
MotionBasic 6 Quickhelp



Commands, Parameter, Predefined identifiers, Messages

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1 Command overview – ordered thematically

A detailed description of the commands (in alphabetical order) can be found in Chap. 9.8 (from about page 154 onwards) of the Motion Basic programming manual.

System parameters	Set	Set system parameter
	ASet	Set axis parameter
	IoSet	Set I/O parameter
	Get	Read system parameter
	Aget	Read axis parameter
	IoGet	Read I/O parameter
System parameters (immediate commands)	Seti	Set system parameter immediately
	ASeti	Set axis parameter immediately
	IoSeti	Set I/O parameter immediately
Controlling individual axes	Jog	Velocity mode
	Amove	Absolute positioning
	Rmove	Relative positioning
	Home	Reference run
	Stop	Stop
	Still	Wait for standstill
	Busy	Poll status of an axis
Continuous path control	Lin, Lin0, Lin1	Linear interpolation
	Circle	Circular interpolation, radius, starting angle, end angle
	Arc	Circle interpolation, radius, target point
	ArcC, Arcw	Circle interpolation, middle point, target point
Inputs and outputs	Defin	Declare inputs
	Defout	Declare outputs
	Out	Set outputs
	In	Read inputs
	Waitinp	Wait for inputs
	Sout	Set outputs synchronous
	Rout	Read outputs back
	Inw	Read inputs word-by-word (16 bit)
	Outw	Set outputs word-by-word (16 bit)
	Routw	Read outputs back word-by word (16 bit)
Inputs and outputs (immediate commands)	Outi	Set outputs immediately
	Outwi	Set outputs word-by-word (16 bit) immediately
CAN functions	CanReceive	Receive characters via CAN
	CanRcvConfig	Configure the CAN receiver
	CanRcvState	Status upon receiving via CAN
	CanTransmit	Transfer of characters via CAN
	CanTrmConfig	Configure the CAN transmitter

	SdoRcv	SDO data exchange, read data
	SdoTrm	SDO data exchange, write data
Serial interface	SiByte	Read one byte from the serial interface
	SiStat	Poll the status receipt buffer
	SoByte	Send one byte via the serial interface
	SoStat	Poll the status transmission buffer
Text display	Print	Display text at the present cursor position
	Printxy	Display text at the position x, y
	Cpos	Position cursor
	Ctype	Define cursor
	TextAttr	Set text attribute (normal, blinking)
	Cls	Clear screen
	Cleol	Erase to the end of the line
Keypad entry	KeyState	Status of a key
	KeyPressed	Status: key pressed
	KeyRead	Read key
	KeyClear	Erase keypad buffer
	Input	Read in text string
	KeyLed	Key LED on/off
Time functions	Timer	Timer variable
	Delay	Delay time
	Still	Wait for motor standstill
	WaitInp	Wait for inputs
System control	SysCtrl	Reset everything and re-start from DLL
	Run	Re-start the program
	GetState	Poll the general status
	SetFIFO	Influence the online FIFO
	ResErr	Erase all errors
	ErrorMsg	Standard error message to the IDE
Procedures	Call	Call up a sub procedure
	Start	Start a task
	Sub...	Define a procedure
	End Sub	
	Function...	Define a function
	End Function	
	Task...End Task	Define a task
	Exit Sub	Exit a procedure
	Exit Function	Exit a function
	Exit Task	Exit a task

Exception handling	Try... End Try	Enclosing the code that might throw an exception
	Catch	Handling of the exception
	Throw	Throw of an exception
Program flow	Do...Loop	Do-Loop loop
	For...Next	For-Next loop
	While...Wend	While loop
	If...Then...Else	Poll condition
	Select Case	Poll several conditions
Variables and constants	Const	Declare constants
	Dim	Declare variables
	EEProm	Declare nonvolatile variables
	Static	Declare static variables
	NonVolatile	Declare nonvolatile variables
	Let	Allocate a value
Arrays	Dim	Declare arrays
	Static	Declare static arrays
	NonVolatile	Declare nonvolatile arrays
	Clary	Initialize arrays
	LBound	Returns the lowest possible field index of an array.
	UBound	Returns the highest possible field index of an array.
Arithmetic	Sqr	Root function
	Abs	Generate absolute value
	Sgn	Calculate prefix
	Fix	Calculate integer
	Int	Calculate integer
	Cos	Delivers the cosine
	Acos	Delivers the arc cosine
	Sin	Delivers the sine
	Asin	Delivers the arc sine
	Tan	Delivers the tangent
	Atan	Delivers the arc tangent
	Atan2	Delivers the arc tangent2
	ArcUnit	Switch between radian and degree
	Pow	Exponential function to any base
	Exp	Natural exponential function (base e)
	Log	Natural logarithm (base e)
	Log10	Logarithm to base 10
	Shl	Binary left shift
	Shr	Binary right shift
	Character strings	StrComp
StrCompi		
LCase		Convert into lower case
UCase		Convert into upper case
Space		Returns space character

	String	Returns character string with repetitive characters
	Len	Length of a character string
	Asc	Numeric value of the first character
	InStr	Position of a character
	Left	Left section of a character string
	Right	Right section of a character string
	Mid	Middle section of a character string
	LTrim	Remove leading space characters
	RTrim	Remove appended space characters
	Trim	Remove leading and appended space characters
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Conversions	Cbyt	Explicit conversion by byte
	Cint	Explicit conversion by integer
	Clng	Explicit conversion by "Long"
	Csng	Explicit conversion by "Single"
	Asc	Numeric value of the first character of a character string
	Chr	Character string consisting of one character
	Hex	Hexadecimal character string
	Str	Decimal character string
	Val	Numeric value of a character string
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2 System parameters

In the next two chapters, you will find an overview of all system parameters, first sorted by parameter number and then alphabetically according to their identifier. In Sect. 8.4 in the MotionBasic programming manual the system parameters are described in detail (sorted by parameter numbers).

2.1 System parameters – overview by parameter number

Global system parameters		
0 to 499	_UserReg	User register
1000	_State	System status
1001	_PartNo	Part number of the Xemo controller
1002	_EcLevel	Engineering level of the Xemo controller
1003	_SerialNo	Serial number of the Xemo controller
1004	_Version	Software - number of the operating system
1005	_Release	Release number of the operating system
1006	_ComRelease	Downwards compatibility limit
1007	_Extent	Expansion level of the Xemo controller
1008	_Clock	Present status of the system timer
1010	_ErrNo	Runtime error
1011	_ErrState	Present error status
1012	_ErrLine	Line number in the source code at which the error occurred
1013	_ErrAxis	Number of the axis affected by the error
1014	_ErrParam	Number of the parameter which caused the error
1015	_SubError	Additional information about the error
1017	_EnaOptCode	Influence the behaviour of the axis release
1021	_FIFOSize	Size of the online FIFO
1022	_FIFOLevel	Fill level of the online FIFO
1023	_FIFOLeft	Free memory in the FIFO
1024	_FIFOMarker	Setting of the upper FIFO mark
1025	_FIFOLow	Setting of the lower FIFO mark
1030	_Mode1	Baud rate and mode of the 1. serial interface
1033	_ModeUsb	Release USB interface for HPGL or G-code
1034	_CanMode	Set CAN baud rate channel 1
1035	_OtSelect	Register OTxxx control panel
1036	_Can2Mode	Set CAN baud rate channel 2
1038	_Can1Device	Register first CANopen device for I/O expansion
1039	_Can2Device	Register second CANopen device for I/O expansion
1040	_IpGroup	Coordinate system for trajectory control
1041	_H1Trans	Define H-portal 1
1042	_H2Trans	Define H-portal 2
1043	_IpSyncClk	Manipulation of the CANopen synchronization pulse for external power electronics (controller)
1050	_BkPwmCycle	Cyclic time of the PWM
1051	_BkPwmDuty	Input/Break ratio of the PWM

Global system parameters		
1060	_AnlIn	Analog input Xemo-Step / Analog input 0 (option)
1061	_AnlOut	Analog output value
1062	_OvrIn	Analog input of the override-poti
1063	_JoyX	Analog input of the X axis joystick
1064	_JoyY	Analog input of the Y axis joystick
1070	_HandWheel	Present position of the handwheel
1071	_Encoder	Present position at the incremental encoder input
1072	_EnclDx	Index position at the incremental encoder input
1073	_EnclPr	Impulse per revolution for index monitoring
1075	_OvrIde	Write over the present velocity
1076	_Omode	Override mode
1077	_OvScale	Scaling the override-poti
1080	_SanlIn0	Analog input 0 (option)
1081	_SanlIn1	Analog input 1 (option)
1082	_SanlIn2	Analog input 2 (option)
1090	_VoMode	Velocity-dependent analog output value
1091	_VoScale	Scaling of the velocity dependence
1092	_VoOffs	Offset for analog output voltage
1093	_VoMax	Upper limit for analog output voltage
1094	_VoMin	Lower limit for analog output voltage
1100	_AnlFSel	Selection of an analog input for filter programming
1101	_AFType	Selection of the filter type for an analog input
1102	_AFSTime	Filter sampling interval for analog input
1103	_AFSpread	Spread analog input
1104	_AFHyster	Hysteresis of the hysteresis filter
1105	_AFTrack	Step width of the tracking filter
1106	_AFAverage	Sampling number of the mid-value filter
1110	_IsoLineNr	Present G-code line number
1111	_IsoGScale	Scaling of the G-code coordinates
1112	_IsoFScale	Scaling of the feed-motion value
1113	_IsoSScale	Scaling of the spindle revolutions
1120	_IdxFunc	Selection of the special function
1121	_IdxFcMode	Functions of the special function

Setup parameters

1400	_ComPort	Selection of the command interface
1401	_Bdrate	Configuration of the baud rate
1402	_DsplContr	Set the display contrast
1403	_PonComDelay	Delay of the interface initialization after switching on
1404	_USBConfig	Configure the USB interface (only Xemo without Ethernet)
1405	_CanTerm	Terminator resistance CAN on/off
1406	_Bktype	Indicate bus coupler type
1407	_ComDevice	Selection of communication interface (only Xemo with Ethernet)
1408	_USBSpeed	Speed of the USB interface
1409	_IpAddr	IP address of the Xemo controller
1410	_IpMask	Net mask
1411	_IpGateWay	IP Gateway address
1412	_MacAddr1	MAC address M1-M2-M3
1413	_MacAddr2	MAC address M4-M5-M6

Axis parameters

2000	_Speed	Running velocity
2001	_Accel	Acceleration
2002	_Decel	Deceleration
2003	_Vmin	Start/Stop velocity
2004	_Ldecel	Emergency stop ramp
2006	_Jerk	Smoothing of the ramps [UU / sec ^ 3]
2007	_Jerkms	Smoothing of the ramps [ms]
2008	_MaxVel	Maximum programmable velocity
2009	_MaxAcc	Maximum programmable acceleration
2010	_IpLink	Allocation to a coordinate system
2011	_IpAxis	Allocation to an interpolation axis in the coordinate system
2012	_Nodeld	CAN address a CANopen power stage
2013	_XType	Type of axis (connection type of axis)
2014	_XVersion	Version number of a iPM550 motor amplifier
2020	_H1Speed	Velocity 1 reference run
2021	_H2Speed	Velocity 2 reference run
2022	_H3Speed	Velocity 3 reference run
2023	_HOffset	Distance between the zero point of the machine and the reference point
2024	_HVerify	Inspection of the reference position
2025	_HMethod	Kind of reference run algorithm
2026	_HRefInps	Programming of limit and reference switches
2030	_OpMode	Activate the controller
2031	_Current	Phase current of a stepping motor
2032	_FErWin	Permissible contouring error
2033	_TPosWin	target window
2034	_TPosTime	Permissible positioning time
2035	_Brakeoutp	Activation of a brake output
2036	_BrkDelay1	Time interval between setting the motor current and releasing the brake
2037	_BrkDelay2	Time interval during which the brake output is fully supplied with current

Axis parameters		
2038	_MaxFErr	Maximum measured contouring error
2040	_Uscale	Scaling user units
2041	_Iscale	Scaling increments
2042	_Zero	Shift of the zero point
2043	_Origin	Shift of the zero point
2044	_Refp	Shift of the zero point
2045	_SLLimit	Software limit switch negative (left)
2046	_SrLimit	Software limit switch positive (right)
2047	_Pmode	Position counter mode (ring mode)
2048	_Blash	Reversal slack compensation
2049	_Gantry	Define the gantry system
2050	_Micro	Microstep resolution
2052	_StopCurr	Current reduction to the axis during standstill
2053	_PulsMode	Encoder signal inputs/switch off
2054	_RunCurrDelay	Delay between switching on the run current and the start of the motor
2055	_StopCurrDelay	Delay between stop of the motor and switching off the run current
2056	_StpEncoder	Settings for step monitoring
2061	_Apos	Present position of the axis
2062	_Rpos	Present is-value position
2063	_Rvelo	Present running velocity
2075	_Xovr	Override the present velocity of the axis
2076	_Xomode	Override mode

Trajectory parameters		
3000	_IpSpeed	High velocity
3001	_IpAccel	Acceleration
3002	_IpDecel	Deceleration
3003	_IpVmin	Start/Stop velocity
3004	_IpLDecel	Emergency stop ramp
3005	_IpVend	End velocity
3006	_IpFeed	Feed motion velocity
3008	_IpMaxVel	Maximum programmable velocity
3009	_IpMaxAcc	Maximum programmable acceleration
3010	_IpDim	Number of interpolation axes
3011	_IpUnit	Specification for trajectory commands
3012	_IpLeft	Look Ahead, number of remaining cycles
3013	_IpLaFact	Look Ahead, factor for acceleration
3014	_IpLaCvFact	Look Ahead, factor for circular acceleration
3015	_IpLaTprof	Look Ahead, running time
3017	_IpTrigger	Distance in UU
3018	_IpTrgTime	Duty cycle of the output
3019	_IpTrgOutp	Address of the digital output
3063	_IpVelo	Present trajectory velocity
3075	_IpOvr	Override present trajectory velocity

3076	_IpOmode	Override mode
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I/O parameters

4000	_InPolarity	Polarity of the digital inputs
4001	_OutPolarity	Polarity of the digital outputs
4002	_InPortExist	Inquiry whether the entry ports address is available
4003	_OutPortExist	Inquiry whether the output ports address is available

2.2 System parameters – alphabetical overview

Name	Reg.-No.	Description
_Accel	2001	Acceleration
_AFAverage	1106	Sampling number of the mid-value filter
_AFHyster	1104	Hysteresis of the hysteresis filter
_AFSpread	1103	Analog input spread
_AFSTime	1102	Filter sampling interval for analog input
_AFTrack	1105	Increment of the tracking filter
_AFType	1101	Selection of filter type for analog input
_AnlFSel	1100	Selection of an analog input for filter programming
_AnlIn	1060	Analog input Xemo-Step / Analog input 0 (option)
_AnlOut	1061	Analog output value
_Apos	2061	Present position of the axis
_Bdrate	1401	Configuration of the baud rate
_BkPwmCycle	1050	Cyclic time of the PWM
_BkPwmDuty	1051	Input/Break ratio of the PWM
_Bktype	1406	Indicate bus coupler type
_Blash	2048	Reversal slack compensation
_Brakeoutp	2035	Activation of a brake output
_BrkDelay1	2036	Time interval between setting the motor current and releasing the brake
_BrkDelay2	2037	Time interval during which the brake output is fully supplied with current
_Can1Device	1038	Register first CANopen device for I/O expansion
_Can2Device	1039	Register second CANopen device for I/O expansion
_Can2Mode	1036	Set CAN baud rate channel 2
_CanMode	1034	Set CAN baud rate
_CanTerm	1405	Terminator resistance CAN on/off
_Clock	1008	Present status of the system timer
_ComDevice	1407	Selection of communication interface (only Xemo with Ethernet)
_ComPort	1400	Selection of the command interface
_ComRelease	1006	Downwards compatibility limit
_Current	2031	Phase current of a stepping motor
_Decel	2002	Deceleration
_DsplContr	1402	Set the display contrast
_EcLevel	1002	Engineering level of the Xemo controller
_EnaOptCode	1017	Influence the behaviour of the axis release

Name	Reg.-No.	Description
_EnclDx	1072	Index position at the incremental encoder input
_EnclPr	1073	Impulse per revolution for index monitoring
_Encoder	1071	Present position at the incremental encoder input
_ErrAxis	1013	Number of the axis affected by the error
_ErrLine	1012	Line number in the source code at which the error occurred
_ErrNo	1010	Runtime error
_ErrParam	1014	Number of the parameter which caused the error
_ErrState	1011	Present error status
_Extent	1007	Expansion level of the Xemo controller
_FErrWin	2032	Permissible contouring error
_FIFOLeft	1023	Free memory in the FIFO
_FIFOLevel	1022	Fill level of the online FIFO
_FIFOLow	1025	Setting of the lower FIFO mark
_FIFOMarker	1024	Fill-level threshold of the online FIFO
_FIFOSize	1021	Size of the online FIFO
_Gantry	2049	Define the gantry axes
_H1Speed	2020	Velocity 1 reference run
_H1Trans	1041	Define H-portal 1
_H2Speed	2021	Velocity 2 reference run
_H2Trans	1042	Define H-portal 2
_H3Speed	2022	Velocity 3 reference run
_HandWheel	1070	Present position of the handwheel
_HMethod	2025	Kind of reference run algorithm
_HOffset	2023	Space between the machine zero point from the reference switch
_HRefInps	2026	Programming of limit and reference switches
_HVerify	2024	Inspection of the reference position
_IdxFcMode	1121	Functions of the special function
_IdxFunc	1120	Selection of the special function
_InPolarity	4000	Polarity of the digital inputs
_InPortExist	4002	Inquiry whether the entry port's address is available
_IpAccel	3001	Acceleration
_IpAddr	1409	IP address of the Xemo controller
_IpAxis	2011	Allocation to an interpolation axis in the coordinate system
_IpDecel	3002	Deceleration
_IpDim	3010	Number of interpolation axes
_IpFeed	3006	Feed rate
_IpGateWay	1411	IP Gateway address
_IpGroup	1040	Coordinate system for trajectory control
_IpLaCvFact	3014	Look Ahead, factor for circular acceleration
_IpLaFact	3013	Look Ahead, factor for acceleration
_IpLaTprof	3015	Look Ahead, running time
_IpLDecel	3004	Emergency stop ramp
_IpLeft	3012	Look Ahead, number of remaining cycles
_IpLink	2010	Allocate to a coordinate system

Name	Reg.-No.	Description
_IpMask	1410	Net mask
_IpMaxAcc	3009	Maximum programmable acceleration
_IpMaxVel	3008	Maximum programmable velocity
_IpOmode	3076	Override mode
_IpOvr	3075	Override present trajectory velocity
_IpSpeed	3000	High velocity
_IpSyncClk	1043	Manipulation of the CANopen synchronization pulse for external power electronics (controller)
_IpTrgOutp	3019	Address of the digital output
_IpTrgTime	3018	Duty cycle of the output
_IpTrigger	3017	Distance in UU
_IpUnit	3011	Specification for trajectory commands
_IpVelo	3063	Present trajectory velocity
_IpVend	3005	End velocity
_IpVmin	3003	Start/Stop velocity
_Iscale	2041	Scaling increments
_IsoGScale	1111	Scaling of the G-code coordinates
_IsoFScale	1112	Scaling of the feed-motion value
_IsoLineNr	1110	Present G-code line number
_IsoSScale	1113	Scaling of the spindle revolution
_Jerk	2006	Smoothing of the ramps [UU / sec ^ 3]
_Jerkms	2007	Smoothing of the ramps [ms]
_JoyX	1063	Analog input of the X axis joystick
_JoyY	1064	Analog input of the Y axis joystick
_Ldecel	2004	Emergency stop ramp
_MacAddr1	1412	MAC address M1-M2-M3
_MacAddr2	1413	MAC address M4-M5-M6
_MaxAcc	2009	Maximum programmable acceleration
_MaxFErr	2038	Maximum measured contouring error
_MaxVel	2008	Maximum programmable velocity
_Micro	2050	Microstep resolution
_Mode1	1030	Baud rate and mode of the first serial interface
_ModeUsb	1033	Release USB interface for HPGL or G-code
_NodeId	2012	CAN address a CANopen power stage
_Omode	1076	Override mode
_OpMode	2030	Activate axis controller
_Origin	2043	Shift of the zero point
_OtSelect	1035	Register OT100/200 control panel
_OutPolarity	4001	Polarity of the digital outlets
_OutPortExist	4003	Inquiry whether the output port's address is available
_OvrIde	1075	Override present velocity
_OvrIn	1062	Analog input of the override-poti
_OvScale	1077	Scaling of the override-poti
_PartNo	1001	Part number of the Xemo controller
_Pmode	2047	Position counter mode (ring mode)

Name	Reg.-No.	Description
_PonComDelay	1403	Inquiry whether the output port's address is available
_PulsMode	2053	Encoder signal inputs/switch off
_Refp	2044	Shift of the zero point
_Release	1005	Release number of the operating system
_Rpos	2062	Present is-value position
_RunCurrDelay	2054	Delay between switching on the run current and the start of the motor
_Rvelo	2063	Present running velocity
_SanIn0	1080	Analog input 0 (option)
_SanIn1	1081	Analog input 1 (option)
_SanIn2	1082	Analog input 2 (option)
_SerialNo	1003	Serial number of the Xemo controller
_SLimit	2045	Software limit switch negative (left)
_Speed	2000	Running velocity
_SrLimit	2046	Software limit switch positive (right)
_State	1000	System status
_StpEncoder	2056	Settings for step monitoring
_StopCurr	2052	Reduction of the current to the axis during standstill
_StopCurrDelay	2055	Delay between stop of the motor and switching off the run current
_SubError	1015	Additional information about the error
_TPosTime	2034	Permissible positioning time
_TPosWin	2033	target window
_USBConfig	1404	Configure the USB interface (only Xemo without Ethernet)
_USBSpeed	1408	Speed of the USB interface
_Uscale	2040	Scaling user units
_UserReg	0 bis 499	User register
_Version	1004	Software number of the operating system
_Vmin	2003	Start/Stop velocity
_VoMax	1093	Upper limit for analog output voltage
_VoMin	1094	Lower limit for analog output voltage
_VoMode	1090	Velocity-dependent analog output value
_VoOffs	1092	Offset for analog output voltage
_VoScale	1091	Scaling of the velocity dependence
_Xomode	2076	Override Mode
_Xovr	2075	Override present velocity of the axis
_XType	2013	Connection type of axis
_XVersion	2014	Version number of a iPM550 motor amplifier
_Zero	2042	Zero point shift

3 Predefined identifiers and constants

Category	Identifier	Value	Description
SysCtrl	_Reset	1	System reset
	_Break	2	Interrupt MotionBasic program
	_Halt	3	Halt MotionBasic program
	_Restart	4	System reset and restart of the MotionBasic program
Online FIFO	_FfDisable	1	Block FIFO
	_FfEnable	2	Release FIFO
	_FfClear	3	Erase FIFO
Keypad codes	_Key_F1	&H13B	
	_Key_F2	&H13C	
	_Key_F3	&H13D	
	_Key_F4	&H13E	
	_Key_F5	&H13F	
	_Key_F6	&H140	
	_Key_BS	&H008	
	_Key_ENTER	&H00D	
	_Key_UP	&H148	
	_Key_DOWN	&H150	
	_Key_RIGHT	&H14D	
_Key_LEFT	&H14B		
Keypad LEDs	_LedOff	0	
	_LedOn	1	
	_LedBlink	10	
	_LedFlash	11	
Axis identifier	_X, _Y, _Z, _A, _B, _C	0, 1, 2, 3, 4, 5	_B, _C for firmware version 3.50 and higher
	_Xall	255	all axes
	_All	254	all axes and trajectory parameters
RS232 interface	_COM1	1	1. serial interface
	_Mode1	_BD9600	5
		_BD19200	6
		_BD28800	7
		_BD38400	8
		_BD57600	9
_USBConfig	USB_OFF	0	USB interface switched off
	USB_AUTO	1	USB interface automatically switched on
	USB_ONLY	2	USB interface always switched on

4 Error list

4.1 List of MotionBasic runtime errors

No.	Description	Critical error?
0	Unknown error number	
1	Unknown command or P-code	
2	Exceeds data range	x
3	Stack overflow	x
4	Unknown library function	x
5	Unknown operator	x
6	Overflow during type conversion	
7	P-Code not implemented	x
8	Array dimension conflict	
9	Exceeds array range	
10	Library function not implemented	x
11	Exceeds maximum string length	
12	Not enough memory for data range	x
13	Not enough memory for stack area	x
14	Not enough memory for P-code	x
15	online FIFO overflow	
16	Timeout while burning flash	x
17	Erase error for flash sector	x
18	Read-only for flash active	x
19	Check-sum error in P-code	x
20	Invalid signature in P-code	x
21	Not enough memory for EEprom area	x
22	Read-only for EEprom active	
23	Timeout while burning EEprom	
24	Invalid axis number	
25	Invalid parameter number	
26	Invalid SetFIFO command	
27	Invalid SysCtrl command	
28	Invalid I/O address	
29	Assignment to a constant not possible	
30	Task already active	
31	Invalid signature in EEprom	x
32	Defect memory allocation in EEprom	x
33	Check-sum error in EEprom	x
34	Zero division	
35	Incompatible P-code	x
36	Assignment to identical string not permitted	
37	Limit switch reached	

38	Not enough memory for download	
39	Invalid parameter value	
40	Function not configured	
41	Command only permitted during axis standstill	
42	Circle commands require at least 2D	
43	No program loaded	
44	Parameter not implemented	
45	Unknown subprocedure number	
46	Overflow serial input buffer	
47	target position outside the software limit	
48	Parameter value too large	
49	Not enabled	
50	Software limit reached	
51	Parameter can only be read	
52	Contouring error in the electronic transmission	
53	Ventilator overload (overcurrent)	
54	Excess temperature in the device	
55	Error in the index monitoring at the encoder input	
56	Electric error in the encoder signal	
57	Electronic transmission: synchronic position missed	
58	Function not available in this stage of expansion	
59	Function (Gantry operation, step monitoring) not available with this hardware	
60	Velocity setting too large	
61	Acceleration setting too large	
62	Circle radius too large	
63	Negative parameter value not permitted	
64	Error during reference run	
65	Error on a power card	
66	Encoder input overflow	
67	Not permitted with activated electronic transmission	
68	Parameter value must be unequal to zero	
69	CAN communication error (Sub errors see Chap. 4.2)	
70	Check-sum error in online command	
71	Over- or undervoltage in the 12 volt vehicle voltage	
72	Over- or undervoltage in the 24 volt feed in	
73	Over- or undervoltage in the motor's intermediate circuit voltage	
74	Short circuit in a digital output	
75	Serial interface: format error	
76	Serial interface: overflow	
77	Setup parameter is write-protected	
78	Error during writing of the setup parameter	
79	Setup parameter check-sum error	

80	Communications error in the second CAN channel (Sub errors see Chap. 4.2)	
81	axis is not available	
82	Too many I/O ports	
83	CANopen guarding error	
84	axis controller cannot be switched on	
85	axis controller has turned itself off	
86	No axis is registered	
87	Reference run method not implemented	
88	H-portal transformation: axes not within a coordinate system	
89	With activated gantry axis not allowed	
90	Axis controller inhibit is required	
91	Axis is already registered. Reset required	
92	Axis controller has shut down	
93	Sync clock is not possible for this axis controller	
94	Trigger output or trigger time not set	
95	Special function unknown	
96	Display Timeout control	
97	Different types of axes in IPGroup	
Errors in the axis controller		
98	Error in axis controller cannot be reset	
99	Error in axis controller cannot be read	
Errors in the JAT axis controller or on motor board of Xemo R or Xemo S		
100	Unknown error in the axis controller	
101	Software reset in the axis controller	
102	Loss of synchronization in the axis controller	
103	Motor-encoder antivalence error	
104	Motor-encoder counter error	
105	Master-encoder counter error	
106	Overtemperature in axis controller	
107	Low voltage logic supply in axis controller	
108	Intermediate circuit overvoltage in the axis controller	
109	Intermediate circuit undervoltage in the axis controller	
110	Short circuit phase A in the axis controller	
111	Short circuit phase B in the axis controller	
112	Short circuit digital output in the axis controller	
113	No enable on axis controller	
114	Following error too large	
115	Velocity too high	
116	Commutation of motor not found	
117	CAN communication or SPI communication (sub errors see Chap. 4.4) interrupted	

118	monitoring 'i2*t' triggered	
119	Negative hardware limit triggered	
120	Positive hardware limit triggered	
121	Peak current exceeded	
122	Wrong utility program axis controller (ELMO)	
123	Error in axis controller (LTi)	
>123	Different error in the JAT-axis controller	
>200	Different error in the axis controller The meaning depends on the axis controller used. Please consult the appropriate device manuals.	
300	-	
301	Task lock aktive. Task will not be launched	
302	Gantry for CAN axes only possible if Xtype 3	
303	Parameter will be transferred only if controller is switched off	
304	An error is still present. Axis can not be traversed	
305	For a Throw statement no Catch block is found	
306	For a Throw statement in the OnError block no corresponding 'Catch' is found in main program	
308	ARCC/ARCW circular commands: Deviation in the difference between middle point - starting point and middle point - target point too large (> 16000 user units)	

4.2 List of CANopen suberrors

If a communication error (runtime error number 69 or 80) occurs in a CAN channel, the cause of the error is specified via the CANopen suberror.

No.	Description
1	CANopen device does not respond after reset
2	Wrong device connected
3	Error in device
4	SDO Com-Error
5	SDO Com-Timeout
6	Device does not go to Operational Status
7	The init PDOs after start were not sent
8	Guarding Error
9	Error before sending
10	Error in the status register of the CAN-controller
11	Too many PDOs in the bus coupler
12	Too many CANopen devices registered
13	Message 15 receiving overflow
14	-
15	Error cannot be deleted
16	SDO FIFO Overflow
17	Reply SDO Index. Subindex not identical

4.3 List of internal system errors

The internal system errors are serious errors and immediately halt the operating system.

No.	Description	Remark
1	-	
2	Error in the system-exception handling	
3	System memory allocation not permitted	
4	Processor stack overflow	
5	Trap Interrupt	
6	Error in Motion Basic exception handling	
7	Version of an EPLD building block incompatible	
8	Error in the task table	
9	There are too many CAN devices to be monitored (Node guarding)	
10	Error in the allocation of the IO addresses	
11	Error in the ScannCode table	
12	Error Flash CRC check sum	
13	Too many Timer Interrupts	
14	Error when loading FPGA	
15	Error while initializing the USB-HID interface	Only Xemo with Ethernet
16	M0 core is not running	Only Xemo with Ethernet
17	Check sum error Xemo configuration	Only Xemo with Ethernet
18	Error in I2C-Bus communication	Only Xemo with Ethernet
19	LPC43 CAN-Interface conflict	Only Xemo with Ethernet
20	IO Expander cannot be reached	Only Xemo with Ethernet
21	Error in IPM550 interface (SPI communication)	Only Xemo with Ethernet

4.4 List of SPI communication sub errors

If an SPI communication error (error number 117) occurs, one can distinguish the following sub errors.

No.	Description
0	Checksum error on the Xemo processor too frequently occurred, bad communication from the Xemo to the iPM550 power card
1	Checksum error on the iPM 550 too frequently occurred, bad communication from the Xemo processor to the iPM550 power card
2	Register number on the iPM550 does not exist or there is no authorization to write it.
3	The command FIFO in the Xemo for the iPM550 is full.