



**Subset of the**

**Technical Paper**

**PLCopen Technical Committee 2 - Task Force**

**Function Blocks for motion control:**

**Part 5 –Homing Procedures**

**Version 2.0, Published**

**Compliance Procedure and Compliance List**

DISCLAIMER OF WARRANTIES

THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS AND MAY BE SUBJECT TO FUTURE ADDITIONS, MODIFICATIONS, OR CORRECTIONS. PLCOPEN HEREBY DISCLAIMS ALL WARRANTIES OR CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES, CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, FOR THIS DOCUMENT. IN NO EVENT WILL PLCOPEN BE RESPONSIBLE FOR ANY LOSS OR DAMAGE ARISING OUT OF OR RESULTING FROM ANY DEFECT, ERROR OR OMISSION IN THIS DOCUMENT OR FROM ANYONE'S USE OF OR RELIANCE ON THIS DOCUMENT.

Copyright © 2003 – 2011 by PLCopen. All rights reserved.

November 16, 2011

Total number of pages: 10

## **5 Compliance Procedure and Compliance List**

Listed in this chapter are the requirements for the compliance statement from the supplier of the Motion Control Function Blocks for Part 5 – Homing Procedures. The compliance statement consists of a list of the Function Blocks (see 5.3 Overview of the Homing Procedures and Function Blocks and its paragraphs) and a detailed list of the supported Function Blocks in combination with the applicable inputs and outputs (see 5.4 MC\_StepAbsoluteSwitch and further paragraphs). The supplier is required to fill out the tables for the Function Blocks, according to their product, committing their support to the specification.

By submitting these tables to PLCopen, and after approval by PLCopen, the list will be published on the PLCopen website, [www.plcopen.org](http://www.plcopen.org) , as well as a short form overview, as specified in see 5.3 Overview of the Homing Procedures and Function Blocks and its paragraphs.

In addition to this approval, the supplier is granted access and usage rights of the PLCopen Motion Control logo, as described in chapter 5.15 The PLCopen Motion Control Logo and Its Usage.

### 5.1 Statement of Supplier

Supplier name	Beckhoff Automation GmbH & Co. KG
Supplier address	Huelshorstweg 20
City	33415 Verl
Country	Germany
Telephone	+49 5246 963 0
Fax	+49 5246 963 198
Email address	<a href="mailto:info@beckhoff.com">info@beckhoff.com</a>
Product Name	TwinCAT Motion PLC Library 'Advanced Homing'
Product version	Library Version 3.0.11
Release date	06.06.2019

I hereby state that the following tables as filled out and submitted do match our product as well as the accompanying user manual, as stated above.

Name of representation (person):

Klaus Bernzen

Date of signature (dd/mm/yyyy):

17/07/2019

Signature:

## 5.2 Supported Data types

Defined datatypes with MC library:	Supported	If not supported, which datatype used
BOOL	Y	
WORD	Y	DWORD, UDINT are also used
REAL		LREAL
ENUM	Y	
TIME	Y	

**Table 1: Supported datatypes**

Within the specification the following derived datatypes are defined. Define which of these structures are used in this system:

Derived datatypes:	Where used	Supported	Which structure
AXIS_REF	In all FBs	Y	
MC_HOME_DIRECTION (extended)	MC_StepAbsoluteSwitch MC_StepLimitSwitch MC_StepBlock MC_StepReferencePulse MC_StepDistanceCoded	Y Y Y Y N	
MC_SWITCH_MODE (extended)	MC_StepAbsoluteSwitch MC_StepLimitSwitch MC_StepReferenceFlyingSwitch	Y Y Y	
MC_REF_SIGNAL_REF (extended)	MC_StepAbsoluteSwitch MC_StepReferencePulse MC_StepReferenceFlyingSwitch MC_StepReferenceFlyingRefPulse	Y Y Y Y	
MC_BUFFER_MODE (extended)	MC_StepAbsoluteSwitch MC_StepLimitSwitch MC_StepBlock MC_StepReferencePulse MC_StepDistanceCoded MC_HomeDirect MC_HomeAbsolut MC_FinishHoming MC_StepReferenceFlyingSwitch MC_StepReferenceFlyingRefPulse	Y Y Y Y N Y N Y Y Y	

**Table 2: Supported derived datatypes**

### 5.3 Overview of the Homing Procedures and Function Blocks

Function Blocks	Supported Yes / No	Comments (<= 48 char.)
MC_StepAbsoluteSwitch	Yes	
MC_StepLimitSwitch	Yes	
MC_StepBlock	Yes	
MC_StepReferencePulse	Yes	
MC_StepDistanceCoded	No	
MC_HomeDirect	Yes	
MC_HomeAbsolute	No	
MC_FinishHoming	Yes	
MC_StepReferenceFlyingSwitch	Yes	
MC_StepReferenceFlyingRefPulse	Yes	
MC_AbortPassiveHoming	Yes	

**Table 3: Short overview of the Function Blocks**

### 5.4 MC\_StepAbsoluteSwitch

If Supported	MC_StepAbsoluteSwitch	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	Direction	Y	
E	SwitchMode	Y	
E	ReferenceSignal	Y	
E	Velocity	Y	
E	SetPosition	Y	
E	TorqueLimit	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

## 5.5 MC\_StepLimitSwitch

If Supported	MC_StepLimitSwitch	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	Direction	Y	
E	LimitSwitchMode	Y	
E	Velocity	Y	
E	SetPosition	Y	
E	TorqueLimit	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

## 5.6 MC\_StepBlock

If Supported	MC_StepBlock	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	Direction	Y	
E	Velocity	Y	
E	SetPosition	Y	
E	DetectionVelocityLimit	Y	
E	DetectionVelocityTime	Y	
E	TorqueLimit	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

## 5.7 MC\_StepReferencePulse

If Supported	MC_StepReferencePulse	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	Direction	Y	
E	ReferenceSignal	Y	
E	Velocity	Y	
E	SetPosition	Y	
E	TorqueLimit	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

## 5.8 MC\_StepDistanceCoded

If Supported	MC_StepDistanceCoded	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Execute		
E	Direction		
E	Velocity		
E	TorqueLimit		
E	TimeLimit		
E	DistanceLimit		
E	BufferMode		
VAR_OUTPUT			
B	Done		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

### 5.9 MC\_HomeDirect

If Supported	MC_HomeDirect	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	SetPosition	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

### 5.10 MC\_HomeAbsolute

If Supported	MC_HomeAbsolute	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Execute		
E	BufferMode		
VAR_OUTPUT			
B	Done		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

### 5.11 MC\_FinishHoming

If Supported	MC_FinishHoming	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
B	Distance	Y	
E	Velocity	Y	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	



### 5.12 MC\_StepReferenceFlyingSwitch

If Supported	MC_StepReferenceFlyingSwitch	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	SwitchMode	Y	
E	ReferenceSignal	Y	
E	SetPosition	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

### 5.13 MC\_StepReferenceFlyingRefPulse

If Supported	MC_StepReferenceFlyingRefPulse	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ReferenceSignal	Y	
E	SetPosition	Y	
E	TimeLimit	Y	
E	DistanceLimit	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

### 5.14 MC\_AbortPassiveHoming

If Supported	MC_AbortPassiveHoming	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

### 5.15 The PLCopen Motion Control Logo and Its Usage

For quick identification of compliant products, PLCopen has developed a logo for the motion control Function Blocks:



**Figure 1: The PLCopen Motion Control Logo**

This motion control logo is owned and trademarked by PLCopen.

In order to use this logo free-of-charge, the relevant company has to fulfill all the following requirements:

1. the company has to be a voting member of PLCopen;
2. the company has to comply with the existing specification, as specified by the PLCopen Task Force Motion Control, and as published by PLCopen, and of which this statement is a part;
3. this compliance application is provided in written form by the company to PLCopen, clearly stating the applicable software package and the supporting elements of all the specified tables, as specified in the document itself;
4. in case of non-fulfillment, which has to be decided by PLCopen, the company will receive a written statement concerning this from PLCopen. The company will have a one month period to either adopt their software package in such a way that it complies, represented by the issuing of a new compliance statement, or remove all reference to the specification, including the use of the logo, from all their specification, be it technical or promotional material;
5. the logo has to be used as is - meaning the full logo. It may be altered in size providing the original scale and color setting is kept.
6. the logo has to be used in the context of Motion Control.