

Vergleichsdokument



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Vergleich Motion API 1.0 mit Motion API 2.0 (MCX)

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1 Vergleich Motion API 1.0 mit Motion API 2.0 (MCX)

Gegenüberstellung der Properties, die sich in ihrer Semantik nahekomen: Datentyp, Einheiten, Enum-Optionen etc. können dabei durchaus verschieden sein! Properties, die in eine andere Klasse verschoben wurden, sind mit einem → gekennzeichnet. Properties, die umbenannt wurden, sind **fett** hervorgehoben.

In dieser Datei ist nur die API für die Einzelachse aufgeführt.

Die API für die Techno und Geo-Verbunde hat sich nicht geändert und bleibt deshalb unberücksichtigt.

Farbcodierung:

Objekt-Methoden

Properties vom Typ "pointer to <Object>" ("pointer to" wurde im Nachfolgenden aus Gründen der Übersichtlichkeit weggelassen)

Properties vom Typ „Basistyp“

2 ax *

ax.Stop(...)	ax.Stop(...)
ax.IsInTargetWindow : bool	ax.IsInTargetWindow : bool
	ax. AxisConfigData : MCAxisConfigData
ax.Buffer : MCAxisBuffer	ax.Buffer : MCAxisBuffer
ax.Diagnostics : MCAxisDiagnostics	ax.Diagnostics : MCDiagnosticsSoftware
ax.Drive : MCAxisDriveComponents	ax.Drive : DriveDevice
ax.Info : MCOBJECTInfo	ax.Info : MCOBJECTInfo
ax.Mechanism : MCAxisMechanism	ax.Mechanism : MCAxisMechanism
ax.MoveHalt : MCAxisMoveHalt	ax.MoveHalt : MCAxisMoveHalt
ax.MoveHome : MCAxisMoveHome	ax.MoveHome : MCAxisMoveHome
ax.MovePtp : MCAxisMovePtp	ax.MovePtp : MCAxisMovePtp
ax.MoveVelocity : MCAxisMoveVelocity	ax.MoveVelocity : MCAxisMoveVelocity
ax.Position : MCAxisPosition	ax.Position : MCAxisPosition
ax.Power : MCAxisPower	ax.Power : MCAxisPower
ax.Settings : MCOBJECTSettings	ax.Settings : MCOBJECTSettings
ax.State : MCAxisState	ax.State : MCAxisState
	Ax.TouchProbe : MCAxisTouchProbe

3 ax.Drive *

➔ ax.Drive.Control.Position.InvertDirection : bool R540.5	ax.Drive. InvertDirection : JetMoveInvertDirectionModes
ax.Drive.IsReadyForOperation : bool R100.10	ax.Drive.IsReadyForOperation : bool
➔ ax.Mechanism.Limitations.StopRampTime : int R549	ax.Drive. QuickStopDeceleration : double
ax.Drive.Feedback : DriveFeedback[]	ax.Drive. EncoderChannel : DriveEncoderChannel[]
ax.Drive.Amplifier : DriveAmplifier	ax.Drive.Amplifier : DriveAmplifier
ax.Drive.Brake : DriveBrake	ax.Drive.Brake : DriveBrake
ax.Drive.Control : DriveControl	ax.Drive.Control : DriveControl
	ax.Drive. Diagnostics : DriveDiagnostics
ax.Drive.Info : DriveInfo	ax.Drive.Info : DeviceInfo
ax.Drive.IO : DriveIO	ax.Drive. DigitalInput : DriveDigitalInput
ax.Drive.Motor : DriveMotor	ax.Drive.Motor : DriveMotor
ax.Drive.Register : IDriveRegister	ax.Drive. GenericAccess : DeviceAccess

3.1 ax.Drive.Amplifier *

ax.Drive.Amplifier.ActualBallastLoad : int R564	---
ax.Drive.Amplifier.ActualDCLinkVoltage : int R560	ax.Drive.Amplifier.ActualDCLinkVoltage : double
ax.Drive.Amplifier.ActualHeatSinkTemperature : int R563	ax.Drive.Amplifier.ActualHeatSinkTemperature : double
ax.Drive.Amplifier.ActualInputCurrent : double R566	---
---	ax.Drive.Amplifier. ActualInternalTemperature : double
ax.Drive.Amplifier.ActualMainsVoltage : int R567	---
ax.Drive.Amplifier.BlockingTrippingTime : int R546	---
ax.Drive.Amplifier.DCLinkVoltageMax : int R544	ax.Drive.Amplifier.DCLinkVoltageMax : double
ax.Drive.Amplifier.DCLinkVoltageMin : int R545	ax.Drive.Amplifier.DCLinkVoltageMin : double
ax.Drive.Amplifier.FanMode : FanModes R540.1	---
ax.Drive.Amplifier.MainPhaseMonitoringEnabled : bool R540.3	---
---	ax.Drive.Amplifier. PwmFrequency : DrivePwmFrequencies
---	ax.Drive.Amplifier.PwmFrequencyReduction : DrivePwmFrequencyReductionModes
ax.Drive.Amplifier.RatedCurrent : double R501	ax.Drive.Amplifier.RatedCurrent : double
ax.Drive.Amplifier.RatedVoltage : int R500	ax.Drive.Amplifier. RatedDCLinkVoltage : double
ax.Drive.Amplifier.SevenSegmentDisplayMode : SevenSegmentDisplayModes R541	---
➔ ax.Drive.Motor.MotorAndCableTestEnabled : bool R540.4	ax.Drive.Amplifier. WireTestMode : DriveWireTestModes

3.2 ax.Drive.Brake *

➔ ax.Drive.Brake.Command.Apply	ax.Drive.Brake.Apply(...)
➔ ax.Drive.Brake.Command.Release	ax.Drive.Brake.Release(...)
ax.Drive.Brake.ApplyDelay : int R548	ax.Drive.Brake.ApplyDelay : double
ax.Drive.Brake.Command : BrakeCommands R574.0	➔ Brake. Apply() , Brake. Release()
ax.Drive.Brake.Mode : BrakeModes R540.0	ax.Drive.Brake.Mode : DriveBrakeModes
ax.Drive.Brake.ReleaseDelay : int R547	ax.Drive.Brake.ReleaseDelay : double
ax.Drive.Brake.State : BrakeStates R575.0	ax.Drive.Brake.State : DriveBrakeStates

3.3 ax.Drive.Control *

ax.Drive.Control.Mode : ControlModes R572	ax.Drive.Control.Mode : ControlModes (Fix: only Position)
ax.Drive.Control.State : ControlStates R100.11	
ax.Drive.Control.Current : DriveControlCurrent	ax.Drive.Control.Current : DriveControlCurrent
ax.Drive.Control.Position : DriveControlPosition	ax.Drive.Control.Position : DriveControlPosition
ax.Drive.Control.Speed : DriveControlSpeed	ax.Drive.Control.Speed : DriveControlSpeed
	ax.Drive.Control.Torque : DriveControlTorque

3.3.1 ax.Drive.Control.Current *

ax.Drive.Control.Current.ActualCurrent : double R561	ax.Drive.Control.Current. ActualMotorCurrent : double
ax.Drive.Control.Current.ActualCurrentPercent : double R620	---
---	ax.Drive.Control.Current.ActualMotorVoltage : double
ax.Drive.Control.Current.ActualTorque : double R621	➔ ax.Drive.Control. Torque.ActualValue : double
ax.Drive.Control.Current.Kp : double R503	ax.Drive.Control.Current.Kp : double
ax.Drive.Control.Current.NominalCurrent : double R618	ax.Drive.Control.Current. MaxMotorCurrent : double und Overload/Nominal Wert bei Torque Controller
ax.Drive.Control.Current.OverloadFactor : double R619	

ax.Drive.Control.Current.Setpoint : double R125	➔ ax.Drive.Control. Torque .Setpoint : double
ax.Drive.Control.Current.SetpointFilter : double R497	---
ax.Drive.Control.Current.SetpointLimit : double R127	➔ ax.Drive.Control. Torque .SetpointLimit : double
ax.Drive.Control.Current.Tn : double R504	ax.Drive.Control.Current.Tn : double

3.3.2 ax.Drive.Control.Position *

ax.Drive.Control.Position.ResetTrailingIndicatorMax(...)	---
ax.Drive.Control.Position.ResetTrailingIndicatorMin(..)	---
ax.Drive.Control.Position.ResetTrailingIndicators(...)	ax.Drive.Control.Position.ResetTrailingIndicators(..)
ax.Drive.Control.Position.ActualPosition : double R109 / MC	➔ ax.Position.Actual
ax.Drive.Control.Position.ActualTrackingError : double R119 / MC	➔ ax.Position.ActualTrackingError
ax.Drive.Control.Position.FeedbackID : int R190	ax.Drive.Control.Position. FeedbackSource : DriveFeedbackSources
ax.Drive.Control.Position.InvertDirection : bool R540.5	➔ ax.Drive.InvertDirection : DriveInvertDirectionModes
ax.Drive.Control.Position.Kv : double R110	ax.Drive.Control.Position.Kv : double
ax.Drive.Control.Position.Setpoint : double R130 / MC	➔ ax.Position.Setpoint
ax.Drive.Control.Position.SpeedFeedForward : double R550	ax.Drive.Control.Position. SpeedFeedForwardScale : double
ax.Drive.Control.Position.TrackingErrorLimit : double R120	➔ ax.Position.TrackingErrorLimit
ax.Drive.Control.Position.TrackingErrorWindowTime : int R542	---
ax.Drive.Control.Position.TrailingIndicatorMax : double R538 / MC	➔ ax.Position.TrailingIndicatorMax (MC)
ax.Drive.Control.Position.TrailingIndicatorMin : double R539 / MC	➔ ax.Position.TrailingIndicatorMin (MC)

3.3.3 ax.Drive.Control.Speed *

ax.Drive.Control.Speed.ActualIntegrativePart : double R507	ax.Drive.Control.Speed. Isum : double
---	--

ax.Drive.Control.Speed.PresetIntegrativePart : double R506	ax.Drive.Control.Speed. ISumPreset : double
ax.Drive.Control.Speed.ActualMotorSpeed : double R112	ax.Drive.Control.Speed. ActualValue : double
ax.Drive.Control.Speed.CurrentFeedForward : double R629	ax.Drive.Control.Speed. TorqueFeedForwardScale : double
---	ax.Drive.Control.Speed.DifferenceWindow : double
ax.Drive.Control.Speed.Kp : double R124	ax.Drive.Control.Speed.Kp : double
ax.Drive.Control.Speed.MaxMotorSpeed : double R118	ax.Drive.Control.Speed.MaxMotorSpeed : double
---	ax.Drive.Control.Speed.OverloadFactor : double
ax.Drive.Control.Speed.Setpoint : double R111	ax.Drive.Control.Speed.Setpoint : double
---	ax.Drive.Control.Speed.SetpointLimit : double
ax.Drive.Control.Speed.Tf : double R113	ax.Drive.Control.Speed.Tf : double
ax.Drive.Control.Speed.Tn : double R126	ax.Drive.Control.Speed.Tn : double
ax.Drive.Control.Speed.TotalInertiaOfLoad : double R628	ax.Drive.Control.Speed. TotalInertia : double

3.3.4 ax.Drive.Control.Torque *

---	ax.Drive.Control.Torque.ActualValue : double
---	ax.Drive.Control.Torque.MaxMotorTorque : double
---	ax.Drive.Control.Torque.OverloadFactor : double
---	ax.Drive.Control.Torque.Setpoint : double
---	ax.Drive.Control.Torque.SetpointLimit : double

3.4 ax.Drive.Diagnostics *

---	ax.Drive.Diagnostics.ActualError : uint
---	ax.Drive.Diagnostics.IsErrorPending : bool
---	ax.Drive.Diagnostics.IsMessagePending : bool
---	ax.Drive.Diagnostics.IsWarningPending : bool

3.5 ax.Drive.Feedback[] * ----- ax.Drive.EncoderChannel[]*

ax.Drive.Feedback[n].IsSupported()	---
ax.Drive.Feedback[n].SetTravelLimits(...)	→ ax.Mechanism.Limitations.SetTravelLimits(...)
ax.Drive.Feedback[n].FeedbackType : FeedbackTypes R577 / R241	ax.Drive.EncoderChannel[n]. EncType : DriveEncoderTypes

ax.Drive.Feedback[n].GearRatioLoad : double R195 / R245	➔ ax.Mechanism.GearRatioLoad : double
ax.Drive.Feedback[n].GearRatioMotor : double R194 / R244	➔ ax.Mechanism.GearRatioMotor : double
ax.Drive.Feedback[n]. InvertDirection : bool --- / R252	
ax.Drive.Feedback[n]. LinearRotationRatio : double R196 / R246	➔ ax.Mechanism.LinearRotationRatio : double
ax.Drive.Feedback[n]. Resolution : int R117 / R242	ax.Drive.EncoderChannel[n]. EncLines : uint
---	ax.Drive.EncoderChannel[n].SingleTurnPosition : double
---	ax.Drive.EncoderChannel[n].MultiTurnPosition : int
---	ax.Drive.EncoderChannel[n].GearMotor : Int
---	ax.Drive.EncoderChannel[n].GearEncoder : int
ax.Drive.Feedback[n]. TravelLimitMax : double R182 / R247	➔ ax.Mechanism.Limitations.TravelLimitMax : double
ax.Drive.Feedback[n]. TravelLimitMin : double R183 / R248	➔ ax.Mechanism.Limitations.TravelLimitMin : double

3.6 ax.Drive.IO * ----- ax.Drive.DigitalInput *

ax.Drive.IO.HWLimitSwitchEnabled : bool R540.7	ax.Drive. DigitalInput.LimitSwitchMode : DriveLimitSwitchModes
ax.Drive.IO.IsHWLimitSwitchMaxActive : bool R100.5	ax. Mechanism.Monitoring .IsHWLimitSwitchMaxActive : bool (ax.Drive. DigitalInput .IsLimitSwitchMaxActive : bool)
ax.Drive.IO.IsHWLimitSwitchMinActive : bool R100.4	ax. Mechanism.Monitoring .IsHWLimitSwitchMinActive : bool (ax.Drive. DigitalInput .IsLimitSwitchMinActive : bool)
ax.Drive.IO.IsPulseEnabled : bool R100.21	ax.Drive. DigitalInput .IsPulseEnabled : bool
ax.Drive.IO.IsReferenceSwitchActive : bool R100.6	ax.Drive. DigitalInput .IsReferenceSwitchActive : bool
ax.Drive.IO.IsSWLimitSwitchMaxActive : bool R100.8	---
ax.Drive.IO.IsSWLimitSwitchMinActive : bool R100.7	---
ax.Drive.IO.PolarityLimitSwitchMax : PolarityModes R510.1	ax.Drive. DigitalInput .PolarityLimitSwitchMax : DrivePolarityModes
ax.Drive.IO.PolarityLimitSwitchMin : PolarityModes R510.2	ax.Drive. DigitalInput .PolarityLimitSwitchMin : DrivePolarityModes
ax.Drive.IO.PolarityReferenceSwitch : PolarityModes R510.3	ax.Drive. DigitalInput .PolarityReferenceSwitch : DrivePolarityModes

ax.Drive.IO.SWLimitSwitchEnabled : bool R540.6	---
ax.Drive.IO.SWLimitSwitchMax : double R114	---
ax.Drive.IO.SWLimitSwitchMin : double R115	---

3.7 ax.Drive.Info *

ax.Drive.Info.DriveType : DriveTypes	---
ax.Drive.Info.InterfaceType : DriveInterfaceTypes	---
ax.Drive.Info.IPAddress : int	---
ax.Drive.Info.OSVersion : int	---

3.8 ax.Drive.Motor *

ax.Drive.Motor.MeasureCommutationOffset(...)	ax.Drive.Motor.MeasureCommutationOffset(...)
ax.Drive.Motor.ActualSpeed : double R112	➔ ax.Drive.Control.Speed.ActualValue : double
ax.Drive.Motor.CommutationOffset : double R116	ax.Drive.Motor.CommutationOffset : double
ax.Drive.Motor.I2tOperatingMode : I2tOperatingModes R645	---
ax.Drive.Motor.I2tULValue : double R653	---
ax.Drive.Motor.I2tValue : double R648	ax.Drive.Motor.I2tValue : double
ax.Drive.Motor.I2tWarningLimit : double R649	---
ax.Drive.Motor.Inductance : double R611	ax.Drive.Motor.Inductance : double
---	ax.Drive.Motor.Inertia : double
ax.Drive.Motor.PeakCurrent : double R614	ax.Drive.Motor.MaxCurrent : double
ax.Drive.Motor.MotorAndCableTestEnabled : bool R540.4	➔ ax.Drive.Amplifier.WireTestMode : DriveWireTestModes
ax.Drive.Motor.MotorType : MotorTypes R608	---
ax.Drive.Motor.NameID : int R610	---
ax.Drive.Motor.PolePairCount : int R123	ax.Drive.Motor.PolePairs : int

ax.Drive.Motor.RatedCurrent : double R613	ax.Drive.Motor.RatedCurrent : double
ax.Drive.Motor.RatedSpeed : double R615	ax.Drive.Motor.RatedSpeed : double
---	ax.Drive.Motor.RatedTorque : double
ax.Drive.Motor.Resistance : double R612	ax.Drive.Motor.Resistance : double
ax.Drive.Motor.ShaftPosition : double R565	ax.Drive.Motor.ShaftPosition : double
ax.Drive.Motor.Temperature : int R562	ax.Drive.Motor.Temperature : double
ax.Drive.Motor.TemperatureSensorType : TemperatureSensorTypes R609	ax.Drive.Motor.TemperatureSensorType : DriveTemperatureSensorTypes DP084
ax.Drive.Motor.ThermalDelayTime : double R647	---
ax.Drive.Motor.TorqueConstant : double R616	ax.Drive.Motor.TorqueConstant : double
ax.Drive.Motor.VoltageConstant : int R505	ax.Drive.Motor.VoltageConstant : double
	ax.Drive.Motor. MotorDesign : DriveMotorDesignTypes

3.9 ax.Drive.Register *

ax.Drive.Register.ClearBit(...)	
ax.Drive.Register.IsBitSet(...)	
ax.Drive.Register.ReadDouble(...)	
ax.Drive.Register.ReadInt(...)	
ax.Drive.Register.SetBit(...)	
ax.Drive.Register.WriteData(...)	
ax.Drive.Register.WriteDouble(...)	
ax.Drive.Register.WriteInt(...)	
ax.Drive.Register.LocalBaseRegisterNo : int	

3.10 ax.Drive.GenericAccess *

	ax.Drive.GenericAccess.CANopen : IDeviceCommunicationCANopen
--	---

3.10.1 ax.Drive.GenericAccess.CANopen *

	ax.Drive.GenericAccess.CANopen.ReadFloat32(...)
	ax.Drive.GenericAccess.CANopen.ReadFloat64(...)
	ax.Drive.GenericAccess.CANopen.ReadInt16(...)
	ax.Drive.GenericAccess.CANopen.ReadInt32(...)
	ax.Drive.GenericAccess.CANopen.ReadInt8(...)
	ax.Drive.GenericAccess.CANopen.ReadUInt16(...)
	ax.Drive.GenericAccess.CANopen.ReadUInt32(...)
	ax.Drive.GenericAccess.CANopen.ReadUInt8(...)
	ax.Drive.GenericAccess.CANopen.WriteFloat32(...)
	ax.Drive.GenericAccess.CANopen.WriteFloat64(...)
	ax.Drive.GenericAccess.CANopen.WriteInt16(...)
	ax.Drive.GenericAccess.CANopen.WriteInt32(...)
	ax.Drive.GenericAccess.CANopen.WriteInt8(...)
	ax.Drive.GenericAccess.CANopen.WriteUInt16(...)
	ax.Drive.GenericAccess.CANopen.WriteUInt32(...)
	ax.Drive.GenericAccess.CANopen.WriteUInt8(...)
	ax.Drive.GenericAccess.CANopen.ReadVisibleString(...)

3.11 ax.Drive.TorqueShutoff *

	ax.Drive.TorqueShutOff.Activate(...)
	ax.Drive.TorqueShutOff.Configure(...)
	ax.Drive.TorqueShutOff.Deactivate(...)
	ax.Drive.TorqueShutOff.ReadConfiguration(...)
	ax.Drive.TorqueShutOff.State : DriveTorqueShutOffStates

4 ax.AxisConfigData * (→Daten aus HW-Manager)

	ax.AxisConfigData.AxisDriveType : MCAxisDriveTypes
	ax.AxisConfigData.AxisMode : MCAxisModes
	ax.AxisConfigData.AxisName : String
	ax.AxisConfigData.ConfiguredVersion : int
	ax.AxisConfigData.ControllerIPAddress : int
	ax.AxisConfigData.DeviceID : int
	ax.AxisConfigData.DeviceName : String
	ax.AxisConfigData.DriveVersion : int
	ax.AxisConfigData.IsSimulation : bool
	ax.AxisConfigData.ObjectID : int

5 ax.Diagnostics *

Fehler werden in der API 2.x über die MCX abgefragt. (Da dort auch ein Fehler entsteht, wenn ein Drive einen Fehler meldet, sind die Allgemeinen Abfragen auf die MCX bezogen (vorher „Software“). Speziell für den Drive können die Abfragen immer noch getätigt werden.

Clear Error wirkt auf beide Bereiche.

ax.Diagnostics.ClearErrors(...) --- nicht in Ref.	ax.Diagnostics.ClearErrors(...)
	ax.Diagnostics.GetErrorCode(...)
	ax.Diagnostics.GetMessageCode(...)
	ax.Diagnostics.ErrorCount : int
ax.Diagnostics.IsErrorPending : bool	ax.Diagnostics.IsErrorPending : bool
ax.Diagnostics.IsMessagePending : bool	ax.Diagnostics.IsMessagePending : bool
ax.Diagnostics.IsWarningPending : bool	
	ax.Diagnostics.MessageCount : int
ax.Diagnostics.Drive : DriveDiagnostics	→ ax.Drive.Diagnostics
ax.Diagnostics.Software : MCDiagnosticsSoftware	→ ax.Diagnostics : MCDiagnosticsSoftware

5.1 ax.Diagnostics.Drive *

ax.Diagnostics.Drive.IsErrorPending(...)	ax.Drive.Diagnostics.IsErrorPending : bool
ax.Diagnostics.Drive.IsWarningPending(...)	ax.Drive.Diagnostics.IsWarningPending : bool
ax.Diagnostics.Drive.ErrorFlags1 : int	ax.Drive.Diagnostics.ActualError : uint
ax.Diagnostics.Drive.ErrorFlags2 : int	
ax.Diagnostics.Drive.WarningFlags : int	Fehlt noch

5.2 ax.Diagnostics.Software *

ax.Diagnostics. Software .GetErrorCode(...)	ax.Diagnostics.GetErrorCode(...)
ax.Diagnostics. Software .GetMessageCode(...)	ax.Diagnostics.GetMessageCode(...)
ax.Diagnostics. Software .ErrorCount : int	ax.Diagnostics.ErrorCount : int
ax.Diagnostics. Software .IsErrorPending : bool	ax.Diagnostics.IsErrorPending : bool
ax.Diagnostics. Software .IsMessagePending : bool	ax.Diagnostics.IsMessagePending : bool
ax.Diagnostics. Software .MessageCount : int	ax.Diagnostics.MessageCount : int

6 ax.Mechanism *

ax.Mechanism.AxisMode : MCAxisModes	ax.Mechanism.AxisMode : MCAxisModes
ax.Mechanism.AxisType : AxisTypes	ax.Mechanism.AxisType : AxisTypes
➔ ax.Drive.Feedback[n].GearRatioLoad : double	ax. Mechanism.GearRatioLoad : double
➔ ax.Drive.Feedback[n].GearRatioMotor : double	ax. Mechanism.GearRatioMotor : double
➔ ax.Drive.Feedback[n].LinearRotationRatio : double	ax. Mechanism.LinearRotationRatio : double
ax.Mechanism.Kinematics : MCAxisKinematics	ax.Mechanism.Kinematics : MCAxisKinematics
ax.Mechanism.Limitations : MCAxisLimitations	ax.Mechanism.Limitations : MCAxisLimitations
	ax. Mechanism.Monitoring : MCAxisMonitoring
ax.Mechanism.Slope : MCAxisSlope	ax.Mechanism.Slope : MCAxisSlope
ax.Mechanism.Units : MCAxisUnits	ax.Mechanism.Units : MCAxisUnits

6.1 ax.Mechanism.Limitations *

➔ ax.Drive.Feedback[n].SetTravelLimits(...)	ax. Mechanism.Limitations.SetTravelLimits(...)
ax.Mechanism.Limitations.MaxAcceleration : double	ax.Mechanism.Limitations.MaxAcceleration : double
ax.Mechanism.Limitations.MaxJerk : double	ax.Mechanism.Limitations.MaxJerk : double
ax.Mechanism.Limitations.MaxSpeed : double	ax.Mechanism.Limitations.MaxSpeed : double
ax.Mechanism.Limitations.StopRampTime : int R549	➔ ax.Drive. QuickStopDeceleration : double
➔ ax.Drive.Feedback[n].TravelLimitMax : double R182 / R247	ax. Mechanism.Limitations.TravelLimitMax : double
➔ ax.Drive.Feedback[n].TravelLimitMin : double R183 / R248	ax. Mechanism.Limitations.TravelLimitMin : double

6.2 ax.Mechanism.Monitoring *

➔ AX.Drive.IO.IsHWLimitSwitchMaxActive : bool	ax. Mechanism.Monitoring.IsHWLimitSwitchMaxActive : bool
➔ AX.Drive.IO.IsHWLimitSwitchMinActive : bool	ax. Mechanism.Monitoring.IsHWLimitSwitchMinActive : bool
➔ AX.Drive.IO.IsReferenceSwitchActive : bool	ax. Mechanism.Monitoring.IsReferenceSwitchActive : bool

7 ax.Position *

ax.Position.Actual : double (MC)	ax.Position.Actual : double
➔ ax.Drive.Control.Position.ActualTrackingError : double R119 (MC)	ax.Position.ActualTrackingError : double
ax.Position.Setpoint : double (MC)	ax.Position.Setpoint : double
ax.Position.Target : double (MC)	ax.Position.Target : double
➔ ax.Drive.Control.Position.TrackingErrorLimit : double R120 (MC)	ax.Position.TrackingErrorLimit : double
➔ ax.Drive.Control.Position.TrailingIndicatorMax: double R538 (MC)	ax.Position.TrailingIndicatorMax : double
➔ ax.Drive.Control.Position.TrailingIndicatorMin: double R539 (MC)	ax.Position.TrailingIndicatorMin : double

7.1 ax.State.Transitions *

Sollwertgenerator neu aufsetzen (Sollwert auf Istwert setzen) R101.4 (MC)	➔ ax.State.Transitions.UserPositionReset()
--	--

Keine Änderungen

7.2 ax.Buffer

ax.Buffer.Clear(...)	ax.Buffer.Clear(...)
ax.Buffer.Create(...)	ax.Buffer.Create(...)
ax.Buffer.Delete(...)	ax.Buffer.Delete(...)
ax.Buffer.Resume(...)	ax.Buffer.Resume(...)
ax.Buffer.Suspend(...)	ax.Buffer.Suspend(...)
ax.Buffer.Wait(...)	ax.Buffer.Wait(...)
ax.Buffer.BufferState : MCBufferStates	ax.Buffer.BufferState : MCBufferStates
ax.Buffer.IsCyclic : bool	ax.Buffer.IsCyclic : bool
ax.Buffer.IsNormal : bool	ax.Buffer.IsNormal : bool

7.3 ax.Info

ax.Info.ClassID : MCClassIDs	ax.Info.ClassID : MCClassIDs
ax.Info.Name : String	ax.Info.Name : String
ax.Info.ObjectID : int	ax.Info.ObjectID : int

7.4 ax.Mechanism.Kinematics

ax.Mechanism.Kinematics.Crank : MCAxisKinematicsCrank	ax.Mechanism.Kinematics.Crank : MCAxisKinematicsCrank
ax.Mechanism.Kinematics.Piston : MCAxisKinematicsPiston	ax.Mechanism.Kinematics.Piston : MCAxisKinematicsPiston

7.4.1 ax.Mechanism.Kinematics.Crank

ax.Mechanism.Kinematics.Crank.Configure(...)	ax.Mechanism.Kinematics.Crank.Configure(...)
ax.Mechanism.Kinematics.Crank.InvertDirection : Modes	ax.Mechanism.Kinematics.Crank.InvertDirection : Modes
ax.Mechanism.Kinematics.Crank.Offset : double	ax.Mechanism.Kinematics.Crank.Offset : double
ax.Mechanism.Kinematics.Crank.Radius : double	ax.Mechanism.Kinematics.Crank.Radius : double

7.4.2 ax.Mechanism.Kinematics.Piston

ax.Mechanism.Kinematics.Piston.Configure(...)	ax.Mechanism.Kinematics.Piston.Configure(...)
ax.Mechanism.Kinematics.Piston.InvertDirection : Modes	ax.Mechanism.Kinematics.Piston.InvertDirection : Modes
ax.Mechanism.Kinematics.Piston.Offset : double	ax.Mechanism.Kinematics.Piston.Offset : double
ax.Mechanism.Kinematics.Piston.Radius : double	ax.Mechanism.Kinematics.Piston.Radius : double
ax.Mechanism.Kinematics.Piston.RodLength : double	ax.Mechanism.Kinematics.Piston.RodLength : double

7.4.3 ax.Mechanism.Slope

ax.Mechanism.Slope.Acceleration : double	ax.Mechanism.Slope.Acceleration : double
ax.Mechanism.Slope.AccelerationDimension : MCAccelerationDimensions	ax.Mechanism.Slope.AccelerationDimension : MCAccelerationDimensions
ax.Mechanism.Slope.AccelerationSetpoint : double	ax.Mechanism.Slope.AccelerationSetpoint : double
ax.Mechanism.Slope.ActualMaxAcceleration : double	ax.Mechanism.Slope.ActualMaxAcceleration : double
ax.Mechanism.Slope.ActualMaxDeceleration : double	ax.Mechanism.Slope.ActualMaxDeceleration : double
ax.Mechanism.Slope.ActualMaxSpeed : double	ax.Mechanism.Slope.ActualMaxSpeed : double
ax.Mechanism.Slope.Deceleration : double	ax.Mechanism.Slope.Deceleration : double
ax.Mechanism.Slope.IsAccelerating : bool	ax.Mechanism.Slope.IsAccelerating : bool
ax.Mechanism.Slope.IsAtConstantSpeed : bool	ax.Mechanism.Slope.IsAtConstantSpeed : bool
ax.Mechanism.Slope.IsDecelerating : bool	ax.Mechanism.Slope.IsDecelerating : bool
ax.Mechanism.Slope.IsStopped : bool	ax.Mechanism.Slope.IsStopped : bool
ax.Mechanism.Slope.SlopeState : AxisSlopeStates	ax.Mechanism.Slope.SlopeState : AxisSlopeStates

ax.Mechanism.Slope.SlopeType : AxisSlopeTypes	ax.Mechanism.Slope.SlopeType : AxisSlopeTypes
ax.Mechanism.Slope.Speed : double	ax.Mechanism.Slope.Speed : double
ax.Mechanism.Slope.SpeedDimension : MCSpeedDimensions	ax.Mechanism.Slope.SpeedDimension : MCSpeedDimensions
ax.Mechanism.Slope.SpeedSetpoint : double	ax.Mechanism.Slope.SpeedSetpoint : double

7.4.4 ax.Mechanism.Units

ax.Mechanism.Units.SetLinearUnits(...)	ax.Mechanism.Units.SetLinearUnits(...)
ax.Mechanism.Units.SetRotatoryUnits(...)	ax.Mechanism.Units.SetRotatoryUnits(...)
ax.Mechanism.Units.LinearAccelerationUnit : MCLinearAccelerationUnits	ax.Mechanism.Units.LinearAccelerationUnit : MCLinearAccelerationUnits
ax.Mechanism.Units.LinearJerkUnit : MCLinearJerkUnits	ax.Mechanism.Units.LinearJerkUnit : MCLinearJerkUnits
ax.Mechanism.Units.LinearPositionUnit : MCLinearPositionUnits	ax.Mechanism.Units.LinearPositionUnit : MCLinearPositionUnits
ax.Mechanism.Units.LinearSpeedUnit : MCLinearSpeedUnits	ax.Mechanism.Units.LinearSpeedUnit : MCLinearSpeedUnits
ax.Mechanism.Units.RotatoryAccelerationUnit : MCRotatoryAccelerationUnits	ax.Mechanism.Units.RotatoryAccelerationUnit : MCRotatoryAccelerationUnits
ax.Mechanism.Units.RotatoryJerkUnit : MCRotatoryJerkUnits	ax.Mechanism.Units.RotatoryJerkUnit : MCRotatoryJerkUnits
ax.Mechanism.Units.RotatoryPositionUnit : MCRotatoryPositionUnits	ax.Mechanism.Units.RotatoryPositionUnit : MCRotatoryPositionUnits
ax.Mechanism.Units.RotatorySpeedUnit : MCRotatorySpeedUnits	ax.Mechanism.Units.RotatorySpeedUnit : MCRotatorySpeedUnits

7.5 ax.MoveHalt

ax.MoveHalt.Start(...)	ax.MoveHalt.Start(...)
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7.6 ax.MoveHome

ax.MoveHome.SetReference(...)	ax.MoveHome.SetReference(...)
ax.MoveHome.Start(...)	ax.MoveHome.Start(...)
ax.MoveHome.Acceleration : double	ax.MoveHome.Acceleration : double
ax.MoveHome.Direction : Directions	ax.MoveHome.Direction : Directions
ax.MoveHome.IsReferenceFound : bool	ax.MoveHome.IsReferenceFound : bool
ax.MoveHome.IsReferenceRunStarted : bool	ax.MoveHome.IsReferenceRunStarted : bool
ax.MoveHome.IsReferenceSet : bool	ax.MoveHome.IsReferenceSet : bool
ax.MoveHome.IsSwitchFound : bool	ax.MoveHome.IsSwitchFound : bool

ax.MoveHome.MaxDistanceReferenceSearch : double	ax.MoveHome.MaxDistanceReferenceSearch : double
ax.MoveHome.MaxDistanceSwitchSearch : double	ax.MoveHome.MaxDistanceSwitchSearch : double
ax.MoveHome.Mode : ReferencingModes	ax.MoveHome.Mode : ReferencingModes
ax.MoveHome.NormalPosition : double	ax.MoveHome.NormalPosition : double
ax.MoveHome.ReferenceOffset : double	ax.MoveHome.ReferenceOffset : double
ax.MoveHome.ReferenceState : MReferenceStates	ax.MoveHome.ReferenceState : MReferenceStates
ax.MoveHome.SpeedReferenceSearch : double	ax.MoveHome.SpeedReferenceSearch : double
ax.MoveHome.SpeedSwitchSearch : double	ax.MoveHome.SpeedSwitchSearch : double
ax.MoveHome.SwitchConfig : ReferencingSwitchConfigs	ax.MoveHome.SwitchConfig : ReferencingSwitchConfigs

7.7 ax.MovePtp

ax.MovePtp.NewAcceleration(...)	ax.MovePtp.NewAcceleration(...)
ax.MovePtp.NewDeceleration(...)	ax.MovePtp.NewDeceleration(...)
ax.MovePtp.NewSpeed(...)	ax.MovePtp.NewSpeed(...)
ax.MovePtp.Start(...)	ax.MovePtp.Start(...)
ax.MovePtp.StartNewTargetPosition(...)	ax.MovePtp.StartNewTargetPosition(...)
ax.MovePtp.PositioningMode : AxisPositioningModes	ax.MovePtp.PositioningMode : AxisPositioningModes
ax.MovePtp.TargetPosition : double	ax.MovePtp.TargetPosition : double
ax.MovePtp.TargetWindow : double	ax.MovePtp.TargetWindow : double

7.8 ax.MoveVelocity

ax.MoveVelocity.NewAcceleration(...)	ax.MoveVelocity.NewAcceleration(...)
ax.MoveVelocity.NewDeceleration(...)	ax.MoveVelocity.NewDeceleration(...)
ax.MoveVelocity.NewSpeed(...)	ax.MoveVelocity.NewSpeed(...)
ax.MoveVelocity.Reverse(...)	ax.MoveVelocity.Reverse(...)
ax.MoveVelocity.Start(...)	ax.MoveVelocity.Start(...)
ax.MoveVelocity.Direction : Directions	ax.MoveVelocity.Direction : Directions

8 ax.Power

ax.Power.Disable(...)	ax.Power.Disable(...)
ax.Power.Enable(...)	ax.Power.Enable(...)
ax.Power.QuickStop(...)	ax.Power.QuickStop(...)

8.1 ax.Settings

ax.Settings.LoadFromFile(...)	ax.Settings.LoadFromFile(...)
ax.Settings.ResetToDefault(...)	ax.Settings.ResetToDefault(...)
ax.Settings.SaveToFile(...)	ax.Settings.SaveToFile(...)

8.2 ax.State

ax.State.IsDisabled : bool	ax.State.IsDisabled : bool
ax.State.IsDisabledError : bool	ax.State.IsDisabledError : bool
ax.State.IsEnabled : bool	ax.State.IsEnabled : bool
ax.State.IsEnabledError : bool	ax.State.IsEnabledError : bool
ax.State.IsInactive : bool	ax.State.IsInactive : bool
ax.State.IsRunning : bool	ax.State.IsRunning : bool
ax.State.IsSuspended : bool	ax.State.IsSuspended : bool
ax.State.Value : OperatingStates	ax.State.Value : OperatingStates
ax.State.OperatingMode : MCOperatingMode	ax.State.OperatingMode : MCOperatingMode
ax.State.Techno : MCAxisTechnoState	ax.State.Techno : MCAxisTechnoState
ax.State.Transitions : MCAxisStateTransitions	ax.State.Transitions : MCAxisStateTransitions
ax.State.TypeOfMotion : MCAxisTypeOfMotion	ax.State.TypeOfMotion : MCAxisTypeOfMotion

8.2.1 ax.State.OperatingMode

ax.State.OperatingMode.IsInBufferedMode : bool	ax.State.OperatingMode.IsInBufferedMode : bool
ax.State.OperatingMode.IsInErrorMode : bool	ax.State.OperatingMode.IsInErrorMode : bool
ax.State.OperatingMode.IsInExternalMode : bool	ax.State.OperatingMode.IsInExternalMode : bool
ax.State.OperatingMode.IsInInactiveMode : bool	ax.State.OperatingMode.IsInInactiveMode : bool
ax.State.OperatingMode.IsInNormalMode : bool	ax.State.OperatingMode.IsInNormalMode : bool
ax.State.OperatingMode.Value : MCOperatingModes	ax.State.OperatingMode.Value : MCOperatingModes

8.2.2 ax.State.Techno

ax.State.Techno.IsCoupled : bool	ax.State.Techno.IsCoupled : bool
ax.State.Techno.IsCoupling : bool	ax.State.Techno.IsCoupling : bool
ax.State.Techno.IsDecoupled : bool	ax.State.Techno.IsDecoupled : bool
ax.State.Techno.IsDecoupling : bool	ax.State.Techno.IsDecoupling : bool
ax.State.Techno.SyncPosition : double	ax.State.Techno.SyncPosition : double
ax.State.Techno.SyncState : MCSyncStates	ax.State.Techno.SyncState : MCSyncStates
ax.State.Techno.TechnoID : int	ax.State.Techno.TechnoID : int
ax.State.Techno.Cam : MCAxisTechnoStateCam	ax.State.Techno.Cam : MCAxisTechnoStateCam

8.2.3 ax.State.Techno.Cam

ax.State.Techno.Cam.CamID : int	ax.State.Techno.Cam.CamID : int
ax.State.Techno.Cam.CamSegmentID : int	ax.State.Techno.Cam.CamSegmentID : int
ax.State.Techno.Cam.FollowerFactor : double	ax.State.Techno.Cam.FollowerFactor : double
ax.State.Techno.Cam.FollowerOffset : double	ax.State.Techno.Cam.FollowerOffset : double
ax.State.Techno.Cam.MasterFactor : double	ax.State.Techno.Cam.MasterFactor : double
ax.State.Techno.Cam.MasterOffset : double	ax.State.Techno.Cam.MasterOffset : double

8.2.4 ax.State.Transitions

ax.State.Transitions.Disable(...)	ax.State.Transitions.Disable(...)
ax.State.Transitions.Enable(...)	ax.State.Transitions.Enable(...)
ax.State.Transitions.ErrorDisable(...)	ax.State.Transitions.ErrorDisable(...)
ax.State.Transitions.ErrorLockUserInput(...)	ax.State.Transitions.ErrorLockUserInput(...)
ax.State.Transitions.ErrorStop(...)	ax.State.Transitions.ErrorStop(...)
ax.State.Transitions.ErrorSuspend(...)	ax.State.Transitions.ErrorSuspend(...)
ax.State.Transitions.Resume(...)	ax.State.Transitions.Resume(...)
ax.State.Transitions.SetUserInactive(...)	ax.State.Transitions.SetUserInactive(...)
ax.State.Transitions.Stop(...)	ax.State.Transitions.Stop(...)
ax.State.Transitions.Suspend(...)	ax.State.Transitions.Suspend(...)

8.2.5 ax.State.TypeOfMotion

ax.State.TypeOfMotion.IsMoveCoupled : bool	ax.State.TypeOfMotion.IsMoveCoupled : bool
ax.State.TypeOfMotion.IsMoveCoupling : bool	ax.State.TypeOfMotion.IsMoveCoupling : bool
ax.State.TypeOfMotion.IsMoveDecoupled : bool	ax.State.TypeOfMotion.IsMoveDecoupled : bool
ax.State.TypeOfMotion.IsMoveDecoupling : bool	ax.State.TypeOfMotion.IsMoveDecoupling : bool
ax.State.TypeOfMotion.IsMoveHome : bool	ax.State.TypeOfMotion.IsMoveHome : bool
ax.State.TypeOfMotion.IsMoveNone : bool	ax.State.TypeOfMotion.IsMoveNone : bool
ax.State.TypeOfMotion.IsMovePtp : bool	ax.State.TypeOfMotion.IsMovePtp : bool

ax.State.TypeOfMotion.IsMovePtpSuperPose : bool	ax.State.TypeOfMotion.IsMovePtpSuperPose : bool
ax.State.TypeOfMotion.IsMoveVelocity : bool	ax.State.TypeOfMotion.IsMoveVelocity : bool
ax.State.TypeOfMotion.IsMoveVelocitySuperPose : bool	ax.State.TypeOfMotion.IsMoveVelocitySuperPose : bool
ax.State.TypeOfMotion.Value : MCAxisTypesOfMotion	ax.State.TypeOfMotion.Value : MCAxisTypesOfMotion