

## **Upgrade Information of MPE720 Version 7.42 Lite**

### **1. Added and Improved Functions**

#### **1.1 Version 7.42 Lite Upgrade Information**

Items added and features improved from MPE720 version 7.41 Lite to version 7.42 Lite are as follows.

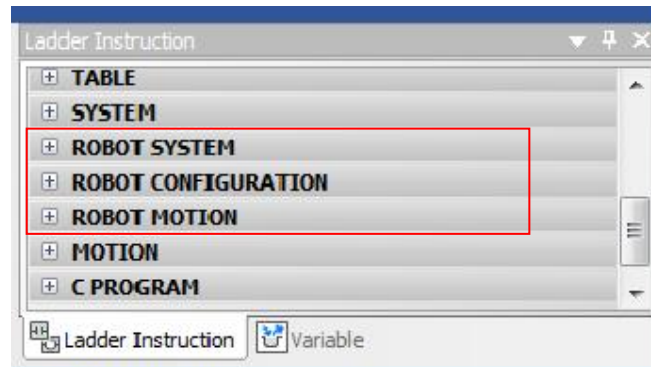
No.	Feature	Classification
1	Supported the robot control instruction.	New Function
2	Supported the SVK Module.	New Function
3	Improved the function in Real-Time Trace function.	Functional Enhancement
4	Added the function to switch the enable / disable of trace setting.	Functional Enhancement
5	Improved the deletion method of the trace definition.	Functional Enhancement
6	Improved the status confirmation method of trace definition.	Functional Enhancement
7	Improved the display processing in the Initiate trigger wait state of Real-Time Trace.	Functional Enhancement
8	Improved the list display function of Real-Time Trace and XY Trace.	Functional Enhancement
9	Improved the Auto-update Parameters of SigmaWin+ function cooperation.	Functional Enhancement
10	Supported the Axis Setup Wizard function in offline.	Functional Enhancement
11	Improved the saving process when project data was corrupted.	Improvement
12	Improved the target drawing selection operation of the Cross Reference function.	Improvement
13	Improved the operation at the time of Save to Flash.	Improvement
14	Improved the compilation processing of ladder program.	Improvement
15	Improved the compilation processing of motion program.	Improvement
16	Improved the axis selection processing of real time trace function.	Improvement
17	Improved the display of target device selection list of module configuration definition.	Improvement
18	Improved the generation processing of history data of Motion Analyzer.	Improvement
19	Improved the data acquisition processing of Motion Analyzer.	Improvement

## 2. Description

### No. 1 Supported the robot control instructions.

Supported the robot control instructions (MLx function) in ladder program.

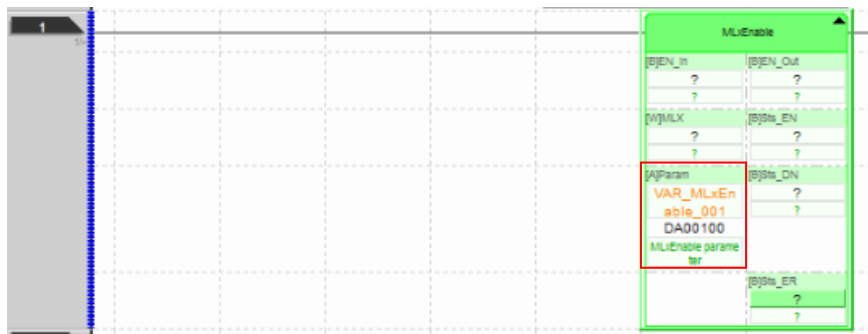
(1) The robot control instructions were added to the category of "ROBOT SYSTEM", "ROBOT CONFIGURATION", and "ROBOT MOTION" of the ladder instruction palette.



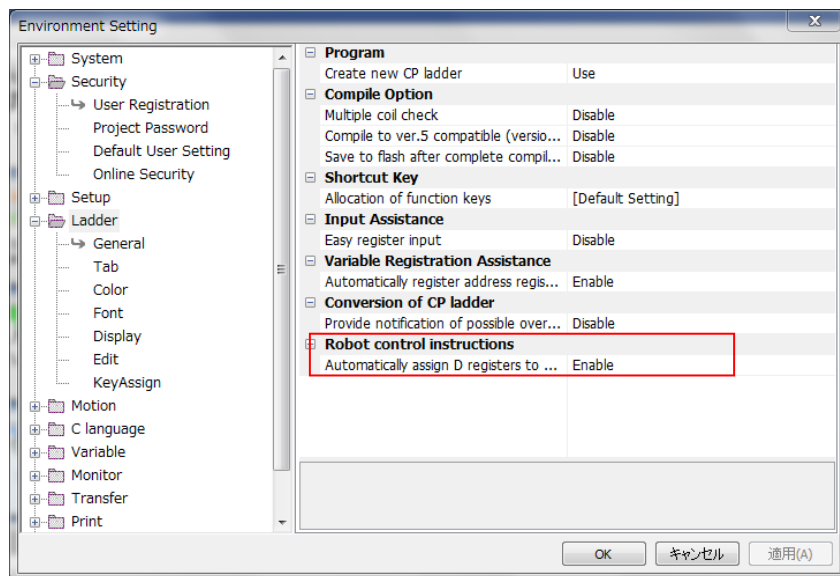
(2) When adding the robot control instructions in the ladder editor, added the function to automatically register the D register variable of unused area in the "Param" operand of the instruction and register the variable.

A system structure type conforming to the operand of the corresponding instruction was registered as a variable to be automatically registered.

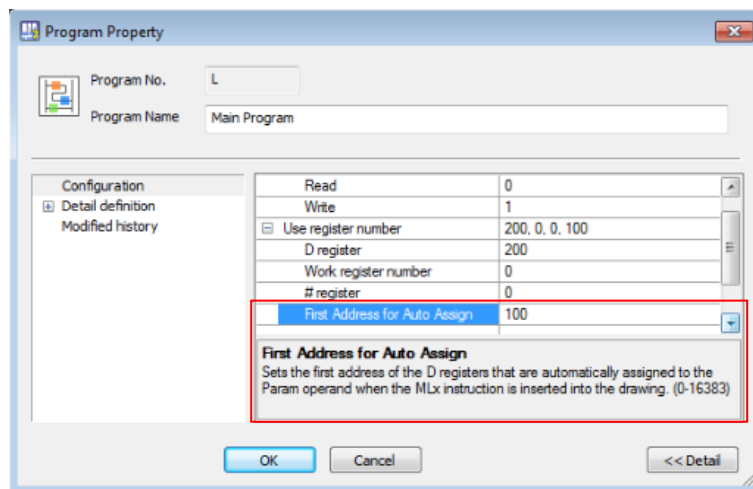
\* In the environment setting screen of (3) it is automatically registered when the setting is set to "Enable".



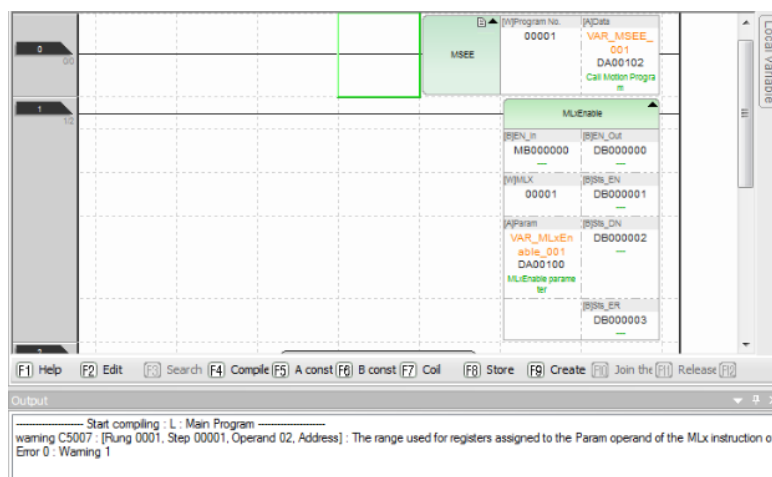
(3) Added the "Enable / Disable" switching setting of "Robot control instructions" – "Automatically assign D registers to Param operand" on "Ladder" – "General" page of the Environment Setting screen.



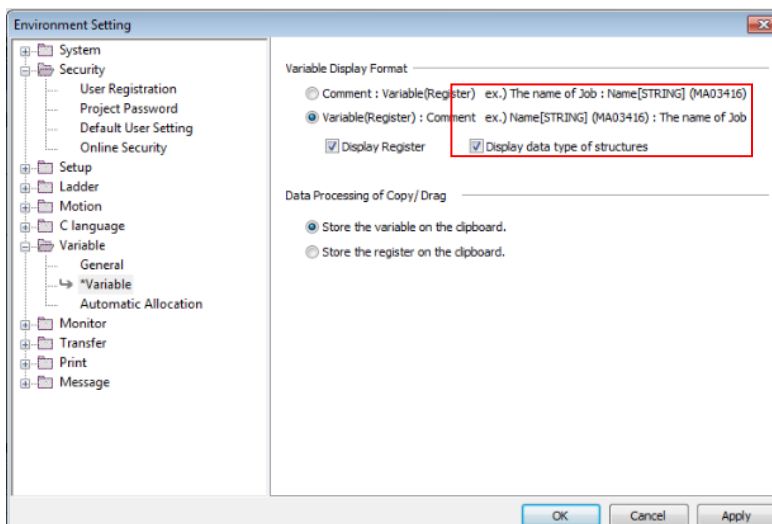
(4) In the property screen of each ladder program, added the setting of the First Address of the D register to automatically arrange the D register variable of the unused area of (2).



(5) When the usage range of the "Param" operand of the robot control instruction overlaps with the usage range of the address type operand of another instruction, a warning was made to be displayed by compiling.



(6) Added the setting item to switch the presence / absence of Display data type of structures on "Variable" – "Variable" page of Environment Setting. This setting item affects the variable name display in the variable window.



## 【Support Version】

### ○Controller

Controller	Support Version
Sigma-7C	Ver.1.03 or later.
MP2400	MP2400 is not applicable.

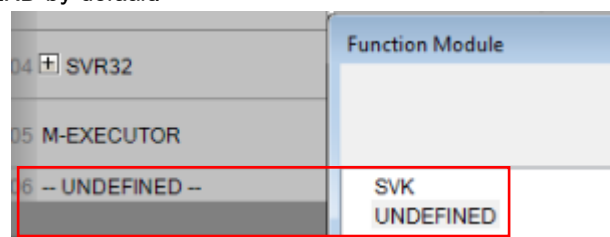
## No. 2 Supported the SVK Module.

In the following controller models, SVK module could be selected for CPU slot.

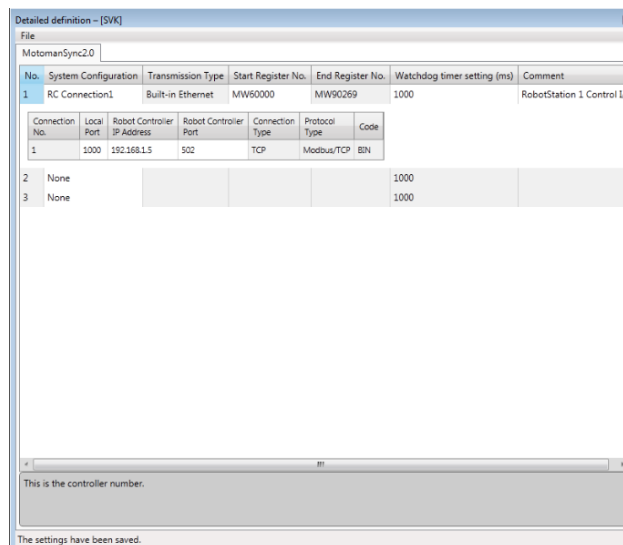
### [Applicable model]

Sigma-7C

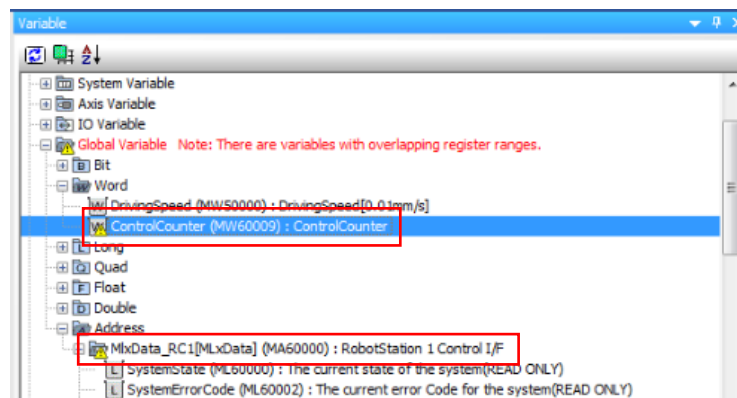
(1) The SVK module could now be selected in the CPU slot of the module configuration definition screen. The definition location of SVK is set to UNDEFIND by default.



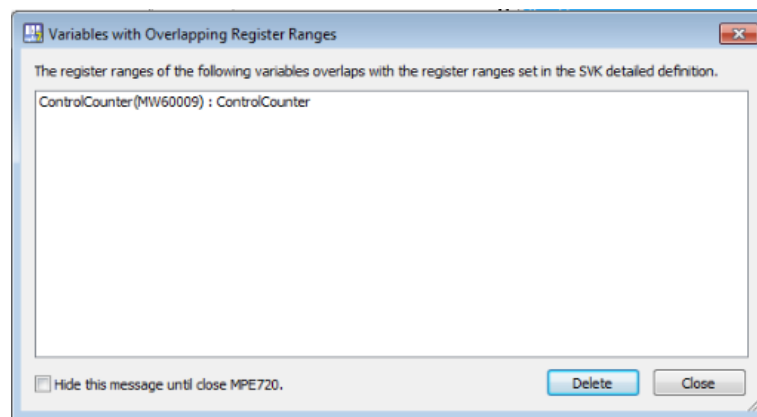
(2) Added the detail definition screen of SVK.



(3) When there were duplicate user registration variables for the registers that set in the detailed definition of SVK, a warning was made to be displayed in the variable window.



(4) When it expanded "global variable" in the state of the previous section, the variable list of duplicate states were made to be displayed. In addition, duplicate user registration variables could be deleted all together on this screen.



#### 【Support Version】

##### ○Controller

Controller	Support Version
Sigma-7C	Ver.1.03 or later.
MP2400	MP2400 is not applicable.

### No. 3 Improved the function in Real-Time Trace function.

In the Real-Time Trace function, an error message of 0xA0A005B4 was displayed under the following conditions, and there was a phenomenon that tracing could not be started.

#### 【Conditions】

- When all other trace buffers are used by another group.
- When the trace buffer becomes full due to the trace buffer size change operation etc. and a new trace buffer can not be secured.

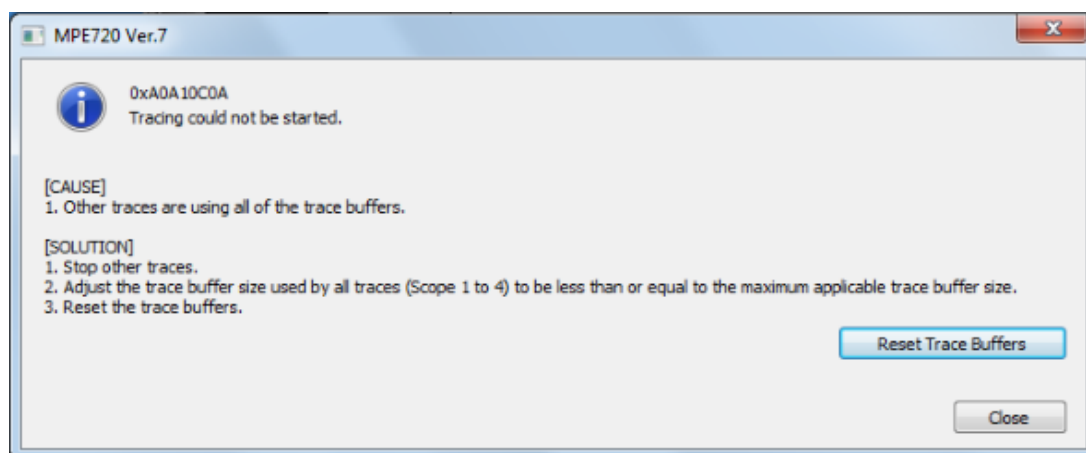
So, improved so that display the following message depending on the firmware version of the controller when tracing could not be started.

(1) If the firmware version is 1.37 or later

Improved so that display a message that was able to execute the reset of the trace buffer when the trace can not be started by the trace start operation.

When resetting the trace buffer, tracing of all groups stops.

- The acquired trace data is deleted.
- The trace definition is not deleted.



#### 【Support Version】

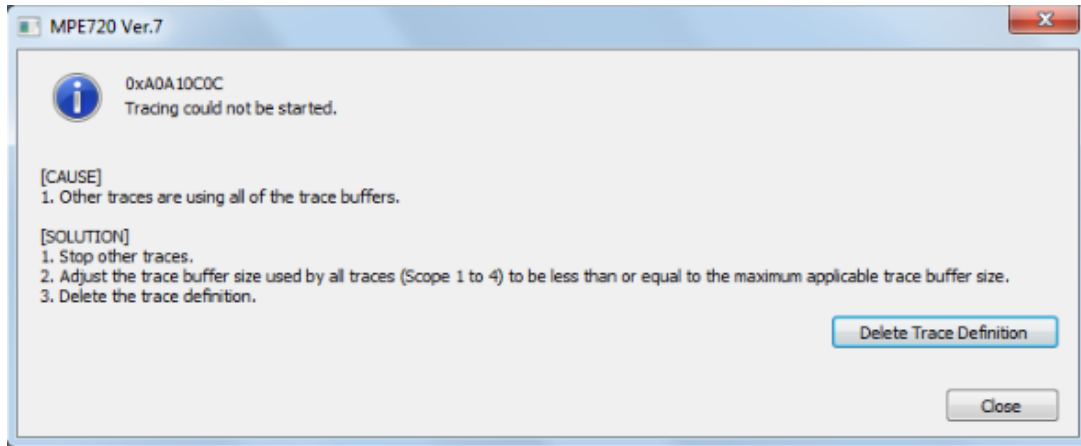
○Controller

Controller	Support Version
Sigma-7C	Scheduled for Ver.1.04 or later.
MP2400	MP2400 is not applicable.

(2) When the firmware version is 1.30 to 1.36

Improved so that display a message that can delete trace definitions of other groups when trace can not be started by trace start operation.

- The acquired trace data is deleted.
- Trace definitions other than the group you are manipulating are deleted.



【Support Version】

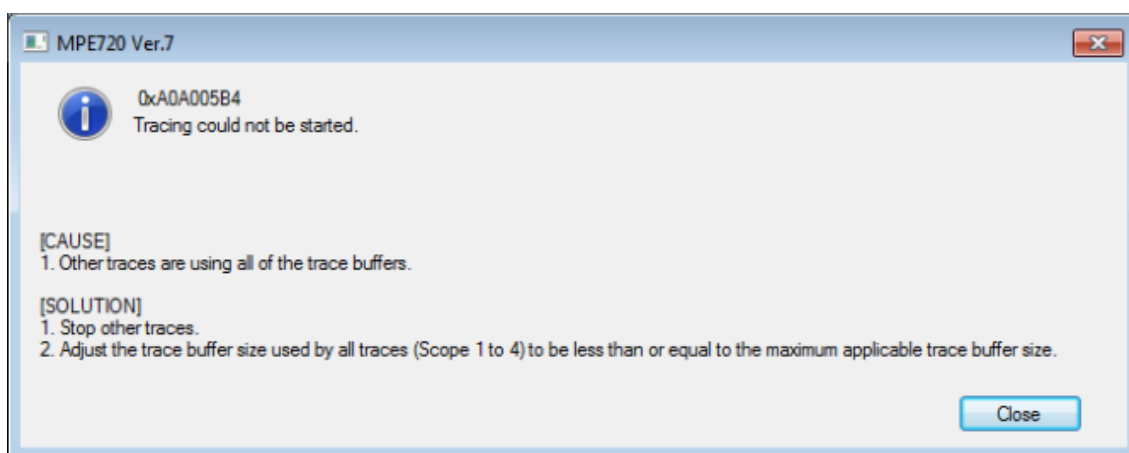
○Controller

Controller	Support Version
Sigma-7C	Ver.1.01 or more 1.03 or less
MP2400	MP2400 is not applicable.

(3) If the firmware version is less than 1.30

Improved so that display a message that recommend that it stopped the trace for other groups when trace can not be started by trace start operation.

- Acquired trace data is not deleted.
- The trace definition is not deleted.





【Support Version】

○Controller

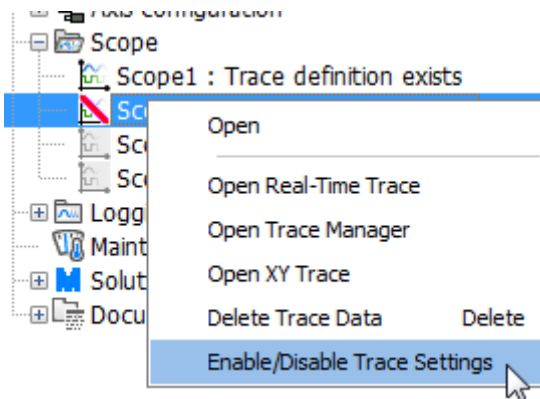
Controller	Support Version
Sigma-7C	Ver.1.00 only.
MP2400	MP2400 is not applicable.

**No. 4 Added the function to switch the enable / disable of trace setting.**

Added the function to the enable / disable of trace setting by adding “Enable All Trace Settings”, “Disable All Trace Settings” and “Enable/Disable Trace Settings” to the popup menu of the system window.

The trace disabled operation is as follows.

- The running trace is stopped.
- The acquired trace data is deleted.
- The trace definition is not deleted.



【Support Version】

○Controller

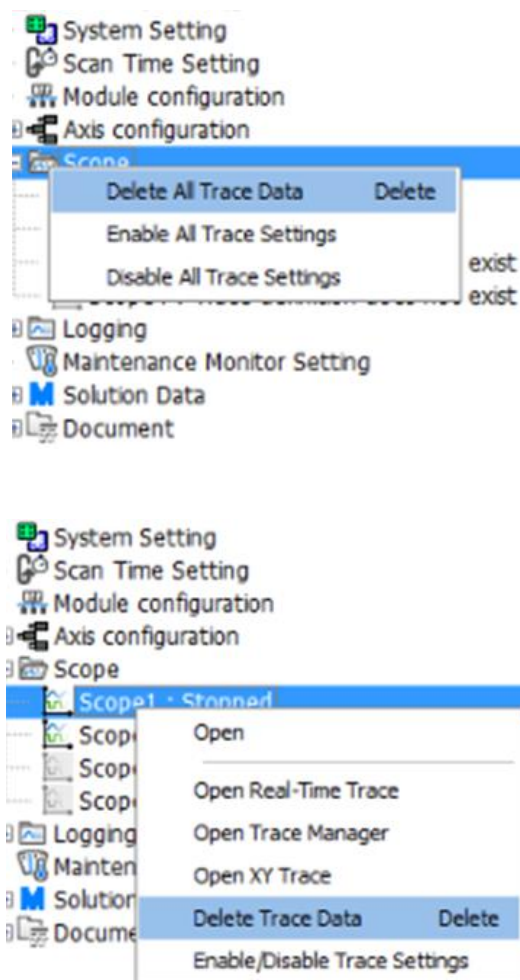
Controller	Support Version
Sigma-7C	Scheduled for Ver.1.04 or later.
MP2400	MP2400 is not applicable.

## No. 5 Improved the deletion method of the trace definition.

It was now possible to delete the trace definition by adding "Delete all traces" and "Delete trace" menus to the popup menu of the system window.

The trace deletion operation is as follows.

- The running trace is stopped.
- The acquired trace data is deleted.
- The trace definition is deleted.



In addition, improved so that it was possible to always delete the trace definition.

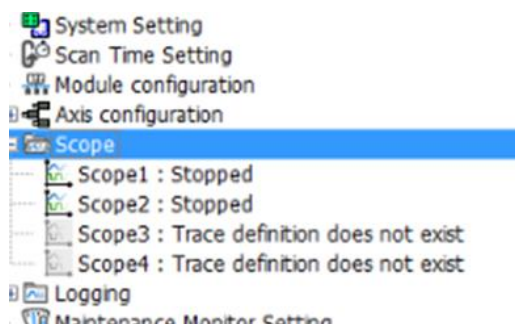
### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

## No. 6 Improved the status confirmation method of trace definition.


(1) In order to check the status of the trace definition on the system window, improved so that the icon and the status string corresponding to the state were displayed.



### 【Icon】

: When Trace definition exists / Trace settings Enabled.

: When Trace definition does not exist.

: When Trace settings disabled.

### 【String】

Running

Stopped

Waiting for start trigger

Trace definition exists

Trace definition does not exist

Trace settings disabled

Unconfirmed trace definition exists

### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

(2) Added the Data Trace Enable or Disable Status (Group 1 to 4) to SW00098 and SW15998.

Register	Comment	Status
SB000988	Data Trace Enable or Disable(Group1)	0: Enable 1: Disable
SB000989	Data Trace Enable or Disable(Group2)	0: Enable 1: Disable
SB00098A	Data Trace Enable or Disable(Group3)	0: Enable 1: Disable
SB00098B	Data Trace Enable or Disable(Group4)	0: Enable 1: Disable

SB159988	Data Trace Enable or Disable(Group1)	0: Enable 1: Disable
SB159989	Data Trace Enable or Disable(Group2)	0: Enable 1: Disable
SB15998A	Data Trace Enable or Disable(Group3)	0: Enable 1: Disable
SB15998B	Data Trace Enable or Disable(Group4)	0: Enable 1: Disable

【Support Version】

○Controller

Controller	Support Version
Sigma-7C	Scheduled for Ver.1.04 or later.
MP2400	MP2400 is not applicable.

## No. 7 Improved the function in Real-Time Trace function.

In the Real-Time Trace function, when the following operation procedure was performed, there was a phenomenon that the bitmap in the Initiate trigger wait state was not displayed. So, improved so that the bitmap of Trace Initiate trigger wait state was displayed.

【Operating procedure】

- (1) Set the trigger.
- (2) Start tracing and set the Initiate trigger wait state.
- (3) Close the Real-Time Trace once.
- (4) Open Real-Time Trace again.

Added the Data Trace Trigger Condition Status (Trace1 to 4) to SW00099 and SW15999 so that it was able to check the status of the Initiate trigger.

Register	Comment	Status
SB000998	Data Trace Trigger Condition Status(Group1)	0: Other than waiting for initiate condition 1: Waiting for initiate condition
SB000999	Data Trace Trigger Condition Status(Group2)	Same as above
SB00099A	Data Trace Trigger Condition Status(Group3)	Same as above
SB00099B	Data Trace Trigger Condition Status(Group4)	Same as above
SB159998	Data Trace Trigger Condition Status(Group1)	Same as above
SB159999	Data Trace Trigger Condition Status(Group2)	Same as above
SB15999A	Data Trace Trigger Condition Status(Group3)	Same as above
SB15999B	Data Trace Trigger Condition Status(Group4)	Same as above

【Support Version】

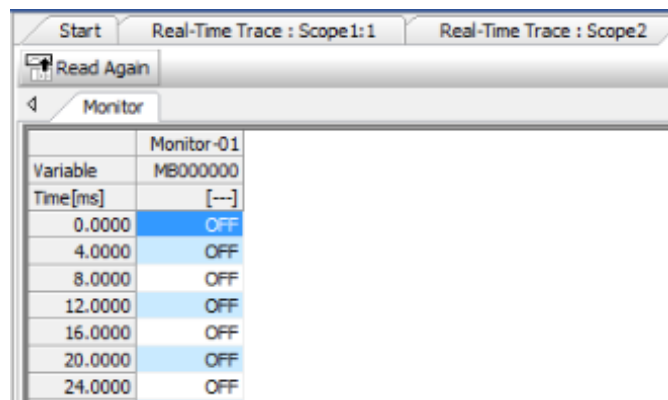
○Controller

Controller	Support Version
Sigma-7C	Scheduled for Ver.1.04 or later.
MP2400	MP2400 is not applicable.

**No. 8 Improved the function in Real-Time Trace function.**

In Real-Time Trace and XY Trace, improved so that list screen could be opened even during trace execution.

In addition, added a "Read Again" button at the top of the screen. It was able to possible to reread the trace buffer at an arbitrary timing.



【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

## No. 9 Improved the Auto-update Parameters of SigmaWin+ function cooperation.

Improved the operation of parameters to be automatically reflected for servo parameters on the setting parameter screen of MC-Configurator.

(1) The parameter cells of Auto-update Parameters were able to become displayed in yellow.

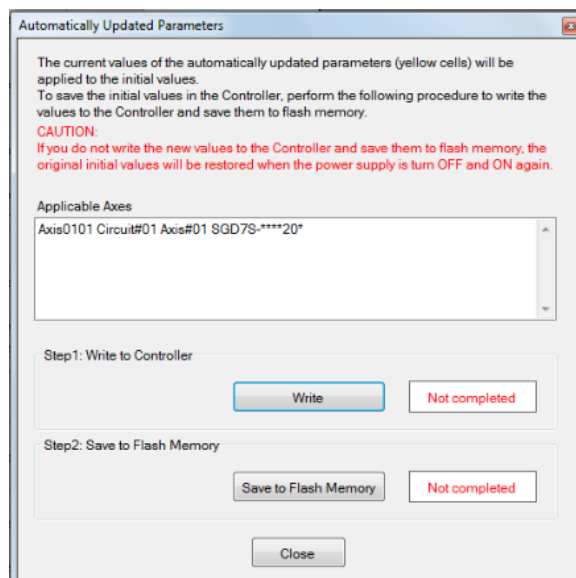
1	2	*	Address	Axis0101 Circuit#01 Axis#01 SGD7S-****20* 【Initial value】	Axis0101 Circuit#01 Axis#01 SGD7S-****20*
				<input type="checkbox"/> Select All <input type="checkbox"/> Reflecto <input type="button" value="Update"/>	
22	:	Secondly Speed Compensation	OL8016	<input type="checkbox"/> 0[1000pulse/min]	0[1000pulse/min]
24	:	Override	OW8018	<input type="checkbox"/> 10000[0.01%]	10000[0.01%]
28	:	Position reference setting	OL801C	<input type="checkbox"/> 0[pulse]	0[pulse]
30	:	Width of positioning completion	OL801E	<input type="checkbox"/> 100[pulse]	100[pulse]
32	:	NEAR signal output width	OL8020	<input type="checkbox"/> 0[pulse]	0[pulse]
34	:	Error count alarm detection	OL8022	<input type="checkbox"/> 2147483647[pulse]	2147483647[pulse]
38	:	Positioning completion check time	OW8026	<input type="checkbox"/> 0[ms]	0[ms]
40	:	Phase correction setting	OL8028	<input type="checkbox"/> 0[pulse]	0[pulse]
42	:	Latch zone lower limit setting	OL802A	<input type="checkbox"/> -2147483648[pulse]	-2147483648[pulse]
44	:	Latch zone upper limit setting	OL802C	<input type="checkbox"/> 2147483647[pulse]	2147483647[pulse]
46	:	Position loop gain	OW802E	<input type="checkbox"/> 400[0.1/s]	400[0.1/s]
47	:	Speed loop gain	OW802F	<input type="checkbox"/> 40[Hz]	40[Hz]
48	:	Speed feedforward amends	OW8030	<input type="checkbox"/> 0[0.01%]	0[0.01%]
49	:	Speed Compensation	OW8031	<input type="checkbox"/> 0[0.01%]	0[0.01%]
50	:	Position loop integration time cons...	OW8032	<input type="checkbox"/> 0[ms]	0[ms]
52	:	Speed loop integration time const...	OW8034	<input type="checkbox"/> 2000[0.01ms]	2000[0.01ms]
54	:	Straight line acceleration/Accelera...	OL8036	<input type="checkbox"/> 0[ms]	0[ms]
56	:	Straight line deceleration/Decelera...	OL8038	<input type="checkbox"/> 0[ms]	0[ms]
58	:	Filter time constant	OW803A	<input type="checkbox"/> 0[0.1ms]	0[0.1ms]

(2) Added the function to reflect the "Current value" of the Auto-update Parameters in the "Initial value".



(3) Added the function to support the following operation after the operating "Apply to initial values" function.

- Write to controller
- save to Flash



(4) When the "Update Auto Reflection Parameters" function of SigmaWin+Ver.7 parameter edit screen was operated, improved so that the set value converted using the machine specifications of the fixed parameter of the controller was reflected in the positioning completion width at "OLxx1 E" of the setting parameter.

【Target parameters】

○ Servo parameters

Pn 522: Positioning Completed Width

○ Setting parameters

OLxx1E: Width of positioning completion

【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

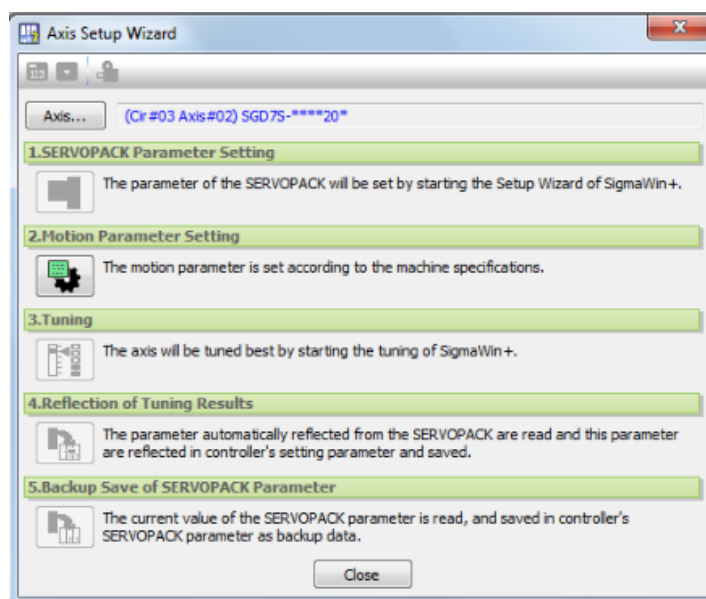
○Servo Tool

Controller	Support Version
SigmaWin+Ver.7	Ver.7.13 or later.

**No. 10 Supported the Axis Setup Wizard function in offline.**

The Axis Setup Wizard function was became operational in offline.

Only “2. Motion Parameter setting” could be used.



【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

## No. 11 Improved the saving process when project data was corrupted.

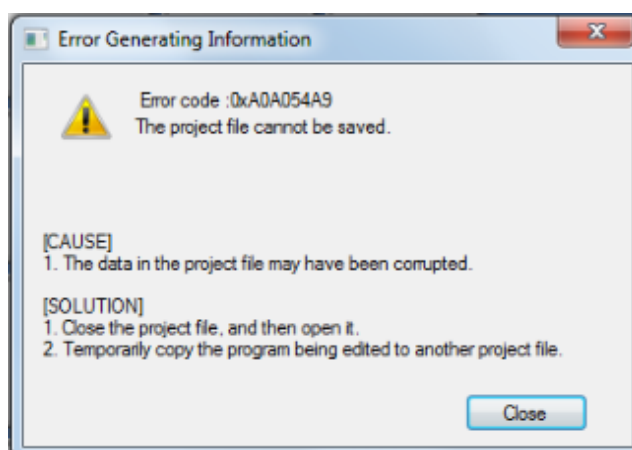
When anti-virus software was used, the file of the Windows default temporary area used by MPE 720 may be deleted under the following conditions.

### 【Conditions】

- When the function to delete Windows temporary files was executed.

Deleting files in the temporary area may cause corrupted to the project file data.

When saving the project in that state, there was a phenomenon that it was not possible to open the project file from the next time on. So, improved so that it was not able to save (Save Project, Save as a New Project) the project file when the damage of the project file data was detected.



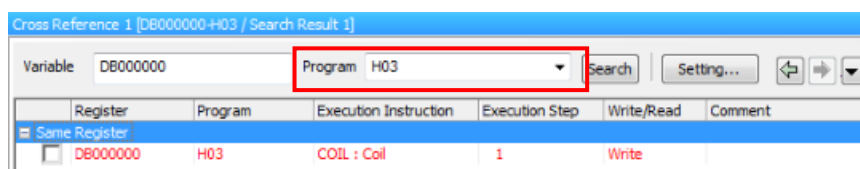
### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

## No. 12 Improved the target drawing selection operation of the Cross Reference function.

In the Cross Reference function, improved so that display the selection combo box of the search target drawing in the Cross Reference window.



### 【Support Version】

○Controller

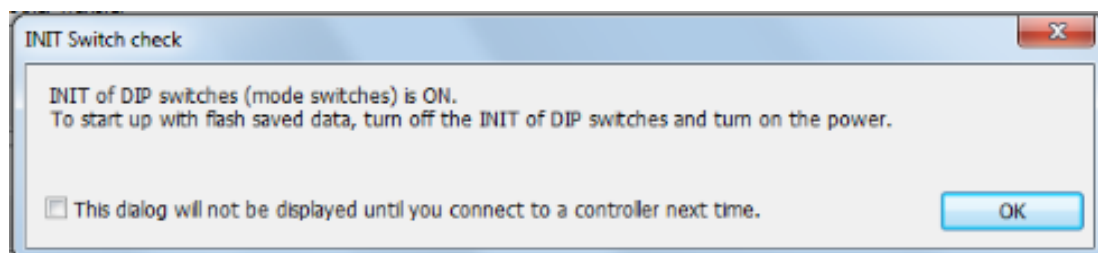
Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.



### No. 13 Improved the operation at the time of Save to Flash.

In order to improve operability of Save of Flash, improved as follows.

- (1) When the RAM and flash was corresponding at the start of save to Flash, a warning message was displayed, but it was improved so as not to display the message.
- (2) Although confirmation message of INIT startup was displayed when executing Save to Flash when the INIT switch is ON, improved to display message at the completion of Save to Flash.



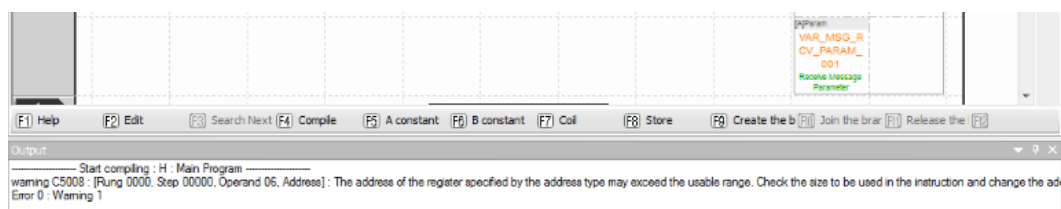
#### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

### No. 14 Improved the compilation processing of ladder program.

When compiling a ladder program using a system function, improved so that the size of the operand that sets the address type register was checked and the warning was displayed when the use size of the register was out of the range.



#### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

### No. 15 Improved the compilation processing of motion program.

There was a phenomenon that the function name could not be correctly identified in UFC instruction when the character string which "K" was judged as a numerical value was included in the user function name. So, improved so that it was correctly identified as the function name in UFC instruction, when the character string which "K" was judged as a numerical value was included in the user function name.

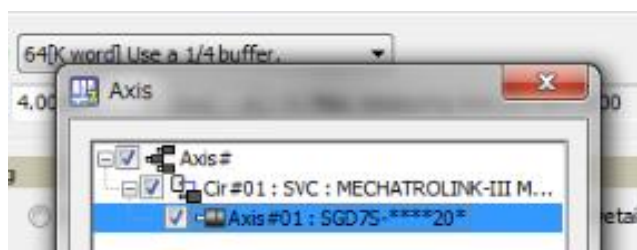
#### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

### No. 16 Improved the axis selection processing of real time trace function.

On the sampling & trigger setting screen of real time trace, there was a phenomenon that when the axis selection screen of the servo trace was started, the set axis did not start in the selected state. So, improved to restore selected axis contents.



In addition, horizontal deployment was carried out for the following functions.

#### 【Target function】

- Axis selection screen of Axis Setup Wizard
- Axis selection screen of Test Run

#### 【Support Version】

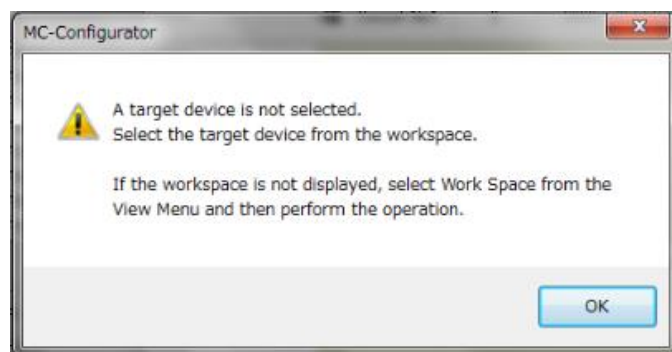
○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

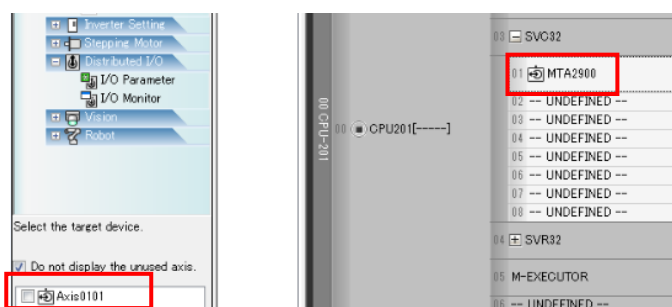
## No. 17 Improved the display of target device selection list of Module Configuration.

In the Module Configuration, there were the following phenomenon (1) and (2). So, we improved.

(1) All I/O device that assigned as SVB / SVC slave were displayed in the target device selection list of the workspace screen. Therefore, when I/O parameter was selected for the models that does not support the I/O parameter, the following message was displayed.

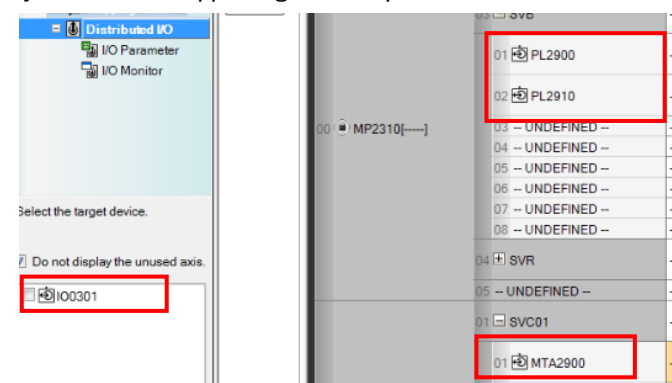


(2) The prefix of the name that displayed in the target device selection list on the workspace screen was displayed as "Axis" even on the I / O device.

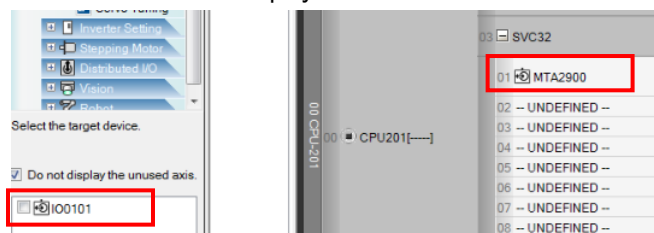


Improved the above (1) and (2) as follows.

(1) Improved so that display only the models supporting the I/O parameter on axis selection of workspace.



(2) Improved so that the prefix of the I/O devices is displayed as "IO".



【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

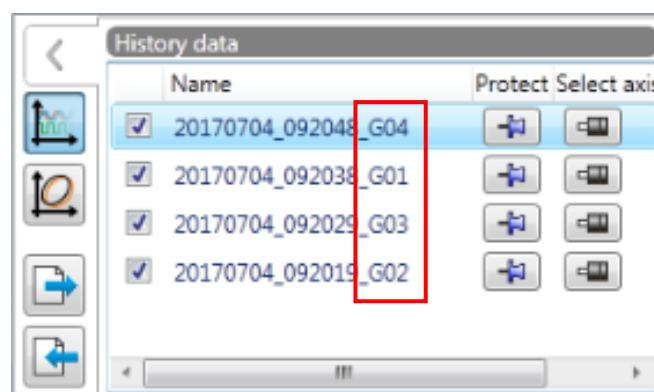
**No. 18 Improved the generation processing of history data of Motion Analyzer.**

Under the following conditions, there was a phenomenon that the history data of Motion Analyzer was not generated for each group. So, improved so that the history data of Motion Analyzer is generated for each group by adding the group number to the generated CSV file name.

【Conditions】

- When servo trace has been acquired for multiple groups (traces 1 to 4).
- When acquiring a servo trace with the same terminate condition.

Ex) When servo trace is acquired with the same terminate condition in traces 1 to 4.



【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.

## No. 19 Improved the data acquisition processing of Motion Analyzer.

Under the following conditions, there was a phenomenon that an error message was displayed when acquiring data of the Motion Analyzer. So, improved so that it does not to display error message when acquiring data of motion analyzer.

### 【Conditions】

- When servo trace has been acquired for multiple groups (traces 1 to 4).
- When trace data, trigger setting, and target servo are the same setting in multiple groups.

### 【Support Version】

○Controller

Controller	Support Version
Sigma-7C	It is not dependent on the version.
MP2400	It is not dependent on the version.