FREE Studio Plus v1.10.0

Release Notes

Original Instructions

04/2026

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About the Document

Document Scope

This document contains important information about the hardware/firmware/software delivery of product FREE Studio Plus. Read the complete document before you use the product or products described herein.

Validity Note

The information in this Release Notes document is applicable only for FREE Studio Plus compatible products. This document has been updated for the release of FREE Studio Plus V1.10.0.

The characteristics of the products described in this document are intended to match the characteristics that are available on https://www.eliwell.com. As part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on https://www.eliwell.com, consider https://www.eliwell.com to contain the latest information.

Related Documents

Title of documentation	Reference number
FREE Advance Secure Interface Release Notes	RN0000000134
Cybersecurity Best Practices	Refer to General Cybersecurity Information

To find documents online, visit Eliwell web site (www.eliwell.com)

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 Recommended Cybersecurity Best Practices document.

Schneider Electric provides additional information and assistance:

Subscribe to the Schneider Electric security newsletter.

Visit the Cybersecurity Support Portal to:

- Find Security Notifications
- Report vulnerabilities and incidents

Visit the Schneider Electric Cybersecurity and Data Protection Posture to:

- Access the cybersecurity posture
- Learn more about cybersecurity in the cybersecurity academy
- Explore the cybersecurity services from Schneider Electric

Environmental Data

For product compliance and environmental information refer to the Schneider Electric Environmental Data Program.

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.

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 manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either 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.

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Product Information

Overview

Maintenance release of FREE Studio Plus, with implementation of new features and bug fixing

Product Identification

Reference	Description	Version	Note
OTBM●●● OTDM●●●	FREE Optima Logic Controllers	Firmware msk: 825.07	Updated
EP4S0024V500 EP4S00LIV500	Expansion 4D SSR	Firmware msk: 803.00	NOT updated
AVS00PI070500	FREE Advance Secure Interface Plug-in	Firmware msk: 815.08	Updated
AVS00GW080500	FREE Advance Secure Interface Gateway	Firmware msk: 816.08	
EPB●●FCTA500	EWCM 9000 PRO (HF) Logic Controller 42 I/OS	Firmware msk: 644.08	NOT updated
EVEVD1U000500	EEVD Expansion1 EEV Unipolar	Firmware msk: 772.01	NOT updated
EVEVD●B000500	EEVD Expansion1 or 2 EEV Bipolar	Firmware msk: 766.03	NOT updated
EVD75●●	FREE Evolution Logic Controllers 27 I/OS	Firmware msk: 423.29	NOT updated
EVC75●●	FREE Evolution Performance Logic Controllers 27 I/OS	Firmware msk: 477.29	NOT updated
EVE7500	FREE Evolution Expansion 27 I/Os	Firmware msk: 460.05	NOT updated
EVP3●●	FREE Panel Flush mounting Controllers	Firmware msk: 489.23	NOT updated
EVK1000	Remote Display HMI	Firmware msk: 476.23	NOT updated
AVK1000	Remote Display HMI		NOT updated
AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●	FREE Advance Logic Controllers 28 and 42 I/OS	Firmware msk: 596.17	updated
AVD62●●/ AVC62●●/ AVD30●●/ AVC30●●	FREE Advance Logic Controllers 7 and 18 I/Os	Firmware msk: 668.17	updated
AVP1●●●	FREE AVP1000 Display Color TouchScreen, Temperature (Humidity) built-in sensor(s) FREE AVP1000 Display Color TouchScreen Flush Mounting	Firmware msk: 659.09	NOT updated
SM●●●●●	FREE Smart Logic Controllers	Firmware msk: 542.10	NOT updated
SM●●●●●	FREE Smart Logic Controllers	Firmware msk: 412.21	NOT updated
EVE6000/EVE10200	FREE Advance Expansion 12 and 28 I/Os	Firmware msk: 640.03	NOT updated
XVD	XVD EEV Driver	Firmware msk: 497.13 (obsolete) 589.22	NOT updated

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Release History

Version	Release Date	Description
1.10.0	April 2026	FREE Studio Plus 1.10.0
1.9.0	October 2025	FREE Studio Plus 1.9.0
1.8.0	May 2025	FREE Studio Plus 1.8.0
1.7.0	September 2024	FREE Studio Plus 1.7.0
1.6.0	November 2023	FREE Studio Plus 1.6.0
1.5.1	February 2023	FREE Studio Plus 1.5.1
1.4.1.0	May 2022	FREE Studio Plus 1.4.1.0
1.4.0	July 2021	FREE Studio Plus 1.4.0
1.3.0	January 2021	FREE Studio Plus 1.3.0
1.2.1	May 2020	FREE Studio Plus 1.2.1
1.2	March 2020	FREE Studio Plus 1.2
1.1	June 2019	FREE Studio Plus 1.1
1.0	October 2018	FREE Studio Plus 1.0

System Requirements

FREE Studio Plus can be installed on a personal computer having the following characteristics:

Operative System

- Windows 11 64 Bit
- Windows 10 64 Bit

Hardware requirements

- Processor Pentium 1.6 GHz or later
- RAM Memory 1 GB; 2 GB preferred
- Hard Disk 1 GB of free space
- Peripherals Mouse or compatible pointing device
- Peripherals USB interface
- Web access Web registration requires Internet access

FREE Studio Plus requires Administrator rights to be installed.

For further information, contact your local Eliwell representative.

Compatibility

FREE Logic Controllers

EWCM 9000 Pro controller

Installation Instructions

FREE Studio Plus software can be downloaded from our website https://www.eliwell.com

The product version concerned offers the FREE Studio Plus functions associated with logic controllers.

Follow setup wizard and refer to FREE Studio Plus Operating Guide

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Hardware / Firmware Information

New Hardware/Firmware v1.10.0 Features

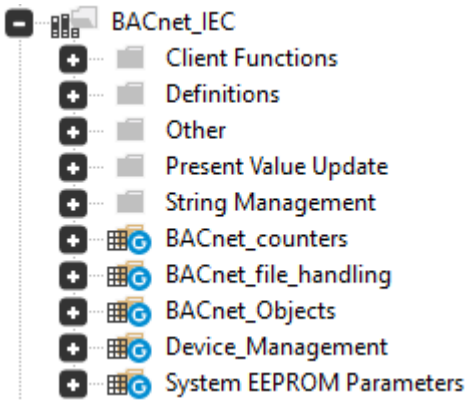
AVD126●●/ AVC126●●/ AVD84●● (FIRMWARE MSK 596.17)
AVD62●●/ AVC62●●/ AVD30●●/ AVC30●● (FIRMWARE MSK 668.17)

Version 17 includes 3113 that obtained BACnet BTL Certification.

Introduced new version of BACnet protocol v16 compliant with ANSI/ASHRAE Standard 135-2020.

New features:

- Implement BACnet Binary Input and Output(up to 256 Binary objects among Input, Value and Output).
- A new version of the BACnet library has been introduced: BACnet_IEC.plclib replaces BACnet_IEC.pll with changes and new features:
    - Update library format (plclib in place of pll)
    - New folder organization



    - Client Functions:
      sysBACnet_GetRequestStatus: monitors the status of the command sent to a server

Function: sysBACnet_GetRequestStatus (ver.1.0.0, **EMBEDDED**)
Location: (Library) BACnet_IEC

Return Value: BACnetRemoteRequestStatus

Input:

Name	Type	Description
remote_request_id	BACnetRemoteRequestID	Remote request ID
remote_object_property_value_pointer	@BACnetRemotePropValueType	Pointer to BACnetRemotePropValueType structure instance

Description:

sysBACnet_GetRequestStatus() should be invoked after a sysBACnet_RemRead() or sysBACNet_RemWrite request, provided the request is not REMOTE_REQUEST_ID_INVALID, to assess its progress.

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sysBACnet_RemRead: sends BACnet ReadProperty-A

Function: sysBACnet_RemRead (ver.1.0.0, **EMBEDDED**)
Location: (Library) BACnet_IEC

Return Value: BACnetRemoteRequestID

Input:

Name	Type	Description
remote_device_subnet	USINT	Remote Device ID : subnet part of the Device Object Identifier
remote_device_node_number	UINT	Remote Device ID : node number part of the Device Object Identifier
remote_device_discover_tmo	UINT	Remote Device discover timeout
remote_device_property_tmo	UINT	Remote Device property read command timeout
remote_object_type	BACnetRemoteObjectType	Remote Device Object Type
remote_object_instance	UDINT	Remote Device Object Instance
remote_object_property	BACnetRemoteProperty	Remote Device Object Property
remote_object_property_index	BACnetRemotePropertyIndex	Remote Device Object Property Index, if property is PRIORITY_ARRAY then its range is 1...16

Description:

sysBACNet_RemRead: If it returns REMOTE_REQUEST_ID_INVALID an error is occured before transmit the request.

Read request status can be monitored using function sysBACnet_GetRequestStatus()

sysBACnet_RemWrite sends BACnet WriteProperty-A

Public

Function: sysBACnet_RemWrite (ver.1.0.0, **EMBEDDED**)
Location: (Library) BACnet_IEC

Return Value: BACnetRemoteRequestID

Input:

Name	Type	Description
remote_device_subnet	USINT	Remote Device ID : subnet part of the Device Object Identifier
remote_device_node_number	UINT	Remote Device ID : node number part of the Device Object Identifier
remote_device_discover_tmo	UINT	Remote Device discover timeout: dummy value, who-is answer timeout, currently internally fixed at 10000 ms
remote_device_property_tmo	UINT	Remote Device property write command timeout: dummy value, response timeout to quesry, currently internally fixed at 2000 ms
remote_object_type	BACnetRemoteObjectType	Remote Device Object Type
remote_object_instance	UDINT	Remote Device Object Instance
remote_object_property	BACnetRemoteProperty	Remote Device Object Property
remote_object_property_index	BACnetRemotePropertyIndex	Remote Device Object Property Index
remote_object_property_priority	BACnetRemotePropertyPriority	Remote Device Object Property Priority
remote_object_property_value_pointer	@BACnetRemotePropValueType	Pointer to BACnetRemotePropValueType structure instance

Description:

sysBACNet_RemWrite: If it returns REMOTE_REQUEST_ID_INVALID an error is occured before transmit the request.

Read request status can be monitored using function sysBACnet_GetRequestStatus().

Property	Analog Object			Binary Object			MultiState Object			Device
	Input	Value	Output	Input	Value	Output	Input	Value	Output	
Present-value	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	N.A.
Minimun-value	R	N.A.	R	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Maximum-value	R	N.A.	R	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Priority-array	N.A.	R	R	N.A.	R	R	N.A.	R	R	N.A.
Units	R	R	R	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Relinquish-default	N.A.	R/W	R/W	N.A.	R/W	R/W	N.A.	R/W	R/W	N.A.
Status-Flags	R	R	R	R	R	R	R	N.A.	R	N.A.
Object-Name	R	R	R	R	R	R	R	R	R	R
Out-of-service	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	N.A.
Polarity	N.A.	N.A.	N.A.	R	N.A.	R	N.A.	N.A.	N.A.	N.A.

- String:
  sysBACnet_WrDeObjectName: enable Device object name write property (limited to ASCII characters)

Public

Function: sysBACnet_WrDeObjectName (ver.1.0.0, **EMBEDDED**)
Location: (Library) BACnet_IEC

Return Value: USINT

Input:

Name	Type	Description
writable	USINT	0=not writable, otherwise writable

Description:

Allow to enable Device Object Name property writing in ASCII coding
even if sysBACnet_WrStr is not called or called with writable equal to 0 (not writable any string)
By default (from reset) Device Object Name writing is not allowed.

The function return a USINT which has the same value of the input

sysBACnet_WrStr: enable string write property (limited to ASCII characters)

Function: sysBACnet_WrStr (ver.1.0.0, **EMBEDDED**)
Location: (Library) BACnet_IEC

Return Value: USINT

Input:

Name	Type	Description
writable	USINT	0=not writable, otherwise writable

Description:

Allow to enable string writing in ASCII coding
to the following BACnet object properties:
-Object name
-Description
-active/inactive text for binary objects
By default (from reset) the above strings writing is not allowed.

The function return a USINT which has the same value of the input

- Other: sysBACnet_PropertyExt

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Function: sysBACnet_PropertyExt (ver.1.0.0, EMBEDDED)
Location: (Library) BACnet_IEC

Return Value: USINT

Input:

Name	Type	Description
object_type	BACnetObjectIdentifier	Object identifier
property	BACnetPropertyID	Property ID
property_index	USINT	Index in the Property array
Mdb_address	UINT	Modbus address of the EEPROM Parameter or the Status Variable which stores the value of the Property

Description:

This function allows to extend Properties of the BACnet Objects defined in the Configuration Perspective.

- Enumerations:
  BACnetPropertyID
  BACnetRemoteObjectType
  BACnetRemoteProperty
  BACnetRemotePropertyIndex
  BACnetRemotePropertyPriority
  BACnetRemoteRequestStatus

Mitigated Anomalies

OTDM●●●/OTBM●●●/OTFM●●●(FIRMWARE MSK 825.07)

The following issues have been resolved:

- Improvement touch keyboard sensibility.
- Strings handled by sysOverwriteSerialDisplay() are not displayed on the remote display connected to the blind base.

AVD126●●/ AVC126●●/ AVD84●● (FIRMWARE MSK 596.17)
AVD62●●/ AVC62●●/ AVD30●●/ AVC30●● (FIRMWARE MSK 668.17)

The following issues have been resolved:

- Watchdog reset for a network.
- Fixed watchdog triggered by repetitive writes from TM172DGRP to Modbus/CAN variables with dynamic-range.
- BACnet bug: no ACK sending if there is an alarm event.

For additional details refer to Related Documents section

Firmware downgrade

Limited to:

AVD126●●/ AVC126●●/ AVD84●●

AVD62●●/ AVC62●●/ AVD30●●/ AVC30●●

EVD75●●/EVC75●●/EVP3●●

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AVK1000/EVK1000

references. Firmware downgrades to versions earlier than the factory default may result in device malfunction, due to incompatibility of old firmware with some electronic components used at the time of production.

Based on the production week printed on product label, following tables show the earliest FW version to which products can be downgraded:

Production week AVD126●●/ AVC126●●/ AVD84●●	**Earliest downgradable version**
WK44/24 or later	MSK596.13

Production week AVD62●●/ AVC62●●/ AVD30●●/ AVC30●●	**Earliest downgradable version**
WK44/24 or later	MSK668.13

Production week (EVD7500)	**Earliest downgradable version**
WK31/22 or later	MSK423.29 (*)
Between WK08/19 and WK30/22	MSK423.27
Between WK24/13 and WK07/19	MSK423.16
Before WK24/13	Any version

Production week (EVC7500)	**Earliest downgradable version**
WK31/22 or later	MSK477.29 (**)
Between WK08/19 and WK30/22	MSK477.27
Between WK24/13 and WK07/19	MSK477.16
Before WK24/13	Any version

Production week (AVK1000/EVK1000)	**Earliest downgradable version**
WK31/22 or later	MSK476.22 (***)
Between WK08/19 and WK30/22	MSK476.20
Between WK30/14 and WK03/19	MSK476.11
Before WK30/14	Any version

Production week (EVP3300)	**Earliest downgradable version**
WK31/22 or later	MSK489.22 (****)
Between WK08/19 and WK30/22	MSK489.20
Between WK30/14 and WK03/19	MSK489.11
Before WK30/14	Any version

(*) Only if factory FW version is 423.29 or greater

(**) Only if factory FW version is 477.29 or greater

(***) Only if factory FW version is 476.22 or greater

(****) Only if factory FW version is 489.22 or greater

Please contact Technical Customer Support for confirmation

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Software Information

New Features Software v1.10.0

- Add move up / down functionality to the BACnet Objects list in Application.
- Do not add suffix in the imported BACnet object.
- Improved the algorithm for automatic assignment of a Modbus address to BACnet attributes.
- New Modbus address range related to BACnet parameters assigned by new default. In detail, ranges change according to EEPROM parameters values, as per following table.

EEPROM	RANGE ADDRESS	ORDER
FALSE	13960	Increasing
	15523	
	13959	Decreasing
	8960	
	20479	Decreasing
	16384	
TRUE	20480	Increasing
	24319	
	20479	Decreasing
	16381	
	13959	Decreasing
	8960	

SECURE INTERFACE (Refer to User Guide for details):

- Libraries:
  - Update MQTTLib (2.1.1).
  - Add HTTPLib (0.0.60).
  - Add LLDatabase (1.0.0).
  - Remove HTTPClient.
- Add Subscribe and Diagnostic tools in MQTT Configuration.

Public

Mitigated Anomalies v1.10.0

The following issues have been resolved:

- Compile error with)* in FDB comment
- Add warning G045 “Function block state persistence not supported inside functions and methods” in case of use function block instances declared as local variables of functions.
- In SEL operator a word-notation bits are not correctly detected
- The Simulator starts before the Download All operation is completed.
- Correct popup error in case of use of functionality “Export parameters file form target to USB”
- The attributes APDU Timeout and Max_APDU_Lenght_Accepted have been removed from the list of attributes that can be added in the configuration of Device Object.
- The attributes: CHANGE_OF_STATE_TIME, CHANGE_OF_STATE_COUNT, ELAPSED_ACTIVE_TIME have been removed from the list of attributes that can be added in the configuration of Binary Objects.
- Include Modbus addresses of published BACnet attributes in Data Export: Modbus Objects for EOTE.
- Verification of max string dimension for BACnet object declared in Configuration is not checked during compilation.
- The apostrophe “char” is not accepted in a string filed as default (like in the description) of a BACnet object.
- When copying and pasting MultiState Objects, the Object Identifier is not recalculated correctly.

- FREE Optima:
  - TO_STRINGFORMAT isn’t good with LREAL type.
  - PARX does not have tags.
  - Missing link register is not detected
  - In Simulation Mode task fast is not programmable.
  - Hide library function sysDBaseGetValue due to is not used inside menu code generation.

- SECURE INTERFACE:
  - TO_STRINGFORMAT isn’t good with LREAL type.
  - Compiler error trying to assemble instructions with immediates greater than 8 bits.

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Documentation Updates

Secure Interface User Guide

New functions and libraries related to MQTT subscription.

BACnet Application Notes

Expanded BACnet functionality (new functions and properties)

- **sysBACnet_RemRead, sysBACnet_RemWrite, sysBACnet_GetRequestStatus** for remote Read/WriteProperty-A operations.
- Extended properties using **sysBACnet_PropertyExt** (e.g., Polarity, State_Text).
- Enhanced handling of BACnet string writing via **sysBACnet_WrStr** and **sysBACnet_WrDeObjectName**.

- **Updated and more complete BACnet objects**
  - Increased Multi-State limits (up to 10 states).
  - Additional mandatory properties (e.g., *Polarity* for Binary Inputs/Outputs).
  - More complete B-AAC profile coverage and updated property tables.

FREE Studio Plus Operating Guide

- **Expanded Supported Devices and Hardware References**
- **Enhancements in Menus, Access Levels, and Target Interface:** improved **User Menu** structure (Par/Set/Dynamic folders), revised visibility rules, and extended menu access level management
- **Added Features in Resources, Modbus Objects, and Import Functions: CSV import** capabilities (not only export), additional Modbus object behaviors, extended address-range handling, and refined EEPROM/Status Variable access-level settings
- **New Tools and Interface Improvements: new Developer / Code Analysis tools** (project compare, unused variables, unused POUs, dependency viewer) and expanded Simulation and Debug features

FREE Optima Hardware Guide

- Updated Safety & Compliance Information

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- Refined Digital Input Electrical Characteristics
- Accessories and Wiring Section Updates

Known Operational Anomalies

FREE Optima:
During the BIOS update and application using a USB stick, the RETAIN memory was not reset with the correct default values, causing the system to start with incorrect retained data

BIOS compatibility

OTDM●●●/OTBM●●●/OTFM●●●(FIRMWARE MSK 825)

Project target used	Compatibility
825.2	825.2
825.3	825.3
825.5	825.5

FREE Advance Secure Interface Gateway (MSK816) /
FREE Advance Secure Interface Plugin (MSK 815)

Project target used	Compatibility
815.3 - 816.03	(0.3.0) - (0.4.0) - 0.5.0)
815.6 – 816.6	(0.6.0) – (0.7.0)
815.7 – 816.7	(0.7.0)
815.8 – 816.8	(0.8.0)

Public

Security Updates

The following cybersecurity vulnerability has been resolved:

Fixed Vulnerability
CVE-2026-6332

Public

Additional Information

Release Notes History

Release Notes FREE Studio Plus v1.9.0

Eleventh Release - November 2025

Release Notes FREE Studio Plus v1.8.0

Tenth Release - May 2025

Release Notes FREE Studio Plus v1.7.0

Ninth Release

Release Notes FREE Studio Plus v1.6.0

Eighth Release

Release Notes FREE Studio Plus v1.5.1.0

Seventh Release

Release Notes FREE Studio Plus v1.4.1.0

Sixth Release

Release Notes FREE Studio Plus v1.4.0

Fifth Release

Release Notes FREE Studio Plus v1.3.0

Fourth Release

Release Notes FREE Studio Plus v1.2.1

Third Release

Release Notes FREE Studio Plus v1.2

Second Release

Release Notes FREE Studio Plus v1.1

First Release

Public

New Hardware/Firmware Features v1.9.0

New Features

No New Features

Mitigated Anomalies v1.9.0

No Mitigated Anomalies

Documentation Updates v1.9.0

Documentation Updates
New Controller Models Added:
- OTBM22RH
- OTDM22RH/SH (supports 100–240 Vac)

Expanded Power Supply Options:
- Support for both 24 Vac/Vdc and 100–240 Vac models
- Added details on connection between GND and external actuators for FREE Optima models

Battery Backup Support Introduced:
EVEVDBA000000 module for emergency valve closure

I/O Expansion Enhanced:
Support for up to 3 expansion modules (previously 2)

Environmental Ratings Updated:
IP65 front panel protection for OTDLED display

Valve Driver Output Details Expanded:
- VMOT and W± terminals with overload protection
- revised Preconfigured Valves User Guide aligning vale connection with EVEV connectors layout

Parameter Tables Extended:
More detailed calibration and configuration options for CANopen, RS-485, PWM, and display settings

Miscellaneous
- FREE Advance PLC boot screens description
- Multiple pages management

Known Operational Anomalies v1.9.0

NONE

Security Updates v1.9.0

The following components have been updated to address cybersecurity vulnerabilities:

New Component Version	Fixed Vulnerability
SES 3.0.12	CVE-2025-5296

Public

New Hardware/Firmware Features v1.8.0

NEW PRODUCT FREE Optima OTDEM22R - OT●M22●H (FIRMWARE MSK 825.05)

Introducing a new product in our HVAC portfolio, designed to not only replace the FREE Smart Logic Controller family but also provide functionalities comparable to the FREE Advance Logic Controllers family. With features like CAN and USB connectivity, this product is ideal for controlling small Air Handler Units, Dryers, Boilers, and Process Chillers.

New models of family are:

• OTDEM22R with embedded EEVD management to drive Unipolar valve control.

• OT●M22●H with 230 VAC Power Supply, available with Relay (Blind and with Display) and SSR version.

NEW FEATURES IN FREE Optima (FIRMWARE MSK 825.05)

- Add Filesystem Management (see New Features Software v1.8.0 for details)
- Management of Local EEV Driver.
- Increase number of CAN expansion modules from 2 to 3.

Mitigated Anomalies v1.8.0

OTDM●●●/OTBM●●●/OTFM●●●(FIRMWARE MSK 825.05)

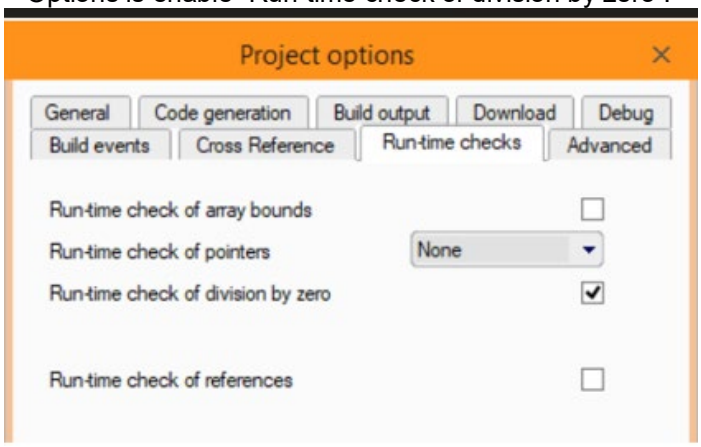
The following issues have been resolved:

- Fix update USB BIOS+PLC (PLC not valid).
- Fix visualization update display (Comm Err).
- Real values are not correctly showed on Display.
- Controller replies with an exception to a command FC16 when the command updates a string not allocated at the end of the message.
- Modbus RTU Broadcast does not work.

AVD126●●/ AVC126●●/ AVD84●● (FIRMWARE MSK 596.16)
AVD62●●/ AVC62●●/ AVD30●●/ AVC30●● (FIRMWARE MSK 668.16)

The following issues have been resolved:

- Division by zero does not trigger a watchdog reset when in SW Project Options is enable “Run-time check of division by zero”.



Public

- Error range between PLC and Expansion with 4-20 mA Configuration in Analog Inputs. Aligned range error from 3mA to 22mA with error of 0.1 mA.
- Controller replies with an exception to a command FC16 when the command updates a string not allocated at the end of the message.
- DHCP client: When Free Advance is powered on, 3 attempts (DHCP Discover) to obtain an IP are performed within the first 20 seconds. If it fails, firmware 596.16 and 668.16 will send a DHCP Discover every 2 minutes till the time 20 seconds + the value of Modbus register 16155 is expired. If the Free Advance does not obtain an IP it will assume its static IP. IP conflict management starts after the IP has been assigned by the DHCP server or when the Free Advance has assumed its static IP address. New behavior solves issues with router with long boot time.
- Possibility to recover correct working Display due to Issue “Display flashes about every 20 seconds”.

XVD420H485030 – XVD420H00030 – XVD100H000030 (FIRMWARE MSK 582.22)

The following issues have been resolved:

- Improved detection of the following alarms during:
  - Incorrect MOP setpoint calculation in °F
  - In ‘only actuator’ mode unwanted valve closing after ON command
  - In ‘only actuator’ mode incorrect saturation temperature calculation
  - Runtime probe calibration loading

EVEV●B (FIRMWARE MSK 766.03)

The following issues have been resolved:

- In the event of return of power after a power outage with the MCU that was always ON during this time, if the position of the valve was 0 then the current of the coil was incorrect (it was the driving current instead of holding or no current).

Security Updates 1.8.0

No Security updates.

New Hardware/Firmware Features v1.7.0

NEW PRODUCT FREE Optima OTFM22R-OTFM22S-OTDLED (FIRMWARE MSK 825.05)

Introducing a new product in our HVAC portfolio, designed to not only replace the FREE Smart Logic Controller family but also provide functionalities comparable to the FREE Advance Logic Controllers family. With features like CAN and USB connectivity, this product is ideal for controlling small Air Handler Units, Dryers, Boilers, and Process Chillers.

NEW FEATURES IN FREE Optima OTFM22R-OTFM22S-OTDLED (FIRMWARE MSK 825.03)

- Improve USB pendrive management
- Improve Watch Dog management
- Updated Menu BIOS

Public

- Updated Retain area management: data saved into flash memory at device power off (area reduced to 0…384 Bytes) (1)
  New flash memory area managed through target variable sysRetainPars
  (1) 384 RETAIN area, 7680 Bytes sysRetainPars area

NEW FEATURES IN FREE Advance Secure Interface (FIRMWARE MSK 815.06 AND MSK 816.06)

- Increase WEB PLC users. Web pages developed with previous version of firmware are no longer compatible.

Mitigated Anomalies v1.7.0

OTDM●●●/OTBM●●●/OTFM●●●(FIRMWARE MSK 825.03)

The following issues have been resolved:

- A Warm restart can cause a hard reset of the PLC
- Improve CAN FIFO size
- Bug fix in digital input impulse counter and reset.
- Issue with Lock/Unlock keyboard.
- AI as DI incorrect reading in some cases

AVD126●●/ AVC126●●/ AVD84●● (FIRMWARE MSK 596.16)
AVD62●●/ AVC62●●/ AVD30●●/ AVC30●● (FIRMWARE MSK 668.16)

The following issues have been resolved:

- The FTP CWD command through Drag&Drop is not accepted
- The sysWriteParStr() function writes EEprom area even if the string is not modified

EVE7500 (FIRMWARE MSK 460.05)

The following issues have been resolved:

- The Reset in FDI Frequency is not present

EVEVD (FIRMWARE MSK 766.02)

The following issues have been resolved:

- Improved detection of the following alarms during:
  - Disconnection on W1+ or W1-
  - Disconnection on W2+ or W2-

FREE Advance Secure Interface (FIRMWARE MSK 815.06 AND MSK 816.06)

Refer to Related Documents section

Security Updates v1.7.0

The following third-party components have been updated to address cybersecurity vulnerabilities:

Component	ID
mbedTLS	CVE-2024-30166

Public

New Hardware/Firmware Features v1.6.0

NEW PRODUCT FREE Optima OTDM22-OTBM22R-OTDM22S (FIRMWARE MSK 825.02)

Introducing a new product in our HVAC portfolio, designed to not only replace the FREE Smart Logic Controller family but also provide functionalities comparable to the FREE Advance Logic Controllers family. With features like CAN and USB connectivity, this product is ideal for controlling small Air Handler Units, Dryers, Boilers, and Process Chillers.

NEW PRODUCT EXPANSION 4D PRO SSR (MSK 803.0)

25 IO expansion provided with 3 Solid-state relay digital output. Available in 2 models:

• EP4S0024V500 SSR output 24 Vac/Vdc

• EP4S00LIV500 SSR output 75…240 Vac

FREE ADVANCE/FREE ADVANCE SMALL (FIRMWARE MSK 596.14 AND MSK 668.14)

- Improve BACnet MSV to have 10 states.
- Add the forwarding of message MODBUS 06 in the bridge.
- Connection password to enable for added security.
- Additional Modbus Functions (@200).

Mitigated Anomalies v1.6.0

AVD126●●, AVC126●●, AVD84●●, AVC84●●/ AVD62●●, AVC62●●, AVD30●●, AVC30●● (FIRMWARE MSK 596.14 AND MSK 668.14)

The following issues have been resolved:

- Modbus recovery communication
- IP conflict not detected
- Improve date BACnet side with sysclock error
- sysMbMTCP_FC06 close the socket also for Configuration
- Decreasing ARP broadcast messages
- CanOpen_IEC – Bug in sysDBase_LocalRead()
- Problem with BACNET weekly scheduler
- SysWD_Timed may cause an unexpected reset in BIOS version 13 (596-668)
- Alignment IEC Object Identifier to stack BACnet, not for software calculation
- BACnet Calendar issue after a Date_List change

EPB••FCTA500 / EPB01FCXX500(FIRMWARE 644.08)

The following issues have been resolved:

- Improved watchdog system.

Public

- In case of system reset due to the memory card subsystem that does not work properly, the memory card subsystem is disabled at the next time startup.
- Support for new LCD component.
- To enable full upload of the RAW parameter map independent from parameter limits checks, RAW parameter file format is supported. Command code ’30’ added to sysUsbCommand to save parameter file to USB pen drive in RAW format, with ‘.RAW’ file extension.

Security Updates v1.6.0

The following third-party components have been updated to address cybersecurity vulnerabilities:

Component	ID
mbedTLS	CVE-2024-30166

Component	ID
OpenSSL	CVE-2023-0286 CVE-2022-4304 CVE-2022-4203 CVE-2023-0215 CVE-2022-4450 CVE-2023-0216 CVE-2023-0217 CVE-2023-0401

Component	ID
libWebp	CVE-2023-4863

New Hardware/Firmware Features v1.5.1

NEW PRODUCT AVS00PI070500/ AVS00GW080500 (FIRMWARE MSK 815.02 AND MSK 816.02)

- AVS00PI070500 can be recognized as PlugIn by FREE Advance Logic Controller starting from firmware MSK 596.13 and MSK 668.13

NEW FEATURES IN AVD126●●, AVC126●●, AVD84●●, AVC84●●/ AVD62●●, AVC62●●, AVD30●●, AVC30●● (FIRMWARE MSK 596.13 AND MSK 668.13)

Public

- Added capability to recognize AVS00PI070500 (FREE Advance Secure Interface PlugIn) as PlugIn. Added bit 7 in PlugIn _Identification Target Variables too
- Bridge function: added support to Modbus Messages 1 (Read Coils) ,2 (Read Discrete Inputs) ,4 (Read Input Registers),15 (Write Multiple Coils). The maximum number of consecutive Registers/Inputs/Coils which can be read/write is limited to 20 (as for Modbus Message 3,16 already available).
- Added Modbus TCP Client at event in IEC61131-3 programming.

  Modbus TCP Client functions can be used only if Client(for field)/Server is enabled in the Ethernet Configuration Node (Configuration Perspective). This means that MbMTcp_OpenChn and MbMTcp_Start functions must be present in the CONNEC.PAR loaded by the controller.

  These functions can work together with Modbus TCP Client nodes



  defined in the Configuration Perspective (listed in the CONNEC.PAR). They can also send messages to servers with IP address not defined in the Ethernet Configuration: in this case connection is open when sending and then closing at receiving the response, but the maximum number of servers defined in Configuration is limited to 7 instead of 8.

  UnitID used by the Modbus TCP Client functions can be changed during the runtime.

  The maximum number of consecutive Registers/Inputs/Coils which can be read/written is limited to 20.
  Here below the added embedded functions:

sysMbMTCP_FC01

Public

Function: sysMbMTCP_FC01 (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Function: sysMbMTCP_FC03 (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the first Holding Register to read
no	UINT	Number of contiguous Holding Registers to read [1..20]
object	@INT	Holding Register array pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x03 command.

The function returns a UINT which could have the following meanings:
0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
18 = Number of object out of range
20 = Function not executed because Address of the first Holding Register to read must be greater then 0

Function: sysMbMTCP_FC04 (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the first Input Register to read
no	UINT	Number of contiguous Input Registers to read [1..20]
object	@INT	Input Register array pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x04 command.

The function returns a UINT which could have the following meanings:
0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
18 = Number of object out of range
20 = Function not executed because Address of the first Input Register to read must be greater then 0

sysMbMTCP_FC02

sysMbMTCP_FC03

sysMbMTCP_FC04

Public

sysMbMTCP_FC05

Function: sysMbMTCP_FC05 (ver.1.0.0, EMBEDDED)
Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the coil to write
object	@BOOL	Coil pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x05 command.

The function returns a UINT which could have the following meanings:
0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
20 = Function not executed because Address of the coil to write must be greater then 0

sysMbMTCP_FC06

Function: sysMbMTCP_FC06 (ver.1.0.0, EMBEDDED)
Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the Register to write
object	@INT	Register pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x06 command.

The function returns a UINT which could have the following meanings:
0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
20 = Function not executed because Address of the Register to write must be greater then 0

Public

sysMbMTCP_FC15

Function: sysMbMTCP_FC15 (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the first Coil to write
no	UINT	Number of contiguous Coils to write [1..20]
object	@BOOL	Coils array pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x0F command.

The function returns a UINT which could have the following meanings:
0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
18 = Number of object out of range
20 = Function not executed because Address of the first Coil to write must be greater then 0

sysMbMTCP_FC16

Function: sysMbMTCP_FC16 (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Return Value: UINT

Input:

Name	Type	Description
ip	@BYTE	Ip address of the target server
unitID	USINT	UnitID of the target server
base	UINT	Address of the first Holding Register to write
no	UINT	Number of contiguous Holding Registers to write [1..20]
object	@INT	Holding Register array pointer
timeout	UINT	Timeout [ms]

Description:

Send 0x10 command.

0 = No error occurred
1 = Exception code Illegal function
2 = Exception code Illegal data address
3 = Exception code Illegal data value
4 = Exception code Slave device failure
5 = Exception code Acknowledge
6 = Exception code Slave device busy
7 = Exception code Memory parity error
8 = Communication channel configuration error
10 = Exception code Gateway path unavailable
11 = Exception code Gateway target device failed to respond
14 = Invalid response message
16 = Timeout reached
17 = Function not executed due to try to call it in Timed
18 = Number of object out of range
20 = Function not executed because Address of the first Holding Register to write must be greater then 0

- IP settings by parameter of the Modbus/TCP Server nodes defined in the Configuration Perspective.

Introduced new BIOS parameters:

16146 MbMTcp_ServerIp4thOctet_Node0

...

16153 MbMTcp_ServerIp4thOctet_Node7.

Here below the rules to fill the field “IP address:” of a Modbus/TCP server node:

<ip1>, <ip2>, <ip3>, <ip4>

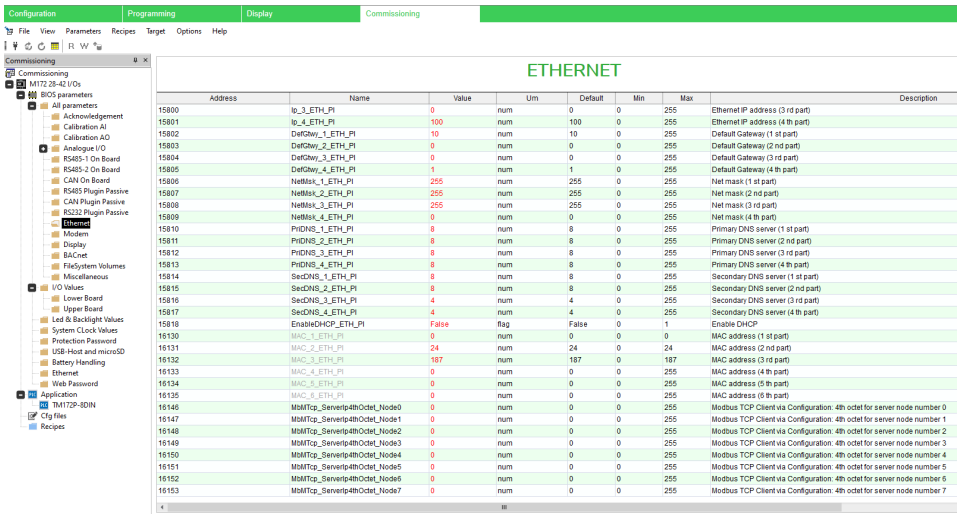
Public

Which results in the following function in CONNEC.PAR:

MbMTcp_SlaveAssign,<node>, <ip1>, <ip2>, <ip3>, <ip4>

- <node> : field “Node number” defined in the Client node
- <ip1> : if ip1 is equal to 15798 then ip1 is loaded with the value of ip_1_ETH_PI parameter else it maintains its value (the one written in the file)
- <ip2> : if ip2 is equal to 15799 then ip2 is loaded with the value of ip_2_ETH_PI parameter else it maintains its value (the one wrote in the file)
- <ip3> : if ip3 is equal to 15800 then ip3 is loaded with the value of ip_3_ETH_PI parameter else it maintains its value (the one wrote in the file)
- <ip4> : if ip4 is equal or great than 16146 and equal or less than 16153 then ip4 is loaded with the value of the BIOS parameter that has that Modbus address otherwise it maintains its value (the one wrote in the file)

A PLC reboot is required to update the IP settings of the Server Nodes.
Below the new parameters in BIOS parameters\All parameters\Ethernet folder



Public

- Implementation of SDO read in IEC61131-3 programming: added the following embedded function:
  - sysCOPM_Sdo_UploadRequest

Function: sysCOPM_Sdo_UploadRequest (ver.1.0.0, EMBEDDED)

Creation date: ...
Last modified date: ...

Return Value: UDINT

Input:

Name	Type	Description
hdlr	UDINT	SDO Handle
node	USINT	CanOpen Address Node
index	UINT	Object index
sindex	USINT	Object sub-index
data	UDINT	memory address of read data buffer
len	UINT	Object data len 1...4 [byte]
to	UDINT	Time out [ms]

Description:

Send a SDO read object to a remote CanOpen node.

This function has to be invoked in the Background task.
It can be used only if controller is configured as CanOpen Master.

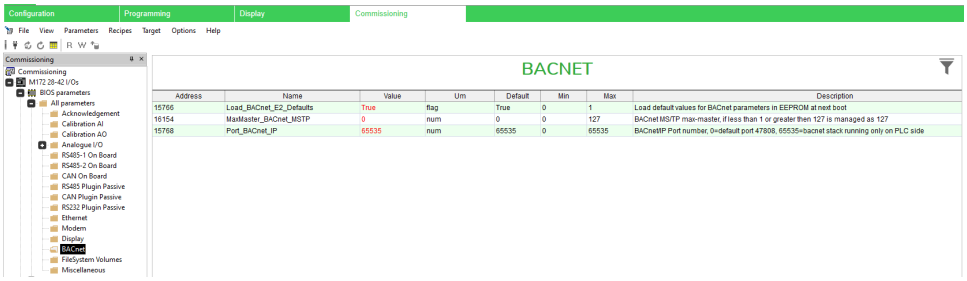
Note: hdlr input is the output of the function sysCOPM_Sdo_OpenChn().

It returns the len of the received message if SDO has been sent correctly, the error codes are:

SDO_E_TGBIT 0x05030000 Toggle bit not alternated
SDO_E_TMO 0x05040000 SDO protocol timed out
SDO_E_CSC 0x05040001 Client/server command specifier not valid or unknown
SDO_E_BCKS 0x05040002 Invalid block size (block mode only)
SDO_E_SEQN 0x05040003 Invalid sequence number (block mode only)
SDO_E_CRC 0x05040004 CRC error (block mode only)
SDO_E_OUTM 0x05040005 Out of memory
SDO_E_UNACC 0x06010000 Unsupported access to an object
SDO_E_WRONLY 0x06010001 Attempt to read a write only object
SDO_E_RDONLY 0x06010002 Attempt to write a read only object
SDO_E_NOOBJ 0x06020000 Object does not exist in the object dictionary
SDO_E_MAPOBJ 0x06040041 Object cannot be mapped to the PDO
SDO_E_EXCPDO 0x06040042 The number and length of the objects to be mapped would exceed PDO length
SDO_E_PARINC 0x06040043 General parameter incompatibility reason
SDO_E_GENINC 0x06040047 General internal incompatibility in the device
SDO_E_HWERR 0x06060000 Access failed due to an hardware error
SDO_E_OBJLEN 0x06070010 Data type does not match, length of service parameter does not match
SDO_E_TOOHG 0x06070012 Data type does not match, length of service parameter too high
SDO_E_TOOLW 0x06070013 Data type does not match, length of service parameter too low
SDO_E_NOSI 0x06090011 Sub-index does not exist
SDO_E_RANGE 0x06090030 Value range of parameter exceeded
SDO_E_LIMHG 0x06090031 Value of parameter written too high
SDO_E_LIMLW 0x06090032 Value of parameter written too low
SDO_E_HGLW 0x06090036 Maximum value is less than minimum value
SDO_E_GENERIC 0x08000000 General error
SDO_E_TRANSF 0x08000020 Data cannot be transferred or stored to the application
SDO_E_TRANSFLOC 0x08000021 Data cannot be transferred or stored to the application because of local control
SDO_E_TRANSFSTAT 0x08000022 Data cannot be transferred or stored to the application because of the present device state
SDO_E_OBJDICT 0x08000023 Object dictionary dynamic generation fails or no object

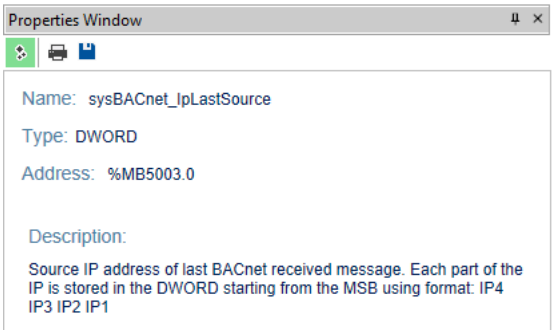
Introduced new BIOS parameters 16154 MaxMaster_BACnet_MSTP to enable BACnet protocol to modify by parameter max-master property. If 16154 value is 0 or greater than 127 then max-master is forced to 127, otherwise max-master is the value of 16154 parameter

Below the new parameter in BIOS parameters\All parameters\BACnet folder

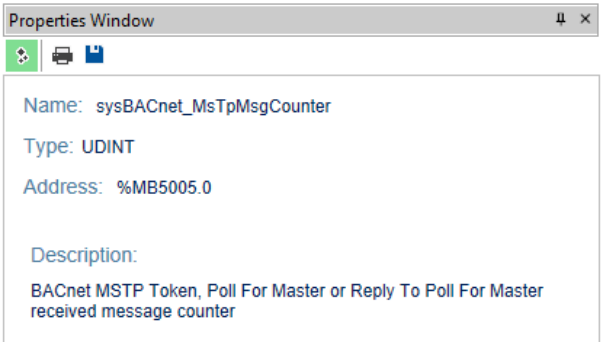


Public

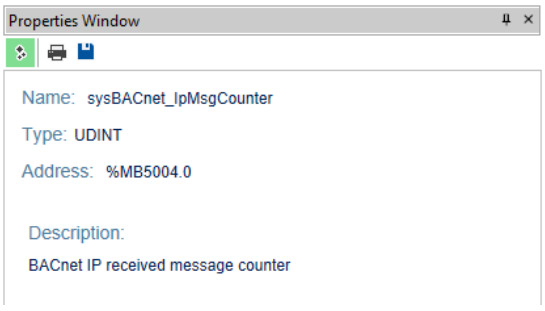
- Introduced Target Data Blocks that counts the number of BACnet IP and BACNet MS/TP messages for the controller. In case of BACnet IP is also stored the IP address of the last message received:
    - sysBACnet_IpLastSource AT %MB5003.0: DWORD;
      { DE:"Source IP address of last BACnet received message. Each part of the IP is stored in the DWORD starting from the MSB using format: IP4 IP3 IP2 IP1" }



    - sysBACnet_IpMsgCounter AT %MB5004.0: UDINT;
      { DE:"BACnet IP received message counter" }

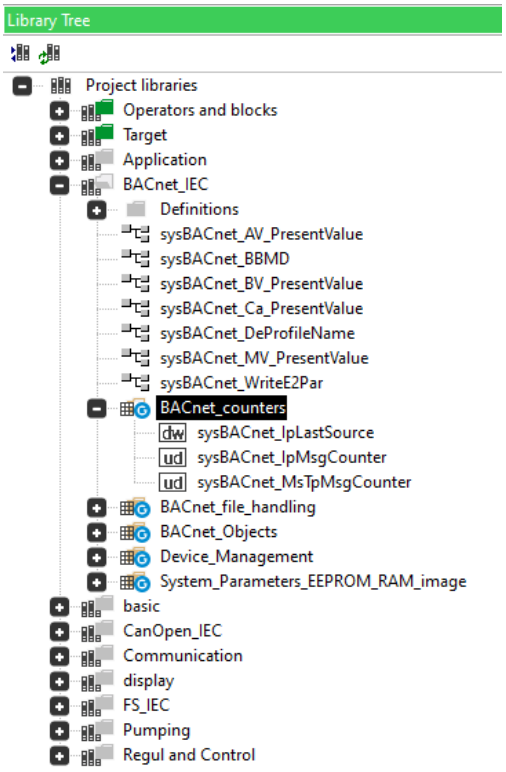


    - sysBACnet_MsTpMsgCounter AT %MB5005.0: UDINT;
      { DE:"BACnet MSTP Token, Poll for Master or Reply to Poll for Master received message counter" }



Below the new Target Data Blocks folder in BACnet_counters

Public



NEW FEATURES IN EVE7500 (FIRMWARE MSK 460.04)

Support of new internal memories chipset, no modification in users features.

Mitigated Anomalies Hardware/Firmware v1.5.1

AVD126●●, AVC126●●, AVD84●●, AVC84●●/ AVD62●●, AVC62●●, AVD30●●, AVC30●● (FIRMWARE MSK 596.13 AND MSK 668.13)

Solved the following issue:

- WD:0 caused by a reading of 125 registers in Modbus TCP/RTU Slave mode in some situations
- If controller asks a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string
- To reduce network load on BACnet, the default value of the COV for BACnet Object Analog should be set different from 0. Now it is set to 1.175494351e-38F.
- Increase ARP table dimension. Now it has been extended at 32 devices at same time.
- If there are Modbus RTU Client communication in Configuration and in Background we have some communication lost because wait before send

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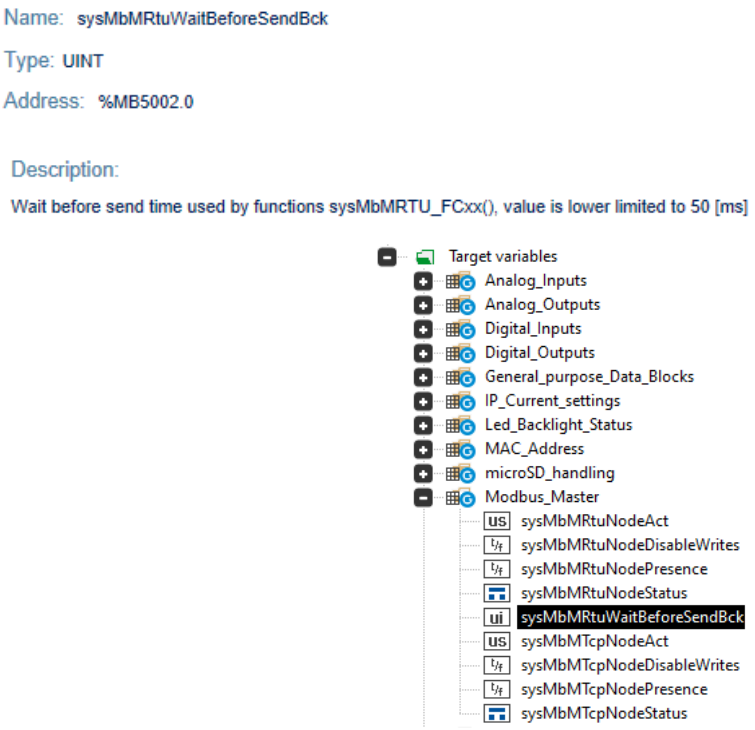
used in Background does not take in account messages in Configuration. To solve this a new Target DataBlock has been realized to set a wait-before-send time between this kind of messages.

- sysMbMRtuWaitBeforeSendBck AT %MB5002.0 : UINT; { DE: "Wait before send time used by functions sysMbMRTU_FCxx(), value is lower limited to 50 [ms]" }
- located in Target variables\Modbus_Master:



- Handled use case with selection order equal to 0
- Modbus TCP/RTU Client does not stop during download.

EVD75●●/ EVC75●● (FIRMWARE MSK 423.29 & MSK 477.29)

Requesting string chars not complete with @ syntax

FREE Studio Plus1.3.0 - Edit object is showed with # char for %0x

Avoid selection order duplication

The following issues have been resolved:

- If controller asks a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string
- Edit object is showed with # char for %0x
- Handled use case with selection order equal to 0

EVP3●● (FIRMWARE MSK 489.23)

Solved the following issue:

- Push buttons inoperable in diagnostic menu mode

EVP3●● (FIRMWARE MSK 489.22) (Intermediate release)

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Requesting string chars not complete with @ syntax

FREE Studio Plus1.3.0 - Edit object is showed with # char for %0x

Avoid selection order duplication

The following issues have been resolved:

- If controller asks a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string
- Edit object is showed with # char for %0x
- Handled use case with selection order equal to 0

EVK1000 (FIRMWARE MSK 476.23)

Solved the following issue:

- If Push buttons inoperable in diagnostic menu mode

EVK1000 (FIRMWARE MSK 476.22) (Intermediate release)

Requesting string chars not complete with @ syntax

FREE Studio Plus1.3.0 - Edit object is showed with # char for %0x

Avoid selection order duplication

The following issues have been resolved:

- If controller asks a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string
- Edit object is showed with # char for %0x
- Handled use case with selection order equal to 0
- Incorrect FDI_Frequency of FDI_counter: FDI_Frequency value is now automatically set at value 0 only if the signal applied to FDI pin is stable (high or low) for at least 10 seconds

AVP1●●● (FIRMWARE MSK 659.09)

Requesting string chars not complete with @ syntax

Solved the following issue:

- If controller asks a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string

EVEVD1U000500 (FIRMWARE MSK 772.01)

Solved the following issue:

- Fixed issue in case of short circuit Can Bus alarm
- Correct alarm management

EVEVD●B000500 (FIRMWARE MSK 766.01)

Solved the following issue:

- Fixed issue in case of short circuit Can Bus alarm

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New Features Hardware/Firmware v1.4.1.0

NEW PRODUCT EPBllFCTA500 (FIRMWARE MSK 644.05)

- Target for EWCM 9000 PRO (HF) dedicated to CO2 transcritical booster compressors rack solution.

NEW FEATURES in EPBllFCTA500 (FIRMWARE MSK 644.05)

- Cybersecurity Improvement:
  - Ethernet connectivity, except for ping command, is disabled until the default web password is changed from local display or FREE Studio Plus
  - After password change, a reboot is required to enable ethernet connectivity.

Mitigated Anomalies Hardware/Firmware v1.4.1.0

- EPBllFCTA500
- (FIRMWARE MSK 644.05)

Solved the following issue:

- Error selecting the HMI language

New Hardware/Firmware v1.4.0 Features

- AVD126ll/ AVC126ll/ AVD84ll/ AVC84ll
- AVD62ll/ AVC62ll/ AVD30ll/ AVC30ll

(FIRMWARE MSK 596.12 AND MSK 668.12)

- AVD● - Make sysUART_Reinit flush the buffer

NEW PRODUCT AVK1000 (FIRMWARE MSK 476.21)

Mitigated Anomalies Hardware/Firmware v1.4.0

AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●

AVD62●●/ AVC62●●/ AVD30●●/ AVC30●●

(FIRMWARE MSK 596.12 AND MSK 668.12)

Solved the following issue:

- Rebooting reading Modbus address 65535 in Modbus RTU and TCP protocol
- Analog Input (AIx) used like Digital Input (DI) does not ignore calibration parameter Cfg_AIx
- Communication via Modbus RTU Client is lost with a fault using XVD as server
  - Improved Implementation of Modbus Protocol for the management of repeated response from slaves.
- In case of micro-SD corrupted controller resets continuously
  - After a reset for a WDT:8, the device restarts not allowing automatic

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or manual mounting, until microSD is removed and put back, or replaced. If another corrupted microSD is inserted there will be a WDT:7 error.

EVK1000 (FIRMWARE MSK 476.21)

The following issues have been resolved:

- Incorrect management of long enumerative with over than 258 items.
- If multiple resets occur due to problems loading the HMI, it is not possible to enter DIAGNOSTIC menu
    - In case of WDT restart, the DIAGNOSTIC menu will be executed. If within ten seconds no actions are done the HMI starts automatically.

EVP3●● (FIRMWARE MSK 489.21)

The following issues have been resolved:

- Incorrect management of long enumerative with over than 258 items.
- Analog Input (AIx) used like Digital Input (DI) does not ignore calibration parameter Cfg_AIx
- Incorrect BACnet values in EEPROM after a boot
- Not able to manage multiple objects subscribes BACnet MSTP
- Communication issue with BACnet MS/TP (BACnet verifies Tusage_delay and Tusage_timeout)
- After a getEventInformation BACnet command, controller replies with a too long message and then replies to a incorrect MASTER
- Controller does not send error when trying to change BACnet PA6
- Multiple subscriptions of BACnet objects might lead a WDT reset

EVD75●●/ EVD75●● (FIRMWARE MSK 423.28 & MSK 477.28)

The following issues have been resolved:

- Incorrect management of long enumerative with over than 258 items.
- Analog Input (AIx) used like Digital Input (DI) does not ignore calibration parameter Cfg_AIx
- Incorrect BACnet values in EEPROM after a boot
- Not able to manage multiple objects subscribes BACnet MSTP
- Communication issue with BACnet MS/TP (BACnet verifies Tusage_delay and Tusage_timeout)
- After a getEventInformation BACnet command, controller replies with a too long message and then replies to a incorrect MASTER
- Controller does not send error when trying to change BACnet PA6
- Multiple subscriptions of BACnet objects might lead a WDT reset

AVP1●●● (FIRMWARE MSK 659.08)

The following issues have been resolved:

- Sometimes there is a “Download application failure”
- Few installed devices have shown string visualization problem

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New Hardware/Firmware v1.3.0 Features

NEW EVEVD1U000500/ EVEVD●B000500 (FIRMWARE MSK 772.00 AND MSK 766.00)

- New EVEVD Expansions to drive 1 Unipolar Electronic Expansion Valve or up to 2 Bipolar Electronic Expansion Valves

NEW FEATURES IN AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●

(FIRMWARE MSK 596.11 AND MSK 668.11)

- Reconfiguration Master to Slave on RS485-2 from IEC code:
  - if Modbus register 16145 is set different from 0 and MbMRtu_IsDisByPar function is present before MbMRtu_OpenChn function in CONNEC.PAR file then Modbus Master is disabled and Modbus Slave is enabled

- Improvement to decrease boot time due to CAN device missing:
  - if Modbus register 16144 is set different from 0 and COPM_SlavePresenceByPar function is present before COPM_SlaveAssignfunction in CONNEC.PAR file then master controller skips initialization of the CAN expansion indicated in register 16144 as follows:
    - register 16144 bit0 : if 0 the 1st CAN slave in CONNEC.PAR sequence is present otherwise it is not present
    - register 16144 bit1 : if 0 the 2nd CAN slave in CONNEC.PAR sequence is present otherwise it is not present
    - ...
    - register 16144 bit11 : if 0 the 11th CAN slave in CONNEC.PAR sequence is present otherwise it is not present

- Extension to negative value for web select objects:
  - <select> range is now from -999 to 9999

- Improved not changing IP address on fly:
  - Whenever a parameter from 15798 to 15817 is written, a timeout of 30 seconds is loaded. This timeout delays reload of ETH settings

- New target Data Block to prevent reading executable application:
  - introduced BOOL MEMO Data Block 5001.0 : if FALSE then *.COD files can be opened by FTP or virtual FTP otherwise not (*.COD files can't be opened by FTP and virtual FTP)

NEW FEATURES IN SM●●●●● (FIRMWARE MSK 542.10)

- Modbus protocol available on COM0 (LAN)
- Modbus master available on COM0 (LAN)
- Added parameters CF35, CF36, CF37 to set protocol on COM0
- CF00 change of range to select protocol on COM0
- Added parameter CF39 to select which COM port is enabled for Modbus master
- Preset of parameters CF35, CF36, CF37, CF39 at default values to permit to program old devices without updating EEPROM map

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NEW FEATURES IN SM●●●●● (FIRMWARE MSK 412.21)

- Modbus protocol available on COM0 (LAN)
- Added parameters CF35, CF36, CF37 to set protocol on COM0
- CF00 change of range to select protocol on COM0
- Preset of parameters CF35, CF36, CF37 at default values to permit to program old devices without updating EEPROM map

Mitigated Anomalies Hardware/Firmware v1.3.0

NEW FEATURES IN AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●

(FIRMWARE MSK 596.11 AND MSK 668.11)

The following issues have been resolved:

- recognize only first USB key plugged after a boot only the first USB key is recognized when plugged in after a boot
- FTP Command Timeout changed from 10 to 30 seconds
- input Web server authentication always active in iOS
- when removing files using FTP, a WDT reset occurs
- Green led ON before end of download via USB key
- After a getEventInformation BACnet command , controller replies with a too long message
- When a BMS tries to change PA6 for BACnet AV the controller should reply with a write-access denied and not change PA15
- Communication issues with BACnet MS/TP, BACnet verifies Tusage_delay and Tusage_timeout
- FREE Advance WDT0 resets at power on

SM●●●●● (FIRMWARE MSK 542.10 AND MSK 412.21)

The following issues have been resolved:

- Improved serial communication

New Features Hardware/Firmware v1.2.1

NEW FEATURES IN AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●

(FIRMWARE MSK 596.10 AND MSK 668.10)

- For reasons of Internet security:
  - Modbus TCP / BACnet IP / FTP are disabled by default. Therefore Modbus TCP / BACnet IP / FTP have to be manually enabled.
  - The following Target functions has new added return codes:
    - sysHTTP_AuthentGuest()
    - sysHTTP_Authentication()
    - sysFTP_AuthentGuest()
    - sysFTP_Authentication()
- Increased number of Modbus TCP Client from 3 to 8
- Increased number of registers from 16 to 20 for the following Modbus on event functions:
  - sysMbMRTU_FC03()
  - sysMbMRTU_FC01()
  - sysMbMRTU_FC02()
  - sysMbMRTU_FC04()
  - sysMbMRTU_FC15()

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        - sysMbMRTU_FC16()
    - Introduced the following Target variables to count the number of Modbus message received on the relate serial port:
        - sysMODBUS_msg_received_USB AT %MD5000.0 :
          UDINT;{ DE:"Counter for modbus message received on USB-device" }
        - sysMODBUS_msg_received_RS485-1 AT %MD5000.1 :
          UDINT;{ DE:"Counter for modbus message received on RS485-1" }
        - sysMODBUS_msg_received_RS485-2 AT %MD5000.2 :
          UDINT;{ DE:"Counter for modbus message received on RS485-2" }
        - sysMODBUS_msg_received_RS485-Plugin AT %MD5000.3 :
          UDINT;{ DE:"Counter for modbus message received on RS485/232 Plugin" }

    - Modified in Read Only the MAC address
    - Introduced Target function sysLocalADCs_Fast() to read scaled Analog to Digital Converters values to be able to handle a faster read of Analog Inputs configured as Digital Inputs
    - Introduced Target function sysUART_Reinit() to modify run-time UARTs settings using sysUART_getbuf() and sysUART_putbuf() Target functions
    - Introduced Baud Rate at 2400b/s for sysUART Target functions

NEW FEATURES IN XVD (FIRMWARE MSK 589.20)

    - Implemented Unipolar Valves driving for Parker-Sporlan CEV models

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Mitigated Anomalies Hardware/Firmware v1.2.1

NEW FEATURES IN AVD126●●/ AVC126●●/ AVD84●●/ AVC84●●

(FIRMWARE MSK 596.10 AND MSK 668.10)

Solved the following issue:

- Additional 0xCC character received in sysUART_getbuff() Target function
- After several copy of a file from microSD to USB-host controller reset

AVP1●●● (FIRMWARE MSK 659.07)

The following issues have been resolved:

- sysMbMRTU_FC03() Target function does not include all error cases
- When a page change it is visible a display flickering

XVD (FIRMWARE MSK 589.20)

The following issues have been resolved:

- when change MOP setpoint (SP3) Driver must be reset to have new setting active.

New Features Hardware/Firmware v1.1

NEW FEATURES IN AVD●●●●/AVC●●●● (FIRMWARE MSK 596.09 AND MSK 668.09)

- Introduced target functions sysHTTP_AuthentOnOff() and sysFTP_AuthentOnOff() to disable/enable authentication (enabled by default)
- Introduced two new SNVTs for LONWOKS protocol:
  - SNVT_setting
  - SNVT_state
- Introduced target function sysLcd_RotateAt180(mode) to rotate display visualization. Keys work accordingly to mode value: TRUE=rotation at 180°, FALSE=default visualization

Mitigated Anomalies Hardware/Firmware v1.1

AVD●●●●/AVC●●●● (FIRMWARE MSK 596.09 AND MSK 668.09)

The following issues have been resolved:

- microSD mount at startup that lock the controller. Fixed max timeout of 30 seconds to mount a volume
- AVD126●●/ AVD84●● models continuously reset at power-on if powered only via USB-device.
- Not able to manage multiple objects subscribes BACnet MSTP

AVP1●●● (FIRMWARE MSK 659.06)

The following issues have been resolved:

- Not possible to enter edit mode with Enums
- Bad navigation between different enumerative
- Editing of INT with format XXX.Y does not work if you try to enter values between 0.1 and 0.9
- Not possible to send broadcast messages
- String writing by commissioning using USB port is not correct

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New Features Software v1.9.0

- FREE OPTIMA:
  - EDS file generation for use of device as CAN Slave. EDS file is saved inside folder project. To generate it, set the Mode in CAN Configuration to Slave.

- SECURE INTERFACE (FIRMWARE MSK 816.07 AND MSK 815.07)

  - Add functions to push data to AVEVA Cloud. Refer to User Guide for details.

Mitigated Anomalies v1.9.0

The following issues have been resolved:

- Add operator standard functions (for example Trigonometric functions) on object browser.
- CAN expansions: fix filter for mapping variables to PDO.
- Import recipe: discard not existing IPA.
- When Simulation is active IO values do not update in Commissioning.
- Import parameters file: error when String values are imported.
- Selection order duplication on adding buttons.
- Incorrect format dialog (Integer Format instead that Real Format) on Set that uses REAL parameters.
- Simulator crash when static is set with Select TRUE.
- Issue occurs with Operating System Windows11 24H2 the Advanced settings list for an expansion is empty.
- Update Chinese Translations.
- FREE Smart:
  - Incorrect filter in export menu.
- FREE Advance:
  - Incorrect filter in export menu.
- FREE Optima:
  - Some errors related IO mapping resources in Refactoring functionality.
  - Add export parameters in EOTE format.
  - BIOS parameters added in User menus are not shown in Commissioning.
  - Displaying a REAL with no specified format display only the integer portion and not the maximum number of decimals available.
  - Edit of REAL values modifies only the entire part regardless of the selected format.
  - Empty menu is visible also for application menus.

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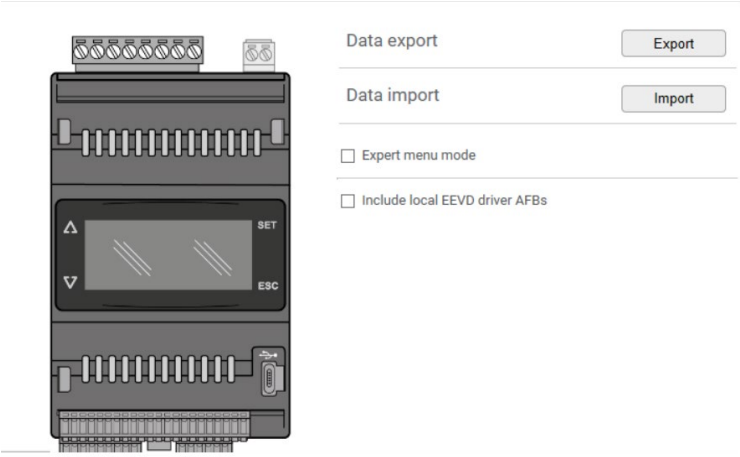
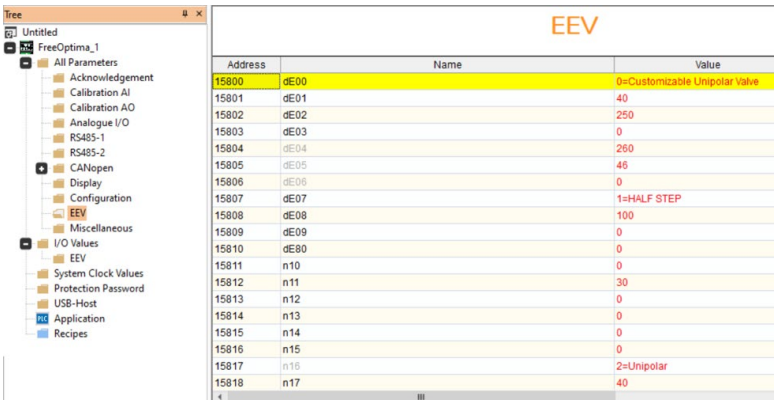
New Features Software v1.8.0

- FREE OPTIMA:
  - Add possibility to Include local EEVD driver AFBs



  - New EEV Folder in Commissioning - All parameters
  - New EEV Folder in Commissioning – I/O Values



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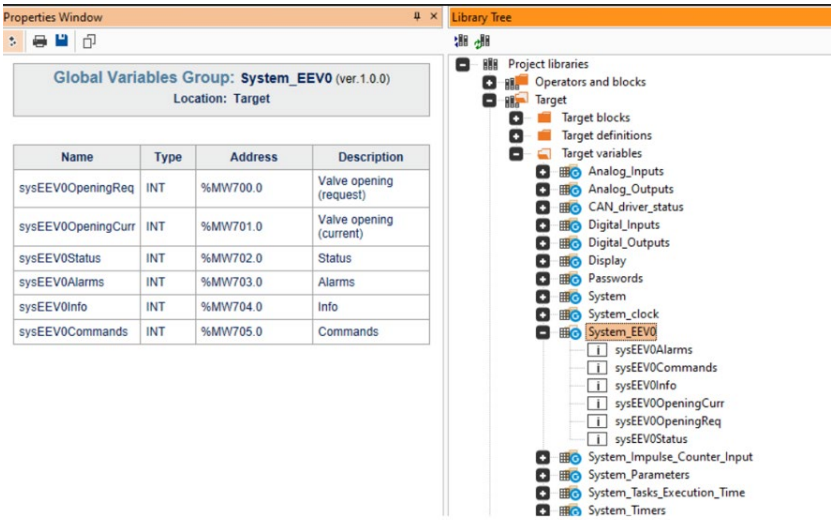
- Add EEV target variables in Programming



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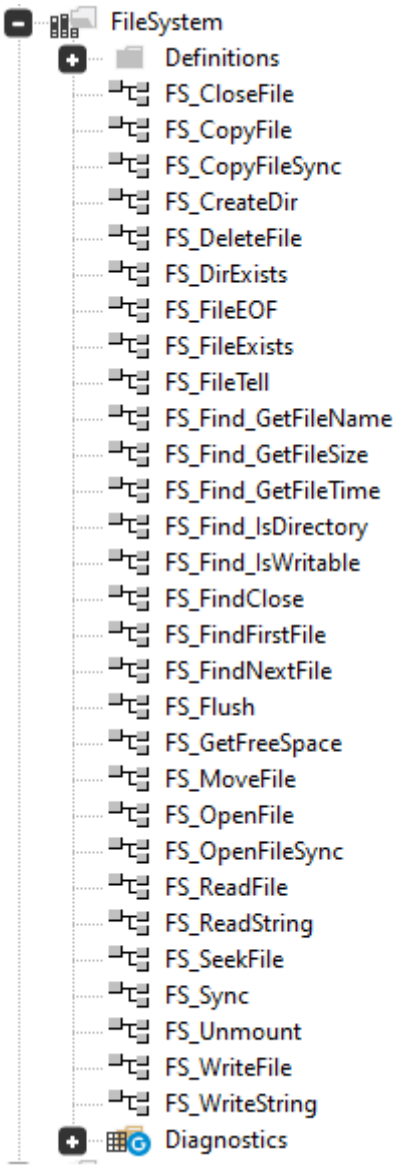
- Add FileSystem library for FileSystem management



- New version of HVAC Electronic Expansion Valve library (2.0.0) for FREE OPTIMA for management of Local EEVD Driver

Mitigated Anomalies Software v1.8.0

The following issues have been resolved:

- Multiple FBD comments collapse when moved together (multiselections)
- AIModbusRTU: Misalignment in functions and function blocks field
- Multiple delete of parameter/ status variables is incorrect in some conditions
- Crash find in the project the string (F#
- Not always update fields in Parameters/Status Variables table
- Real parameters are not exported in a right way in PARAM.DAT file
- Free Smart: error writing BOOL in Simulation Mode
- Issue occurs with Operating System Windows11 24H2 the Advanced settings list for an expansion is empty.

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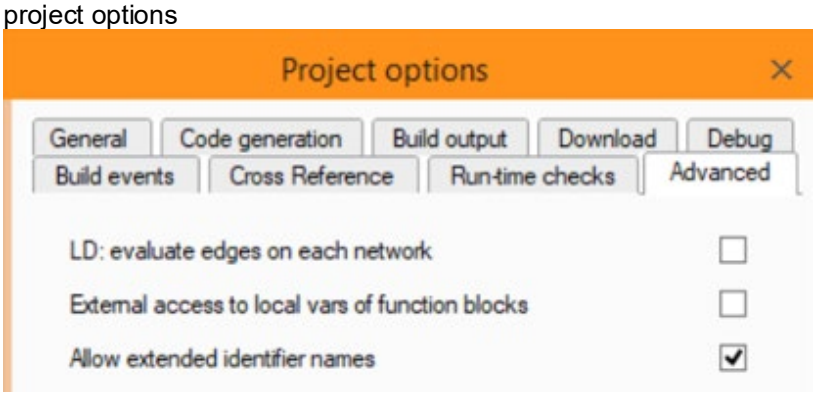
- Free Advance: PAREEV.CSV generated from Installer is not correct
- Free Optima:
  - Crash when disabling "menu expert mode" and switching perspective
  - Not complete information in CSV file for type “Enum” in Import Parameters
  - Import CSV file status variable incomplete
  - overlapping parameter address also changes incorrectly the menus
  - Simulator bad values for HH:MM format
  - The XXX.Y format shows two decimal places based on the inserted value
  - Booting failed for Free Optima after a download with big project
  - CAN Master: If status variables are linked to digital output of expansion, not all the output are driven correctly.

- SECURE INTERFACE:
  - Translations Usage of addresses in database should check “installer type”

- EVEVD:
  - Change description of n11 parameter in “Extra Movement in full closure periodical, every n15 hours, mode n26”.

- AVP DISPLAY:
  - Unicode characters cannot be used for languages names. It is necessary to enable “Allow extended identifier names” in project options



  - Variables mapped on application data blocks excluded from .exp file

- New version of HVAC Electronic Expansion Valve library (2.0.0) with updates in the following AFB(only for Free Optima):
  - EEVDAlarmMgmt (1.0.3): Reset after rearm does not check status

New Features Software v1.7.0

- Increase of maximum PLC project dimension:

ST lines were limited to 64K lines per POU, and number or relocations were limited to 64K accesses per location; both limits have been now removed.

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- Reduced memory usage on compilation:

Various optimizations in PLC project compilation, can reduce memory usage up to 50%

- Code editor improvements:
  - Redesigned autocomplete popup window
  - Input assistant for Function Block Diagram (FBD) and Ladder Diagram (LD) languages blocks
- PLCOpen XML import improvements.

Enhanced interoperability and simplified migration from other PLC environments

- New ‘Code Analysis’ tools:

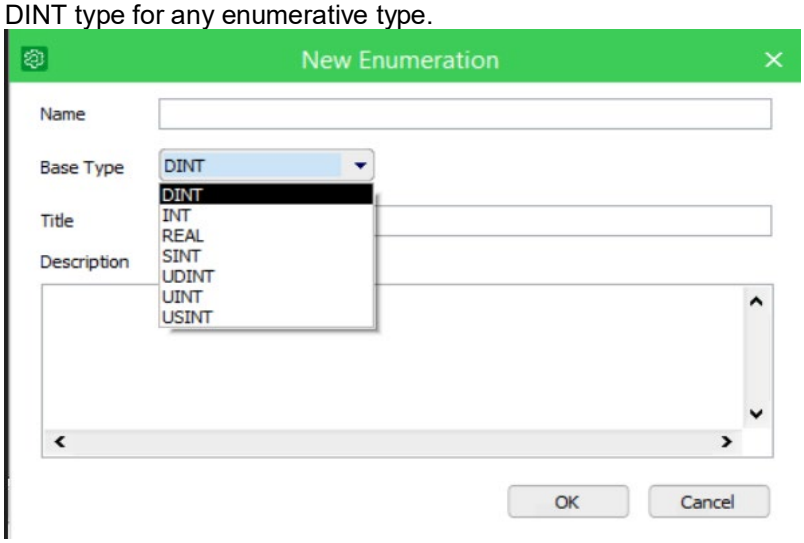
Project compare, Global variables report, Unused variables report, Unused POUs report, Dependency viewer.

- Introduction of Management of String Array. Accessing of a part of the string by stringvar[i] is no longer supported.
- Introduction of extended characters for identifiers:

Declaration of variables and expressions in Chinese, Japanese, Korean and more

- Custom base types of enumeratives:

It is now possible to specify a custom integer type instead of the default DINT type for any enumerative type.



- Reduced Code usage by HMI of target 825
  - Added Target Variables sysUsbFileName (to manage files by SysUsbCommand=16) in Target 825, USB_Host_Handling
  - Added sysRetainPars (for management of system retain parameters array) in Target 825, System Parameters
  - Label defined and added to menu other BIOS parameters in target 825
  - Better order of BIOS Parameters of target 825.3 defined in Configuration.
  - Added missing label of BIOS parameters of target 825.3.
  - New AFB Communication library for target 825
  - New Web Users management added to Configuration perspective (target 815 and 816). It allows to define the

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user access to each defined web page.

Mitigated Anomalies Software v1.7.0

The following issues have been resolved:

- FBD: Unexpected dereferenced value of pointers passed as input parameters of a function blockArray declaration with size with a costant
- Error during refactoring "Null pointer detected"
- Incorrect Diff code state occurs using multifile project and retain vars
- Rsm file error using multifile projects and constants
- An Issue on file generation parameter after Simulation launch
- Toolbar position not saved when target changes
- Target variables are skipped due to overlapping between parameters and TGT group.
- Simulation: Error writing parameters of 1-byte size
- POLI value changes with the simulator active
- Cannot read/write strings in simulation mode.
- Systematic Crash changing default parameter value bios 542.9.
- When a word is placed at the end of IEC local variable declaration, the compilation gives an unclear error.
- An issue has been resolved on Import parameters file (created using Generate parameters file in the commissioning button) when the imported parameters are empty.
- FREE Smart: error in export menu
- FREE Evolution: Incorrect cast using TO_UINT with HEX var
- FREE Optima:
  - exhibits an unexpected suffix when copying parameters from another projects.
  - CFN is not updated in some cases
  - % format on system parameters is not correctly handled
  - An Issue in autoicon regarding management of sysIcons in Edit Code
  - Limits taken from other parameters are not set
  - The Alarm menu is not always visible
- Secure Interface:
  - translations in Chinese Language for the “Runtime Parameters” page is not correct.
  - PLC starts before defaults are written.
- New version of HVAC Application library (1.3.8) with updates in the following AFBs due to PCR solution:
  - AHUTempCntrlStrategy(1.1.0), EvapPressCntrl(1.1.2) , FloatingHighPresCntrl(1.1.2):
  - alert if PID in alarm causes cycle time
- HPDefrostAndRevValve(1.0.1):
  - FB does not check Delay values (Delay1>Delay2) and
  - I_udiDelayDefrostTimerPt, uiTimerDefrostPhase and uiTimerNextDefr update in any value of usiDefrosStatus
  - Press2Temp(1.1.3), Temp2Press(1.1.3): code optimization, fixed alert management, -32768 out in case of incorrect gas/state
  - CompCntrl_OnOff(1.0.2), CompCntrl_Slider(1.0.2): Fix compressor lock in case of alarm the cycle after the start command
  - FloatingWaterTempSet (1.1.1): Added a cast in SetPointStepFilter
  - CompCntrl_VS(1.1.5): Fix compressor lock in case of alarm the cycle after the start command
  - CompMgmtVS(1.2.9):
    - Fixed bug related to rMinRange and rMaxRange, rReqCapacity
    - Fixed bug with configuration: at least 1 inverter + 1 on/off
  - CompMgmt(1.1.2):

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    - Reset TON_Increment at xEn starts
    - Fixed management of Manual/maintenance Comp
    - rounding up to the integer of rReqCapacity and rMaxSp
    - fix to force a usilNrC re-sorting after an 'Alarm is gone'
    - added round to iSetpCx
    - array size linked to constant
- New version of HVAC Regulation and Control (1.1.7) with updates in the following AFBs due to PCR solution:
  - StepControllerAnalog(1.1.0) :
    - Fix bug on binary and linear step
    - change sysClock.seconds with sysTimer
    - code optimization,
    - usiSteps default=1
    - internal limitation of input vars
    - delay reset at each step change
    - SHL update for target 412/542
    - runtime change of usiSteps, more precise Tic calculation
      - WeekSchedule(1.0.4): Init value of I_uiMinDeltaTime
      - PIDAdvanced(1.1.2) round of iAnalog respect to rAnalog

Known Operational Anomalies Software v1.7.0

NONE

New Features Software v1.6.0

NONE

Mitigated Anomalies Software v1.6.0

The following issues have been resolved:

- Bug reserved word for IEC text variable declaration
- Array declaration with size with a costant
- Incorrect behavior of D&D of a variable in ST code
- Real parameters are not exported in a right way
- Bug incorrect result of complex logical operation in FBD
- Bug in simulator for Aix:
- Bug for simulator: Diff code even if code no change
- Bug for Multiple Add of Strings
- Disable autorefresh mode during download all
- Use manual settings not work for web
- Simulator does not manage param USINT correctly
- Incorrect EDE files creation
- Basic library: Function Blocks R_TRIG and F_TRIG not aligned to IEC standard (change Initial Value of m parameter from TRUE to FALSE)

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Known Operational Anomalies Software v1.6.0

NONE

New Features Software v1.5.1

FREE Studio Plus

- Installer Pro Project. Perspective Configuration, menu Project/Options. For more details see user guide Chapter Installer Pro Project
- Televis Driver generation. Perspective Configuration, menu Project/Options. For more details see Chapter Televis Driver Generation.
- Added dictionaries for defined / custom description of parameters and status variable
- Added language selection for parameters and status variable description in the Language / Program option Menu
- Bios download: added a control on the target name
- Added Installer Access Level for parameters and status variable in Configuration
- Faster data refresh/update from Commissioning and Installer
- Commissioning :
    - Removed the command “Write Televis Parameters Value”
    - The command “Generate Parameter File” now generate a csv file in conjunction with the Param.dat
    - Added the command “Generate USB file on target” to force the target to create the files Param.dat and Param.bin on the connected USB stick
    - Added to the command “Import parameter file” the option to create a receipt with the imported parameters
- Catalog updated with the target EWCM 9000 Pro
- Added EWCM 9000 Pro user guide
- Possibility of importing objects Modbus (EEPROM Parameters, Status Variables, etc.) from an Excel file
- Add possibility to select Modbus/Jbus in Modbus Custom Editor
- Add new command line option for "build all" in EWApplication (possibility to BuildAll the project in automatic mode; command line: \BATCHBUILDALL).
- Add an option to select value parameter for Param.bin
- Add pre-compilation options (extension to IEC standard): if this option is checked, IFDEF feature is enabled (you can allow build of portion of code verifying if a certain symbol has been defined).
- Add a filter to export default of BIOS parameter
- Remove Registration License Manager
- Improved code generation and warning handling

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- New algorithm for calculation of POU dependencies: better handling of dependencies between POUs and data types, to avoid unnecessary compilation of unused blocks
- Complex conditions (AND, OR, NOT) for IFDEF directive
- Introduced Verbose warning mode
- Possibility to exclude PLC objects from build explicitly
- IEC textual declaration for structures, typedefs, enums, subranges
- Init value of function variables: it is now possible to both explicitly initialize local variables of functions(x86 only), and to initialize them to zero by default with a specific option
- New symbols browser window: New docking window with fast searching and browsing of all the project symbols
- Custom sort of project folders: checking this option will enable Move Up and Move Down command in the context menu of the folder, in the project tree.
- Unused variables reports: An XML report, with dedicated view, to track all unused global variables of the project.
- Use legacy LD editor: the new Ladder Diagram editor is easier to use, by helping you in common operations working on the diagram will be faster and more efficient. Note that, by default, this option is disabled; enabling it will allow the use of the old LD editor.
- Skip duplicate objects in libraries: It is now possible to use a library that has duplicate object names with respect to the current project, they will be automatically skipped
- Libraries directories: Instead of adding libraries one-by-one, a list of folders containing all libraries to load can be specified.
- Operators, standard blocks and target blocks on library view:
  - "Operators and blocks" window has been removed, and its contents are now shown in the "Library tree" window, in two new folders, called "Operators and blocks" and "Target"
- Support for VAR_EXTERNAL also in functions: As for IEC standard, VAR_EXTERNALs are now also supported in functions (previously only on function blocks).
- PVOID pointer type: New generic PVOID type, to avoid warnings and allow architecture-indipendent pointers;
- Internal rework of symbol names when "case sensitivity=false": Symbol names are not made all uppercase anymore, so they preserve their original case in watch, output, symbol browser, and so on

Installer

- PLC navigation tree, IO Definition, SoftScope automatically added to the PLC menu
- Menu Access Level management

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Mitigated Anomalies Software v1.5.1

The following issues have been resolved:

- Simulation of target EWCM 9000 Pro
- Improved Parameters Export to txt file from Commissioning
- Improved filters in Print Setting from Commissioning
- Improved Print Preview from Configuration and from Installer
- Better spacing on FBD blocks for long name
- Change variable order watch not run with keyboard command
- In FBD selection should be removed when clicking outside the editor.
- An edit object is showed with # if format is %0x in Display for FREE Evolution/FREE Advance while in FREE Advance is correct.
- Save all value of IO pin and exported register for a simulator instance in order to have last situation of environment.
- Add EWP2_6x8 chars i, ï.
- Check related the maximum number of EEV driver valve as slave CanOpen (maximum number admitted:4).
- Long press of Simulator keys generates twice press Event.
- CTRL+Z while execution is paused.
- The Drag and Drop for menu don’t work for FREE Advance 4 DIN.
- Correct Error in compilation for variables used with @notation.
- Bug Icon image in FB not saved when export in library.
- Incorrect position of popup input output window in FBD prog.
- No autoscroll during text selection using mouse.
- Incorrect concomitants COM connection.
- Disable Download all in Installer with XVD.
- Add recipe command not good for FREE Smart.
- Crash if simulator is disabled during build.
- Data Export command in configuration does not export any menu selected.
- Missing data when a filter is used in a recipe.
- Pointers to Digital Input not always run well.
- Not possible to insert blanks into note field in SV.
- Simulator shows string variables partially.
- In live debug mode when we go inside a function after some value is shown a WDT reset occurs.
- Display: Ctrl+C and Ctrl+V should be work for paste text in Edit.

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- If FREE Advance ask a string from display part with @PLC notation to a slave, the requested frame has only 16 chars not the real length of the string.
- Add a checking about Modbus message, sending and error if Modbus RTU are over 512 or Modbus TCP are over 128, for FREE Advance controller.
- TelevisGo: HTML pages should be updated with new FSP style
- Bad behavior of Multiple files project option.
- Error on updating commands of import bitmaps/fonts.
- Correct initialization of a local array inside FB when first element is 0.
- Incorrect definition of data if offset is 1.
- In the compilation error of incorrect usage of bitwise it is specified data type like BYTE, WORD and DWORD.
- Not possible to un-install application while it is running.
- Un-installation of FREE Studio Plus does not remove the directory files completely.
- Setup should check low Disk Space
- Folder Virtual store after un-installation now is empty.
- Setup must check OS version.
- ActiveX Vulnerability fix CVE-2016-4529
- Introduced DLL sign check to prevent dll hijacking.
- New version of HVAC Application library (1.3.4) with updates in the following AFBs due to alignment new algorithm compiler 1.5.1:
    - OperatingHours (1.0.1)
    - COPCalculation (1.0.1)
    - CompCntrl_VS (1.1.3)
    - EEVDCntrl (1.0.5)
    - EEVDSHCntrl (1.0.5)
    - EEVDAlarmMgmt (1.0.2)
    - EEVDSettingsU (1.1.4)
    - EEVDSettingsB (1.1.4)
    - AHUTempCntrlStrategy (1.0.2)
    - New version of HVAC Regul and Control library (1.1.4) with updates in the following AFBs due to alignment new algorithm compiler 1.5.1:
    - WeekSchedule (1.0.2)
- New version of Baseline due to alignment new algorithm compiler 1.5.1:
    - FSP_PrecisionAirConditioner (1.1)
- Error in calculation of Modbus registers for 412 and 542 targets

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- PAR_VIS and PAR_ADR functions can't be compiled on local procedures
- Error in creation of param.bin file on projects with target 596 and 668 with version minor or equal of 12

Known Operational Anomalies Software v1.5.1

The navigation through Sets elements on a page with an Edit object with Selection order property equal to 0 does not work properly.

New Features Software v1.4.1.0

FREE Studio Plus

- Installer Pro Project. Perspective Configuration, menu Project/Options. For more details see user guide Chapter Installer Pro Project
- Televis Driver generation. Perspective Configuration, menu Project/Options. For more details see Chapter Televis Driver Generation.
- Added dictionaries for defined / custom description of parameters and status variable
- Added language selection for parameters and status variable description in the Language / Program option Menu
- Bios download: added a control on the target name
- Added Installer Access Level for parameters and status variable in Configuration
- Faster data refresh/update from Commissioning and Installer
- Commissioning :
  - Removed the command "Write Televis Parameters Value"
  - The command "Generate parameters file" now generate a csv file in conjunction with the Param.dat
  - Added the command "Export parameter files from target to USB" to force the target to create the files Param.dat and Param.bin on the connected USB stick
  - Added to the command "Import parameters files" the option to create a receipt with the imported parameters
- Catalog updated with the target EWCM 9000 Pro
- Added EWCM 9000 Pro user guide

Installer

- PLC navigation tree, , IO Definition, SoftScope automatically added to the PLC menu
- Menu Access Level management

Mitigated Anomalies Software v1.4.1.0

- The following issues have been resolved:
  - Simulation of target EWCM 9000 Pro
  - Improved Parameters Export to txt file from Commissioning
  - Improved filters in Print Setting from Commissioning
  - Improved Print Preview from Configuration and from Installer

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Known Operational Anomalies v1.4.1.0

NONE

New Features Software v1.4.0

- New “Templates” section added to the program landing page and in the File menu
- Improvement of pages navigation for HMI menus created through Display tab. “Close page and back” function is now always available.
- Library of images is now available in Display
- Improved functions to create and configure HMI Project profiles.
- FREE Advance - Reconfiguration Master/Slave RS485-2 from IEC code
- New features in AFB Communication library:
  ATV320ModbusCom
  ATV320ModbusTcpCom
  ATV630ModbusCom
  ATV630ModbusTcpCom

  EBMpapst ModbusCom library:
  EBMFanOperation
  EBMReset
  EBMSetFanAddress
  EBMStatusInfo

  EC Blue Basic ModbusCom library:
  ECBlueBasicCMODE
  ECBlueBasicCOMerrWTD
  ECBlueBasicErrorStatus
  ECBlueBasicInfoOpCd1
  ECBlueBasicLimit
  ECBlueBasicMotorReset
  ECBlueBasicRampTiming
  ECBlueBasicSetFanAddress
  ECBlueBasicSetFixedSpeed
  ECBlueBasicSetIO
  f_ECBlueBasicControlWEn
  f_ECBlueBasicControlWFull
  f_ECBlueBasicMotorCurrent
  f_ECBlueBasicSpeedCtrl
- New baseline Precision Air Conditioner (1.0)
- New baseline Air Handling Unit (1.28.1)

Mitigated Anomalies Software v1.4.0

- The following issues have been resolved:
  - Improve to copy set or string or enum table for HMI
  - EVEVD /FREE Studio Plus - BIOS update download failure
  - Hidden unsupported operators in simulation mode
  - FREE Advance - Improvement to decrease boot time due CAN device missing
  - Refactoring is not propagated to display part
  - Incorrect IEC code for FREE Smart and a modbus custom driver
  - Error in sysWritePar*() functions if value input is an EEPROM parameter if

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value arrive from EEPROM parameter
    - EVK1000 - Bug with a long enumerative (over 258 items)
    - Bug last profile used in display is forgotten
    - CharDimX and CharDimY at 1 like default value
    - Simulator does not run in a correct way
    - sys_USBD_Command has been implemented in simulator. An embedded function is used to detect the correct task
        - 2 = Command code non valid (in back/init task)
        - 3 = Command not executed; function called into task timed.
    - Misallignement between AP and DE compilation
    - CanOpen_IEC Library: CanOpen Library properly renamed.
    - Missing CFG_A01 and CFG_AO2 in param.bin for FREE Advance 4DIN if USB key creation files is used
    - Incorrect parameters definition result using scale 1 offset 1
    - Write default values does not work
    - Warm restart incorrectly triggered
    - Error generating EDS file when the project name contains unicode characters
    - EEPROM parameters are created as read-only with "Add multiple" command.
    - Source code becomes changeable during live debug
    - "Download all" command in Installer from the upper toolbar causes script error in current HTML page
    - A constant cannot be used as array bound on structure field
    - Objects cannot be imported from library if custom workspace is disabled
    - REAL values are truncated in Televis driver generator.
- Solved the following issues in AFB Application library (1.3.3):
    - CompMgmtVS(1.1.3): Code optimization; internal limitation of rSp based on current available capacity in order to avoid multiple compressor start after an alarm reset; extended range of rMinRange (0.0 is now allowed); redefined the way rReqCapacity is calculated (removed the use of ATAN, COS...in order to avoid calculation error with float); improved second tic calculation xlGetSecondTic; added full alarm ordering in order to avoid bug in case multiple alarms and request decrease at the same time
    - FanMgmt(1.0.2): fixed issues with hyst>=minfrequency; division by 0 prevention; offTimer incorrect; removed correction in rPowerSP (1.05)
    - CompCntrl_VS(1.1.2): Bug fix: l_uiFreqCalc not updated if l_iSetpoint>=1000 or <= l_uiMinFreq
    - EEVDCntrl(1.0.4): Created array aauiEEVCntrlParamsImp to manage Imperial UM with selection; passed q_iSuperHeat and q_iEvapTemp, instead of q_iSuperHeatSI and q_iEvapTempSI to EEVSHCntrl
    - EEVDCntrl(1.0.4): increased range of i_iSuperHeatSetp, i_iMOPSetp, i_iContModSetp in EEVSHCntrl
    - EEVDCntrl(1.0.4): l_uiSupHeatSetpMax incorrect initialization in FB_EEVDDynSetpCalc
    - EEVDSettingsU(1.1.3): Load set of parameters just after xEn = TRUE,
    - EEVDSettingsB(1.1.3): Load set of parameters just after xEn = TRUE
    - FloatingHighPresCntrl(1.1.1): Alarms related to Press2Temp independent from update of refrigerants
    - EvapPresCntrl(1.1.1): Alarms related to Press2Temp independent from update of refrigerants
    - AHUTempCntrlStrategy(1.0.1): fixed warning generated with REAL conversion
- Solved the following issues in AFB Regul and Controls library (1.1.3):
    - PIDAdvanced (1.1.0): Dead band behavior modified, dead band high limit

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removed; PID low limit moved to -100.0
    - OperatingHours(1.0.1): Fixed hours calculation (in case of use in Timed the error was 10%)
- Solved the following issues in AFB Communication library (1.1.0):
    - ATV12ModbusCom(1.0.1), ATV312ModbusCom(1.0.1), ATV31ModbusCom(1.0.1), ATV32ModbusCom(1.0.1), ATV61ModbusCom(1.0.1), ATV71ModbusCom(1.0.1): Bug fix: in init state, changed if condition to go to 'stopping'

New Features Software v1.3.0

- New command line switched included in batch download (for example retries)
- Possibility to open multiple resources-tree at the same time
- Menu folder shown in Global shared, EEPROM and Status Variables
- Added possibility to create multiple EEPROM and Status variables, similarly to local variables
- Added possibility to comment out Ladder/FBD networks to remove them from the compilation process.
- Libraries now available with direct link to target (msk 668.11 and msk 569.11 only)
- New features in AFB Application library (1.3.2):
- New AFBs EEVDCntrl (1.0.3), EEVSHCntrl (1.0.3), SuperHeatCalc (1.0.1), EEVDAlarmMgmt (1.0.1), CheckCOMAlarm (1.0.1) for EEV application control
- New AFB EEVDSettingsU (1.1.2) for unipolar EEVD management
- New AFB EEVDSettingsB (1.1.2) for bipolar EEVD management
- Added new refrigerants from 13 to 26 and custom refrigerant (255) in Press2Temp (1.1.2) and Temp2Press (1.1.2) AFBs

Mitigated Anomalies Software v1.3.0

- The following issues have been resolved:
    - Integrated new Registration Software mechanism to fix artf214353 vulnerability
    - Integrated new Registration Software mechanism to fix a cybersecurity issue that could allow attackers to redirect Schneider Electric Software Update to a malicious Update server.
    - Added find and replace feature for Configuration tab
    - Added Driver Televis generation also for FREE Smart
    - Corrected object property description for FB OverwriteLocaldisplay
    - Bug fix in the closure of FTPGateway
    - XVD : fixed description issue for dE25 and integration of SP and MOP values made available through modbus
    - Bug fix in installation folder
    - Bug fix in firmware upgrade via COM on FREE Advance
    - Speed up FREE Advance boot in case of not connected CAN expansions
    - Bug fix in defining string variable of length 1
    - Bug fix in moving program between tasks
    - Bug fix in window appearance, help online
    - Added dE97 in the catalogue of XVD 3.0
    - Added pre-compilation directive to exclude part of source code from the compilation process
    - Big fix on BIOS Enumerator removal
    - Added Port_FTP_PI in PARAM.BIN file
    - Bug fix on compilation error generation if, with custom modbus editor the

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number of registers exceed the allowed ones
- Solved the following issues in AFB Application library (1.3.2):
- Changed low limit of iFixeVal from 0 to -500 in FloatingWaterTempSet (1.1.0)
- Default values changed for uiLowNoiseMaxFreq, uiFanFreqMin, uiFanFreqMax, uiHysteresis in FanMgmt (1.0.1)
- Correction of bug: hysteresis implemented for uiArrFreqLimits in CompCntrl_VS (1.1.1)
- New inputs for custom refrigerant in Press2Temp for FloatingHighPresCntrl (1.1.0) and EvapPresCntrl (1.1.0)

New Features Software v1.2.1

- Integrated new SESU 2.3.0.
- Ask to select language during installation
- EULA in Japanese.
- Modbus variables can be exported to an EcoStruxure Operator Machine Expert compatible format
- Target RTC alignment during Download All
- Graphical minor changes on logos and icons
- Live debug function for ST language
- Direct bit mapping with physical location
- Support for direct bit access
- Optimization of watch windows
- Support for dynamic array bound using a symbolic constant
- POU can be saved into separate file to facilitate the integration with version control systems
- Improved RS485 configuration form
- Zoom function in Programming Editor
- Bios Parameters → Add full list in Menu
- Change Filter Icon in Commissioning/Installer
- Cybersecurity best practices adoption (force user to change password at first access and unsecure protocols disabled by default)

Mitigated Anomalies Software v1.2.1

The following issues have been resolved:
- Loss of program link when "Multiple files project" is selected
- Loss of the translation of the enumerative defined within Display which have additional languages with respect to the BaseLanguage
- Target EVE6000/EVE10200 do not exit from preoperational status
- Stop download with DMI1003002000 vs Target SM●●●●
- Integrated new Registration Software mechanism to fix artf214353 vulnerability

Solved the following issues in AFB Application library (1.2.2):
- Correction of calculation of dewpoint when its value is below 0 °C in Psychrometric AFB (1.1.0)
- Correction of Bug in saving EEPROM for ThermalPowerCalculation AFB (1.0.1)
- Change description for xCntrlMode in properties of CompMgmt AFB (1.1.0) Correction of bug if all compressors go in alarm state and then go out from alarm state, the enable signal needs to do a transition False-True to have a restart of the compressor manager.
- Correction in CompCntrl_VS AFB (1.1.0) because it was possible to write

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outside array of Prelimits.
- Anomalies on FREE Studio Plus by code
- Bug in debug mode: A breakpoint in Debug mode on FB TON gives a WDT reset of controller
- Buttons in raised state are incorrectly drawn, exceeding HMI area
- Init String on FREE Advance
- ST editor: multiline IEC comments that contains a) is not marked as comment
- FC - Improvement security vulnerabilities in HTML5 online help
- Help for application object launch an exception
- Incorrect positioning of table row with TVDA .sitetempl file
- Column value of parameter not valorized for FREE Smart
- Error loading LON Custom profile
- Missing typedef variables after importing from library (typedef not imported)
- Batch download without /REBUILDPLC does not work anymore
- When dragging a new block, it cannot be placed at the right place because the code scrolls too fast
- Auto creation EDS file

New Features Software v1.1

- Localization on dialog forms is now possible

Mitigated Anomalies Software v1.1

The following issues have been resolved:

- Function Block QRCodeDisplay launch compiler critical error if used with AVP1●●●.
- Value for RS-485 set in configuration aren't written like default
- Issue with "Modified" state after a "Refresh current target" command
- "Build all" disabled while the HMI project is loading
- File PARAM.BIN is incorrect, string termination is missing
- Switching perspective issue
- Add the possibility to download single PLC, HMI and HMI Remote from FREE Studio Plus Installer as with FREE Studio Plus
- EWC.exe: error in the compilation of the project with Chinese characters in the name
- File list (.ini) encoding issue
- Modbus Custom editor: all protocols are not added if driver is modified.
- In Modbus custom editor is not possible to insert modbus register of different type (input, Holding...) with same modbus address
- Code generation error: SFC control variables not found
- Import of FREE Evolution / FREE Panel Blind Project with HMI Remote does not function.
- Black tabs in Auto Hide Mode. It's difficult read the name of the window
- A program error for a particular configuration of the group policy
- In simulation mode a breakpoint is reached after the CASE OF and after the ELSE
- Error in print on Ladder project
- Breakpoints used inside inner loop

Known Operational Anomalies v1.1

- Minor vulnerability fixed on dll hijacking (internal reference artf270287)

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