MPE720 Ver.7.A0 Version Up Information

1. Functional Additions and Improvements

1.1 Ver.7.A0 Version Up Information

MPE720 Ver.7.97→ Ver.7.A0 features added and improved are as follows.

No.	Function items	classification
1.	The "Search for Programs Used in Each Axis" function has been added.	New Function
2.	The "MECHATROLINK device auto allocation" function has been added.	New Function
3.	Added support for M-4 protocol inverters.	Enhancements
4.	Register mapping has been enhanced.	Enhancements
5.	MPX1312 (16-axis) models are now supported.	Enhancements
6.	The following communication option units of YRM1010 are now supported. ・CM-EI01 ・CM-DN01	Enhancements
7.	The following communication option modules of the MPX1000 series are now supported. ・CM-EI01M ・CM-DN01M	Enhancements
8.	Changed the versioning rule from decimal to hexadecimal.	Enhancements
9.	Four models have been added to the SLIO I/O module.	Enhancements
10.	The comment list can now be displayed in a floating window.	Improvement
11.	In the YRM1000 series and MPX1000 series, the device allocation method for module configuration definition has been improved.	Improvement
12.	Several bugs have been fixed.	Improvement

2. Details of the amendment

No. 1 Added the "Search for Programs Used in Each Axis" function.

As a support function when using the multi-scan function, the "Search for Programs Used in Each Axis" function has been added. Displays a list of whether "Scan Task" and "Scan Axes Used in Task" are the same.
The main purpose of this function is to make it easier to identify setting defects when using the multi-scan function, but it can also be used to improve engineering efficiency even on models that do not support multi-scan.

summary

By selecting the following program types and search targets, the target search results are displayed in a list.

<Program Type>

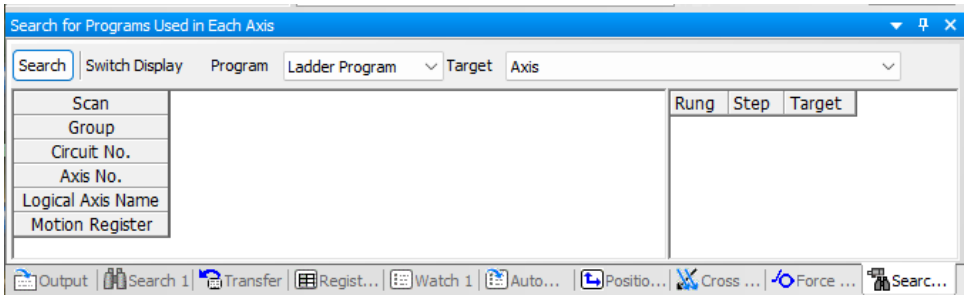
- ・Ladder program
- ・Functions
- ・Motion program

< search for>

- ・Axis (= motion register)
- - FUNC Instruction (Call User Function Instructions)
- - MSEE Instruction (Call Motion Program Instructions)
- ・MSEE Instruction Work Registers

Usage

1） If you check the menu [View] - [Search for Programs Used in Each Axis], the [Search for Programs Used in Each Axis] window is displayed.

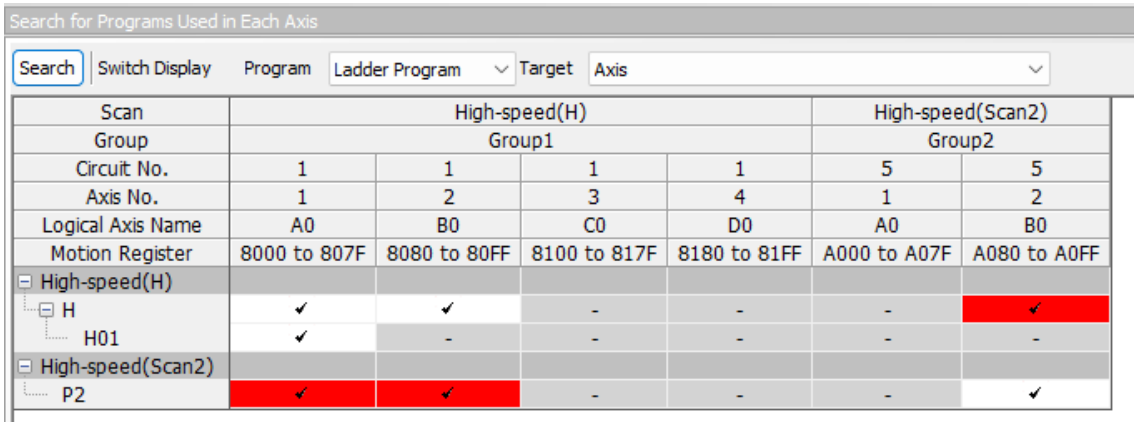


2） Perform a Search.

< Attention>

- - "Search" can only be executed offline or while connected to a project link.
- ・Depending on the number of programs, it may take several minutes ~ tens of minutes to complete the search.

3） When the search is complete, the search results for the items selected in "Program" and "Target" are displayed in a list.



Scan	High-speed(H)				High-speed(Scan2)	
Group	Group1				Group2	
Circuit No.	1	1	1	1	5	5
Axis No.	1	2	3	4	1	2
Logical Axis Name	A0	B0	C0	D0	A0	B0
Motion Register	8000 to 807F	8080 to 80FF	8100 to 817F	8180 to 81FF	A000 to A07F	A080 to A0FF
⊟ High-speed(H)						
⊟ H	✓	✓	-	-	-	✓
H01	✓	-	-	-	-	-
⊟ High-speed(Scan2)						
P2	✓	✓	-	-	-	✓

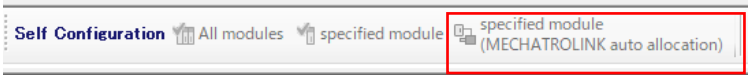
For details on this function, refer to "4.6 Checking Axis Dispersion Using the [Search for Programs Used in Each Axis] Window" in the MPE720 Ver.7 User's Manual.

No. 2 Added the "MECHATROLINK device auto allocation" function.

In the multi-scan model, a function equivalent to the automatic link assignment of MECHATROLINK slave devices in self-configuration has been added.

When a self-configuration compatible unit (module) is selected in the module configuration definition and the "specified module (MECHATROLINK device auto allocation)" button (Fig. 1) is pressed below, self-configuration is executed and automatic link assignment of the MECHATROLINK slave device is executed

(Fig. 1)



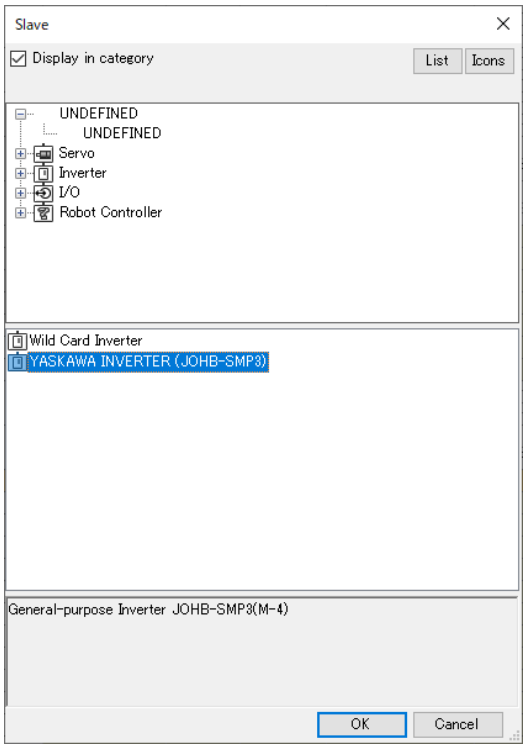
[Supported versions]

○ Controller

controller	Supported Firmware Versions
YRM1010/CPU-12 MPX1000 Series	2.08

No. 3 Added support for M-4 protocol inverters.

As a slave device of MECHATROLINK-4, link allocation of YASKAWA INVERTER (JOHB-SMP3) and Wild Card Inverter is now supported.

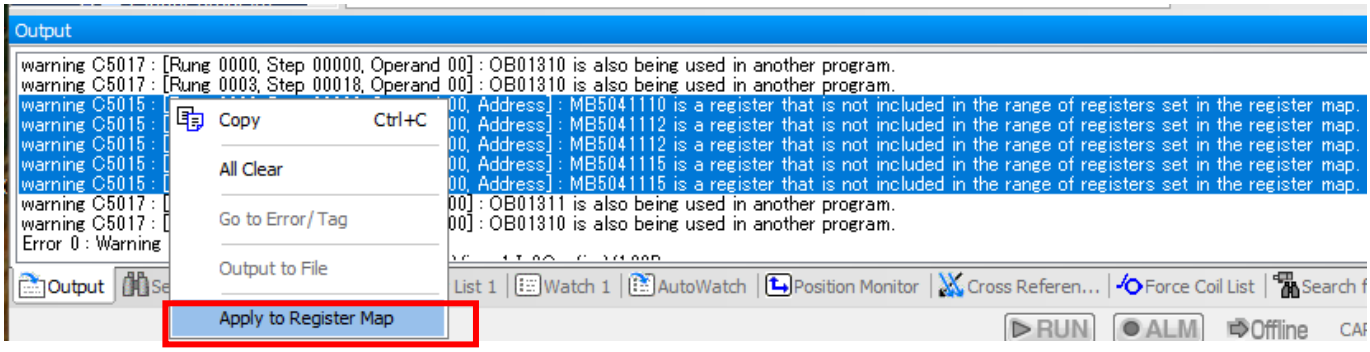


No. 4 Register mapping has been enhanced.

The following three functions have been added to register mapping.

1） Settings can now be changed even while online.

2） When compiling with inter-scan access control support enabled, it is now possible to register registers of "registers that are not included in the register range set in register mapping" in a batch in the register mapping.



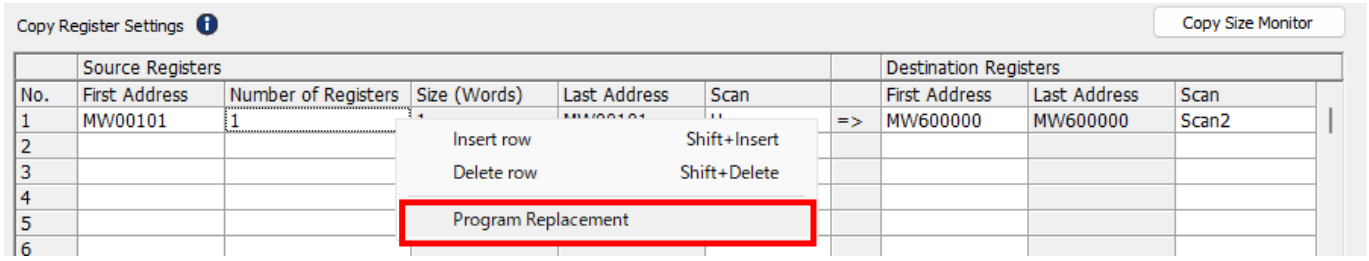
3） According to the register copy settings, the source register used in the destination scan program can now be replaced with the value of the destination register.

Example)

As shown in No. 1 below, when the copy source register and the copy destination register are set.

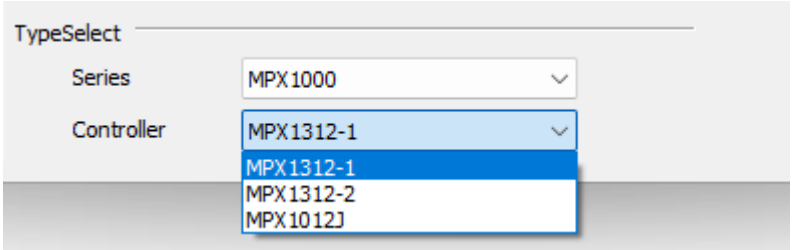
Right-click on the No.1 line >select "Program Replacement" to see that it is used in the Scan2 program.

The process of replacing "MW00101" with "MW600000" is performed.



No. 5 MPX1312 (16-axis) models are now supported.

MPX1000 series MPX1312 (16-axis version) models are now supported.



In the MPX1000 series, the MPX1312 model selected when creating a new project means the following.

MPX1312-1 → MPX1312（16axes）

MPX1312-2 → MPX1312（128axes）

No. 6 YRM1010 communication option unit is now supported.

CM-DN01 (DeviceNet) and CM-EI01 (Ethernet/IP) are now supported as communication option units for the YRM1010/CPU-12.

1） "CM-DN01" or "CM-EI01" can be selected from the FC unit selection screen of the CPU-12 and can be randomized.

2） Parameters can be set on the detailed definition screen of "CM-DN01" or "CM-EI01".

[Supported versions]

○ Controller

controller	Supported Firmware Versions
YRM1010	2.08

No. 7 MPX1000 series communication option module is now supported.

CM-DN01M (DeviceNet) and CM-EI01M (Ethernet/IP) are now supported as communication option modules for MPX1000 series models

1） "CM-DN01M" or "CM-EI01M" can be selected from the FC unit selection screen of the MPX1000 series model, and it can be randomized.

2） Parameters can be set on the detailed definition screen of "CM-DN01M" or "CM-EI01M".

[Supported versions]

○ Controller

controller	Supported Firmware Versions
MPX1000	2.08

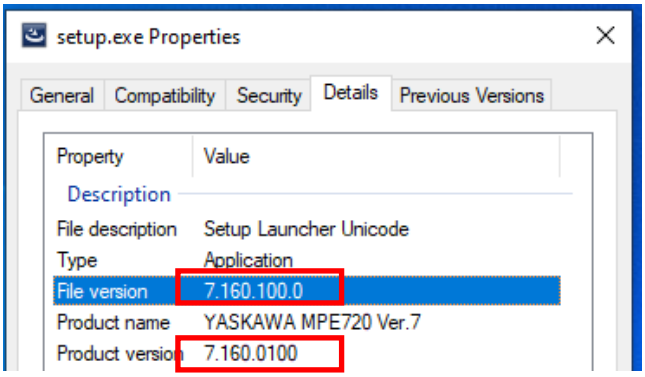
No. 8 Changed the version grant rule from decimal to hexadecimal.

From this version, version "7.xx.0100" changed from decimal to hexadecimal.

However, the version information displayed in the properties of the installer executable (exe) displays a number converted from hexadecimal to decimal.

Example) Version 7.**A0**.0100

"**A0** (hexadecimal)" → "**160** (decimal)"

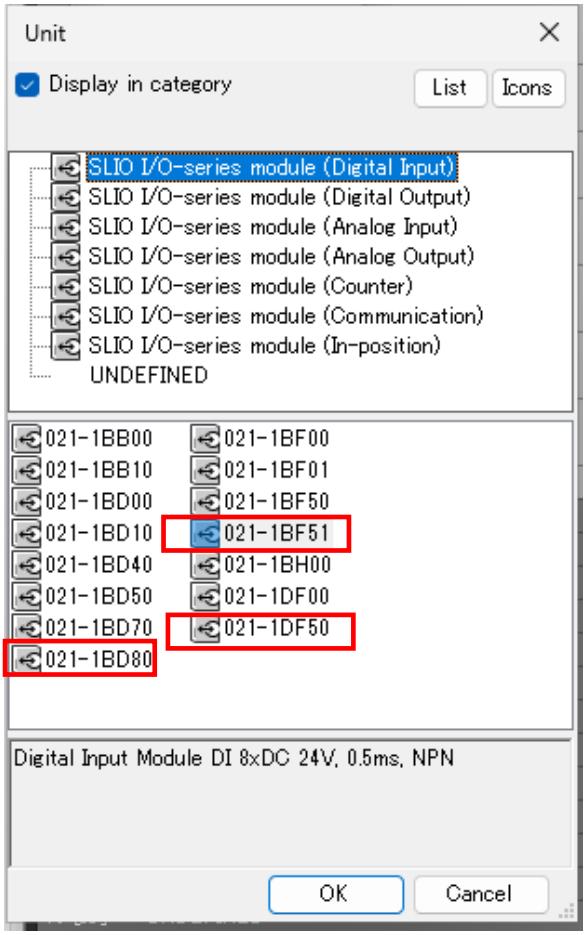


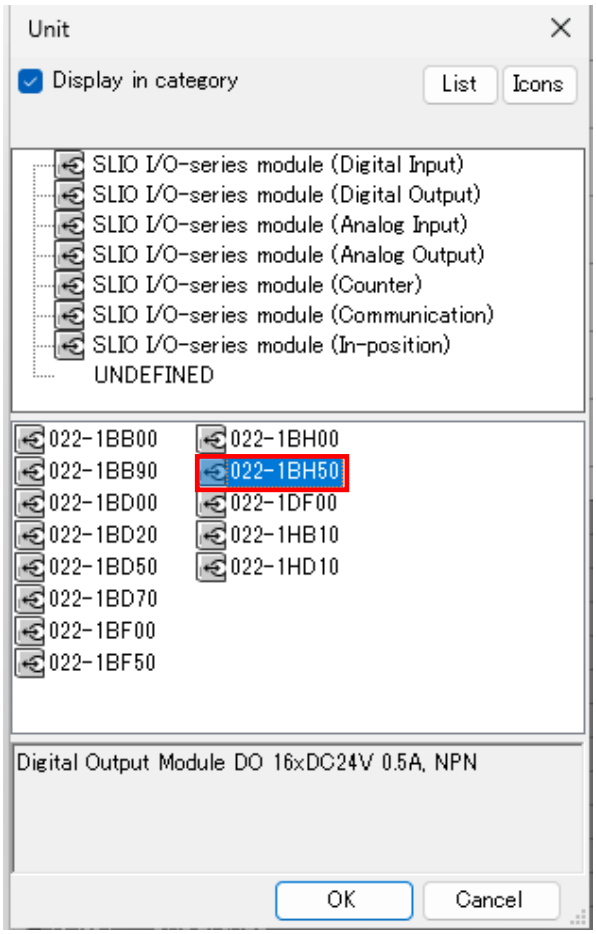
No. 9 4 SLIO I/O modules have been added.

In the YRM1010/MPX1000 series controllers, the following four digital input/output modules have been added as SLIO I/O modules.

<Additional modules>

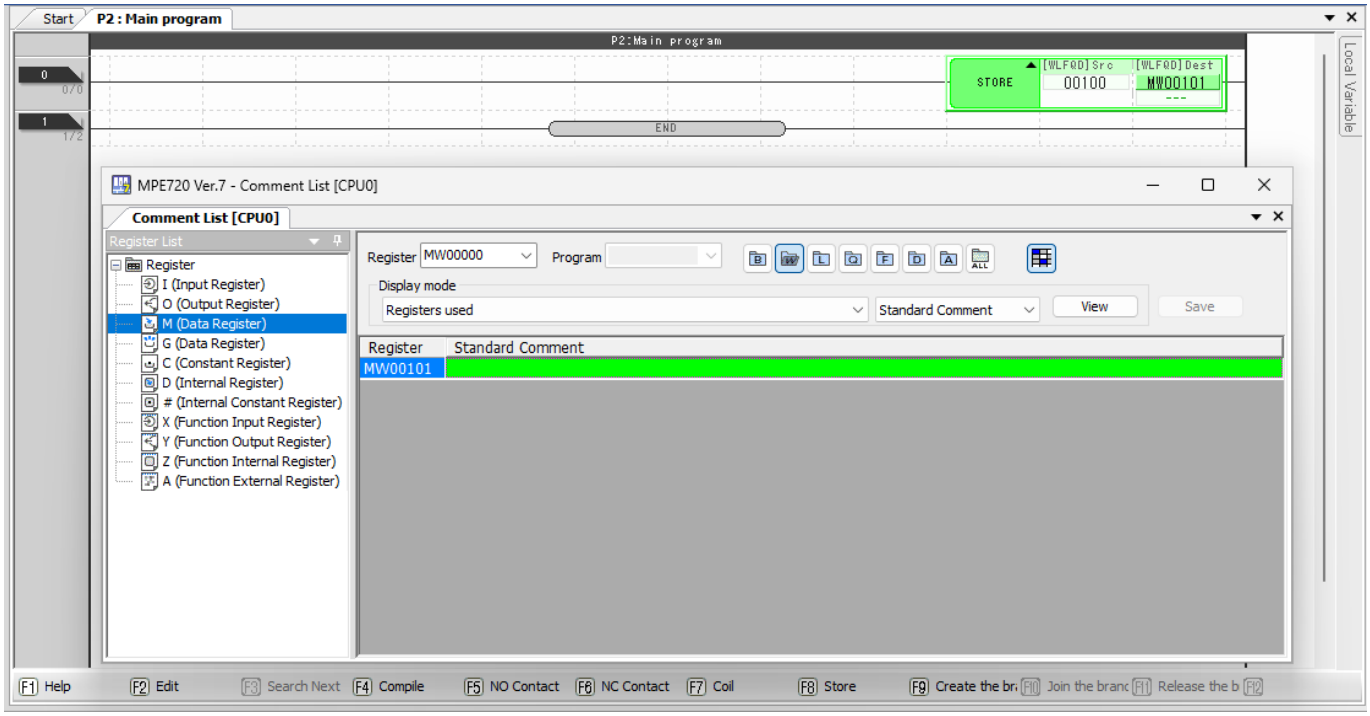
・021-1BD80 Digital Input Module: DI4xDC24V, Microsecond Precision ETS, Time Stamp Memory, NPN,
・021-1BF51 Digital Input Module: DI8xDC24V0.5ms NPN
・021-1DF50 Digital Input Module: DI8xDC24V 100µs... 20ms, Diagnostic Alarm, NPN
・022-1BH50 Digital Output Module: DO16xDC24V, 0.5A, NPN





No. 10 The comment list can be displayed in a floating window.

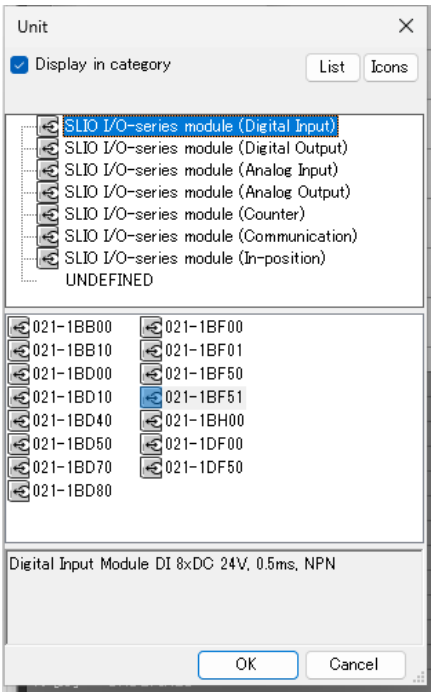
Improved the comment list screen so that it can be displayed as floating. Until now, it was inconvenient to switch between the program and the comment list and only display one or the other. With this change, you will be able to view and edit the contents of the comment list in parallel with the program.



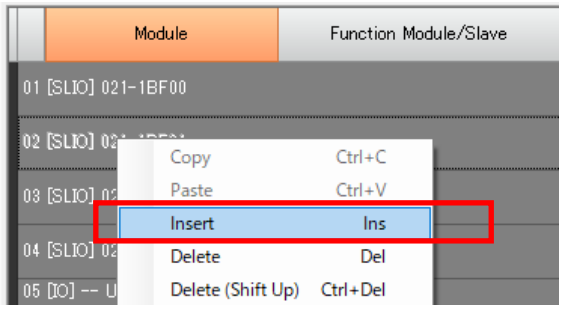
No.11 In the YRM1000 series and MPX1000 series, the device allocation method for module configuration definition has been improved.

The following improvements have been made to the device allocation of FC units and I/O units in the module configuration definition of multi-scan models.

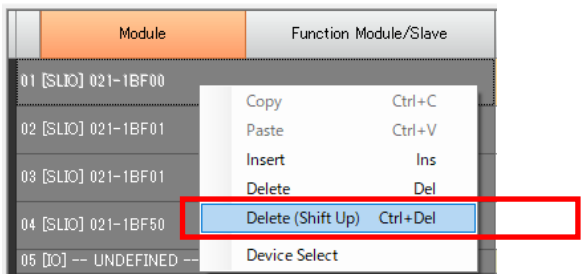
1） In the I/O unit selection screen, the SLIO I/O modules are now displayed in the following categories.
In addition, before the improvement, it took several seconds to display the unit screen, but with this support, the time required to display the screen has also been improved.



2) When setting the allocation of FC units and I/O units, it was inconvenient to insert and add devices to arbitrary slot positions.
This time, we have improved it so that the device can be inserted at any position and randomized.



3) When setting up an FC unit or an I/O unit, if a device at any position in a slot that has already been assigned to a device is deleted, it is inconvenient to manually fill the empty slot. This time, when deleting a device in an arbitrary slot, we have added a function that automatically shifts the device allocated below the deleted location to the upward direction.



No. 12 Several bugs have been fixed.

1) Fixed a bug that was not displayed even if the search was performed by cross-reference/forced coil list/double coil check when the program size exceeded the upper limit of the search target due to the upper limit of the number of cross-references.

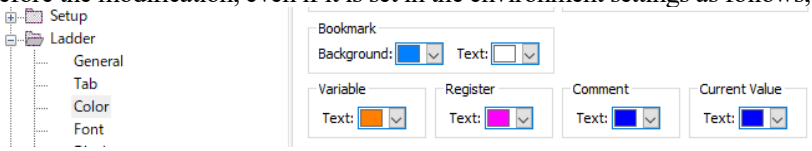
2) Fixed a bug that caused an error message to be displayed and transfer not possible when attempting to transfer after clearing the memory.

3) Fixed a bug that variables/registers in instructions using the Expression Editor were not displayed in the text color set in the

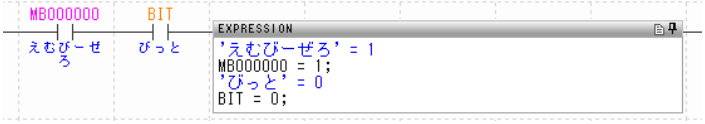
preferences.

(Example)

Before the modification, even if it is set in the environment settings as follows,



The text color of variables and registers in the Expression Editor was displayed as black.



4) Fixed a bug that the program name could be changed from the context menu "Properties" of the ladder window while the ladder program was open, but not from "Rename". (The same applies to sequences and motions)

5) Fixed a bug that prevented registration of a device IF from being registered in a device definition due to an error of the upper limit on the number of IF registrations even if the number of IFs registered did not meet the conditions.

6) Fixed a bug that prevented the user from saving the system with an error error if the number of connected stations was changed to a number less than the number of axes assigned to the link assigned to the Motion module and then tried to change and save the "Control Device/Group Definition" while the link of a slave device was already assigned to the Motion module.

7) Fixed a bug in the variable edit screen where pressing the OK button when there are many members of the user structure would take a long time (freeze).

8) Fixed a problem where cross-referencing variables in a project with a large number of drawings/variables would take a long time to process (as if it were frozen) only the first time.

9) Fixed a bug that caused the MPE720 to terminate if the device IF was continued to be registered in the device definition.

10) Fixed a bug that even if the first address is entered in a register mapping other than the WORD type, the end address will be the value calculated by the WORD type.

Example) In the following case, the first address "ML00002" in the second line is the size of 2 WORD of the LONG type.
"ML00004" should be displayed, but it was "ML00005".

コピー元レジスタ			
先頭アドレス	レジスタ個数	サイズ(Word)	終了アドレス
MW00000	2	2	MW00001
ML00002	2	4	ML00005
MD00006	2	8	MD00013
MF00019	2	4	MF00022
MQ00023	2	8	MQ00030

11) When logging is started after importing logging settings, some of the trigger condition settings are set to an indeterminate value, and the following unintended behavior has been fixed.

[Unintended behavior]

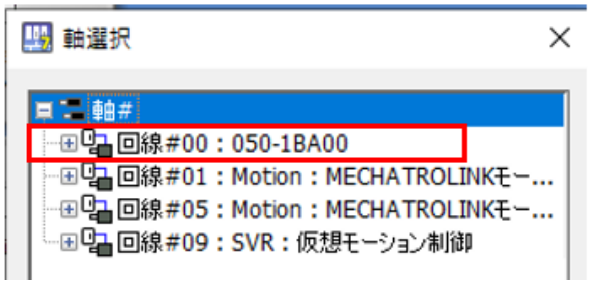
- After the start trigger condition is satisfied, it takes a long time to start logging.
- It takes a long time to stop logging after the stop trigger condition is satisfied.

* The time required to start/stop depends on the indefinite value.

12) Fixed a bug that prevented comments from automatically breaking lines when a comment that is automatically displayed in an instruction using the Expression Editor exceeds 1024 single-byte characters (512 full-width characters) on a single line.

13) Fixed a bug that comments after automatic line breaks were not displayed in the text color of the preferences in instructions using the Expression Editor.

14) Fixed a bug that caused line #00 to be displayed on the axis selection screen as shown in the figure below when the counter module of SLIO I/O was assigned.



15) Fixed a bug that caused the following unintended behavior when the maximum address of the register range was exceeded in the intra-project substitution.

< target>
・Registers in instructions that use the Expression Editor of the ladder program
・Motion program
・Sequencing program

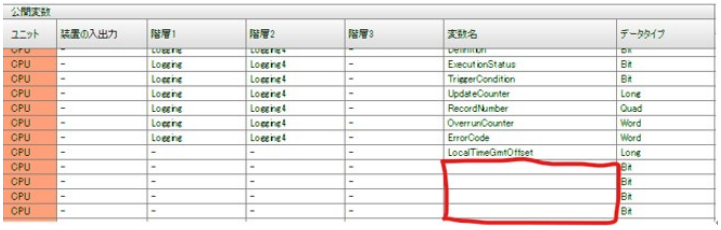
< Malfunctioning operation>
① Replace LONG and FLOAT registers in ladder program
→ MPE720 crashes.
② In any of the target programs, replace the QUAD and DOUBLE type registers.
→ can be replaced even though the maximum register address is exceeded.
③ Replace Motion, Sequence Program Registers
→ The output window does not display the address before or after the replacement.

16) In register mapping, in the replacement process when the register range setting is changed, the replacement register is the maximum size of the register (ex. In the case of the M register, when it becomes MW1048575), it is not replaced with the register maximum address.

17) Fixed a bug that prevented the setting from being saved when an error occurred in the register range setting of register mapping in a tab that was not currently open, and if you click the [Save] button without switching to that tab, an unexpected error message will be displayed and the setting could not be saved.

18) Fixed a bug that caused the project file to be lost on multi-scan models and the display of the current value was cleared on non-multi-scan models when saving a project with Cntl + s while the comment was entered in the watch/auto-watch screen.

19) Fixed a bug that items without variable names were displayed in the group of system variables on the data sharing settings screen, as shown in the red frame below.



Appendix A: Compilation of Parallel Circuits

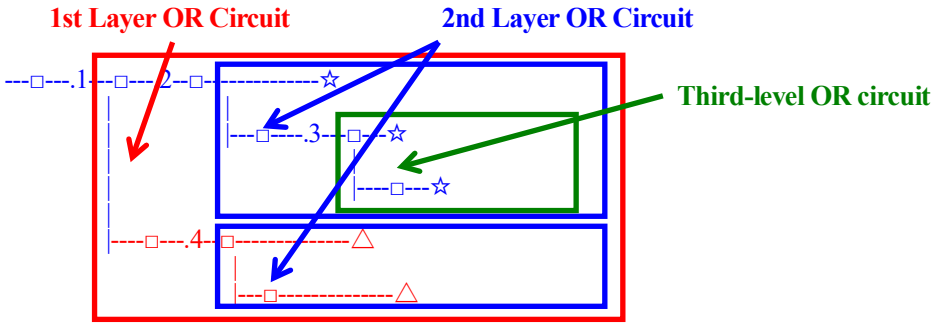
In the ladder program of MPE720 Ver7.23 or earlier, the following symptoms may occur when using parallel circuits.

< phenomenon>

When a circuit containing the following pattern was created, there was a phenomenon that the circuit on the lower side of the first-layer OR circuit originally received a conditional instruction in front of the first-level OR circuit and operated without being subjected to the condition.

< measures>

If this phenomenon occurs, recompile the corresponding ladder program with MPE720 Ver7.24 or later MPE720 Ver7. Alternatively, select "Compile All Program" from the "Compile" menu again.



1st level OR circuit: OR circuit branched from Lang's busbar
2nd layer OR circuit: OR circuit branched from within the 1st level OR circuit
3rd level OR circuit: OR circuit branched from within the 2nd level OR circuit

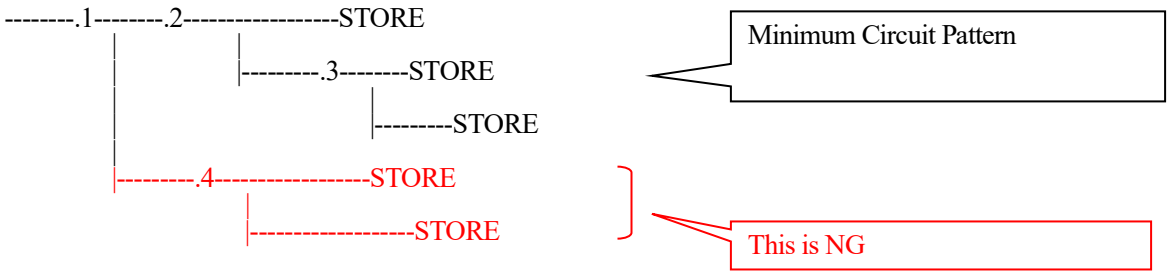
☐ (Conditional Instructions): A contact, B contact, comparison (==, !=, >, <) instructions, etc.
* ☐ (conditional instructions) includes power wires (--------)
☆ (Output instructions): coils, block instructions (Expression, STORE, COPYW) instructions, etc.
* However, if all ☆ are coil instructions, this phenomenon will not occur.
△ (Output instructions): Coils, block instructions (Expression, STORE, COPYW) instructions, etc.

[Phenomenon occurrence pattern]

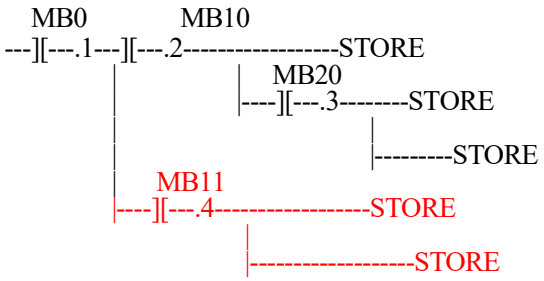
symbol	order
][	A contact
STORE	STORE command
( )	coil

[NG pattern]

①



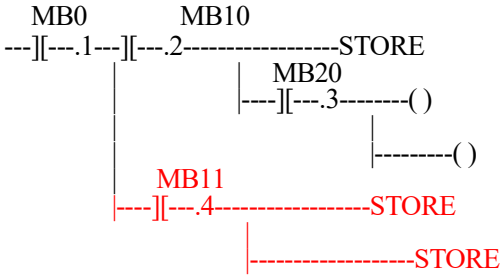
②



Even if there is a conditional instruction (A contact, etc.) in the minimum circuit pattern, it is NG

This is NG

③

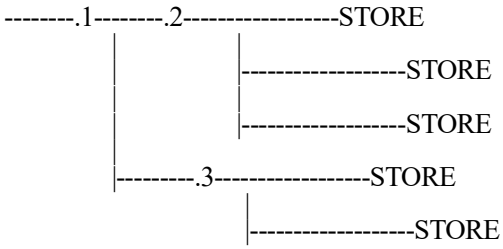


If there is even one block instruction (STORE instruction, etc.) here, it is NG

This is NG

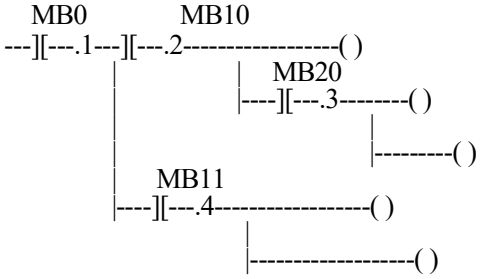
[OK pattern]

①



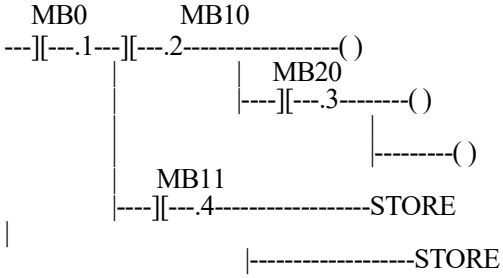
It's OK because it's a two-layer OR circuit

②



It's OK because it's all coils

③



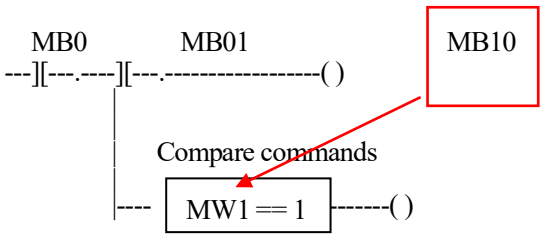
It's OK because it's all coils

Appendix B: Compilation when there are comparison instructions in a parallel circuit

MPE720 Ver7.In the ladder program of the MPE720 Ver7 before 63, the following symptoms may occur when using parallel circuits.

< phenomenon >

When a circuit containing the following pattern was created, the value of the register set in the upper circuit of the OR circuit was reflected in the next scan when it should have been reflected in the comparison instruction in the subsequent OR circuit in the same scan.



A pattern in which a register set in the circuit above the parallel circuit is referenced in subsequent comparison instructions in the parallel circuit.

< measures>

If this phenomenon occurs, recompile the corresponding ladder program with MPE720 Ver7.64 or later MPE720 Ver7. In addition, the number of internal steps changes in programs that include circuits with this pattern in Ver. 7.64 or later, so there is a possibility that you may jump to an unintended place when cross-referencing is performed in a project created in the previous version. In that case, please recompile the program. Alternatively, select "Compile All Program" from the "Compile" menu again.

Appendix C: High DPI

When the MPE720 Ver.7 was started on a computer that supports high DPI, such as a 4K display, part of the screen could not be displayed depending on the resolution and scale settings. Therefore, from MPE720 Ver.7.67, the high DPI setting of the MPE720 properties has been disabled. This avoids phenomena such as screen cutouts. If you need to use it at a high DPI setting due to circumstances, please change the high DPI setting from the properties screen of MPE720 Ver.7.