

Festo_Positioning_Basic library – MOP Enabling Homing

Commissioning of a selected system with the Festo_Positioning_Basic library is explained step by step, so that it's successfully integrated into the user program.

FPosB

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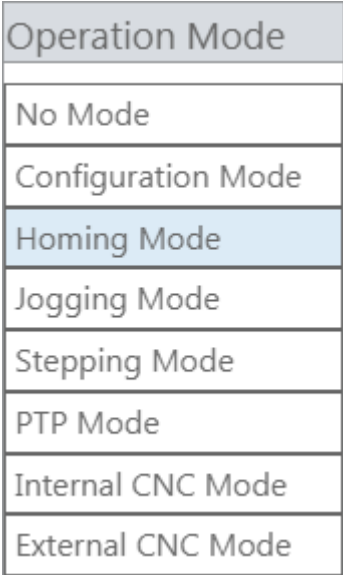
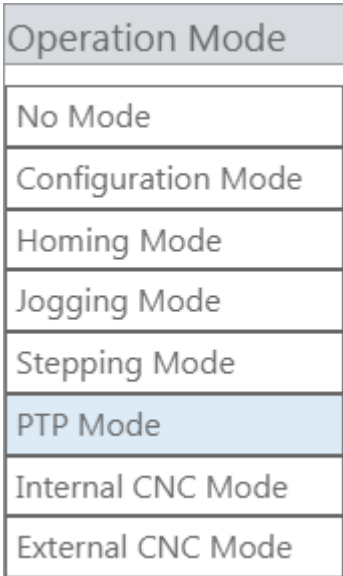
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1 MOP change

The operating mode is changed in the visualisation by selecting the desired mode at the left-hand side:

	Visualisation	Codesys
1	The system is in the homing mode. This is checked in Codesys by comparing the eMoPDisplay with the desired mode. 	<pre>g_stOut.eMoPDisplay = FPosB.eHomingMode;</pre>
2	Switching from the homing mode to PTP Manual is required. The mode is assigned to eMOP to this end and the mode is activated by means of a rising edge at xSetOpMode. 	<pre>g_stIn.eMOP := FPosB.ePTPManual; g_stIn.stCW.xSetOpMode := TRUE;</pre>

3	The change is checked by once again comparing eMoPDisplay with the mode. If the status is correct, xSetOpMode is once again deactivated.										
	<table><tr><th>Operation Mode</th></tr><tr><td>No Mode</td></tr><tr><td>Configuration Mode</td></tr><tr><td>Homing Mode</td></tr><tr><td>Jogging Mode</td></tr><tr><td>Stepping Mode</td></tr><tr><td>PTP Mode</td></tr><tr><td>Internal CNC Mode</td></tr><tr><td>External CNC Mode</td></tr></table>	Operation Mode	No Mode	Configuration Mode	Homing Mode	Jogging Mode	Stepping Mode	PTP Mode	Internal CNC Mode	External CNC Mode	<pre>g_stOut.eMoPDisplay = FPosB.ePTPManual; g_stIn.stCW.xSetOpMode := FALSE;</pre>
Operation Mode											
No Mode											
Configuration Mode											
Homing Mode											
Jogging Mode											
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PTP Mode											
Internal CNC Mode											
External CNC Mode											

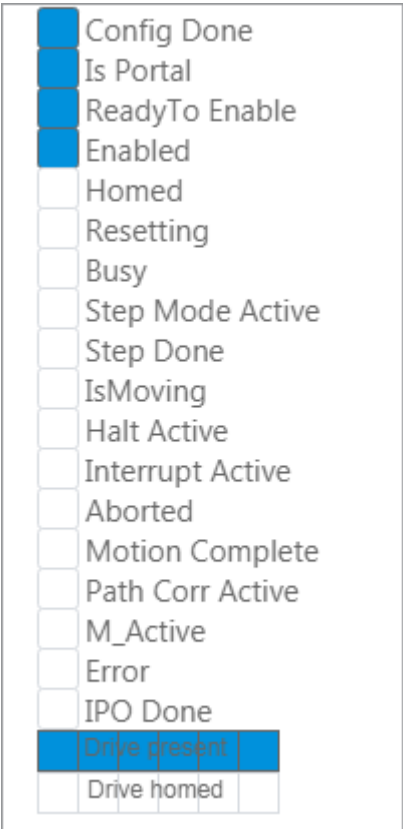
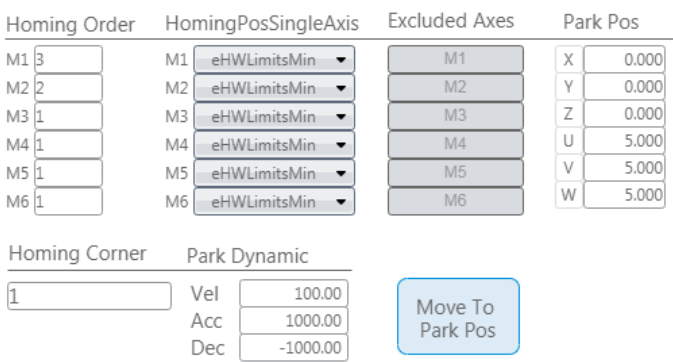
Table 1: Labelling

2 Controller enable and homing

As a prerequisite for all other steps, the system must have already been in the configuration mode so that the configuration has been loaded.

	Visualisation	Codesys									
1	The system is in the homing mode.										
	<table><tr><td>Operation Mode</td></tr><tr><td>No Mode</td></tr><tr><td>Configuration Mode</td></tr><tr><td>Homing Mode</td></tr><tr><td>Jogging Mode</td></tr><tr><td>Stepping Mode</td></tr><tr><td>PTP Mode</td></tr><tr><td>Internal CNC Mode</td></tr><tr><td>External CNC Mode</td></tr></table>	Operation Mode	No Mode	Configuration Mode	Homing Mode	Jogging Mode	Stepping Mode	PTP Mode	Internal CNC Mode	External CNC Mode	<pre>g_stOut.eMoPDisplay = FPosB.eHomingMode;</pre>
Operation Mode											
No Mode											
Configuration Mode											
Homing Mode											
Jogging Mode											
Stepping Mode											
PTP Mode											
Internal CNC Mode											
External CNC Mode											

2	The configuration is reported back as finished and the system is ready to be enabled.	
	Config Done Is Portal ReadyTo Enable Enabled Homed Resetting Busy Step Mode Active Step Done IsMoving Halt Active Interrupt Active Aborted Motion Complete Path Corr Active M_Active Error IPO Done Drive present Drive homed <pre>g_stOut.stSW.xError = FALSE; g_stOut.stSW.xConfigDone = TRUE; g_stOut.stSW.xIsPortal = TRUE; g_stOut.stSW.xReadyToEnable = TRUE; g_stOut.stSW.arxMotorPresent[0] = 1; g_stOut.stSW.arxMotorPresent[1] = 1; g_stOut.stSW.arxMotorPresent[2] = 1;</pre>	
3	The system is enabled with the “Enable System” command.	
	Operation Mode No Mode Configuration Mode Homing Mode Jogging Mode Stepping Mode PTP Mode Internal CNC Mode External CNC Mode Enable System Reset System Ack Error <pre>g_stIn.stCW.xEnable := TRUE;</pre>	

4	As soon as enabling has taken place, this is reported back in the status display.		<code>g_stOut.stSW.xEnabled = TRUE;</code>
5	Homing is started with the “Start” command.		<code>g_stIn.stCW.xStart := TRUE;</code>
6	The “isMoving” and “Busy” outputs are active as long as homing is in progress. Whereas “isMoving” indicates active positioning motion, the “Busy” status indicates an active internal module.		

	Config Done Is Portal ReadyTo Enable Enabled Homed Resetting Busy Step Mode Active Step Done IsMoving Halt Active Interrupt Active Aborted Motion Complete Path Corr Active M_Active Error IPO Done Drive present Drive homed	<pre>g_stOut.stSW.xIsMoving = TRUE; g_stOut.stSW.xBusy = TRUE;</pre>
7	As soon as homing has been successfully completed, this is reported back to the status display. The “isMoving” and “Busy” outputs are inactive. The start command is subsequently reset.	

☒ Config Done ☒ Is Portal ☒ ReadyTo Enable ☒ Enabled ☒ Homed ☐ Resetting ☐ Busy ☐ Step Mode Active ☐ Step Done ☐ IsMoving ☐ Halt Active ☐ Interrupt Active ☐ Aborted ☐ Motion Complete ☐ Path Corr Active ☐ M_Active ☐ Error ☐ IPO Done ☒ Drive present ☒ Drive homed	<pre> g_stOut.stSW.xIsMoving = FALSE; g_stOut.stSW.xBusy = FALSE; g_stOut.stSW.xHomed = TRUE; g_stIn.stCW.xStart := FALSE; </pre>
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Homing Order	HomingPosSingleAxis	Excluded Axes	Park Pos
M1 3	M1 eHWLimitsMin ▼	M1	X 0.000
M2 2	M2 eHWLimitsMin ▼	M2	Y 0.000
M3 1	M3 eHWLimitsMin ▼	M3	Z 0.000
M4 1	M4 eHWLimitsMin ▼	M4	U 5.000
M5 1	M5 eHWLimitsMin ▼	M5	V 5.000
M6 1	M6 eHWLimitsMin ▼	M6	W 5.000

Homing Corner	Park Dynamic
1	Vel 100.00
	Acc 1000.00
	Dec -1000.00