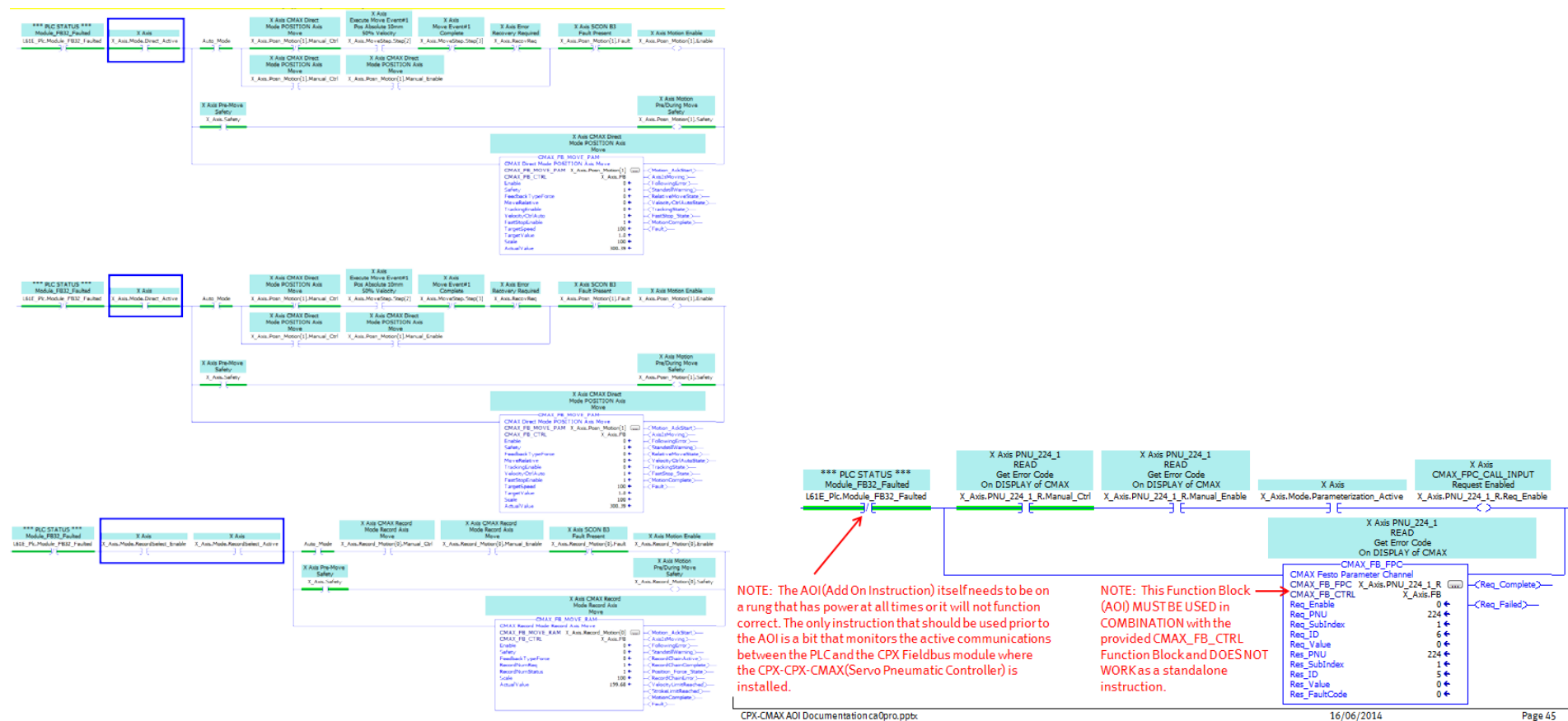


## CPX-CMAX TO AB VIA FHPP ETHERNETIP AOI REVISION HISTORY

Release Date	Version	Version Quick Information
20140822	V2.0	Official Festo Release. Updated Help files for all AOI (Add-On Instruction) Tested on AOI (Add-On Instruction) on RSLogix5000 Series Software V17 through to V21 – no errors observed.

Release Date	Version	Version Quick Information
20140616	PLC Code Changes	On all rungs with AOI (Add-On Instruction), I moved any conditional instruction to inside the branch so that the only instruction used prior to the AOI is a bit that monitors the active communications between the PLC and the CPX fieldbus module. Also added NOTES to the PLC Code & the Application guide indicating this is mandatory in order for correct operation of sample code.



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16/06/2014

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Release Date	Version	Version Quick Information
20130624	No Change	Tested Functionality with Firmware Version V20.11.59 (1756-L61) of controller AB_FB32_CMAX_V20_AOI_Customer_20130624.ACD

There are NO changes to this version other than the controller revision itself. The lab controller was flashed to V20.11.59 and the previous V19 project was converted to Version V20.01 and downloaded. The functionality was tested and no issues were found.

Note: Normally in VersionV20 and higher, due to the that Festo is an “Encompass Partner” with Rockwell, this allows the use of our EtherNet/IP EDS files. It was found that our version of the CPX-FB32 are not yet suitable for this function. This was tested with the EDS files shown below from our support portal. Due to this incompatibility, the original “Generic Ethernet” module was used.



**Bus node CPX-FB32**  
541302

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Description	Version
<b>Ethernet/IP EDS</b>	>= R17
EDS file for CPX valve terminals with Ethernet/IP connection	3/1/2011
<a href="#">→ Device Description Files</a> <a href="#">→ File and language versions</a>	
<a href="#">Electronic Data Sheets (EDS files) and icons for Festo valve terminals CPX, MPA, VTSA</a>	
<b>Version changes:</b> EDS-File for CPX-FB32 EtherNet/IP. This file is compatible with CPX-FB32 Revision 16 and earlier revisions.	
<b>Supported systems:</b> <ul style="list-style-type: none"> <li>• Bus node CPX-FB32 (541302)</li> <li>• CP-electrical part CTEC (539041)</li> <li>• Terminal CPX (197330)</li> <li>• Valve terminal MPA-FB-VI (530411)</li> <li>• Valve terminal MPAF-FB-VI (544397)</li> <li>• Valve terminal MPAL-VI (569926)</li> <li>• Valve terminal VTSA-FB (539217)</li> <li>• Valve terminal VTSA-FB-NPT (539218)</li> <li>• Valve terminal VTSA-F-FB (547965)</li> <li>• Valve terminal VTSA-F-FB-NPT (547966)</li> </ul>	

Release Date	Version	Version Quick Information
20130201	V1.3	Incorrect code change to prevent functionality failure with Movement and Identification Sequences.

#### **Routine: C099\_CMAX\_Common\_Ctrl**

##### **Rung: 2**

Added rung to allow the "MovementTest\_Seq" and the "Identification\_Seq" routines to reset the CPOS\_StartTask Bit after acknowledgment of the sequence start. In the previous code the start bit would remain turned on and the controller would fault during this.

#### **Routine: C001\_CMAX\_MovementTest\_Seq**

##### **Rung: 2**

Changed the "Auto\_Mode" bit from Normally Open to Normally Closed so that the routine is only executed while in "Manual".

##### **Rung: 17**

Added bits X\_Axis.FB.CPOS\_StartTask, X\_Axis.FB.SCON\_WarningPresent, X\_Axis.FB.SCON\_FaultPresent

This allowed for better rest of sequences

#### **Routine: C002\_CMAX\_Identification\_Seq**

##### **Rung: 2**

Changed the "Auto\_Mode" bit from Normally Open to Normally Closed so that the routine is only executed while in "Manual".

##### **Rung: 17**

Added bits X\_Axis.FB.CPOS\_StartTask, X\_Axis.FB.SCON\_WarningPresent, X\_Axis.FB.SCON\_FaultPresent

This allowed for better rest of sequences

#### **Routine: B000\_CMAX\_Mode\_Select**

##### **Rung: 1 & 6**

Deleted the reference code to the bits X\_Axis.Mode.Direct\_PositionCtrl\_Enable and X\_Axis.Mode.Direct\_ForceCtrl\_Enable as this is old code and the new function blocks handle this now.

##### **Rung: 9**

Replaced the programmer bits "X\_Axis.EnableDrive" with the "Auto\_Mode" bit.

##### **Rung: 10**

Added bits to the CCON\_ResetFault rung: X\_Axis.MoveTest.Steps\_Rst, X\_Axis.MoveTest.Steps\_En, X\_Axis.IdentStep.Steps\_Rst, X\_Axis.IdentStep.Steps\_En, X\_Axis.FB.SCON\_FCTDeviceControlled

#### **Routine: C008\_CMAX\_STN\_Record\_Moves**

##### **Rung: 4 to 9**

Changed Auto\_Mode bits from "XIO" to "XIC" bits to compliment other changes made elsewhere or moved the Auto\_Mode "XIC" bits within the rung.

**Routine: C008\_CMAX\_STN\_Record\_Moves**

**Rung: 1**

Changed Auto\_Mode bits from "XIO" to "XIC" bits to compliment other changes made elsewhere

**Routine: C006\_CMAX\_STN\_Force\_Moves**

**Rung: 1**

Moved the Auto\_Mode "XIC" bits within the rung.

**Data Type: ud\_CMAX\_Control**

Removed "EnableDrive" as not required due to code changes.

**Data Type: ud\_CMAX\_Modes**

Deleted the bits X\_Axis.Mode.Direct\_PositionCtrl\_Enable and X\_Axis.Mode.Direct\_ForceCtrl\_Enable

Release Date	Version	Version Quick Information
20130130	V1.2	Modifications to allow use with DNCI rotary actuator

**Details:**

Function Block: CMAX\_FB\_MOVE\_FAM

Revision of Function Block: V1.2

**Added Input:** Scale --> Position Multiplier (DGCI = 100, DNCI = 100, DSMI = 10)

**Original Function:**

The original multiplier used was hardcoded at 100

**New Function:**

The controller uses a position factor and depending on the axis type this differs.

For Linear Axis (DGCI, DNCI) the exponent of  $10^{-2}$  is used. For example, if the Actual position of the axis is 123.67mm, the PLC Position data would be 12367.

For the DSMI, the exponent is  $10^{-1}$  is used. For example, if the Actual position of the axis is 123.6°, the PLC Position data would be 1236.

The embedded code inside the function block now uses the "Scale" instead of the hardcoded "100" for display of "actual value (position units)

**Details:**

Function Block: CMAX\_FB\_MOVE\_PAM

Revision of Function Block: V1.1

**Added Input:** Scale --> Position Multiplier (DGCI = 100, DNCI = 100, DSMI = 10)

**Original Function:**

The original multiplier used was hardcoded at 100

**New Function:**

The controller uses a position factor and depending on the axis type this differs.

For Linear Axis (DGCI, DNCI) the exponent of  $10^{-2}$  is used. For example, if the Actual position of the axis is 123.67mm, the PLC Position data would be 12367.

For the DSMI, the exponent is  $10^{-1}$  is used. For example, if the Actual position of the axis is 123.6°, the PLC Position data would be 1236.

The embedded code inside the function block now uses the "Scale" instead of the hardcoded "100" for display of "actual value (position units)

**Details:**

Function Block: CMAX\_FB\_MOVE\_RAM

Revision of Function Block: V1.1

**Added Input:** Scale --> Position Multiplier (DGCI = 100, DNCI = 100, DSMI = 10)

**Original Function:**

The original multiplier used was hardcoded at 100

**New Function:**

The controller uses a position factor and depending on the axis type this differs.

For Linear Axis (DGCI, DNCI) the exponent of  $10^{-2}$  is used. For example, if the Actual position of the axis is 123.67mm, the PLC Position data would be 12367.

For the DSMI, the exponent is  $10^{-1}$  is used. For example, if the Actual position of the axis is 123.6°, the PLC Position data would be 1236.

The embedded code inside the function block now uses the "Scale" instead of the hardcoded "100" for display of "actual value (position units)

Release Date	Version	Version Quick Information
20130110	V1.1	Enhancements for Force Control

**Details:**

Function Block: CMAX\_FB\_MOVE\_FAM

**Added Input:** DisableReaction --> Enable Off Reaction 0=Retain Force, 1=Apply "Zero" Force, 2=Switch to Position Mode

**Original Function:**

When the "Enable" input was removed this instruction would apply a "Zero" Force and remain in Force mode until another call is made.

**New Function:**

The DisableReaction input allows the user the option of how this instruction reacts when the "Enable" input is removed

0--> Retains the Force that was specified in the TargetValue input parameter,

1--> Apply "Zero" Force (as original design),

2--> Switch to Position Mode as quickly as possible. The system immediately switches back to position control, while in standstill position the set point position is set as = actual position.

**Routine:** B000\_CMAX\_Mode\_Select

**Rung:** 11

Added ONS instruction prior to the CCON\_Stop output and changed the output to a latch.

In order to execute DisableReaction=2, The CCON\_Stop bit has to be set to 0, then turned back on = 1.

The original code would not facilitate this.

Release Date	Version	Version Quick Information
20130108	V1.0	Initial release to SPIMS+ and notified app engineer distribution list, and provided to 2 customers

**Details:**

As indicated in summary