

MPE720 Ver.7.96Version Up Information

1. Functional Additions and Improvements

1.1 Ver.7.96Version Up Information

MPE720 Ver.7.95→ Ver.7.96 features are added and improved as follows:

No.	Function items	classification
1.	In the M-4 communication extension, MNI files of the M-4 two-stage Hub compatible schema (schema version 2.07) are now supported.	Enhancements
2.	The M-4 communication extension now supports the recognition of the SLIO M-4 bus coupler.	Functional Enhancements
3.	The usability of register mapping has been improved.	Functional Enhancements
4.	Improved the way the inverted coil is displayed on the monitor while the ladder program is running.	Functional Enhancements
5.	Defined comments on the S register of the motion program execution work register.	Functional Enhancements
6.	MPX1312 Added support for the 1-slot version of the base unit.	Add a model
7.	The following optional units of the MPX1310 series are now supported. • CM-SC01M (Serial) • CM-FN01M (FL-net) • PI-01CM (Counter Unit)	Add a model
8.	Added support for converting projects to a one-slot version of a MPX1312 base unit.	New Functions
9.	Several bugs have been fixed.	Functional Enhancements

2. Details of the amendment

Details of the fix

No. 1 M-4 Communication Extension, MNI files of M-4 Two-Stage Hub compatible schema (schema version 2.07) are now supported

- 1) In the M-4 communication extension, you can import the MNI file of the M-4 two-stage Hub compatible schema (schema version 2.07).

No. 2 In the M-4 communication extension, when an MNI file containing allocation information for SLIO bus coupler (M-4) is imported, the bus coupler information (coupler body, coupler station/module station) is recognized and assigned to the module configuration definition.

- 1) When an MNI file containing a SLIO bus coupler (M-4) is imported and saved in the M-4 communication extension, the SLIO bus coupler is assigned to the module configuration definition as "053-1ML40 (multi slave)".
- 2) In the MNI file of the SLIO bus coupler (M-4), the first ModuleList is assigned as the coupler station, and the subsequent module stations are assigned as the slave stations of the module configuration definition.
- 3) The I/O sizes of the coupler station and module station assigned to the module configuration definition are as follows.
 - Coupler Bureau
 - Input size: 16byte
 - Output size: 16byte
 - Module station
 - Input size: 64byte
 - Output size: 64byte

Function Module/Slave	Status	Circuit No/AxisAddress		Control CPU N	Motion Register	Register(Input/Output)		
		Start	Occupied circuit			Disabled	Start - End	Size
05 <input type="checkbox"/> Motion	----	<input checked="" type="checkbox"/> Circuit No1	4	0	8000 - 9FFF[H]	<input type="checkbox"/> OutPut	10000 - 107FF[H]	2048
<input checked="" type="checkbox"/> 053-1ML40(multi slave)		03[H]	----			<input type="checkbox"/> Input	10000 - 10007[H]	8
01 <input checked="" type="checkbox"/> Coupler		(00[H])	----			<input type="checkbox"/> OutPut	10008 - 1000F[H]	8
02 <input checked="" type="checkbox"/> Module		(01[H])	----			<input type="checkbox"/> Input	10010 - 1002F[H]	32
03 <input checked="" type="checkbox"/> Module		(02[H])	----			<input type="checkbox"/> OutPut	10030 - 1004F[H]	32
04 <input checked="" type="checkbox"/> Module		(03[H])	----			<input type="checkbox"/> Input	10050 - 1006F[H]	32
05 <input checked="" type="checkbox"/> Module		(04[H])	----			<input type="checkbox"/> OutPut	10070 - 1008F[H]	32
06 <input checked="" type="checkbox"/> Module		(05[H])	----			<input type="checkbox"/> Input	10090 - 100AF[H]	32
07 <input checked="" type="checkbox"/> Module		(06[H])	----			<input type="checkbox"/> OutPut	100B0 - 100CF[H]	32
08 <input checked="" type="checkbox"/> Module		(07[H])	----			<input type="checkbox"/> Input	100D0 - 100EF[H]	32
						<input type="checkbox"/> OutPut	100F0 - 1010F[H]	32
						<input type="checkbox"/> Input	10110 - 1012F[H]	32
						<input type="checkbox"/> OutPut	10130 - 1014F[H]	32
						<input type="checkbox"/> Input	10150 - 1016F[H]	32
						<input type="checkbox"/> OutPut	10170 - 1018F[H]	32
						<input type="checkbox"/> Input	10190 - 101AF[H]	32
						<input type="checkbox"/> OutPut	101B0 - 101CF[H]	32

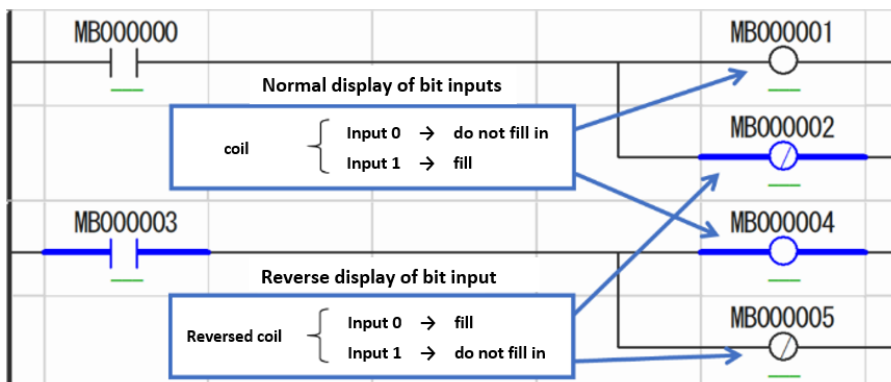
No. 3 Improved the operability of register mapping.

- 1) Row insertion is possible in the register copy setting.
- 2) You will be able to open other screens while editing register mappings.
- 3) The [OK] button on the register mapping screen will be changed to a [Save] button.
- 4) The [Cancel] button on the register mapping screen will be changed to a [Close] button.

No. 4 Improved the way the inverted coil is displayed on the monitor while the ladder program is running.

- 1) When the input is 0, the inverted coil instruction is executed (blue).
- 2) When the input is 1, the inverted coil instruction is not executed (blue).

Figure: Direct and inverted bit input



No. 5 Register comments are now displayed on some of the system registers of motion program execution information when registered on the monitor screen of a watch, etc.

- 1) For the target registers below (Fig. 1) of the motion program execution information, register comments are now displayed when registered as a monitor with a watch, etc. (Fig. 2)

Fig. 1 Target registers

Motion program execution information		Register Comment	Append
Register Address	Detail		
SW03232 - SW03263	Program execution bit	Running MPM[XXX] or MPS[XXX] Program (H)	X:001~512
SW03200 - SW03231	Running main program number	Running Main Program No. (Work [X])	X:1~32
SW03264(ワーク1) - SW05062(ワーク32)	System work - status	Status (Work [X])	X:1~32
SW03265(ワーク1) - SW05063(ワーク32)	System work - control signals	Control Signals (Work [X])	X:1~32
SW03266(ワーク1、並列0) - SW05085(ワーク32、並列7)	System work X - Parallel Y - Program number	Program No. (Parallel Fork [Y]) (Work [X])	X:1~32,Y:0~7
SW03267(ワーク1、並列0) - SW05086(ワーク32、並列7)	System work X - Parallel Y - Block number	Block No. (Parallel Fork [Y]) (Work [X])	X:1~32,Y:0~7
SL26000(ワーク1、並列0) - SL26510(ワーク32、並列7)	System work X - Parallel Y - Alarm code	Alarm Code (Parallel Fork [Y]) (Work [X])	X:1~32,Y:0~7
SL03754(ワーク1、論理軸#1) - SL09214(ワーク32、論理軸#32)	Logical axis program current position	Logical Axis #[Y] Program Current Position (Work [X])	X:1~32,Y:1~32
SW48296 - SW48327	Program execution bit	Running MPM[XXX] or MPS[XXX] Program (Scan2)	X:001~512












Fig. 2 Display of the monitor screen

Watch 1		
Variable	Value	Comment
SW03200	0	Running Main Program No. (Work 1)
SW05063	0	Control Signals (Work 32)
SW03267	0	Block No. (Parallel Fork 0) (Work 1)
SB482960	OFF	Running MPM001 or MPS001 Program (Scan2)
SB032320	OFF	Running MPM001 or MPS001 Program (H)

No. 6 MPX1312-2 Base Unit 1 slot version is now supported.

- 1) In the module configuration definition, you can select and set the MPX1312-2 1-option slot version base unit from the following three.
 - MBUX021A60 (AC100/200V input (insulated) 60W)
 - MBUX021D60 (DC24V input (insulated) 60W)
 - MBUX021*** (power supply type not specified)
- 2) If you do not have a base unit with a power supply type specified in the project and you self-configure, it will be displayed as no power type (MBUX021***) in the module configuration definition, regardless of the actual power supply type. (Fig. 1. Red frame)

(Fig. 1)

Module	Function Module/Slave
01 [MPX1312-2] : ---	
	01 CPU
	02 Ethernet 
	03 EtherNet/IP 
	04 MECHATROLINK 
	05  Motion
	06 MECHATROLINK 
	07  Motion
	08  SVR
	09 M-EXECUTOR 
	10 RC-CONNECT 
	01  CM-FN01M
01 MBUX021***	01 FL-net 

[Supported versions]

○ Controller

controller	Supported Firmware Versions
MPX1000	2.05

No. 7 Added support for 3 models of MPX1310 series optional units.

The following optional modules have been added as optional units of the MPX1000 series.

- CM-SC01M (Serial)
- CM-FN01M(FL-net)
- PI-01CM (Counter Unit)

- 1) If you select the MPX1312-2 1-option slot base unit, the above optional modules can be assigned to the option slot.
- 2) Parameters can be set on the detailed definition screen of each option module.

[Supported versions]

○ Controller

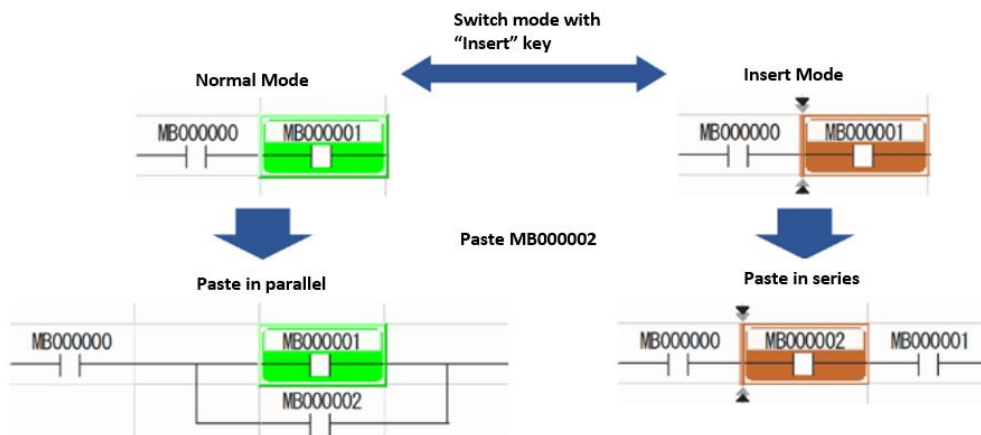
controller	Supported Firmware Versions
MPX1000	2.05

No. 8 MPX1312-2 Added support for project conversion to 1 option slot base units.

- 1) When converting a project, you can select the base unit of the destination project from the following.
 - MBUX021A60 (1 option slot, AC100/200V input (isolated) 60W)
 - MBUX021D60 (1 option slot, DC24V input (isolated) 60W)
 - MBUX021*** (1 option slot, power supply type not specified)
- MPX1312-*0L32 (0 option slots)
- 2) If optional modules/units are defined in the source project, up to one module/unit will be migrated to the converted project, including the contents of the detailed definitions. Optional modules that can only be converted are units that are already supported by MPX1312-2.

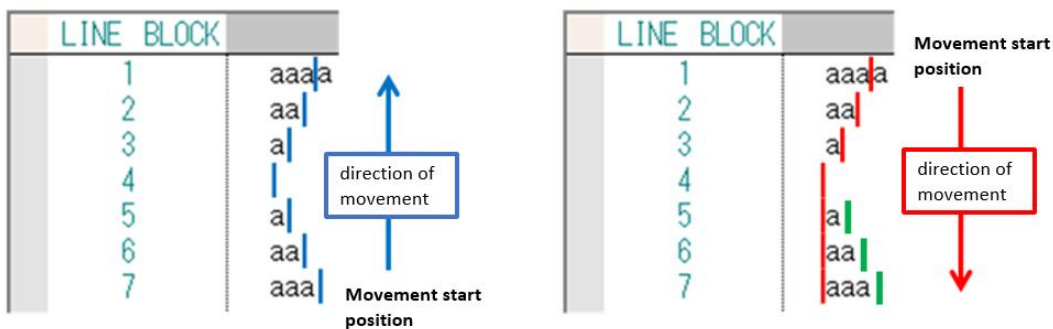
No. 9 Fixed several bugs.

- 1) In context menus with duplicate accelerator keys, only the menu at the bottom of the context menu could be executed, but the selection menu can be switched by repeating key presses.
- 2) In the ladder program editor, when cutting a ladder instruction, the cursor position is moved to the ladder instruction position near the right side of the cut, so that the cursor does not move from the cut position.
- 3) The following bugs were fixed in the copy and paste of the ladder program.
 1. Register comments are not copied and pasted between each other.
 2. When copying and pasting the register comment of a multi-argument instruction/user function into an external text editor, The register address is pasted.
 3. When pasting text data into a register comment of a multi-argument instruction/user function, an error occurrence information dialog appears and the paste is not performed.
 4. When pasting text data into the instruction of a user function, the program name is replaced by the text data. This is display only, and if you reopen the ladder window, the program name will be displayed normally.
- 4) The "Insert" key can be used to switch the insertion mode of the instruction, and whether it is in parallel insertion mode or serial insertion mode can be judged from the background color of the instruction in the program editor (as shown in the figure below), but the instruction is copied → Switch the insertion mode with the "Insert" key. → Paste Instructions For example, in the displayed background color, it is pasted in series even though it is in parallel paste mode. Fixed a bug where the background color and the actual instruction insertion result differed.



- 5) When the text cursor is moved with the up and down arrow keys in the Motion Program Editor, the cursor position when moving upward and downward is different, so the cursor position when moving down is aligned with the cursor position when moving upward.

Fig. 1: Cursor position when moving with the up and down keys



Blue text

- cursor position when moving upward.
- Move to the vicinity of the cursor position at the start of the movement.

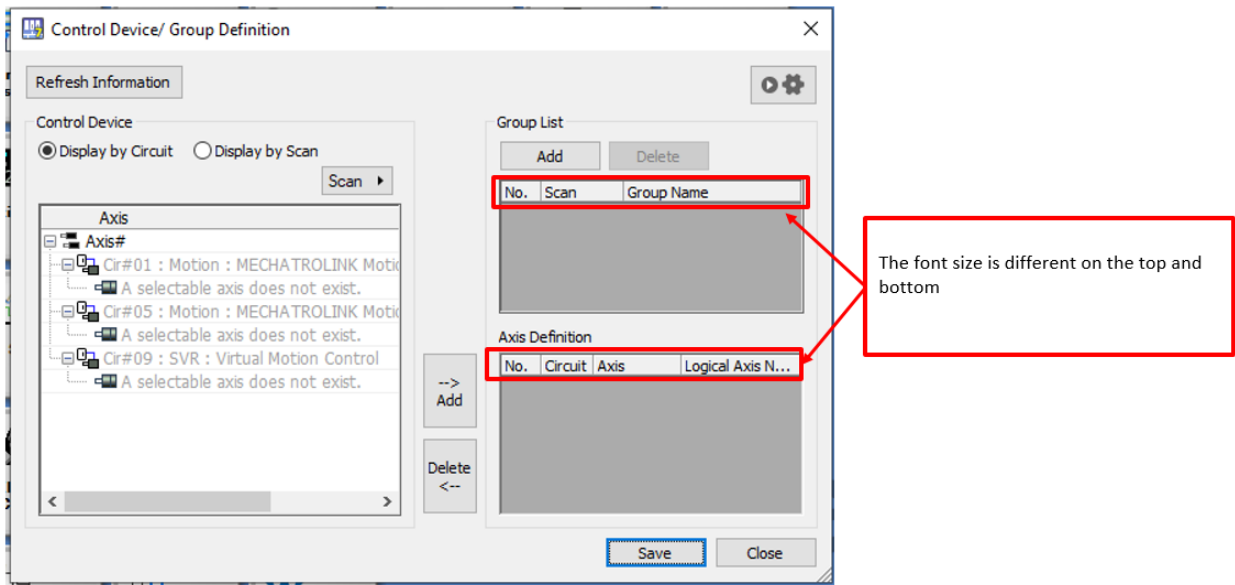
deficit

- cursor position when moving down. (Before modification)
Once the cursor moves to the beginning of the line, the subsequent
In a row, the cursor position is fixed at the beginning of the line.

Green text

- cursor position when moving down. (Corrected)
Modified to move to the vicinity of the cursor position at the start of movement.

- 6) On models that support multi-scan, a save confirmation message was displayed even if the same CPU was selected in the target CPU selection combo box on the Preferences-System Settings screen, but since multi-CPU is not supported in the first place, CPU selection is not possible.
- 7) When converting from SVC32 to SVC64 in project conversion, the number of occupied lines of SVC64 was allocated as 2 instead of 4 when the number of lines to be converted was insufficient, but if the required number of mechatronic link lines could not be secured after conversion, it was assigned as "UNDEFINED".
- 8) The ladder program being edited was not compiled even if "Compiling the program being edited" was executed, but it was modified so that it was compiled.
- 9) Fixed a bug that caused the MPE720 to close the program window by opening the comparison window of the ladder program or motion program after comparing project files, and then clicking the comparison destination on the right to close the program window.
- 10) Fixed a bug that caused the MPE720 to terminate when a character string containing 31 characters or less and 32 Bytes or more of full-width characters was entered into the register input part (instruction, coil, etc.) of the ladder instruction.
- 11) Fixed that when you delete a scan, all register copy settings in register mappings are deleted, so that only the settings related to the deleted scan are deleted.
- 12) In the group list on the "Control Device/Group Definition" screen, the typeface size of the group list and the axis definition were different, but the size has been unified.



- 13) Fixed a bug that line #0 was displayed when the "Control Device/Group Definition" screen was displayed while the counter unit (PI-01C/PI-01CM) or the counter module (ex. 050-**) of the SLIOI/O module was assigned in the module configuration definition.
- 14) Fixed a bug that caused a register range overlap error when the register type is different in the register mapping but the same register range is used.

When the register range is set to the following:

Register Range Settings ⓘ

M Register G Register

Scan	Registers		
	First Address	Size (Words)	Register Range
<input type="checkbox"/> CPU0	00000	1048576	MW00000 to MW1048575
H	00000	1000	MW00000 to MW00999
L	01000	1000	MW01000 to MW01999
Scan2	02000	1000	MW02000 to MW02999

Register Range Settings ⓘ

M Register G Register

Scan	Registers		
	First Address	Size (Words)	Register Range
<input type="checkbox"/> CPU0	00000	67108864	GW00000 to GW67108863
H	00000	1000	GW00000 to GW00999
L	01000	1000	GW01000 to GW01999
Scan2	02000	1000	GW02000 to GW02999

Fixed a duplicate error in the following register copy settings.

Source Registers						Destination Registers			
No.	First Address	Number of Registers	Size (Words)	Last Address	Scan	=>	First Address	Last Address	Scan
1	MW00000	1	1	MW00000	H	=>	MW01000	MW01000	L
2	GW01000	1	1	GW01000	L	=>	MW02000	MW02000	Scan2

Appendix A: Compilation of Parallel Circuits

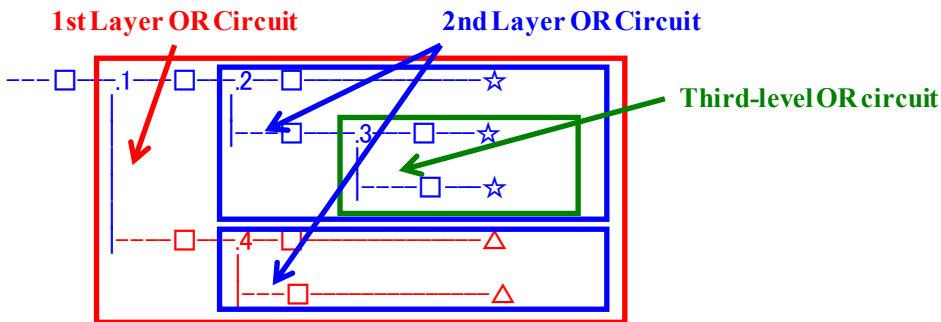
In the ladder program of MPE720 Ver7.23 or earlier, the following symptoms may occur when using parallel circuits.

< 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.



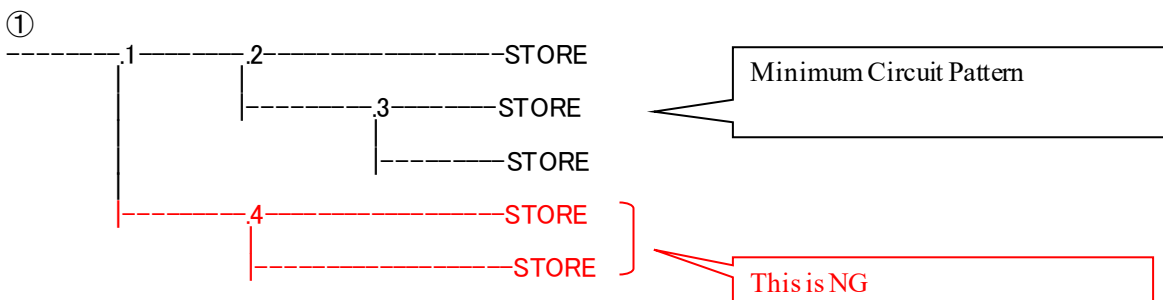
1st level OR circuit: OR circuit branched from Lang's busbar
 2nd layer OR circuit: OR circuit branched from within the 1st level OR circuit
 3rd level OR circuit: OR circuit branched from within the 2nd level OR circuit

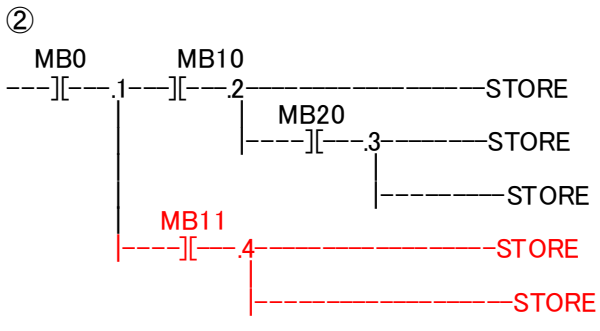
- (Conditional Instructions): A contact, B contact, comparison (=, !=, >, <) instructions, etc.
- * □ (conditional instructions) includes power wires (-----)
- ☆ (Output instructions): coils, block instructions (Expression, STORE, COPYW) instructions, etc.
- * However, if all ☆ are coil instructions,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

[Phenomenon occurrence pattern]

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

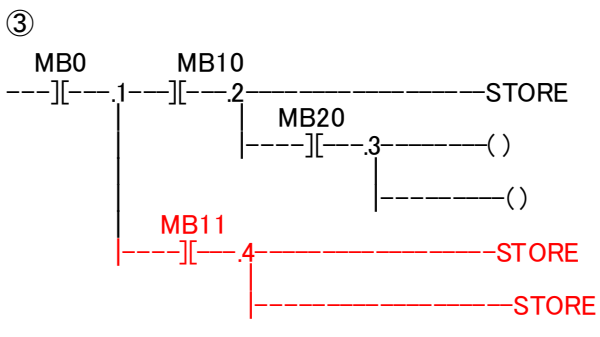
[NG pattern]





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

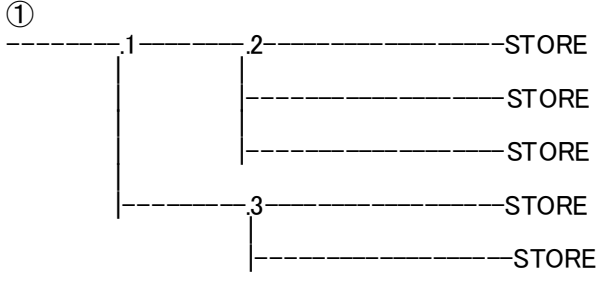
This is NG



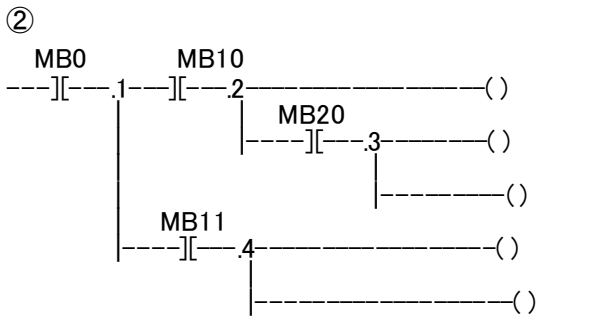
If there is even one block instruction (STORE instruction, etc.) here, it is NG

This is NG

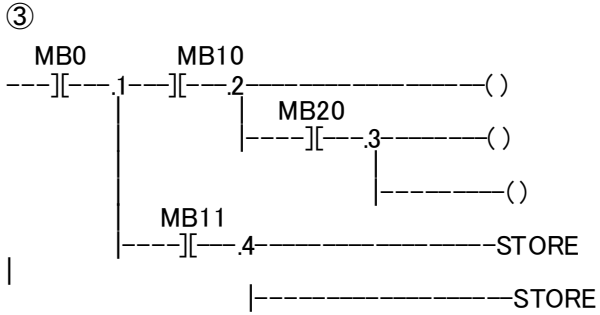
[OK pattern]



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



It's OK because it's all coils



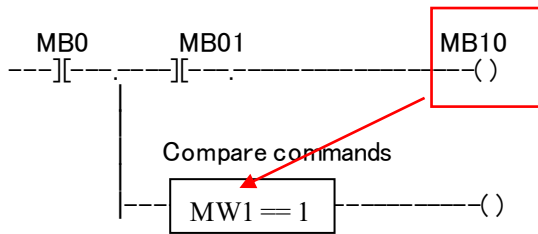
It's OK because it's all coils

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.