

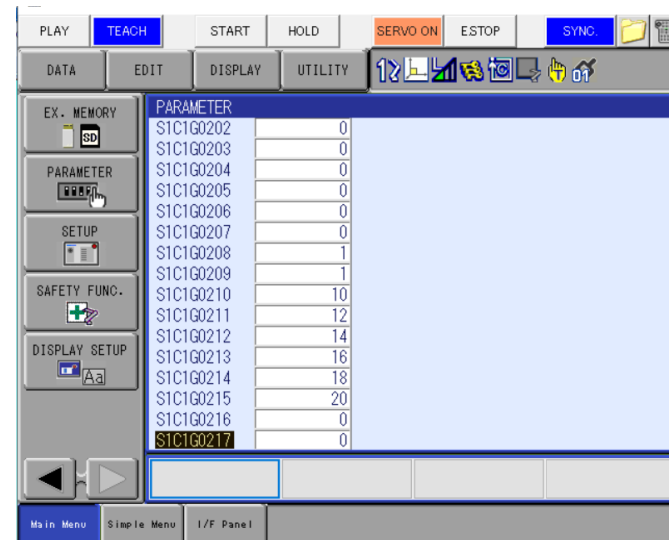
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Passing Current Position to An External Device

This document explains how to pass the robot's current position in real time VIA Concurrent I/O (CIO).

1. You will need to configure the following parameters to activate the current position function.

S1CxG	Description
208	Enables/Disables the function for outputting the present Cartesian position (in the base coordinates) to registers. (command value) 0: disable 1: enable
209	Specifies the output size to the register. 0: output in 2 bytes 1: output in 4 bytes
210	Cartesian position (command value) X register number of output destination
211	Cartesian position (command value) Y register number of output destination
212	Cartesian position (command value) Z register number of output destination
213	Cartesian position (command value) Rx register number of output destination
214	Cartesian position (command value) Ry register number of output destination
215	Cartesian position (command value) Rz register number of output destination



***For this example, we are configuring current position for cartesian position within a double word. ***

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In the configuration above the current position is being written to the M-Registers below.

The screenshot shows a control panel with various function buttons at the top: PLAY, TEACH, START, HOLD, SERVO ON, ESTOP, SYNC, and icons for folder and calculator. Below these are buttons for DATA, EDIT, DISPLAY, and UTILITY, along with navigation icons. The main display area is titled 'REGISTER' and contains a table with columns for NO., SET VALUE, and NAME. A vertical sidebar on the left contains buttons for JOB, GENERAL, VARIABLE (with 'B001' selected), IN/OUT, ROBOT, and SYSTEM INFO. At the bottom are left and right arrow buttons.

NO.	SET VALUE	NAME	
M008	0	0000_0000_0000_0000	
M009	0	0000_0000_0000_0000	
M010	27074	0110_1001_1100_0010	X-Position
M011	14	0000_0000_0000_1110	X-Position
M012	61039	1110_1110_0110_1111	Y-Position
M013	65534	1111_1111_1111_1110	Y-Position
M014	19583	0100_1100_0111_1111	Z-Position
M015	5	0000_0000_0000_0101	Z-Position
M016	24831	0110_0000_1111_1111	RX-Position
M017	27	0000_0000_0001_1011	RX-Position
M018	21860	0101_0101_0110_0100	RY-Position
M019	65522	1111_1111_1111_0010	RY-Position
M020	25189	0110_0010_0110_0101	RZ-Position
M021	65534	1111_1111_1111_1110	RZ-Position
M022	0	0000_0000_0000_0000	

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- Getting the current position values from the M-Registers to the external device Via external outputs is going to require a CIO ladder change. First verify where the external starting addresses are, for this example the external device is allocated at the addresses below.

```
=====
EXTERNAL IO ALLOCATION (INPUT)
      ST#  CH  MAC ID  ADDR  BYTE  NAME
-----
#20010   0   0     0     0     5  ASF01
#20060  15   0    254     0     1  Ethernet/IP CPU
#20070  15   0     0     1    30  External Device
=====
```

```
=====
EXTERNAL IO ALLOCATION (OUTPUT)
      ST#  CH  MAC ID  ADDR  BYTE  NAME
-----
#30010   0   0     0     0     5  ASF01
#30060  15   0    254     0     1  Ethernet/IP CPU
#30070  15   0     0     1    30  External Device
=====
```

- Below is the CIO ladder change for passing the M-Register values to the External Outputs.

```
STR #70017
MOV M010,W#30070 // Moving X position M-Registers to Robots External Output bits
STR #70017
MOV M011,W#30090 // Moving X position M-Registers to Robots External Output bits
STR #70017
MOV M012,W#30110 // Moving Y position M-Registers to Robots External Output bits
STR #70017
MOV M013,W#30130 // Moving Y position M-Registers to Robots External Output bits
STR #70017
MOV M014,W#30150 // Moving Z position M-Registers to Robots External Output bits
STR #70017
MOV M015,W#30170 // Moving Z position M-Registers to Robots External Output bits
```

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```
STR #70017
MOV M016,W#30190 // Moving RX position M-Registers to Robots External Output bits
STR #70017
MOV M017,W#30210 // Moving RX position M-Registers to Robots External Output bits
STR #70017
MOV M018,W#30230 // Moving RY position M-Registers to Robots External Output bits
STR #70017
MOV M019,W#30250 // Moving RY position M-Registers to Robots External Output bits
STR #70017
MOV M020,W#30270 // Moving RZ position M-Registers to Robots External Output bits
STR #70017
MOV M021,W#30290 // Moving RZ position M-Registers to Robots External Output bits
```

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4. Lastly, after the CIO ladder has been changed monitor the external outputs while the robot is moving to see to the external outputs updating. See example below.

