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 A 2 Supported Data types and Appendix A 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 A 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 A 1. Statement of Supplier

Supplier name	Schneider Electric Automation GmbH
Supplier address	Breslauer Str. 7
City	D-77933
Country	Lahr
Telephone	+49 (0)7821/946-01
Fax	+49 (0)7821/946-313
Email address	info@Schneider-Electric.com
Product Name	Motion library for servo drive Lexium28
Product version	V1.1.0.0
Release date	30/10/2014

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):
Wolfgang Fien

Date of signature (dd/mm/yyyy):
25/11/2014

Signature:

Appendix A 2. Supported Data types

Defined datatypes with MC library:	Supported	If not supported, which datatype used
BOOL	Yes	
INT	Yes	
WORD	Yes	
REAL	No	DINT
ENUM	Yes	
UINT	Yes	

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	Yes	Axis_Ref_LXM28
MC_DIRECTION (extended)	MC_MoveAbsolute MC_MoveVelocity MC_TorqueControl MC_MoveContinuousAbsolute	No	
MC_TP_REF	MC_PositionProfile	No	
MC_TV_REF	MC_VelocityProfile	No	
MC_TA_REF	MC_AccelerationProfile	No	
MC_CAM_REF	MC_CamTableSelect	No	
MC_CAM_ID (extended)	MC_CamTableSelect MC_CamIn	No	
MC_START_MODE (extended)	MC_CamIn MC_CamTableSelect	No	
MC_BUFFER_MODE	Buffered FBs	No	
MC_EXECUTION_MODE	MC_SetPosition MC_WriteParameter MC_WriteBoolParameter MC_WriteDigitalOutput MC_CamTableSelect	No	
MC_SOURCE	MC_ReadMotionState MC_CamIn MC_GearIn MC_GearInPos MC_CombineAxes MC_DigitalCamSwitch	No	
MC_SYNC_MODE	MC_GearInPos	No	
MC_COMBINE_MODE	MC_CombineAxes	No	
MC_TRIGGER_REF	MC_TouchProbe MC_AbortTrigger	No	
MC_INPUT_REF	MC_ReadDigitalInput	Yes	Input_Ref_LXM28 alias Axis_Ref_LXM28
MC_OUTPUT_REF	MC_DigitalCamSwitch MC_ReadDigitalOutput MC_WriteDigitalOutput	Yes	Output_Ref_LXM28 alias Axis_Ref_LXM28
MC_CAMSWITCH_REF	MC_DigitalCamSwitch	No	
MC_TRACK_REF	MC_DigitalCamSwitch	No	

Table 2: Supported derived datatypes

Appendix A 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	Not	
MC_HaltSuperimposed	Not	
MC_MoveVelocity	V2.0	
MC_MoveContinuousAbsolute	Not	
MC_MoveContinuousRelative	Not	
MC_TorqueControl	V2.0	
MC_PositionProfile	Not	
MC_VelocityProfile	Not	
MC_AccelerationProfile	Not	
MC_SetPosition	V2.0	
MC_SetOverride	Not	
MC_ReadParameter & MC_ReadBoolParameter	V2.0 Not	
MC_WriteParameter & MC_WriteBoolParameter	V2.0 Not	
MC_ReadDigitalInput	V2.0	
MC_ReadDigitalOutput	V2.0	
MC_WriteDigitalOutput	V2.0	
MC_ReadActualPosition	V2.0	
MC_ReadActualVelocity	V2.0	
MC_ReadActualTorque	V2.0	
MC_ReadStatus	V2.0	
MC_ReadMotionState	V2.0	
MC_ReadAxisInfo	V2.0	
MC_ReadAxisError	V2.0	
MC_Reset	V2.0	
MC_DigitalCamSwitch	Not	
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	Not	
MC_CamIn	Not	
MC_CamOut	Not	
MC_GearIn	Not	
MC_GearOut	Not	
MC_GearInPos	Not	
MC_PhasingAbsolute	Not	
MC_PhasingRelative	Not	
MC_CombineAxes	Not	

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	N	
E	EnableNegative	N	
VAR_OUTPUT			
B	Status	Y	
E	Valid	N	
B	Error	Y	
E	ErrorID	N	

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	N	
V	HomingMode (UINT)	Y	Mode for searching reference switch
V	VHome (DINT)	Y	Velocity for searching reference switch
V	VOutHome (DINT)	Y	Velocity for moving back to edge of reference switch
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

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	N	
E	Jerk	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

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	N	
E	Jerk	N	
E	BufferMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

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	N	
E	Deceleration	N	
E	Jerk	N	
B	Direction	N	
E	BufferMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

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	N	
E	Deceleration	N	
E	Jerk	N	
E	BufferMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

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	N	
E	Deceleration	N	
E	Jerk	N	
E	BufferMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

Appendix B 3.8 MC_MoveSuperimposed

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

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	N	
E	Deceleration	N	
E	Jerk	N	
E	Direction	N	
E	BufferMode	N	
VAR_OUTPUT			
B	InVelocity	Y	
E	Busy	Y	
E	Active	N	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	

Appendix B 3.11 MC_MoveContinuousAbsolute

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

Appendix B 3.12 MC_MoveContinuousRelative

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

Appendix B 3.13 MC_TorqueControl

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

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	
E	ExecutionMode	N	
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	

Appendix B 3.18 MC_SetOverride

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

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	
V	Index (UINT)	Y	Index for access to CANopen objects
V	Subindex (UINT)	Y	Subindex for access to CANopen objects
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
B	Value	Y	
V	Length (UINT)	Y	Datalength for access to CANopen objects

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

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	N	
EnableLimitNeg	E	R/W	N	
EnablePosLagMonitoring	E	R/W	N	
MaxPositionLag	E	R/W	N	
MaxVelocitySystem	E	R	N	
MaxVelocityAppl	B	R/W	Y	
ActualVelocity	B	R	Y	
CommandedVelocity	B	R	Y	
MaxAccelerationSystem	E	R	N	
MaxAccelerationAppl	E	R/W	N	
MaxDecelerationSystem	E	R	N	
MaxDecelerationAppl	E	R/W	N	
MaxJerkSystem	E	R	N	
MarkJerkAppl	E	R/W	N	

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	
V	Index (UINT)	Y	Index for access to CANopen objects
V	Subindex (UINT)	Y	Subindex for access to CANopen objects
V	Length (UINT)	Y	Datalength for access to CANopen objects
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	

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

Appendix B 3.21 MC_ReadDigitalInput

If Supported	**MC_ReadDigitalInput**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Input	Y	
VAR_INPUT			
B	Enable	Y	
E	InputNumber	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
B	Value	Y	
V	Inputs (WORD)	Y	Values of all supported digital inputs

Appendix B 3.22 MC_ReadDigitalOutput

If Supported	**MC_ReadDigitalOutput**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Output	Y	
VAR_INPUT			
B	Enable	Y	
E	OutputNumber	Y	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
B	Value	Y	
V	Outputs (WORD)	Y	Values of all supported digital outputs

Appendix B 3.23 MC_WriteDigitalOutput

If Supported	**MC_WriteDigitalOutput**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Output	Y	
VAR_INPUT			
B	Execute	Y	
E	OutputNumber	Y	
B	Value	Y	
E	ExecutionMode	N	
V	AllOutputs (BOOL)	Y	Selection for writing a single or all outputs
V	Outputs (WORD)	Y	All available outputs
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	

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	
V	PositionType (INT)	Y	Selection for different positions
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
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	
V	VelocityType (INT)	Y	Selection for different velocities
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
B	Velocity	Y	

Appendix B 3.26 MC_ReadActualTorque

If Supported	**MC_ReadActualTorque**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
VAR_INPUT			
B	Enable	Y	
V	TorqueType (INT)	Y	Selection for different torque values
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
B	Torque	Y	

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	N	
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	Y	
VAR_INPUT			
B	Enable	Y	
E	Source	N	
VAR_OUTPUT			
B	Valid	Y	
E	Busy	Y	
B	Error	Y	
E	ErrorID	N	
E	ConstantVelocity	Y	
E	Accelerating	Y	
E	Decelerating	Y	
E	DirectionPositive	Y	
E	DirectionNegative	Y	

Appendix B 3.29 MC_ReadAxisInfo

If Supported	**MC_ReadAxisInfo**	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	N	
E	HomeAbsSwitch	N	
E	LimitSwitchPos	Y	
E	LimitSwitchNeg	Y	
E	Simulation	N	
E	CommunicationReady	Y	
E	ReadyForPowerOn	Y	
E	PowerOn	Y	
E	IsHomed	Y	
E	AxisWarning	Y	

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	N	
V	ErrorFB (STRING)	Y	Name of the function blocks instance within the error occured

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	N	

Appendix B 3.32 MC_DigitalCamSwitch

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

Basic elements within the array structure of MC_CAMSWITCH_REF

B/E	**Parameter**	Sup.Y/N	Comments
B	TrackNumber		
B	FirstOnPosition [u]		
B	LastOnPosition [u]		
E	AxisDirection		
E	CamSwitchMode		
E	Duration		

Basic elements within the array structure of MC_TRACK_REF

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

Appendix B 3.33 MC_TouchProbe

If Supported	**MC_TouchProbe**	Sup.Y/N	Comments
VAR_IN_OUT			
B	Axis	Y	
E	TriggerInput	N	
VAR_INPUT			
B	Execute	Y	
E	WindowOnly	N	
E	FirstPosition	N	
E	LastPosition	N	
V	TriggerLevel (BOOL)	Y	Selection of trigger execution
V	SingleShot (BOOL)	Y	Selection for number of trigger events
VAR_OUTPUT			
B	Done	Y	
E	Busy	Y	
E	CommandAborted	Y	
B	Error	Y	
E	ErrorID	N	
B	RecordedPosition	Y	
V	Valid (BOOL)	Y	New RecordedPosition available

Appendix B 3.34 MC_AbortTrigger

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

Appendix B 3.35 MC_CamTableSelect

If Supported	**MC_CamTableSelect**	Sup. Y/N	Comments
VAR_IN_OUT			
E	Master		
E	Slave		
B	CamTable		
VAR_INPUT			
B	Execute		
E	Periodic		
E	MasterAbsolute		
E	SlaveAbsolute		
E	ExecutionMode		
VAR_OUTPUT			
B	Done		
E	Busy		
B	Error		
E	ErrorID		
E	CamTableID		

Appendix B 3.36 MC_CamIn

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

Appendix B 3.37 MC_CamOut

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

Appendix B 3.38 MC_GearIn

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

Appendix B 3.39 MC_GearOut

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

Appendix B 3.40 MC_GearInPos

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

Appendix B 3.41 MC_PhasingAbsolute

If Supported	**MC_PhasingAbsolute**	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master		
B	Slave		
VAR_INPUT			
B	Execute		
B	PhaseShift		
E	Velocity		
E	Acceleration		
E	Deceleration		
E	Jerk		
E	BufferMode		
VAR_OUTPUT			
B	Done		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		
E	AbsolutePhaseShift		

Appendix B 3.42 MC_PhasingRelative

If Supported	**MC_PhasingRelative**	Sup. Y/N	Comments
VAR_IN_OUT			
B	Master		
B	Slave		
VAR_INPUT			
B	Execute		
B	PhaseShift		
E	Velocity		
E	Acceleration		
E	Deceleration		
E	Jerk		
E	BufferMode		
VAR_OUTPUT			
B	Done		
E	Busy		
E	Active		
E	CommandAborted		
B	Error		
E	ErrorID		
E	CoveredPhaseShift		

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 A 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.