Subset of the

Technical Specification
PLCopen - Technical Committee 2 – Task Force

Function blocks for motion control
(Formerly Part 1 and Part 2)

Version 2.0

Appendix B

Compliance Procedure and Compliance List

March 17, 2011.

Appendix B. Compliance Procedure and Compliance List

Listed in this Appendix are the requirements for the compliance statement from the supplier of the Motion Control Function Blocks. The compliance statement consists of two main groups: supported data types and supported Function Blocks, in combination with the applicable inputs and outputs. The supplier is required to fill out the tables for the used data types and 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 as well as a shortform overview, as specified in Appendix B 2 Supported Data types and Appendix B 3 Overview of the Function Blocks as below.

In addition to this approval, the supplier is granted access and usage rights of the PLCopen Motion Control logo, as described in Appendix B 4:

The PLCopen Motion Control Logo and Its Usage..

Data types
The data type REAL listed in the Function Blocks and parameters (e.g. for velocity, acceleration, distance, etc.) may be exchanged to SINT, INT, DINT or LREAL without to be seen as incompliant to this standard, as long as they are consistent for the whole set of Function Blocks and parameters.
Implementation allows the extension of data types as long as the basic data type is kept. For example: WORD may be changed to DWORD, but not to REAL.

Function Blocks and Inputs and Outputs
An implementation which claims compliance with this PLCopen specification shall offer a set of Function Blocks for motion control, meaning one or more Function Blocks, with at least the **basic** input and output variables, marked as "**B**" in the tables. These inputs and outputs have to be supported to be compliant.
For higher-level systems and future extensions any subset of the **extended** input and output variables, marked as "**E**" in the tables can be implemented.
Vendor specific additions are marked with "**V**", and can be listed as such in the supplier documentation.

- **Basic**   input/output variables are mandatory   Marked in the tables with the letter "**B**"
- **Extended** input /output variables are optional   Marked in the tables with the letter "**E**"
- **Vendor Specific** additions   Marked in the vendor's compliance documentation with "**V**"

All the vendor specific items will not be listed in the comparison table on the PLCopen website, but in the detailed vendor specific list, which also is published.
All vendor specific in- and outputs of all FBs must be listed in the certification list of the supplier. With this, the certification listing from a supplier describes all the I/Os of the relevant FBs, including vendor-specific extensions, and thus showing the complete FBs as used by the supplier.

Appendix B 1.   Statement of Supplier

Supplier name	Beckhoff Automation GmbH & Co. KG
Supplier address	Huelshorstweg 20
City	Verl
Country	Germany
Telephone	+49 5246 963 0
Fax	+49 5246 963 198
Email address	info@beckhoff.com
Product Name	TwinCAT
Product version	3.1
Release date	5.9.2013

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):
11/01/2016

Signature:

Appendix B 2.   Supported Data types

Defined datatypes with MC library:	Supported	If not supported, which datatype used
BOOL	Y	
INT		DINT
WORD		DWORD, UDINT
REAL		LREAL
ENUM	Y	
UINT		UDINT

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	Nearly all FBs	Y	
MC_DIRECTION (extended)	MC_MoveAbsolute	N	
	MC_MoveVelocity	Y	
	MC_TorqueControl	N	
	MC_MoveContinuousAbsolute	N	
MC_TP_REF	MC_PositionProfile	N	
MC_TV_REF	MC_VelocityProfile	N	
MC_TA_REF	MC_AccelerationProfile	N	
MC_CAM_REF	MC_CamTableSelect	Y	
MC_CAM_ID (extended)	MC_CamTableSelect	Y	
	MC_CamIn	Y	
MC_START_MODE (extended)	MC_CamIn	Y	
	MC_CamTableSelect	N	
MC_BUFFER_MODE	Buffered FBs	Y	
MC_EXECUTION_MODE	MC_SetPosition	N	
	MC_WriteParameter		
	MC_WriteBoolParameter		
	MC_WriteDigitalOutput		
	MC_CamTableSelect		
MC_SOURCE	MC_ReadMotionState	N	
	MC_CamIn		
	MC_GearIn		
	MC_GearInPos		
	MC_CombineAxes		
	MC_DigitalCamSwitch		
MC_SYNC_MODE	MC_GearInPos	N	
MC_COMBINE_MODE	MC_CombineAxes	N	
MC_TRIGGER_REF	MC_TouchProbe	Y	
	MC_AbortTrigger	Y	
MC_INPUT_REF	MC_ReadDigitalInput	N	
MC_OUTPUT_REF	MC_DigitalCamSwitch	Y	
	MC_ReadDigitalOutput	N	
	MC_WriteDigitalOutput	N	
MC_CAMSWITCH_REF	MC_DigitalCamSwitch	Y	
MC_TRACK_REF	MC_DigitalCamSwitch	Y	

Table 2: Supported derived datatypes

Appendix B 3.　　Overview of the Function Blocks

Single Axis Function Blocks	Supported as V1.0/ V1.1/ V2.0 or Not	Comments (<= 48 char.)
MC_Power	V2.0	
MC_Home	V2.0	
MC_Stop	V2.0	
MC_Halt	V2.0	
MC_MoveAbsolute	V2.0	
MC_MoveRelative	V2.0	
MC_MoveAdditive	V2.0	
MC_MoveSuperimposed	V2.0	
MC_HaltSuperimposed	N	
MC_MoveVelocity	V2.0	
MC_MoveContinuousAbsolute	V2.0	
MC_MoveContinuousRelative	V2.0	
MC_TorqueControl	N	
MC_PositionProfile	N	
MC_VelocityProfile	N	
MC_AccelerationProfile	N	
MC_SetPosition	V2.0	
MC_SetOverride	V2.0	
MC_ReadParameter & MC_ReadBoolParameter	V2.0 V2.0	
MC_WriteParameter & MC_WriteBoolParameter	V2.0 V2.0	
MC_ReadDigitalInput	N	
MC_ReadDigitalOutput	N	
MC_WriteDigitalOutput	N	
MC_ReadActualPosition	V2.0	
MC_ReadActualVelocity	V2.0	
MC_ReadActualTorque	N	
MC_ReadStatus	V2.0	
MC_ReadMotionState	N	
MC_ReadAxisInfo	N	
MC_ReadAxisError	V2.0	
MC_Reset	V2.0	
MC_DigitalCamSwitch	V2.0	additional library
MC_TouchProbe	V2.0	
MC_AbortTrigger	V2.0	
Multi-Axis Function Blocks	**Supported as V1.0/ V1.1/ V2.0 or Not**	**Comments (<= 48 char.)**
MC_CamTableSelect	V2.0	additional library
MC_CamIn	V2.0	additional library
MC_CamOut	V2.0	additional library
MC_GearIn	V2.0	
MC_GearOut	V2.0	
MC_GearInPos	V2.0	additional library
MC_PhasingAbsolute	V2.0	
MC_PhasingRelative	V2.0	
MC_CombineAxes	N	

Table 3: Short overview of the Function Blocks

Appendix B 3.1 MC_Power

If Supported	MC_Power	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
E	EnablePositive	Y	
E	EnableNegative	Y	
VAR_OUTPUT			
B	Status	Y	
E	Valid	N	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.2 MC_Home

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

Appendix B 3.3 MC_Stop

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

Appendix B 3.4 MC_Halt

If Supported	MC_Halt	Sup. Y/N	
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	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	

Appendix B 3.5 MC_MoveAbsolute

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

Appendix B 3.6 MC_MoveRelative

If Supported	MC_MoveRelative	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
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	

Appendix B 3.7 MC_MoveAdditive

If Supported	MC_MoveAdditive	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
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	

Appendix B 3.8 MC_MoveSuperimposed

If Supported	MC_MoveSuperimposed	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
B	Distance	Y	
E	VelocityDiff	Y	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	
E	CoveredDistance	N	

Appendix B 3.9 MC_HaltSuperimposed

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

Appendix B 3.10 MC_MoveVelocity

If Supported	MC_MoveVelocity	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
E	Velocity	Y	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
E	Direction	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	InVelocity	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.11 MC_MoveContinuousAbsolute

If Supported	MC_MoveContinuousAbsolute	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
B	Position	Y	
B	EndVelocity	Y	
B	Velocity	Y	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
E	Direction	N	
E	BufferMode	Y	
VAR_OUTPUT			
B	InEndVelocity	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.12 MC_MoveContinuousRelative

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

Appendix B 3.13 MC_TorqueControl

If Supported	MC_TorqueControl	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Execute		
E	ContinuousUpdate		
B	Torque		
E	TorqueRamp		
E	Velocity		
E	Acceleration		
E	Deceleration		
E	Jerk		
E	Direction		
E	BufferMode		
VAR_OUTPUT			
B	InTorque		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

Appendix B 3.14 MC_PositionProfile

If Supported	MC_PositionProfile	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
B	TimePosition		
VAR_INPUT			
B	Execute		
E	ContinuousUpdate		
E	TimeScale		
E	PositionScale		
E	Offset		
E	BufferMode		
VAR_OUTPUT			
B	Done		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

Appendix B 3.15 MC_VelocityProfile

If Supported	MC_VelocityProfile	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
B	TimeVelocity		
VAR_INPUT			
B	Execute		
E	ContinuousUpdate		
E	TimeScale		
E	VelocityScale		
E	Offset		
E	BufferMode		
VAR_OUTPUT			
B	ProfileCompleted		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

Appendix B 3.16 MC_AccelerationProfile

If Supported	MC_AccelerationProfile	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
B	TimeAcceleration		
VAR_INPUT			
B	Execute		
E	ContinuousUpdate		
E	TimeScale		
E	AccelerationScale		
E	Offset		
E	BufferMode		
VAR_OUTPUT			
B	ProfileCompleted		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

Appendix B 3.17 MC_SetPosition

If Supported	MC_SetPosition	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
B	Position	Y	
E	Relative	Y	available as mode input
E	ExecutionMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.18 MC_SetOverride

If Supported	MC_SetOverride	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
B	VelFactor	Y	
E	AccFactor	Y	
E	JerkFactor	Y	
VAR_OUTPUT			
B	Enabled	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.19 MC_ReadParameter & MC_ReadBoolParameter

If Supported	MC_ReadParameter	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
B	ParameterNumber	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
B	Value	Y	

If Supported	MC_ReadBoolParameter	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
B	ParameterNumber	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
B	Value	Y	

Name	B/E	R/W	Supp. Y/N	Comments
CommandedPosition	B	R	Y	
SWLimitPos	E	R/W	Y	
SWLimitNeg	E	R/W	Y	
EnableLimitPos	E	R/W	Y	
EnableLimitNeg	E	R/W	Y	
EnablePosLagMonitoring	E	R/W	Y	
MaxPositionLag	E	R/W	Y	
MaxVelocitySystem	E	R	Y	
MaxVelocityAppl	B	R/W	Y	
ActualVelocity	B	R	Y	
CommandedVelocity	B	R	Y	
MaxAccelerationSystem	E	R	Y	
MaxAccelerationAppl	E	R/W	Y	
MaxDecelerationSystem	E	R	Y	
MaxDecelerationAppl	E	R/W	Y	
MaxJerkSystem	E	R	Y	
MarkJerkAppl	E	R/W	Y	

Table 4: Parameters for MC_Read(Bool)Parameter and MC_Write(Bool)Parameter

Appendix B 3.20 MC_WriteParameter & MC_WriteBoolParameter

If Supported	**MC_WriteParameter**	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
B	ParameterNumber	Y	
B	Value	Y	
E	ExecutionMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

If Supported	**MC_WriteBoolParameter**	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Execute	Y	
B	ParameterNumber	Y	
B	Value	Y	
E	ExecutionMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.21 MC_ReadDigitalInput

If Supported	**MC_ReadDigitalInput**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Input		
VAR_INPUT			
B	Enable		
E	InputNumber		
VAR_OUTPUT			
B	Valid		
E	Busy		
B	Error		
E	ErrorID		
B	Value		

Appendix B 3.22 MC_ReadDigitalOutput

If Supported	MC_ReadDigitalOutput	Sup.Y/N	Comments
VAR_IN_OUT			
B	Output		
VAR_INPUT			
B	Enable		
E	OutputNumber		
VAR_OUTPUT			
B	Valid		
E	Busy		
B	Error		
E	ErrorID		
B	Value		

Appendix B 3.23 MC_WriteDigitalOutput

If Supported	MC_WriteDigitalOutput	Sup.Y/N	Comments
VAR_IN_OUT			
B	Output		
VAR_INPUT			
B	Execute		
E	OutputNumber		
B	Value		
E	ExecutionMode		
VAR_OUTPUT			
B	Done		
E	Busy		
B	Error		
E	ErrorID		

Appendix B 3.24 MC_ReadActualPosition

If Supported	MC_ReadActualPosition	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
B	Position	Y	

Appendix B 3.25 MC_ReadActualVelocity

If Supported	MC_ReadActualVelocity	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
B	Velocity	Y	

Appendix B 3.26 MC_ReadActualTorque

If Supported	MC_ReadActualTorque	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Enable		
VAR_OUTPUT			
B	Valid		
E	Busy		
B	Error		
E	ErrorID		
B	Torque		

Appendix B 3.27 MC_ReadStatus

If Supported	MC_ReadStatus	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
B	ErrorStop	Y	
B	Disabled	Y	
B	Stopping	Y	
E	Homing	Y	
B	Standstill	Y	
E	DiscreteMotion	Y	
E	ContinuousMotion	Y	
E	SynchronizedMotion	Y	

Appendix B 3.28 MC_ReadMotionState

If Supported	MC_ReadMotionState	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Enable		
E	Source		
VAR_OUTPUT			
B	Valid		
E	Busy		
B	Error		
E	ErrorID		
E	ConstantVelocity		
E	Accelerating		
E	Decelerating		
E	DirectionPositive		
E	DirectionNegative		

Appendix B 3.29 MC_ReadAxisInfo

If Supported	MC_ReadAxisInfo	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis		
VAR_INPUT			
B	Enable		
VAR_OUTPUT			
B	Valid		
E	Busy		
B	Error		
E	ErrorID		
E	HomeAbsSwitch		
E	LimitSwitchPos		
E	LimitSwitchNeg		
E	Simulation		
E	CommunicationReady		
E	ReadyForPowerOn		
E	PowerOn		
E	IsHomed		
E	AxisWarning		

Appendix B 3.30 MC_ReadAxisError

If Supported	MC_ReadAxisError	Sup. Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
B	ErrorID	Y	
E	AxisErrorID	Y	

Appendix B 3.31 MC_Reset

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

Appendix B 3.32 MC_DigitalCamSwitch

If Supported	MC_DigitalCamSwitch	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
B	Switches	Y	
E	Outputs	Y	
E	TrackOptions	Y	
VAR_INPUT			
B	Enable	Y	
E	EnableMask	N	
E	ValueSource	N	
VAR_OUTPUT			
B	InOperation	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Basic elements within the array structure of MC_CAMSWITCH_REF

B/E	Parameter	Sup.Y/N	Comments
B	TrackNumber	N	Tracknumber implicitly handled by block instance
B	FirstOnPosition [u]	Y	
B	LastOnPosition [u]	Y	
E	AxisDirection	Y	
E	CamSwitchMode	Y	
E	Duration	Y	

Basic elements within the array structure of MC_TRACK_REF

B/E	Parameter	Sup.Y/N	Comments
E	OnCompensation	Y	
E	OffCompensation	Y	
E	Hysteresis [u]	Y	

Appendix B 3.33 MC_TouchProbe

If Supported	MC_TouchProbe	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
E	TriggerInput	Y	
VAR_INPUT			
B	Execute	Y	
E	WindowOnly	Y	
E	FirstPosition	Y	
E	LastPosition	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	
B	RecordedPosition	Y	

Appendix B 3.34 MC_AbortTrigger

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

Appendix B 3.35 MC_CamTableSelect

If Supported	MC_CamTableSelect	Sup. Y/N	Comments
VAR_IN_OUT			
E	Master	Y	
E	Slave	Y	
B	CamTable	Y	
VAR_INPUT			
B	Execute	Y	
E	Periodic	Y	
E	MasterAbsolute	Y	
E	SlaveAbsolute	Y	
E	ExecutionMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	
E	CamTableID	Y	Used as an input of this block

Appendix B 3.36 MC_CamIn

If Supported	MC_CamIn	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master	Y	
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
E	MasterOffset	Y	
E	SlaveOffset	Y	
E	MasterScaling	Y	
E	SlaveScaling	Y	
E	MasterStartDistance	N	
E	MasterSyncPosition	N	
E	StartMode	Y	
E	MasterValueSource	N	
E	CamTableID	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	InSync	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	
E	EndOfProfile	N	

Appendix B 3.37 MC_CamOut

If Supported	MC_CamOut	Sup. Y/N	Comments
VAR_IN_OUT			
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.38 MC_GearIn

If Supported	MC_GearIn	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master	Y	
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
E	ContinuousUpdate	N	
B	RatioNumerator	Y	
B	RatioDenominator	Y	
E	MasterValueSource	N	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
E	BufferMode	Y	
VAR_OUTPUT			
B	InGear	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.39 MC_GearOut

If Supported	MC_GearOut	Sup. Y/N	Comments
VAR_IN_OUT			
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.40 MC_GearInPos

If Supported	MC_GearInPos	Sup.Y/N	Comments
VAR_IN_OUT			
B	Master	Y	
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
B	RatioNumerator	Y	
B	RatioDenominator	Y	
E	MasterValueSource	N	
B	MasterSyncPosition	Y	
B	SlaveSyncPosition	Y	
E	SyncMode	Y	
E	MasterStartDistance	Y	
E	Velocity	Y	
E	Acceleration	Y	
E	Deceleration	Y	
E	Jerk	Y	
E	BufferMode	Y	
VAR_OUTPUT			
E	StartSync	Y	
B	InSync	Y	
E	Busy	Y	
E	Active	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	Y	

Appendix B 3.41 MC_PhasingAbsolute

If Supported	MC_PhasingAbsolute	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master	Y	
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
B	PhaseShift	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	
E	AbsolutePhaseShift	Y	

Appendix B 3.42 MC_PhasingRelative

| If Supported	MC_PhasingRelative	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master	Y	
B	Slave	Y	
VAR_INPUT			
B	Execute	Y	
B	PhaseShift	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	
E	CoveredPhaseShift	Y	

Appendix B 3.43 CombineAxes

If Supported	MC_CombineAxes	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master1		
B	Master2		
B	Slave		
VAR_INPUT			
B	Execute		
E	ContinuousUpdate		
E	CombineMode		
E	GearRationNumeratorM1		
E	GearRatioDenominatorM1		
E	GearRatioNumeratorM2		
E	GearRatioDenominatorM2		
E	MasterValueSourceM1		
E	MasterValueSourceM2		
E	BufferMode		
VAR_OUTPUT			
B	InSync		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		

Appendix B 4.   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:
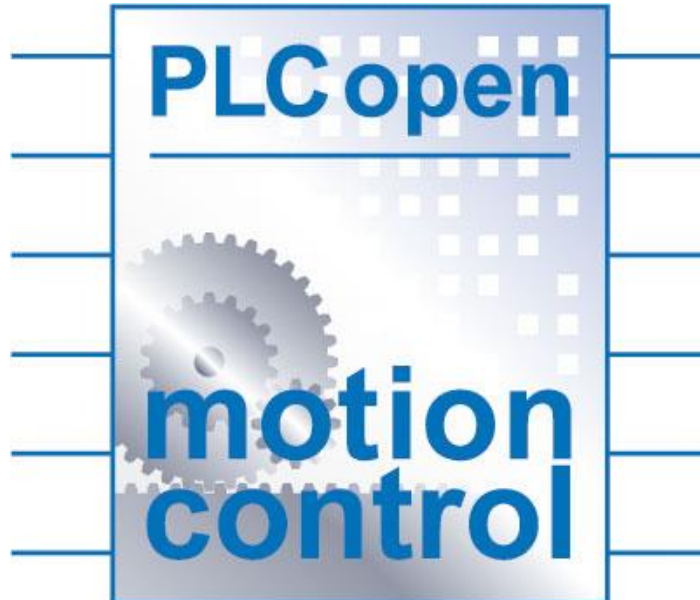
Figure 1: The PLCopen Motion Control Logo

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.