication EFs are started at the same time, could lead to error code 7.

Firmware Version	Publication Date	Internal Reference	Description
		N.A.	Fix a communication EF operating mode issue in redundant configuration: Controller waits now until its IP address is correctly set after a controller swap (Hot Standby) before executing communication EF. Incorrect IP address could previously be used by Modbus EF during first Mast cycle after a swap that leads to communication errors.
		N.A.	Improvement: Enhance diagnostic for redundant system: %SW61.5 support to get access by program to the information of controller A and controller B
		N.A.	Fix a real time issue on Ethernet IP system when processing arpResolv request: task could be interrupted during up to 600ms, that could lead to a bump on CRA.
		N.A.	Fix a seldom issue that lead to a controller stop (error code EC04) after around 20 000 swaps on redundant system. (robustness of tDiagMgrPoll system task).
		N.A.	Fix a seldom issue that lead to a controller stop (error code EC04) after application swaps on redundant system. (robustness of tLLDP system task).
		N.A.	Improvement: Enhance diagnostic in case of unexpected system stop thank to a new file /usr/diag/crash.txt generated. It includes the complete VxWorks call stack of the erroneous task.
		N.A.	Fix an issue on software upload when password activated.
		PE-P0342179R	Fix a robustness issue that could lead to a controlled stop of the controller after receiving PTP Ethernet packets.
		PE-P0343987R	Fix an issue on %S94 operating mode that caused the BMENOC falling in "No Conf" state.
		PE-P0328060R	Improvement: Enhance application upload operating mode to block the upload when controller is not reserved to increase the security.
		UNI-T-Y00079914	Fix an issue on SET_FILE_ATTRIBUTES EF that didn't change the file attributes successfully on M580.
		UNI-T-Y00080213	Fix a diagnostic issue on RIO DDT heartbeat (trigger too sensible)
		UNI-T-Y00081354	Fix an issue on the redundant M580 controller to make the redundant link more robust to avoid seldom cases of controller B in "Wait" state after several power cuts
		UNI-T-Y00082078	Fix an issue regarding auto-negotiation feature of the wired Hot Standby high speed link.
		UNI-T-Y00082487	Fix an issue that leads to system stop (error code EC10) of redundant M580 controller when performing operating modes on both %S94 and %S66
		UNI-T-Y00082337	Fix an issue that leads to a controller stop (root cause was a watchdog overflow on EtherNet/IP) when disconnecting the Ethernet link connected with many scanned devices
		UNI-T-Y00082350	Fix an issue that leads to a controller stop (root cause was a watchdog overflow on EIP - %SW124=0x001F) when controller alternative power cycles
		N.A.	Fix an issue on the SFP after restarting the system that could lead to have a Hot Standby Link Down.
		N.A.	Improvement of robustness on hardware watchdog by changing internal system timeout values of MAC2.

M580 V02.13

Firmware Version 02.13 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.13	09/2016	PEP0333578R	Fix the issue introduced with v2.12 where the controller does not boot after power cycle

M580 V02.12

Firmware Version 02.12 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.12	04/2016	PEP0314608R	Improvement: change the management of closing TCP connection (to be aligned as M340)
		N.A.	Improvement: miscellaneous robustness improvements
		N.A.	Improvement: support BMENOC IO Scanning upgrade (from 1.8KW to 3.7 KW)
		N.A.	Improvement: support of the Redundant Power Supplies (BMXCPS4002) advanced diagnostic function blocks
		N.A.	Improvement: support of the Global Data Module (NGD)
		PEP0309455R	Fix the 10 years offset issue if time reference for NTP is coming from BMXNOR0200
		PEP0286728R	Fix the incorrect display in millisecond of value coming from R_NTPC() function.
		PEP0286728R	Fix the arithmetic error incorrectly generated when using FFB R_N NTPC function block
		PEP0328302R	Fix the offset issue when M580 answering to Modbus FC02 and FC04 requests from SCADA (same mapping than Quantum now)
		PRB 192406	(Hot Standby only): Fix the incorrect behavior of remote IO frozen if remaining Hot Standby controller goes into HALT state
		PEP0322001R	Fix the incorrect behavior of the %S9 not working properly at first controller cycle

NOTE: Firmware version 2.12 is no longer available. Use version 2.13 or later in its place.

M580 V02.10

Firmware Version 02.10 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.10	01/2016	PEP0299575R	Fixed an alignment issue in IO Scanner when a sequence of specific manipulations is done related to adding / modifying and removing line upon several build
		PEP0287801R	Fixed potential loss of signature of an SD Card upon power cycle
		PEP0311101R	Improvement: animation enabled on function REF_TO_ANYBOOL when mapped on extracted bit
		UNITY00079055	Improvement of data_exch CIP address input parameter in order to avoid having to write it in the DFB at each cycle.
		UNITY00078119 UNITY00078306 UNITY00076741 UNITY00076742	Improvement of cybersecurity robustness against: - Periodic configuration change at each cycle using ETH_PORT_CTRL block (ex: enable / disable FTP) - FTP session still active when FTP is disabled using ETH_PORT_CTRL block - Controller SYSLOG events recording improvement in case of FW update or controller reboot
		UNITY00078670	Fixed EIP communication issues between M580 and M340 BMXNOC0401 in Ethernet / IP (it was OK for Modbus TCP)
		N.A.	Improvement: support of State RAM for BMEP584040

Firmware Version	Publication Date	Internal Reference	Description
		N.A.	Improvement: support of Quantum Ethernet drops (140CRA31200) for BMEP584040
		N.A.	Improvement: support of some Quantum function blocks for BMEP584040
		N.A.	Improvement: support of Rack Viewer for BMEP584040
		N.A.	Improvement: All controllers: support of Redundant Power Supplies BXCPS4002 (status and function blocks)

NOTE: Firmware version 2.10 does not support, and cannot be use on, M580 Hot Standby controllers (BME H 58xxxx).

M580 V02.01

Firmware Version 02.01 Improvements

Firmware Version	Publication Date	Internal Reference	Description
02.01	07/2015	N.A.	Scanner controller DDDT evolution to simplify user interface (new health bit and control bit per device...)
		N.A.	Numbering schema change: Device ID, Connection ID, Object ID, Compatibility to simplify user interface
		N.A.	ANYBOOL support for online animation
		N.A.	Time stamping support for local variables of the controller
		N.A.	Enhance cybersecurity features: Enable/Disable unused services, support EtherNet/IP, DHCP, BOOTP services, Hardening Access Control (ACL), Disable FTP on Ethernet when in NOCONF mode, Event Logging
		N.A.	Device Integration: support of 'R' Ready devices
		N.A.	Support of CCOTF on Local IO
		PEP0293564R	Fix a potential issue where an undesirable output was one during the first controller cycle after start-up
		PEP0291328R	When the controller is HALTed, the DIO outputs keep the last values -> the fix is to stop the IO scanner to activate the fallback values
		PEP0281260R	No Ethernet IP connection (with drive Danfoss FC102)
		PEP0250301R	Enhance DIO management for class 1 CIP connections (controller DIO connection internal time-outs)
		PEP0275023R	FTP password for firmware upload must be configurable
		PEP0280264R	DEVICE_CNX_CTRL bits management is not correct on M580 controller Device DDT for STB
		PEP0250299R	M580 data Freshness bits management do not behave as described in the documentation
		PEP0275021R	Enhance FTP robustness against too long login names
		PEP0275017R	Increase the reliability of the firmware integrity self-test
		PEP0261831R	Regression vs M340: implement NOR0200 NTP Client feature to update the controller RTC
		PEP0267189R	Enhance existing password protection mechanism to reserve controller

M580 V01.13

Firmware Version 01.13 Improvements

Firmware Version	Publication Date	Internal Reference	Description
01.13		N.A.	Unity Loader being connected to a BMXEHCxxx via a controller, the controller may go in "NO CONF" state OR Module LEDs blinking (RUN, ERR, I/O, DL) OR "system stop" state (%SW124=EC00) during the upgrade of the EHC.
		N.A.	The webpage returns an error after a long period of time with the popup message: "communication timeout occurred, please check the connection"
		N.A.	During CNM Network discovery (Auto Topology using SNMP features) the controller seems not being connected to the correct port
		N.A.	In M580 controller web page, the module name is followed by "Pr"
		PEP0267431R	Controller goes in "system stop" state when an unexpected CIP frame targets the controller (this issue only occurs on BMEP58x020 controller versions)
		PEP0266012R	When connected indirectly to the controller (e.g., through a NOC), the communication to the controller is interrupted while performing heavy actions (like storing actual values in init values)
		PEP0250302R	The Control bits of the DIO scanner stops working after a while
		PEP0250296R	Controller may go in "system stop" state after an Online Modification with High communication traffic
		PEP0273207R	Cybersecurity: impossible to disable the ports 2 and 3 of the controller whereas the option is checked in Unity Pro (only concerns BMEP58x020 controller versions)
		N.A.	Improves Ethernet backplane communication management for large configurations.

M580 V01.04

Firmware Version 01.04 Improvements

Firmware Version	Publication Date	Internal Reference	Description
01.04	12/2014	N.A.	Launch version

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