

BLUE 3.4

Read Me

Document Revision: 06

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1 SOFTWARE DESCRIPTION

This software provides an integrated development environment that enables you to use a personal computer to create a Human Machine Interface (HMI) user application. The HMI user application, used by the runtime software, can run on multiple platforms.

2 SYSTEM REQUIREMENTS (SCREEN EDITING SOFTWARE)

	Minimum specifications	Comments
PC	Windows PC/AT compatible machine	-
CPU	8th Generation Intel(R) Core™ i3/i5 Processors or faster	-
Memory	8 GB or more	-
Available Disk Space	30 GB or more	-
Operating System	Windows 10 Pro (64-bit) with latest update	-
Other non-operating-system programs	.NET Framework 4.7.2 full *1	-

*1 When installing the screen editing software, .NET Framework Ver.4.7.2 full is automatically installed. For disk space requirements, visit the Microsoft website.

Note:

- This product must be installed and configured by qualified software installation personnel with administrator rights.
- The software installation file is configured with a digital signature. If any issue regarding the digital signature arises during installation, cancel the installation and contact customer support.

3 ACCESS RIGHTS

3.1 Screen Editing Software

You can install or uninstall the screen editing software with administrator privileges.

3.2 Runtime (IPC Series / PC/AT)

You can install or uninstall the run time with administrator privileges.

When transferring project files, launch the run time with administrator privileges before transferring.

4 FOR SECURE APPLICATIONS

This section explains some points to securely configure applications.

Note: Security related messages appear in the Feedback Zone's [Security Warnings] tab. Review messages and take required corrective action to reduce your cybersecurity risk.

4.1 Cybersecurity Best Practices

To help keep your Pro-face products secure and protected, we recommend that you implement the cybersecurity best practices.

Following the recommendations may help significantly reduce your company's cybersecurity risk.

For the recommendations, refer to the following URL:

<https://www.pro-face.com/trans/en/manual/1087.html>

4.2 To build a secure network for unauthorized access prevention

- Build a communication environment using encrypted communications (ex. VPN).
- Check that the network is secured before communication is established and data is transferred through the Ethernet.
- Select a transfer option that is not based on Ethernet communication (ex. USB Cable or FileSystem). If you need transfer option based on Ethernet communication, we recommend to use IPsec.
- Open the port for data communication only when you use the communication service.
- Protect your PC with a firewall and make sure it is used on a trusted secure network.
- Install the display unit on a trusted secure network and protect the display unit with a firewall.

4.3 To prevent impersonation in Display Unit

- Use the Security features.
 - Use the auto logout feature.
 - Give an appropriate security level for unlocking to limited users (allow only users with administrator rights to unlock, and so on).
- Password is not asked for the below operations:
 - External Device operation block - Upload (USB Storage/SD Card)
 - External Device operation block - Download (USB Storage/SD Card)
 - Display the Hardware Configuration

Set the security level for the Switches which are used for above operations.

- When using Web Viewer to connect to the display unit, do not touch the [***] button to display the password. The displayed password will become visible to all connected display units and Web Viewer clients.

4.3.1 When Using SP5000 Series Open Box (Windows 10 IoT Enterprise Model), IPC Series, or PC/AT

- Use runtime only on a trusted PC.
- Do not log in to Windows with an account that has administrator rights, except when transferring project files or performing other operations that specifically require administrator rights.
- Use the security features in Windows (set a password, use the auto-logout feature, etc.).
- Set secure passwords and security for the administrator account for your project.

4.4 To protect information from alteration

- Harden your PC following the best cybersecurity practices (antivirus, updated operating systems, strong password policies, Application Allow Listing software, etc.) using the following guideline:
<https://www.pro-face.com/trans/en/manual/1087.html>
- Carefully manage your own data.
- Protect your project by adding a project password.
- Preventing Unauthorized Changes to a Project
- When using transfer option based on USB Cable or Ethernet Cable, enable [Security Setting] in [Transfer Method].
- Do not execute screen editing software with Windows administrator rights.

- Use screen editing software only on a trusted PC.

5 LICENSE / REGISTRATION

Please refer to Help from the Schneider Electric License Manager.

6 TOOLS

You can distribute the following tools installed in the [Tools] folder.

- Export Validation Tool
- User Management Tool

7 WHAT'S NEW

7.1 Hardware Support

SP5000X Series is now supported.

7.2 Updated Drivers

The following driver is now supported.

- KEYENCE Corporation - KV-10/16/24/40 CPU Direct

New CPUs support by the following driver.

- Rockwell Automation, Inc. - EtherNet/IP

New version of L5K file (RSLogix5000 V33/V34) is now support by the following driver.

- Rockwell Automation, Inc. - EtherNet/IP

7.3 New Features

Local Variables

- Local variables are now supported. Local variables can only be used within a screen, content, or its scripts.

New Parts

- The following part is now supported.

Address Display

Block-based Script Authoring

- The block-based script authoring environment has been enhanced.

Communication

- You can now use error status in an equipment property.

OPC UA Server

- You can now select AES for the security policy.

Cybersecurity Enhancement

- Changing the format of output strings and special symbols is now prevented so that unwanted processing when opening exported files is blocked.

Improved Usability of Screen Editing Software

- The operability of Project Explorer, Tool Chest, Properties, and Object List windows has been improved.
- Block-based script authoring supports Intellisense.

8 FIXED LIMITATIONS

8.1 Screen Editing

8.1.1 Screen Editing Software

- Fixed an issue where an error message continued to display in the screen editing software even after the error was corrected.
- Fixed an issue where the error message "Reached maximum number of *** equipment" displayed in the screen editing software even though the project did not reach the maximum number of equipment.
- Fixed an issue with CSV file import in the screen editing software.
- Fixed an issue that resulted in a corrupted file when saving a project.
- Fixed an issue where memory usage was too high when opening multiple screens in the screen editing software.
- Fixed an issue where float values did not display correctly at simulation and run time because float values were not handled correctly in certain language settings.
- Fixed an issue where drag selection of multiple objects did not operate correctly.

8.1.2 Screen / Content

- Fixed an issue where the Grid did not display correctly when extending the size of a layout object such as Scroll Canvas or Zoom Canvas when [Show Grid] was enabled.
- When using the Navigation function, there are Navigation switches on the Master Screen. Fixed an issue in the screen editing software where the Navigation Switch properties were incorrectly allowed to bind.

- Fixed an issue so that you can copy screens or contents from screen editing software version 3.3 to screen editing software version 3.2, 3.2 service pack 1, or 3.2 service pack 2.

8.1.3 Parts / Shapes

- Fixed an issue where using the [Ctrl] key and mouse to copy a part or shape duplicated the part or shape in the same position.
- Fixed an issue where an incorrect string was set to the destination if a large numeric value was set in the [Source] for a string type touch operation in an object ([Function] tab - [Touch] tab).

8.1.4 Script

- Fixed an issue where an invalid property "TriggerVariable" was shown in the "DataLogging" Block when editing scripts in the screen editing software.
- Fixed an issue where the variable block produced an incorrect validation error and indicated the variable was undefined if the variable was defined with a previously deleted variable name.
- Fixed an issue where the screen editing software exited unexpectedly when the setting field of an [Equipment] value was left blank in a script.
- Fixed an issue where the screen editing software showed a variable validation error even though the variable was not used in a block mode script.
- Fixed an issue where the screen editing software showed syntax errors when using strings that included the following characters as part of a literal.
 - /u
 - /x
- Fixed an issue where the Intellisense function did not work while entering the variable name in Text mode of the script editor if the variable name used characters from any of the following languages.
 - Japanese
 - Korean
 - Chinese
- Fixed an issue where the reference to an alarm property in the script did not update correctly after the alarm type was changed.
- When using a variable with the same name as one of the following keywords in the Text mode script, prefix with "\$Global".

Keyword				
break	const	continue	debugger	default
delete	do	export	extends	finally
for	function	goto	import	instanceof
return	super	switch	throw	try

var	while	with		
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- Fixed an issue where IME inputs did not work properly in Text mode of the script editor.
- Fixed an issue where the replace function did not work properly after continually replacing text using Find and Replace.
- Fixed an issue so that you can use `$Math.E()` or `$Math.Random()` with an assignment operator (=) in scripts.
- Fixed an issue where the screen editing software did not catch an error even though the Target value block was set incorrectly, thereby allowing the transfer of the project. Now the screen editing software shows an error in the Feedback Zone for the incomplete settings.
- Fixed an issue where script stopped working at runtime when a paste, undo, or redo operation was performed in the screen editing software for a script element set up with an array.

8.1.5 Alarm

- Fixed an issue where you could not use real data type numbers with the same integral value in multiple alarm fields in a single variable.
- Fixed an issue where the screen editing software did not catch an error when invalid variables were configured in the Alarm and transferring the project was possible. Now the screen editing software shows an error for the invalid settings and the project cannot be transferred.

8.1.6 Logging

- Fixed an issue so that the data format in an exported logging file uses the setting in the Target's [Date Format] property.
- Fixed an issue where even if the [Interlock] property of a Logging Group was locked, the display unit continued to execute logging.

8.1.7 Variables

- Improved the usability for the Device address window for entering device address for variables.
- Fixed an issue so that you can now set the Target.DateAndTime property to a DATE_AND_TIME type variable without an error.
- Fixed an issue so that the [Minimum] and [Maximum] values of external variables in an [Input Range] setting are retained correctly after project is reopened.
- Fixed an issue in the array editor where the search did not update correctly when changing array dimensions while narrowing the search criteria in the search function.
- Fixed an issue where the screen editing software exited unexpectedly when modifying a structure variable inside an array.
- Fixed an issue so that the screen editing software shows an error when the [Dimension] setting of an array variable imported from a symbol file was changed.

- Fixed an issue so that the screen editing software shows an error when the data types for the variable and device address do not match.
- Fixed an issue where the screen editing software falsely displayed an error and prevented you from importing a CSV file even though its content did not exceed the maximum number of variable folders. The limit for the number of variable Folders is 100. When importing a CSV file that includes Folders that already exist in the current project, the Folders are identified as different and therefore the screen editing software showed the error.
- Fixed an issue in the screen editing software where renaming a child element of a structure also renamed child elements with the same name in a different structure.
- Fixed an issue where the Data Sharing property of external variables was not updated when importing variables.
- Fixed an issue so that now you can now search for variables inside structures in the [Variable Selector] dialog box.
- Fixed an issue where values did not display correctly at runtime when a structure array or an array element was associated with a variable.
- Fixed an issue where a project with an array starting with a negative or non-zero element number (e.g. Array1[-1..1] or Array2[4..6]) that was created in an older version of the screen editing software did not work properly at runtime after opening and transferring the project file.

8.1.7.1 Symbol Link

- Fixed an issue where the display unit did not work properly when using more than one symbol link.
- Fixed an issue with displaying the retentive property of symbol variables in the screen editing software. Now you cannot modify the property for symbol variables.
- Fixed an issue where error path details did not display correctly.

8.1.8 **Simulation**

- Fixed an issue where simulation did not launch when using the comma ',' decimal point in the property settings.
- Fixed an issue where simulation unexpectedly exited when a decimal value was set in the Numeric Displays [Current Value] property in in the screen editing software.

8.1.9 **Driver**

- The error message that displays when changing the [Series] in the equipment property window for the following drivers has been improved.
 - Siemens AG - SIMATIC S7 MPI Direct
 - Siemens AG - SIMATIC S7 Ethernet
- Fixed an issue in the following drivers, where the screen editing software allowed entering an invalid Unit ID causing the display unit to display a system error.

- Modbus Organization
 - ◇ Modbus SIO Master
 - ◇ Modbus ASCII SIO Master
 - ◇ Modbus TCP Master
- Schneider Electric
 - ◇ Modbus SIO Master
 - ◇ Modbus TCP Master
 - ◇ Modbus TCP Master via USB
- Emerson Industrial Automation / Control Techniques
 - ◇ Modbus SIO Master
 - ◇ Modbus TCP Master
- YOKOGAWA Electric Corporation
 - ◇ Modbus SIO Master
 - ◇ Modbus TCP Master***

8.1.10 External Storage

- Fixed an issue where ejecting an external device was possible even if it was selected in the [Save in] property of [All Alarms], [All Loggings] or [Operation Log]. Now the screen editing software shows an error if the [Eject] operation is set for an external device that is selected in a [Save in] property.

8.2 Transfer

- Fixed an issue where the screen editing software did not show the correct error when transferring a project file that exceeded the maximum size limit.
- Fixed an issue where the screen editing software showed a download error even if download was successful. This issue occurred when downloading for the first time a project file with the [Download Ethernet Settings] enabled to a display unit with GP-Pro EX installed.

8.3 Display Unit Operation

8.3.1 Screen / Content

- Fixed an issue where the screen configured in the [Initial Screen ID] property did not display at startup when the [Target] property's [Download Ethernet Setting] was disabled and the wrong IP Address was configured.

8.3.2 Parts / Shapes

- Fixed an issue where the Web Viewer client did not display the following parts correctly with the [Shadow] property.
 - Lamp
 - N-StateLamp
 - Toggle Switch
 - CheckBox
 - Radio Button

8.3.2.1 String Display

- Fixed an issue where the String Display displayed the ID instead of the string when the variable associated with the String Display was configured with a Range Converter that output text from the Language Table.

8.3.2.2 Trend Graph

- Fixed an issue where the display unit displayed the latest data when attempting to show historical data.
- Fixed an issue where the display flickered when displaying historical data in a Trend Graph part.

8.3.2.3 Picture Display

- Fixed an issue so it is now possible to touch areas outside a picture display object even when its width is thinner than the width of the control icons (arrows, zoom in, zoom out).

8.3.3 Script

- Fixed an issue where using the [Quality] property of variables did not work.

8.3.4 Trigger / Operation

- Fixed an issue where using the debug print operation with Indirect Addressing (for example, Var1[Var2.Value].Value.) did not work correctly.

8.3.5 Alarm

- Fixed an issue where the filter function in an Alarm Summary did not work correctly when associating [Language Table Text] in an alarm message.

8.3.6 Logging

- Fixed an issue where SQL-reserved words could not be used for the names of logging groups.

- Improved the performance of exporting logging data which sometimes took an excessive amount of time depending on the logging group settings below, the structure of the current screen when export was executed and the model of the display unit.
 - Maximum number of records
 - Number of registered variables
 - Available storage of export destination

8.3.7 Recipe

- Fixed an issue where unintended recipe data got updated when editing at runtime recipe data that was configured as part of multiple recipe families or recipe groups.

8.3.8 Security

- Fixed an issue that occurred when failing to enter the User Name or Password and an error message in the Alarm Summary but did not disappear even after logging in successfully.

8.3.9 Import

- Fixed an issue where importing a CSV file was interrupted when it included line breaks, causing only a part of the CSV data to be imported. A CSV file with line breaks is not supported. This line is imported as empty and any data that follows continues to be imported.

8.3.10 Web Viewer

- Fixed an issue where the [Touch Hold Timeout] setting did not work as expected when the Web Viewer client was running in the background after a second log-in from the Web Viewer client.
- Fixed an issue so the display is now the same between the display unit and Web Viewer even under the following conditions.
 - 'Animation.RotationAngle' and 'Animation.Rotation Center(X)/(Y)' are set, and the object is part of a grouped object.
 - 'Animation.RotationAngle' and 'Animation.Rotation Center(X)/(Y)' are set, and [Height] or [Width] property is associated with a source property such as a variable value.

8.3.11 OPC UA Server

- Fixed an issue with OPC UA Server generating a redundant node ID.

8.3.12 Driver

- Fixed an issue where unexpected behavior occurred when using an unlocated BOOL variable associated with the Schneider Electric Modbus TCP Master driver and a display unit read from an unexpected area.

- Fixed an issue where the display unit did not communicate correctly when using the Mitsubishi Electric Corporation FX Series CPU Direct driver with an FX3UC CPU.
- Fixed an issue where a PLC connection could not recover when using one of the following drivers.
 - Schneider Electric Modbus SIO Master
 - Schneider Electric Modbus TCP Master

8.3.13 GP-4100 Series

- Fixed an issue where you could not change the year with the Up/Down buttons in the Hardware configuration screen of the GP4000 Series.
- Fixed an issue where the HMI did not communicate when using GP4000 Series and Mitsubishi Electric Corporation FX CPU direct via RS422/485 (4 wire).

8.3.14 ST6000 Series

- Fixed an issue so the system error SYS02002 does not display after replacing the battery and restarting the display unit.

8.3.15 IPC Series and PC/AT

- Fixed an issue where the runtime did not work correctly when the group name for general users was not "Users", such as "utilisateurs" on a French operating system.

8.4 Performance

- Improved the performance of transferring the project file from the screen editing software to the display unit.
- Improved the performance of opening a project file in the screen editing software.
- Improved the performance of simulation in the screen editing software.
- Improved the boot performance of the display unit when many Alarms are registered.
- Improved the drawing performance for Block Trend and Trend Graph when there are many points.

8.5 Cybersecurity

- Enhanced security to prevent scripts in an exported file from running when you open the file.
- The following security vulnerabilities have been addressed in this release.
 - CVE-2023-1049

9 LIMITATIONS

This section lists the limitations that are applicable to both the Screen Editing Software and Runtime.

9.1 License

- In the Schneider Electric License Manager, if a version 3.0 trial license is still active, please remove it.
- After the trial license has expired, on launching the runtime the Schneider Electric License Manager will launch and prompt you to input a license. Close the Schneider Electric License Manager so that you can continue operating the runtime.

9.2 Screen Editing

9.2.1 Screen Editing Software

- You cannot search for a variable in an array variable element by its full variable name. Search for either the name of the array variable or the variable used in the array element. For example, if the search target is "Var1[Var2.Value].Value", search "Var1.Value" (name of array variable) or "Var2.Value" (name of variable used in element). Search will not work with "Var1[Var2.Value].Value".
- If there are a large number of variables (for example 20000) and you perform many filter actions in the Variable Editor columns, the mouse may show the busy icon in the Variable Editor. On relaunching the application, the mouse will return to its normal icon.
- You cannot use the comma "," as a decimal separator in the screen editing software.
- If you install the screen editing software on a PC with SoMachine or EcoStruxure Machine Expert already installed, some USB drivers may not be recognized.
- In the screen editing software, if you open a project file in a read-only folder, the screen editing software may crash when you try to save the project file to a writable folder.
- Do not install the screen editing software in a path with Unicode characters. Select a path without any Unicode characters.
- There are multiple issues in tab management when the project is closed and opened again:
 - If you have multiple tabs in a single docking section, the order of tabs is not retained.
 - If a layout item is closed (for example, Cross Reference Window), it will be opened again when the project is opened.
- Windows 8.1 and Windows Server 2012 R2 are not a supported operating system for the screen editing software. The screen editing software can be still installed, but it will not launch successfully.
- In a screen, when there is an error in a navigation switch property, the screen editing software shows an error. In this scenario, the error window cannot direct you to the location of the error. Please check the [Source], [Path] and [Property] in the error window and find it manually.

- The error message count in the error window may be different between the Block mode and Text mode for scripts.
- When there are multiple error messages caused by the same source property associated with multiple target properties in the screen editing software, only one message will display in the error window. The other errors will appear one at a time after resolving the error in the error window.

9.2.2 Project File Conversion

- When using the screen editing software with a project converted from a previous version, an error is incorrectly shown for an N-State Lamp object's [Variable] property during validation.
Double click the error and the error will disappear.
- Before opening a project file in this version, refer to the user documents.
From the Manual top page, click the [Feature Guide] icon and in the table of contents select [Before Use] and then [Notes of Project File Conversion].

<https://www.pro-face.com/manual/blue/history/en/index.htm>

9.2.3 Screen / Content

- If you add a screen with [Screen Type] set to [View Box], the screen may not draw correctly if the following conditions occur.
 - A script does one of the following:
 - ◇ Change language using the Target source property (<target name>.Preferences.LanguageID)
 - ◇ Perform a [Security] - [Login] operation
 - ◇ Change visibility using Content Display source property (<object name>.Visibility)
 - After executing the above, screen change or content change operation occurs.
- In the screen editing software, when the Content width or height is set with a larger value and the zoom level is changed, sometimes you cannot scroll. To avoid the issue, touch the screen editing area before moving the scroll bar.

9.2.4 Parts / Shapes

9.2.4.1 Content Display

- The width and height of a content display and referenced content may not be correct when the values are referenced from other properties or script.

9.2.5 Font

- Chinese_Simplified_GB2312_Gothic will not be supported in the next version, nor in later versions. Project files that use this font from previous versions will be converted to Chinese_Simplified_GB18030_Gothic.

9.2.6 Script

- When using Search and Replace in Text mode of the script editing screen, word searches containing some special characters ('\$','^','*', etc.) may not work properly.
- When the script editing screen is in Text mode, the replace operation on text mode scripts from the [References] window does not work. Instead, use the find and replace operation in the script editing screen.

9.2.7 Trigger / Operation

- An error does not occur even if you set one of the following unsupported objects on a Touch trigger.
 - Alarm Summary
 - Hardware Configuration
 - Ingredient Viewer
 - Picture Display
 - Web Browser
 - All Layout Objects
 - Screen / Content
 - Group Object
- [Alarm Group] operations do not support system errors. In the Screen Editing software, even though you can set [Alarm Group] operation to [SystemErrorGroup], it will not run on the display unit.
- The [SystemErrorGroup] property is currently not supported. Even if you set the property in the screen editing software, the property will not work correctly.

9.2.8 Alarm

- Script cannot change the alarm message. On the screen editing software, an error occurs when you create a script that changes the alarm message.

9.2.9 Converter

- [Range Converter] does not work when [LanguageText] is selected for the [Data Type (Result)] property. The [Text ID] of the Language Table is outputted instead of the Text.

9.2.10 Variables

- Do not import a variable file with a variable named "Structure".
- Do not use a comparison (<=, <, >, >=) between a 64-bit variable and constant value. The runtime will not work. Instead of a constant value, use an internal variable.

- If the Portuguese, French, Spanish, Italian, or German language is selected in the screen editing software, the decimal separator for a REAL or LREAL variable may be different. A comma is used in the Properties window, and a dot is used in the Variable editor.

9.2.10.1 Symbol Link

- After importing a symbol file, do NOT delete the associated driver and then add it again. If you need to delete and add the driver, first delete the symbol file and then delete the driver.
- The following data types are either not supported or they are converted to another data type during Symbol Link import:

Not Supported

- ENUM
- INTERFACE

Converted to a primitive type of the source

- SUBRANGE
- POINTER TO
- REFERENCE

Converted to Structure

- UNION
- FUNCTION_BLOCK

- NamedBasicType in Rockwell L5K File is imported as String type in Symbol Link.
- Non-IEC formatted addresses in Unity-Pro File are imported in Symbol Link, however the addresses for these variables become blank. Please delete these variables.
- When importing a SoMachine Basic Modbus Symbol file (.SMBP), variables associated with registers %IWS and %QWS do not import correctly.
- After importing a TIA Symbol file, do not rename the folder for the imported symbol file. If you need to rename the folder, first close the project and exit the screen editing software.
- Do not import L5K symbol files that include Arrays or Structures as pre-defined tags.
- When importing a symbol file that contains PLC variable names that use characters that are not supported by the screen editing software, the [Invalid unicode character] error may display. If possible, rename variables in the PLC software.
- You cannot delete variables created from an imported symbol file and then import another symbol file. All symbol files must be imported first. Otherwise, the variable database may become corrupted.
If you want to import another symbol file after deleting the variables, first delete all the symbol files and import the symbol files again. After that, you can delete individual variables.

- The equipment name and variable folder name must be unique in the project. Check for uniqueness before using the symbol import functionality.

9.2.11 Web Viewer

- If you use Web Viewer in a project that has a folder without a screen in the [Project Explorer]'s [Screen Design] - [Screen] node, you may not be able to operate the screen from a Web Viewer client.

9.3 Transfer

- In broken mode, you cannot use File System transfer to upgrade the run time before version 3.1.100.
- Do not press the [ALT] key during a transfer operation. Pressing [ALT] will sometimes cause the transfer operation to fail.
- Transferring a project with many image files to the display unit may take a considerable amount of time.
- After downloading a large project file, the display unit may not boot correctly. If that happens, use [Recovery Mode] and download the project file again.

9.3.1 ST6000 Series and STM6000 Series

- Even if a dialog box appears asking whether to keep or overwrite the data on Local Storage, the cancel transfer button continues to be enabled. But, even if you click the transfer cancel button, nothing will happen.

9.3.2 IPC Series and PC/AT

- When using run time version 3.1 or earlier, you cannot transfer project files from version 3.1 Service Pack 1 or later.
If you transfer the project file in the above condition, the following error message appears in the screen editing software.
[Unable to update using download operation. Use the installer to update run time to the latest version.]
In order to transfer, the run time must be re-installed with the same version, or later, as the screen editing software.
Install the run time from the following path on the installation DVD.
"\\BLUE_Setup\\BLUERuntime\\BLUERuntime.exe"
Installing the run time erases any previously transferred project files. After installation, transfer the project files again.
If .NET Framework is not already installed in the run time installation destination, or its version is older, .NET Framework is also installed. After .NET Framework is installed, the destination unit is restarted.
When installing the run time, there is no need to uninstall the previously installed run time.

9.4 Display Unit Operation

9.4.1 Screen / Content

- If the Scroll Grid Content is smaller than the Content Display object, the Scroll Grid Content is magnified to the Content Display object.
- Changes in values may not be reflected in screen drawings while there are frequent system errors, you are continually accessing back up memory, and there are many changes to variable values.
- If communication between the display unit and external device is unstable, the screen on the display unit may freeze for several seconds on a screen change.
- When using a Zoom Canvas on a Screen or Content with a higher magnification, you may not be able to scroll on the display unit or during Simulation.

9.4.2 Hardware Configuration Screen

- When restarting the run time by using an operation in the Hardware Configuration screen, the status of external storage may not be updated.
When that happens, cycle the power on the display unit.
- When implementing a filter in the filter setup screen [Filter Simplified] with the Operation Log Screen in a Hardware Configuration, sometimes items do not display correctly.
- In the Hardware Configuration screen, when you configure Pro-face Connect parameters for the first time, [Save & Restart] will not restart the display unit. Use some other method to restart, such as powering OFF/ON.
- In the Hardware Configuration screen, the Scan Control menu for up to 32 devices is displayed for each driver. If you cannot change the scan control from the Hardware Configuration screen, use the equipment source property '.ScanOffControl' to change the scan control.

9.4.3 Keypad

- While the keypad is displayed, reverse display may not show properly for rapid touches. This is only a display issue and values are written properly.

9.4.4 Parts / Shapes

- Regardless of the width or height of an object, the [Shadow] of the object may not show on the panel at run time or simulation.

9.4.4.1 Text Box

- When using the Bold attribute in a Text Box object, the thickness of text may differ between the screen editing software and the display unit.

9.4.4.2 Alarm Summary

- You can display up to 146 items in the Alarm Summary filter setup screen [Filter Simplified]. When there are more than 146 items, narrow down the list by either using the [Search] field or the [Filter Detailed] settings.

- When implementing a filter in the filter setup screen [Filter Simplified] with the Alarm Summary, sometimes items do not display correctly.

9.4.4.3 Numeric Display

- In a Numeric Display part, if you use a source property together with a converter for the [Current Value], the [Format] and [Decimal Places] properties of the Numeric Display part are not applied even though you can set these properties. Instead of these properties, the settings in the converter properties apply. The target converters are as follows.

- Unit
- Scale
- Expression

The above operation is correct. In future versions, in the above case the [Format] and [Decimal Places] properties of the Numeric Display part will be disabled.

- When setting the Prefix or Suffix in [Arabic_Gothic] or [Hebrew_Gothic] font, the Prefix or Suffix characters display in the wrong order in the display unit.

9.4.4.4 String Display

- Do not enable [Display text as *] on a String Display part with IME Japanese input. The currently stored string is displayed while typing characters. If you want to use the [Display text as *] feature, design a mechanism to clear the string before starting input.

9.4.4.5 Web Browser

- The Web browser part no longer supports TIFF and MNG image file formats.

9.4.5 **Trigger / Operation**

- When animation or change in visibility hides a pressing object, Touch trigger (Release or Click) does not occur during that. The triggers operate as if the object is not hidden.
- The more [Array] Operations with the [All] check box selected, the longer it will take for the first screen change.
- When using the [File Management] Operation, if the file or folder name uses non-ASCII characters, the file or folder name will not display correctly in the [Confirmation Message] displayed by the [File Management] Operation.
- While external storage is not recognized by the display unit and an [External Storage] operation is run, there is no system error.

9.4.6 **Logging**

- If a data logging operation occurs while a [File Management] Operation is in progress, sometimes data may not be logged depending on the logging frequency.
- The display of a Trend Graph part could be very slow depending on the number of Trend Graph part display points, the maximum number of records in the logging group, and the model of the display unit. The number of display points on the Trend Graph part increases or decreases depending on the following settings.

- Number of channels
- Unit
- When using the Logging function, you can configure the following.
 - Logging Group: The number of maximum records, external storage of exported data, and the number of assigned variables
 - Trend Graph object: The number of channels and number of display pointsProcessing the following could take a lot of time depending on the combination of the above settings, the screen configuration when the process is executed, and the display unit.
 - Exporting logging data
 - Displaying trend graph
 - Starting display unit

9.4.7 Recipe

- Even though you configure the [Max Input] and [Min Input] of ingredients in the screen editing software, the [Max Input] and [Min Input] do not display on the display unit when changing ingredient values.

9.4.8 Network

- If you set an IP address that duplicates another device on the local network in operation, or if you connect a device with an IP address that duplicates the display unit to the local network, you cannot detect duplicating IP addresses.
Only at runtime startup, the runtime check the IP address of the device on the local network and a system error occurs if there is duplication with the display unit.
After changing the IP address of the display unit, the runtime will be rebooted, so please check whether system error has occurred after rebooting.

9.4.9 Web Viewer

- If a project transfer operation fails, the Web Viewer license is removed. Activate Web Viewer again on the display unit with the same license keycode.

9.4.10 OPC UA Server

- When using the OPC UA server function, on first starting up the display unit generates a server certificate. On first connecting to the server, the OPC UA client verifies the server's certificate.
As the server certificate is renewed in the following cases, the OPC UA client may have to check the server certificate again.
 - In the Hardware Configuration screen, from the [OPC UA Server] menu the command [Regenerate Certificate] is selected.
 - Transfer via File System (This issue does not arise with Ethernet and USB cable transfer.)

9.4.11 Driver

- When you use the Modbus driver from Schneider Electric and then create a Symbol link with TM devices, the screen editing software can successfully import that device. But, because TM devices are not supported, the associated variable will not work correctly.

9.4.12 SP5000X Series and SP5000 Series Power Box / Open Box

- When using CANopen Slave and TIA Portal Ethernet drivers at the same time, do not add any more drivers. Additional drivers could interfere with CANopen Slave communication.

9.4.13 GP-4100 Series

9.4.13.1 CoDeSys Automation Alliance - CoDeSys V2 Ethernet / Schneider Electric - PacDrive

- When using GP-4100 Series with the following driver, sometimes connection system errors will occur.
 - CoDeSys Automation Alliance - CoDeSys V2 Ethernet
 - Schneider Electric - PacDrive

9.4.14 ST6000 Series

- Flow control XON/XOFF is not available.

9.4.15 IPC Series and PC/AT

- When using multibyte characters for file or folder names for logging, operation log, and alarm export destinations, the system locale for the operating system must be set appropriately.
- When using multibyte characters for the file or folder name for an Image Display part's image save destination, the system locale for the operating system must be set appropriately.
- Use [Run as administrator] the first time you start the run time after installing it. From the Start menu, right-click the [BLUE Runtime] icon and from the shortcut menu select [Run as administrator]. If you do not run as administrator, the Welcome Screen may not appear.
- Do not install the runtime in a path with Unicode characters. Select a path without any Unicode characters.

9.4.16 External Storage (SDCard / USBStorage)

- While USB storage is being continuously accessed, even though you eject the USB device, it may not work.
Provide a function to either interrupt access to USB storage or change the storage destination.

9.5 Cybersecurity

- Open only trusted project files in the screen editing software.
- BLUE Runtime uses an older Schneider Electric License Manager component that may have potential Cybersecurity vulnerabilities.
CWE-74 : Improper Neutralization of Special Elements in Output Used by a Downstream Component ('Injection')
For more details, refer to the following website.
<https://cwe.mitre.org/data/definitions/74.html>

10 INSTALLER INTEGRITY VERIFICATION

When you download the installer from our web site or Schneider Electric Software Update, you can get the SHA256 of the installer. To validate, follow the steps below.

Step 1 : Go to Windows Start menu command box and type 'PowerShell', it opens the Windows PowerShell prompt.

Step 2 : Use 'Get-FileHash' command followed by the file path to calculate the Hash of a file.

```
Get-FileHash 'C:\Users\Public\Downloads\Schneider Electric\Software
Update\Downloads\<installer executable file name>' (e.g. Soft_BLUE64_V34.exe)
```

Step 3 : Press Enter

This results in output similar to the example below:

```
Get-FileHash 'C:\Users\Public\Downloads\Schneider Electric\Software
Update\Downloads\<installer executable file name>'
```

```
Algorithm      Hash
Path
```

```
-----
```

```
SHA256
BCE70FCF3AA21663F828CF9244102533592F5721B10D6ABA1C050A5B815076EB
C:\Users\Public\Downloads\...:
```

Step 4 : Compare the calculated SHA256 hash value with the original hash value shown in the software updates.

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11.6 libxml2

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11.9 protobufjs

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11.17 MessagePack

MessagePack for C#

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11.19 SharpSvn.1.9-x86

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11.23 Nlog

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11.24

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11.25

System.Collections.Immutable

System.Configuration.ConfigurationManager
System.Reflection.Emit
System.Reflection.Metadata
System.Threading.Tasks.Extensions
System.ValueTuple

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We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

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- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

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5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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```
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library `Frob' (a library for tweaking knobs) written by James Random Hacker.
```

```
<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice
```

That's all there is to it!

11.33 Webkit

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11.34 V8

This license applies to all parts of V8 that are not externally maintained libraries. The externally maintained libraries used by V8 are:

- PCRE test suite, located in `test/mjsunit/third_party/regexp-pcre.js`. This is based on the test suite from PCRE-7.3, which is copyrighted by the University of Cambridge and Google, Inc. The copyright notice and license are embedded in `regexp-pcre.js`.
- Layout tests, located in `test/mjsunit/third_party`. These are based on layout tests from `webkit.org` which are copyrighted by Apple Computer, Inc. and released under a 3-clause BSD license.
- Strongtalk assembler, the basis of the files `assembler-arm-inl.h`, `assembler-arm.cc`, `assembler-arm.h`, `assembler-ia32-inl.h`, `assembler-ia32.cc`, `assembler-ia32.h`, `assembler-x64-inl.h`, `assembler-x64.cc`, `assembler-x64.h`, `assembler-mips-inl.h`, `assembler-mips.cc`, `assembler-mips.h`, `assembler.cc` and `assembler.h`. This code is copyrighted by Sun Microsystems Inc. and released under a 3-clause BSD license.
- Valgrind client API header, located at `third_party/valgrind/valgrind.h`. This is release under the BSD license.

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11.35 JavaScriptCore

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[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

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For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any

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```

11.38 libmng

```

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/* * * */
/* * ***** */
/* * * */
/* * Parts of this software have been adapted from the libpng package. * */
/* * Although this library supports all features from the PNG specification * */
/* * (as MNG descends from it) it does not require the libpng package. * */
/* * It does require the zlib library and optionally the IJG jpeg library, * */
/* * and/or the "little-cms" library by Marti Maria (depending on the * */
/* * inclusion of support for JNG and Full-Color-Management respectively. * */
/* * * */
/* * This library's function is primarily to read and display MNG * */
/* * animations. It is not meant as a full-featured image-editing * */
/* * component! It does however offer creation and editing functionality * */
/* * at the chunk level. * */
/* * (future modifications may include some more support for creation * */
/* * and or editing) * */
/* * * */
/* * ***** */

```

11.39 libjpeg

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11.40 PCRE

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THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: Philip.Hazel
Email domain: gmail.com

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11.41 zlib

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11.42 LuaSocket

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11.43 rxi/json.lua

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That's all there is to it!

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Typo error correction.

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