



AMK

Parameter description

A4 / A5

KW-R06 / KW-R16 / KW-R07 / KW-R17

KE(N,S) / KE(N,S)-xEx

iX / iC / iDT5 / iDP7

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Translation of the "Original Beschreibung"

AMK

Imprint

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KEN-xEx		
KES-xEx		
iX	iX V1.03 2013/18 (204515)	
iC		
iDT5		
iDP7		

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For fast and reliable troubleshooting, you can help us by informing our Customer Service about the following:

- Type plate data for each unit
- Software version
- Device configuration and application
- Type of fault/problem and suspected cause
- Diagnostic messages (error messages)

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Conventions

Depiction	Meaning
	This symbol indicates passages in the text that deserve your particular attention.
0x	0x followed by a hexadecimal number, e.g. 0x500A
'Name'	e.g.: Call up the 'Delete PLC program' function.
	Diagnostic messages, e.g. 2311 "motor encoder"
IDxxxx.y	xxxx: Parameter number y: Bit number e.g. ID32773.14

Content

1 For your safety	17
1.1 Presenting safety messages	17
1.2 Class of hazard	17
1.3 Safety symbols used	17
1.4 Always to be observed!	17
2 Parameter descriptions	18
ID1 'NC cycle time'	18
ID2 'SERCOS cycle time'	19
ID6 'Drive telegram start time'	20
ID7 'Feedback acquisition start time'	20
ID8 'Command valid time (T3)'	20
ID11 'Status class 1-errors'	20
ID12 'Status class 2-warnings'	23
ID13 'Status class 3-messages'	24
ID14 'Interface status'	26
ID15 'Telegram types parameter'	27
ID16 'Configuration list AT'	28
ID17 'ID-no. list all operational data'	29
ID18 'Operational data list communication phase 2'	30
ID19 'Operational data list communication phase 3'	30
ID20 'Operational data list communication phase 4'	31
ID21 'Invalid data list communication phase 2'	32
ID22 'Invalid data list communication phase 3'	32
ID23 'Invalid data list communication phase 4'	33
ID24 'Configuration list MDT'	33
ID25 'All command data list'	34
ID26 'Configuration status bits'	35
ID28 'MST error counter'	36
ID29 'MDT error counter'	36
ID30 'Software version'	36
ID32 'Primary operating mode'	38
ID33 'Secondary operating mode 1'	40
ID34 'Secondary operating mode 2'	41
ID35 'Secondary operating mode 3'	42
ID36 'Velocity command value'	44
ID37 'Added velocity command value'	44
ID38 'Positive velocity limit'	44
ID39 'Negative velocity limit'	45
ID40 'Velocity feedback value'	45
ID41 'Homing velocity'	45
ID42 'Homing acceleration'	45
ID43 'Velocity polarity'	46
ID44 'Scaling of velocity data'	47
ID47 'Position command value'	48
ID49 'Positive position limit'	48
ID50 'Negative position limit'	49
ID51 'Position feedback value'	49
ID52 'Home reference position 1'	49
ID53 'Position feedback value 2'	50
ID55 'Closed loop polarity'	50
ID57 'In position window'	51

ID76 'Position data scaling'	52
ID80 'Torque command value'	52
ID81 'Added torque command value'	53
ID82 'Positive torque limit'	53
ID83 'Negative torque limit'	54
ID84 'Torque feedback value'	54
ID85 'Torque polarity'	55
ID86 'Torque data scaling'	56
ID89 'Transmission time MDT (T2)'	56
ID91 'Bipolar velocity limit'	57
ID92 'Bipolar torque limit'	57
ID95 'Diagnosis [ASCII text]'	58
ID96 'Slave identifier (SLKN)'	59
ID97 'Diagnostic mask status class 2'	59
ID98 'Diagnostic mask status class 3'	60
ID99 'Diagnosis reset status class 1'	60
ID100 'Speed control proportional gain'	60
ID101 'Integral-action time speed control'	61
ID102 'Differentiating time speed control TD'	62
ID103 'Modulo value'	63
ID104 'Position loop factor'	64
ID109 'Motor peak current'	64
ID110 'Converter peak current'	65
ID111 'Motor nominal current IN'	65
ID112 'Converter nominal current'	65
ID113 'Maximum speed'	66
ID114 'Overload limit motor'	66
ID115 'Position feedback type'	67
ID116 'Resolution motor encoder'	67
ID117 'Resolution external position feedback system'	68
ID121 'Load gear input revolution'	69
ID122 'Load gear output revolution'	70
ID123 'Feed constant'	70
ID124 'Zero velocity window'	70
ID125 'Velocity threshold'	71
ID126 'Torque threshold'	71
ID127 'Transition check phase 3'	71
ID128 'Transition check phase 4'	71
ID129 'Manufacturer status class 1'	71
ID130 'Probe value 1 positive edge'	73
ID131 'Probe value 1 negative edge'	73
ID132 'Probe value 2 positive edge'	73
ID133 'Probe value 2 negative edge'	74
ID134 'Master control word'	74
ID135 'Drive status word'	77
ID136 'Positive acceleration'	80
ID137 'Negative acceleration'	80
ID140 'Inverter type'	80
ID141 'Motor type'	81
ID142 'Application type'	82
ID143 'SERCOS interface version'	82
ID144 'Status word'	83
ID147 'Homing parameter'	83
ID148 'Drive homing cycle command'	84

ID149 'Cmd position stop'	85
ID150 'Homing offset 1'	85
ID153 'Spindle angle position'	86
ID154 'Spindle positioning parameter'	86
ID156 'Velocity feedback value 2'	86
ID157 'Velocity window'	87
ID158 'Power threshold'	87
ID159 'Excess error'	88
ID169 'Probe control parameter'	88
ID170 'Command probe cycle'	89
ID173 'Marker position A'	90
ID179 'Probe status'	90
ID180 'Spindle position relative offset'	90
ID181 'Diagnosis manufacturer class 2'	91
ID182 'Diagnosis manufacturer status'	92
ID185 'Length data set AT'	94
ID186 'Length data set MDT'	94
ID187 'List of data AT'	95
ID188 'List of data MDT'	95
ID189 'Following distance'	96
ID192 'List backup data'	96
ID206 'Drive on delay time'	96
ID207 'Drive off delay time'	97
ID209 'Lower adaption limit'	97
ID210 'Upper adaption limit'	98
ID211 'Proportional gain adaption'	98
ID212 'Integral-action time adaption'	98
ID216 'Switch parameter set command'	99
ID217 'Preselect parameter set command'	99
ID219 'ID-no. list for parameter sets'	99
ID222 'Spindle position speed'	100
ID228 'Synchron position window'	100
ID254 'Actual parameter set'	100
ID262 'Initial program load command'	100
ID263 'Cmd load data'	101
ID264 'Cmd save data'	101
ID265 'Language'	102
ID269 'ID memory mode'	102
ID270 'Temporary parameter list'	103
ID284 'Operation mode 4'	103
ID285 'Operation mode 5'	105
ID286 'Operation mode 6'	106
ID287 'Operation mode 7'	107
ID296 'Velocity feedforward gain'	109
ID301 'Allocation control bit 1'	109
ID303 'Allocation control bit 2'	109
ID305 'Allocation status bit 1'	109
ID307 'Allocation status bit 2'	110
ID310 'Overload motor'	110
ID311 'Warning overtemperature inverter'	110
ID312 'Warning overtemperature motor'	110
ID313 'Warning cooler'	111
ID326 'Parameter checksum'	111
ID330 'Message speed: actual value = setpoint'	112

ID331 'Message speed: actual value < minimal value'	112
ID332 'Message speed: actual value < threshold'	112
ID333 'Message torque: actual value ≥ threshold'	113
ID334 'Message torque: actual value ≥ limit'	113
ID335 'Message speed: setpoint > limit'	113
ID336 'Message in position'	114
ID337 'Message power: actual value ≥ threshold'	114
ID348 'Acceleration feedforward gain'	114
ID390 'Diagnostic number'	115
ID392 'Velocity setpoint filter'	115
ID398 'List status bits'	115
ID400 'Home switch'	116
ID403 'Status actual position value'	116
ID405 'Probe 1 enable'	117
ID406 'Probe 2 enable'	117
ID409 'Probe 1 positive latch'	117
ID410 'Probe 1 negative latch'	118
ID411 'Probe 2 positive latch'	118
ID412 'Probe 2 negative latch'	118
ID530 'Clamping torque'	119
ID1204 'XML file'	119
ID1205 'XML file'	120
ID1206 'XML file'	120
ID1207 'XML file'	121
ID32768 'Nominal motor voltage'	121
ID32769 'Magnetising current'	122
ID32770 'Magnetising current 1'	123
ID32771 'Nominal torque'	125
ID32772 'Nominal velocity'	125
ID32773 'Service bits'	125
ID32774 'Rotor time constant'	128
ID32775 'Pole number motor'	128
ID32776 'Sine encoder period'	129
ID32777 'Torque relative to 10V at A1'	130
ID32778 'Speed relative to 10V at A1'	131
ID32779 'Speed offset for A1'	131
ID32780 'Acceleration ramp'	132
ID32781 'Deceleration ramp'	133
ID32782 'Deceleration ramp RF inactive'	133
ID32785 'Message 16'	134
ID32786 'Message 32'	135
ID32795 'Source UE'	135
ID32796 'Source RF'	136
ID32798 'User list 1'	136
ID32800 'AMK main operation mode'	137
Overview of control loops	140
Torque control and current controller	141
Speed control with digital or analogue setpoint	142
Position control	143
ID32801 'AMK secondary operation mode 1'	144
ID32802 'AMK secondary operation mode 2'	144
ID32803 'AMK secondary operation mode 3'	145
ID32804 'AMK secondary operation mode 4'	145
ID32805 'AMK secondary operation mode 5'	145

ID32806 'AMK secondary operation mode 6'	145
ID32807 'AMK digital torque control'	146
ID32808 'AMK position control'	146
ID32809 'AMK digital speed control'	146
ID32813 'Parameter set assignment 1'	147
ID32821 'Password'	147
ID32823 'Velocity control command after ramp'	147
ID32824 'Following distance'	148
ID32826 'Following error compensation value'	148
ID32827 'Magnetising current feedback'	148
ID32828 'Current feedback phase U'	148
ID32829 'Current feedback phase V'	149
ID32830 'Current feedback phase W'	149
ID32831 'Resolver angle'	149
ID32832 'Encoder signal S2'	149
ID32833 'Encoder signal S1'	150
ID32834 'Torque current feedback'	150
ID32835 'Torque command value internal'	150
ID32836 'DC bus voltage'	150
ID32837 'DC bus voltage monitoring'	151
ID32840 'Diagnostic list'	151
ID32841 'Encoder list motor'	152
ID32842 'Encoder list customer'	153
ID32843 'Service command'	154
ID32846 'Output port 1'	161
ID32847 'Port1 Bit0'	162
ID32848 'Port1 Bit1'	162
ID32849 'Port1 Bit2'	162
ID32850 'Port1 Bit3'	163
ID32851 'Port1 Bit4'	163
ID32852 'Port1 Bit5'	163
ID32853 'Port1 Bit6'	163
ID32854 'Port1 Bit7'	164
ID32855 'Output port 2'	164
ID32856 'Port2 Bit0'	165
ID32857 'Port2 Bit1'	165
ID32858 'Port2 Bit2'	166
ID32859 'Port2 Bit3'	166
ID32860 'Port2 Bit4'	166
ID32861 'Port2 Bit5'	166
ID32862 'Port2 Bit6'	167
ID32863 'Port2 Bit7'	167
ID32864 'Output port 3'	167
ID32865 'Port3 Bit0'	168
ID32866 'Port3 Bit1'	169
ID32867 'Port3 Bit2'	169
ID32868 'Port3 Bit3'	170
ID32873 'Input port 1'	170
ID32874 'Port1 Bit0'	171
ID32875 'Port1 Bit1'	171
ID32876 'Port1 Bit2'	171
ID32877 'Port1 Bit3'	172
ID32878 'Port1 Bit4'	172
ID32879 'Port1 Bit5'	172

ID32880 'Port1 Bit6'	173
ID32881 'Port1 Bit7'	173
ID32882 'Slot assignment'	173
ID32891 'Internal velocity command value'	173
ID32892 'Synchronous setpoint pulses divider'	173
ID32893 'Synchronous setpoint pulses multiplier'	175
ID32894 'Position command value filter'	175
ID32895 'Position control differentiating time'	175
ID32896 'Internal position command value'	175
ID32897 'Analogue Input A1'	175
ID32898 'Analogue Input A2'	176
ID32901 'Global service bits'	176
ID32903 'DC Bus on'	179
ID32913 'Clear error'	180
ID32914 'Sum of additive velocities'	180
ID32915 'Sum of additive torques'	181
ID32916 'Cyclic filter'	181
ID32917 'Time zone'	182
ID32920 'Overload time motor'	183
ID32922 'Residual distance erase window'	184
ID32924 'Operation mode change parameter'	185
ID32926 'AMK homing cycle parameter'	185
ID32928 'Time filter 1'	186
ID32929 'Time filter 2'	186
ID32932 'Barrier frequency'	187
ID32933 'Bandwidth'	187
ID32934 'Pulse encoder period'	188
ID32935 'Voltage standstill'	188
ID32936 'Window'	188
ID32938 'Customer variable 1'	189
ID32939 'Bus service'	189
ID32940 'High homing velocity'	189
ID32941 'SERCOS service'	189
ID32942 'Service control'	190
ID32943 'Warning time'	190
ID32944 'SYADR'	191
ID32948 'Message 4x32'	191
ID32952 'At synchronous speed window'	193
ID32953 'Encoder type'	193
ID32956 'Additional acceleration value'	198
ID32958 'Commant value 1 cycle'	199
ID32959 'Offset resolver'	199
ID32960 'Input motor encoder gear'	199
ID32961 'Output motor encoder gear'	200
ID32962 'List of error codes'	200
ID32968 'Input port 2'	201
ID32969 'Port2 Bit0'	202
ID32970 'Port2 Bit1'	203
ID32971 'Port2 Bit2'	203
ID32972 'Port2 Bit3'	203
ID32973 'Port2 Bit4'	204
ID32974 'Port2 Bit5'	204
ID32975 'Port2 Bit6'	204
ID32976 'Port2 Bit7'	205

ID32977 'Input port 3'	205
ID32978 'Port3 Bit0'	206
ID32979 'Port3 Bit1'	206
ID32980 'Port3 Bit2'	207
ID32981 'Port3 Bit3'	207
ID32982 'Port3 Bit4'	207
ID32989 'Torque filter time'	207
ID32990 'NK shift'	208
ID32991 'U/f startup'	208
ID32992 'Dead time compensation 1'	210
ID32993 'Dead time compensation 2'	210
ID32996 'Data signification'	210
ID32999 'Overload limit inverter'	211
ID33076 'Second period'	211
ID33098 'Increase position value 2'	211
ID33100 'Actual power value'	212
ID33101 'Display overload inverter'	212
ID33102 'Display overload motor'	212
ID33104 'Position feedback modulo'	213
ID33113 'Torque setpoint at controller'	213
ID33114 'Process number'	213
ID33116 'Temperature internal'	214
ID33117 'Temperature external'	214
ID33141 'U/f input filter'	214
ID33142 'Commutation valid'	215
ID33143 'Communication monitoring'	215
ID33144 'Timeout communication monitoring'	215
ID33145 'OSC channel 1'	215
ID33146 'OSC channel 2'	216
ID33147 'OSC channel 3'	216
ID33148 'OSC channel 4'	216
ID33149 'Saturation current'	217
ID33150 'Brake torque'	217
ID33151 'Maximal angular deviation of encoder-sensorless'	217
ID33200 'Info safety parameterisation'	218
ID33201 'Safety address'	218
ID33202 'Safety parameters'	218
ID33203 'Safety bits'	218
ID33204 'Safety password'	219
ID33210 'FSOE master command'	219
ID33211 'Safety data master 0'	220
ID33212 'FSOE master CRC 0'	220
ID33213 'Safety data master 1'	220
ID33214 'FSOE master CRC 1'	221
ID33229 'FSOE master ConnID'	221
ID33230 'FSOE slave command'	221
ID33231 'Safety data slave 0'	222
ID33232 'FSOE Slave CRC 0'	222
ID33233 'Safety data slave 1'	222
ID33234 'FSOE slave CRC 1'	223
ID33235 'Safety data slave 2'	223
ID33236 'FSOE slave CRC 2'	223
ID33237 'Safety data slave 3'	224
ID33238 'FSOE slave CRC 3'	224

ID33239 'Safety data slave 4'	224
ID33240 'FSOE slave CRC 4'	225
ID33241 'Safety data slave 5'	225
ID33242 'FSOE slave CRC 5'	225
ID33249 'FSOE slave ConnID'	226
ID33300 'Motion test 1'	226
ID33301 'Motion test 2'	226
ID33302 'Motion test 3'	226
ID33303 'Motion test 4'	226
ID33730 'System booting'	226
ID33732 'System reset'	227
ID33911 'SIWL setpoint'	227
ID34000 'Variable 0'	227
ID34001 'Variable 1'	227
ID34002 'Variable 2'	228
ID34003 'Variable 3'	228
ID34004 'Variable 4'	228
ID34005 'Variable 5'	228
ID34006 'Variable 6'	229
ID34007 'Variable 7'	229
ID34008 'Variable 8'	229
ID34009 'Variable 9'	229
ID34010 'Variable 10'	230
ID34011 'Variable 11'	230
ID34012 'Variable 12'	230
ID34013 'Variable 13'	230
ID34014 'Variable 14'	231
ID34015 'Variable 15'	231
ID34016 'Variable 16'	231
ID34017 'Variable 17'	231
ID34018 'Variable 18'	232
ID34019 'Variable 19'	232
ID34023 'BUS address participant'	232
ID34024 'BUS transmit rate'	234
ID34025 'BUS mode'	235
ID34026 'BUS mode attribute'	236
ID34027 'BUS failure character'	241
ID34028 'BUS output rate'	241
ID34036 'CCB-File'	242
ID34037 'Offset analogue input 1'	242
ID34038 'Offset analogue input 2'	243
ID34039 'OSC Control'	243
ID34040 'OSC configuration list'	243
ID34041 'OSC actual values'	243
ID34042 'OSC data list'	243
ID34043 'TG Control'	243
ID34044 'TG configuration list'	243
ID34045 'Inductance path D'	244
ID34046 'Inductance path Q'	244
ID34047 'Dead time compensation measuring 1'	244
ID34048 'PWM frequency'	244
ID34050 'Current path Q integral-action time'	245
ID34052 'Current path D integral-action time'	245
ID34053 'ID transfer'	245

ID34054 'CCB-Filename'	245
ID34055 'EF type'	246
ID34056 'Gateway address'	246
ID34057 'Network mask'	247
ID34058 'Line output'	247
ID34059 'Time filter line'	248
ID34060 'List SEEP 1'	248
ID34061 'List SEEP 2'	248
ID34062 'Fault statistics'	248
ID34063 'Time meter power'	249
ID34070 'Home signal distance'	249
ID34071 'System name'	250
ID34072 'Data set name'	251
ID34073 'Scaling parameters'	251
ID34074 'Homing Counter 1'	252
ID34075 'Actual Counter 1'	252
ID34076 'Homing Counter 2'	253
ID34077 'Actual Counter 2'	253
ID34088 'Event trace'	253
ID34090 'User list 2'	255
ID34094 'Rise time SWC'	255
ID34095 'Final value SWC'	255
ID34096 'Standstill current motor'	256
ID34097 'Enable code'	256
ID34098 'BUS status'	257
ID34099 'Delay time SWC'	258
ID34100 'Binary input word'	258
ID34101 'Binary input word 1'	258
ID34102 'Binary input word 2'	259
ID34120 'Binary output word'	259
ID34121 'Binary output word 1'	259
ID34122 'Binary output word 2'	260
ID34140 'AS BUS protocol'	260
ID34141 'AS card address'	260
ID34142 'Node list'	261
ID34143 'Usage port'	262
ID34144 'Nominal voltage effective'	263
ID34145 'Line current effective'	263
ID34146 'Memory address'	263
ID34147 'Memory data'	263
ID34148 'Kp voltage control gain'	264
ID34149 'Tn voltage control integrating time'	264
ID34151 'Current path Q proportional gain'	264
ID34152 'Current path D proportional gain'	265
ID34153 'Maximum speed motor'	265
ID34154 'Start marker'	265
ID34155 'Mark window'	266
ID34156 'BUS mode attribute 2'	267
ID34157 'Dead time compensation measure'	267
ID34159 'PLC files'	268
ID34160 'Part number motor'	268
ID34161 'Production date motor'	269
ID34162 'Serial number motor'	269
ID34163 'Remanent variables'	269

ID34164 'Terminal resistance'	269
ID34165 'Holding torque brake'	270
ID34166 'Temperature sensor motor'	270
ID34167 'Terminal Inductance'	271
ID34168 'Time maximum current motor'	271
ID34170 'Setpoint DC bus voltage'	272
ID34171 'Event filter'	272
ID34172 'PLC project info'	273
ID34173 'NTP server address'	274
ID34174 'SWK monitoring'	274
ID34175 'Control settings'	275
ID34177 'Lower threshold current adaption'	275
ID34178 'Upper threshold current adaption'	276
ID34179 'Gradient path Q proportional gain'	276
ID34180 'Gradient path Q integral-action time'	277
ID34182 'Limit position increment'	277
ID34183 'Velocity threshold SL'	277
ID34184 'Starting current SL'	277
ID34185 'Resistance rotor'	277
ID34186 'Inductance stator'	277
ID34187 'Inductance rotor'	278
ID34188 'Main inductance'	278
ID34189 'Rotor flux proportional gain'	278
ID34190 'Rotor flux integral-action time'	278
ID34191 'Velocity acquisition propotional gain'	278
ID34192 'Velocity acquisition integral-action time'	278
ID34193 'Nominal current external component'	278
ID34194 'Peak current external component'	279
ID34195 'Peak current time external component'	279
ID34196 'Treshold external component'	279
ID34197 'Display external component'	280
ID34198 'mains frequency'	280
ID34199 'Actual power value bipolar'	280
ID34200 'Bit mask port 1'	281
ID34201 'Bit mask port 2'	281
ID34202 'Bit mask port 3'	281
ID34203 'Voltage at 25 degrees'	282
ID34204 'Voltage at 75 degrees'	282
ID34205 'Voltage at 125 degrees'	282
ID34206 'Product code'	283
ID34207 'DC gain KP'	283
ID34208 'Integral time DC control'	283
ID34209 'Differentiation time DC control'	284
ID34210 'Dead time compensation measure 2'	284
ID34211 'Node list 2'	284
ID34212 'Voltage path Q'	285
ID34213 'Voltage path D'	286
ID34215 'Temperature IGBT'	286
ID34216 'DNS server address'	286
ID34217 'AMK Test 1'	286
ID34218 'AMK Test 2'	287
ID34219 'AMK Test 3'	287
ID34220 'AMK Test 4'	287
ID34221 'Friction torque'	287



ID34222 'Friction torque linear'	287
ID34223 'Holding torque'	288
ID34224 'Inertia'	288
ID34225 'Mode load model'	289
ID34226 'List load model'	289
ID34227 'Bit bar'	289
ID34228 'Angle feed forward SL'	290
ID34229 'Sliding factor SL'	290
ID34230 'List Bus'	290
ID34231 'Pilot control voltage path Q'	291
ID34232 'Pilot control voltage path D'	291
ID34233 'Phase resistance'	291
ID34234 'Voltage constant Ke'	291
ID34235 'Increase motor voltage'	292
ID34236 'Time motor brake on'	292
ID34237 'Pulse duty factor motor brake'	293
ID34238 'List IR filter'	293
ID34239 'V/F integrator stop'	293
ID34240 'AM command list'	293
ID34241 'AM status list'	293
ID34242 'AM Status'	294
ID34250 'SIWL source'	294
ID34251 'Line counts SIWL output'	294
ID34252 'Offset position index'	295
ID34253 'SIWL factor'	295
ID34254 'SIWL divisor'	295
ID34255 'SIWL modulo IN'	295
ID34256 'Filter observer'	296
ID34257 'SIWL control'	296
ID34258 'SIWL status'	297
ID34259 'Maximum scanning frequency'	298
ID34260 'Line counts SIWL input'	298
ID34265 'Encoder ratio'	298
ID34266 'Voltage reserve'	299
ID34267 'Backlight dim delay'	299
ID34268 'Backlight brightness'	300
ID34269 'Backlight dim value'	300
ID34270 'Net voltage'	300
ID34271 'Limit active power'	300
ID34272 'Setpoint reactive power'	300
ID34273 'Osci 1'	300
ID34274 'Osci 2'	300
ID34275 'Osci 3'	301
ID34276 'Osci 4'	301
ID34277 'Osci 5'	301
ID34278 'Osci 6'	301
ID34279 'Osci 7'	301
ID34280 'Osci 8'	301
ID34281 'Current setpoint ISQ'	301
ID34282 'Current setpoint ISD'	301
ID34283 'Commutation angle'	301
ID34284 'OSC container length'	302
ID34286 'Time stop drive cmd'	302
ID34287 'Upper limit DC bus voltage'	302

ID34288 'Lower limit DC bus voltage'	302
ID34289 'Setpoint line current wattle'	302
ID34290 'Upper limit line current wattless component'	302
ID34291 'Lower limit line current wattless component'	302
ID34292 'Upper limit line current energy component'	303
ID34293 'Lower limit line current energy component'	303
ID34294 'Output value DC-bus'	303
ID34295 'Line frequency'	303
ID34296 'Reactive power network'	303
ID34297 'Encoder type 2'	303
ID34298 'Torque feedback filter'	304
ID34299 'Velocity setpoint in control'	305
ID34300 'Velocity actual value in control'	305
ID34301 'Torque setpoint filter input'	305
ID34302 'Torque setpoint filter output'	305
ID34304 'Communication input word'	305
ID34816 'Communication output word'	307
ID35328 'Communication input double word'	307
ID35584 'Communication output double word'	308
3 Appendix	309
3.1 Codes for the configuration of the binary outputs	309
3.2 Codes for the configuration of the binary inputs	313
Glossary	316

1 For your safety




1.1 Presenting safety messages

Any safety information is configured as follows:


 SIGNAL WORD	
 Symbol	Type and source of risk Consequence(s) of non-observance Steps to prevent: <ul style="list-style-type: none"> • ...

1.2 Class of hazard



Safety and warning messages are graduated into classes of hazard (according to ANSI Z535). The class of hazard defines the risk if the safety message is not heeded and is defined by the signal word. The signal word is followed by a safety alert symbol (ISO 3864, DIN 4844-2). In accordance with ANSI Z535, the following signal words are used to define the class of hazard.

Safety alert symbol and signal word	Class of hazard and its meaning
 DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury
 WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury
 CAUTION	CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury
NOTICE	NOTICE is used to address preventions to avoid material damage, but not related to personal injury.

1.3 Safety symbols used

Safety alert symbol	Meaning
	Warning of a danger!

1.4 Always to be observed!

 WARNING	
	Hazard due to changing parameters! The incorrect entering of parameters into the controller card significantly influences the drive system characteristics and creates an increased risk of accidents and damages! Steps to prevent: <ul style="list-style-type: none"> • Parameters may not be modified by the machine operator unless consultation takes place with the machine manufacturer. • Change parameters only if you are sure of the meanings and the consequences. If you are unsure, read the parameter documentation or ask the manufacturer or supplier.

2 Parameter descriptions

ID1 'NC cycle time'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	Device-specific values
Signed:	NO	Max. value:	Device-specific values
Format:	DEC		
List:	NO		

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value:	1000
Min. value:	0.250 ms
Max. value:	20.000 ms

Values for iX / iC / iDT5 / iDP7 /

Default value:	10000
Min. value:	0.500 ms
Max. value:	65.535 ms

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

The 'NC cycle time' defines at what intervals a controller must give 32 bit setpoints via the data interface.

For active fine interpolation in positioning control for 32 bit position setpoints, the number of fine interpolation cycles is calculated within a 'SERCOS cycle time' depending on the 'NC cycle time':

Number of fine interpolation cycles within a 'SERCOS cycle time' = 'NC cycle time' / 250 µs

The fine interpolation (FIPO) is switched on in parameter ID32800 'AMK main operation mode'.



32 bit position setpoints are then correctly processed if the following condition is met:

ID1 'NC cycle time' = ID2 'SERCOS cycle time'

Meaning for KW-R06 / KW-R07 /



16 bit position setpoints (pulse encoder input) are then correctly processed if the following condition is met:

ID1 'NC cycle time' = ID2 'SERCOS cycle time' = ID32958 'Commant value 1 cycle'

Meaning for KE(N,S)-xEx /

Reserved for AMK internal use!

ID2 'SERCOS cycle time'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	Device-specific values	Default value:	1000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	Device-specific values
Signed:	NO	Max. value:	Device-specific values
Format:	DEC		
List:	NO		

Values for A4 / A5 /

Sphere of action:	INSTANCE
Min. value:	0.000 ms
Max. value:	65.535 ms

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Sphere of action:	GLOBAL
Min. value:	0.500 ms
Max. value:	20.000 ms

Values for KE(N,S)-xEx /

Sphere of action:	GLOBAL
Min. value:	0.500 ms
Max. value:	20.000 ms

Values for iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL
Min. value:	0.250 ms
Max. value:	20.000 ms

The 'SERCOS cycle time' defines the intervals in which cyclical data is sent and received.

The master synchronises all of the participants in the network by synchronising the 'SERCOS cycle time' of the slaves with each other.

Meaning for A4 / A5 /

Instance	Use	Interface
0	Global cycle time	-
1	ACC bus master	X137
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)
	Profibus slave (option A-SPB)	X41
	CAN / ACC bus slave (option A-SCN)	X41
3	I/O extension	X120, X121, X122
4	1st Ethernet interface	X20
5	1st EtherCAT master	X186
6	2nd EtherCAT master (in comparison)	X185
7	2nd Ethernet interface	X60

The cycle time of an instance can only be a multiple of the next smaller cycle time.

Examples :	ID2 I0: 1ms, ID2 I2: 4ms, ID2 I3: 8ms	valid parameterisation
	ID2 I0: 2ms, ID2 I2: 6ms, ID2 I3: 12ms	valid parameterisation
I: Instance	ID2 I0: 2ms, ID2 I2: 4ms, ID2 I3: 12ms	valid parameterisation
	ID2 I0: 1ms, ID2 I2: 2ms, ID2 I3: 5ms	valid parameterisation

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

The following condition must be met if 32 bit position setpoints are processed:
ID1 'NC cycle time' = ID2 'SERCOS cycle time'

Meaning for KW-R06 / KW-R07 /

The following condition must be met if 16 bit position setpoints (pulse encoder input) are processed:
ID1 'NC cycle time' = ID2 'SERCOS cycle time' = ID32958 'Commant value 1 cycle'

ID6 'Drive telegram start time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID7 'Feedback acquisition start time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID8 'Command valid time (T3)'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID11 'Status class 1-errors'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!



Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /


If an error of the 'Status class 1-errors' is detected in the drive, an error-bit is set in ID11 'Status class 1-errors' and bit 13 in ID135 'Drive status word'. 'Status class 1-errors' and bit 13 in ID135 'Drive status word' can only be reset if there is no longer any error and the command ID99 'Diagnosis reset status class 1' was successfully executed.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Before the controller enable RF is withdrawn internally, the drive attempts to brake the motor to a stop in a regulated manner. If braking cannot take place, the controller enable RF is withdrawn and the motor runs out to stop.

Construction ID11 'Status class 1-errors'

Bit no.	Condition	Meaning
0	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error present: <ul style="list-style-type: none"> Motor overload shutdown  The I²t-monitor motor must be activated in ID32773 'Service bits' Bit 14. Configuration of the temperature model is faulty (have SEEP data checked by AMK Service). IGBT temperature greater than the limit temperature specified for the device (have SEEP data checked by AMK Service). KE(N,S)-xEx / Reserved
1	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error present: Overtemperature of the converter, shutdown The parameter 'Temperature internal' is longer than the 'Warning time' above the specified threshold value for the device (SEEP device). KE(N,S)-xEx / Error present: The parameter 'Temperature internal' is above the threshold value specified for the device longer than four seconds (SEEP device).
2	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error present: Overtemperature of the motor, shutdown 'Temperature external' is above the threshold value according to ID34166 'Warning time' longer than ID32943 allows 'Temperature sensor motor'.  If the value in ID34166 = 0, then the limit value is 140°C. KE(N,S)-xEx / Reserved
3	0	Reserved
	1	Reserved
4	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Error present: Supply voltage 24 VDC error

Bit no.	Condition	Meaning
5	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error present: Error in the encoder signal feedback, e.g. break in the encoder cable or encoder error. KE(N,S)-xEx / Reserved
6	0	Reserved
	1	Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Error present: Converter overcurrent An unacceptably high converter current was detected, e.g. due to short-circuit or earth contact.
8	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Error present: DC bus overvoltage The DC voltage in the DC bus has exceeded the permissible threshold value.
9-10	0	Reserved
	1	Reserved
11	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error present: Excessive control deviation The difference between the position setpoint and actual position value (ID189 'Following distance') is greater than ID159 'Excess error'. KE(N,S)-xEx / Reserved
12	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Error present: Communications error
13	0	Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved  The message that the position threshold value is exceeded according to ID49 and ID50 is only available in ID182 'Diagnosis manufacturer status' Bit 0. KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
14	0	Reserved
	1	Reserved
15	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / No error
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Manufacturer-specific error present: See ID129 'Manufacturer status class 1' on page 71.

ID12 'Status class 2-warnings'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /


Setting or resetting a warning in 'Status class 2-warnings' is shown in ID135 'Drive status word' bit 12.

Bit 12 in ID135 is deleted after ID12 has been read via the service channel.

With ID97 'Diagnostic mask status class 2', warnings can be masked out, which means that the masked out warnings have no effect on bit 12 in ID135. The masking out has no impact on the display of the warnings in ID12.

Construction ID12 'Status class 2-warnings'

Bit no.	Condition	Meaning
0	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / no warning KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Warning present: ID310 'Overload motor' KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
1	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / no warning
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Warning present: ID311 'Warning overtemperature inverter' 'Temperature internal' is above the threshold value specified for the device (have SEEP data checked by AMK Service).

Bit no.	Condition	Meaning
2	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / no warning KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Warning present: ID312 'Warning overtemperature motor' 'Temperature external' is above the threshold value according to ID34166 'Temperature sensor motor'.  If the value in ID34166 = 0, then the limit value is 140°C. KE(N,S)-xEx / Reserved
3-14	0	Reserved
	1	Reserved
15	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / no warning KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Manufacturer-specific warning present: See ID181 'Diagnosis manufacturer class 2' on page 91. KE(N,S)-xEx / Reserved

ID13 'Status class 3-messages'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Setting or resetting a message in the 'Status class 3-messages' is shown in ID135 'Drive status word' bit 13.

Bit 11 in ID135 is deleted after ID13 has been read via the service channel.

With ID98 'Diagnostic mask status class 3', warnings can be masked out, which means that the masked out warnings have no effect on bit 11 in ID135. The masking out has no impact on the display of the warnings in ID13.

Construction ID13 'Status class 3-messages'

Bit no.	Condition	Meaning
0	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $n_{\text{actual}} = n_{\text{set}}$, see ID330 KE(N,S)-xEx / Reserved
1	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $n_{\text{actual}} = 0$, see ID331 KE(N,S)-xEx / Reserved
2	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $ n_{\text{actual}} < n_x $, see ID332 KE(N,S)-xEx / Reserved
3	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $ Md \geq Md_x $, see ID333 KE(N,S)-xEx / Reserved
4	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $ Md \geq Md_{\text{Limit}} $, see ID334 KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
5	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $ n_{\text{set}} > n_{\text{Limit}} $, see ID335 KE(N,S)-xEx / Reserved
6	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: In position, see ID336 KE(N,S)-xEx / Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: $ P \geq P_x $, see ID337 KE(N,S)-xEx / Reserved
8-14	0	Reserved
	1	Reserved
15	0	Message inactive
	1	Manufacturer-specific message active: See ID182 'Diagnosis manufacturer status' on page 92.

ID14 'Interface status'

Supported hardware: A4 / A5 /

Reserved for AMK internal use!

ID15 'Telegram types parameter'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	7
Format:	DEC		
List:	NO		

Values for A4 / A5 /

Default value: 7

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 6

Values for KE(N,S)-xEx /

Default value: 6

Values for iX / iC / iDT5 / iDP7 /

Default value: 6

In 'Telegram types parameter', you can select between preferred telegrams and configured telegrams.



The specified type of telegram is activated in the master and in the slave starting from communication phase 3.

Meaning for A4 / A5 /

Construction ID15 'Telegram types parameter'

Bit no.	Condition Bit 2 Bit 1 Bit 0 (LSB)	Meaning	
		MDT (cyclical setpoint values)	AT (cyclical actual values)
0-2	111	Configured telegram See ID24 'Configuration list MDT' on page 33.	Configured telegram See ID16 'Configuration list AT' on page 28.
3-15	0	Reserved	Reserved
	1	Reserved	Reserved

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Construction ID15 'Telegram types parameter'

Bit no.	Condition Bit 2 Bit 1 Bit 0 (LSB)	Meaning	
		MDT (cyclical target values)	AT (cyclical actual values)
0-2	000	Preferred telegram 0 No cyclical data	Preferred telegram 0 No cyclical data
	001	Preferred telegram 1 Data field 1: ID80 'Torque command value'	Preferred telegram 1 No cyclical data
	010	Preferred telegram 2 Data field 1: ID36 'Velocity command value'	Preferred telegram 2 Data field 1: ID40 'Velocity feedback value'
	011	Preferred telegram 3 Data field 1: ID36 'Velocity command value'	Preferred telegram 3 Data field 1: ID51 'Position feedback value'
	100	Preferred telegram 4 Data field 1: ID47 'Position command value'	Preferred telegram 4 Data field 1: ID51 'Position feedback value'
	101	Preferred telegram 5 Data field 1: ID47 'Position command value' Data field 2: ID36 'Velocity command value'	Preferred telegram 5 Data field 1: ID51 'Position feedback value' Data field 2: ID40 'Velocity feedback value'
	110	Preferred telegram 6 Data field 1: ID36 'Velocity command value'	Preferred telegram 6 No cyclical data
	111	Configured telegram See ID24 'Configuration list MDT' on page 33.	Configured telegram See ID16 'Configuration list AT' on page 28.
3-15	0	Reserved	Reserved
	1	Reserved	Reserved

ID16 'Configuration list AT'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Maximum list length: 511

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Maximum list length: 40

Values for KE(N,S)-xEx /

Maximum list length: 40

Values for iX / iC / iDT5 / iDP7 /

Maximum list length: 8

The 'Configuration list AT' defines what parameters are cyclically transferred into the drive telegram (AT) if in ID15 'Telegram types parameter' 'configured telegram' is selected. The configurable parameters are listed in 'List of data AT' ID187 .

Configuration ID16 'Configuration list AT'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	2 x z	List head: Maximum list length without list head [byte]
2		1st parameter number
3		2nd parameter number
...
z+1		zth parameter number

z = Maximum list length

ID17 'ID-no. list all operational data'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	Device-specific values
List:	YES	Maximum list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Default value: 117 (current list length)
 Current list length: 117
 Maximum list length: 117

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 477 (current list length)
 Current list length: 477
 Maximum list length: 477

Values for KE(N,S) /

Default value: 55 (current list length)
 Current list length: 55
 Maximum list length: 55

Values for KE(N,S)-xEx /

Default value: 108 (current list length)
 Current list length: 108
 Maximum list length: 108

Values for iX / iC / iDT5 / iDP7 /

Default value: 418 (current list length)
 Current list length: 418
 Maximum list length: 418

All of the parameters that support a device are listed in the 'ID-no. list all operational data' . The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

Configuration ID17 'ID-no. list all operational data'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	2 x z	List head: Maximum list length without list head [byte]
2	1	ID1
3	2	ID2
...
z+1		

z = Maximum list length

ID18 'Operational data list communication phase 2'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	6

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

All parameters are stored in the 'Operational data list communication phase 2' that must be transferred in the second communications phase. The processing of this list is the prerequisite to switch to the communications phase 3.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

Configuration ID18 'Operational data list communication phase 2'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	12	List head: Maximum list length without list head [byte]
2		1st parameter
3		2nd parameter
4		3rd parameter
...

ID19 'Operational data list communication phase 3'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	0

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

All parameters are stored in the 'Operational data list communication phase 3' that must be transferred in the third communications phase. The processing of this list is the prerequisite to switch to the communications phase 4.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.



No parameters are transferred in the communication phase 3 so that the 'Operational data list communication phase 3' is empty.

Configuration ID19 'Operational data list communication phase 3'

List element	Content	Meaning
0	0	List head: Current list length without list head [x byte] ($x = n \text{ elements} \times 2 \text{ byte / element}$)
1	0	List head: Maximum list length without list head [byte]
-	-	-

ID20 'Operational data list communication phase 4'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	60

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

All parameters are stored in the 'Operational data list communication phase 4' that can be changed online in the communication phase 4.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.



No parameters are transferred in the communication phase 4 so that the 'Operational data list communication phase 4' is empty.

Configuration ID20 'Operational data list communication phase 4'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] ($x = n \text{ elements} \times 2 \text{ byte / element}$)
1	120	List head: Maximum list length without list head [byte]
-	-	-

ID21 'Invalid data list communication phase 2'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	8

* The list length is the number of usage data elements without 4 byte head elements.

The parameters entered in the list 'Invalid data list communication phase 2' are recognised as invalid during the changeover command from the communication phase 2 to communication phase 3. The changeover command is automatically generated within the device.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

Configuration ID21 'Invalid data list communication phase 2'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	16	List head: Maximum list length without list head [byte]
2		1st parameter
3		2nd parameter
4		3rd parameter
...
9		8th parameter

ID22 'Invalid data list communication phase 3'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	8

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The parameters entered in the list 'Invalid data list communication phase 3' are recognised as invalid during the changeover command from the communication phase 3 to communication phase 4. The changeover command is automatically generated within the device.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

Configuration ID22 'Invalid data list communication phase 3'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	16	List head: Maximum list length without list head [byte]
2		1st parameter
3		2nd parameter
4		3rd parameter
...
9		8th parameter

ID23 'Invalid data list communication phase 4'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	8

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The parameters entered in the list 'Invalid data list communication phase 4' are recognised as invalid during the changeover in the communication phase 4.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

Configuration ID23 'Invalid data list communication phase 4'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	16	List head: Maximum list length without list head [byte]
2		1st parameter
3		2nd parameter
4		3rd parameter
...
9		8th parameter

ID24 'Configuration list MDT'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Maximum list length: 253

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Maximum list length: 40

Values for KE(N,S)-xEx /

Maximum list length: 40

Values for iX / iC / iDT5 / iDP7 /

Maximum list length: 8

The 'Configuration list MDT' defines what parameters are cyclically transferred into the master data telegram (MDT) if 'Telegram types parameter' 'configured telegram' is selected in ID15. The configurable parameters are listed in ID188.

Configuration ID24 'Configuration list MDT'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	2 x z	List head: Maximum list length without list head [byte]
2		1st parameter
3		2nd parameter
4		3rd parameter
...
z+1		z th parameter

z = Maximum list length

ID25 'All command data list'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Maximum list length: 12

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Maximum list length: 12

Values for KE(N,S)-xEx /

Maximum list length: 1

Values for iX / iC / iDT5 / iDP7 /

Maximum list length: 12

The 'All command data list' contains all supported commands. The elements 0 and 1 of the list are head information (current and maximum list length). The first command is in element 2.

Configuration ID25 'All command data list'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	24	List head: Maximum list length without list head [byte]
2		1st command
3		2nd command
4		3rd command
...
13		12th parameter

ID26 'Configuration status bits'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Maximum list length:*	16

* The list length is the number of usage data elements without 4 byte head elements.

The list 'Configuration status bits' configures a maximum of 16 real-time bit messages (application specific) that are issued in ID144 'Status word'.

Configuration ID26 'Configuration status bits'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	32	List head: Maximum list length without list head [byte]
2	e.g. 33029	Freely configurable status bit 0, e.g. system-ready message, SRM
3	e.g. 330	Freely configurable status bit 1, e.g. 'Message speed: actual value = setpoint'
4	e.g. 336	Freely configurable status bit 2, e.g. 'Message in position'
5	e.g. ...	Freely configurable status bit 3
6		Freely configurable status bit 4
7		Freely configurable status bit 5
8		Freely configurable status bit 6
9		Freely configurable status bit 7
10		Freely configurable status bit 8
11		Freely configurable status bit 9
12		Freely configurable status bit 10
13		Freely configurable status bit 11
14		Freely configurable status bit 12
15		Freely configurable status bit 13
16		Freely configurable status bit 14
17		Freely configurable status bit 15

Configurable status bits: See ID398 'List status bits' on page 115.

ID28 'MST error counter'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65,000
Format:	DEC		
List:	NO		

The 'MST error counter' counts all of the invalid master synchronisation telegrams (MST) in the communication phases 3 and 4. If more than two MST fail consecutively, the following MST failures will no longer be counted. The counting ends with the value 65,000, which means that for a highly distorted transfer, the MST error counter has a constant value of 65,000 after a long time.

Meaning for A4 / A5 /**Valid for EtherCAT master controllers**

Bit 15 High Byte Bit 8	Bit 7 Low Byte Bit 0
Failed telegrams for the counter	Counter frame errors: Error in the telegram, e.g. check sum error

ID29 'MDT error counter'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID30 'Software version'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	Device-specific values	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Sphere of action:	INSTANCE / FORMAL
Max. list length:	20

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Sphere of action:	INSTANCE / FORMAL
Max. list length:	20

Values for KE(N,S) / KE(N,S)-xEx /

Sphere of action:	FORMAL
Max. list length:	37

Values for iX / iC / iDT5 / iDP7 /

Sphere of action:	INSTANCE / FORMAL
Max. list length:	20

ID30 is a ASCII list with 20-byte user data, which clearly identifies each firmware.

Configuration ID30 'Software version'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	20	List head: Maximum list length without list head [byte]
2	e.g.: K	Device e.g.: KW
3	e.g.: W	
4	e.g.:	
5	LZ	Space
6	e.g.: 2	Version e.g.: 200
7	e.g.: 0	
8	e.g.: 0	
9	LZ	Space
10	e.g.: 0	Year e.g.: 01
11	e.g.: 1	
12	e.g.: 4	Week e.g.: 40
13	e.g.: 0	
14	LZ	Space
15	e.g.: 0	AMK parts no. e.g.: 023988
16	e.g.: 2	
17	e.g.: 3	
18	e.g.: 9	
19	e.g.: 8	
20	e.g.: 8	
21	0	

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Instance	Control system	Operating system	Designation code
0 - 7	A4 / A5	Control system	GGG_vvv_yyww_ttttt

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Instance	Controller	Software version (firmware)	Designation code
0	KW-R06	Controller module	GGG_vvv_yyww_ttttt
	KW-R07		
	KW-R16		
	KW-R17		
	iX / iC		
	iDT5, iDP7		
1	KW-R06	Module in option slot	PC2_vvv_yyww_ttttt
	KW-R07		
	KW-R16	-	-
	KW-R17	-	-
	iX / iC	-	-
	iDT5, iDP7	-	-
2	KW-R06	Monitor P1 (and safety board if present)	MON_vvv_S_vvv_ttttt
	KW-R07		
	KW-R16		
	KW-R17		
	iX / iC		
	iDT5, iDP7		

Instance	Controller	Software version (firmware)	Designation code
3	KW-R06	FPGA and motion controller software P2	FPG_vvv_P2_vvvvv
	KW-R07		
	KW-R16		
	KW-R17		
	iX / iC		
	iDT5, iDP7		

Meaning for KE(N,S) / KE(N,S)-xEx /

Instance	Controller	Software version (firmware)	Designation code
0	KE(N,S) / KE(N,S)-xEx /	Internal controller module	GGG_vvv_yyww_ttttt_MON_vvv_P2_vvvvv

Key

GGG: Device:
 FPG: FPGA version
 MON: Monitor
 S: Safety Firmware
 P1: Communication Controller (Net x)
 P2 Motion Controller: SVN number
 vvv Version
 yyww Year/week
 ttttt AMK parts no.

ID32 'Primary operating mode'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE, FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

The operating mode specified in ID32 'Primary operating mode' is activated when the main operating mode is selected in ID134 'Master control word' of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID32 'Primary operating mode'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID32 are converted internally to ID32800 'AMK main operation mode'.

ID33 'Secondary operating mode 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID33 'Secondary operating mode 1' is activated when the secondary operating mode 1 is selected in the control word of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID33 'Secondary operating mode 1'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID33 are converted internally to ID32801 'AMK secondary operation mode 1'.

ID34 'Secondary operating mode 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID34 'Secondary operating mode 2' is activated when the secondary operating mode 2 is selected in the control word of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID34 'Secondary operating mode 2'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
4-13	-	Reserved

Bit no.	Condition	Meaning
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID34 are converted internally to ID32802 'AMK secondary operation mode 2'.

ID35 'Secondary operating mode 3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE, FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID35 'Secondary operating mode 3' is activated when the secondary operating mode 3 is selected in the control word of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID35 'Secondary operating mode 3'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID35 are converted internally to ID32803 'AMK secondary operation mode 3'.

ID36 'Velocity command value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	10000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	-100000.0 1/min
Signed:	YES	Max. value:	100000.0 1/min
Format:	DEC		
List:	NO		

In the speed control operating mode, the controller cyclically writes the speed setpoint values in ID36 according to ID2 'SERCOS cycle time'.

ID37 'Added velocity command value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	-100000.0 1/min
Signed:	YES	Max. value:	100000.0 1/min
Format:	DEC		
List:	NO		

The 'Added velocity command value' is added with ID36 'Velocity command value'.

ID38 'Positive velocity limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-50000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	YES	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

ID38 limits the speed setpoint value in the positive rotational direction. If a larger speed setpoint is specified than defined in ID38, the real-time bit ID335 'Message speed: setpoint > limit' is set.

The precision is limited to 1 min^{-1} .

See ID13 'Status class 3-messages' on page 24.

See ID91 'Bipolar velocity limit' on page 57.



If ID91 'Bipolar velocity limit' is configured, this takes priority over ID38 'Positive velocity limit' and ID39 'Negative velocity limit'.

ID39 'Negative velocity limit'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	DRIVE	Default value:	-50000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	-100000 1/min
Signed:	YES	Max. value:	0 1/min
Format:	DEC		
List:	NO		

ID39 limits the speed setpoint in the negative rotational direction. If a larger speed setpoint (amount) is specified than defined in ID39, the real-time bit ID335 'Message speed: setpoint > limit' is set.

The precision is limited to $|1 \text{ min}^{-1}|$.

See ID13 'Status class 3-messages' on page 24.

See ID91 'Bipolar velocity limit' on page 57.



If ID91 'Bipolar velocity limit' is configured, this takes priority over ID38 'Positive velocity limit' and ID39 'Negative velocity limit'.

ID40 'Velocity feedback value'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	-100000.0 1/min
Signed:	YES	Max. value:	100000.0 1/min
Format:	DEC		
List:	NO		

ID40 contains the actual speed value of the speed encoder according to ID32953 'Encoder type'. The actual speed value can be cyclically evaluated by the controller according to ID2 'SERCOS cycle time' or can be transferred via the service channel. In 'open loop' applications, ID40 shows the actual speed value that is calculated from the rotating field.

ID41 'Homing velocity'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	DRIVE	Default value:	1000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	1 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

ID41 sets the speed setpoint for the command ID148 'Drive homing cycle command'.

ID42 'Homing acceleration'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /			
Sphere of action:	DRIVE	Default value:	100000
Access:	READING / WRITING	Scale:	0,001

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Temporarily changeable:	YES	Unit:	U/s ²
Data length:	4 byte	Min. value:	1 U/s ²
Signed:	NO	Max. value:	60000 U/s ²
Format:	DEC		
List:	NO		

The 'Homing acceleration' acts at command ID148 'Drive homing cycle command'.
See ID32941 'SERCOS service' on page 189.



ID43 'Velocity polarity'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	7
Format:	BIN		
List:	NO		

In ID43, the polarities of the speeds can be switched based on the application. The polarities are not switched within, but rather outside (at the input and output) of a controlled section.

A positive setpoint and positive polarity result in a right hand rotation with a view of the motor shaft (A-bearing side) for rotary motors.

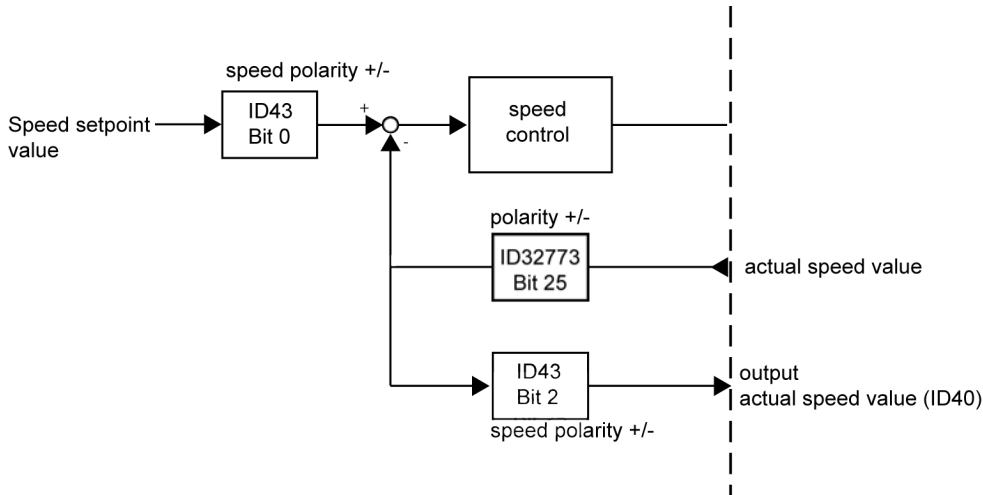
Configuration ID43 'Velocity polarity'

Bit no.	Condition	Meaning
0	0	ID36 'Velocity command value', positive polarity
	1	ID36 'Velocity command value', negative polarity
1	0	ID37 'Added velocity command value', positive polarity
	1	ID37 'Added velocity command value', negative polarity
2	0	ID40 'Velocity feedback value', ID156 'Velocity feedback value 2' positive polarity  Does not act on the control loop, but rather on the display ID40 and ID156! ID32773 'Service bits' Bit 25 = 1 can be set so that the polarity of the actual speed value acts on the closed loop control.
	1	ID40 'Velocity feedback value', ID156 'Velocity feedback value 2' negative polarity  Does not act on the control loop, but rather on the display ID40 and ID156! ID32773 'Service bits' Bit 25 = 1 can be set so that the polarity of the actual speed value acts on the closed loop control.
3-15	0	Reserved
	1	Reserved



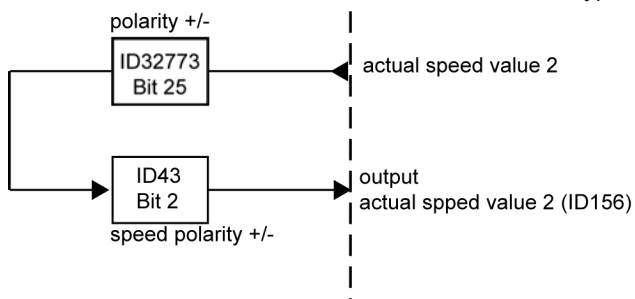
Do you want to reverse the direction of the motor rotation without interfering with the control structure?
See ID32773 'Service bits' on page 125.

Effect of the speed polarity



Meaning for KW-R06 / KW-R07 /

If a second encoder is selected in ID34297 'Encoder type 2', the speed polarity also has an effect on its actual speed value.



ID44 'Scaling of velocity data'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0010
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Default setting: Preferred scaling, rotary 0.0001 1/min

Configuration ID44'Scaling of velocity data'

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	Reserved
	1	Rotary scaling
2	0	Reserved
	1	Reserved
3	0	Preferred scaling
	1	Reserved

Bit no.	Condition	Meaning
4	0	Reserved
	1	Reserved
5	0	Time unit: Minute [min]
	1	Reserved
6	0	Reserved
	1	Reserved
7-15	0	Reserved
	1	Reserved

The speed scaling has an effect on the following parameters:

ID36, ID37, ID38, ID39, ID40, ID41, ID91, ID124, ID125, ID156, ID157, ID222, ID32778, ID32779, ID32823, ID32891, ID32914, ID32940, ID34183

ID47 'Position command value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

In the position control operating mode, the controller cyclically writes the position setpoint values in ID47 according ID2 'SERCOS cycle time'.

ID49 'Positive position limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	2147483647
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID49 describes the maximum traverse distance in the positive direction. The 'Positive position limit' is only active if the command ID148 'Drive homing cycle command' was successfully carried out. See ID403 'Status actual position value' on page 116.

If the 'Positive position limit' is exceeded, the exceedance is displayed in ID13 'Status class 3-messages' bit 15, ID182 'Diagnosis manufacturer status' bit 7 and via the real-time bit (code 33015 '|ID51 'Position feedback value'| > |ID49 'Positive position limit'|').



Real-time bit messages do not create an axis stop! No error status is generated. The master controller must evaluate the real-time bit message and initiate appropriate responses, e. g. stop the drive in a controlled manner!

ID50 'Negative position limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-2147483648
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID50 describes the maximum traverse distance in the negative direction. The 'Negative position limit' is only active if the command ID148 'Drive homing cycle command' was successfully carried out. See ID403 'Status actual position value' on page 116.

If the 'Negative position limit' is fallen below, the shortfall is displayed in ID13 'Status class 3-messages' bit 15, ID182 'Diagnosis manufacturer status' bit 0 and via the real-time bit (code 33013 '|ID51 'Position feedback value'| > |ID50 'Negative position limit'|').



Real-time bit messages do not create an axis stop! No error status is generated. The master controller must evaluate the real-time bit message and initiate appropriate responses, e.g. stop the drive in a controlled manner!

ID51 'Position feedback value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	NO	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID51 contains the actual position of the actual position encoder according to ID32953 'Encoder type'. The position value can be cyclically evaluated by the control system according to ID2 'SERCOS cycle time' or be transferred via the service channel.

ID52 'Home reference position 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

The setpoint 'Home reference position 1' describes the distance between the machine zero point and the homing point relative to the actual position encoder. When homing, the actual position value according ID51 'Position feedback value' is calculated from the parameters ID52, ID150 'Homing offset 1' and ID173 'Marker position A'.

ID53 'Position feedback value 2'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

See ID51 'Position feedback value' on page 49.

ID55 'Closed loop polarity'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	15
Format:	BIN		
List:	NO		

With the 'Closed loop polarity', the polarities of the position data can be inverted. The polarities are not switched within, but rather outside (at the input and output) of a controlled section.

A positive setpoint and positive polarity result in a right hand rotation with a view of the motor shaft (A-bearing side) for rotary motors. The actual position is shown positively. With a positive setpoint and negative polarity, the motor rotates to the left and the actual position is shown positively.



Do you want to reverse the direction of the motor rotation without interfering with the control structure?
See ID32773 'Service bits' on page 125.

Configuration ID55 'Closed loop polarity'

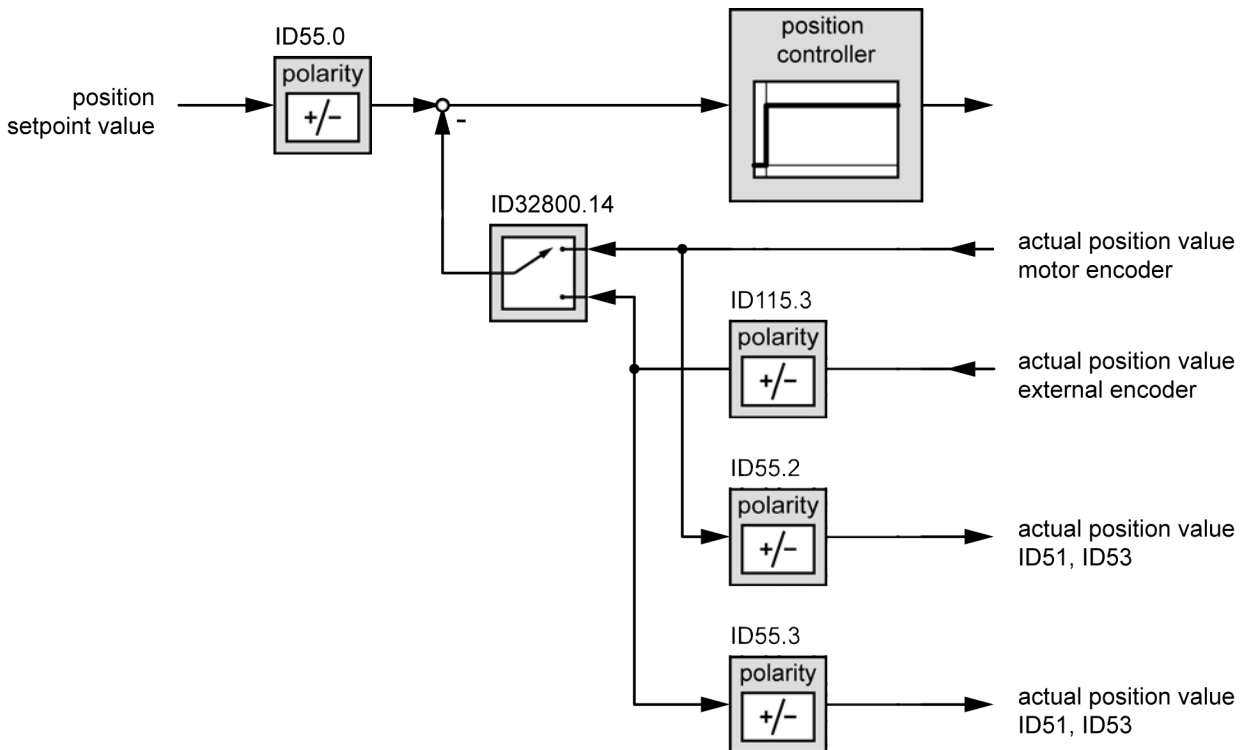
Bit no.	Condition	Meaning
0	0	Position setpoint, positive polarity
	1	Position setpoint, negative polarity
1	0	Reserved
	1	Reserved
2	0	Actual position value of the motor encoder, positive polarity
	1	Actual position value of the motor encoder, negative polarity
3	0	KW-R06 / KW-R07 / Actual position value of the external encoder, positive polarity KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R07 / Actual position value of the external encoder, negative polarity KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
4-15		Reserved

Setpoints and actual values must always be defined equally in pairs, otherwise the closed loop switches from 'negative feedback' to 'positive feedback.'

Only the following bit combinations are permissible:

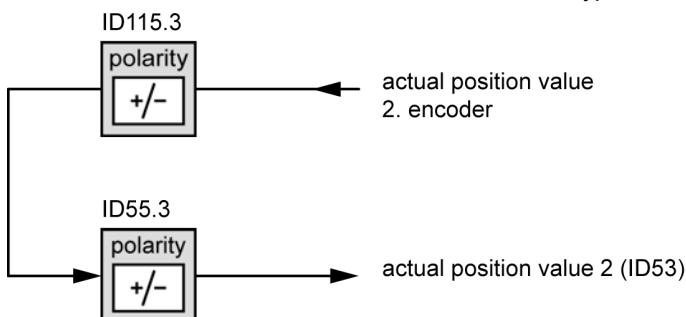
0000h positive polarity, independent of the actual position encoder
 0005h negative polarity, actual position encoder = motor encoder
 0009h negative polarity, actual position encoder = external encoder

Effect of the position polarity



Meaning for KW-R06 / KW-R07 /

If a second encoder is selected in ID34297 'Encoder type 2', the position polarity also has an effect on its actual position.



ID57 'In position window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	0 Increments
Signed:	NO	Max. value:	65535 Increments
Format:	DEC		
List:	NO		

If the difference between the position setpoint value and actual position value is smaller (amount) than the value in ID57 'In position window' ($|x_{\text{set}} - x_{\text{actual}}| < \text{ID57}$), the real-time bit is set in ID336 'Message in position'.

ID76 'Position data scaling'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	-
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	255
Format:	BIN		
List:	NO		

Configuration ID76 'Position data scaling'

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved
3	0	Preferred scaling
	1	Parameter scaling
4	0	Reserved
	1	Reserved
5	0	Reserved
	1	Reserved
6	0	Data relation to the motor shaft
	1	Data relation to the load
7	0	Absolute processing format
	1	Modulo processing format (ID103 'Modulo value')
8-15	0	Reserved
	1	Reserved

ID80 'Torque command value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	% M_N
Data length:	2 byte	Min. value:	-1000.0 % M_N
Signed:	YES	Max. value:	1000.0 % M_N
Format:	DEC		
List:	NO		

In the torque control operating mode, the controller cyclically writes the torque setpoint value in ID80 according to ID2 'SERCOS cycle time'.

ID81 'Added torque command value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%M _N
Data length:	2 byte	Min. value:	-3000 %M _N
Signed:	YES	Max. value:	+3000 %M _N
Format:	DEC		
List:	NO		

The 'Added torque command value' is added with ID80 'Torque command value'.

ID82 'Positive torque limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1200
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	%M _N
Data length:	2 byte	Min. value:	-3000 %M _N
Signed:	NO	Max. value:	3000 %M _N
Format:	DEC		
List:	NO		

The 'Positive torque limit' limits the maximum torque in the positive direction. It must be possible for the drive to realise the entered values.

The following applies for calculating the maximum possible limits:

$$ID_{xx} \leq \frac{100 \% \times ID_{110}}{\sqrt{(ID_{111}^2 - ID_{32769}^2)}}$$

Legend:

IDxx:	ID82 or ID83
ID110:	'Converter peak current'
ID111:	'Motor nominal current I _N '
ID32769:	'Magnetising current'

If the specified torque setpoint requires a higher torque than the torque limit permits, the real-time bit ID334 'Message torque: actual value ≥ limit' 'I_{Md} ≥ I_{Md_{Limit}}' is set.

See ID13 'Status class 3-messages' on page 24.



If 'torque limiting via analogue input A2' is selected in ID32800 'AMK main operation mode', the larger limit value from ID82 and ID83 limits the maximum torque if 10 V DC are present at the analogue input A2. The analogue input voltage at A2 is evaluated quantitatively.

Example:

ID82 = 100 %

ID83 = 120 % (10 V DC at A2 correspond to a torque limit of 120 % M_N (ID32771 'Nominal torque' x 1.2)).



If ID92 'Bipolar torque limit' is configured, this takes priority over ID82 'Positive torque limit' and ID83 'Negative torque limit'.

See ID32800 'AMK main operation mode' on page 137.

ID83 'Negative torque limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-1200
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	% M _N
Data length:	2 byte	Min. value:	-3000 %M _N
Signed:	YES	Max. value:	3000 %M _N
Format:	DEC		
List:	NO		

The 'Negative torque limit' limits the maximum torque in the negative direction. It must be possible for the drive to realise the entered values.

The following applies for calculating the maximum possible limits:

$$ID_{xx} \leq \frac{100 \% \times ID_{110}}{\sqrt{(ID_{111}^2 - ID_{32769}^2)}}$$

Legend:

IDxx:	ID82 or ID83
ID110:	'Converter peak current'
ID111:	'Motor nominal current I _N '
ID32769:	'Magnetising current'

If the specified torque setpoint requires a higher torque than the torque limit permits, the real-time bit ID334 'Message torque: actual value ≥ limit' |Md| ≥ |Md_{Limit}| is set.

See ID13 'Status class 3-messages' on page 24.



If 'torque limiting via analogue input A2' is selected in ID32800 'AMK main operation mode', the larger limit value from ID82 and ID83 limits the maximum torque if 10 V DC are present at the analogue input A2. The analogue input voltage at A2 is evaluated quantitatively.

Example:

ID82 = 100 %

ID83 = 120 % (10 V DC at A2 correspond to a torque limit of 120 % M_N (ID32771 'Nominal torque' x 1.2))



If ID92 'Bipolar torque limit' is configured, this takes priority over ID82 'Positive torque limit' and ID83 'Negative torque limit'.

See ID32800 'AMK main operation mode' on page 137.

ID84 'Torque feedback value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	% M _N
Data length:	2 byte	Min. value:	-3000.0 % M _N
Signed:	YES	Max. value:	3000.0 % M _N
Format:	DEC		
List:	NO		

ID84 contains the actual torque value and can be cyclically evaluated by the controller or transferred via the service channel. The actual torque is proportional to the actual current value.

ID85 'Torque polarity'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	7
Format:	BIN		
List:	NO		

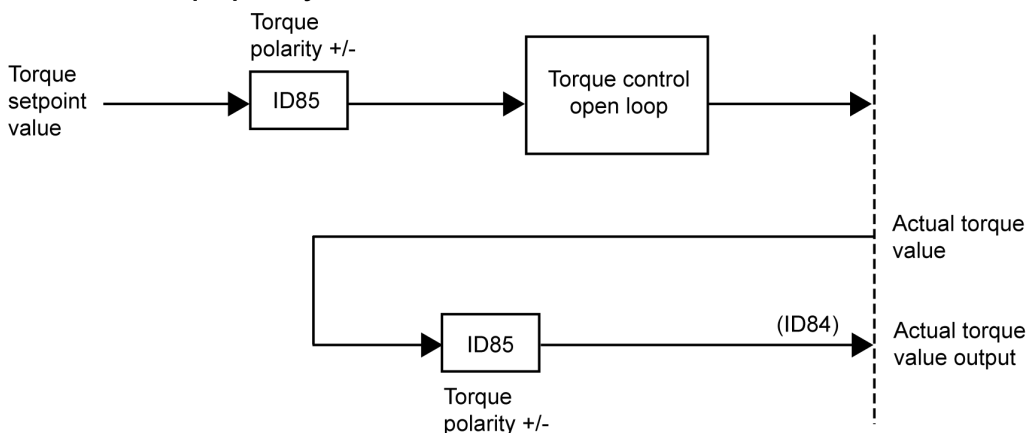
With the 'Torque polarity', the polarities of the torque data can be inverted. The polarities are not switched within, but rather outside (at the input and output) of a controlled section.

A positive setpoint and positive polarity result in a right hand rotation with a view of the motor shaft (A-bearing side) for rotary motors.

Configuration ID85 'Torque polarity'

Bit no.	Condition	Meaning
0	0	ID80 'Torque command value', positive polarity
	1	ID80 'Torque command value', negative polarity
1	0	ID81 'Added torque command value', positive polarity
	1	ID81 'Added torque command value', negative polarity
2	0	ID84 'Torque feedback value', positive polarity
	1	ID84 'Torque feedback value', negative polarity
3-15	0	Reserved
	1	Reserved

Effect of the torque polarity



Do you want to reverse the direction of the motor rotation without interfering with the control structure?
See ID32773 'Service bits' on page 125.

ID86 'Torque data scaling'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Default setting: Preferred scaling 0.1 %M_N

Configuration ID86 'Torque data scaling'

Bit no.	Condition	Meaning
0	0	Percentage scaling (0.1 %M _N)
	1	Reserved
1	0	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved
3	0	Preferred scaling
	1	Reserved
4	0	Reserved
	1	Reserved
5	0	Reserved
	1	Reserved
6	0	Reserved
	1	Reserved
7-15	0	Reserved
	1	Reserved

The torque scaling has an effect on the following parameters:

ID80, ID81, ID82, ID83, ID84, ID92, ID126, ID530, ID32777, ID32835, ID32915, ID33113

ID89 'Transmission time MDT (T2)'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	1000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0.000 ms
Signed:	NO	Max. value:	65.535 ms
Format:	DEC		
List:	NO		

ID89 defines the start of transmission of the master data telegram after the end of the master synchronisation telegram. The time of transmission of the master data telegram is communicated to the slave by the master in the communication phase 2 and is activated in both starting in the communication phase 3.

ID91 'Bipolar velocity limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

The 'Bipolar velocity limit' describes the maximum permissible rotation speeds symmetrically in both directions. If a larger speed setpoint value is specified than defined in ID91, the real-time bit ID335 is set 'Message speed: setpoint > limit'. The precision is limited to $|1 \text{ min}^{-1}|$.

See ID13 'Status class 3-messages' on page 24.

The following applies after switching on the device:

ID91 = ID38 'Positive velocity limit'



If ID91 'Bipolar velocity limit' is configured, this takes priority over ID38 'Positive velocity limit' and ID39 'Negative velocity limit'.

ID92 'Bipolar torque limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	% M_N
Data length:	2 byte	Min. value:	0 % M_N
Signed:	NO	Max. value:	3000 % M_N
Format:	DEC		
List:	NO		

The 'Bipolar torque limit' describes the maximum permissible torque symmetrically in both directions. If the specified torque setpoint requires a higher torque than the torque limit permits, the real-time bit ID334 'Message torque: actual value \geq limit' is set.

See ID13 'Status class 3-messages' on page 24.

The following applies after switching on the device:

ID92 = ID82 'Positive torque limit'



If ID92 'Bipolar torque limit' is configured, this takes priority over ID82 'Positive torque limit' and ID83 'Negative torque limit'.

ID95 'Diagnosis [ASCII text]'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte (element)	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Max. list length: 4096

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Max. list length: 1280

Values for KE(N,S)-xEx /

Max. list length: 1280

Values for iX / iC / iDT5 / iDP7 /

Max. list length: 1280

In the 'Diagnosis [ASCII text]', the drive's current relevant operating mode is displayed as a diagnostic number and plain text. The completion of the plain text message is marked with the symbol '\0'.

Configuration ID95 'Diagnosis [ASCII text]' example for the error message 2320 EF inactive

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	z	List head: Maximum list length without list head [byte]
2	e.g. 2	Diagnostic number (MSB)
3	e.g. 3	Diagnostic number
4	e.g. 2	Diagnostic number
5	e.g. 0	Diagnostic number (LSB)
6	e.g. 0	Reserved
7	e.g. 0	Reserved
8	e.g. E	Plain text
9	e.g. F	Plain text
10		Plain text
11	e.g. I	Plain text
12	e.g. N	Plain text
13	e.g. A	Plain text
14	e.g. K	Plain text
15	e.g. T	Plain text
16	e.g. I	Plain text
17	e.g. V	Plain text
...
n	\0	End of the plain text message

ID96 'Slave identifier (SLKN)'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0101
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65278
Format:	HEX		
List:	NO		

During the initialisation, it is necessary to know the affiliations of physical slaves to the drives that they operate for the optimal automatic time slot calculation by the master. The master can request this information from the drive in the communication phase 2. Using the respective entry, the master detects whether additional drives are present on the same physical slave.

Valid participant addresses are the decimal values of 1 to 254 according to the hexadecimal values 0x01 to 0xFE

High byte	Own drive address	Here is the participant address of the participant himself.																					
Low byte	Next drive address	<p>Here is the participant address of the next higher participant. If the current participant is the one with the highest participant address, then the lowest participant address of the connected participant is entered.</p> <p>Example: 3 Slave participant</p> <table><tr><td colspan="2">SLKN participant 3</td><td colspan="2">SLKN participant 5</td><td colspan="2">SLKN participant 8</td></tr><tr><td>03</td><td>05</td><td>05</td><td>08</td><td>08</td><td>03</td></tr></table> <p>If there are no other slave participants, the individual participant address is entered.</p> <p>Example: 1 Slave participant</p> <table><tr><td colspan="2">SLKN participant 3</td></tr><tr><td>03</td><td>03</td></tr></table>						SLKN participant 3		SLKN participant 5		SLKN participant 8		03	05	05	08	08	03	SLKN participant 3		03	03
SLKN participant 3		SLKN participant 5		SLKN participant 8																			
03	05	05	08	08	03																		
SLKN participant 3																							
03	03																						

ID97 'Diagnostic mask status class 2'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	BIN		
List:	NO		

With the mask, ID12 'Status class 2-warnings' can be masked. If the condition of a masked bit changes, the bit 12 will not be set in ID135 'Drive status word'. Bits in ID12 are set or not set independent of the masking.

Bit no.	Condition	Meaning
0 - 15	0	Warning is masked, bit 12 not set in ID135
	1	Warning is not masked

ID98 'Diagnostic mask status class 3'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	BIN		
List:	NO		

With the mask, warnings of ID13 'Status class 3-messages' can be masked. If the condition of a masked bit changes, the bit 11 will not be set to ID135 'Drive status word'. Bits in ID13 are set or not set independent of the masking.

Bit no.	Condition	Meaning
0 - 15	0	Warning is masked, bit 11 not set in ID135
	1	Warning is not masked

ID99 'Diagnosis reset status class 1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	BIN		
List:	NO		

The command 'Diagnosis reset status class 1' deletes the error bits in ID11 'Status class 1-errors' and ID129 'Manufacturer status class 1' if the cause of the error has been rectified during the command call-up. The command also causes an internal error clearing in the device.

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

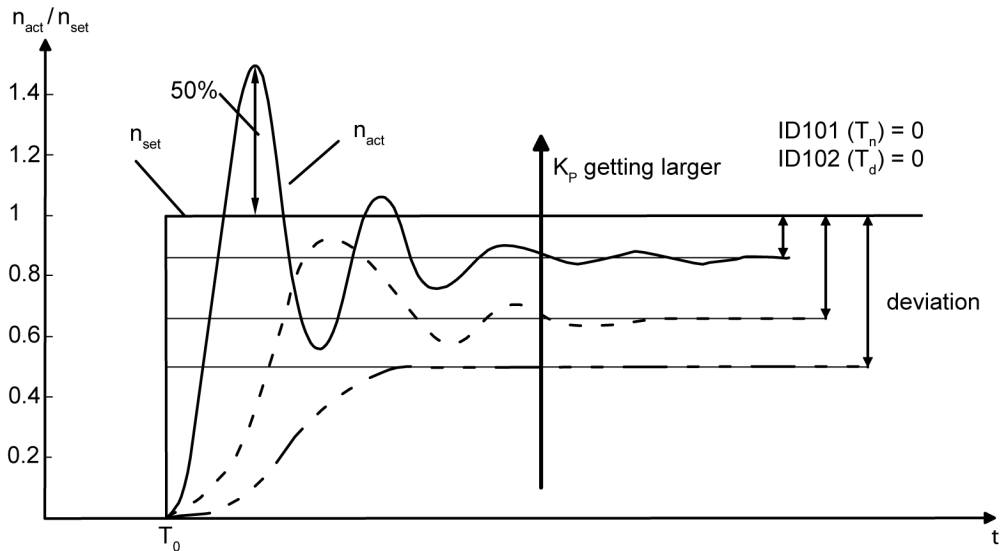
After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

ID100 'Speed control proportional gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	200
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	1
Signed:	NO	Max. value:	30000
Format:	DEC		
List:	NO		

The 'Speed control proportional gain' of the speed controller must be optimised for the application.

Transfer function of the speed controller circuit, effect ID100 'Speed control proportional gain' (K_p)



Course of the actual speed of the speed controller circuit for an erratic change of the speed setpoint depending on K_p (ID100).

Formula: Parameter dependencies ID100

$$kpdzl = ID100 \times 4 \times \frac{\sqrt{(ID111^2 - ID32769^2)}}{ID110}$$

Condition : $1 \leq kpdzl \leq 32767$

Formula: Torque dependency

$$M = \Delta n \times \frac{ID100 \times ID32771 \times 10000}{16384^2}$$

Legend:

kpdzl:	internal system factor
ID100:	'Speed control proportional gain'
ID110:	'Converter peak current'
ID111:	'Motor nominal current I_N '
ID32769:	'Magnetising current'
ID32771:	'Nominal torque'
Δn :	Speed controller input variable $\Delta n = n_{set} - n_{actual}$

ID101 'Integral-action time speed control'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	3000.0 ms
Format:	DEC		
List:	NO		

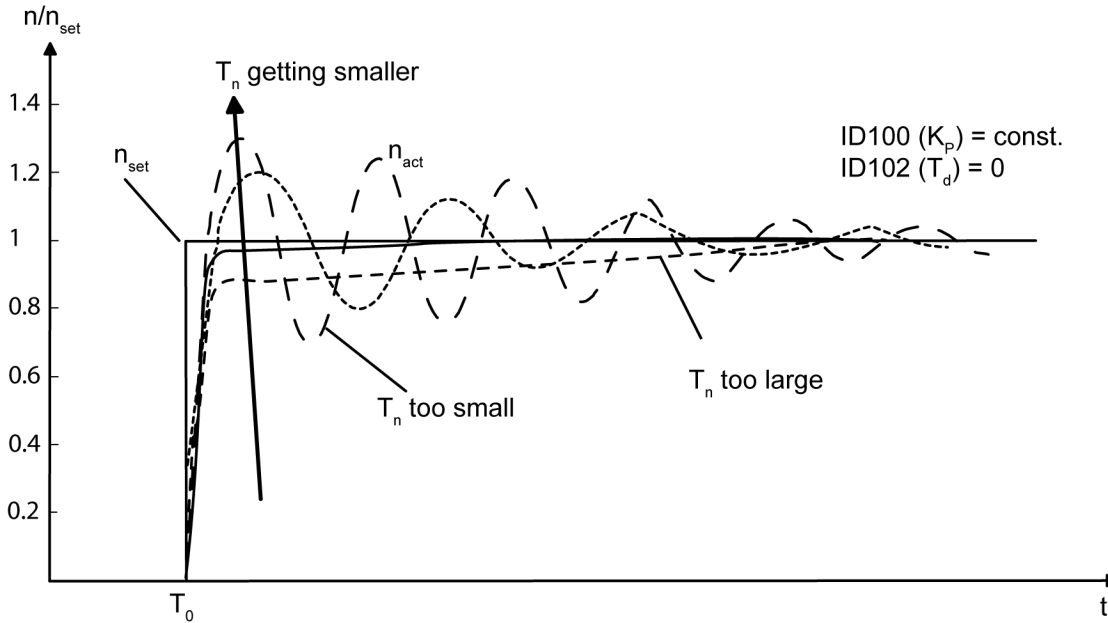
The 'Integral-action time speed control' (integral portion) of the speed controller must be optimised by the user.

With the integral portion in the controller, the control deviation resulting from the P-controller is compensated for.

With ID101 = 0 ms, the reset time, i.e. the integral part of the speed controller, is ineffective. The speed controller then works as a pure P-controller.

The following figure shows the course of the actual speed of the speed controller circuit for an erratic change of the speed setpoint depending on ID101 'Integral-action time speed control'.

Transfer function of the speed controller circuit, effect ID101 'Integral-action time speed control' (T_n)



Formula: Parameter dependency ID101

$$kidzI = \frac{ID100}{ID101} \times 4 \times \frac{\sqrt{(ID111)^2 - (ID32769)^2}}{ID110}$$

Condition: $1 \leq kidzI \leq 32767$

Legend:

kidzI:	internal system factor
ID100:	'Speed control proportional gain'
ID101:	'Integral-action time speed control'
ID110:	'Converter peak current'
ID111:	'Motor nominal current I_N '
ID32769:	'Magnetising current'

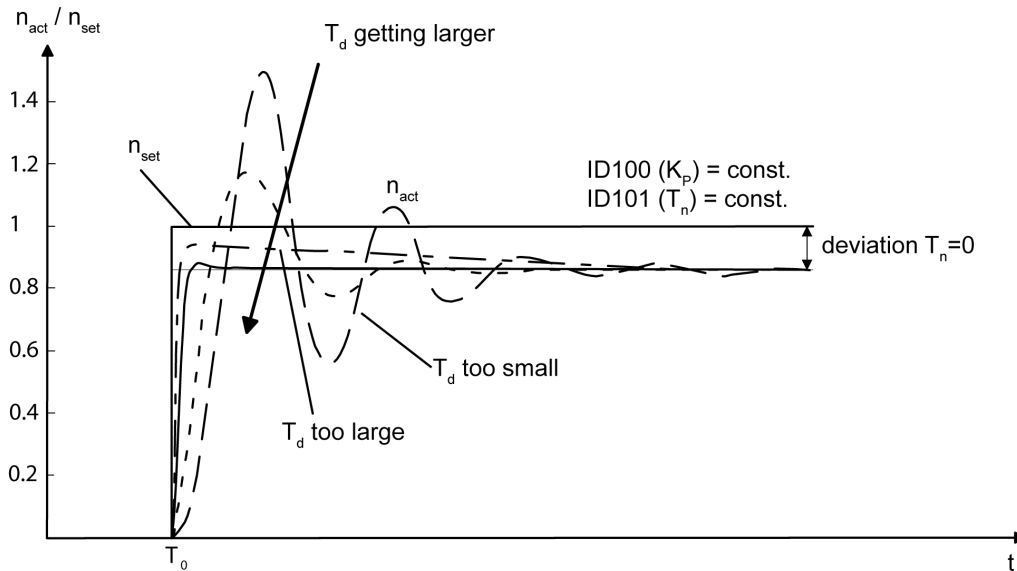
ID102 'Differentiating time speed control TD'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	3276.7 ms
Format:	DEC		
List:	NO		

The 'Differentiating time speed control TD' (differential portion) of the speed controller must be optimised by the user. The D-portion works as an attenuator in the PID controller. With ID102 = 0, the differential portion in the speed controller is ineffective.

The following figure shows the course of the actual speed value of the speed control loop for an erratic change of the speed setpoint depending on ID102 'Differentiating time speed control TD'.

Transfer function of the speed controller circuit, effect ID102 'Differentiating time speed control TD' (T_d)



Formula: Parameter dependencies ID102

$$kddzl = ID102 \times kpdzl$$

Condition: $1 \leq kddzl \leq 32767$

Legend:

kddzl: internal system factor

kpdzl: internal system factor

See ID100 'Speed control proportional gain' on page 60.

ID103 'Modulo value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	20000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	Increments
Data length:	4 byte	Min. value:	1 Increments
Signed:	NO	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

The modulo value defines the end value of position data in modulo format. Values that are processed by modulo are between zero and the modulo end value. If the modulo end value is reached, the position data runs over and start at '0'. A linear relationship results in a serrated-form position data curve.

See ID76 'Position data scaling' on page 52.

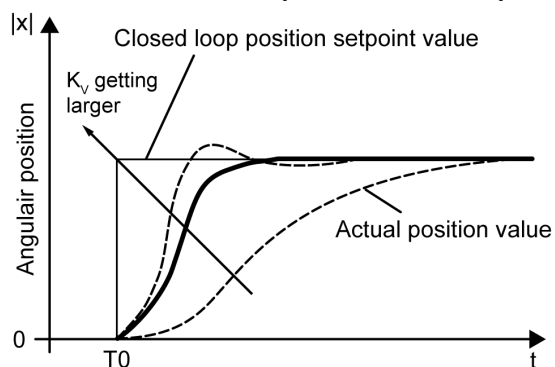
See ID32800 'AMK main operation mode' on page 137.

ID104 'Position loop factor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	400
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	20
Signed:	NO	Max. value:	30000
Format:	DEC		
List:	NO		

Proportional gain K_v of the P-position controller. The following figure shows the course of the actual position value for an erratic change of the position setpoint.

Transfer function of the position control loop, effect ID104 'Position loop factor'



The following conditions are to be met:

Formula: System-internal limitation of the position controller gain K_v

$$0.0555 \leq \frac{K_v}{0.0001 \times LA} \leq 32767$$

LA = Factor position resolution (depends on encoder)

Motor encoder as an actual position encoder:

LA = ID116 'Resolution motor encoder'

Rotary external encoder:

Formula: Factor position resolution for external actual position encoder

$$LA = \frac{ID117 \times ID122}{ID121}$$

ID117 'Resolution external position feedback system' (number of strokes per revolution)

ID122 'Load gear output revolution'

ID121 'Load gear input revolution'

ID109 'Motor peak current'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	5000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The 'Motor peak current' is only to be entered then if it is specified in the AMK motor data sheet. ID109 is only effective if ID34167 'Terminal Inductance' is $\neq 0$.



The i²t-monitor motor must be activated in ID32773 'Service bits' bit 14.

ID110 'Converter peak current'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	20000
Access:	READING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The maximum current of the converter is set by the factory in the SEEP of the converter and is transferred from the SEEP to the ID110 of the controller card during the initial system start-up. The value is read-only. Any input is ineffective. The 'Converter peak current' is the current limit of the converter and limits the maximum torque of the motor from the perspective of the converter.

ID111 'Motor nominal current IN'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	2500
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The 'Motor nominal current IN' is used as a reference size for all torque data and may amount to a maximum of 80 % of the ID110 'Converter peak current' ($ID111 \leq ID110 \times 80\%$). 'Motor nominal current IN' is on the motor type plate and in the motor data sheet.

ID112 'Converter nominal current'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	2500
Access:	READING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The 'Converter nominal current' is the permissible continuous current of the converter and is transferred from the SEEP to the ID112 of the controller card during the initial system start-up. The value is read-only. Any input is ineffective.

ID113 'Maximum speed'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	60000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	1 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

NOTICE

Material Damage!

Material damage from high speeds!

ID113 must be set so that the input speed value plus 25% does not cause any damage in the process.

If the actual speed value increases to the value in ID113 x 1.25, the output stage is automatically internally blocked and the motor runs down. The user must set the value for ID113 depending on the process without exceeding the motor's maximum speed in the process. For sine encoders, the limit frequency at the sine encoder input may not be exceeded. The limit frequency for the sine encoder input can be found in the respective device description.

Formula: Determination of n_{\max} for sine encoder input

$$n_{\max}[\text{min}^{-1}] = \frac{\text{Limit frequency} \left[\frac{1}{\text{min}} \right]}{ID32776}$$

Example:

Encoder division ID32776 = 1024 (I-encoder), limit frequency at the sine encoder input = 200 kHz

$$n_{\max} = ID113 = \frac{12000000}{1024} = 11718 \text{ min}^{-1}$$



Observe the manufacturer's specified maximum encoder speed!

ID114 'Overload limit motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	500
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0.0 %
Signed:	NO	Max. value:	6553.5 %
Format:	DEC		
List:	NO		

The 'Overload limit motor' specifies when the 2359 'motor overload warning' warning is issued. If the i²t motor overload reaches an overload value of 100% (ID33102 'Display overload motor'), the error message 2360 'motor overload error' is issued, the drive is shut down (deceleration according to ID32782 'Deceleration ramp RF inactive') and controller enable (RF) is withdrawn.

See ID11 'Status class 1-errors' on page 20.

ID310 is issued simultaneously with the warning. If the value in the parameter ID114 is fallen below again, ID310 is reset until the value is exceeded again.

See ID398 'List status bits' on page 115.



The i²t motor monitoring is only effective if it was activated via ID32773 'Service bits' bit 14 = 1.

ID115 'Position feedback type'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	BIN		
List:	NO		

ID115 sets the control direction of an external actual position encoder. The parameter is only effective if an external position encoder is selected in ID32800 'AMK main operation mode' bit 14 and bit 15.

Configuration ID115 'Position feedback type'

Bit no.	Condition	Meaning
0	0	Rotational encoder
	1	Linear encoder
1	0	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved
3	0	Direction of movement not inverted
	1	Direction of movement inverted
4-15	0	Reserved
	1	Reserved

ID116 'Resolution motor encoder'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	20480
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	Increments
Data length:	4 byte	Min. value:	200 Increments
Signed:	NO	Max. value:	33554432 Increments
Format:	DEC		
List:	NO		

The 'Resolution motor encoder' sets the number of pulses per motor revolution in an application-specific manner for the actual position detection with the motor encoder (ID32800, ID32953).

Formula: Determination of the motor encoder resolution for sine encoders

$ID116 = 4 \times ID32776 \times PV$

PV = position refinement = (1 ... 2048, integer!)

ID32776 'Sine encoder period'

Example:

ID32776 = 50 (type plate), PV = 100 selected

ID116 = 20000 incr./motor revolution

Formula: Determination of the motor encoder resolution for resolvers

$ID116 = 4 \times 128 \times PV$

PV = position refinement = 1 ... 2048, integer!

Formula: Determination of the motor encoder resolution for pulse encoders

$$ID116 = 4 \times ID32934$$

ID32934 'Pulse encoder period'

Formula: Motor encoder resolution for the use of absolute encoders (S, T, E, F, U, V encoder)

$$ID116 = 4 \times ID32776 \times PV$$

PV = position refinement = 1 ... 2048, integer!

ID32776 'Sine encoder period'

Formula: Motor encoder resolution for the use of absolute encoders (P, Q encoder)

$$ID116 = PV \times MPU/2048$$

PV = position refinement = 1 ... 2048, integer!

MPU = ID32843 'Service command'; execute command 0x13 and read out MPU

ID117 'Resolution external position feedback system'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	0 Increments
Signed:	NO	Max. value:	4294967295 Increments
Format:	DEC		
List:	NO		

The parameter only works with an external actual position encoder. The pulse / stroke number can be found in the external encoder's data sheet. The parameter is used to calculate the K_V factor effective in the P position controller.

The use of an external actual position encoder must be specified in ID32800 'AMK main operation mode'.



If an external actual position encoder is selected in an operating mode, the actual position is generally formed from this encoder signal in all position-controlled operating modes.

Formula: Determination of the resolution for an external sine encoder

$$ID117 = 4 \times ID32776 \times PV$$

PV = position refinement = (1 ... 2048, integer!)

ID32776 'Sine encoder period'

Example:

ID32776 = 1000 (type plate), PV = 5 selected

ID117 = 20000 incr./motor revolution

Formula: Determination of the resolution for resolvers

$$ID117 = 4 \times 128 \times PV$$

PV = position refinement = 1 ... 2048, integer!

Formula: Determination of the resolution for an external measuring system with square-wave pulse output

(two square-wave signals phase-shifted by 90 degrees)

$$ID117 = 4 \times ID32934 \text{ (pulse encoder division)}$$

ID32934 'Pulse encoder period'

Formula: Encoder resolution for absolute encoders (S, T, E, F, U, V encoders)

$$ID117 = 4 \times ID32776 \times PV$$

PV = position refinement = 1 ... 2048, integer!

ID32776 'Sine encoder period'

Formula: Encoder resolution for absolute encoders (P, Q encoder)

$$ID117 = PV \times MPU/2048$$

PV = position refinement = 1 ... 2048, integer!

MPU = ID32843 'Service command'; execute command 0x13 and read out MPU

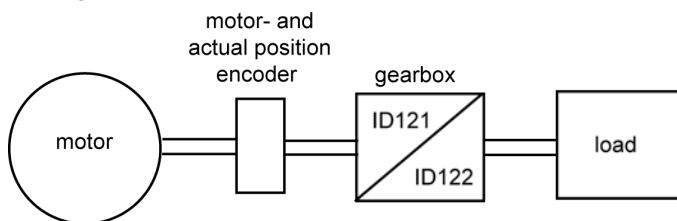


The type of external actual position encoder has to be defined in ID32953 'Encoder type'.

ID121 'Load gear input revolution'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	10
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Revolutions
Data length:	4 byte	Min. value:	1 revolution
Signed:	NO	Max. value:	30,000 revolutions
Format:	DEC		
List:	NO		

The drive factors ID121 'Load gear input revolution' and ID122 'Load gear output revolution' only function in the position control operating mode when a mechanical drive is present between the motor shaft and the load.

Arrangement**Example:**

ID121 = 3

ID122 = 2

3 motor revolutions cause 2 revolutions on the load.

Formula: Transmission ratio:

$$\text{Transmissionratio} = \frac{\text{InputRevolutions}}{\text{OutputRevolutions}}$$

Among other things, the transmission ratio of the drive is used to calculate the K_v factor effective in the P position controller.



Position setpoint and actual position values are only offset with the drive factors ID121 and ID122 when 'data relation to the load' is selected in ID76 'Position data scaling' and actual position source of the motor encoder is selected in ID32800 'AMK main operation mode'.

ID122 'Load gear output revolution'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	10
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Revolutions
Data length:	4 byte	Min. value:	1 revolution
Signed:	NO	Max. value:	30,000 revolutions
Format:	DEC		
List:	NO		

See ID121 'Load gear input revolution' on page 69.

ID123 'Feed constant'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	mm/U
Data length:	4 byte	Min. value:	0.0000 mm/U
Signed:	NO	Max. value:	429496.7295 mm/U
Format:	DEC		
List:	NO		

The 'Feed constant' describes the correlation of a rotational movement that is converted into a linear movement via a spindle system. The feed constant specifies the distance travelled by a motor revolution.

For linear motors, the pole period [mm] from the linear motor data sheet is to be entered in ID123.

Example:

Spindle system with 10 mm spindle pitch

ID123 = 100000

The distance of the feed screw for each motor revolution is 10 mm.

ID124 'Zero velocity window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	500000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	60000 1/min
Format:	DEC		
List:	NO		

If the amount of the actual speed value within the standstill window $|n_{\text{actual}}| < \text{ID124}$, the real-time bit will be set $n_{\text{actual}} < n_{\text{min}}$ (ID331 'Message speed: actual value < minimal value').

See ID13 'Status class 3-messages' on page 24.

ID125 'Velocity threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	10000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

If the amount of the actual speed value (ID40) is below the speed threshold n_x (ID125), the real-time bit is set ID332 'Message speed: actual value < threshold'.

See ID13 'Status class 3-messages' on page 24.

ID126 'Torque threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	%M _N
Data length:	2 byte	Min. value:	0 %M _N
Signed:	NO	Max. value:	1000 %M _N
Format:	DEC		
List:	NO		

If the amount of the actual torque value (ID84) exceeds the torque threshold n_x (ID126), the real-time bit is set ID333 'Message torque: actual value ≥ threshold'.

See ID13 'Status class 3-messages' on page 24.

ID127 'Transition check phase 3'

Supported hardware: A4 / A5 /

Reserved for AMK internal use!

ID128 'Transition check phase 4'

Supported hardware: A4 / A5 /

Reserved for AMK internal use!

ID129 'Manufacturer status class 1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The error messages in ID11 'Status class 1-errors' are supplemented through ID129 by manufacturer-specific errors. The bit 15 in ID11 is set when a manufacturer-specific error has occurred according to ID129.

The following parameters are available for the evaluation of the diagnostic message:

- ID95 'Diagnosis [ASCII text]'
- ID390 'Diagnostic number'
- ID32840 'Diagnostic list'
- ID34088 'Event trace' (not for KE(N,S)-xEx)

The manufacturer-specific error in ID11 bit 15 is first cleared again once no manufacturer-specific error is present in ID129 and the command ID99 'Diagnosis reset status class 1' has been received via the service channel.

Configuration ID129 'Manufacturer status class 1'

Bit no.	Condition	Meaning
0 (LSB)	0	No error
	1	Fatal system error
1	0	Reserved
	1	Reserved
2	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error in the 'control' basic module drive control, e.g. error during encoder tuning, error during internal setting of controller enable RF KE(N,S)-xEx / Reserved
3	0	Reserved
	1	Reserved
4	0	No error
	1	'Other' basic module system error, e.g. error during internal data access, error during internal memory access
5	0	No error
	1	Configuration error, e.g. parameterisation violates framework conditions
6	0	Reserved
	1	Reserved
7	0	No error
	1	Fieldbus error (ID34027 'BUS failure character' = 2)
8	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / 'Option' system error An error has occurred in the software or hardware of an optional component or the Ethernet bus connection. KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
9	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No error KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Description is identical with bit 8 KE(N,S)-xEx / Reserved
10-15 (MSB)	0	Reserved
	1	Reserved

ID130 'Probe value 1 positive edge'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID130 affects the function of the touch probe 1. The touch probe input is the binary input BE3, which has been assigned the code 401. With the positive edge on the touch probe input, the current actual position value is stored in ID130.

ID131 'Probe value 1 negative edge'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID131 affects the function of the touch probe 1. The touch probe input is the binary input BE3, which has been assigned the code 401. With the negative edge on the touch probe input, the current actual position value is stored in ID131.

ID132 'Probe value 2 positive edge'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID132 affects the function of the touch probe 2. The touch probe input is the binary input BE2, which has been assigned the code 402. With the positive edge on the touch probe input, the current actual position value is stored in ID132.

ID133 'Probe value 2 negative edge'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID133 affects the function of the touch probe 2. The touch probe input is the binary input BE2, which has been assigned the code 402. With the negative edge on the touch probe input, the current actual position value is stored in ID133.

ID134 'Master control word'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Master control word' can be read via the service channel.








Regardless of how ID32795 'Source UE' and ID32796 'Source RF' are parameterised, bit 14 and bit 15 in ID134 must be set to 1, otherwise setpoints will not be processed.

Configuration ID134 'Master control word'

Bit no.	Condition	Meaning
0 (LSB)	0	Master Toggle Bit
	1	Master Toggle Bit
1	0	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved
3	0	Reserved
	1	Reserved
4	0	Reserved
	1	Reserved
5	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
6	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time control bit 1 (See ID301 'Allocation control bit 1' on page 109.) KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real time control bit 1 (See ID301 'Allocation control bit 1' on page 109.) KE(N,S)-xEx / Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time control bit 2 (See ID303 'Allocation control bit 2' on page 109.) KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time control bit 2 (See ID303 'Allocation control bit 2' on page 109.) KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
8-10	000	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Main operating mode acc. ID32, ID32800 KE(N,S)-xEx / Reserved
	001	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 1 acc. ID33, ID32801 KE(N,S)-xEx / Reserved
	010	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 2 acc. ID34, ID32802 KE(N,S)-xEx / Reserved
	011	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 3 acc. ID35, ID32803 KE(N,S)-xEx / Reserved
	100	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 4 acc. ID284, ID32804 KE(N,S)-xEx / Reserved
	101	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 5 acc. ID285, ID32805 KE(N,S)-xEx / Reserved
	110	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 6 acc. ID286, ID32806 KE(N,S)-xEx / Reserved
	111	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 7 acc. ID287, ID32807 KE(N,S)-xEx / Reserved
11	0	Reserved
	1	Reserved
12	0	Reserved
	1	Reserved
13	0	Reserved
	1	Enable = 1 The enable bit must be set in order to comply with the SoE specification

Bit no.	Condition	Meaning
14	0	<p>1 --> 0 edge: no drive enable, instantaneous torque shutdown, independent of bit 15 DC bus ON (UE) is withdrawn internally.</p> <p>KW-R06 / KW-R07 / If a KE(N,S) is connected to the ACC bus, a command is sent to the KE(N,S).</p> <p> Prerequisite: ID32795 'Source UE' = 5</p>
	1	<p>0 --> 1 edge: Drive enabled UE is internally enabled.</p> <p>KW-R06 / KW-R07 / If a KE(N,S) is connected to the ACC bus, a command is sent to the KE(N,S).</p> <p> Prerequisite: ID32795 'Source UE' = 5</p>
15 (MSB)	0	<p>KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / 1 --> 0 edge: Drive off Controller enable (RF) is internally withdrawn after it has been attempted to brake the drive acc. ID32782 'Deceleration ramp RF inactive'.</p> <p> Prerequisite: ID32796 'Source RF' = 5</p> <p>KE(N,S)-xEx / Reserved</p>
	1	<p>KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / 0 --> 1 edge: Drive on Controller enable (RF) is enabled, preconditioned bit 14 = 1</p> <p> Prerequisite: ID32796 'Source RF' = 5</p> <p> The controller enable can only be enabled (0 --> 1 edge to bit 15) if no command is active at this drive.</p> <p>KE(N,S)-xEx / Reserved</p>

ID135 'Drive status word'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Drive status word' can be read via the service channel.

Configuration 'Drive status word'

Bit no.	Condition	Meaning
0-5	0	Reserved
	1	Reserved
6	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time status bit 1 (See ID305 'Allocation status bit 1' on page 109.) KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time status bit 1 (See ID305 'Allocation status bit 1' on page 109.) KE(N,S)-xEx / Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time status bit 2 (See ID307 'Allocation status bit 2' on page 110.) KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Real-time status bit 2 (See ID307 'Allocation status bit 2' on page 110.) KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
8-10	000	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Main operating mode active KE(N,S)-xEx / Reserved
	001	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 1 active KE(N,S)-xEx / Reserved
	010	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 2 active KE(N,S)-xEx / Reserved
	011	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 3 active KE(N,S)-xEx / Reserved
	100	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 4 active KE(N,S)-xEx / Reserved
	101	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 5 active KE(N,S)-xEx / Reserved
	110	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 6 active KE(N,S)-xEx / Reserved
	111	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Secondary operating mode 7 active KE(N,S)-xEx / Reserved
11	0	No bit message active in ID13 'Status class 3-messages'
	1	Bit message in ID13 'Status class 3-messages' is active
12	0	No bit message active in ID12 'Status class 2-warnings'
	1	Bit message in ID12 'Status class 2-warnings' is active
13	0	No bit message active in ID11 'Status class 1-errors'
	1	Bit message in ID11 'Status class 1-errors' is active
14-15	00	Drive not ready for power-up, drive in an error condition according to ID11 'Status class 1-errors' (SBM=0)
	01	Drive ready for power-up (SBM = 1)
	10	Power ON, drive torque-free (QUE)
	11	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Drive in closed loop control mode (QRF) KE(N,S)-xEx / Reserved

ID136 'Positive acceleration'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES	Unit:	U/s ²
Data length:	4 byte	Min. value:	1 U/s ²
Signed:	NO	Max. value:	60000 U/s ²
Format:	DEC		
List:	NO		

The positive acceleration is an input variable of the internal interpolator and defines the linear part of the positive acceleration for drive-controlled positioning. The acceleration values may not exceed the maximum possible physical acceleration of the drive (current limiting in the inverter).

See ID137 'Negative acceleration' on page 80.

See ID32956 'Additional acceleration value' on page 198.

ID137 'Negative acceleration'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-100000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES	Unit:	U/s ²
Data length:	4 byte	Min. value:	-60000 U/s ²
Signed:	YES	Max. value:	-1 U/s ²
Format:	DEC		
List:	NO		

The negative acceleration is an input variable of the internal interpolator and defines the linear part of the negative acceleration for drive-controlled positioning. The acceleration values may not exceed the maximum possible physical acceleration of the drive (current limiting in the inverter).

See ID136 'Positive acceleration' on page 80.

See ID32956 'Additional acceleration value' on page 198.

ID140 'Inverter type'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	12

* The list length is the number of usage data elements without 4 byte head elements.

The name of the control device from the SEEP is shown in ID140.

Configuration ID140 'Inverter type' for the example KW 2

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	12	List head: Maximum list length without list head [byte]
2	e.g. K	Name of the closed loop control device
3	e.g. W	Name of the closed loop control device

List element	Content	Meaning
4	e.g.	Name of the closed loop control device
5	e.g. 2	Name of the closed loop control device
6	e.g.	Name of the closed loop control device
7	e.g.	Name of the closed loop control device
8	e.g.	Name of the closed loop control device
9	e.g.	Name of the closed loop control device
10	e.g.	Name of the closed loop control device
11	e.g.	Name of the closed loop control device
12	e.g.	Name of the closed loop control device
13	e.g.	Name of the closed loop control device

ID141 'Motor type'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	20

* The list length is the number of usage data elements without 4 byte head elements.

The motor name can be stored in ID141. For example, the motor name is entered if a motor is selected from the motor database in AIPEX PRO.

Configuration ID141 'Motor type' for the example motor DT4-1-10-E00

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	20	List head: Maximum list length without list head [byte]
2	e.g. D	Motor type code
3	e.g. T	Motor type code
4	e.g. 4	Motor type code
5	e.g. -	Motor type code
6	e.g. 1	Motor type code
7	e.g. -	Motor type code
8	e.g. 1	Motor type code
9	e.g. 0	Motor type code
10	e.g. -	Motor type code
11	e.g. E	Motor type code
12	e.g. O	Motor type code
13	e.g. O	Motor type code
...
21		Motor type code

ID142 'Application type'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	16

* The list length is the number of usage data elements without 4 byte head elements.

The type of application can be described and stored in ID142. This parameter can be freely set by the customer.

Configuration ID142 'Application type'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	16	List head: Maximum list length without list head [byte]
2	e.g. A	User-specific content ...
3	e.g. B	
4	e.g. W	
5	e.g. I	
6	e.g. C	
7	e.g. K	
8	e.g. L	
9	e.g. E	
10	e.g. R	
11	e.g. -	
12	e.g. 3	
...	...	
17	...	

ID143 'SERCOS interface version'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	1 byte	Min. value:	0.250 ms
Signed:	NO	Max. value:	20.000 ms
Format:	ASCII	Current list length:*	-
List:	YES	Max. list length:*	8

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The version of the SERCOS Interface specification is available in ID143.

Configuration ID143 'SERCOS interface version'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	8	List head: Maximum list length without list head [byte]
2	e.g.: V	
3	e.g.: 0	
4	e.g.: 1	
5	e.g.: .	
6	e.g.: 0	
7	e.g.: 2	
8		
9		

ID144 'Status word'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	FORMAL	Default value:	0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID144 'Status word' shows the status of a maximum of 16 real-time bit messages. The status word content can be configured via the ID26 'Configuration status bits' in an application-specific manner. With the help of ID144 'Status word', the configured signals are transmitted in real-time from the drive to the controller. For this purpose, ID144 'Status word' must be incorporated into the drive telegram as a cyclical date.

See ID16 'Configuration list AT' on page 28.

See ID26 'Configuration status bits' on page 35.

ID147 'Homing parameter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	1000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		



The 'Homing parameter' defines the process of the homing cycle command (ID148).



AMK-specific extensions to the homing cycle command: See ID32926 'AMK homing cycle parameter' on page 185.

Configuration ID147 'Homing parameter'

Bit no.	Condition	Meaning
0	0	Positive homing direction (clockwise rotation when looking at the A-bearing side motor shaft)
	1	Negative homing direction (counter-clockwise rotation when looking at the A-bearing side motor shaft)

Bit no.	Condition	Meaning
1	0	Homing mark is the positive edge of the homing switch (cam)
	1	Homing mark is the negative edge of the homing switch (cam)
2	0	Homing switch (cam) connected to the controller  Parameter changes will only have an effect after power off/on.
	1	Homing switch (cam) connected to the drive  Parameter changes will only have an effect after power off/on.
3	0	Reserved
	1	Reserved
4	0	Reserved
	1	Reserved
5	0	Homing cycle with cam evaluation
	1	Homing cycle without cam evaluation (homing only to the zero pulse of the actual position encoder)
6	0	Homing cycle with zero pulse evaluation after reaching the homing switch (cam)
	1	Homing cycle without zero pulse evaluation. Homing switch (cam) is also the homing mark.
7	0	Drive stops after homing at any position. After the homing mark is recognised the drive brakes down until standstill and keeps this position. The controller must start at this position. The drive will not move back to the recognised homing point.
	1	The drive stops on the homing point after homing (Zero pulse + ID150) by consideration of ID52. See ID52 'Home reference position 1' on page 49.
8-9	0	Reserved
	1	Reserved
10	0	Homing cycle to fixed stop: inactive
	1	Homing cycle to fixed stop: active: A defined torque peak according ID530 effects that the drive changed the direction of rotation. The homing mark is the 1st zero pulse after the change of rotation.
11-14	0	Reserved
	1	Reserved
15	0	Bit string active according to ID147, ID32926 is not supported
	1	Bit string active according to ID147, ID32926 active

ID148 'Drive homing cycle command'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

When invoking the command 'Drive homing cycle command' via the controller, the drive automatically switches to the internal drive position control mode according to ID32808 'AMK position control' and accelerates according to ID136 'Positive acceleration' to the velocity according to ID41 'Homing velocity'. The bit 0 in ID403 'Status actual position value' is cleared. The settings under ID147 'Homing parameter' and ID32926 'AMK homing cycle parameter' are valid. Changes to the cyclical setpoints are ignored during the active command.

After traversing the position encoder homing mark, the drive brakes according to ID137 'Negative acceleration' until coming to a standstill. The command is successfully carried out once the drive stops and the actual position value is relative to the

reference point (ID403 'Status actual position value' is set). The controller reads out the drive's position setpoint (ID47) via the service channel and sets its setpoint value system to this position setpoint. Then the controller clears the command and the drive follows the setpoints of the controller.

The command interruption causes the actual position value not to be guided to the position encoder homing mark. ID403 'Status actual position value' is not set.

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

ID149 'Cmd position stop'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The command 'Cmd position stop' causes all controller monitoring to be switched off that would lead to an error message in ID11 'Status class 1-errors' when the drive is blocked by the fixed stop. The controller monitoring is switched off for all operating modes, regardless of which operating mode the drive is in. The sequence of the command 'Cmd position stop' is identical in the position control and speed control operating modes. The fixed stop is considered reached if the 'Clamping torque' (ID530) for the time period 'Time stop drive cmd' (ID34286) is met or exceeded.

When the following condition is met:

current torque $M_d \geq$ ID530 'Clamping torque'

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

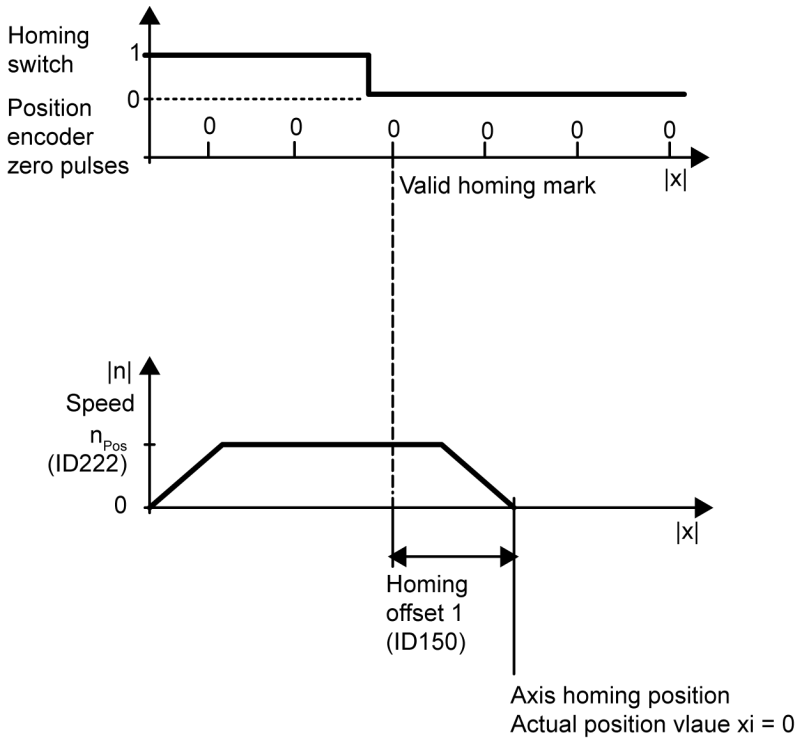
If the command is complete, the controller monitoring is activated again.

ID150 'Homing offset 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID150 defines an offset between the valid encoder homing mark and the desired zero position of the axis for the homing cycle. In this position, the internal position counter is set to '0'. For multi-turn absolute encoders, ID150 'Homing offset 1' is added to the read actual position value with the proper sign.

Homing offset and zero pulses of the position encoder



ID153 'Spindle angle position'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	21474483647 Increments
Format:	DEC		
List:	NO		

ID153 defines the absolute position at a homing cycle. The 'Spindle angle position' refers to the actual position value $x_i=0$ while considering ID150 'Homing offset 1'. After the drive has reached the homing point and has zeroed its actual position value, it moves to the 'Spindle angle position' and shows this value as an actual position value.



This parameter has no effect for multi-turn absolute encoders.

ID154 'Spindle positioning parameter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID156 'Velocity feedback value 2'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING	Scale:	0.0001

Supported hardware:	KW-R06 / KW-R07 /		
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	-100000.0 1/min
Signed:	YES	Max. value:	100000.0 1/min
Format:	DEC		
List:	NO		

The 'Velocity feedback value 2' is the actual speed value for the second encoder system.
See ID34297 'Encoder type 2' on page 303.

ID157 'Velocity window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	1 1/min
Signed:	NO	Max. value:	60000 1/min
Format:	DEC		
List:	NO		

If the amount of the difference between the speed setpoint and actual speed value is smaller than ID157, the real-time bit ID330 'Message speed: actual value = setpoint' is set.

Speed setpoint: ID36 'Velocity command value' + ID37 'Added velocity command value' + internal speed control with feedforward value.

Actual speed value: ID40 'Velocity feedback value'

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

See ID32800 'AMK main operation mode' on page 137.

ID158 'Power threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	W
Data length:	4 byte	Min. value:	1 W
Signed:	YES / NO	Max. value:	1000000 W
Format:	DEC		
List:	NO		

If the specified power of the inverter exceeds the value specified in ID158, the real-time bit ID337 'Message power: actual value ≥ threshold' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID159 'Excess error'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	0 Increments
Signed:	NO	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

If the difference between the position setpoint and the actual position value (following error) is larger than the value in ID159, the controller release for the drive is withdrawn, the motor runs down, the SBM status is reset and the diagnostic message 2318 'Control deviation' is issued.

The maximum computational following error (SA) of a feed drive results from:

$$SA \left[mm \right] = \frac{\text{Maximum Feedrate} \left[\frac{mm}{min} \right]}{ID104 \left[\frac{1}{min} \right]}$$

With ID123 'Feed constant' and ID116 'Resolution motor encoder' or ID117 'Resolution external position feedback system' the following error is converted from [mm] to [Incr.]:

$$SA \left[Increments \right] = \frac{SA \left[mm \right] \times ID116 \left[Increments \right]}{ID123 \left[mm \right]}$$

ID169 'Probe control parameter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

ID169 affects the touch probe function (according to SERCOS interface)

Setting bit 0 or bit 1 and bit 2 or bit 3 to the value 1 determines whether the positive or negative edge should be evaluated at the touch probe input 1 or 2. The selection of a positive AND negative edge is not permissible.

The actual position value on which the positive or negative flank was detected is stored in ID130 'Probe value 1 positive edge' / ID132 'Probe value 2 positive edge' or ID131 'Probe value 1 negative edge' / ID133 'Probe value 2 negative edge'.

The storage of the actual position value is acknowledged in ID179 'Probe status'.



Homing cycle command is not permitted after the start of the touch probe function, otherwise the touch probe cycle is aborted.

Configuration ID169 'Probe control parameter'

Bit no.	Condition	Meaning
0	0	no evaluation of the touch probe input 1
	1	Positive edge at the touch probe input 1 is evaluated

Bit no.	Condition	Meaning
1	0	no evaluation of the touch probe input 1
	1	Negative edge at the touch probe input 1 is evaluated
2	0	no evaluation of the touch probe input 2
	1	Positive edge at the touch probe input 2 is evaluated
3	0	no evaluation of the touch probe input 2
	1	Negative edge at the touch probe input 2 is evaluated
4-15	0	Reserved
	1	Reserved

The following applies:

Touch probe 2 (MT2): Binary input BE2 (parameterisation: ID32979 Port3 Bit1 = 0x402)

Touch probe 1 (MT1): Binary input BE3 (parameterisation: ID32980 Port3 Bit2 = 0x401)

ID170 'Command probe cycle'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The touch probe function is invoked with the 'Command probe cycle'.

See ID405 'Probe 1 enable' on page 117.

See ID406 'Probe 2 enable' on page 117.

The touch probe is evaluated as configured in ID169 'Probe control parameter'. Several measurements can be carried out by the controller during the active command. The controller clears the command if no further measurements are to be taken.

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

Configuration:

Touch probe 2 (MT2): Binary input BE2 (parameterisation: ID32979 'Port3 Bit1' = 0x402)

Touch probe 1 (MT1): Binary input BE3 (parameterisation: ID32980 'Port3 Bit2' = 0x401)



KW-R06: The touch probe function can only be used via the binary inputs BE2 and BE3 of the controller card.

See ID32936 'Window' on page 188.

ID173 'Marker position A'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES / NO	Max. value:	2147483648 Increments
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The current actual position value is stored in the 'Marker position A', where the homing mark is detected for the homing cycle. This position value is available via ID173 for possible additional processing. Depending on the settings in ID32926 'AMK homing cycle parameter', the cam (NK) or the encoder zero pulse (NIP) is evaluated as homing mark.

When homing with cam signal (without an encoder zero pulse evaluation), the actual position value is entered where the cam signal is detected by the system. When homing with cams and an encoder zero pulse, the actual position value is stored where the zero pulse is detected.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID179 'Probe status'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Configuration ID179 'Probe status'

Bit no.	Condition	Meaning
0	0	'Probe 1 positive latch' not detected (ID409)
	1	'Probe 1 positive latch' (ID409)
1	0	'Probe 1 negative latch' not detected (ID410)
	1	'Probe 1 negative latch' (ID410)
2	0	'Probe 2 positive latch' not detected (ID411)
	1	'Probe 2 positive latch' (ID411)
3	0	'Probe 2 negative latch' not detected (ID412)
	1	'Probe 2 negative latch' (ID412)
4-15	0	Reserved
	1	Reserved

The bits are set in ID179 once ID170 'Command probe cycle' is active and one or more measured values are stored.

If the touch probe 1/2 release (ID405 / ID406) is cleared, the relevant bits in the 'Probe status' will be reset. All bits in the 'Probe status' will be reset if the 'Command probe cycle' is cleared by the controller.

ID180 'Spindle position relative offset'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /
---------------------	---

Reserved for AMK internal use!

ID181 'Diagnosis manufacturer class 2'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The error messages in ID12 'Status class 2-warnings' are supplemented through ID181 by manufacturer-specific warnings. The bit 15 in ID11 is set if a manufacturer-specific warning is set or cleared according to ID181.

The following parameters are available for the evaluation of the diagnostic message:

- ID95 'Diagnosis [ASCII text]'
- ID390 'Diagnostic number'
- ID32840 'Diagnostic list'
- ID34088 'Event trace'

The manufacturer-specific warning in ID12 bit 15 is first cleared again once the ID181 is read via the service channel. Bit 12 in ID135 'Drive status word' is not changed in the process.

Configuration ID181 'Diagnosis manufacturer class 2'

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / no warning KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Warning for 'control' basic module, e.g. overload warning for motor / converter KE(N,S)-xEx / Reserved
2	0	Reserved
	1	Reserved
3	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / no warning KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Warning for 'other' basic module, e.g. warning for a parameter set changeover, warning for internal data access KE(N,S)-xEx / Reserved
4-5	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
6	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / No warning KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / A warning or error has occurred in the slave participant fieldbus. KE(N,S)-xEx / Reserved
7	0	No warning
	1	Fieldbus warning (ID34027 'BUS failure character' = 1)
8	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / No warning KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Cooling warning See ID313 'Warning cooler' on page 111. KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
9-15	0	Reserved
	1	Reserved

ID182 'Diagnosis manufacturer status'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7

Sphere of action:	GLOBAL, FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

The messages in ID13 'Status class 3-messages' are supplemented through ID182 by manufacturer-specific messages. The bit 15 in ID13 is set if a manufacturer-specific warning is set or cleared according to ID182.

The following parameters are available for the evaluation of the diagnostic message:

- ID95 'Diagnosis [ASCII text]'
- ID390 'Diagnostic number'
- ID32840 'Diagnostic list'
- ID34088 'Event trace'

The manufacturer-specific message in ID12 bit 15 is first cleared again once the ID182 is read via the service channel. Bit 11 in ID135 'Drive status word' is not changed in the process.

Meaning for KE(N,S) / KE(N,S)-xEx /

Diagnostic messages are shown in ID390 'Diagnostic number'.

Configuration ID182 'Diagnosis manufacturer status'

Bit no.	Condition	Meaning
0	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: Position threshold value negatively exceeded. ID51 'Position feedback value' > ID50 'Negative position limit' See ID398 'List status bits' on page 115. KE(N,S) / KE(N,S)-xEx / Reserved
1-6	0	Reserved
	1	Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: Position threshold value positively exceeded. ID51 'Position feedback value' > ID49 'Positive position limit' See ID398 'List status bits' on page 115. KE(N,S) / KE(N,S)-xEx / Reserved
8	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: homing point known KE(N,S) / KE(N,S)-xEx / Reserved
9	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: acknowledgement, that the control bit 'controller enable (RF)' was set KE(N,S) / KE(N,S)-xEx / Reserved
10	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Message active: Acknowledgement controller enable KE(N,S) / KE(N,S)-xEx / Reserved

Bit no.	Condition	Meaning
11	0	Message inactive
	1	Message active: acknowledgement, that the control bit DC bus ON (UE) was set
12	0	Message inactive
	1	Message active: Acknowledgement DC bus ON (QUE)
13	0	Message inactive
	1	Message active: Warning present
14	0	Message inactive
	1	Message active: Error present
15	0	Message inactive
	1	Message active: System ready message (SBM)

ID185 'Length data set AT'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7

Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Byte
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Values for A4 / A5 /

Default value: 1022

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7

Default value: 32

ID185 indicates the maximum length in byte that can be processed in the configured data set of the AT drive telegram. See ID15 'Telegram types parameter' on page 27.

ID186 'Length data set MDT'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	Device-specific values
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Values for A4 / A5 /

Default value: 1022

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Default value: 32

ID186 indicates the maximum length in byte that can be processed in the configured data set of the master data telegram MDT.

See ID15 'Telegram types parameter' on page 27.

ID187 'List of data AT'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	YES / NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	37

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

All parameters that can be cyclically transferred in the drive telegram (AT) are in the 'List of data AT'.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

See ID16 'Configuration list AT' on page 28.

Configuration ID187 'List of data AT'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	74	List head: Maximum list length without list head [byte]
2		
3		
...
38		

ID188 'List of data MDT'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	49

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

All parameters that can be cyclically transferred in the master data telegram (MDT) are in the 'List of data MDT'.

The elements 0 and 1 of the list are head information (current and maximum list length). The first parameter is in the element 2.

See ID24 'Configuration list MDT' on page 33..

Configuration ID188 'List of data MDT'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)

List element	Content	Meaning
1	98	List head: Maximum list length without list head [byte]
2		
3		
...
50		

ID189 'Following distance'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

The difference between the position setpoint and the actual position value is shown as a follow error (control deviation of the position controller) in ID189 in the position control operating mode.

The following applies:

Position setpoint: ID47 'Position command value' + internal interpolator (IPO) + pulse encoder input

Actual position value: ID51 'Position feedback value'

See ID32800 'AMK main operation mode' on page 137.

ID192 'List backup data'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	Created at run time

* The list length is the number of usage data elements without 4 byte head elements.

The 'List backup data' contains all ID numbers that can be stored permanently in the system. A controller can evaluate this list to create backup copies of the parameter set.

ID206 'Drive on delay time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	6553.5 ms
Format:	DEC		
List:	NO		

ID206 and ID207 affect the control of a motor holding brake. Motor holding brakes have different response times. With ID206 and ID207, the controller enable (RF) is internally controlled so that the response times of the motor holding brake are taken into consideration and bridged.

The 'Drive on delay time' defines the time between the output signal for controlling the motor holding brake and the acknowledgement controller enable (QRF) (brake opens).

A motor holding brake secures the motor shaft in the energy-free state (e.g. for suspended axes). The AMK drive independently controls the controller enable and motor holding brake at the correct time, thus preventing, for example, the suspended axes from sagging.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The motor holding brake must be connected to the BA3 output of the controller card. If the motor holding brake delivers an acknowledgement signal 'brake closed QBR,' the motor holding brake can be monitored for plausibility once 'Service bits' bit 13 = 1 is set in ID32773.

ID207 'Drive off delay time'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	6553.5 ms
Format:	DEC		
List:	NO		

ID206 and ID207 affect the control of a motor holding brake. Motor holding brakes have different response times. With ID206 and ID207, the controller release is internally controlled so that the response times of the motor holding brake are taken into consideration and bridged.

The 'Drive off delay time' defines the time between the output signal for controlling the motor holding brake and the dropout of the acknowledgement controller enable (QRF) (brake is applied).

A motor holding brake secures the motor shaft in the energy-free state (e.g. for suspended axes). The AMK drive independently controls the controller enable and motor holding brake at the correct time, thus preventing, for example, the suspended axes from sagging.

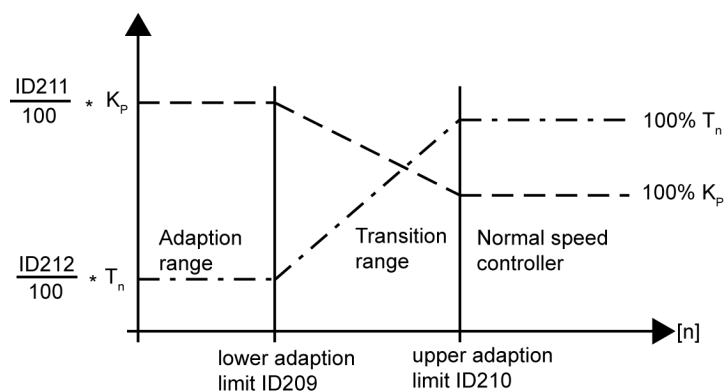
Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The motor holding brake must be connected to the BA3 output of the controller card. If the motor holding brake delivers an acknowledgement signal 'brake connected QBR,' the motor holding brake can be monitored for plausibility once 'Service bits' bit 13 = 1 is set in ID32773.

ID209 'Lower adaption limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

In the area between the lower and upper adaptation limit, the adaptive control parameters ID211 'Proportional gain adaption' and ID212 'Integral-action time adaption' are linearly adapted to the standard control parameters ID100 'Speed control proportional gain' and ID101 'Integral-action time speed control', i.e. the control behaviour in this area changes independently of the actual speed value if ID209 is smaller than ID210. Nothing is adapted if ID209 is the same as ID210.



Below the lower adaptation limit, K_p and T_n work according to ID211 and ID212 and above the upper adaptation limit K_p and T_n work according to ID100 and ID101. Linear adaptation takes place in between.

ID210 'Upper adaption limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

See ID209 'Lower adaption limit' on page 97.

ID211 'Proportional gain adaption'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	500 %
Format:	DEC		
List:	NO		

See ID209 'Lower adaption limit' on page 97.

ID212 'Integral-action time adaption'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	500 %
Format:	DEC		
List:	NO		

See ID209 'Lower adaption limit' on page 97.

ID216 'Switch parameter set command'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The command 'Switch parameter set command' changes to the parameter set, which is entered in ID217 'Preselect parameter set command'

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

ID217 'Preselect parameter set command'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	3
Format:	BIN		
List:	NO		

In ID217, the parameter set is entered in which the switch takes place with the command ID216 'Switch parameter set command'.

ID219 'ID-no. list for parameter sets'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	194

* The list length is the number of usage data elements without 4 byte head elements.

The 'ID-no. list for parameter sets' lists all parameters that are affected by the switch with the command ID216 'Switch parameter set command', i.e. that can have other values in each parameter set.

Configuration ID219 'ID-no. list for parameter sets'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	388	List head: Maximum list length without list head [byte]
2		ID no.
3		ID no.
4		ID no.
...
195		ID no.

ID222 'Spindle position speed'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID228 'Synchron position window'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID254 'Actual parameter set'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	3
Format:	BIN		
List:	NO		

The number of the currently active parameter set can be read in ID254.

ID262 'Initial program load command'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The initial program loading command resets all remanent stored parameters (also list parameters) which are not read-only (also list parameters) to the default value (factory setting).



All user-specific lists and settings are cleared!

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

ID263 'Cmd load data'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The command 'Cmd load data' carries out a system start-up* where the remanent saved parameter values are read and effective. Parameters that were previously changed temporarily are reset to the remanent stored value.

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

*This system start-up only carries out the previously described actions and may not be confused with the functionality ID33730 'System booting'.

ID264 'Cmd save data'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The command 'Cmd save data' writes the currently effective parameter values of all parameters of ID192 'List backup data' in the remanent storage.

Commands are started by the function code 0x3 being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

ID265 'Language'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	2
Format:	HEX		
List:	NO		

ID265 defines the language of the parameter and diagnosis texts. The system must be re-started again if the language is changed.

Available languages:


- 0: German (default)
- 1: English
- 2: French

ID269 'ID memory mode'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The memory mode determines whether subsequent parameter changes are to be handled temporarily or remanent. It is therefore possible via fieldbus to directly influence process parameters by ID transfer.

Configuration ID269 'ID memory mode']

Bit no.	Condition	Meaning
0	0	Parameter changes are only effective and resident after a system start-up.
	1	Parameter changes to parameters from ID270 'Temporary parameter list' have a direct effect in the process without another system start-up through, for example, mains OFF / ON. The changes are temporarily valid until the next system start-up (not saved remanent).  All parameters that are not temporarily changeable are always treated remanent, regardless of the settings in ID269.
1-15	0	Reserved
	1	Reserved

ID270 'Temporary parameter list'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	74
List:	YES	Max. list length:*	74

* The list length is the number of usage data elements without 4 byte head elements.

The 'Temporary parameter list' contains all parameters that are effective immediately after the change in the process without the system start-up. The changes are effective until the next system start-up.

Configuration ID270 'Temporary parameter list'

List element	Content	Meaning
0	148	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	148	List head: Maximum list length without list head [byte]
2	e.g. 36	ID-no. of the first temporarily changeable parameter
3	e.g. 38	ID-no. of the second temporarily changeable parameter
...
75	e.g. 34257	ID-no. of the 74th temporarily changeable parameter

ID284 'Operation mode 4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID284 'Operation mode 4' is activated when bit 8, 9 and 10 are selected in ID134 'Master control word' of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID284 'Operation mode 4'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID284 are converted internally to ID32804 'AMK secondary operation mode 4'.

ID285 'Operation mode 5'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID285 'Operation mode 5' is activated when bit 8, 9 and 10 are selected in ID134 'Master control word' of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID285 'Operation mode 5'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID285 are converted internally to ID32805 'AMK secondary operation mode 5'.

ID286 'Operation mode 6'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID286 'Operation mode 6' is activated when bit 8, 9 and 10 are selected in ID134 'Master control word' of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID286'Operation mode 6'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved

Bit no.	Condition	Meaning
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID286 are converted internally to ID32806 'AMK secondary operation mode 6'.

ID287 'Operation mode 7'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The operating mode specified in ID287 'Operation mode 7' is activated when bit 8, 9 and 10 are selected in ID134 'Master control word' of the master data telegram.

The active operating mode is acknowledged in ID135 'Drive status word' bit 8 to bit 10.

Configuration ID287 'Operation mode 7'

Bit no.	Condition	Meaning
0-3	0000 (Bit 3 Bit 2 Bit 1 Bit 0 (LSB))	No operating mode defined
	0001	Torque control
	0010	Speed control
	0011	Position control with actual position value from the motor encoder
	0100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0110	Reserved
	0111	Operating mode without control
	1011	Position control with actual position value from the motor encoder and following error compensation
	1100	KW-R06 / KW-R07 / Position control with actual position value from the external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1101	KW-R06 / KW-R07 / Position control with actual position value from the motor encoder + external encoder and following error compensation KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1110	Reserved
4-13	-	Reserved
14	0	Cyclical setpoint specification
	1	Ignore cyclical setpoint specification (specification via the service channel through writing parameters, e.g. ID36 'Velocity command value')
15	0	Operating mode according to SoE
	1	Reserved



The operating mode settings in ID287 are converted internally to D32807 'AMK digital torque control'.

ID296 'Velocity feedforward gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The speed feed forward is effective in the 'position control without following error compensation' operating mode and reduces the speed-dependent following error.

ID301 'Allocation control bit 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The ID number of the signal is written in ID301 in order to assign the real-time control bit 1 in ID134 'Master control word'.

ID303 'Allocation control bit 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The ID number of the signal is written in ID303 in order to assign the real-time control bit 2 in ID134 'Master control word'.

ID305 'Allocation status bit 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The ID number of the signal is written in ID305 in order to assign the real-time status bit 1 in ID135 'Drive status word'.

ID307 'Allocation status bit 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The ID number of the signal is written in ID307 in order to assign the real-time status bit 2 in ID135 'Drive status word'.

ID310 'Overload motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

With this parameter, the 'Overload motor' warning is assigned an identification number. The warning can be assigned to a real-time bit.

See ID305 'Allocation status bit 1' on page 109.

See ID12 'Status class 2-warnings' on page 23.

See ID114 'Overload limit motor' on page 66.

ID311 'Warning overtemperature inverter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

* The list length is the number of usage data elements without 4 byte head elements.

With this parameter, the 'Warning overtemperature inverter' warning is assigned an identification number. The warning can be assigned to a real-time bit.

See ID305 'Allocation status bit 1' on page 109.

See ID12 'Status class 2-warnings' on page 23.

ID312 'Warning overtemperature motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2	Min. value:	-

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

With this parameter, the 'Warning overtemperature motor' warning is assigned to an identification number. The warning can be assigned to a real-time bit.

See ID305 'Allocation status bit 1' on page 109.

See ID12 'Status class 2-warnings' on page 23.

ID313 'Warning cooler'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

With this parameter, the 'Warning cooler' is assigned to an identification number. The warning can be assigned to a real-time bit. The diagnostic message 1073 'Cooling Air Temperature Warning' is generated and the code 33021 is set, which can be issued to a binary output.

See ID305 'Allocation status bit 1' on page 109.

See ID181 'Diagnosis manufacturer class 2' on page 91.

ID326 'Parameter checksum'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

If the parameter 'Parameter checksum' is read via the service channel, a checksum is formed via all of the parameters listed in ID192 'List backup data'. A controller can detect whether the data set was changed by comparing the checksum in the system start-up.

ID330 'Message speed: actual value = setpoint'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of the difference between the speed setpoint and actual speed value is less than ID157 'Velocity window', the real-time bit ID330 'Message speed: actual value = setpoint' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID331 'Message speed: actual value < minimal value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of ID40 'Velocity feedback value' is < ID124 'Zero velocity window', the real-time bit ID331 'Message speed: actual value < minimal value' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID332 'Message speed: actual value < threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of ID40 'Velocity feedback value' is < ID125 'Velocity threshold', the real-time bit ID332 'Message speed: actual value < threshold' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID333 'Message torque: actual value \geq threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of ID84 'Torque feedback value' is \geq ID126 'Torque threshold', the real-time bit ID333 'Message torque: actual value \geq threshold' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID334 'Message torque: actual value \geq limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of ID84 'Torque feedback value' is \geq ID82 'Positive torque limit', ID83 'Negative torque limit' or ID92 'Bipolar torque limit', the real-time bit ID334 'Message torque: actual value \geq limit' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID335 'Message speed: setpoint $>$ limit'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If ID36 'Velocity command value' is $>$ ID38 'Positive velocity limit', ID39 'Negative velocity limit' or ID91 'Bipolar velocity limit', the real-time bit ID335 'Message speed: setpoint $>$ limit' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID336 'Message in position'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the amount of the difference between the position setpoint and actual position value is less than ID57 'In position window', the real-time bit is set in ID336 'Message in position'.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID337 'Message power: actual value \geq threshold'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

If the specified power of the inverter \geq ID158, the real-time bit ID337 'Message power: actual value \geq threshold' is set.

See ID13 'Status class 3-messages' on page 24.

See ID305 'Allocation status bit 1' on page 109.

ID348 'Acceleration feedforward gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The acceleration feedforward is effective in the 'position control without follow error compensation' operating mode and reduces the follow-error for acceleration changes.

ID390 'Diagnostic number'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

If a diagnostic message appears (warning or error), the diagnostic number is written in ID390. The first occurred event (warning or error) is always entered. A warning message is not overwritten by a subsequent error message.

Meaning for A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

An existing entry in ID390 is cleared by the command ID99 'Diagnosis reset status class 1' or 'Clear error.'

Meaning for KE(N,S) /

If different values are shown for multiple, directly consecutive read-outs of ID390, then the device has an extended diagnostic memory (e.g. KE, KES device), which also shows subsequent events.

An existing entry in ID390 is cleared by the 'Clear error.'

ID392 'Velocity setpoint filter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	µs
Data length:	2 byte	Min. value:	0 µs
Signed:	YES / NO	Max. value:	5000 µs
Format:	DEC		
List:	NO		

The 'Velocity setpoint filter' works as a mean value filter in the actual speed value feedback and influences the control and display value ID40 'Velocity feedback value'.

Example:

With a setpoint cycle time of 500 µs and the actual value detection in 62.5 µs, the actual speed value is formed as a mean value over 8 values.

See ID32800 'AMK main operation mode' on page 137.

ID398 'List status bits'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	-

* The list length is the number of usage data elements without 4 byte head elements.

All parameters and codes that are contained in the 'List status bits' can be configured as a real-time or status bit, e.g. in the parameters ID26 'Configuration status bits' and ID144 'Status word' or be assigned to a binary output.

Configuration ID398 'List status bits'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	x	List head: Maximum list length without list head [byte]
2		Supported status bits
3		Supported status bits
...
n		

ID400 'Home switch'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

ID400 shows the switching status of the external homing switch (cam). If the cam is detected, ID400 is set to the value 1. For homing with a cam evaluation, the function code 400 must be assigned to a binary input.



Code 32905 is equivalent to code 400 and can alternatively be assigned to a binary input.

See ID305 'Allocation status bit 1' on page 109.

ID403 'Status actual position value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Following successful homing cycle, bit 0 is set in ID403 (homing point known) and the controller is shown that all actual position values refer to the homing point.

Bit 0 in ID403 is reset in the following cases:

- Drive loses the reference to the machine zero point
- Command ID148 'Drive homing cycle command' is invoked
- 'Service command' invocation according to ID32843

See ID305 'Allocation status bit 1' on page 109.

See ID32843 'Service command' on page 154.

ID405 'Probe 1 enable'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The 'Probe 1 enable' can only be set if the command ID170 'Command probe cycle' is set and the execution is released (ID170 = 0x3).

For each measurement, the release must be reset in ID405 with a 0-1 edge in bit 0. The release can be assigned to a real-time control bit in ID134 'Master control word'.

ID406 'Probe 2 enable'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The 'Probe 2 enable' can only be set if the command ID170 'Command probe cycle' is set and the execution is released (ID170 = 0x3).

For each measurement, the release must be reset in ID406 with a 0-1 edge in bit 0. The release can be assigned to a real-time control bit in ID134 'Master control word'.

ID409 'Probe 1 positive latch'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The bit 0 in ID409 can only be set to 1 if the command ID170 'Command probe cycle' is active, the touch probe is enabled (ID405) and the positive edge is reported by the touch probe 1 (BE2). At the same time, the current actual position value is stored in ID130 'Probe value 1 positive edge'.

The bit 'Probe 1 positive latch' is cleared when the controller clears the command ID170 'Command probe cycle' or sets the 'Probe 1 enable' (ID405) from 1 to 0. See ID179 'Probe status' on page 90.

ID409 can be assigned to a real-time status bit. See ID305 'Allocation status bit 1' on page 109.

ID410 'Probe 1 negative latch'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The bit 0 in ID410 can only be set to 1 if the command ID170 'Command probe cycle' is active, the touch probe is enabled (ID405) and the negative edge is reported by the touch probe 1 (BE2). At the same time, the current actual position value is stored in ID131 'Probe value 1 negative edge'.

The bit 'Probe 1 negative latch' is cleared when the controller clears the command ID170 'Command probe cycle' or sets the 'Probe 1 enable' (ID405) from 1 to 0. See ID179 'Probe status' on page 90.

ID410 can be assigned to a real-time status bit. See ID305 'Allocation status bit 1' on page 109.

ID411 'Probe 2 positive latch'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The bit 0 in ID411 can only be set to 1 if the command ID170 'Command probe cycle' is active, the touch probe is enabled (ID406) and the positive edge is reported by the touch probe 2 (BE1). At the same time, the current actual position value is stored in ID132 'Probe value 2 positive edge'.

The bit 'Probe 2 positive latch' is cleared when the controller clears the command ID170 'Command probe cycle' or sets the 'Probe 2 enable' (ID406) from 1 to 0. See ID179 'Probe status' on page 90.

ID411 can be assigned to a real-time status bit. See ID305 'Allocation status bit 1' on page 109.

ID412 'Probe 2 negative latch'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The bit 0 in ID412 can only be set to 1 if the command ID170 'Command probe cycle' is active, the touch probe is enabled (ID406) and the negative edge is reported by the touch probe 2 (BE1). At the same time, the current actual position value is stored in ID133 'Probe value 2 negative edge'.

The bit 'Probe 2 negative latch' is cleared when the controller clears the command ID170 'Command probe cycle' or sets the 'Probe 2 enable' (ID406) from 1 to 0. See ID179 'Probe status' on page 90.

ID412 can be assigned to a real-time status bit. See ID305 'Allocation status bit 1' on page 109.

ID530 'Clamping torque'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	% M _N
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Clamping torque' is effective with the command ID149 'Cmd position stop'. See ID149 'Cmd position stop' on page 85.

ID1204 'XML file'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	-
List:	YES	Max. list length:*	65516

* The list length is the number of usage data elements without 4 byte head elements.

AIPEX PRO creates configuration files for EtherCAT and Profibus, which are stored here.

Instance	Use	Interface
2	EtherCAT (CC) Slave Profibus slave	X85 / X86 X41
5	1st EtherCAT Master	X186
6	2nd EtherCAT Master (in comparison)	X185

Configuration ID1204 'XML file'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	65516	List head: Maximum list length without list head [byte]
2	e.g. 3C	Part of the configuration file
3	e.g. 45	Part of the configuration file
...

ID1205 'XML file'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	-
List:	YES	Max. list length:*	65516

* The list length is the number of usage data elements without 4 byte head elements.

AIPEX PRO creates configuration files for EtherCAT and Profibus, which are stored here.

Instance	Use	Interface
2	EtherCAT (CC) Slave	X85 / X86
	Profibus slave	X41
5	1st EtherCAT Master	X186
6	2nd EtherCAT Master (in comparison)	X185

Configuration ID1205 'XML file'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	65516	List head: Maximum list length without list head [byte]
2	e.g. 3C	Part of the configuration file
3	e.g. 45	Part of the configuration file
...

ID1206 'XML file'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	-
List:	YES	Max. list length:*	65516

* The list length is the number of usage data elements without 4 byte head elements.

AIPEX PRO creates configuration files for EtherCAT and Profibus, which are stored here.

Instance	Use	Interface
2	EtherCAT (CC) Slave	X85 / X86
	Profibus slave	X41
5	1st EtherCAT Master	X186
6	2nd EtherCAT Master (in comparison)	X185

Configuration ID1206 'XML file'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	65516	List head: Maximum list length without list head [byte]
2	e.g. 3C	Part of the configuration file
3	e.g. 45	Part of the configuration file
...

ID1207 'XML file'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	-
List:	YES	Max. list length:*	65516

* The list length is the number of usage data elements without 4 byte head elements.

AIPEX PRO creates configuration files for EtherCAT and Profibus, which are stored here.

Instance	Use	Interface
2	EtherCAT (CC) Slave Profibus slave	X85 / X86 X41
5	1st EtherCAT Master	X186
6	2nd EtherCAT Master (in comparison)	X185

Configuration ID1207 'XML file'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	65516	List head: Maximum list length without list head [byte]
2	e.g. 3C	Part of the configuration file
3	e.g. 45	Part of the configuration file
...

ID32768 'Nominal motor voltage'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	3500
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0.0 V
Signed:	NO	Max. value:	1000.0 V
Format:	DEC		
List:	NO		

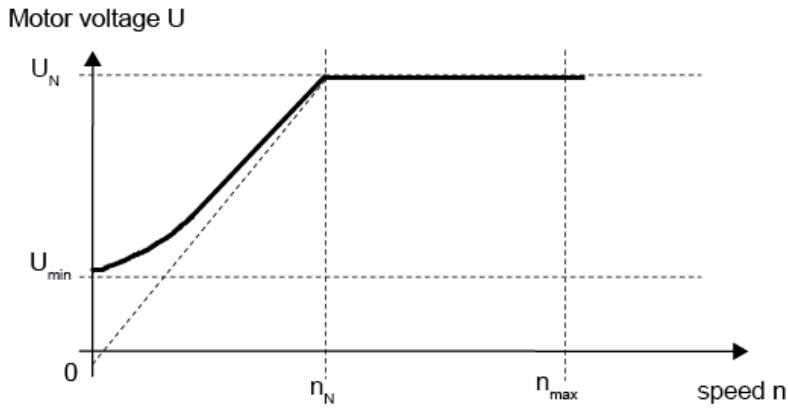
ID32768 describes the motor voltage for the speed $n \leq$ nominal speed in the voltage / frequency control operating mode and is to be taken from the respective type plate or data sheet of the motor. The voltage / frequency control operating mode is activated in ID32953 'Encoder type'.



Note that the ramp times in ID32780 'Acceleration ramp', ID32781 'Deceleration ramp' and ID32782 'Deceleration ramp RF inactive' may not be less than the physically achievable speed ramps of the system.

See ID32991 'U/f startup' on page 208.

Depiction: $U = f(n)$ in voltage / frequency control



U_N : ID32768 'Nominal motor voltage'

U_{min} : ID32935 'Voltage standstill'

n_N : ID32772 'Nominal velocity'

n_{max} : ID00113 'Maximum speed'

ID32769 'Magnetising current'

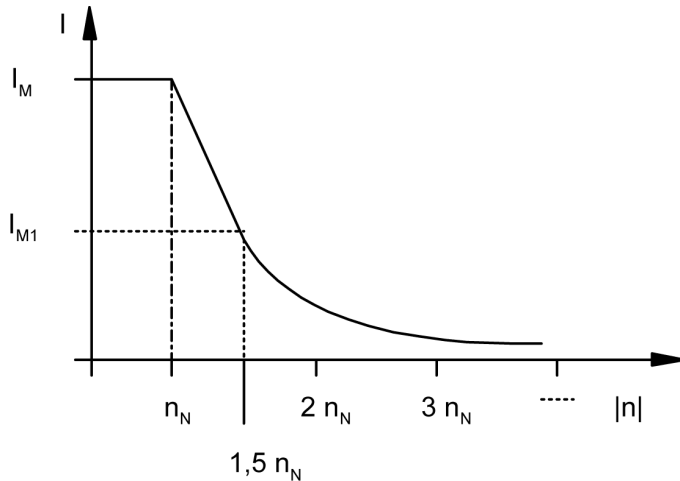
Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1500
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The values of the magnetising current depend on the motor and are to be taken from the respective type plate or data sheet of the motor. The motor used is to be defined in ID32953 'Encoder type'.

Asynchronous motor

The magnetising current is the flux-forming component of the motor current in asynchronous motors. The magnetising current is constant up until the nominal speed and is automatically reduced for speeds greater than the nominal speed (field weakening).

Correction of the magnetising current characteristic for asynchronous motors



Synchronous motor without field weakening

Synchronous motors without field weakening are only operable up to the nominal speed. ID32769 is ineffective for synchronous motors.

Field weakening synchronous motor

Field weakening synchronous motors can also be operated well above the nominal speed. For field weakening synchronous motors, ID32769 indicates the maximum field weakening current above the nominal speed. For field weakening synchronous motors, the voltage controller must also be configured in ID34148 'Kp voltage control gain' and ID34149 'Tn voltage control integrating time'.

NOTICE

Material Damage!

Material damage from excessive DC bus voltage!

If the PWM is blocked in the case of an error with synchronous motors that are operated in field weakening, the still rotating motor induces a voltage that is higher than that of the supplying DC bus. Due to the induced voltage, a current flows into the DC bus via the free-wheeling diodes in the inverter so that the voltage in the DC bus may rise above the permissible value and can therefore destroy the power supply.

Steps to prevent:

- Ensure that the current regeneration of the power supply is active.
- Use an appropriately sized brake resistor at the feed-in.

Asynchronous motor with voltage control

Enter ID32769 'Magnetising current' from the motor data sheet. In the field weakening area, the magnetising current is automatically set internally in the device.

ID32770 'Magnetising current 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

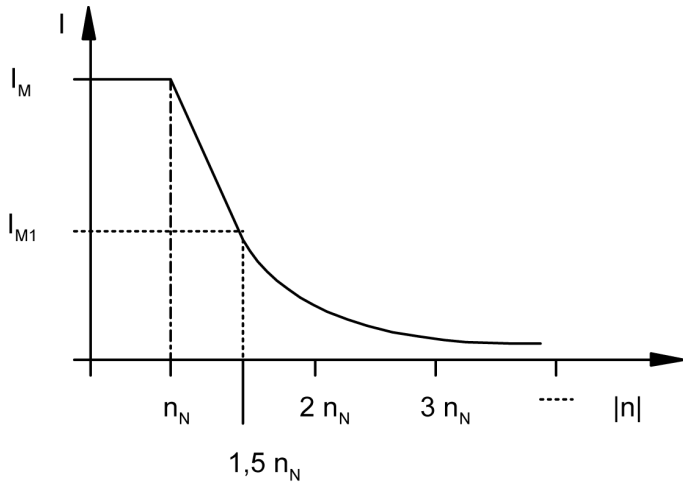
The values of the magnetising current depend on the motor and are to be taken from the respective type plate or data sheet of the motor. The motor used is to be defined in ID32953 'Encoder type'.

Asynchronous motors

If no specification is available for the magnetising current, set the value to 50 % x IM.

A correction of the magnetising current characteristic is performed in the field weakening area. The magnetising current is linearly reduced from IM to IM1 according ID32769 and ID32770 between the nominal speed (ID32772) and the speed 1.5-times the nominal speed. For speeds greater than 1.5-times the nominal speed, the magnetising current is proportionately reduced to 1/n.

Correction of the magnetising current characteristic for asynchronous motors



If ID32770 = ID32769 or ID32770 = 0 is set, the correction is eliminated and the magnetising current is proportionately reduced to 1/n for speeds above the nominal speed.

Synchronous motor without field weakening

Synchronous motors without field weakening are only operable up to the nominal speed.

ID32770 is ineffective for synchronous motors.

Field weakening synchronous motor

Field weakening synchronous motors can also be operated well above the nominal speed. For field weakening synchronous motors, ID32770 indicates the minimum field weakening current, which acts in the basic speed range up to the nominal speed.

For field weakening synchronous motors, the voltage controller must also be configured in ID34148 'Kp voltage control gain' and ID34149 'Tn voltage control integrating time'.

NOTICE

Material Damage!

Material damage from excessive DC bus voltage!

If the PWM is blocked in the case of an error with synchronous motors that are operated in field weakening, the still rotating motor induces a voltage that is higher than that of the supplying DC bus. Due to the induced voltage, a current flows into the DC bus via the free-wheeling diodes in the inverter so that the voltage in the DC bus may rise above the permissible value and can therefore destroy the power supply.

Steps to prevent:

- Ensure that the current regeneration of the power supply is active.
- Use an appropriately sized brake resistor at the feed-in.

Asynchronous motor with voltage control

ID32770 has no significance with this motor model

ID32771 'Nominal torque'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	20
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	Nm
Data length:	2 byte	Min. value:	0.0 Nm
Signed:	NO	Max. value:	2000.0 Nm
Format:	DEC		
List:	NO		

The nominal torque depends on the motor and is to be taken from the respective type plate or data sheet of the motor.

ID32772 'Nominal velocity'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	30000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	10 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

The nominal speed depends on the motor and is to be taken from the respective type plate or data sheet of the motor.

ID32773 'Service bits'


Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0001 0000 0000 0101 (LSB)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Configuration ID32773 'Service bits'

Bit no.	Condition	Meaning
0	0	Monitoring of the sine encoder and resolver signals inactive
	1	Monitoring of the sine encoder and resolver signals The minimum and maximum level of sine and cosine tracks are monitored. The exceedance of the maximum level is tolerated once. Two consecutive exceedances lead to the diagnostic message 2311 'Encoder signal'. If the minimum level is fallen below once, the converter immediately switches off with the diagnostic message 2311.
1	0	Reserved
	1	Reserved
2	0	Motor deceleration control with RF withdrawal inactive
	1	Motor deceleration control with RF withdrawal When braking the motor, no acceleration may be detected by the system, otherwise it is immediately de-energised with the diagnostic message 2331 'System diagnostics: Ramp down error'.

Bit no.	Condition	Meaning
3	0	Reserved
	1	Reserved
4	0	Reserved
	1	Reserved
5	0	Operating mode after RF withdrawal (operating mode from before RF withdrawal is retained) When resetting the controller enable, the drive switches to the operating mode that was active before the RF withdrawal, provided no system booting has taken place in the meantime. A system booting is triggered, for example, by the "Clear error" function in the absence of a system ready message or by a parameter change in the database. A system booting generally switches the drive to the 'AMK main operation mode' (ID32800).
	1	Operating mode after RF withdrawal (digital speed control with setpoint zero) When resetting the controller enable, the drive switches to the "digital speed control with setpoint zero" operating mode (system-internal automatic operating mode change).
6-11	0	Reserved
	1	Reserved
12	0	KW-R06 / KW-R07 / Monitoring of square-wave pulse encoder input X132 inactive KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R07 / Monitoring of square-wave pulse encoder input X132 All square-wave pulse encoder input signals are tested for phase opposition with a comparator. KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
13	0	Monitoring acknowledgement, motor holding brake inactive
	1	Monitoring acknowledgement of motor holding brake See ID206 'Drive on delay time' on page 96. See ID207 'Drive off delay time' on page 97.
14	0	i ² t monitoring of motor inactive
	1	i ² t monitoring of motor If the value in ID114 'Overload limit motor' is exceeded, the warning message 2359 'Motor overload warning' is generated and warning bit code 33074 'Collective warning' and ID11 is set. As soon as ID33102 'Display overload motor' = 100 % is reached, the controller enable is withdrawn internally, the drive is braked according to ID32782 'Deceleration ramp RF inactive' until coming to a standstill, the acknowledgement QRF is set to zero and the error message 2360 'Error: motor overload' is generated. See ID109 'Motor peak current' on page 64. See ID34168 'Time maximum current motor' on page 271. Formula for calculating the overload time t_x with a current I_x : $k = \left[\left(\frac{ID109}{ID111} \right)^2 - 1 \right] \times ID34168$ $t_x = \frac{k}{\left(\frac{I_x}{ID111} \right)^2 - 1}$
15	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
16	0	With the positive setpoint, the motor rotates clockwise when looking at the motor shaft (A-bearing side)
	1	<p>Rotational direction of the motor is negated</p> <p>In order to invert the rotational direction without having to change the coordinate representation of setpoint and actual values, the polarity of the setpoint and actual values is inverted by setting bit 16 = 1.</p> <div style="text-align: center;"> </div> <p> With an absolute encoder, the actual position value results with a set negation bit: Actual position value = MaxPos - Pos MaxPos: Absolute range of the encoder, e.g. 4096 rotations Pos: current position of the encoder</p>
17	0	Reserved
	1	Reserved
18	0	Reduced DC bus voltage increase inactive
	1	<p>Reduced DC bus voltage increase</p> <p>When braking the motor, the torque is automatically reduced so that the shutdown threshold of the DC bus voltage is not reached and the error message 1059 'DC bus overvoltage' is not generated. In the U/f control the slope of the speed ramp is changed linear depending on the DC bus voltage. The derating increases linear beginning at a DC bus voltage of 650 VDC. Up from 780 VDC bus level the ramp is stopped completely.</p>
19-23	0	Reserved
	1	Reserved
24	0	Reserved
	1	Reserved
25	0	Inversion of the actual speed value inactive
	1	<p>Inversion of the actual speed value</p> <p>The inverted actual speed value is not only used for the display, but also for the speed control. See ID43 'Velocity polarity' on page 46.</p>
26	0	Voltage feedforward inactive for synchronous machines
	1	<p>Voltage feedforward active for synchronous machines</p> <p>The voltage feedforward in synchronous machines improves the dynamic properties and can be switched on independently of the application.</p> <p>Relevant parameters: (from the motor data sheet)</p> <p>ID34045 'Inductance path D'</p> <p>ID34046 'Inductance path Q'</p> <p>ID34233 'Phase resistance'</p> <p>ID34234 'Voltage constant Ke'</p>
27	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
28	0	Software commutation with alignment toward zero position (maximum movement of $\pm 0.5 \times$ pole period (distance between two poles) possible)
	1	Available for the field testing, not officially released: Low-movement software commutation active (Freedom of movement $\alpha \leq 5$ %electrically required) $\alpha_{\text{mechanical}} = \frac{\alpha_{\text{electrical}}}{\text{number of pole pairs}}$
29	0	KW-R06 / KW-R07 / KW-R16 / KW-R17 / Reserved iX / iC / iDT5 / iDP7 / Brake at encoder failure inactive
	1	KW-R06 / KW-R07 / KW-R16 / KW-R17 / Reserved iX / iC / iDT5 / iDP7 / Brake at encoder failure active Parallel to encoder evaluation the rotor position is determined sensorless. At encoder failure the motor is not running down but will be braked down in torque operation mode with the torque value entered in ID33150 'Brake torque'. IF ID33150 = 0 the motor is braked down in speed operation mode according ID32782 'Deceleration ramp RF inactive'. With ID33151 'Maximal angular deviation of encoder-sensorless' the sensorless evaluated rotor angle can be monitored.  This function must not be used for motors with E or F encoder!
29-31	0	Reserved
	1	Reserved

ID32774 'Rotor time constant'



Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	360
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	s
Data length:	2 byte	Min. value:	0.005 s
Signed:	NO	Max. value:	1.500 s
Format:	DEC		
List:	NO		

The rotor time constant T_R is to be taken from the type plate or data sheet of the motor. The rotor time constant is the electrical time constant of the rotor. For synchronous motors (motor types DT, DTK, DP, DS...), the value 0.01 must be entered in ID32774.

ID32775 'Pole number motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	4
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	2
Signed:	NO	Max. value:	400
Format:	DEC		
List:	NO		

The 'Pole number motor' describes the poles of a motor and is to be taken from the type plate or data sheet of the motor.

 WARNING	
	<p>Risk of injury from uncontrolled movements of the motor shaft</p> <p>If the number of motor poles is entered incorrectly, the motor is not controllable and can carry out uncontrolled movements as soon as the controller enable is set!</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • Check the entered number of motor poles before setting the controller enable. • Takes precautionary measures to ensure that no persons are in the total possible range of movement of the motor when the controller enable is set for the first time after the input of the 'Pole number motor'.

ID32776 'Sine encoder period'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1024
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	8
Signed:	NO	Max. value:	64000
Format:	DEC		
List:	NO		

The 'Sine encoder period' is to be taken from the type plate and data sheet of the motor or the encoder and gives the number of sine periods per rotation of the encoder, which is connected to the sine encoder input connection X131.

For linear motors, the number of sine periods per pole period must be entered in ID32776.

If the sine encoder division is entered incorrectly, the motor is not controllable and can carry out uncontrolled movements as soon as the controller enable is set!

EnDat encoder:

1st Linear measuring stick type: LC481, LC483

For EnDat linear measuring sticks, ID32776 must be calculated from the encoder's signal periods and ID123 and entered according to the following relationship:

$$ID32776 = \frac{ID123[mm] \times 1000}{Signal\ period[\mu m]}$$

Example:

ID123 = 24 mm (linear motor pole period from the linear motor data sheet)

Signal period (encoder) = 16 μm (encoder data sheet or with ID32843 'Service command' = 0x13 read out from the encoder)

PV (position refinement factor = 100 (see ID116 / ID117)

ID32776 = 1500 signal periods / pole period

ID116 = 600000 increments / pole period

Special cases:

1. ID32776 is smaller than the minimum value:
e. g.: ID123 = 5 mm, signal period = 1 mm --> ID32776 = 5
2. The distance between the two pole pairs is not to be divided by the length of the signal period without a remainder.
e. g. ID123 = 24 mm, signal period = 5 mm --> ID32776 = 4.8

Solution:

ID123 refers to ID32775 'Pole number motor'. This is assuming that the 'Pole number motor' in the aforementioned special case was 2. For the solution approach, ID123 should not be based on ID32775 = 2, but rather on, e.g., ID32775 = 20. The pole period in ID123 must also be multiplied by a factor of 10 because of the motor with the assumed number of poles by a factor of 10.

1. ID123 = 5 * 10 = 50 mm (instead of 5 mm), signal period = 1 mm --> ID32776 = 50
2. ID123 = 24 * 10 = 240 mm (instead of 24 mm), signal period = 5 mm --> ID32776 = 48

ID32777 'Torque relative to 10V at A1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%M _N
Data length:	2 byte	Min. value:	0 %M _N
Signed:	YES	Max. value:	1000 %M _N
Format:	DEC		
List:	NO		

ID32777 scales the torque setpoint at the analogue input A1 of the converter in the torque control operating mode. The input value in % refers to ID32771 'Nominal torque'. The scaling has an accuracy of approximately ±10 % and applies to the basic speed area up to the nominal speed. Above the nominal speed, the real torque decreases inversely proportionately to the speed. The voltage setpoint ±10 V is digitised with a resolution of 12 bits (based on 10 V).

Formula: Torque with 10 V voltage setpoint at input A1

$$ID32777 \leq \frac{ID110 \times 100\%}{\sqrt{ID111^2 - ID32769^2}}$$

Legend:

kidzl:	internal system factor
ID110:	'Converter peak current'
ID111:	'Motor nominal current I _N '
ID32769:	'Magnetising current'

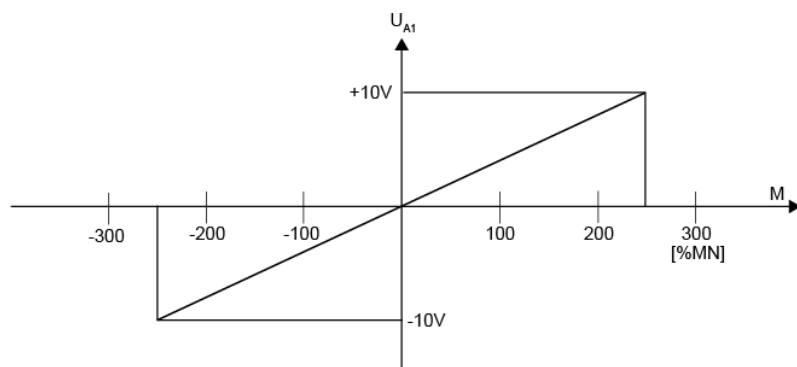
Example:

ID32777 = 250 %M_N, with 10 V input voltage at A1 (U_{A1})

Formula: Exemplary calculation for torque determination

$$M_{\text{target}} = 250 \% M_N \times \frac{U_{A1}}{10V}$$

Torque depending on the input voltage to A1



ID32778 'Speed relative to 10V at A1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	30000000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	YES	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

ID32778 sets the speed end value with 10 V input voltage at the analogue input A1. The voltage setpoint ± 10 V is digitised with a resolution of 12 bits (based on 10 V).

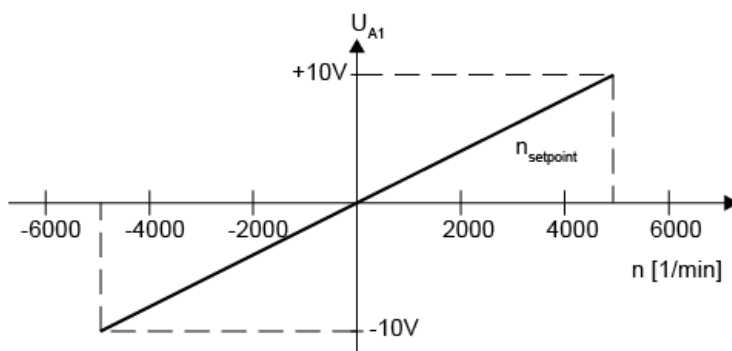
Example

With 10 V setpoint, the motor should turn with 5,000 min⁻¹. ID32778 = 5000

Formula: Exemplary calculation of the speed with 10V at A1, ID32778

$$10\text{ V} = 5000\text{ min}^{-1} \Rightarrow n_{\text{Target}} = 5000\text{ min}^{-1} \times \frac{U_{A1}}{10\text{ V}}$$

Speed depending on the input voltage to A1



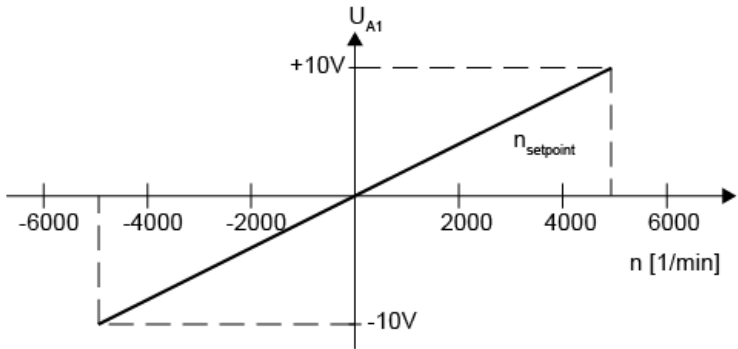
ID32779 'Speed offset for A1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	YES	Unit:	1/min
Data length:	4 byte	Min. value:	-100.0000 1/min
Signed:	YES	Max. value:	100.0000 1/min
Format:	DEC		
List:	NO		

In the operating mode 'analogue speed control,' ID32779 offers the possibility of compensating for the drift of the analogue input to zero (speed '0' is absolutely impossible!).

A corrective value unequal to '0' in ID32779 will be constantly added to the analogue speed setpoint with the proper sign. The change of the offset therefore causes a shift of the straight line on the voltage axis (U_{A1}), not a change of the slope of the line.

Speed depending on the input voltage to A1



With ID34037 'Offset analogue input 1' and ID34038 'Offset analogue input 2', the offset of the analogue inputs can be set independently of the operating mode.

ID32780 'Acceleration ramp'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	4 byte	Min. value:	1 ms
Signed:	YES	Max. value:	1200000 ms
Format:	DEC		
List:	NO		



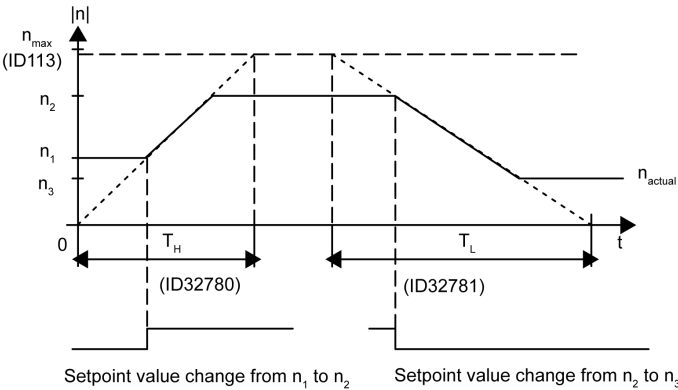
This parameter is only effective in the speed control operating mode (with analogue or digital setpoint).

By setting bit 6 = 1 in the operating mode parameter (ID32800ff), a ramp generator (acceleration / deceleration) acts on the speed controller input. The entered times apply for acceleration and deceleration between the speed 0 U/min and \pm ID113 'Maximum speed'.

The following figure shows the effect of the acceleration and deceleration time parameters. The following applies to the speed setpoint specification:

$|n_2| > |n_1| \rightarrow$ acceleration ramp
 $|n_3| < |n_2| \rightarrow$ deceleration ramp

Acceleration and deceleration times refer to the maximum speed



ID32781 'Deceleration ramp'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	4 byte	Min. value:	1 ms
Signed:	NO	Max. value:	1200000 ms
Format:	DEC		
List:	NO		



This parameter is only effective in the speed control operating mode (with analogue or digital setpoint).

By setting bit 6 = 1 in the operating mode parameter (ID32800ff), a ramp generator (acceleration / deceleration) acts on the speed controller input. The entered times apply for acceleration and deceleration between the speed 0 U/min and \pm ID113 'Maximum speed'.

The figure in ID32780 shows the effect of the acceleration and deceleration time parameters.

See ID32780 'Acceleration ramp' on page 132.

ID32782 'Deceleration ramp RF inactive'

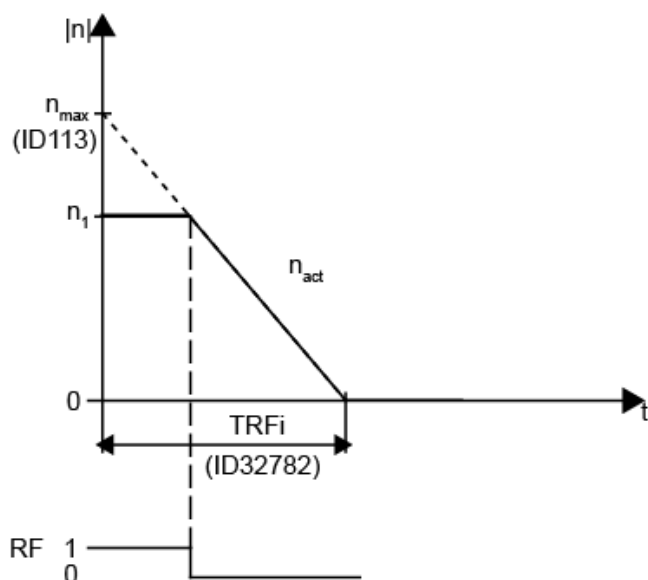
Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	ms
Data length:	4 byte	Min. value:	1 ms
Signed:	NO	Max. value:	1200000 ms
Format:	DEC		
List:	NO		



This parameter is only effective in the speed control operating mode (with analogue or digital setpoint).

When removing the controller enable, the motor is braked to a standstill after the ramp ID32782 'Deceleration ramp RF inactive' and then is torque-free. The time entered is valid for deceleration from maximum speed (ID113) to speed 0.

Deceleration time for RF inactive



$TRFi$: Deceleration time RF inactive (ID32782)

ID32785 'Message 16'

Supported hardware:	KE(N,S)		
Sphere of action:	DRIVE	Default value:	33101
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The configured display values can be evaluated by a controller via the ACC bus interface.



All 16-bit display values can also be configured in the 32-bit message ID32786.

Code / ID	Designation	Description
390	'Diagnostic number'	See ID390 'Diagnostic number' on page 115.
32836	'DC bus voltage'	See ID32836 'DC bus voltage' on page 150.
33101	'Display overload inverter'	See ID33101 'Display overload inverter' on page 212.
33116	'Temperature internal'	See ID33116 'Temperature internal' on page 214.
34144	'Nominal voltage effective'	See ID34144 'Nominal voltage effective' on page 263.
34145	'Line current effective'	See ID34145 'Line current effective' on page 263.
34197	'Display external component'	See ID34197 'Display external component' on page 280.
34198	'mains frequency'	See ID34198 'mains frequency' on page 280.

ID32786 'Message 32'

Supported hardware:	KE(N,S)		
Sphere of action:	DRIVE	Default value:	34058
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The configured display values can be evaluated by a controller via the ACC bus interface.



All 16-bit display values can also be configured in the 32-bit message ID32786.
See ID32785 'Message 16' on page 134.

Code / ID	Designation	Description
34058	'Line output'	See ID34058 'Line output' on page 247.

ID32795 'Source UE'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

For devices with an external main contactor, the source of the 'DC bus on' signal (UE) must be set via ID32795. The following sources are possible:

Code	Designation	Description	KE (N,S)	KE (N,S) -xEx	KW-R06 / KW-R16 / KW-R07 / KW-R17 /
0	UE via binary input	UE is configured for a binary input on the basic device. If this input is set, the UE control signal in the device is triggered and the DC bus is charged.	■	■	■
5	UE via fieldbus	UE is expected via fieldbus ACC bus: mapping via wDeviceControl EtherCAT: See ID134 'Master control word' bit 14	■	■	■
8	UE automatically derived from SBM	The UE signal is automatically derived from the state of SBM.	■	■	-
9	UE via parameter ID32903	A controller can set the UE signal by writing the parameter ID32903 'DC Bus on' in the target device.	■	-	-
25	UE via fieldbus &-linked with the binary input UE	like code 5 but &-linked with the binary input UE	■	■	■
28	UE automatically from SBM &-linked with binary input UE	like code 8 but &-linked with the binary input UE	■	■	-

Code	Designation	Description	KE (N,S)	KE (N,S) -xEx	KW-R06 / KW-R16 / KW-R07 / KW-R17 /
29	UE AND-linked with binary input UE via parameter ID32903	like code 9 but &-linked with the binary input UE	■	-	-



Changes in ID32795 'Source UE' are first effective with the next system start-up (mains OFF / ON).

Meaning for KW-R06 / KW-R07 /

If a KE(N,S) is connected to the ACC bus interface of the controller card, the command 'DC bus ON' is sent to the KE(N,S) to switch on the DC bus.

ID32796 'Source RF'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID32796 determines the source for the signal 'controller enable' (RF).

Code	Designation	Description
0	Controller enable (RF) via binary input	Controller enable is configured for a binary input on the basic device. If this input is set, the RF control signal in the device is triggered.
5	Controller enable via EtherCAT	The RF signal is expected via the EtherCAT interface. See ID134 'Master control word' on page 74.
25	RF via EtherCAT &-linked with the binary input UE	like code 5 but &-linked with the binary input RF



Changes in ID32796 'Source RF' are first effective with the next system start-up (mains OFF / ON).

The controller enable can be automatically removed within the system in the case of an error or, if available, from the functional safety.

ID32798 'User list 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	254

* The list length is the number of usage data elements without 4 byte head elements.

The 'User list 1' is a data set in the remanent memory area that is freely available to the user.

Configuration ID32798 'User list 1'

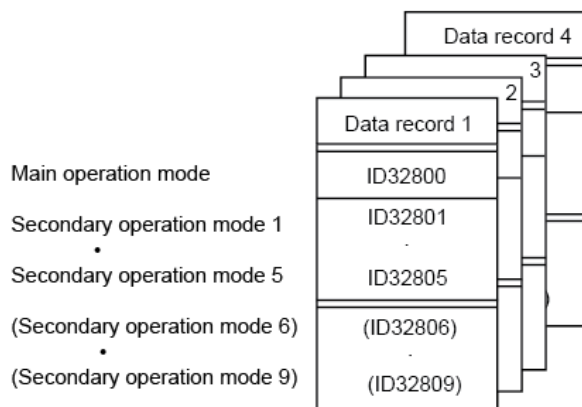
List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	508	List head: Maximum list length without list head [byte]
2		
3		
4		
...		
255		

ID32800 'AMK main operation mode'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	003C0043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

In every parameter set, the freely configurable operating mode ID32800 'AMK main operation mode' and the 5 secondary operating modes ID32801 'AMK secondary operation mode 1' to ID32805 are available for application-specific use. Use ID134 'Master control word' to switch between modes.



The secondary operating modes ID32806 'AMK secondary operation mode 6' to ID32809 'AMK digital speed control' are pre-configured at the factory and may not be changed by the user, because the drive-controlled movement functions, such as homing cycle, deceleration after controller enable removal, are only properly executed if the factory setting is maintained. After mains ON and an activated controller enable, the 'AMK main operation mode' is active. The last used operating mode is always active after a system booting by ID33730 or the command 'Clear Error' and activated controller enable.

Parameter organisation in data sets (a data set corresponds to a parameter set)**Configuration ID32800 - ID32809 'AMK operation modes'**

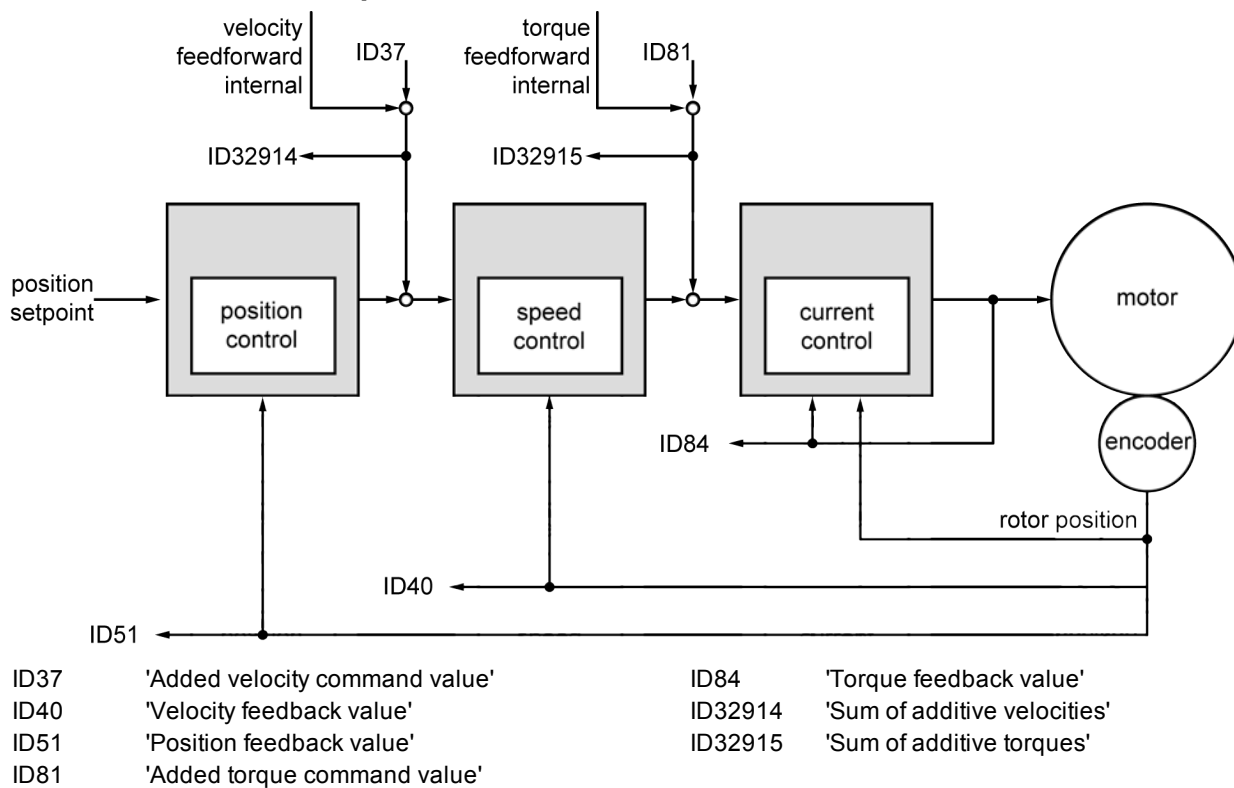
High word		Low word	
Bit 31			Bit 0 (LSB)
0 0 0 0 0 0 0 0	X X X X X X X X	X X X X X X X X	X X X X X X X X
reserved	Setpoint source	Operating mode, extensions, options	

Meaning of the bits ID32800 - ID32809

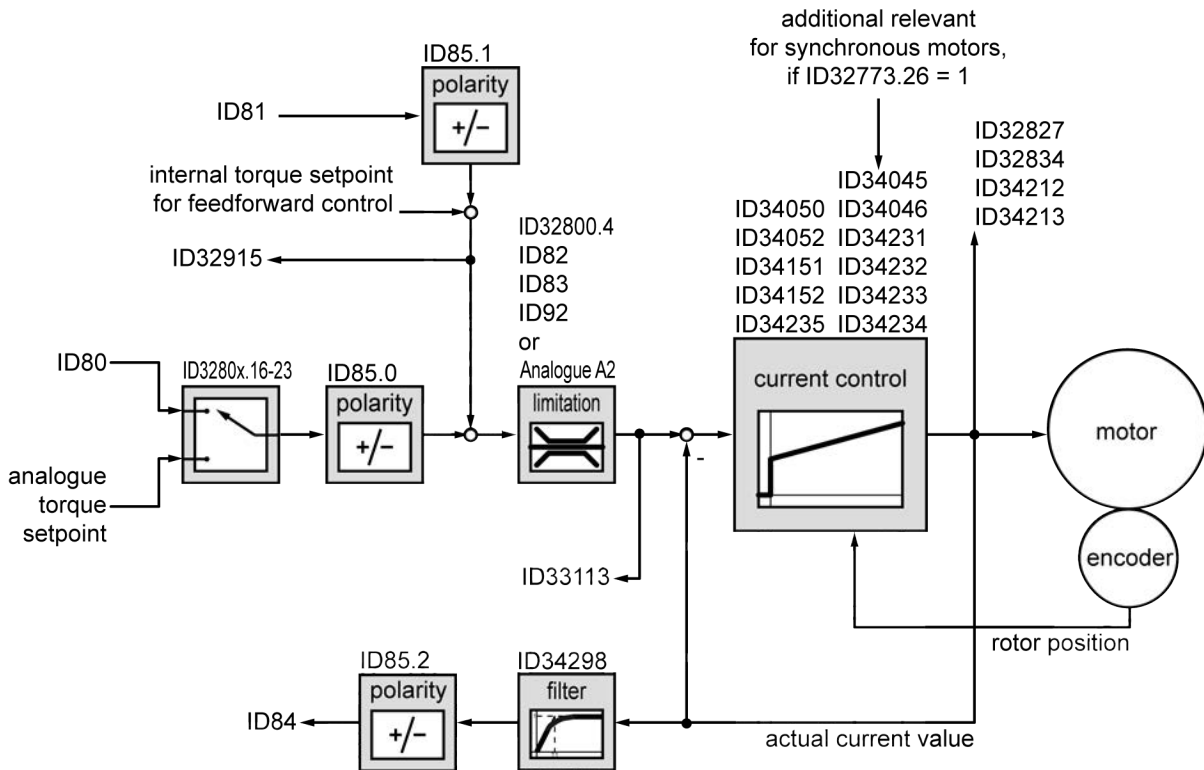
Bit no.	Condition	Meaning
0-3	0x0	No operating mode defined
	0x1	Reserved
	0x2	Torque control
	0x3	Speed control
	0x4	Position control
	0x5	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Parallel connection of the servo controller (operating mode for the slave) iX / iC / iDT5 / iDP7 / Reserved
	0x6	Reserved
	0x7	Reserved
4	0	Torque limiting per ID82, ID83, (ID92)
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Torque limiting per analogue input A2 iX / iC / iDT5 / iDP7 / Reserved
5	0	Reserved
	1	Reserved
6	0	Setpoint ramp inactive
	1	Setpoint ramp in the speed control operating mode (ID32780, ID32781) active
7	0	Speed fine interpolator (FIPO) inactive
	1	Speed fine interpolator (FIPO) in the speed control operating mode inactive (does not work with analogue setpoint setting!) The speed fine interpolator supplies 1 speed setpoint/250µs, synchronised to ID2 'SERCOS cycle time'.
8	0	Position controller type P-controller
	1	Reserved
9	0	Following error compensation (SAK) inactive
	1	Following error compensation in the position control operating mode for setpoints via ID47 and setpoints from the drive-internal interpolator
10	0	Position fine interpolator (FIPO) inactive
	1	Position fine interpolator (FIPO) active in the position control operating mode The position fine interpolator supplies 1 position setpoint/250µs, synchronised to ID2 'SERCOS cycle time'.
11	0	KW-R06 / KW-R07 / Following error compensation (SAK) inactive KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R07 / Active following error compensation in the position control operating mode for setpoints via pulse encoder input KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
12	0	Reserved
	1	Reserved
13	0	Modulo value is formed from the active actual position value source (see bit 14).
	1	Modulo value is formed according to ID103.

Bit no.	Condition	Meaning
14	0	Actual position value source of motor encoder ID32953, ID116  The actual position value source must be set in the 'AMK main operation mode' and automatically applies for the operating modes.
	1	KW-R06 / KW-R07 / The actual position value source of the external encoder ID32953, ID117, ID115, gear ratio ID121, ID122 is taken into consideration  The actual position value source must be set in the 'AMK main operation mode' and automatically applies for all operating modes. Bit 14 is not evaluated if a second. encoder is selected in ID34297 'Encoder type 2'. KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
15	0	Reserved
	1	Reserved
16-23	0x01	analogue entry A1
	0x03	KW-R06 / KW-R07 / Pulse encoder input KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0x3C 0x41	KW-R06 / KW-R07 / Setpoint sources 0x43 + 0x03 KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Setpoint source 0x43
	0x43	Cyclical setpoint setting via fieldbus <ul style="list-style-type: none"> • ID36 'Velocity command value' • ID47 'Position command value' • ID80 'Torque command value' Plus the feed forward values <ul style="list-style-type: none"> • ID37 'Added velocity command value' • ID81 'Added torque command value'
	0x44	internal interpolator
	0x48	Reserved for AMK internal use: Setpoint setting through internal modules
24-31	0	Reserved
	1	Reserved

Overview of control loops



Torque control and current controller

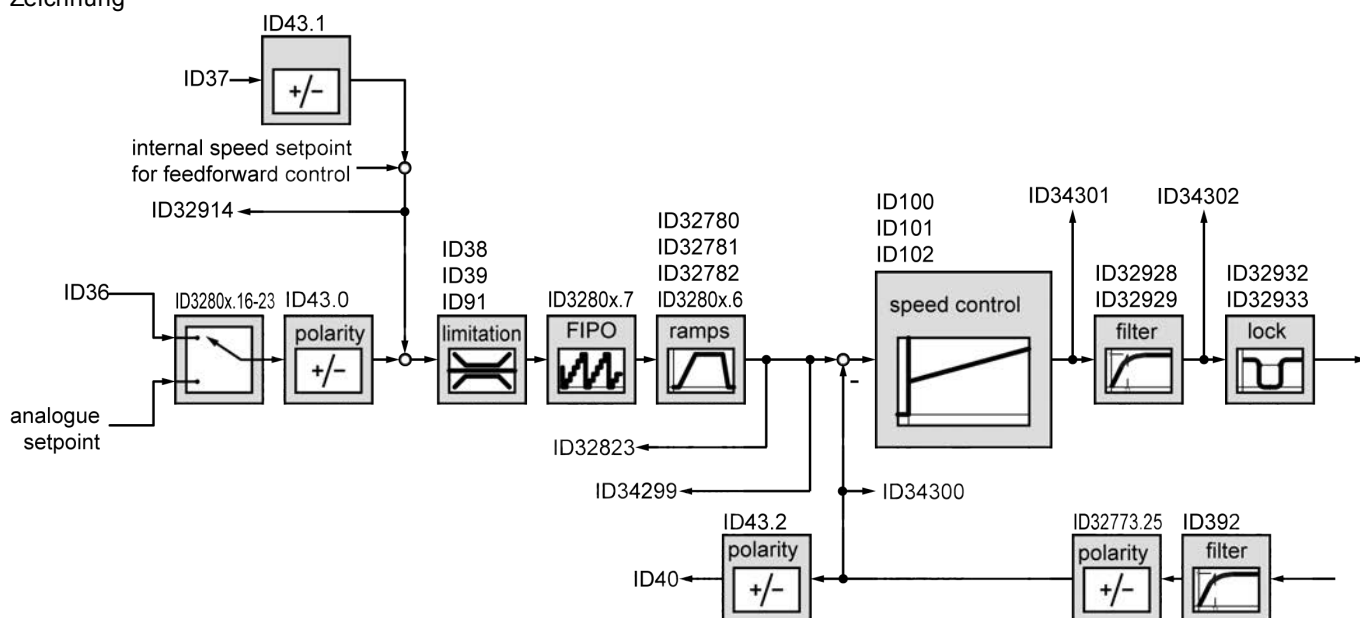


ID80	'Torque command value'
ID81	'Added torque command value'
ID82	'Positive torque limit'
ID83	'Negative torque limit'
ID84	'Torque feedback value'
ID85	'Torque polarity'
ID92	'Bipolar torque limit'
ID32773	'Service bits'
ID32827	'Magnetising current feedback'
ID32834	'Torque current feedback'
ID32915	'Sum of additive torques'
ID33113	'Torque setpoint at controller'
ID34045	'Inductance path D'

ID34046	'Inductance path Q'
ID34050	'Current path Q integral-action time'
ID34052	'Current path D integral-action time'
ID34151	'Current path Q proportional gain'
ID34152	'Current path D proportional gain'
ID34212	'Voltage path Q'
ID34213	'Voltage path D'
ID34231	'Pilot control voltage path Q'
ID34232	'Pilot control voltage path D'
ID34233	'Phase resistance'
ID34234	'Voltage constant Ke'
ID34235	'Increase motor voltage'
ID34298	'Torque feedback filter'

Speed control with digital or analogue setpoint

Zeichnung



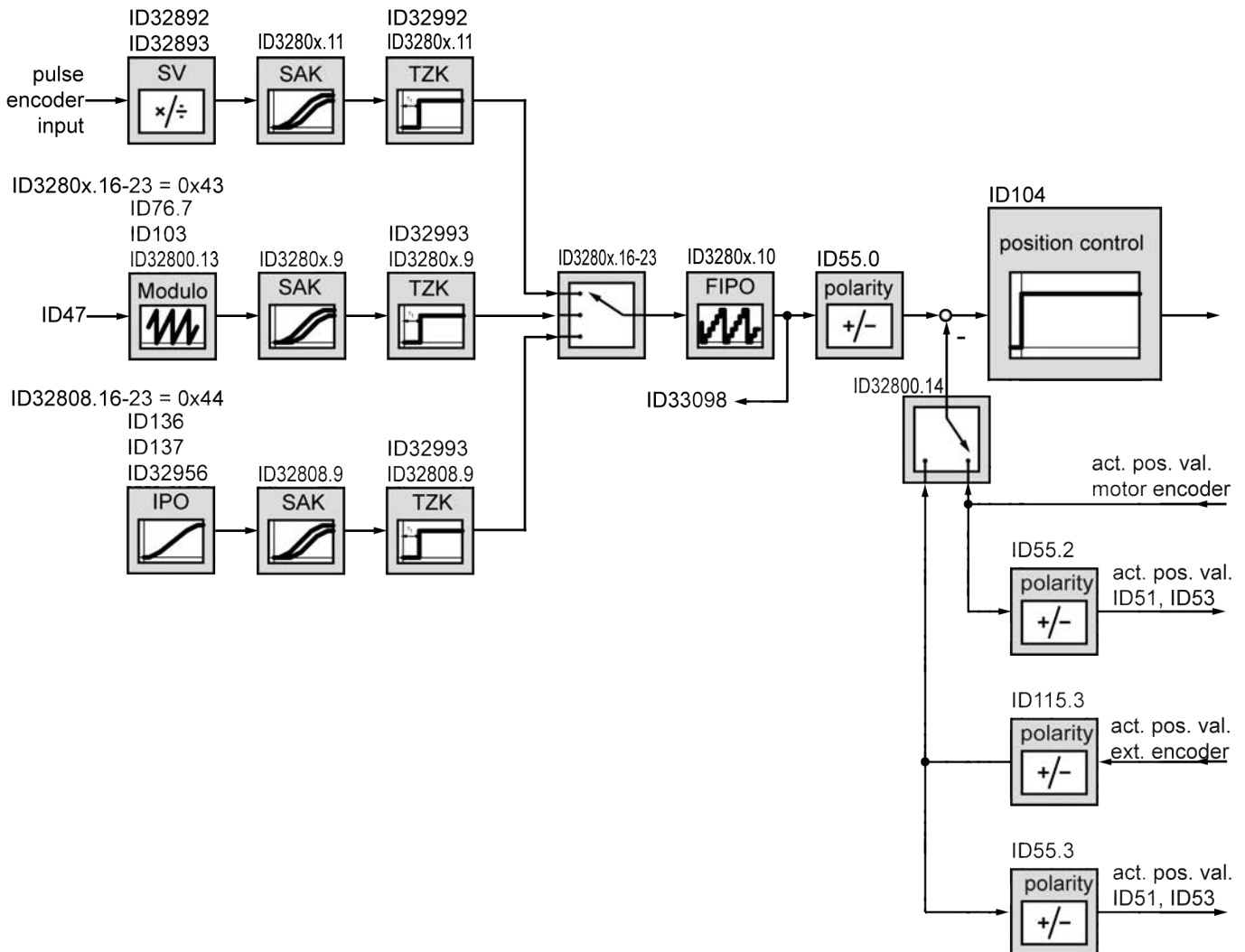
ID36	'Velocity command value'
ID37	'Added velocity command value'
ID38	'Positive velocity limit'
ID39	'Negative velocity limit'
ID40	'Velocity feedback value'
ID43	'Velocity polarity'
ID91	'Bipolar velocity limit'
ID100	'Speed control proportional gain'
ID101	'Integral-action time speed control'
ID102	'Differentiating time speed control TD'
ID392	'Velocity setpoint filter'
ID32773	'Service bits'
ID32780	'Acceleration ramp'

ID32781	'Deceleration ramp'
ID32782	'Deceleration ramp RF inactive'
ID32800	'AMK main operation mode'
ID32823	'Velocity control command after ramp'
ID32914	'Sum of additive velocities'
ID32928	'Time filter 1'
ID32929	'Time filter 2'
ID32932	'Barrier frequency'
ID32933	'Bandwidth'
ID34299	'Velocity setpoint in control'
ID34300	'Velocity actual value in control'
ID34301	'Torque setpoint filter input'
ID34302	'Torque setpoint filter output'

Position control

Meaning for KW-R06 / KW-R07 /

ID3280x.16-23 = 0x03



ID47	'Position command value'
ID51	'Position feedback value'
ID53	'Position feedback value 2'
ID55	'Closed loop polarity'
ID76	'Position data scaling'
ID103	'Modulo value'
ID104	'Position loop factor'
ID115	'Position feedback type'
ID136	'Positive acceleration'
ID137	'Negative acceleration'

ID32800	'AMK main operation mode'
ID32808	'AMK position control'
ID32892	'Synchronous setpoint pulses divider'
ID32893	'Synchronous setpoint pulses multiplier'
ID32956	'Additional acceleration value'
ID32992	'Dead time compensation 1'
ID32993	'Dead time compensation 2'
ID33098	'Increase position value 2'
ID33104	'Position feedback modulo'

Meaning for KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 /

ID3280x.16-23 = 0x43

ID76.7

ID103

ID32800.13

ID3280x.9

ID32993

ID3280x.9

ID3280x.16-23

ID3280x.10

ID55.0

ID104

ID47

ID32808.16-23 = 0x44

ID136

ID137

ID32956

ID32808.9

ID32993

ID32808.9

ID47 'Position command value'

ID51 'Position feedback value'

ID55 'Closed loop polarity'

ID76 'Position data scaling'

ID103 'Modulo value'

ID104 'Position loop factor'

ID136 'Positive acceleration'

ID137 'Negative acceleration'

ID32800 'AMK main operation mode'

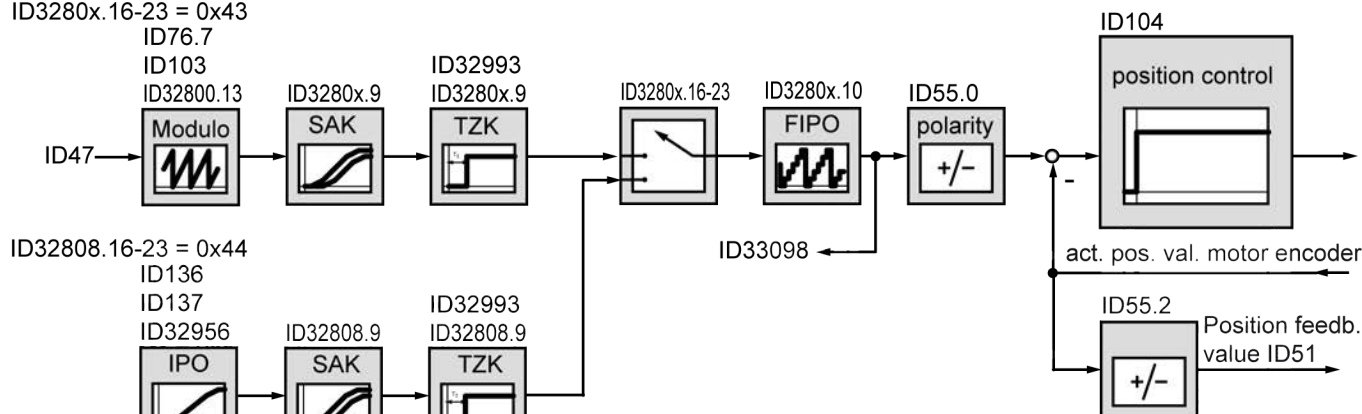
ID32808 'AMK position control'

ID32956 'Additional acceleration value'

ID32993 'Dead time compensation 2'

ID33098 'Increase position value 2'

ID33104 'Position feedback modulo'



ID32801 'AMK secondary operation mode 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32802 'AMK secondary operation mode 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32803 'AMK secondary operation mode 3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32804 'AMK secondary operation mode 4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32805 'AMK secondary operation mode 5'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32806 'AMK secondary operation mode 6'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00010043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The secondary operating modes ID32806 'AMK secondary operation mode 6' to ID32809 'AMK digital speed control' are pre-configured at the factory and may not be changed by the user, because the drive-controlled movement functions, such as homing cycle, deceleration ramp after controller enable withdrawn, are only properly executed if the factory setting is maintained.

See ID32800 'AMK main operation mode' on page 137.

ID32807 'AMK digital torque control'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00480002
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The secondary operating modes ID32806 'AMK secondary operation mode 6' to ID32809 'AMK digital speed control' are pre-configured at the factory and may not be changed by the user, because the drive-controlled movement functions, such as homing cycle, deceleration ramp after controller enable withdrawn, are only properly executed if the factory setting is maintained.

See ID32800 'AMK main operation mode' on page 137.

ID32808 'AMK position control'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00440404
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The secondary operating modes ID32806 'AMK secondary operation mode 6' to ID32809 'AMK digital speed control' are pre-configured at the factory and may not be changed by the user, because the drive-controlled movement functions, such as homing cycle, deceleration ramp after controller enable withdrawn, are only properly executed if the factory setting is maintained.

See ID32800 'AMK main operation mode' on page 137.

ID32809 'AMK digital speed control'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	00480043
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The secondary operating modes ID32806 'AMK secondary operation mode 6' to ID32809 'AMK digital speed control' are pre-configured at the factory and may not be changed by the user, because the drive-controlled movement functions, such as homing cycle, deceleration ramp after controller enable withdrawn, are only properly executed if the factory setting is maintained.

See ID32800 'AMK main operation mode' on page 137.

ID32813 'Parameter set assignment 1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	03 02 01 00
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

The parameter set assignment defines a main parameter set and 3 alternative parameter sets. The parameter sets can be switched with ID216 'Switch parameter set command' and ID217 'Preselect parameter set command'.

Default setting: ID32813 = 0x 03 02 01 00

The following applies:

Data set number 0x00 Main parameter set

Data set number 0x01: 1st alternative parameter set

Data set number 0x02: 2nd alternative parameter set

Data set number 0x03: 3rd alternative parameter set

See ID32800 'AMK main operation mode' on page 137.

ID32821 'Password'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

If a password is entered that deviates from the default value, parameters can only be accessed as read-only with the PC software 'AipexLite.exe.' In order to be able to write parameters, the password must be entered in advance. The password protection does not work for the PC software 'AIPEX PRO.'

ID32823 'Velocity control command after ramp'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID32824 'Following distance'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID32824 shows the same content as ID189 'Following distance'.

ID32826 'Following error compensation value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648 Increments
Signed:	YES	Max. value:	2147483647 Increments
Format:	DEC		
List:	NO		

ID32826 shows the compensation value (pre-control value) for the active 32-bit follow error compensation (SAK).

ID32827 'Magnetising current feedback'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-1000.0 A
Signed:	YES	Max. value:	1000.0 A
Format:	DEC		
List:	NO		

ID32827 shows the actual value of the magnetising current (isd).

ID32828 'Current feedback phase U'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	YES / NO	Unit:	A
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID32828 shows the actual current value of the motor phase U.

ID32829 'Current feedback phase V'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	YES / NO	Unit:	A
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID32829 shows the actual current value of the motor phase V.

ID32830 'Current feedback phase W'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	YES / NO	Unit:	A
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID32830 shows the actual current value of the motor phase W.

ID32831 'Resolver angle'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID32831 shows the commutation angle when aligning the rotor of a synchronous motor with the command ID32843 'Service command' = 0xEDA5.

ID32832 'Encoder signal S2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	mV
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID32832 displays the value of the encoder signal S2.

ID32833 'Encoder signal S1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	mV
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID32833 displays the value of the encoder signal S1.

ID32834 'Torque current feedback'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-1000.0 A
Signed:	YES	Max. value:	1000.0 A
Format:	DEC		
List:	NO		

ID32834 displays the actual value of the current which is responsible for the active torque.

ID32835 'Torque command value internal'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
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Reserved for AMK internal use!

ID32836 'DC bus voltage'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0 V
Signed:	NO	Max. value:	4096 V
Format:	DEC		
List:	NO		

ID32836 displays the actual value of the DC bus voltage.

ID32837 'DC bus voltage monitoring'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID32837 defines the lower permissible voltage for the DC bus.

A device-specific value is to be entered in the SEEP memory at the factory for the DC bus voltage monitoring.

The following applies:

ID32837 = 0 (The factory-set, device-specific value is the voltage for which the DC bus voltage is monitored.)

ID32837 ≠ 0 (The entered value is the voltage [0.1 V] for which the DC bus voltage is monitored.)

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7:

The controller enable can only be switched on if the current DC bus voltage is higher than the value in ID32837. The DC bus voltage is monitored during the active controller enable.

ID32840 'Diagnostic list'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Max. list length: 1120

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Max. list length: 1120

Values for KE(N,S) / KE(N,S)-xEx /

Max. list length: 560

Values for iX / iC / iDT5 / iDP7 /

Max. list length: 1120

The 'Diagnostic list' contains all of the diagnostic messages that a device generates. In addition, the error messages of the connected bus slaves are saved in the devices that are configured as bus masters if they were transferred from the bus slaves to the master. The assignment of a diagnostic message to the participants is ensured through the bus participant address (element 2). The command 'Clear error' or mains on / off clears the entries in the diagnostic list.

Every diagnostic message fills the structure 'ERROR STRUCT,' as shown in table 'Configuration ID32840' element 2 to 15.

The first diagnostic message is entered in ID32840 in element 2-15, the second diagnostic message in element 16-29 and so on. The current list length depends on the number of generated diagnostic messages.

Configuration ID32840 'Diagnostic list'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	2 x z	List head: Maximum list length without list head [byte]
2	2 byte	Bus participant address of the reporting participant
3	2 byte	4-digit diagnostic number
4	2 byte	Function number (module)
5	2 byte	Error classification (class)
6	4 byte	Error code
7		
8	4 byte	Error additional info 1
9		
10	4 byte	Error additional info 2
11		
12	4 byte	Error additional info 3
13		
14	4 byte	Time allocation (system time)
15		
...
z+1		

z = Maximum list length

ID32841 'Encoder list motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	37

* The list length is the number of usage data elements without 4 byte head elements.

S, T, E, F, P, Q, U and V encoders have an internal memory in which AMK saves motor parameters at the factory. The 'Encoder list motor' specifies which parameters are saved in the encoder and cannot be changed by the user.

The parameters listed in 'Encoder list motor' are only read in the following cases and overwrite the current values in the parameter set:

- Initially loaded systems
It is checked during the system booting whether the motor parameters listed in ID32841 correspond to their initially loaded values (ID34160 'Part number motor' is ignored). Only when the motor parameters from the 'Encoder list motor' have their initially loaded values will the parameter values be read from the encoder and overwrite the originally loaded values in all parameter sets.
- ID32843 'Service command' = 0x20
The values of the parameters contained in the 'Encoder list motor' are read into the device by the encoder and overwrite there the current values in all parameter sets of the drive.

Configuration ID32841 'Encoder list motor'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	74	List head: Maximum list length without list head [byte]
2		

List element	Content	Meaning
3		
...		
38

ID32842 'Encoder list customer'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	64

* The list length is the number of usage data elements without 4 byte head elements.

The 'Encoder list customer' determines which of the user's parameter values are saved in the encoder database. The list can be freely configured, whereby only those parameters may be entered whose values can be changed. The entry of parameters with a non-changeable value leads to an error message when saving in the system. The usable memory capacity for the user data in the encoder (E, F, S, T, P, Q, U and V encoder) is 60 words. The sum of all data from the 'user encoder list' may not exceed this memory capacity, otherwise the diagnostic message 2310 'encoder communication' info 15 is generated. The number of parameters that can be saved depends on the parameter characteristics.

The 'Encoder list customer' can be read (ID32843 = 0x21) and written (ID32843 = 0x1) with ID32843 'Service command'.



After the parameters have been written in the encoder, mains off / on must be carried out.

The user data is automatically loaded after the motor data for ID32843=0x20 or initial system loading and overwrites this.

Example:

ID no.	Designation	Parameter set	Value	Size	Scale	Content
111	'Motor nominal current IN'	0	5.50 A	2 words	0.001 A	5500
116	'Resolution motor encoder'	3	65536	2 words	Increments	65536
82	'Positive torque limit'	2	100 % MN	1 word	0.1 % M _N	1000
83	'Negative torque limit'	1	100 % MN	1 word	0.1 % M _N	1000
32780	'Acceleration ramp'	1	2000 ms	2 words	0.1 ms	20000
32781	'Deceleration ramp'	3	1000 ms	2 words	0.1 ms	10000

Configuration ID32842 'Encoder list customer' for example

List element	Content	Meaning
0	24	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	128	List head: Maximum list length without list head [byte]
2	111	ID no. from example
3	0	Parameter set
4	116	ID no. from example
5	3	Parameter set
6	82	ID no. from example
7	2	Parameter set
8	83	ID no. from example
9	1	Parameter set
10	32780	ID no. from example
11	1	Parameter set

List element	Content	Meaning
12	32781	ID no. from example
13	3	Parameter set
...	0	-
65	0	-

Encoder memory configuration for example

Memory capacity	Content
Word 1	ID111 + parameter set 0
Word 2 and 3	5500
Word 4	ID116 + parameter set 3
Word 5 and 6	65536
Word 7	ID82 + parameter set 2
Word 8	1000
Word 9	ID83 + parameter set 1
Word 10	1000
Word 11	ID32780 + parameter set 1
Word 12 and 13	20000
Word 14	ID32781 + parameter set 3
Word 15	10000

See ID32901 'Global service bits' on page 176.

ID32843 'Service command'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /


Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		



Meaning for A4 / A5 /





Reserved for AMK internal use!






Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /





Service commands



Code	Designation	Description
0x0	No function	No command active
0x1	Writing user data in the encoder	<p>The current values of the parameters entered in ID32842 'Encoder list customer' are written in the encoder memory (E, F, P, Q, S, T, U and V encoders).</p> <p> After the parameters have been written in the encoder, mains off / on must be carried out.</p>
0x10	Set the current encoder position as the centre of the value range	<p>ID403, bit 0 homing point known is reset.</p> <p>The current encoder position is stored in the encoder as the central position (F, Q, V and T encoders). The set central position is converted to the starting position via an internal offset value with an accuracy of n-integral revolutions. The commutation offset within one revolution is not changed, therefore the deviation of the central position from the desired central position is ± 0.5 revolutions.</p>




Code	Designation	Description						
0x12	Set the current encoder position to a new value	<p>ID403, bit 0 homing point known is reset.</p> <p>The current encoder position of an E, F, P, Q, S, T, U or V encoder is set to a desired value. The set encoder position is converted to the starting position via an internal offset value with an accuracy of n-integral revolutions. In order to also realise the desired position within one revolution, a commutation offset value is formed internally, which stores the offset to the commutation and compensates automatically. This allows the set encoder position to be achieved with an accuracy of a few increments (depending on the digital resolution of the encoder).</p> <p>The desired position value is entered in ID32942 'Service control' and written in the encoder with the service command. The permissible position values are to be entered containing an algebraic sign, depending on the rotational direction of the motor.</p> <table><tr><th>Parameter setting</th><th>permissible position values</th></tr><tr><td>ID32773 Bit 16 = 0</td><td>0 to +Xmax*</td></tr><tr><td>ID32773 Bit 16 = 1</td><td>-Xmax* to 0</td></tr></table> <p>* Xmax = ID116 x distinguishable revolutions of the encoder</p> <p>If the position value in ID32942 is not in the permissible values range, the diagnostic message error 2310 'Encoder communication', Info1 = 33 is generated.</p> <p>If the position value in ID32942 is larger than the maximum value of the encoder (absolute value range), the diagnostic message error 2310 'Encoder communication', Info1 = 34 is generated.</p> <p> The command "Set encoder position" (0x12) can also be used to set the central position in the encoder even more precisely than with the service command "Set central encoder position" (0x10).</p>	Parameter setting	permissible position values	ID32773 Bit 16 = 0	0 to +Xmax*	ID32773 Bit 16 = 1	-Xmax* to 0
Parameter setting	permissible position values							
ID32773 Bit 16 = 0	0 to +Xmax*							
ID32773 Bit 16 = 1	-Xmax* to 0							
0x13	Reading the internal resolution of a P and Q encoder	<p>The service command 0x13 reads the internal digital encoder resolution for P and Q encoders (MPU measuring steps per revolution) and the signal periods with a linear scale and writes the value in ID32942 'Service control'.</p>						
0x14	Reading the absolute position from the encoder	<p>The service command "Read absolute position" writes the absolute actual position value of the encoder, in terms of ID116 'Resolution motor encoder' and ID117 'Resolution external position feedback system', in ID32942 'Service control'. The value in ID32942 can be read out and evaluated by a controller.</p> <p> The absolute position may only be read when stationary.</p>						
0x20	Reading the motor data from the encoder	<p>The parameter values set via ID32841 'Encoder list motor' are read from the encoder memory (E, F, P, Q, S, T, U, V encoder) and stored in the current parameter set.</p>						
0x21	Reading the user data from the encoder	<p>The parameter values set via ID32842 'Encoder list customer' are read from the encoder memory (E, F, P, Q, S, T, U, V encoder) and stored in the current parameter set.</p>						

Code	Designation	Description
0x30	Open brake	<p>iX / iC / iDT5 / iDP7 /</p> <div style="background-color: #800000; color: white; padding: 5px; text-align: center;">  DANGER </div> <div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2; padding-left: 20px;"> <p>Risk of injury from suspended axes</p> <p>The optional motor brake is a holding brake and does NOT provide sufficient protection for persons.</p> <p>During startup, while testing the motor brake, suspended axes can fall and lead to severe injury.</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • All suspended axes must be mechanically secured against falling with a fall arrester or a supplementary external brake, for instance. </div> </div> <p>Motor holding brake is opened</p>
0x31	Close brake	<p>iX / iC / iDT5 / iDP7 /</p> <p>Motor holding brake is closed</p>
0xEDA2*)	Enable manual encoder tuning for commutation with synchronous motors (E, F, P, Q, S, T encoder)	<div style="background-color: #800000; color: white; padding: 5px; text-align: center;">  DANGER </div> <div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2; padding-left: 20px;"> <p>Uncontrolled rotational movements of the motor shaft!</p> <p>Motors overspeed if the controller is enabled without the encoder tuning function having been executed successfully or the encoder tuning function has not been started. The velocity can be up to 1.25 x ID113 'Maximum speed' before the drive switches off and runs down with the diagnostic message 2319 'n > nmax'.</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • If there is an erroneous input in parameter ID32843, 'Service command' cancel the procedure by disconnecting the system completely from the supply and repeat the encoder tuning. • If the encoder tuning has not yet been completed, start the function by entering ID32843=0xEDA3 into the parameter. Follow the instructions on carrying out the encoder tuning function. </div> </div>

Code	Designation	Description
		<div style="background-color: #f4a460; padding: 5px; text-align: center;">  WARNING </div> <div style="display: flex; justify-content: space-between; align-items: flex-start; padding: 10px;"> <div style="width: 30%; text-align: center;">  </div> <div style="width: 65%;"> <p>Danger from uncontrolled rotational movements of the motor shaft!</p> <p>When implementing the encoder tuning function, uncontrolled rotational movements of the motor shaft occur with an external current feed (inherent to its functional principle), which may cause dangerous situations!</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • Ensure that all prerequisites are met that are required for the implementation of the encoder tuning function. • Ensure that no persons are in the immediate vicinity of the motor. • Secure the motor (e.g. with a tension belt across the housing) so that it does not tip in the event jerky movements. </div> </div> <p>ID403, bit 0 homing point known is reset.</p> <p>The current encoder position after the alignment is stored as the new zero position for the commutation in the encoder (E, F, P, Q, S, T, U, V encoders).</p> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;"> <p>The rotor must be manually aligned, e.g. using mechanical alignment or an external current feed.</p> </div> </div>
0xEDA3 ^{*)}	Enable automatic encoder tuning for commutation with synchronous motors	<div style="background-color: #a52a2a; padding: 5px; text-align: center;">  DANGER </div> <div style="display: flex; justify-content: space-between; align-items: flex-start; padding: 10px;"> <div style="width: 30%; text-align: center;">  </div> <div style="width: 65%;"> <p>Uncontrolled rotational movements of the motor shaft!</p> <p>Motors overspeed if the controller is enabled without the encoder tuning function having been executed successfully or the encoder tuning function has not been started. The velocity can be up to 1.25 x ID113 'Maximum speed' before the drive switches off and runs down with the diagnostic message 2319 'n > nmax'.</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • If there is an erroneous input in parameter ID32843, 'Service command' cancel the procedure by disconnecting the system completely from the supply and repeat the encoder tuning. • If the encoder tuning has not yet been completed, start the function by entering ID32843=0xEDA3 into the parameter. Follow the instructions on carrying out the encoder tuning function. </div> </div>

Code	Designation	Description
		<div style="background-color: #f4a460; padding: 5px; border: 1px solid black; text-align: center;">  WARNING </div> <div style="display: flex; align-items: center; justify-content: space-between; padding: 10px;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2;"> <p>Danger from uncontrolled rotational movements of the motor shaft!</p> <p>When implementing the encoder tuning function, uncontrolled rotational movements of the motor shaft occur with an external current feed (inherent to its functional principle), which may cause dangerous situations!</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • Ensure that all prerequisites are met that are required for the implementation of the encoder tuning function. • Ensure that no persons are in the immediate vicinity of the motor. • Secure the motor (e.g. with a tension belt across the housing) so that it does not tip in the event jerky movements. </div> </div> <p>ID403, bit 0 homing point known is reset.</p> <p>The motor carries out the encoder tuning automatically by starting the current feed via a positive edge to the RF after the enable command. The time between the enable command the edge to the RF must be less than 60 seconds (timeout 60 s). RF is automatically withdrawn after the encoder tuning. The correction value is stored in the encoder for E, F, P, Q, S, T, U and V encoders.</p> <p>See ID34099 'Delay time SWC' on page 258.</p>
0xEDA5 ^{*)}	Enable automatic alignment for synchronous motors	<div style="background-color: #f4a460; padding: 5px; border: 1px solid black; text-align: center;">  WARNING </div> <div style="display: flex; align-items: center; justify-content: space-between; padding: 10px;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2;"> <p>Danger from uncontrolled rotational movements of the motor shaft!</p> <p>When implementing the encoder tuning function, uncontrolled rotational movements of the motor shaft occur with an external current feed (inherent to its functional principle), which may cause dangerous situations!</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • Ensure that all prerequisites are met that are required for the implementation of the encoder tuning function. • Ensure that no persons are in the immediate vicinity of the motor. • Secure the motor (e.g. with a tension belt across the housing) so that it does not tip in the event jerky movements. </div> </div>

Code	Designation	Description
		<p>The rotor of a synchronous machine aligns itself by starting the current feed via a positive edge to the RF after the enable command. The time between the enable command the edge to the RF must be less than 60 seconds (timeout 60 s).</p> <p>The current feed is maintained until the manual withdrawal of the RF. After a maximum of two minutes, the current feed is ended.</p> <p>Resolver tuning through mechanical alignment of the encoder: While the rotor is being supplied with power and aligned, the detached encoder is turned on the shaft so that the ID32831 'Resolver angle' = 0. The encoder must be screwed tightly in this position.</p> <p>Resolver tuning without mechanical alignment of the encoder: If the rotor is aligned with an affixed encoder, the current commutation angle can be read out in ID32831 and the allocated commutation angle can be entered in ID32959.</p>
0xEDA6	<p>Enable automatic encoder tuning for commutation with synchronous motors with KW-R06 / KW-R07 / R- or H encoder, connected to the resolver input</p> <p>iX / iC / iDT5 / iDP7 / H encoder, connected to the sine encoder input</p>	<div style="background-color: #800000; color: white; padding: 5px; text-align: center;">  DANGER </div> <div style="display: flex; align-items: center; justify-content: space-between; padding: 10px;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2;"> <p>Uncontrolled rotational movements of the motor shaft!</p> <p>Motors overspeed if the controller is enabled without the encoder tuning function having been executed successfully or the encoder tuning function has not been started. The velocity can be up to 1.25 x ID113 'Maximum speed' before the drive switches off and runs down with the diagnostic message 2319 'n > nmax'.</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • If there is an erroneous input in parameter ID32843, 'Service command' cancel the procedure by disconnecting the system completely from the supply and repeat the encoder tuning. • If the encoder tuning has not yet been completed, start the function by entering ID32843=0xEDA3 into the parameter. Follow the instructions on carrying out the encoder tuning function. </div> </div>

Code	Designation	Description
		<div style="border: 1px solid black; padding: 10px;"> <div style="background-color: #f4a460; padding: 5px; text-align: center;">  WARNING </div> <div style="display: flex; align-items: center; justify-content: space-between; padding: 10px 0;"> <div style="text-align: center;">  </div> <div> <p>Danger from uncontrolled rotational movements of the motor shaft!</p> <p>When implementing the encoder tuning function, uncontrolled rotational movements of the motor shaft occur with an external current feed (inherent to its functional principle), which may cause dangerous situations!</p> <p>Steps to prevent:</p> <ul style="list-style-type: none"> • Ensure that all prerequisites are met that are required for the implementation of the encoder tuning function. • Ensure that no persons are in the immediate vicinity of the motor. • Secure the motor (e.g. with a tension belt across the housing) so that it does not tip in the event jerky movements. </div> </div> </div> <p>ID403, bit 0 homing point known is reset.</p> <p>The motor carries out the encoder tuning automatically by starting the current feed via a positive edge to the RF after the enable command. The time between the enable command the edge to the RF must be less than 60 seconds (timeout 60 s). RF is automatically withdrawn after the encoder tuning. The correction value is stored in ID32959 'Offset resolver'.</p> <div style="display: flex; align-items: center;">  <div> <p>The value in ID32959 'Offset resolver' is cleared if one of the following actions is carried out:</p> <ul style="list-style-type: none"> • Initial program loading resets all of the parameters to default values • Transferring a parameter set to a device overwrites the current resolver offset in the device </div> </div>
0xEDAD	Software commutation	Software commutation is performed again the next time the RF is set.

*) Prerequisites:

Converter / inverter:	The nominal output current must be so large that the motor can be operated with the nominal power (see motor type plate).
Parameters:	Correctly parameterised motor (parameter group of the motor parameters set according to the type plate and motor data sheet)
Controller enable:	The controller enable must be set within 10 seconds after the encoder tuning function is invoked. This is why we recommend setting the controller enable using hardware via a binary input.
Encoder:	The absolute encoder must be mounted permanently and may not be mechanically changed at all.
Motor:	It must be possible for the motor shaft to move freely and it may not be connected with the machine or other loads.
Connections:	The motor and encoder must be correctly connected to the converter.

Commands are started by the function code being written in the parameter.

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

After the status is 0x3 or 0xF, the value 0x0 must be written in the parameter. The command is complete once the value 0x0 is read in the status.

Meaning for KE(N,S)-xEx /

Reserved for AMK internal use!

ID32846 'Output port 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With ID32846, the binary outputs are assigned to parameters ,e. g. 8 binary outputs on the option card KW-EA2, . With the parameters, the binary outputs can be assigned real-time bit messages of the inverter of the plc user-program. If the hardware used does not have physical binary outputs, the output ports can be read and written by the controller as virtual outputs.

Structure and use of the output port 1 - function assignment via parameter - controller can read the image and evaluate status

'Output port 1'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
552	A1	ID32847	ID34121 Bit 0
	A2	ID32848	ID34121 Bit 1
	A3	ID32849	ID34121 Bit 2
	A4	ID32850	ID34121 Bit 3
	A5	ID32851	ID34121 Bit 4
	A6	ID32852	ID34121 Bit 5
	A7	ID32853	ID34121 Bit 6
	A8	ID32854	ID34121 Bit 7

1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read the statuses of the 'virtual binary outputs.'

2) Real-time bits can be assigned to the binary outputs:

See Codes for the configuration of the binary outputs on page 309.

The statuses of the binary outputs are, if available, issued via the binary outputs on the hardware side.

3) A controller can read the statuses of the binary outputs by accessing and reading the parameter ID34121.

Structure and use of the output port 1 - Controller can set outputs by writing the image

'Output port 1'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
0	A1	ID32847 = 0	ID34121 Bit 0
	A2	ID32848 = 0	ID34121 Bit 1
	A3	ID32849 = 0	ID34121 Bit 2
	A4	ID32850 = 0	ID34121 Bit 3
	A5	ID32851 = 0	ID34121 Bit 4
	A6	ID32852 = 0	ID34121 Bit 5
	A7	ID32853 = 0	ID34121 Bit 6
	A8	ID32854 = 0	ID34121 Bit 7

- 1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read and write the memory capacities as 'virtual binary outputs.'
- 2) No real-time bits may be assigned to the binary outputs, because only the controller has reading and writing access to the binary outputs.
- 3) A controller can read and write the statuses of binary outputs with ID34121 'Binary output word 1'.

ID32847 'Port1 Bit0'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32848 'Port1 Bit1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32849 'Port1 Bit2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32850 'Port1 Bit3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32851 'Port1 Bit4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32852 'Port1 Bit5'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32853 'Port1 Bit6'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32854 'Port1 Bit7'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32846 'Output port 1' on page 161.

ID32855 'Output port 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With ID32855, physical binary outputs are assigned parameters. With the parameters, the binary outputs can be assigned real-time bit messages of the inverter of the plc user-program. If the hardware used does not have physical binary outputs, the output ports can be read and written by the controller as virtual outputs.

Structure and use of the output port - function assignment via parameter - controller can read the image and evaluate status

ID32855 'Output port 2'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
553	A1	ID32856	ID34121 Bit 8
	A2	ID32857	ID34121 Bit 9
	A3	ID32858	ID34121 Bit 10
	A4	ID32859	ID34121 Bit 11
	A5	ID32860	ID34121 Bit 12
	A6	ID32861	ID34121 Bit 13
	A7	ID32862	ID34121 Bit 14
	A8	ID32863	ID34121 Bit 15

1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read the statuses of the 'virtual binary outputs.'

2) Real-time bits can be assigned to the binary outputs:

See Codes for the configuration of the binary outputs on page 309.

The statuses of the binary outputs are, if available, issued via the binary outputs on the hardware side.

3) A controller can read the statuses of the binary outputs by accessing and reading the parameter ID34121.

Structure and use of the output port 1 - Controller can set outputs by writing the image

ID32855 'Output port 2'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
0	A1	ID32856 = 0	ID34121 Bit 8
	A2	ID32857 = 0	ID34121 Bit 9
	A3	ID32858 = 0	ID34121 Bit 10
	A4	ID32859 = 0	ID34121 Bit 11
	A5	ID32860 = 0	ID34121 Bit 12
	A6	ID32861 = 0	ID34121 Bit 13
	A7	ID32862 = 0	ID34121 Bit 14
	A8	ID32863 = 0	ID34121 Bit 15

- 1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read and write the memory capacities as 'virtual binary outputs.'
- 2) No real-time bits may be assigned to the binary outputs, because only the controller has reading and writing access to the binary outputs.
- 3) A controller can read and write the statuses of binary outputs with ID34121 'Binary output word 1'.

ID32856 'Port2 Bit0'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32857 'Port2 Bit1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32858 'Port2 Bit2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32859 'Port2 Bit3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32860 'Port2 Bit4'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32861 'Port2 Bit5'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32862 'Port2 Bit6'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32863 'Port2 Bit7'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32855 'Output port 2' on page 164.

ID32864 'Output port 3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	544
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

With ID32864, the standard binary outputs are assigned parameters. With the parameters, the physical binary outputs can be assigned real-time bit messages or messages of the plc user program.

Structure and use of the output port - function assignment via parameter - controller can read the image and evaluate status

ID32864 'Output port 3'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
544	BA1	ID32865	ID34120 Bit 0
	BA2	ID32866	ID34120 Bit 1
	BA3	ID32867	ID34120 Bit 2
	BA4	ID32868	ID34120 Bit 3

1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read the statuses of the 'virtual binary outputs'.

2) Real-time bits can be assigned to the binary outputs:

See Codes for the configuration of the binary outputs on page 309.

The statuses of the binary outputs are, if available, issued via the binary outputs on the hardware side.

3) A controller can read the statuses of the binary outputs by accessing and reading the parameter ID34120 'Binary output word'.

Structure and use of the output port 3 - Controller can set outputs by writing the image

ID32864 'Output port 3'	Binary output ¹⁾	Function assignment ²⁾	Image ³⁾
0	BA1	ID32865 = 0	ID34120 Bit 0
	BA2	ID32866 = 0	ID34120 Bit 1
	BA3	ID32867 = 0	ID34120 Bit 2
	BA4	ID32868 = 0	ID34120 Bit 3

1) The availability of physical binary outputs depends on the hardware used. If no physical binary outputs are available, the controller can read and write the memory capacities as 'virtual binary outputs.'

2) No real-time bits may be assigned to the binary outputs, because only the controller has reading and writing access to the binary outputs.

3) A controller can read and write the statuses of binary outputs with ID34120 'Binary output word'.

Meaning for KE(N,S) /

With ID32864, the standard binary outputs are assigned to parameters. With the parameters, the physical binary outputs can be assigned to real-time bit messages.

Structure and use of the output port - function assignment via parameters

ID32864 'Output port 3'	Binary output ¹⁾	Function assignment ²⁾
544	BA1	ID32865
	BA2	ID32866
	BA3	ID32867
	BA4	ID32868

1) The availability of physical binary outputs depends on the hardware used.

2) Real-time bits can be assigned to the binary outputs:

See Codes for the configuration of the binary outputs on page 309.

The statuses of the binary outputs are, if available, issued via the binary outputs on the hardware side.

ID32865 'Port3 Bit0'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action: GLOBAL Default value: Device-specific values

Access: READING / WRITING

Scale: 1

Temporarily changeable: NO

Unit: -

Data length: 4 byte

Min. value: -

Signed: NO

Max. value: -

Format: DEC

List: NO

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 33031 (QRF)

Values for KE(N,S) /

Default value: 33029 (SRM)

Values for KE(N,S)-xEx /

Default value: 33029 (SRM)

See ID398 'List status bits' on page 115.

See ID32864 'Output port 3' on page 167.

ID32866 'Port3 Bit1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 33029 (SRM)

Values for KE(N,S) /

Default value: 33030 (QUE)

Values for KE(N,S)-xEx /

Default value: 33030 (QUE)

See ID398 'List status bits' on page 115.

See ID32864 'Output port 3' on page 167.

ID32867 'Port3 Bit2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 33052 (triggering motor brake)

Values for KE(N,S) /

Default value: 0 (free)

Values for KE(N,S)-xEx /

Default value: 0 (free)

See ID398 'List status bits' on page 115.

See ID32864 'Output port 3' on page 167.

ID32868 'Port3 Bit3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

See ID398 'List status bits' on page 115.

See ID32864 'Output port 3' on page 167.

ID32873 'Input port 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With ID32873, the binary inputs are assigned parameters, e.g. 12 binary inputs on the option card KW-EA2. With the parameters, functions of the inverter or the plc user program can be assigned to the binary inputs. If the hardware used does not have physical binary inputs, the input ports can be read and written by the controller as virtual inputs.

Structure and use of the input port 1 - function assignment via parameter - controller can read the image and evaluate status

ID32873	Binary input ¹⁾	Function assignment ²⁾	Image ³⁾
40	E1	ID32874	ID34101 Bit 0
	E2	ID32875	ID34101 Bit 1
	E3	ID32876	ID34101 Bit 2
	E4	ID32877	ID34101 Bit 3
	E5	ID32878	ID34101 Bit 4
	E6	ID32879	ID34101 Bit 5
	E7	ID32880	ID34101 Bit 6
	E8	ID32881	ID34101 Bit 7

1) The availability of physical binary inputs depends on the hardware used.

2) Functions can be assigned to the binary inputs:

See Codes for the configuration of the binary inputs on page 313.

3) A controller can read the statuses of binary inputs with ID34101 'Binary input word 1'.

Structure and use of the input port 1 - Controller can set inputs by writing the image

ID32873	Binary input ¹⁾	Function assignment ²⁾	Image
0	E1	ID32847 = 0	ID34101 Bit 0
	E2	ID32848 = 0	ID34101 Bit 1
	E3	ID32849 = 0	ID34101 Bit 2
	E4	ID32850 = 0	ID34101 Bit 3
	E5	ID32851 = 0	ID34101 Bit 4
	E6	ID32852 = 0	ID34101 Bit 5
	E7	ID32853 = 0	ID34101 Bit 6
	E8	ID32854 = 0	ID34101 Bit 7

- 1) The availability of physical binary inputs depends on the hardware used. If no physical binary inputs are available, the controller can read and write the memory capacities as 'virtual binary inputs.'
- 2) Functions can be assigned to the binary inputs:
See Codes for the configuration of the binary inputs on page 313.
If the binary input can be set by the controller without the inverter triggering a configured function, the value 0 must be assigned to the respective input. The controller accesses the binary inputs reading or writing via ID34101.
- 3) A controller can read and write the statuses of binary inputs with ID34101 'Binary input word 1'.

ID32874 'Port1 Bit0'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 0) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32875 'Port1 Bit1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 1) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32876 'Port1 Bit2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 2) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32877 'Port1 Bit3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 3) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32878 'Port1 Bit4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 4) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32879 'Port1 Bit5'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 5) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32880 'Port1 Bit6'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /			
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 6) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32881 'Port1 Bit7'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /			
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 1 (bit 7) and the status of the input can be evaluated via the plc. ID32873 'Input port 1' determines which binary inputs the input port maps.

See ID32873 'Input port 1' on page 170.

ID32882 'Slot assignment'

Supported hardware: KW-R06 / KW-R07 /

Reserved for AMK internal use!

ID32891 'Internal velocity command value'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

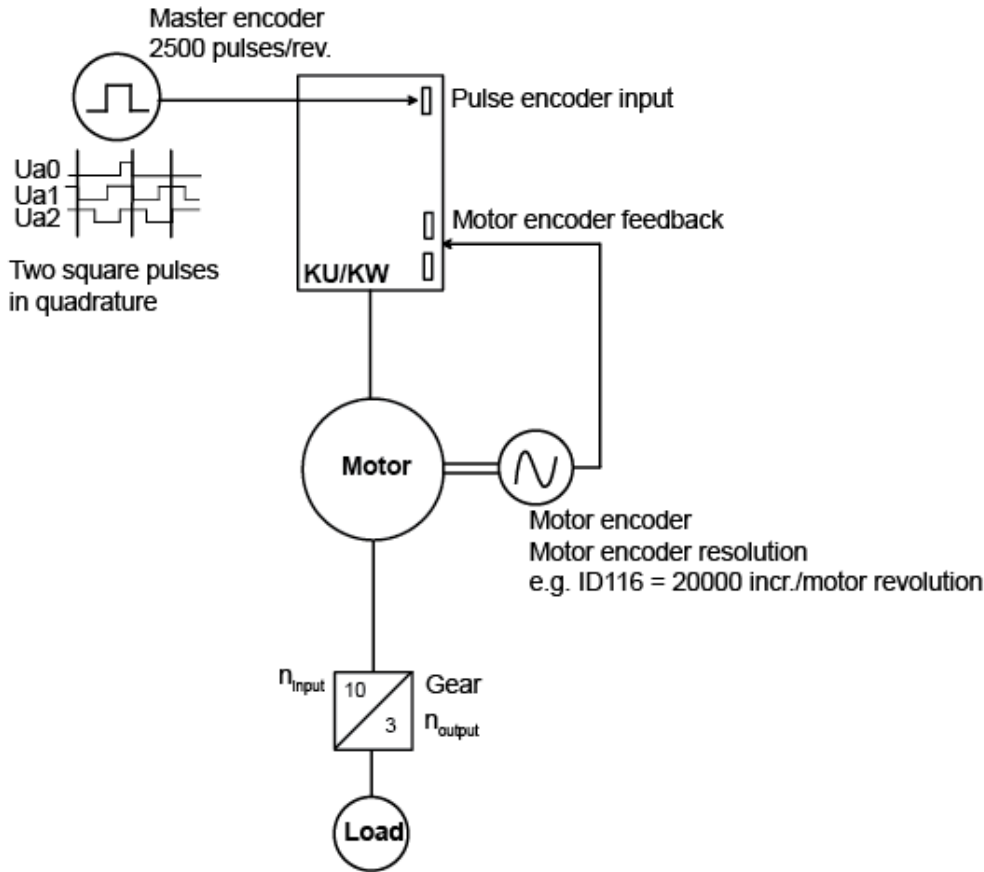
Reserved for AMK internal use!

ID32892 'Synchronous setpoint pulses divider'

Supported hardware: KW-R06 / KW-R07 /			
Sphere of action:	DRIVE	Default value:	655360
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	4 byte	Min. value:	1
Signed:	NO	Max. value:	2147483647
Format:	DEC		
List:	NO		

ID32892 and ID32893 'Synchronous setpoint pulses multiplier' work with the setpoint source 0x3 (pulse encoder input) in the position control operating mode. The position setpoints are calculated with the factors, thus the ratio between the incoming increments (master encoder, connected to the pulse encoder input) and the motor (slave axis) can be changed.

Example: Synchronous operation between a slave axis and a square-wave encoder as a master at the pulse encoder input



Demand: 1 revolution of the master encoder should cause 1 revolution of the load of the slave axis.

Master encoder: The setpoint source (master encoder) provides 2,500 pulses per revolution at the pulse encoder input.

Slave axis: The internal resolution of the actual position value source (here ID116 'Resolution motor encoder') is 20,000 increments per machine revolution.
A gear reduction ratio of $i=10:3$ acts between the motor and the load.

The encoder pulses at the pulse encoder input are evaluated four times in the control card, whereby [encoder pulse number at the pulse encoder input $\times 4$] act as setpoint increments in the slave axis.

Formula: Determination of the values for setpoint divider and multiplier

$$\frac{ID32893}{ID32892} = \frac{\text{Resolution Motor Encoder (Slave)}}{\text{Input Pulses (Master) per Revolution} \times 4} \times \frac{\text{Revolutions}_{\text{Input}}}{\text{Revolution}_{\text{Output}}} = \frac{20000}{2500 \times 4} \times \frac{10}{3} = \frac{200000}{30000} = \frac{20}{3}$$

The setpoint factors are therefore to be parameterised as follows:

Setpoint multiplier (numerator): ID32893 = 20

Setpoint divider (denominator): ID32892 = 3

ID32893 'Synchronous setpoint pulses multiplier'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	655360
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

See ID32892 'Synchronous setpoint pulses divider' on page 173.

ID32894 'Position command value filter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32895 'Position control differentiating time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32896 'Internal position command value'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32897 'Analogue Input A1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-10.00 V
Signed:	YES	Max. value:	10.00 V
Format:	DEC		
List:	NO		

Meaning for A4 / A5

ID32897 indicates the analogue voltage of the I/O option card at the analogue input A1 and can be read by the controller.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

ID32897 indicates the analogue voltage at the analogue input A1 of the controller card and can be read via an external controller.

ID32898 'Analogue Input A2'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-10.00 V
Signed:	YES	Max. value:	10.00 V
Format:	DEC		
List:	NO		

Meaning for A4 / A5 /

ID32898 indicates the analogue voltage of the I/O option card at the analogue input A2 and can be read by the controller.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

ID32898 indicates the analogue voltage at the analogue input A2 of the controller card and can be read via an external controller.

ID32901 'Global service bits'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Values for A4 / A5 /

Default value: 0000 0000 0000 0000 (LSB)

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Default value: 0000 0010 0100 0000 (LSB)

Values for KE(N,S) /

Default value: 0000 0010 0100 0000 (LSB)

Values for KE(N,S)-xEx /

Default value: 0000 0010 0100 0000 (LSB)

Meaning for A4 / A5 /

Configuration ID32901 'Global service bits'

Bit no.	Condition	Meaning
0	0	Remanent data is cleared during the first start of a changed PLC program
	1	Remanent data is not cleared during the first start of a changed PLC program
1-31	0	Reserved
	1	Reserved

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Configuration ID32901 'Global service bits' -

Bit no.	Condition	Meaning
0	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Mains monitoring ON
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Mains monitoring OFF For devices with current regeneration, the regeneration is automatically disconnected internally, because no regeneration is possible without mains monitoring. (Bit 4 is not changed, we recommend however setting bit 4 =1 if the mains monitoring is switched off)
1	0	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved
3	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / Prolonged mains phase failure signal VBNX inactive KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / Prolonged mains phase failure signal VBNX active The signal VBNX is generated from the internal BNX signal and can be assigned to a binary output with the code 33123. KE(N,S)-xEx / Reserved
4	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Regeneration active with signal QUE
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Regeneration inactive
5	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
6	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Encoder database inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Encoder database active See ID32841 'Encoder list motor' on page 152. See ID32842 'Encoder list customer' on page 153. KE(N,S) / KE(N,S)-xEx / Reserved
7	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Monitoring cable breakage of a motor holding brake inactive KE(N,S) / KE(N,S)-xEx / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Monitoring cable breakage of a motor holding brake active KE(N,S) / KE(N,S)-xEx / Reserved
8	0	Reserved
	1	Reserved
9	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / If the existing hardware does not support the temperature model, the error message 2321 info 1 =3 is suppressed. KE(N,S) / KE(N,S)-xEx / DC bus is discharged via external brake resistor after SBM withdrawal
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / If the existing hardware does not support the temperature model, an error message 2321 info 1 =3 is generated. KE(N,S) / KE(N,S)-xEx / DC bus is not discharged in the event of SBM withdrawal In the case of an error, the DC bus is not discharged via an external brake resistor to the power supply.
10	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Prerequisite: Bit 9 = 1 DC bus is not discharged, even after additional UE withdrawal
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved KE(N,S) / KE(N,S)-xEx / Prerequisite: Bit 9 = 1 DC bus is discharged via an external brake resistor in the event of UE withdrawal
11	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
12	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Liquid-cooled inverter (switch-off temperature of device rear wall according to SEEP value) KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Air-cooled inverter Switch-off temperature of device rear wall according to SEEP value + 15 °C KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
13	0	Reserved
	1	Reserved
14	0	Reserved
	1	Reserved
15	0	Reserved
	1	Reserved for AMK internal use! Special function
16	0	Reserved
	1	Reserved
17	0	KW-R06 / KW-R16 / KW-R07 / KW-R17 / Harmonised time scheme at real-time communication: The actual values and the setpoint values of the fieldbus are scanned at PGT time (DC signal). KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
	1	KW-R06 / KW-R16 / KW-R07 / KW-R17 / The time scheme at real-time communication is compatible with the firmware versions < AER5-6 V1.10 2012/51 (204395) KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 / Reserved
18-32	0	Reserved
	1	Reserved

ID32903 'DC Bus on'

Supported hardware: KE(N,S) /

Sphere of action: GLOBAL / FORMAL

Default value: 0

Access: READING / WRITING

Scale: 1

Temporarily changeable: NO

Unit: -

Data length: 2 byte

Min. value: 0.250

Signed: NO

Max. value: 20.000

Format: HEX

List: NO

The DC bus capacitors are charged via the charging connection with the control signal 'DC Bus on'. If the charging process is complete, the DC bus is directly supplied from the mains with the main contactor.

The control signal 'DC Bus on' is set if the value 0x1 is written in the parameter. 'DC Bus on' is reset if the value 0x0 is written in the parameter. The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete

Read value	Meaning
0x5	Inhibit time for charging process not yet expired
0x7	Command currently active
0xF	Command completed with error

ID32913 'Clear error'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	1
Format:	HEX		
List:	NO		

The command 'Clear error' is started if the value 0x1 is written in ID32913 and causes an error message to be reset. If the cause of the error is remedied, the system changes to the error-free state (SBM = 1).

The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

The command is completed after the status is 0x3 or 0xF.

ID32914 'Sum of additive velocities'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	-214748.4 1/min
Signed:	YES	Max. value:	214748.4 1/min
Format:	DEC		
List:	NO		

The display value ID32914 'Sum of additive velocities' shows the sum from ID37 'Added velocity command value' and the internal speed feedforward values.

See ID32800 'AMK main operation mode' on page 137.

ID32915 'Sum of additive torques'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	% M _N
Data length:	2 byte	Min. value:	-3276.8 %M _N
Signed:	YES	Max. value:	3276.7 %M _N
Format:	DEC		
List:	NO		

The display value ID32915 'Sum of additive torques' shows the sum from ID81 'Added torque command value' and the internal speed feedforward values.

See ID32800 'AMK main operation mode' on page 137.

ID32916 'Cyclic filter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	00
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	16

* The list length is the number of usage data elements without 4 byte head elements.

ID32916 'Cyclic filter' works in the speed control and position control operating modes.

Configuration ID32916 'Cyclic filter'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	32	List head: Maximum list length without list head [byte]
2		Percentage scaling [0.1 %M _N]
3		Sensitivity [0.1 %M _N]
4		Offset display ¹⁾
5		n. harmonic (e.g. number of poles of the motor)
6		Sine proportion of the n. harmonic ¹⁾
7		Cosine proportion of the n. harmonic ¹⁾
8		m. harmonic (e.g. harmonics per motor revolution)
9		Sine proportion of the m. harmonic ¹⁾
10		Cosine proportion of the m. harmonic ¹⁾
11		Reserved
12		Reserved
13		Reserved
14		Reserved
15		Reserved
16		Reserved
17		Reserved

¹⁾ Is currently not operated

ID32917 'Time zone'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	Berlin
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:	-
List:	YES	Max. list length:	36

The time zone can be adjusted by entering the corresponding name.

The change to daylight saving time takes place automatically.

Africa

Abidjan	Accra	Addis_Ababa	Algiers	Asmera	Bamako
Bangui	Banjul	Bissau	Blantyre	Brazzaville	Bujumbura
Cairo	Casablanca	Ceuta	Conakry	Dakar	Dar_es_Salaam
Djibouti	Douala	El_Aaiun	Freetown	Gaborone	Harare
Johannesburg	Kampala	Khartoum	Kigali	Kinshasa	Lagos
Libreville	Lome	Luanda	Lubumbashi	Lusaka	Malabo
Maputo	Maseru	Mbabane	Mogadishu	Monrovia	Nairobi
Ndjamena	Niamey'	Nouakchott	Ouagadougou	Porto-Novo	Sao_Tome
Timbuktu	Tripoli	Tunis	Windhoek		

America

Adak	Anchorage	Anguilla	Antigua	Araguaina	Aruba
Asuncion	Atka	Bahia	Barbados	Belem	Belize
Boa_Vista	Bogota	Boise	Buenos_Aires	Cambridge_Bay	Campo_Grande
Cancun	Caracas	Catamarca	Cayenne	Cayman	Chicago
Chihuahua	Coral_Harbour	Cordoba	Costa_Rica	Cuiaba	Curacao
Danmarkshavn	Dawson	Dawson_Creek	Denver	Detroit	Dominica
Edmonton	Eirunepe	El_Salvador	Ensenada	Fort_Wayne	Fortaleza
Glace_Bay	Godthab	Goose_Bay	Grand_Turk	Grenada	Guadeloupe
Guatemala	Guayaquil	Guyana	Halifax	Havana	Hermosillo
Indianapolis	Inuvik	Iqaluit	Jamaica	Jujuy	Juneau
Knox_IN	La_Paz	Lima	Los_Angeles	Louisville	Maceio
Managua	Manaus	Martinique	Mazatlan	Mendoza	Menominee
Merida	Mexico_City	Miquelon	Monterrey	Montevideo	Montreal
Montserrat	Nassau	New_York	Nipigon	Nome	Noronha
Panama	Pangnirtung	Paramaribo	Phoenix	Port_of_Spain	Port-au-Prince
Porto_Acre	Porto_Velho	Puerto_Rico	Rainy_River	Rankin_Inlet	Recife
Regina	Rio_Branco	Rosario	Santiago	Santo_Domingo	Sao_Paulo
Scoresbysund	Shiprock	St_Johns	St_Kitts	St_Lucia	St_Thomas
St_Vincent	Swift_Current	Tegucigalpa	Thule	Thunder_Bay	Tijuana
Toronto	Tortola	Vancouver	Virgin	Whitehorse	Winnipeg
Yakutat	Yellowknife				

Asia

Amman	Aden	Almaty	Anadyr	Aqtau	Aqtobe
Ashgabat	Ashkhabad	Baghdad	Bahrain	Baku	Bangkok
Beirut	Bishkek	Brunei	Calcutta	Choibalsan	Chongqing
Chungking	Colombo	Dacca	Damascus	Dhaka	Dili
Dubai	Dushanbe	Gaza	Harbin	Hong_Kong	Hovd
Irkutsk	Istanbul	Jakarta	Jayapura	Jerusalem	Kabul
Kamchatka	Karachi	Kashgar	Katmandu	Krasnoyarsk	Kuala_Lumpur
Kuching	Kuwait	Macao	Macau	Magadan	Makassar
Manila	Muscat	Nicosia	Novosibirsk	Omsk	Oral

Asia

Phnom_Penh	Pontianak	Pyongyang	Qatar	Qyzylorda	Rangoon
Riyadh	Riyadh87	Riyadh88	Riyadh89	Saigon	Sakhalin
Samarkand	Seoul	Shanghai	Singapore	Taipei	Tashkent
Tbilisi	Tehran	Tel_Aviv	Thimbu	Thimphu	Tokyo
Ujung_Pandang	Ulaanbaatar	Ulan_Bator	Urumqi	Vientiane	Vladivostok
Yakutsk	Yekaterinburg	Yerevan			

Atlantic

Azores	Bermuda	Canary	Cape_Verde	Faeroe	Jan_Mayen
Madeira	Reykjavik	South_Georgia	St_Helena	Stanley	

Australia

ACT	Adelaide	Brisbane	Broken_Hill	Canberra	Currie
Darwin	Hobart	LHI	Lindeman	Lord_Howe	Melbourne
North	NSW	Perth	Queensland	South	Sydney
Tasmania	Victoria	West	Yancowinna		

Canada

Atlantic	Central	Eastern	East-Saskatchewan	Mountain	Newfoundland
Pacific	Saskatchewan	Yukon			

Europe

Amsterdam	Andorra	Athens	Belfast	Belgrade	Berlin
Bratislava	Brussels	Bucharest	Budapest	Chisinau	Copenhagen
Dublin	Gibraltar	Helsinki	Istanbul	Kaliningrad	Kiev
Lisbon	Ljubljana	London	Luxembourg	Madrid	Malta
Mariehamn	Minsk	Moscow	Nicosia	Oslo	Paris
Prague	Riga	Rome	Samara	Sarajevo	Simferopol
Skopje	Sofia	Stockholm	Tallinn	Tirane	Tiraspol
Uzhgorod	Vaduz	Vatican	Vienna	Vilnius	Warsaw
Zagreb	Zaporozhye	Zurich			

Pacific

Apia	Auckland	Chatham	Easter	Efate	Enderbury
Fakaofu	Fiji	Funafuti	Galapagos	Gambier	Guadalcanal
Guam	Honolulu	Johnston	Kiritimati	Kosrae	Kwajalein
Majuro	Marquesas	Midway	Nauru	Niue	Norfolk
Noumea	Pago_Pago	Palau	Pitcairn	Ponape	Port_Moresby
Rarotonga	Saipan	Samoa	Tahiti	Tarawa	Tongatapu
Truk Wake	Wallis	Yap			

USA

Alaska	Aleutian	Arizona	Central	Eastern	East-Indiana
Hawaii	Indiana-Starke	Michigan	Mountain	Pacific	Samoa

ID32920 'Overload time motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /				
Sphere of action:	DRIVE	Default value:	50		
Access:	READING / WRITING	Scale:	0.1		
Temporarily changeable:	NO	Unit:	s		
Data length:	2 byte	Min. value:	-		
Signed:	NO	Max. value:	-		
Format:	DEC				
List:	NO				



For new applications, the I²t monitoring motor must be parameterised with the parameters ID109 and ID34168. ID32920 'Overload time motor' exists for compatibility reasons.
ID32920 is only effective if ID34168 'Time maximum current motor' = 0.

The I^2t -monitoring motor is adjusted to the motor's thermal time constant with ID32920. The motor manufacturer's specifications apply for the thermal time constant. The monitoring must be activated with ID32773 bit 14 = 1. ID32920 describes the maximum time t in seconds with which the motor may be operated with 2-times the nominal current. If the motor overload time in the data sheet is not based on 2-times the nominal current, the setting for ID32920 results as follows:

Formula: Setting value for ID32920

$$ID32920 = \frac{\left[\left(\frac{i}{I_N} \right)^2 - 1 \right] \times t}{3}$$

Example 1:

The motor may be operated 20 seconds with 1.5-times the nominal current. How is ID32920 to be set?

Formula: Setting at 1.5-times the nominal current for 20 seconds

$$ID32920 = \frac{(1.5^2 - 1) \times 20s}{3} = 8.3s$$

If the setting value for ID32920 has been determined, the following formula can be used to calculate the permissible operating time of the motor with any common overcurrent ratio.

For $i > I_N$, the following correlation applies for the permissible operating time t of the motor.

Formula: Permissible operating time of the motor for any overcurrent

$$t = \frac{3 \times ID32920}{\left(\frac{i}{I_N} \right)^2 - 1}$$

t : Permissible operating time

i : Actual current (overcurrent)

I_N : ID111 'Motor nominal current I_N '

Example 2:

ID32920 = 2 seconds. How long may the motor be operated at 1.2-times the nominal current?

Formula: Permissible operating time at 1.2-times the nominal current, ID114 = 50%

$$t = \frac{3 \times 2s}{(1.2)^2 - 1} = 13.6s$$

The motor may consequently be operated for 13.6 seconds at 1.2-times the nominal current.

In the event of an overload (overload threshold according to ID114), the warning message 2359 'motor overload message' is generated as soon as half of the previously calculated time t has expired.

As long as this warning message is present, the user has the option of responding to the overload.

After the motor overload time t has expired, the motor overload display (ID33102) reaches the value 100% and the error message 2360 'motor overload error' is generated.

ID32922 'Residual distance erase window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

If an axis is moved manually with an inactive controller enable, this change of position produces a position control deviation. With controller enable ON, an internal decision takes place (regardless of the content in ID32922) regarding whether the position control deviation is cleared or whether the position control deviation is again compensated for by a balancing movement:

$|\text{position control deviation}| \leq ID32922$: The position control deviation is reduced by a return movement.

$|\text{position control deviation}| > ID32922$: The position control deviation is cleared (without axis movement).

ID32924 'Operation mode change parameter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32926 'AMK homing cycle parameter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0000 1000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The 'AMK homing cycle parameter' defines AMK-specific extensions of the reference run command according to ID147 'Homing parameter'.

Configuration ID32926 'AMK homing cycle parameter'

Bit no.	Condition	Meaning
0 - 7	0	Reserved
	1	Reserved
8	0	Drive movement for the homing cycle via setpoints from the internal interpolator
	1	Drive movement for the homing cycle via the setpoint setting through a controller (external interpolation).
9	0	Homing cycle on fixed stop inactive
	1	Homing cycle on fixed stop: Reverse of rotational direction triggered by a defined torque peak after ID126, 1th Zero pulse after the directional rotation reverse is the homing mark.
10	0	The actual position value is set to zero upon detection of the homing mark
	1	The actual position value is not set to zero upon detection of the homing mark
11	0	Homing cycle with cam evaluation
	1	Homing cycle without cam evaluation (referencing only to the zero pulse of the current actual position value encoder)
12	0	Cam arrangement Linear cam: If the axis is on the cam, a move is made away from the cam against the homing direction (ID147, bit 0). If the axis is moved away from the cam signal, the direction of movement is reversed and again moved in the direction of the cam until the cam signal is active. The axis is homed.
	1	Rotation cam: If the axis is on the cam, rotation and homing always continues in the homing direction until the next cam.
13	0	Zero pulse evaluation Homing cycle with zero pulse evaluation after reaching the homing switch (cam)
	1	Homing cycle without zero pulse evaluation. homing switch (cam) provides the homing mark at the same time.
14	0	Cam type Pulse cam
	1	Range cam, cam clearance speed according to ID32940 'High homing velocity'
15		Reserved

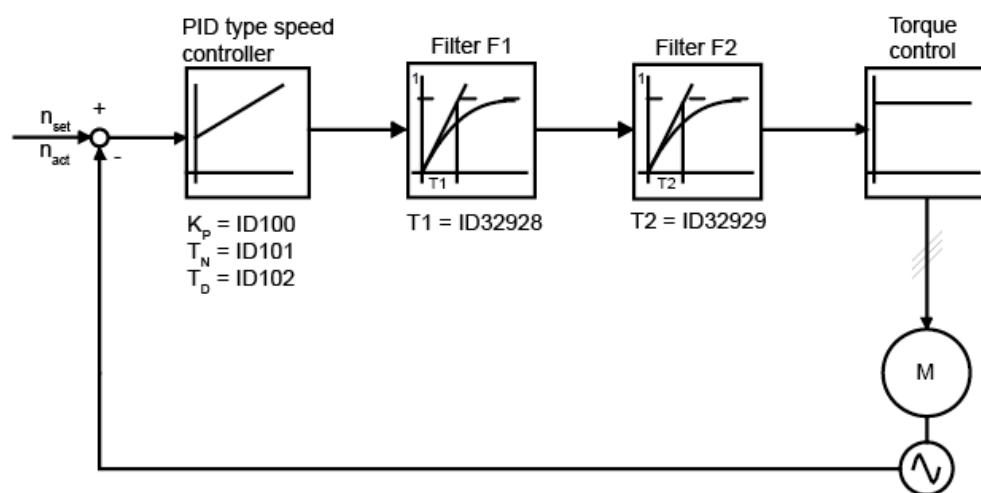
ID32928 'Time filter 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	2000.0 ms
Format:	DEC		
List:	NO		

ID32928 and ID32929 'Time filter 2' define the filter time constants for two freely programmable PT_1 torque filters F1 and F2. The filters are arranged in line at the output of the speed controller. The use of the filter times, which are adapted to the system, stabilises the control loop and therefore allows, among other things, a higher closed-loop gain K_p . The filters are used, for example, in controlling inert masses. Values between 0.2 ms and 1 ms have been proven depending on the application.

The value 0 in ID32928 and ID32929 annuls the effect of the filters.

PT_1 filter model



The 3dB cut-off frequencies are:

$$f1 = \frac{1}{2\pi T1} \text{ und } f2 = \frac{1}{2\pi T2}$$

The closed-loop gain of the control loop is reduced from the frequency $f1$ by 6 dB/octave and from $f2$ by 12 dB/octave (with $f1 < f2$).

ID32929 'Time filter 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	2000.0 ms
Format:	DEC		
List:	NO		

See ID32928 'Time filter 1' on page 186.

ID32932 'Barrier frequency'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Hz
Data length:	2 byte	Min. value:	0 Hz
Signed:	NO	Max. value:	4000 Hz
Format:	DEC		
List:	NO		

For structural reasons, the operation of machines can lead to resonant frequencies. In order to be able to filter out these frequencies, a configurable band filter is offered at the output of the speed controller (area 40 Hz to 2 kHz).

If a non-zero value is written in ID32932, the filter is active and the entered value defines the cut-off frequency of the band filter.

The bandwidth of the band filter is set in ID32933.

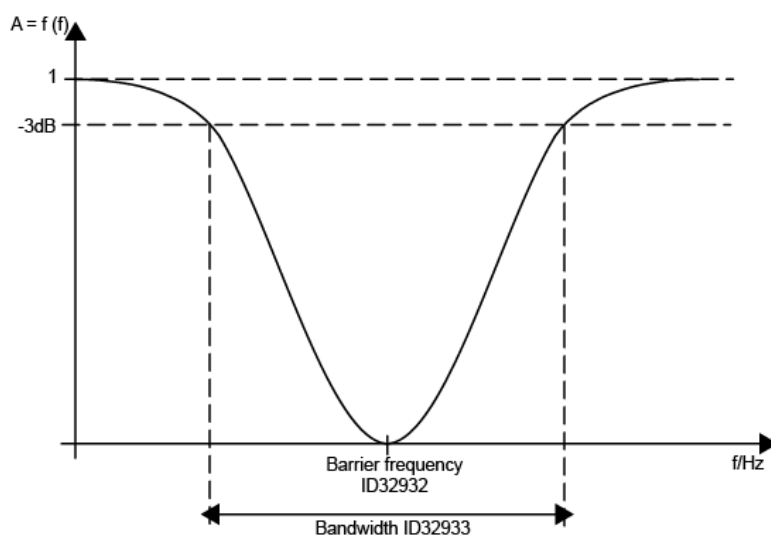
ID32933 'Bandwidth'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Hz
Data length:	2 byte	Min. value:	0 Hz
Signed:	NO	Max. value:	200 Hz
Format:	DEC		
List:	NO		

ID32933 marks the 3dB bandwidth of the filter configured in ID32932.

If, for example, the resonance frequency of a machine is at 800Hz (ID32932 'Barrier frequency' = 800Hz) and the bandwidth is parameterised with 100Hz (ID32933 'Bandwidth' = 100Hz), frequencies of 800Hz \pm 50 Hz will be filtered out at the output of the speed controller.

Forward characteristic of the band filter



ID32934 'Pulse encoder period'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	Increments
Data length:	4 byte	Min. value:	32 Increments
Signed:	NO	Max. value:	1000000 Increments
Format:	DEC		
List:	NO		

The 'Pulse encoder period' is to be derived from the type plate (or data sheet) of the motor or the encoder. The 'Pulse encoder period' gives the number of strokes per revolution of the pulse encoder, which is connected to the square-wave pulse encoder input. When using linear motors, ID32934 must contain the number of strokes per pole period.

ID32935 'Voltage standstill'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	V
Data length:	2 byte	Min. value:	0.0 V
Signed:	NO	Max. value:	1000.0 V
Format:	DEC		
List:	NO		

The 'Voltage standstill' describes the motor voltage for the speed $n=0$ (standstill) in the voltage / frequency control operating mode (U/f-control). This operating mode is activated in ID32953 'Encoder type'.

See ID32991 'U/f startup' on page 208.

ID32936 'Window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Window' works with 'Command probe cycle' (ID170) and defines a range between two marks (e.g. between two printing marks) in which recognised signals should not be recognised as valid marks. The window must be somewhat smaller than the distance to the next mark. As soon as a mark has been recognised, the window starts again.

See ID170 'Command probe cycle' on page 89.

ID32938 'Customer variable 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

This variable is available as a free memory location and can be used per parameter set in an application-specific manner.

ID32939 'Bus service'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Using ID32939, EtherCAT fixed addresses can be stored for 'non-AMK devices' (e.g. terminals). The address is then written in the EEPROM of the EtherCAT slave. ID32939 is automatically written by AIPEX PRO.

Instance	Use	Interface
2	EtherCAT (CC) Slave	X85 / X86
5	1st EtherCAT Master	X186
6	2nd EtherCAT Master (in comparison)	X185

ID32940 'High homing velocity'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	0 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

During the homing cycle command with 'range cams' cam evaluation, the 'High homing velocity' sets the speed at which the drive moved away from the cam signal in the opposite direction of the cam signal if the homing cycle is started and the drive is on the cam. If the drive is moved away from the cam, the drive reverses and homes with ID41 'Homing velocity'.

See ID32926 'AMK homing cycle parameter' on page 185.

ID32941 'SERCOS service'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Signed: NO Max. value: -
 Format: HEX
 List: NO

Configuration ID32941 'SERCOS service'

Bit no.	Condition	Meaning
0-4	0	Reserved
	1	Reserved
5	0	SERCOS AMK mode (default) Homing cycle acceleration according to ID136 / ID137, (D42 does not effect!)
	1	SERCOS standard mode Homing cycle acceleration according ID42 active
2-31	0	Reserved
	1	Reserved

For SERCOS III devices ID32941 bit 5 is set to 1 by default.

ID32942 'Service control'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Sphere of action: DRIVE / FORMAL Default value: 00000000
 Access: READING / WRITING Scale: 1
 Temporarily changeable: NO Unit: -
 Data length: 4 byte Min. value: -
 Signed: NO Max. value: -
 Format: HEX
 List: NO

ID13 'Status class 3-messages'

The 'Service control' is used in conjunction with ID32843 'Service command'.

See ID32843 'Service command' on page 154.

ID32943 'Warning time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action: GLOBAL Default value: 400
 Access: READING / WRITING Scale: 0.01
 Temporarily changeable: NO Unit: s
 Data length: 2 byte Min. value: 0.0 s
 Signed: NO Max. value: 60.0 s
 Format: DEC
 List: NO

The 'Warning time' is the time between a warning message and a subsequent error message that shuts down the device.

See ID33116 'Temperature internal' on page 214.

See ID33117 'Temperature external' on page 214.

The 'Warning time' works with:

Warning message 2350 'Device over-temperature warning', followed by the error message 2346 'Converter temperature error'

Warning message 2351 'Motor temperature warning', followed by the error message 2347 'Motor temperature error'



If ID32943 = 0, a warning time of 4 seconds is considered internally.

ID32944 'SYADR'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 /

ID32944 allows controller access to participants who are connected in subordinate networks (routeing). Parameters can be read and written with the access.

Example:

An EtherCAT network consists of an EtherCAT controller and several EtherCAT slave participants (compact inverter KW). A compact power supply KE is connected via the ACC bus interface to the compact inverter, which is configured as an ACC bus master. Using ID32944, the EtherCAT master controller can access the KE by routeing the data via the KW with the ACC bus master interface.

Configuration ID32944 'SYADR'

Bit no.	Meaning
0-7 (Byte 0)	Sub address, addressing of a device that is operated on a controller card as an ACC bus slave participant.
8-15 (Byte 1)	Base address, addressing of a device on the fieldbus of a controller to which the drive is connected (e.g. KWs) (EtherCAT)
16-23 (Byte 2)	Res address, selection of the drive bus by the controller (1 = EtherCAT, 0 = ACC bus)
24-31 (Byte 3)	CC address, addressing of the routeing between controllers

Example 1:

A5 controller as EtherCAT master, 1 additional A5 controller as EtherCAT slave with the participant address 8, 1 KW with the participant address 3 to the A5 (slave) controller, 1 KE with the participant address 33 on the KW
Routeing of A5 (master) to the KE: 0x08010321

Example 2:

A5 controller as EtherCAT master, 1 IDT4 with the participant address 6 to the ACC bus interface of the A5 controller
Routeing of A5 (master) to the IDT4: 0x00000600

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

Meaning for KE(N,S)-xEx /

Reserved for AMK internal use!

ID32948 'Message 4x32'

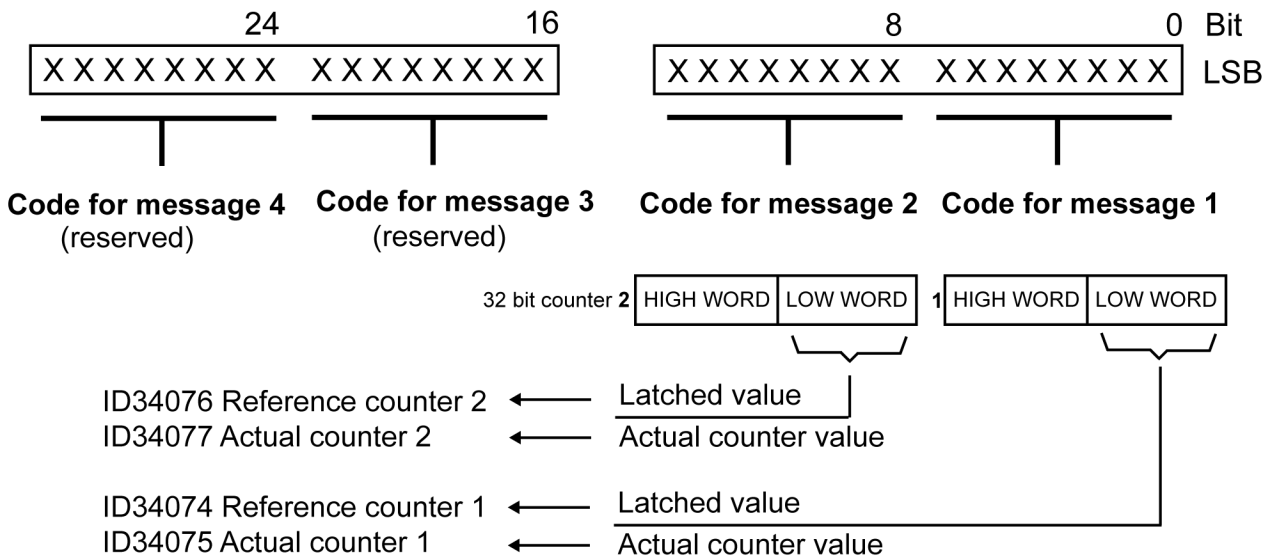
Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Measurement functions can be configured with ID32948.

Configuration ID32948 'Message 4x32'

Code	Designation	Description
0x00	No function	No function
0x03	KW-R06 / KW-R07 / Pulse encoder input: Zero pulse stores the current counter reading as a reference counter KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved	See function description of 'Measurement functions' in the document PDK_203878_AMK_Funktionen
0x23	KW-R06 / KW-R07 / Pulse encoder input: Edge at the binary input stores the current counter reading as a reference counter KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved	See function description of 'Measurement functions' in the document PDK_203878_AMK_Funktionen
0x24	Actual position value according to ID32953: Edge at the binary input stores the current actual position value as a reference counter	See function description of 'Measurement functions' in the document PDK_203878_AMK_Funktionen



ID32952 'At synchronous speed window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7		
Sphere of action:	DRIVE	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

In the position control operating mode, the real-time bit is set 'position synchronously' if the amount of the position control difference in the drive is less than or equal to the window according to ID32952.

$|\text{position control difference}| \leq \text{ID32952} \rightarrow \text{Position synchronous}$

Position control difference = position setpoint – actual position value

ID32953 'Encoder type'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

DANGER



Uncontrolled rotation motions of the motor shaft!

Synchronous motors with I-encoders run away, if the controller enable is set without the encoder tuning function having been successfully carried out beforehand. The speed can be up to 1.25 x ID113 'Maximum speed' before the drive shuts off with the diagnostic message 2319 "n > nmax" and runs down.

If the encoder tuning function was not yet successfully carried out, the controller enable may only be set if the encoder tuning function is started.

Steps to prevent:

- For an encoder tuning that has not yet been carried out, start the function by entering ID32843 = 0xEDA3 in the parameter. Follow the instructions in the manual for implementing the encoder tuning function.

See ID32843 'Service command' on page 154.

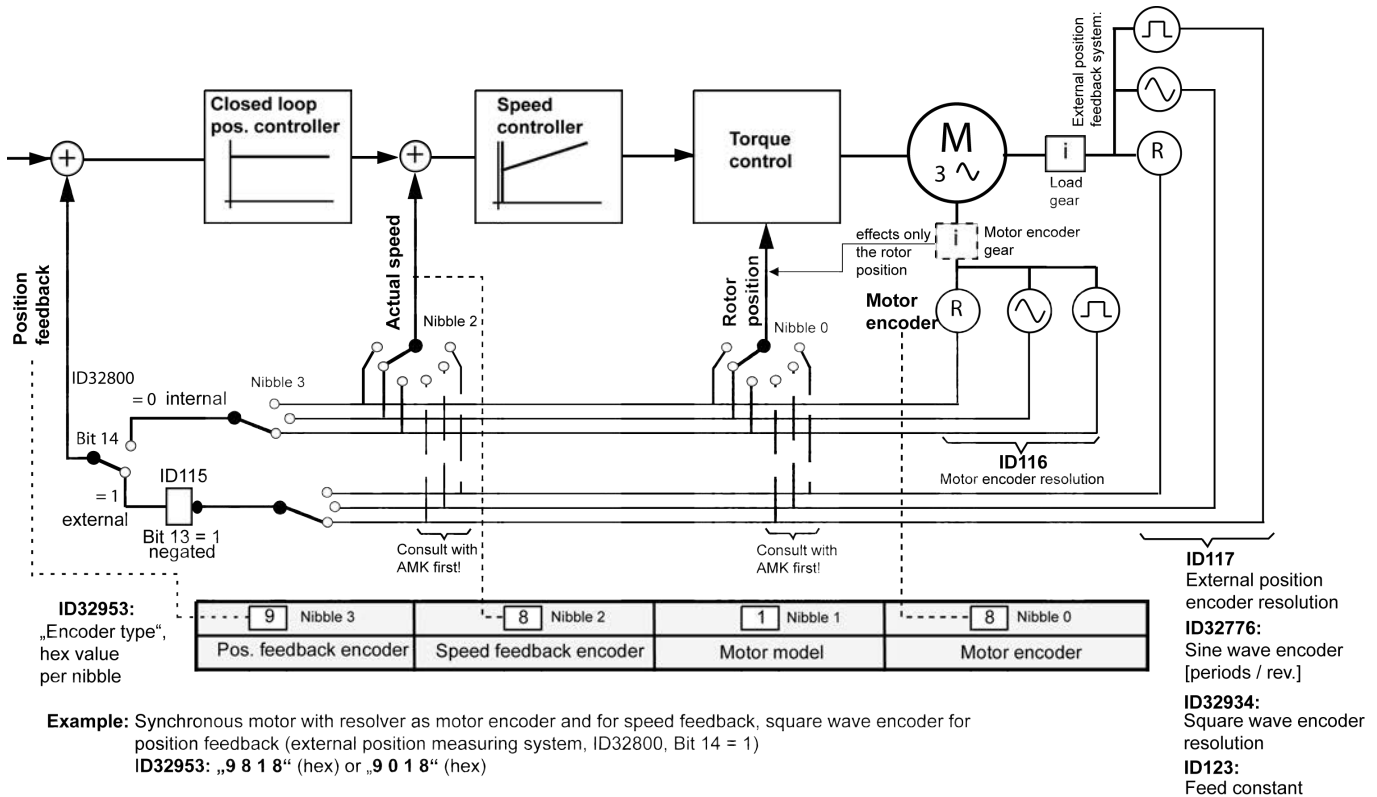
Meaning for KW-R06 / KW-R07 /

ID32953 defines the type of motor and the actual value encoder for the different control loops and is to be derived from the respective type plate or data sheet of the motor. The encoder for the feedback of the actual speed value and the actual position value can be defined independently of the motor encoder.

An external encoder / second encoder can either be selected in ID32800 bit 14 or in ID34297 'Encoder type 2'.

See ID34297 'Encoder type 2' on page 303.

Configuration option for motor, speed and position encoder




Motor encoder	Bit 0-3 (Nibble 0)	Motor encoder (rotor position for the commutation)
Motor model	Bit 4-7 (Nibble 1)	Asynchronous motor, synchronous motor, U/f operation, ...
Speed encoder	Bit 8-11 (Nibble 2)	Speed encoder (to form the actual speed value)
Position encoder	Bit 12-15 (Nibble 3)	Position encoder (to form the actual position value)


Meaning for KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 /


ID32953 defines the type of motor and the actual value encoder for the different control loops and are to be derived from the respective type plate or data sheet of the motor.

Motor encoder	Bit 0-3 (Nibble 0)	Motor encoder (rotor position for the commutation) at the same time also speed encoder and position encoder
Motor model	Bit 4-7 (Nibble 1)	Asynchronous motor, synchronous motor, U/F/ operation, ...
Speed encoder	Bit 8-11 (Nibble 2)	like motor encoder (not changeable)
Position encoder	Bit 12-15 (Nibble 3)	like motor encoder (not changeable)

Configuration ID32953 'Encoder type'

Bit no.	Condition	Meaning
0-3 Motor encoder (Nibble 0)	0x0	I encoder
	0x1	KW-R06 / KW-R07 / H encoder, connected to the resolver input KW-R16 / KW-R17 / Reserved iX / iC / iDT5 / iDP7 / H encoder, connected to the sine encoder input  At the first startup, the commutation offset must be determined. See ID32843 'Service command' on page 154. See Device description Decentralised drive technology iC / iX / i3X / iDT (AMK part-no. 203445)
	0x2	T, V encoder ¹⁾
	0x3	Reserved
	0x4	Reserved
	0x5	I encoder
	0x6	Reserved
	0x7	S, U encoder
	0x8	KW-R06 / KW-R07 / Resolver KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0x9	KW-R06 / KW-R07 / Square-wave pulse encoder KW-R16 / KW-R17 / iX / iC / iDT5 / iDP7 / Reserved
	0xA	E or F encoder
	0xB	Reserved
	0xC	P or Q encoder
	0xD - 0xF	Reserved
4-7 Motor model (Nibble 1)	0x0	Asynchronous motor
	0x1	Non-field weakening synchronous motor
	0x2	U/f control
	0x3	Field weakening synchronous motor
	0x6	Asynchronous motor with voltage control (control of the magnetising current)
	0x7 - 0xF	Reserved

Bit no.	Condition	Meaning
8-11 Speed encoder (Nibble 2)	0x0	like motor encoder
	0x1	KW-R06 / KW-R07 / H encoder, connected to the resolver input KW-R16 / KW-R17 / Reserved iX / iC / iDT5 / iDP7 / H encoder, connected to the sine encoder input  At the first startup, the commutation offset must be determined. See ID32843 'Service command' on page 154. See Device description Decentralised drive technology iC / iX / i3X / iDT (AMK part-no. 203445)
	0x2	T, V encoder
	0x3	Reserved
	0x4	Reserved
	0x5	I encoder
	0x6	Reserved
	0x7	S, U encoder
	0x8	Resolver
	0x9	Square-wave pulse encoder
	0xA	E or F encoder
	0xB	Reserved
	0xC	P or Q encoder
	0xD - 0xF	Reserved

Bit no.	Condition	Meaning
12-15 Position encoder (Nibble 3)	0x0	like motor encoder
	0x1	KW-R06 / KW-R07 / H encoder, connected to the resolver input KW-R16 / KW-R17 / Reserved iX / iC / iDT5 / iDP7 / H encoder, connected to the sine encoder input  At the first startup, the commutation offset must be determined. See ID32843 'Service command' on page 154. See Device description Decentralised drive technology iC / iX / i3X / iDT (AMK part-no. 203445)
	0x2	T, V encoder
	0x3	Reserved
	0x4	Reserved
	0x5	I encoder
	0x6	Reserved
	0x7	S, U encoder
	0x8	Resolver
	0x9	Square-wave pulse encoder
	0xA	E or F encoder
	0xB	Reserved
	0xC	P or Q encoder
	0xD - 0xF	Reserved

1) Also applies for the linear scale "LinCoder L230" from the company Sick/Stegmann with the Hiperface interface.

Meaning for KW-R06 / KW-R07 /



If 'AMK main operation mode' bit 14 = 1 (actual position value source of the external encoder) is active in ID32800, the external actual position value encoder (bit 12-15) must be configured mandatory. The setting 0x0 (like motor encoder) causes the pulse encoder input 0x9 to be automatically selected internally when ID32800 bit 14 = 1 is set. ID32800 bit 14 is only utilised if no second encoder is selected in ID34297 'Encoder type 2'.

Examples for the encoder configuration:

Application	ID32953 [hex]
Asynchronous motor with AMK I-encoder (motor encoder)	0x0000
Synchronous motor with resolver (motor encoder)	0x0018
Synchronous motor with resolver as motor encoder (for commutation) and speed encoder and with external square-wave pulse encoder for the actual position value detection	0x9018 or 0x9818

The values for the following parameters are to be derived from the AMK motor data sheet:

Motor parameters:

ID109, ID111, ID32768, ID32769, ID32770, ID32771, ID32775, ID32776, ID32934, ID32953, ID32959, ID32960, ID32961, ID34164, ID34167, ID34234

Control parameters:

ID34050, ID34052, ID34148, ID34149, ID34151, ID34152, ID34235

ID32956 'Additional acceleration value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	10
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	4
Signed:	NO	Max. value:	255
Format:	DEC		
List:	NO		

ID32956 works with the internal interpolator for drive-controlled positionings. The acceleration coefficient describes the number of interpolator cycles until reaching the constant acceleration according to ID136 'Positive acceleration' and ID137 'Negative acceleration'. The interpolator cycle time (Ti) is 1 ms. This results in the following time (T1) until the transition to the nominal acceleration :

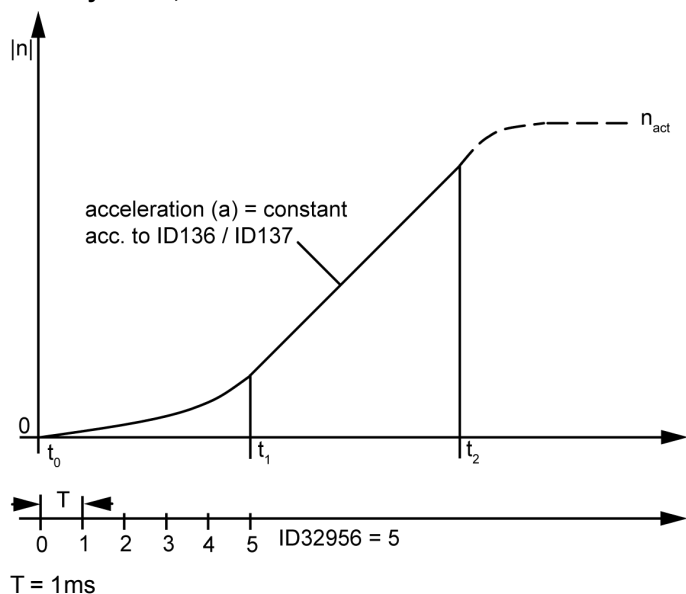
Formula: Interpolator settling time to nominal acceleration

$T_1 = T_i \times \text{ID32956}$ with $T_i = 1 \text{ ms}$ (interpolator cycle time)

The acceleration that is realisable by the interpolator depends directly on the acceleration value (BB):

$$\frac{4}{\text{ID32956}} \leq \frac{\text{ID136}}{|\text{ID137}|} \leq \frac{\text{ID32956}}{4}$$

Velocity curve, acceleration coefficient



Time	Meaning
$t_0 \leq t < t_1$	Smooth increase in acceleration to nominal acceleration (range of constant acceleration). The time period is determined by the acceleration coefficient.
$t_1 \leq t < t_2$	Constant acceleration according to ID136 'Positive acceleration' and ID137 'Negative acceleration'
$t_2 \leq t$	Smooth reduction of acceleration to zero. Mirror image trend currently $t_0 \leq t < t_1$.

ID32958 'Commant value 1 cycle'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE	Default value:	500
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES / NO	Unit:	ms
Data length:	2 byte	Min. value:	0.000 ms
Signed:	NO	Max. value:	65.535 ms
Format:	DEC		
List:	NO		

The time 'Commant value 1 cycle' defines the time intervals at which setpoints are sampled at the pulse encoder input and can be set as a multiple of 0.5 ms.



The following condition must be met if 16 bit position setpoints (pulse encoder input) are processed:
 ID1 'NC cycle time' = ID2 'SERCOS cycle time' = ID32958 'Commant value 1 cycle'

ID32959 'Offset resolver'

Supported hardware:	KW-R06 / KW-R07 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The value 'Offset resolver' adjusts the zero position of the resolver to a constructively determined field position of a synchronous motor (magnet pole). AMK rotation synchronous motors with resolvers are adjusted so that no offset resolver must be entered (ID32959 = 0).

The value range 0 to 65535 corresponds to an angle of 0 to 360 degrees or a pole period with linear motors.

For linear motors, for example, it is not possible to mount the resolver in a defined position to the pole period. If the resolver position should or can be changed, the commutation angle (ID32831) must be determined with the function in ID32843 'Service command' = 0xEDA5 and the offset resolver calculated as follows:

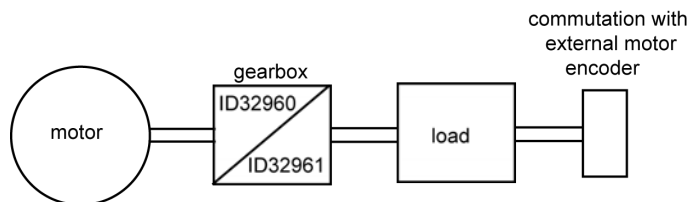
ID32959 'Offset resolver' = 65535 - ID32831 'Resolver angle'

ID32960 'Input motor encoder gear'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Revolutions
Data length:	2 byte	Min. value:	1 revolution
Signed:	NO	Max. value:	65535 revolutions
Format:	DEC		
List:	NO		

The gear ratio is parameterised in ID32960 and ID32961 'Output motor encoder gear' if a motor encoder gear acts between the motor shaft and the motor encoder. The motor encoder gear ratio influences the commutation, but not the speed and position control.

Arrangement



The result of the following calculation must be in integers for synchronous motors, otherwise an error message will be generated. Positions after decimal points are permissible for asynchronous motors.

$$ID32776 \times \frac{ID32961}{ID32960}$$

ID32961 'Output motor encoder gear'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Revolutions
Data length:	2 byte	Min. value:	1 revolution
Signed:	NO	Max. value:	65535 revolutions
Format:	DEC		
List:	NO		

See ID32960 'Input motor encoder gear' on page 199.

ID32962 'List of error codes'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	4096

* The list length is the number of usage data elements without 4 byte head elements.

ID32962 'List of error codes' shows external components (e.g. of a controller) internal drive diagnostic messages in ASCII format and the source of the error.



The parameter ID32962 'List of error codes' is ACC bus-specific. No function for EtherCAT.

Configuration ID32962 'List of error codes' for the example error message 2310, source of error address 5

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	4096	List head: Maximum list length without list head [byte]
2	e.g. 2	Diagnostic number (MSB)
3	e.g. 3	Diagnostic number

List element	Content	Meaning
4	e.g. 1	Diagnostic number
5	e.g. 0	Diagnostic number (LSB)
6	e.g. 0	Source of error =0: Error on local device ≠0: Bus address of the reporting fieldbus participant
7	e.g. 5	Source of error =0: Error on local device ≠0: Bus address of the reporting fieldbus participant
8	e.g. G	Plain text (always 26 byte)
9	e.g. e	Plain text
10	e.g. b	Plain text
11	e.g. e	Plain text
12	e.g. r	Plain text
13	e.g. k	Plain text
14	e.g. o	Plain text
15	e.g. m	Plain text
16	e.g. m	Plain text
17	e.g. u	Plain text
18	e.g. n	Plain text
19	e.g. i	Plain text
20	e.g. k	Plain text
21	e.g. a	Plain text
22	e.g. t	Plain text
23	e.g. i	Plain text
24	e.g. o	Plain text
25	e.g. n	Plain text
26 - 33
34		Next message

ID32968 'Input port 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With ID32968, the binary inputs are assigned parameters, e.g. 12 binary inputs on the option card KW-EA2. With the parameters, functions of the inverter or the plc user program can be assigned to the binary inputs. If the hardware used does not have physical binary inputs, the input ports can be read and written by the controller as virtual inputs.

**Structure and use of the input port 2 - function assignment via parameter -
controller can read the image and evaluate status**

ID32968	Binary input ¹⁾	Function assignment ²⁾	Image ³⁾
41	E1	ID32969	ID34101 Bit 8
	E2	ID32970	ID34101 Bit 9
	E3	ID32971	ID34101 Bit 10
	E4	ID32972	ID34101 Bit 11
	E5	ID32973	ID34101 Bit 12
	E6	ID32974	ID34101 Bit 13
	E7	ID32975	ID34101 Bit 14
	E8	ID32976	ID34101 Bit 15

- 1) The availability of physical binary inputs depends on the hardware used.
- 2) Functions can be assigned to the binary inputs:
See Codes for the configuration of the binary inputs on page 313.
- 3) A controller can read the statuses of binary inputs with ID34101 'Binary input word 1'.

**Structure and use of the input port 2 -
Controller can set inputs by writing the image**

ID32968	Binary input ¹⁾	Function assignment ²⁾	Image ³⁾
0	E1	ID32969 = 0	ID34101 Bit 8
	E2	ID32970 = 0	ID34101 Bit 9
	E3	ID32971 = 0	ID34101 Bit 10
	E4	ID32972 = 0	ID34101 Bit 11
	E5	ID32973 = 0	ID34101 Bit 12
	E6	ID32974 = 0	ID34101 Bit 13
	E7	ID32975 = 0	ID34101 Bit 14
	E8	ID32976 = 0	ID34101 Bit 15

- 1) The availability of physical binary inputs depends on the hardware used. If no physical binary inputs are available, the controller can read and write the memory capacities as 'virtual binary inputs.'
- 2) Functions can be assigned to the binary inputs:
See Codes for the configuration of the binary inputs on page 313.
If the binary input can be set by the controller without the inverter triggering a configured function, the value 0 must be assigned to the respective input. The controller accesses the binary inputs reading or writing via ID34101.
- 3) A controller can read and write the statuses of binary inputs with ID34101 'Binary input word 1'.

ID32969 'Port2 Bit0'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 0) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32970 'Port2 Bit1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 1) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32971 'Port2 Bit2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 2) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32972 'Port2 Bit3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 3) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32973 'Port2 Bit4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 4) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32974 'Port2 Bit5'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 5) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32975 'Port2 Bit6'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 6) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32976 'Port2 Bit7'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 2 (bit 7) and the status of the input can be evaluated via the plc. ID32968 'Input port 2' determines which binary inputs the input port maps.

See ID32968 'Input port 2' on page 201.

ID32977 'Input port 3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	32
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With ID32977, the standard binary inputs are assigned parameters. With the parameters, the physical binary inputs can be assigned standard functions or functions of the plc user program.

Structure and use of the input port 3

Function assignment via parameters

Controller can read the image and evaluate status

ID32977	Binary input ¹⁾	Function assignment ²⁾	Image ³⁾
32	BI1	ID32978	ID34100 Bit 0
	BI2	ID32979	ID34100 Bit 1
	BI3 ⁵⁾	ID32980 ⁵⁾	ID34100 Bit 2 ⁵⁾
	BI4 ⁵⁾	ID32981 ⁵⁾	ID34100 Bit 3 ⁵⁾
	BI5 ⁴⁾	ID32982 ⁴⁾	ID34100 Bit 4 ⁴⁾

1) The availability of physical binary inputs depends on the hardware used.

2) Functions can be assigned to the binary inputs: See Codes for the configuration of the binary inputs on page 313.

See Codes for the configuration of the binary inputs on page 313.

3) A controller can read the statuses of binary inputs with ID34100 'Binary input word'.

4) Only for iX / iC / iDT5 / iDP7 /

5) Only for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Structure and use of the input port 3

Controller can set inputs by writing the image

ID32977	Binary input ¹⁾	Function assignment ²⁾	Image ³⁾
0	E1	ID32978 = 0	ID34100 Bit 0
	E2	ID32979 = 0	ID34100 Bit 1
	E3 ⁵⁾	ID32980 = 0 ⁵⁾	ID34100 Bit 2 ⁵⁾
	E4 ⁵⁾	ID32981 = 0 ⁵⁾	ID34100 Bit 3 ⁵⁾
	E5 ⁴⁾	ID32982 = 0 ⁴⁾	ID34100 Bit 4 ⁴⁾

- 1) The availability of physical binary inputs depends on the hardware used. If no physical binary inputs are available, the controller can read and write the memory capacities as 'virtual binary inputs.'
- 2) Functions can be assigned to the binary inputs:
See Codes for the configuration of the binary inputs on page 313.
If the binary input can be set by the controller without the inverter triggering a configured function, the value 0 must be assigned to the respective input. The controller accesses the binary inputs reading or writing via ID34100.
- 3) A controller can read and write the statuses of binary inputs with ID34100 'Binary input word'.
- 4) Only for iX / iC / iDT5 / iDP7 /
- 5) Only for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

ID32978 'Port3 Bit0'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	32904
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Default value: 32904 (RF)

Values for KE(N,S)-xEx /

Default value: 32903 (UE)

Values for iX / iC / iDT5 / iDP7 /

Default value: 32904 (RF)

Binary input functions of the converter can be assigned to the binary input port 3 (bit 0) and the status of the input can be evaluated via the plc. ID32977 'Input port 3' determines which physical binary inputs the input port maps.

See ID32977 'Input port 3' on page 205.

ID32979 'Port3 Bit1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	32913 (FL)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the converter can be assigned to the binary input port 3 (bit 1) and the status of the input can be evaluated via the plc. ID32977 'Input port 3' determines which physical binary inputs the input port maps.

See ID32977 'Input port 3' on page 205.

ID32980 'Port3 Bit2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	32905 (NK)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 3 (bit 2) and the status of the input can be evaluated via the plc. ID32977 'Input port 3' determines which physical binary inputs the input port maps.

See ID32977 'Input port 3' on page 205.

ID32981 'Port3 Bit3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 3 (bit 3) and the status of the input can be evaluated via the plc. ID32977 'Input port 3' determines which physical binary inputs the input port maps.

See ID32977 'Input port 3' on page 205.

ID32982 'Port3 Bit4'

Supported hardware: iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Binary input functions of the inverter can be assigned to the binary input port 3 (bit 3) and the status of the input can be evaluated via the plc. ID32977 'Input port 3' determines which physical binary inputs the input port maps.

See ID32977 'Input port 3' on page 205.

ID32989 'Torque filter time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
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Reserved for AMK internal use!

ID32990 'NK shift'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	0 Increments
Signed:	NO	Max. value:	65535 Increments
Format:	DEC		
List:	NO		

The cam offset works with the homing cycle function.

See documentation Functional description (AMK part-no. 203878).

ID32991 'U/f startup'

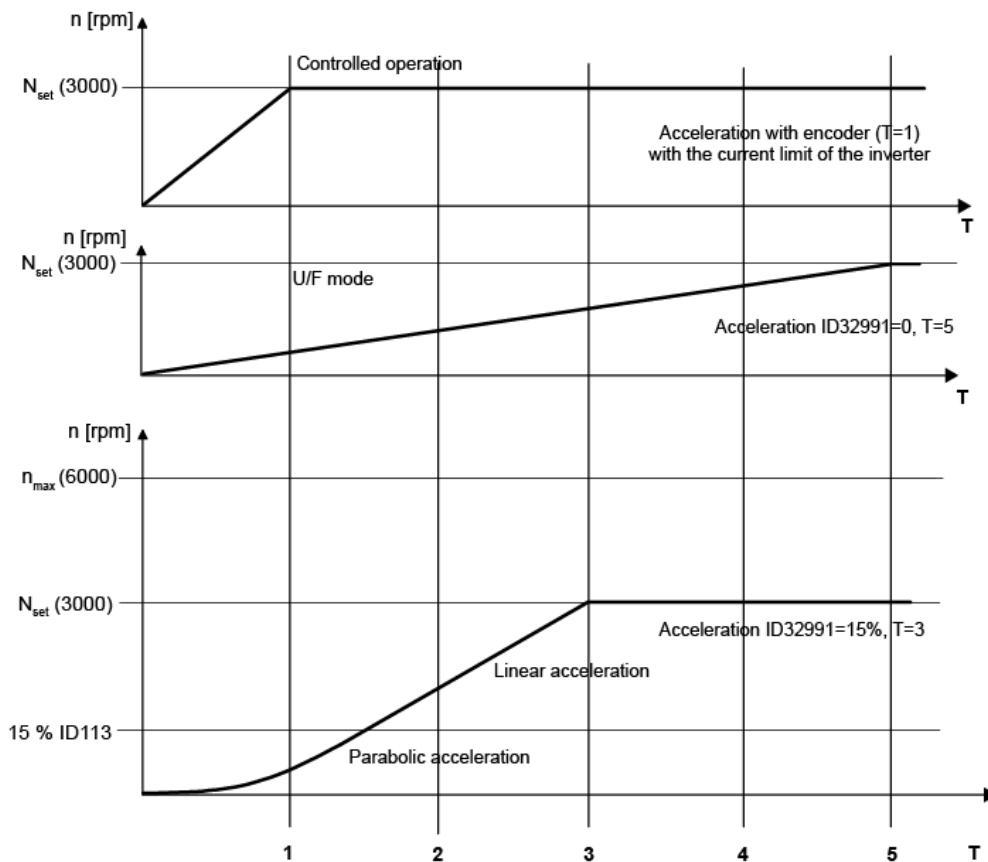
Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

ID32991 works in the voltage / frequency control (U/f operation) when operating a motor. The U/f operation allows a speed-controlled motor operation without encoder feedback. For U/f operation, accelerating from a standstill is frequently a problem, because a high current can flow when the axis 'breaks away' and this can lead to an overload of the converter ('short-circuit' shutdown).

So that the overload in the U/f acceleration (without soft start) is avoided with certainty, the speed ramp must be set flat when starting. A flat speed ramp, however, leads to a non-dynamic behaviour of the axis.

With ID32991, acceleration can take place in a parabolic arc in the lower speed range of a voltage / frequency controller. Accelerating from the speed set in ID32991, acceleration takes place until the speed setpoint. The value to be entered in ID32991 is the relative speed based on ID113 'Maximum speed'. In the speed range from the standstill to the speed under ID32991, acceleration takes place in a parabolic arc and then linearly according to ID32780 'Acceleration ramp'. If the drive is not at a standstill, acceleration takes place immediately with the linear ramp (ID32780). ID124 'Zero velocity window' is used as the decision-making criterion for the standstill.

Acceleration behaviour in the U/f operation



T=1 is the time with which the motor used in the controlled operation accelerates as quickly as possible, limited by ID82 'Positive torque limit' and ID83 'Negative torque limit'. The resulting minimal acceleration time is determined by the motor and the converter used.

In U/f operation with a linear acceleration time, the acceleration must be started with a factor of T=5. A time of T=3 is achieved through the parabolic arc acceleration.

The acceleration time in the U/f operation is to be determined experimentally. Assuming long acceleration times, the minimal acceleration time can be approached in a gradual manner.

The effective acceleration time results as follows:

$$T_{H,eff} = ID32780 \times (1 + 0.01 \times ID32991)$$

The axis deceleration is not influenced by ID32991. It corresponds to a T=2 compared with that in the controlled drive.

Operation

The specification of the setpoint frequency takes place via the speed setting in controlled operation. The setpoint source is set via the operating mode. The speed ramp according to ID32780, ID32781 and ID32782 is effective if it is activated in the operating mode (ID32800...) with bit 6. The ramp times may not be less than the physically achievable speed ramps of the system. Too steep of ramps lead to the message 2334 short-circuit of output terminals or to the message 2321 IGBT overcurrent. The setpoint according to the ramp is shown as the actual speed value.

The following functions are ineffective during U/f operation:

- I²t-monitoring for converter
- Torque limiting (ID82, ID83, ID92). The current limit is enabled up to the maximum converter current limit.
- Torque display
- Power display

The following parameters are relevant for the U/f operating mode:

Parameter	Designation	Description
ID32953	'Encoder type'	Motor model selection 0x0020 must be entered for U/f operation.

Parameter	Designation	Description
ID32935	'Voltage standstill'	Applied voltage at a standstill (frequency = 0) In this way, the voltage drop at the coil can be compensated for.
ID32768	'Nominal motor voltage'	Voltage at the nominal speed
ID32772	'Nominal velocity'	Until the 'Nominal velocity' is reached, the voltage is increased to 'Nominal motor voltage' (ID32768). For higher speeds, the voltage is kept constant.
ID32775	'Pole number motor'	Number of poles of the motor (type plate).
ID32780	'Acceleration ramp'	Time for the acceleration from a speed of zero to the maximum speed
ID32781	'Deceleration ramp'	Time for braking from the maximum speed to standstill
ID32782	'Deceleration ramp RF inactive'	Deceleration time for removal of the controller enable (controlled deceleration)
ID32991	'U/f startup'	Speed threshold for the transition from the parabolic arc start-up to a linear acceleration movement

ID32992 'Dead time compensation 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

In ID32992, the feedforward time can be set for the dead time compensation for 16 bit position setpoints (pulse encoder input).

The dead time compensation only works if the following error compensation (SAK) in ID32800 'AMK main operation mode' bit 11 = 1 is active.

ID32993 'Dead time compensation 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

In ID32993, a feedforward time can be set for the dead time compensation for 32 bit position setpoints. The dead time compensation only works if the following error compensation (SAK) in ID32800 'AMK main operation mode' bit 9 = 1 is active.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32996 'Data signification'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID32999 'Overload limit inverter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	500
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The i^2t monitoring for the converter is always automatically active. The 'Overload limit inverter' determines when the 'device overload warning' is generated. At the same time as the warning, the real-time bit (code 33016) is generated. If the value in ID32999 is fallen below again, the real-time bit is reset until the value is exceeded again. Upcoming warnings can be cleared by the user. If the i^2t -monitoring (ID33101 'Display overload inverter') achieves an overload value of 100%, the error message 'device overload error' is generated.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

2357 'Device overload warning'

2358 'Device overload error'

In the case of an error, the SBM is withdrawn and the drive coasts to a stop.

Meaning for KE(N,S) / KE(N,S)-xEx /

2349 'Inverter overload warning'

2345 'Inverter overload error'

In the case of an error, the SBM is withdrawn, the IGBT is therefore blocked and the main contactor is opened.

ID33076 'Second period'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33076 = 0 Output cycle = 1 second (1 second on, 1 second off)

ID33076 ≠ 0 Output cycle = value in ID33076 * 10 ms

ID33098 'Increase position value 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID33098 specifies the 32 bit position growth per ID2 'SERCOS cycle time'.

See ID32800 'AMK main operation mode' on page 137.

ID33100 'Actual power value'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	W
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Actual power value' is a variable calculated from the actual torque value and actual speed value in the converter, which is based on a motor model.

Formula: Nominal power P_N of the motor

$$P_N [W] = \frac{2\pi \times ID32771 \times ID32772}{60}$$

ID32771 'Nominal torque'

ID32772 'Nominal velocity'

ID33101 'Display overload inverter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33101 shows the current overload of the converter according to i^2t -calculation.

ID33101 = 0: Converter works in nominal operation or below the nominal rating

ID33101 > 0: Converter works in the overload operation, shutdown at 100%

See ID32999 'Overload limit inverter' on page 211.

ID33102 'Display overload motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	YES / NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33102 shows the current overload of the motor according to I^2t -calculation.

ID33102 = 0: Motor works in nominal operation or below the nominal rating

ID33102 > 0: Motor works in the overload operation, shutdown at 100%



The I^2t -monitor motor must be activated in ID32773 'Service bits' Bit 14.

ID33104 'Position feedback modulo'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	0 Increments
Signed:	NO	Max. value:	4294967295 Increments
Format:	DEC		
List:	NO		

The modulo actual position value is between 0 and the modulo end value set in ID103 'Modulo value' and always has a positive sign.

See ID103 'Modulo value' on page 63.

ID33113 'Torque setpoint at controller'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	YES	Unit:	%M _N
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

See ID32800 'AMK main operation mode' on page 137.

ID33114 'Process number'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The ID33114 'Process number' shows the EtherCAT status (instance 5).

Value	Meaning
1	Initialisation
2	Pre-operational mode
3	Bootstrap
4	Safe-operational mode
8	Operational mode

ID33116 'Temperature internal'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	°C
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID33116 shows the temperature of the cold plate (heat sink of the IGBT and at the same time of the rear wall of the device). If critical temperatures occur for the devices, the warning 2350 'Device over-temperature warning' is generated as well as the error message 2346 'Converter temperature error' after the warning time¹⁾ (ID32943) has expired. The triggering thresholds are device-specific, are set in the SEEP at the factory and cannot be changed by the user.

1) KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /:

See ID32943 'Warning time' on page 190.

KE(N,S) / KE(N,S)-xEx /: The warning time is 4 seconds and cannot be changed by the user.

ID33117 'Temperature external'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	°C
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID33117 indicates the temperature of a connected KTY temperature sensor (e.g. motor temperature sensor). The temperature sensor type is defined in ID34166 'Temperature sensor motor'.

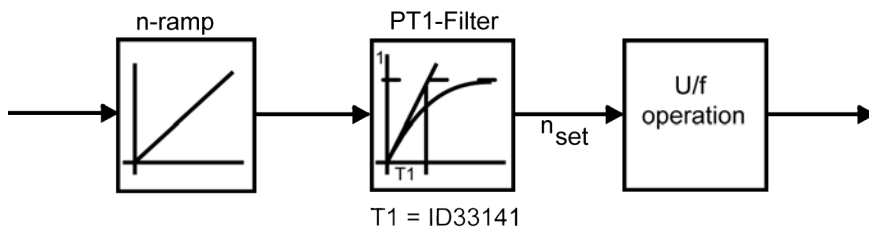


This Parameter must not be evaluated if a PTC temperature sensor is used.

ID33141 'U/f input filter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0,1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0,0 ms
Signed:	NO	Max. value:	2000,0 ms
Format:	DEC		
List:	NO		

The 'U/f input filter' effects in the operation mode U/f control and configures the filter time of a PT1-Filter.



ID33142 'Commutation valid'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	DRIVE	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The real-time bit 'Commutation valid' is set after the software commutation is executed successfully and a valid commutation angle is determined. The software commutation is not executed after RF is set, if the real-time bit 'Commutation valid' is still set. The real-time bit is reset at encoder error or power off.

ID33143 'Communication monitoring'

Reserved for AMK internal use!

ID33144 'Timeout communication monitoring'

Reserved for AMK internal use!

ID33145 'OSC channel 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte/element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Maximum list length:*	32765

* The list length is the number of usage data elements without 4 byte head elements.

Data list for oscilloscope function

ID33146 'OSC channel 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte/element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Maximum list length:*	32765

* The list length is the number of usage data elements without 4 byte head elements.

Data list for oscilloscope function

ID33147 'OSC channel 3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte/element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Maximum list length:*	32765

* The list length is the number of usage data elements without 4 byte head elements.

Data list for oscilloscope function

ID33148 'OSC channel 4'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte/element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Maximum list length:*	32765

* The list length is the number of usage data elements without 4 byte head elements.

Data list for oscilloscope function

ID33149 'Saturation current'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0,1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	0,0 A
Signed:	NO	Max. value:	3000,0 A
Format:	DEZ		
List:	NO		

This Parameter recognises the saturation effects inside of a motor. The current is shown at which the line inductance L_s is decreased to 30 % of the initial value.

ID33150 'Brake torque'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0,1
Temporarily changeable:	NO	Unit:	%M _N
Data length:	2 byte	Min. value:	0,0 %M _N
Signed:	NO	Max. value:	3000,0 %M _N
Format:	DEZ		
List:	NO		

If the sensorless calculation of the rotor position is active and the encoder becomes failure, the motor will be braked down in torque operation mode with the torque setpoint of ID33150. If ID33150 = 0, the motor will be braked down in speed operation mode according to ID32782 'Deceleration ramp RF inactive'.

See ID32773 'Service bits' on page 125.

See ID32782 'Deceleration ramp RF inactive' on page 133.

ID33151 'Maximal angular deviation of encoder-sensorless'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0,1
Temporarily changeable:	NO	Unit:	%M _N
Data length:	2 byte	Min. value:	0,0 %M _N
Signed:	NO	Max. value:	3000,0 %M _N
Format:	DEZ		
List:	NO		

ID33151 defines the maximum allowed deviation between the electrical rotor angle of the encoder and the sensorless calculated rotor angle.

ID33151 = 0: The additional encoder monitoring is not active.

ID33151 > 0: Is the actual deviation between the electrical rotor angle of the encoder and the sensorless calculated rotor angle higher than the value in ID33151, the error message 2365, Info1 = 1 is generated and the motor will be braked down according ID32782 'Deceleration ramp RF inactive'. Thereby the sensorless calculated rotor angle is used for the brake down control.

If the sensorless calculated rotor position is activated in ID32773 'Service bits' Bit 29, it can be used as additional monitoring of the encoder to detect encoder errors earlier.

See ID32773 'Service bits' on page 125.

ID33200 'Info safety parameterisation'

Supported hardware: KW-R07 / KW-R17 /

Reserved for AMK internal use!

ID33201 'Safety address'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Safety address' is the FSoE address when the address switch is at 0. If the address switch does not equal 0, the content in ID33201 is ignored and the value set on the address switch is the FSoE participant address.

ID33202 Safety parameters'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	127

* The list length is the number of usage data elements without 4 byte head elements.

Configuration ID33202 Safety parameters'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 4 byte / element)
1	508	List head: Maximum list length without list head [byte]
2		CRC via the contents of the safety parameters (Prm)
3		CRC of the parameter description file
4		Values of the secure parameter Prm
...		...

ID33203 'Safety bits'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL	Default value:	0000 0000 0000 0001
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Configuration ID33203 'Safety bits'

Bit no.	Condition	Meaning
0	0	The safety function SS1 does not initiate the braking process. The drive must be braked by the controller and the controller enable be withdrawn.
	1	The safety function SS1 withdraws controller enable (RF) from the drive internally and the drive brakes according to ID32782 'Deceleration ramp RF inactive' and becomes torque-free (STO status).
1-15	0	Reserved
	1	Reserved

ID33204 'Safety password'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	-
List:	YES	Max. list length:*	-

* The list length is the number of usage data elements without 4 byte head elements.

The safety parameters can only be changed, if the password was entered in the safety parameter editor. The function 'initial program loading' does not delete the defined password.

See documentation 'Safety manual; functional safety', AMK part-no. 203446.

ID33210 'FSOE master command'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33211 'Safety data master 0'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33211 'Safety data master 0' contains bit 0..15 of the FSoE control data.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33212 'FSoE master CRC 0'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33213 'Safety data master 1'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33213 'Safety data master 1' contains bit 16..31 of the FSoE control data.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33214 'FSoE master CRC 1'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33229 'FSoE master ConnID'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33230 'FSoE slave command'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33231 'Safety data slave 0'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33231 'Safety data slave 0' contains bit 0..15 of the FSoE status data.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33232 'FSoE Slave CRC 0'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33233 'Safety data slave 1'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33233 'Safety data slave 1' contains bit 16..31 of the FSoE status data.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33234 'FSoE slave CRC 1'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33235 'Safety data slave 2'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33235 contains byte 0 and 1 of the safely detected actual position value.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33236 'FSoE slave CRC 2'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33237 'Safety data slave 3'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33237 contains byte 2 and 3 of the safely detected actual position value.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33238 'FSoE slave CRC 3'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33239 'Safety data slave 4'

Supported hardware: KW-R07 / KW-R17 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33239 contains byte 0 and 1 of the safely detected velocity.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33240 'FSoE slave CRC 4'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33241 'Safety data slave 5'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID33241 contains byte 2 and 3 of the safely detected velocity.

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33242 'FSoE slave CRC 5'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33249 'FSoE slave ConnID'

Supported hardware:	KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The parameter content is a component of the FSoE protocol data according to the standard IEC 61784-3 Ed. 2.0 (profiles for functional safe communications in industrial networks)

Reserved for AMK internal use!

ID33300 'Motion test 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID33301 'Motion test 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID33302 'Motion test 3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID33303 'Motion test 4'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

See ID32800 'AMK main operation mode' on page 137.

ID33730 'System booting'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

A system booting causes a re-calculation of the data management. Changed parameter values are active. The command 'System booting' is started if the value 0x1 is written in the parameter. The status of the command is displayed by the parameter being read.

Read value	Meaning
0x0	Basic state, no command active

Read value	Meaning
0x3	Command complete
0x5	Inhibit time for charging process not yet expired
0x7	Command currently active
0xF	Command completed with error

The command is completed after the status is 0x3 or 0xF.

ID33732 'System reset'

Supported hardware: KE(N,S) / KE(N,S)-xEx /

Reserved for AMK internal use!

ID33911 'SIWL setpoint'

Supported hardware: KW-R06 / KW-R07 /

Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

'SIWL setpoint' acts with the SIWL function.

See ID34250 'SIWL source' on page 294.

ID34000 'Variable 0'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34001 'Variable 1'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34002 'Variable 2'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34003 'Variable 3'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34004 'Variable 4'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34005 'Variable 5'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34006 'Variable 6'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34007 'Variable 7'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34008 'Variable 8'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34009 'Variable 9'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34010 'Variable 10'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34011 'Variable 11'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34012 'Variable 12'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34013 'Variable 13'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34014 'Variable 14'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34015 'Variable 15'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34016 'Variable 16'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34017 'Variable 17'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34018 'Variable 18'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34019 'Variable 19'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

This parameter can be used specific to the application in order to store data.

ID34023 'BUS address participant'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	INSTANCE	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	-	-	-	-
1	ACC bus master	X137	1	Participant address 1
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)	0	No address assigned
	Profibus slave (option A-SPB)	X41		
	CAN / ACC bus slave (option A-SCN)	X41		
3	I/O extension	X120, X121, X122	0	no meaning
4	1st Ethernet interface	X20	0001	Participant address xxx.xxx.0.1
5	1st EtherCAT Master	X186	00FF	Participant address 255
6	2nd EtherCAT Master (i.V.)	X185	-	-
7	2nd Ethernet interface	X60	0101	Participant address xxx.xxx.0.1

Values for KW-R06 / KW-R07 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus master	X137	1	Participant address 1
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0	No address assigned

Values for KW-R16 / KW-R17 /

Default value:

Instance	Use	Interface	Default value	Meaning
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0	No address assigned

Values for KE(N,S) /

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus slave	X236 / X237	0x0021	Participant address 33 decimal

Values for KE(N,S)-xEx /

Default value:

Instance	Use	Interface	Default value	Meaning
0	EtherCAT slave	X85 (IN) / X86 (OUT)	0	No address assigned

Values for iX / iC / iDT5 / iDP7 /

Default value:

Instance	Use	Interface	Default value	Meaning
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0	No address assigned

ID34023 specifies the participant address in the bus system.

Meaning for A4 / A5 /

The Ethernet IP address of the instances 4 and 7 is composed of the content from the parameters ID34023 and ID34026.

Default setting: X20 (instance 4) 192.168.0.1

Default setting: X60 (instance 7) 192.168.1.1

Composition of the Ethernet IP address

IP address in dec						ID34026 in hex		ID34023 in hex	
[A]	[B]	[C]	[D]	=		[A]	[B]	[C]	[D]
192	168	0	1	=		C0	A8	00	01

ID34024 'BUS transmit rate'

Supported hardware: A4 / A5 / KW-R06 / KW-R07 / KE(N,S) /

Sphere of action:	Device-specific values	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	0.00
Signed:	NO	Max. value:	Device-specific values
Format:	DEC		
List:	NO		

Values for A4 / A5 /

Sphere of action:

INSTANCE

Default value:

Instance	Use	Interface	Default value	Meaning
0	-	-	-	-
1	ACC bus master	X137	1	Participant address 1
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)	0	No address assigned
	Profibus slave (option A-SPB)	X41		
	CAN / ACC bus slave (option A-SCN)	X41		
3	I/O extension	X120, X121, X122	0	no meaning
4	1st Ethernet interface	X20	0001	Participant address xxx.xxx.0.1
5	1st EtherCAT Master	X186	00FF	Participant address 255
6	2nd EtherCAT Master (i.V.)	X185	-	-
7	2nd Ethernet interface	X60	0101	Participant address xxx.xxx.0.1

Max. value: 1000000.00

Values for KW-R06 / KW-R07 /

Sphere of action:

INSTANCE

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus master	X137	0	1 Mbaud
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0	Slave supports the transmission rate of the master

Max. value: 99000.00

Values for KE(N,S) /

Sphere of action:

GLOBAL

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus master	X236 / X237	0	1 Mbaud

Max. value: 99000.00

The bus transmission rate must be set the same for all participants of a fieldbus system!

Transmission rates for the ACC bus interface

Value	Meaning
0	1 Mbaud
1000.00	1 Mbaud
800.00	800 kbaud
500.00	500 kbaud
250.00	250 kbaud
125.00	125 kbaud
50.00	50 kbaud
20.00	20 kbaud
10.00	10 kbaud

ID34025 'BUS mode'

Supported hardware:	A4 / A5 / KW-R06 / KW-R07 /		
Sphere of action:	INSTANCE	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	-	-	-	-
1	ACC bus master	X137	0002	master
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)	0000	slave (CC)
	Profibus slave (option A-SPB)	X41	0000	slave
	CAN / ACC bus slave (option A-SCN)	X41	0000	slave
3	I/O extension	X120, X121, X122	0002	-
4	1st Ethernet interface	X20	0020	see table ¹⁾
5	1st EtherCAT Master	X186	0002	master
6	2nd EtherCAT Master (i.V.)	X185	-	-
7	2nd Ethernet interface	X60	0	see table ¹⁾

1)

Bit	Value	Meaning
0 -	0	Reserved
1	1	Reserved
2	0	DHCP not active
	1	DHCP active
3	0	Ethernet class C network (subnet mask 255.255.255.0) or manual input in ID34057 'Network mask'
	1	Ethernet class B network (subnet mask 255.255.0.0)
4	0	Reserved
	1	Reserved
5	0	SBUS server not active
	1	SBUS server active (necessary for the Ethernet communication with the AMK PC software AIPEX PRO and ATF)

Values for KW-R06 / KW-R07 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus master	X137	0002	ACC bus master
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0000	-

The 'BUS mode' defines the fieldbus-specific supported functionality.

ID34026 'BUS mode attribute'

Supported hardware: A4 / A5 / KW-R06 / KW-R07 / KE(N,S) /

Sphere of action:	INSTANCE	Default value:	Device-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	-	-	-	-
1	ACC bus master	X137	88	see table for instance 1
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)	0	unused
	Profibus slave (option A-SPB)	X41	0	unused
	CAN / ACC bus slave (option A-SCN)	X41	0	see table for instance 2
3	I/O extension	X120, X121, X122	0	unused
4	1st Ethernet interface	X20	C0A8	Participant address 192.168.xxx.xxx see table for instance 4
5	1st EtherCAT Master	X186	0	see table for instance 5
6	2nd EtherCAT Master (i.V.)	X185	-	-
7	2nd Ethernet interface	X60	C0A8	Participant address 192.168.xxx.xxx see table for instance 7

Values for KW-R06 / KW-R07 /

Default value:

Instance	Use	Interface	Default value	Meaning
0	ACC bus master	X137	0000	see table
1	EtherCAT slave	X85 (IN) / X86 (OUT)	0000	-

Values for KE(N,S) /

Defaultwert: 0

ID34026 'BUS mode attribute' defines the fieldbus-specific supported functionality.

Meaning for A4 / A5 /**Configuration ID34026 'BUS mode attribute' A4 / A5 - instance 1 - ACC bus master X137**

Bit no.	Condition	Meaning
0-2	0	Reserved
	1	Reserved
3	0	Send hardware synchronisation cycle (master) Inactive
	1	Send hardware synchronisation cycle (master) Active
4	0	Monitoring of the ACC bus node by the NMT (network management) master after a restart All configured nodes must be present on the bus
	1	Absent nodes are not initialised
5-10	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
11	0	Factor for the bus booting delay (bit 12-15) Factor = 1, which means maximum bus booting delay of 15 seconds
	1	Factor = 10, which means maximum bus booting delay of 150 seconds
12-15		Bus master (NMT network management) booting delay Waiting time before slave initialisation in seconds (factor see bit 11) During the bus initialisation the master can see only devices in "pre-operational" state. After successfully initialisation each slave switches into the pre-operational state. The delay time of the master must set in that way that the slave initialisation is completed before the master initialises.
	0000	inactive
	0001	1 or 10 seconds
	0010	2 or 20 seconds
	0011	3 or 30 seconds
	0100	4 or 40 seconds
	0101	5 or 50 seconds
	0110	6 or 60 seconds
	0111	7 or 70 seconds
	1000	8 or 80 seconds
	1001	9 or 90 seconds
	1010	10 or 100 seconds
	1011	11 or 110 seconds
	1100	12 or 120 seconds
	1101	13 or 130 seconds
	1110	14 or 140 seconds
	1111	15 or 150 seconds

Configuration ID34026 'BUS mode attribute' A4 / A5 - instance 2 - ACC bus slave X41

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	SYNC-signal slave receiver - hardware synchronisation cycle processed Inactive
	1	SYNC-signal slave receiver - hardware synchronisation cycle processed Active
2	0	SYNC-signal slave receiver - hardware synchronisation cycle is monitored Inactive
	1	SYNC-signal slave receiver - hardware synchronisation cycle is monitored Active (an error in the synchronisation generates an error message)
3-15	0	Reserved
	1	Reserved



The firmware A4/A5 V1.10 2013/06 generates an error message, if bit 1 = 1 is not set.

Configuration ID34026 'BUS mode attribute' A4 / A5 - instance 4 - 1th Ethernet interface X20

Configuration ID34026 'BUS mode attribute' A4 / A5 - instance 7 - 2nd Ethernet interface X60

The Ethernet IP address of the instances 4 and 7 is composed of the content from the parameters ID34023 and ID34026.

Default setting: X20 (instance 4) 192.168.0.1

Default setting: X60 (instance 7) 192.168.1.1

Composition of the Ethernet IP address

IP address in dec					ID34026 in hex		ID34023 in hex	
[A]	[B]	[C]	[D]	=	[A]	[B]	[C]	[D]
192	168	0	1	=	C0	A8	00	01

Configuration ID34026 'BUS mode attribute' A4 / A5 - instance 5 - EtherCAT Master X186

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	Trace outputs for the boot process Inactive
	1	Active
2	0	Check the revision number of the slave during the boot process Active
	1	Inactive
3	0	Reserved
	1	Reserved
4	0	In the event of an error, there is no shutdown of the LWR (logical write) service, but rather the slaves are switched back to the safe-operational mode. Inactive
	1	Active
5 - 10	0	Reserved
	1	Reserved
11	0	Factor for the bus booting delay (bit 12-15) Factor = 1, i.e. maximum booting delay of 15 seconds
	1	Factor = 10, i.e. maximum booting delay of 150 seconds
12 - 15	0000	Bus master (NMT network management) booting delay Waiting time before the initialisation of the slave in seconds (for factor, see bit 11) Inactive
	0001	1 or 10 seconds
	0010	2 or 20 seconds
	0011	3 or 30 seconds
	0100	4 or 40 seconds
	0101	5 or 50 seconds
	0110	6 or 60 seconds
	0111	7 or 70 seconds
	1000	8 or 80 seconds
	1001	9 or 90 seconds
	1010	10 or 100 seconds
	1011	11 or 110 seconds
	1100	12 or 120 seconds
	1101	13 or 130 seconds
	1110	14 or 140 seconds
	1111	15 or 150 seconds

Meaning for KW-R06 / KW-R07 /

Configuration ID34026 'BUS mode attribute' KW-R06 / KW-R07 / - instance 0 - ACC bus master X137

Bit no.	Condition	Meaning
0-2	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
3	0	Send hardware synchronisation cycle (master) Inactive
	1	Send hardware synchronisation cycle (master) Active
4	0	Monitoring of the ACC bus node by the NMT (network management) master after a restart All configured nodes must be present on the bus
	1	Absent nodes are not initialised
5	0	AMK service: PGT instead of the CANopen SYNC message COB-ID80 Synchronous messages are sent after receipt of the SYNC object COB-ID80.
	1	Synchronous messages are sent based on the hardware synchronisation signal. No SYNC object COB-ID80 is required.
6	0	No ACC bus initialisation after the command FL (clear error)
	1	Automatic ACC bus initialisation after the command FL (clear error)
7-11	0	Reserved
	1	Reserved
12-15	0000	NMT master booting delay (0000 = 0 seconds, 1111 = 15 seconds)
	0001	During the bus booting, the master can only detect devices that are in the 'pre-operational' status. Every slave switches to the pre-operational status following a successfully completed booting. The booting delay time in the master must be set so that the slave booting is completed before the master boots. The following table shows the booting times of various devices with various encoder types. The time from 24 V DC On until the 'pre-operational' status is achieved is measured.
	0010	
	0011	
	0100	
	0101	
	0110	
	0111	
	1000	
	1001	
	1010	
	1011	
	1100	
	1101	
	1110	
	1111	

Device:	Booting times [s]											
Encoder type	B	C	E	F	I	P	Q	R	S	T	Other	
KW-R03, KU-R03	-	-	5	5	4	-	-	3	5	4	-	
KW-R04	-	-	-	-	-	-	-	3	-	-	-	
KWZ	-	-	-	-	-	9	9	9	-	-	-	
IDT	9	9	-	-	-	-	-	-	-	-	-	
KE, KES	-	-	-	-	-	-	-	-	-	-	5	

After the delay time in the master has expired, the slave devices are switched to the 'operational' status by the master. The delay time to be set can be calculated as follows:

$$T_{V,Master} > \text{MAX}(T_{H, Slave}) - T_{H,Master}$$

$T_{V,Master}$: Master booting delay time
 $T_{H,Slave}$: Slave booting time
 $T_{H,Master}$: Master booting time

Meaning for KE(N,S) /

Configuration ID34026 'BUS mode attribute'


Bit no.	Condition	Meaning
0-8	0	Reserved
	1	Reserved
9	0	Waiting time for ACC bus master: 15 s
	1	Waiting time for ACC bus master: endless
10-15	0	Reserved
	1	Reserved

ID34027 'BUS failure character'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	INSTANCE	Default value:	2
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'BUS failure character' defines the behaviour of a slave bus participant in the event of a failure of the fieldbus.

Configuration ID34027 'BUS failure character'

Code	Designation	Description
0	-	No response
1	-	Warning message
2	-	Error message, SBM is withdrawn KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / The controller enable (RF) is withdrawn drive-internally KE(N,S) / KE(N,S)-xEx / DC bus ON (UE) is withdrawn internally
12	-	A4 / A5 / Reserved KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 / Error message, drive-internal withdrawal of the controller enable Set binary outputs in an application-specific manner in the event of bus failure: The bit coding for the output port 1 is masked in ID34200 'Bit mask port 1'. The bit coding for the output port 2 is masked in ID34201 'Bit mask port 2'. The bit coding for the output port 3 is masked in ID34202 'Bit mask port 3'.  Prerequisite: ID32846 'Output port 1' = 0 ID32855 'Output port 2' = 0 ID32864 'Output port 3' = 0 The status of the binary outputs remains active until the bus error is cleared. After the error is cleared, the value specified by the bus master with ID34120 or ID34121 is issued. See ID32846 'Output port 1' on page 161. See ID32855 'Output port 2' on page 164. See ID32864 'Output port 3' on page 167. KE(N,S) / KE(N,S)-xEx / Reserved

ID34028 'BUS output rate'

Supported hardware: A4 / A5 / KW-R06 / KW-R07 /

Reserved for AMK internal use!

ID34036 'CCB-File'

Supported hardware:	A4 / A5 / KW-R06 / KW-R07 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Max. list length: 31996

Values for KW-R06 / KW-R07 /

Max. list length: 16380

ID34036 contains the ACC bus configuration if the device has an ACC bus master interface.

Configuration ID34036 'CCB-File'-

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	z	List head: Maximum list length without list head [byte]
2		
3		
...
z+1		

z = Maximum list length

Meaning for A4 / A5 /**Instance reference**

Instance	Use	Interface
1	ACC bus master	X137

Meaning for KW-R06 / KW-R07 /**Instance reference**

Instance	Use	Interface
0	ACC bus master	X137

ID34037 'Offset analogue input 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES / NO	Unit:	V
Data length:	2 byte	Min. value:	-10.00 V
Signed:	YES	Max. value:	10.00 V
Format:	DEC		
List:	NO		

The 'Offset analogue input 1' compensates for the offset error of the analogue input circuit, regardless of the active operating mode. ID34037 is added to the analogue input voltage 1.

ID34038 'Offset analogue input 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /			
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES	Unit:	V
Data length:	2 byte	Min. value:	-10.00 V
Signed:	YES	Max. value:	10.00 V
Format:	DEC		
List:	NO		

The 'Offset analogue input 2' compensates for the offset error of the analogue input circuit, regardless of the active operating mode. ID34038 is added to the analogue input voltage 2.

ID34039 'OSC Control'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34040 'OSC configuration list'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34041 'OSC actual values'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34042 'OSC data list'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34043 'TG Control'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34044 'TG configuration list'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34045 'Inductance path D'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	NO	Unit:	mH
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34045 acts with the voltage feedforward in the current controller. The value is specified in the motor data sheet.

ID34046 'Inductance path Q'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	NO	Unit:	mH
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34046 acts with the voltage feedforward in the current controller. The value is specified in the motor data sheet.

ID34047 'Dead time compensation measuring 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES / NO	Unit:	ms
Data length:	2 byte	Min. value:	0.000 ms
Signed:	NO	Max. value:	32.767 ms
Format:	DEC		
List:	NO		

Dead times can be compensated for with this parameter due to, for example, sensors and input circuits in connection with the touch probe function at the binary input BE3. The measured value is corrected by the configured dead time.

ID34048 'PWM frequency'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	8
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	kHz
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34048 sets the frequency of the PWM in the converter. Only 8 kHz PWM frequency is permissible for all devices.
Exception: an additional 4 kHz for KW100

ID34050 'Current path Q integral-action time'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	300.0 ms
Format:	DEC		
List:	NO		

ID34050 works in the current controller and is to be derived from the respective type plate or data sheet of the motor.
See ID34177 'Lower threshold current adaption' on page 275.

ID34052 'Current path D integral-action time'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	300.0 ms
Format:	DEC		
List:	NO		

ID34052 works in the current controller and is to be derived from the respective type plate or data sheet of the motor.

ID34053 'ID transfer'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34054 'CCB-Filename'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	36

* The list length is the number of usage data elements without 4 byte head elements.

ID34054 contains the CCB file name.

Configuration ID34036 'CCB-File'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	36	List head: Maximum list length without list head [byte]
2		
...		
37		

ID34055 'EF type'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

ID34055 indicates whether all conditions for monitoring the power output stage enable EF are met. For safety reasons, the content of ID34055 must be read following the component exchange and evaluated to determine whether all of the conditions for the certified use of the EF logic are met.

Value range of ID34055 'EF type'

Code	Designation	Description
2		Not all of the conditions for using the certified EF logic in the device are met. The EF logic cannot be used.
4		All of the conditions in the device are met so that the EF logic guarantees the certified properties.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34056 'Gateway address'

Supported hardware: A4 / A5 /

Sphere of action:	INSTANCE	Default value:	FFFFFFFF
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34056 sets the gateway address.

Instance reference

Instance	Use for
4	1st Ethernet IP address X20
7	2nd Ethernet IP address X60

Composition of the gateway address

Dec					Hex			
[A]	[B]	[C]	[D]	=	[D]	[C]	[B]	[A]
255	255	255	255	=	FF	FF	FF	FF

ID34057 'Network mask'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	00FFFFFF
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34057 sets the network mask.



If ID34057 is used, the bit 3 must = 0 in ID34025 instance 4 or 7.

Instance reference

Instance	Use for
4	1st Ethernet IP address X20
7	2nd Ethernet IP address X60

Composition of the network mask

Gateway address in dec					ID34057 in hex			
[A]	[B]	[C]	[D]	=	[D]	[C]	[B]	[A]
255	255	255	0	=	00	FF	FF	FF

ID34058 'Line output'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	W
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34058 'Line output' shows the mains active power. Positive values indicate the active power taken from the mains (motor operation). Negative values indicate the active power fed back into the mains (generator operation). Generator operation is only possible for devices with current regeneration.

See ID34059 'Time filter line' on page 248.

ID34059 'Time filter line'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	10
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	10 ms
Signed:	NO	Max. value:	65535 ms
Format:	DEC		
List:	NO		

For a 'quiet' display of the active power (ID34058 'Line output'), a proportional part with a delay of the 1st order (PT1 part) can be configured through the input of a filter time. The value 0 is internally set to 10 ms.

See ID34058 'Line output' on page 247.

ID34060 'List SEEP 1'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34061 'List SEEP 2'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34062 'Fault statistics'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	8

* The list length is the number of usage data elements without 4 byte head elements.

Meaning for A4 / A5 /

Reserved for AMK internal use!

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The 'Fault statistics' is managed for the product's entire life cycle and is stored in the SEEP of the device.

Configuration ID34062 'Fault statistics'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte(s) / element)
1	16	List head: Maximum list length without list head [byte]
2	n	Mains
3	n	Brake transistor
4	n	Logic voltage

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte(s) / element)
1	16	List head: Maximum list length without list head [byte]
5	n	Overload i ² t
6	n	Encoder error
7	n	Earth contact, short-circuit
8	n	Device over-temperature
9	n	Motor / brake resistor over-temperature

n indicates how often this error has occurred

ID34063 'Time meter power'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	0
Signed:	NO	Max. value:	200000
Format:	DEC		
List:	NO		

ID34063 indicates the number of operating hours of the device. The value of the operating hour counter is stored in the device SEEP and remains preserved when replacing the controller module.

ID34070 'Home signal distance'

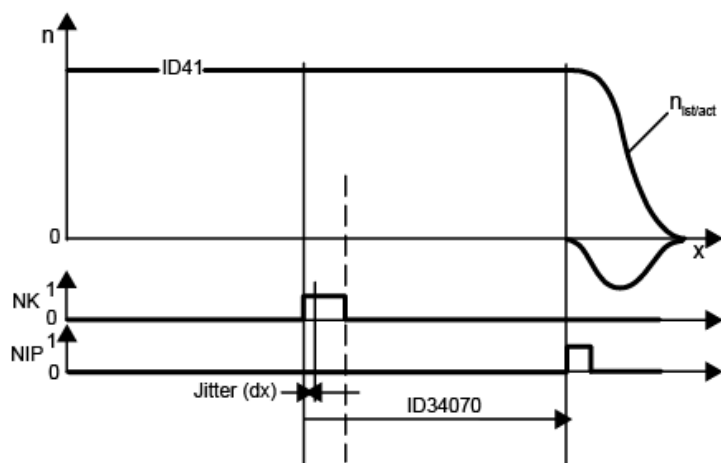
Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	4 byte	Min. value:	-2147483648
Signed:	YES	Max. value:	2147483647
Format:	DEC		
List:	NO		

After every homing cycle, the 'Home signal distance' indicates the distance between the encoder zero pulse and an external cam.

ID34070 is cleared by the following results, i.e. set to the value 0:

- Homing cycle only for cam or zero pulse
- System booting
- Parameter set change
- Command for resetting the homing point known (in preparation: ID191 homing point reset command)
- Every homing cycle completed with an error

Example: homing signal distance for homing cycle with cam and zero pulse evaluation, without 'Homing offset 1' (ID150 = 0).



Due to the discreet sampling of the cam signal, a blur (dx) results, whose size depends on the interpolator guide speed and the sampling time.

The value 0 in ID34070 signals an invalid value, i.e. a non-current homing signal distance.

See ID32990 'NK shift' on page 208.

ID34071 'System name'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	16

Any name can be assigned to the device in ID34071. This may consist of a maximum of 16 ASCII characters. The system name is used in the networked systems, e.g. for device identification.

Configuration ID34071 'System name'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	16	List head: Maximum list length without list head [byte]
2	e.g. A	1st character of the system name
3	e.g. n	2nd character of the system name
4	e.g. t	3rd character of the system name
5	e.g. r	4th character of the system name
6	e.g. i	5th character of the system name
7	e.g. e	6th character of the system name
8	e.g. b	7th character of the system name
9	e.g. 1	8th character of the system name
...
17		16th character of the system name

ID34072 'Data set name'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	16

* The list length is the number of usage data elements without 4 byte head elements.

In ID34072, any name with a maximum length of 16 ASCII characters can be assigned to the data set (all parameters of a device).

Configuration ID34072 'Data set name'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	16	List head: Maximum list length without list head [byte]
2	e.g. D	1st character of the data set name
3	e.g. o	2nd character of the data set name
4	e.g. k	3rd character of the data set name
5	e.g. u	4th character of the data set name
6	e.g. P	5th character of the data set name
7	e.g. r	6th character of the data set name
8	e.g. o	7th character of the data set name
9	e.g. j	8th character of the data set name
10	e.g. e	9th character of the data set name
11	e.g. k	10th character of the data set name
12	e.g. t	11th character of the data set name
13
17		16th character of the data set name

ID34073 'Scaling parameters'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	
Signed:	NO	Max. value:	
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	Created at run time

* The list length is the number of usage data elements without 4 byte head elements.

The list 'Scaling parameters' contains all parameters that must be set for an active weighting before writing a new data set in the drive.

ID34074 'Homing Counter 1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for A4 / A5 /

For controllers with the I/O option, the 'Homing Counter 1' stores the position information of the pulse encoder input from ID34075 'Actual Counter 1' at the point where the homing signal (zero pulse) occurs.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The 'Homing Counter 1' stores the position information from ID34075 'Actual Counter 1' at the point where the homing signal occurs.

See ID32948 'Message 4x32' on page 191.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34075 'Actual Counter 1'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for A4 / A5 /

For controllers with the I/O option, the current counter cyclically saves the position information of the pulse encoder input.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The current counter cyclically saves the position information.

See ID32948 'Message 4x32' on page 191.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34076 'Homing Counter 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The 'Homing Counter 2' stores the position information from ID34077 'Actual Counter 2' at the point where the homing signal occurs.

See ID32948 'Message 4x32' on page 191.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34077 'Actual Counter 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	Increments
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The current counter cyclically saves the position information.

See ID32948 'Message 4x32' on page 191.

Meaning for iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34088 'Event trace'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Max. list length:* 32000

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Max. list length:* 1280

Values for iX / iC / iDT5 / iDP7 /

Max. list length:* 1280

The 'Event trace' is organised as the circular buffer. Every new entry overwrites the oldest entry. The newest entry is at the beginning of the list and the oldest event is at the end.

Every event block has the following structure:

- 18 byte time stamp
- 46 byte event text

Configuration ID34088 'Event trace'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	2 x z	List head: Maximum list length without list head [byte]
2		
3		
...		
z+1		

z = Maximum list length

See ID34171 'Event filter' on page 272.

Meaning for A4 / A5 /

The event trace archives a maximum of 500 events (500*64 byte blocks).

The following events are logged in the 'Event trace' with precise times:

- System booting
- Diagnostic messages (number, info, info2, address, error text)
- Clear error
- Start of the plc program
- Flashing the AS-FCT1 module
- Update the AS firmware (file name)
- Initial program loading
- Soft reset
- FTP connection (IP address of the client)
- AIPEX connection (COM / Ethernet, IP address of the client)

Example:

26/09/06 09:08:07 System start-up

26/09/06 09:07:57 AIPEX connect from 172.16.6.5

26/09/06 08:31:56 E:3851 I:0 I2:0 A:0 system diagnosis

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The 'Event trace' encompasses 20*64 byte blocks for 20 events. The time begins relative to the activation time of the device.

The following events are logged in the 'Event trace' with precise times:

- System booting
- Diagnostic messages
- Clear error

Example:

Time information:

'BSTD: 2:10:30' = 2 hours: 10 minutes: 30 seconds

Event text:

'Err:1049 Info: 0 Adr: 2 DC bus' or 'system booting'

ID34090 'User list 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	32

* The list length is the number of usage data elements without 4 byte head elements.

The 'User list 2' is a data set in the remanent memory area that is freely available to the user.

Configuration ID34090 'User list 2'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 2 byte / element)
1	64	List head: Maximum list length without list head [byte]
2		
3		
4		
...		
33		

ID34094 'Rise time SWC'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A/s
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34094 determines the slope of the current increase for the software commutation.

ID34095 'Final value SWC'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34095 defines the end value of the current for the software commutation.

Positive value in ID34095:

SW commutation according to the current increase and end value.

Negative value in ID34095:

After the current increase, the current angle is shifted by $\pm 45^\circ$ in order to 'break away' ironless linear motors from a position between two poles. This process requires an additional 2.5 seconds for the commutation time. The commutation time results from ID34094 'Rise time SWC'.

The software commutation is dependent on the motor encoder type used, primarily for linear motor use. When using linear distance measuring systems without an absolute value, it is not possible to determine the in-phase current of the motor windings from the encoder signals. In this case, it is achieved by means of the software commutation.

With the software commutation, the current increase as well as the current end value of the commutation current are important. For strong linear motors in highly dynamic applications, flatter current increases are usually necessary. It should also be possible to limit the commutation current to smaller values for the initial commissioning.

The current increase is determined via the parameter ID34094 and the current end value in ID34095.

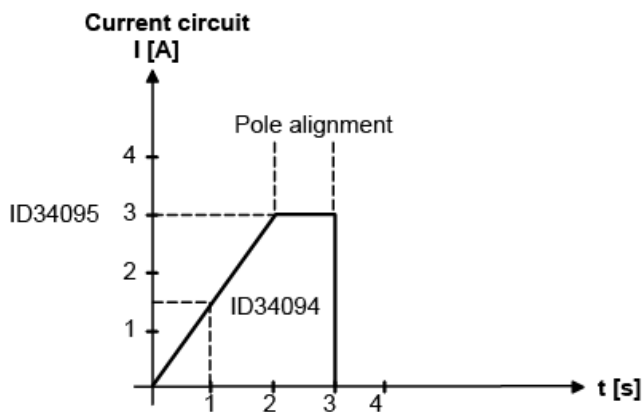
Special case:

If ID34094 = 0 and ID34095 = 0, then the end value of the software commutation is the nominal current of the motor. The current increase is $I_N/128$ per 10 ms. After achieving the end value, a current peak of $2 \cdot I_N$ is also generated for 50 ms.

Example:

ID34094 'Rise time SWC' = 1.5 A/s

ID34095 'Final value SWC' = 3 A



ID34096 'Standstill current motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	A
Data length:	4 byte	Min. value:	0.00 A
Signed:	NO	Max. value:	1000.00 A
Format:	DEC		
List:	NO		

The 'Standstill current motor' is to be derived from the motor data sheet and works with the i^2t -monitoring of the motor.

ID34097 'Enable code'

Supported hardware: A4 / A5 /

Reserved for AMK internal use!

ID34098 'BUS status'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

The bus status can be read by reading the ID34098. The same information is shown that is also available via the AMK IEC61131-3 block 'FuiGetNetStatus'

Configuration ID34098 'BUS status'

Bit	Value	Meaning
0	0	Inactive
	1	Bus is initialised
1	0	Inactive
	1	Pre-operational, if bit 4=0
2	0	No error (only ACC)
	1	Bus error (only ACC)
3	0	No warning (only ACC)
	1	Bus warning (only ACC)
4	0	Inactive
	1	Operational
5-15	0	Reserved
	1	Reserved

Meaning for A4 / A5 /

Instance	Use	Interface
0	Global cycle time	-
1	ACC bus master	X137
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)
	Profibus slave (option A-SPB)	X41
	CAN / ACC Bus slave (option A-SCN)	X41
3	I/O extension	X120, X121, X122
4	1st Ethernet interface	X20
5	1st EtherCAT master	X186
6	2nd EtherCAT master (in comparison)	X185
7	2nd Ethernet interface	X60

ID34099 'Delay time SWC'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0 (means 400 ms)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0 ms
Signed:	NO	Max. value:	4000 ms
Format:	DEC		
List:	NO		

The 'Delay time SWC' indicates the time between the rotor alignment and the determination of the commutation position. When aligning the rotor, it may occur for larger motors that the rotor is still rotating when the commutation position is to be determined (overshooting over the setpoint position). Then an error message 'Error Commutation Motor' is generated. With the 'Delay time SWC', the waiting time for determining the commutation position of the motor can be adjusted.

ID34100 'Binary input word'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for A4 / A5 /

For controllers with the I/O option, ID34100 'Binary input word' is the image of the binary inputs at the connection X121 E1 - E8 and X122 EM1 and EM2.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The 'Binary input word' is the image of the binary inputs of the input port 3 (ID32977 'Input port 3').

See ID32977 'Input port 3' on page 205.

ID34101 'Binary input word 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Binary input word 1' is the image of the binary inputs of the input ports 1 and 2 (ID32873 'Input port 1' and ID32968 'Input port 2').

See ID32873 'Input port 1' on page 170.

See ID32968 'Input port 2' on page 201.

ID34102 'Binary input word 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34102 contains 'virtual' binary inputs for control via fieldbus. The inputs are not assigned to any hardware. The binary inputs can be set by the controller by writing ID34102 or the status can be read.

ID34120 'Binary output word'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Meaning for A4 / A5 /

For controllers with the I/O option, ID34120 'Binary output word' is the image of the binary outputs at the connection X122.

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

The 'Binary output word' is the image of the binary outputs from the output port 3 (ID32864 'Output port 3').

See ID32864 'Output port 3' on page 167.

ID34121 'Binary output word 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Binary output word' is the image of the binary outputs of the output ports 1 and 2 (ID32846 'Output port 1' and ID32855 'Output port 2').

See ID32846 'Output port 1' on page 161.

See ID32855 'Output port 2' on page 164.

ID34122 'Binary output word 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34122 contains 'virtual' binary outputs for control via fieldbus. The outputs are not assigned to any hardware. The binary outputs can be set by the controller by writing ID34122 or the status can be read.

ID34140 'AS BUS protocol'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	Instance-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34140 determines which fieldbus is assigned to an instance.

For initially loaded devices, the existing buses are detected automatically and assigned to the instances.

Instance	Use	Code in hex
0	-	0
1	ACC bus master	40
2	Profibus slave (option A-SPB)	43
	EtherCAT slave (option A-SEC)	41
	CAN / ACC bus slave (option A-SCN)	40
3	I/O option	50
4	1st Ethernet X20	2
5	EtherCAT master (option A-MEC)	41
6	Reserved	-
7	2nd Ethernet X60	2B

ID34141 'AS card address'

Supported hardware: A4 / A5 /

Reserved for AMK internal use!

ID34142 'Node list'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 /			
Sphere of action:	INSTANCE / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	0
List:	YES	Max. list length:*	Device-specific values

* The list length is the number of usage data elements without 4 byte head elements.

Values for A4 / A5 /

Max. list length:* 512

Values for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Max. list length:* 128

The node list is created in each bus master (ACC bus, EtherCAT) during the system booting. The node list includes all of the detected nodes of the network (regardless of the condition of the node).

The node list is updated online. Nodes that are no longer detectable are removed from the list immediately. Newly detected nodes are added to the list immediately. The list is in RAM and is formed at run time (no image in the permanent data base).

Procedure for CAN networks:

Mains ON:

Every participant sends a boot-up message during the start. The master creates the node list using the received boot-up messages. Node guarding monitors the presence of all participants that are entered in the node list.

Node guarding message:

If a node is no longer reachable by the master, it is removed from the list.

Boot-up message: Nodes are entered into the node list at the run time.

Configuration ID34142 'Node list'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	z	List head: Maximum list length without list head [byte]
2		Participant address 1 Participant
3		Participant address 2 Participant
4		Participant address 3 Participant
...		...
		Device type 1st Participant
		Device type 2nd Participant
		Device type 3rd Participant
...		...

z = Maximum list length

Appliance type	Code	String detection according to ID30
Undefined	0	
KE	1	KE
KW	2	KW, KWZ
AS, A4, A5	3	AS, AS-C, A4, A4D, A5, A5D
KU	4	KU
Kx-PLC1	5	PLC1, PLC2
KWF	6	KWF

Appliance type	Code	String detection according to ID30
IDT4	7	IDT
Reserved	8	
Reserved	9	
Ext. WAGO I/O	10	
Ext. ...reserved	11	

Example: KW with IDT 4 and KE modules

1 KW, 2 IDT 4 motors (addresses 1, 2 and 3) and a KE module (address 33) are connected to the ACC bus. The following list is delivered when reading the ID43142 instance 0.

actual length	max. length	Addresses				Types			
12	132	1	2	3	33	2	7	7	1
2 byte	2 byte	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte

Meaning for A4 / A5 /

Instance	Use	Interface
1	ACC bus master	X137
5	1st EtherCAT master	X186
6	2nd EtherCAT master (in comparison)	X185

Meaning for KW-R06 / KW-R07 /

Instance	Use	Interface
0	ACC bus master	X137
1	EtherCAT slave	X85 (IN) / X86 (OUT)

Meaning for KW-R16 / KW-R17 /

Instance	Use	Interface
1	EtherCAT slave	X85 (IN) / X86 (OUT)

ID34143 'Usage port'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	Instance-specific values
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Multi-level network structures are possible in the communication between AMK devices. A communication level is assigned to the BUS through the entry in ID34143. Three levels and the programming interface can be defined.

Instance	Use	Value in ID34143 [hex]	Meaning
0	USB	-	-
1	ACC bus master	1	Drive bus (communication between controller and drive device)
2	Profibus slave (option A-SPB)	43	2
	EtherCAT slave (option A-SEC)	41	
	CAN / ACC bus slave (option A-SCN)	40	

Instance	Use	Value in ID34143 [hex]	Meaning
3	I/O option	0	not used
4	1st Ethernet X20	4	Software AIPEX PRO (CoDeSys)
5	1st EtherCAT Master	1	Drive bus (communication between controller and drive device)
6	2nd EtherCAT master (in comparison)	-	-
7	2nd Ethernet X60	4	Software AIPEX PRO (CoDeSys)

ID34144 'Nominal voltage effective'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34144 'Nominal voltage effective' displays the effective value of the mains voltage.

ID34145 'Line current effective'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34145 'Line current effective' displays the effective value of the mains current.

ID34146 'Memory address'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34147 'Memory data'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34148 'Kp voltage control gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	50
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES	Unit:	A/V
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Kp voltage control gain' and ID34149 'Tn voltage control integrating time' work for synchronous machines in field weakening and for asynchronous motors with voltage control. The values are motor-specific and are to be taken from the respective type plate or data sheet of the motor.

ID34149 'Tn voltage control integrating time'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	50
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	ms
Data length:	2 byte	Min. value:	0.0 ms
Signed:	NO	Max. value:	300.0 ms
Format:	DEC		
List:	NO		

ID34148 'Kp voltage control gain' and ID34149 'Tn voltage control integrating time' work for synchronous machines in field weakening and for asynchronous motors with voltage control. The values are motor-dependent and are to be taken from the respective type plate or data sheet of the motor.

ID34151 'Current path Q proportional gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES	Unit:	V/A
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34151 'Current path Q proportional gain' and ID34152 'Current path D proportional gain' work in the current controller and are to be derived from the respective type plate or data sheet of the motor. If no values are specified in the motor data sheet, the current controller values can be set manually or with the automatic current controller tuning.

See ID34177 'Lower threshold current adaption' on page 275.

ID34152 'Current path D proportional gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES	Unit:	V/A
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34151 'Current path Q proportional gain' and ID34152 'Current path D proportional gain' work in the current controller and are to be derived from the respective type plate or data sheet of the motor. If no values are specified in the motor data sheet, the current controller values can be set manually or with the automatic current controller tuning.

See ID34177 'Lower threshold current adaption' on page 275.

ID34153 'Maximum speed motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100000
Access:	READING	Scale:	0.0001
Temporarily changeable:	NO	Unit:	1/min
Data length:	4 byte	Min. value:	1 1/min
Signed:	NO	Max. value:	100000 1/min
Format:	DEC		
List:	NO		

The 'Maximum speed motor' defines the speed that the motor can physically achieve and is specified in the motor's data sheet.

ID34154 'Start marker'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34154 works with the pulse width measurement function (ID169 'Probe control parameter') and indicates the start position of the window in which a valid printing mark must be located. This parameter must be re-specified for each mark by a higher-ranking controller.

ID34155 'Mark window'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES / NO	Unit:	Increments
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34155 works with the pulse width measurement function (ID169 'Probe control parameter') and indicates the width of the window in which a valid printing mark must be located. The sign of the value determines the drive or mark search direction. This parameter must be re-specified for each mark by a higher-ranking controller.

ID34156 'BUS mode attribute 2'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34156 specifies which events are written in the log file. The determination is exclusively valid for the respective instance. The evaluation of the additional spending takes place by AMK service.

Meaning for A4 / A5 /

Instance	Use	Interface
0	Global messages, independently of the bus	-
1	ACC bus master	X137
2	EtherCAT slave (option A-SEC)	X85 (IN) / X86 (OUT)
	Profibus slave (option A-SPB)	X41
	CAN / ACC bus slave (option A-SCN)	X41
3	I/O extension	X120, X121, X122
4	1st Ethernet interface	X20
5	1st EtherCAT master	X186
6	2nd EtherCAT master (in comparison)	X185
7	2nd Ethernet interface	X60

Configuration ID34156 'BUS mode attribute 2'

Bit no.	Condition	Meaning
0	0	Power on or booting of a bus No additional spending
	1	Additional spending
1	0	Error information No additional spending
	1	Additional spending
2	0	Firmware update No additional spending
	1	Additional spending
3	0	Database access No additional spending
	1	Additional spending
4-31	0	Reserved
	1	Reserved

ID34157 'Dead time compensation measure'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Reserved for AMK internal use!

ID34159 'PLC files'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC	Current list length:*	0
List:	YES	Max. list length:*	16380

* The list length is the number of usage data elements without 4 byte head elements.

The PLC program is stored in ID34159.

Configuration ID34159 'PLC files'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	16380	List head: Maximum list length without list head [byte]
2		
...		
16381		

ID34160 'Part number motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	10

* The list length is the number of usage data elements without 4 byte head elements.

The 'Part number motor' can be entered in ID34160.

Configuration ID34160 'Part number motor' for the example parts no. A1182AD

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 1 byte / element)
1	10	List head: Maximum list length without list head [byte]
2	e.g. A	1st position in the part number of the motor
3	e.g. 1	2nd position in the part number of the motor
4	e.g. 1	3rd position in the part number of the motor
5	e.g. 8	4th position in the part number of the motor
6	e.g. 2	5th position in the part number of the motor
7	e.g. A	6th position in the part number of the motor
8	e.g. D	7th position in the part number of the motor
9	0	8th position in the part number of the motor
10	0	9th position in the part number of the motor
11		10th position in the part number of the motor

ID34161 'Production date motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Production date motor' is assumed from the encoder database.

ID34162 'Serial number motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Serial number motor' is assumed from the encoder database.

ID34163 'Remanent variables'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL, FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte/element	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	DEZ	Current list length:*	0
List:	YES	Maximum list length:*	16380

* The list length is the number of usage data elements without 4 byte head elements.

ID34163 copies remanent variables (RETAIN variables), if the parameter set is read from one device and written into another including ID34159 'PLC files' and ID34163.

ID34164 'Terminal resistance'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	NO	Unit:	Ohm
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The terminal resistance (R_{tt}) is only relevant for synchronous motors and is to be derived from the respective type plate or data sheet of the motor.

ID34165 'Holding torque brake'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	Nm
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34165 indicates the holding torque of a built-in motor holding brake.

ID34165 'Holding torque brake' must be set > 0 so that a brake will be controlled. The characteristic of the brake control is defined in ID34236 and ID34237

See ID34236 'Time motor brake on' on page 292.

See ID34237 'Pulse duty factor motor brake' on page 293.

ID34166 'Temperature sensor motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The connected temperature sensor is defined in ID34166.

Input format

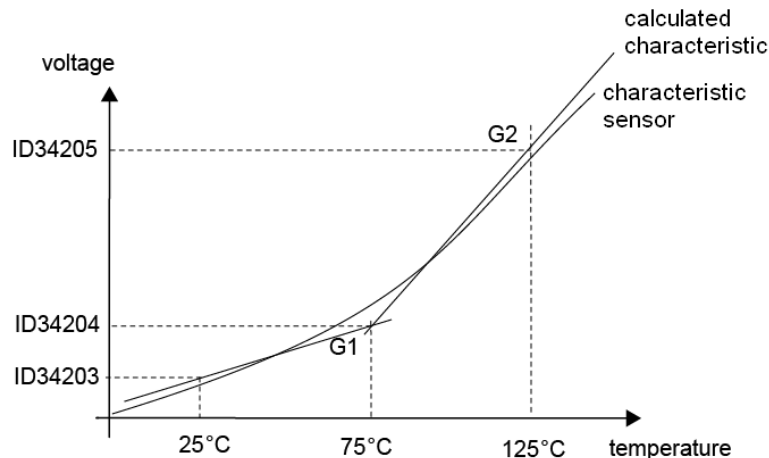
T	T	T	A	X
				Sensor type:
				0: without
				1: THW ¹⁾
				2: Reserved
				3: PTC ¹⁾
				4: KTY 83 ²⁾
				5: KTY 84 with 825 ohm series resistor ²⁾
				6: KTY 84 ²⁾
				7: Reserved
				8: Reserved
				9: User-defined ²⁾
				Number of sensors 0..9
				Switch-off temperature 0..654 °C

¹⁾ Shutdown at approximately 140 °C (value dependent on PTC / THW type)

2) Shutdown at a maximum of 140 °C or at the specified shutdown temperature (TTT)

The temperature is determined using a characteristic curve. The characteristic curve is formed by 3 support points through which two lines are placed. The following values are stored in the firmware.

Type	Sensor	Voltage at 25 °C ID34203	Voltage at 75 °C ID34204	Voltage at 125 °C ID34205
4	KTY 83	1.250 V	1.781 V	2.421 V
5	KTY 84 with 825 ohm Series resistor	1.785 V	2.099 V	2.481 V
6	KTY 84	0.754 V	1.067 V	1.450 V
9	User-defined	0.000 V	0.000 V	0.000 V



If the shutdown temperature is reached or exceeded, the warning 2351 'Motor temperature warning' is generated and, after the expired ID32943 'Warning time', the error message 2347 'Motor temperature error' is generated.

See ID33117 'Temperature external' on page 214.

ID34167 'Terminal Inductance'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	mH
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Terminal Inductance' (L_{tr}) is only relevant for synchronous motors and is to be derived from the respective type plate or data sheet of the motor. If ID34167 \neq 0, ID109 'Motor peak current' works.

ID34168 'Time maximum current motor'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	s
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34168 determines how long a motor can be operated with the maximum current specified in ID109 'Motor peak current'. If ID34168 and ID109 do not equal 0, ID32920 'Overload time motor' is ineffective. The motor overload time is calculated internally from ID109 and ID34168.



The I²t-monitor motor must be activated in ID32773 'Service bits' Bit 14.



For new applications, the I²t monitoring motor must be parameterised with the parameters ID109 and ID34168. ID32920 'Overload time motor' exists for compatibility reasons.

ID34170 'Setpoint DC bus voltage'

Supported hardware:	KES / KES-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Meaning for KES / KES-xEx

ID34170 'Setpoint DC bus voltage' describes the setpoint to which the DC bus voltage of a KES is regulated. If the manually entered value in ID34170 is smaller than the calculated value of the equation UZK_{min} , the DC bus voltage is regulated to the calculated value (UZK_{min}).

Valid control range:

$$\text{minimum setpoint} = UZK_{min} = \sqrt{2} * U_{\text{external conductor}} + 25 \text{ V}$$

$$\text{maximum setpoint} = 720 \text{ V}$$

$$\text{Equation for the minimum setpoint of the DC bus: } UZK_{min} = \sqrt{2} * U_{\text{external conductor}} + 25 \text{ V}$$

for 3x 400 VAC: UZK_{min} 590 VDC.

for 3x 480 VAC: UZK_{min} 704 VDC.

Depending on ID 34170, the operating range of the mains input voltage is defined in the firmware:

ID34170 ≤ 650 VDC = operating range 3 x 320 VAC ... 3 x 530 VAC

ID34170 > 650 VDC = operating range 3 x 360 VAC ... 3 x 530 VAC

The operating range defines the voltage range in which the devices can operate without error.

ID34171 'Event filter'

Supported hardware:	A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Certain event classes can be filtered out with the 'Event filter'. Each event class is represented by a bit in ID34171. Bits that are assigned the value 1 in ID34171 are not registered in ID34088 'Event trace'.

The following event classes can be filtered out:

Configuration ID34171 'Event filter'

Bit no.	Condition	Meaning
0	0	'Error' event class is entered in ID34088, e.g. error messages
	1	'Error' event class is not entered in ID34088, e.g. error messages
1	0	'Warning' event class is entered in ID34088, e.g. warning messages
	1	'Warning' event class is not entered in ID34088, e.g. warning messages
2	0	Reserved
	1	Reserved
3	0	Reserved
	1	Reserved
4	0	'Clear error' event class is entered in ID34088
	1	'Clear error' event class is not entered in ID34088
5	0	'System' event class is entered in ID34088, e.g. power on, firmware update...
	1	'System' event class is not entered in ID34088, e.g. power on, firmware update...
6	0	'External access' event class is entered in ID34088, e.g. access to the parameter data or, for controllers, access to the file system via FTP
	1	'External access' event class is not entered in ID34088, e.g. access to the parameter data or, for controllers, access to the file system via FTP
7-15	0	Reserved
	1	Reserved

See ID34088 'Event trace' on page 253.

ID34172 'PLC project info'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	-
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	1 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	ASCII	Current list length:*	0
List:	YES	Max. list length:*	996

* The list length is the number of usage data elements without 4 byte head elements.

The PLC project information consists of the entries:

- Date
- Project name
- Title
- Version
- Author
- Comment

Entering the project information takes place in the programming software CoDeSys under the menu item 'Project information'

Configuration ID34159 'PLC files'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 1 byte / element)
1	996	List head: Maximum list length without list head [byte]
2		
...		
997		

ID34173 'NTP server address'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0100007F
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34173 determines the external IP address of a NTP (Network Time Protocol) server. When setting the default, the function is disabled and the internal time of the controller is used.

Default value:

Instance	Use	Interface	Default value	Meaning
0	-	-	0100007F	NTP is not supported
1	ACC bus master	X137	0100007F	NTP is not supported
2	EtherCAT (CC) Slave Profibus slave	X85 (IN) / X86 (OUT) X41	0100007F	NTP is not supported
3	I/O extension	X120, X121, X122	0100007F	NTP is not supported
4	1st Ethernet interface	X20	0100007F	NTP not active
5	1st EtherCAT Master	X186	0100007F	NTP is not supported
6	2nd EtherCAT Master (i.V.)	X185	0100007F	NTP is not supported
7	2nd Ethernet interface	X60	0100007F	NTP is not supported

Configuration of the NTP server address

Dec					Hex			
[A]	[B]	[C]	[D]	=	[D]	[C]	[B]	[A]
127	0	0	1	=	01	00	00	7F

ID34174 'SWK monitoring'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	Dependent on the list element
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte / element	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC	Current list length:*	-
List:	YES	Max. list length:*	36

* The list length is the number of usage data elements without 4 byte head elements.

Configuration ID34174 'SWK monitoring'

List element	Content	Meaning
0	x	List head: Current list length without list head [x byte] (x = n elements x 2 byte / element)
1	36	List head: Maximum list length without list head [byte]
2	130 (Default)	Maximum slope [%] ¹⁾
3	90 (Default)	Minimum slope [%] ¹⁾²⁾
4	50 (Default)	Maximum offset to the setpoint [incr.] (absolute value)

List element	Content	Meaning
5	50 (Default)	Maximum deviation [incr.] (absolute value)
6	0	Determined slope [%] ¹⁾
7	0	Determined offset to the setpoint [incr.]
8	0	Determined deviation [incr.]
9	10 (Default)	Factor for the deflection [value 10 corresponds to the factor 1 = 100%]
10-19	-	Reserved

1) 100% corresponds to an slope of 1

2) If the minimum incline is equal to value 0, the incline and the direction of rotation is not monitored any longer.

In the case of an error, the software commutation generates the diagnostic message 2362 'Error Commutation Motor'.

ID34175 'Control settings'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Configuration ID34175 'Control settings'

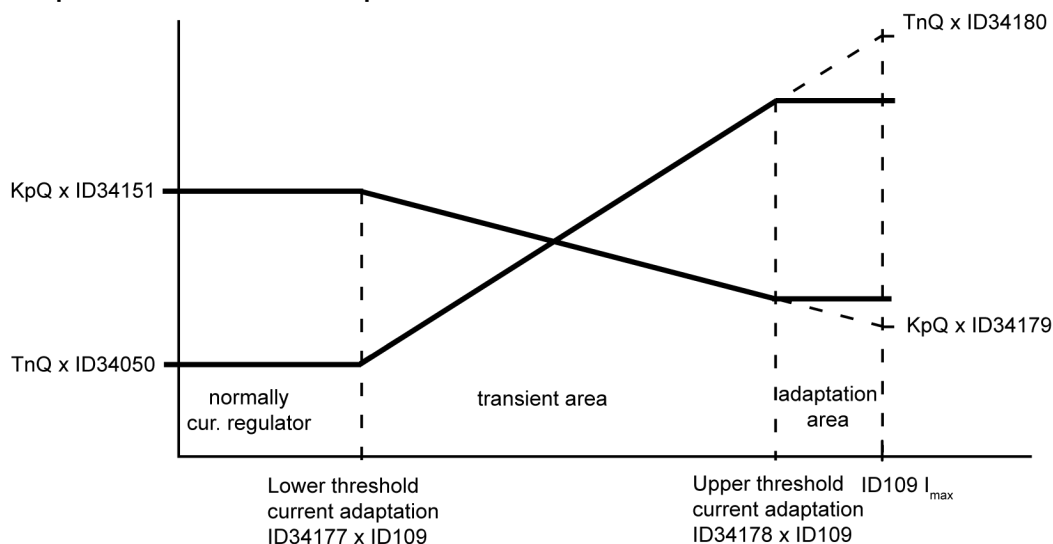
Bit-no.	Condition	Meaning
0	0	Mouse pointer is invisible on the visualisation
	1	Mouse pointer is visible on the visualisation
1	0	Landscape format
	1	Upright format
2	0	CoDeSys visualisation
	1	Qt visualisation
3	0	Reserved
	1	Reserved
4	0	CoDeSys version V2
	1	CoDeSys version V3 / AIPEX_PRO V1.10 necessary!

ID34177 'Lower threshold current adaption'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	1 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

ID34177 works in the current controller and is specified in the motor data sheet.

Adaption of the current control parameter



ID34178 'Upper threshold current adaption'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

ID34178 works in the current controller and is specified in the motor data sheet.
See ID34177 'Lower threshold current adaption' on page 275.

ID34179 'Gradient path Q proportional gain'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	1 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

ID34179 works in the current controller and is specified in the motor data sheet.
See ID34177 'Lower threshold current adaption' on page 275.

ID34180 'Gradient path Q integral-action time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	%
Data length:	2 byte	Min. value:	100 %
Signed:	NO	Max. value:	400 %
Format:	DEC		
List:	NO		

ID34180 works in the current controller and is specified in the motor data sheet.
See ID34177 'Lower threshold current adaption' on page 275.

ID34182 'Limit position increment'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	DRIVE	Default value:	2147483647
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Increments
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34182 sets the maximum relative position increase of the 32-bit position setpoint for the position controller per 0.5 ms. If the relative position increase is larger than the value in ID34182, the diagnostic message 2333 'position increase too large' is generated.

The relative position increase is the sum from the setpoint sources ID47 'Position command value' and the internal interpolator (IPO).

ID34183 'Velocity threshold SL'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34184 'Starting current SL'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34185 'Resistance rotor'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34186 'Inductance stator'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34187 'Inductance rotor'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34188 'Main inductance'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34189 'Rotor flux proportional gain'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34190 'Rotor flux integral-action time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34191 'Velocity acquisition propotional gain'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34192 'Velocity acquisition integral-action time'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34193 'Nominal current external component'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The default value 0 means that internally the 'Nominal current external component' is set to equal to the nominal current of the device.

The parameters ID34193 to ID34196 are the database of the i^2t -monitoring for external components, e.g. choke ALN45-SI and ALN60-SI or motor cable.

ID34194 'Peak current external component'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	A
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The default value 0 means that internally the 'Peak current external component' is set to equal to the maximum current of the device.

The parameters ID34193 to ID34196 form the database of the i^2t -monitoring for external components, e.g. choke ALN45-SI and ALN60-SI or motor cable.

ID34195 'Peak current time external component'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	s
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The default value 0 means that internally the 'Peak current time external component' is set to equal to the duration of the maximum current KE(N,S).

The parameters ID34193 to ID34196 form the database of the i^2t -monitoring for external components, e.g. choke ALN45-SI and ALN60-SI.

ID34196 'Treshold external component'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	500
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

Bedeutung für KE(N,S) / KE(N,S)-xEx /

The default value 0 means that internally the 'Treshold external component' is set to the same value from ID32999 'Overload limit inverter'.

The parameters ID34193 to ID34196 form the database of the i^2t -monitoring for external components, e.g. choke ALN45-SI and ALN60-SI.

Bedeutung für KW-R06 / KW-R16 / KW-R07 / KW-R17 /

The default value 0 means that internally the 'Treshold external component' is set to 50 %.

The parameters ID34193 to ID34196 form the database of the i^2t -monitoring for external components, e.g. motor cable.

ID34197 'Display external component'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34197 'Display external component' indicates the current overload of the external component according to the I^2t -monitoring.

ID34197 = 0 : Nominal operation or below nominal operation

ID34197 > 0 : Overload operation, shutdown at 100% with the diagnostic message 1112 info 0: 'Overload error external component'.

ID34198 'mains frequency'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES / NO	Unit:	Hz
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34198 'mains frequency' indicates the actual mains frequency:

positive value = clockwise

negative value = counter-clockwise

ID34199 'Actual power value bipolar'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	W
Data length:	4 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34199 contains the signed actual power value

Motor-driven energy flow: positive sign

Generator-driven energy flow: negative sign

ID34200 'Bit mask port 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Bit mask port 1' masks bits of the binary output port 1. The masked bits are set depending on ID34027 'BUS failure character'.

Example:

ID34200 = 0x5 --> 0101 binary --> Output A1 and A3 are set, all others are not.



Prerequisite: ID32846 'Output port 1' = 0

ID34201 'Bit mask port 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Bit mask port 2' masks bits of the binary output port 2. The masked bits are set depending on ID34027 'BUS failure character'.

Example:

ID34201 = 0x5 --> 0101 binary --> Output A1 and A3 are set, all others are not.



Prerequisite: ID32855 'Output port 2' = 0

ID34202 'Bit mask port 3'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

The 'Bit mask port 3' masks bits of the binary output port 3. The masked bits are set depending on ID34027 'BUS failure character'.

Example:

ID34202 = 0x5 --> 0101 binary --> Output BA1 and BA3 are set.



Prerequisite: ID32864 'Output port 3' = 0

ID34203 'Voltage at 25 degrees'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0.000 V
Signed:	NO	Max. value:	3.500 V
Format:	DEC		
List:	NO		

ID34203 is one of 3 support points that form the temperature characteristic curve of the motor temperature sensor.

ID34203 voltage at 25 °C = 1.25 mA * R(25 °C)

R(25 °C): Resistance of the temperature sensor at 25 °C

See ID34166 'Temperature sensor motor' on page 270.

ID34204 'Voltage at 75 degrees'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0.000 V
Signed:	NO	Max. value:	3.500 V
Format:	DEC		
List:	NO		

ID34204 is one of 3 support points that form the temperature characteristic curve of the motor temperature sensor.

ID34204 voltage at 75 °C = 1.25 mA * R(75 °C)

R(75 °C): Resistance of the temperature sensor at 75 °C

See ID34166 'Temperature sensor motor' on page 270.

ID34205 'Voltage at 125 degrees'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0.000 V
Signed:	NO	Max. value:	3.500 V
Format:	DEC		
List:	NO		

ID34205 is one of 3 support points that form the temperature characteristic curve of the motor temperature sensor.

ID34205 voltage at 125 °C = 1.25 mA * R(125 °C)

R(125 °C): Resistance of the temperature sensor at 125 °C

See ID34166 'Temperature sensor motor' on page 270.

ID34206 'Product code'

Supported hardware: A4 / A5 / KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34207 'DC gain KP'

Supported hardware: KE(N,S) / KE(N,S)-xEx /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With the parameters ID34207 'DC gain KP', ID34208 'Integral time DC control' and ID34209 'Differentiation time DC control', the DC bus voltage controller can be adapted to the application.

If all 3 parameters = 0, the internal default values apply:

	ID34207	ID34208	ID34209
KES 120	426.6	21.33 ms	0.188 ms
KES 60	512	21.33 ms	0.188 ms

ID34208 'Integral time DC control'

Supported hardware: KE(N,S) / KE(N,S)-xEx /

Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With the parameters ID34207 'DC gain KP', ID34208 'Integral time DC control' and ID34209 'Differentiation time DC control', the DC bus voltage controller can be adapted to the application.

If all 3 parameters = 0, the internal default values apply:

	ID34207	ID34208	ID34209
KES 120	426.6	21.33 ms	0.188 ms
KES 60	512	21.33 ms	0.188 ms

ID34209 'Differentiation time DC control'

Supported hardware:	KE(N,S) / KE(N,S)-xEx /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

With the parameters ID34207 'DC gain KP', ID34208 'Integral time DC control' and ID34209 'Differentiation time DC control', the DC bus voltage controller can be adapted to the application.

If all 3 parameters = 0, the internal default values apply:

	ID34207	ID34208	ID34209
KES 120	426.6	21.33 ms	0.188 ms
KES 60	512	21.33 ms	0.188 ms

ID34210 'Dead time compensation measure 2'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0.000 ms
Signed:	NO	Max. value:	32.767 ms
Format:	DEC		
List:	NO		

Dead times can be compensated for with this parameter due to, for example, sensors and input circuits in connection with the touch probe function at the binary input BE2. The measured value is corrected by the configured dead time.

ID34211 'Node list 2'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE / FORMAL	Default value:	-
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte / element	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX	Current list length:*	0
List:	YES	Max. list length:*	1279

* The list length is the number of usage data elements without 4 byte head elements and 16-byte expanded list header.

The ID34211 applies to the EtherCAT bus and is structured as follows:

Configuration ID34211 'Node list 2'

List element	Content	Meaning
0	x	List head: Current list length without list head [byte] (x = n elements x 4 byte / element)
1	5116	List head: Maximum list length without list head [byte]
2		Expanded list header: Bus type (corresponds to ID34140)
3		Expanded list header: Version
4		Expanded list header: Amount of device information per participant (current 5)
5		Expanded list header Bit 0 = 1 configuration valid Bit 0 = 0 configuration not available or invalid
6		Active device address (device information for 1st slave)
7		Manufacturer code (device information for 1st slave)
8		Product code (device information for 1st slave)
9		Version code (device information for 1st slave)
10		Fixed device address (device information for 1st slave)
11		Active device address (device information for 2nd slave)
...		...

Node list and device address

The sequence of devices in the node list corresponds to the sequence on the bus.
(first device after the EtherCAT master = position 0)

The following combinations are possible:

No fixed addresses available:

Active device address = position + 1 or address assigned by the master

Fixed device address = 0

Fixed address available

Active device address = fixed device address

Several of the same fixed addresses

Active device address = next free address

Fixed device address = fixed address

ID34212 'Voltage path Q'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34212 indicates the current controller output voltage (effective value) in the Q-path.

ID34213 'Voltage path D'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34213 indicates the current controller output voltage (effective value) in the D-path.

ID34215 'Temperature IGBT'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S) / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	YES	Unit:	°C
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34215 contains the IGBT temperature calculated from the temperature model.

ID34216 'DNS server address'

Supported hardware:	A4 / A5 /		
Sphere of action:	INSTANCE	Default value:	0100007F
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

ID34216 determines the external IP address of a DNS (Domain Name System) server.

Default settings

Instance	Use for	Hex	Dec
Instance 4	1st Ethernet IP address X20	0100007F	127.0.0.1

Configuration of the DNS server address

Dec					Hex			
[A]	[B]	[C]	[D]	=	[D]	[C]	[B]	[A]
127	0	0	1	=	01	00	00	7F

ID34217 'AMK Test 1'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /
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Reserved for AMK internal use!

ID34218 'AMK Test 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34219 'AMK Test 3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34220 'AMK Test 4'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

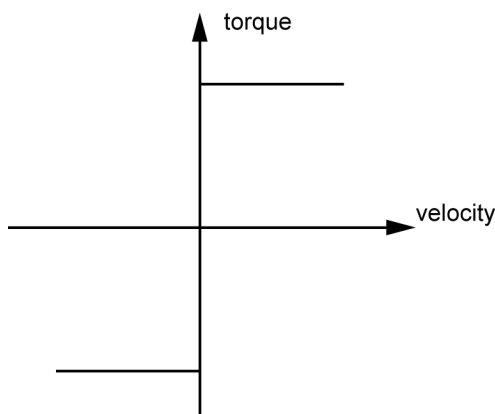
Reserved for AMK internal use!

ID34221 'Friction torque'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES	Unit:	Nm
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

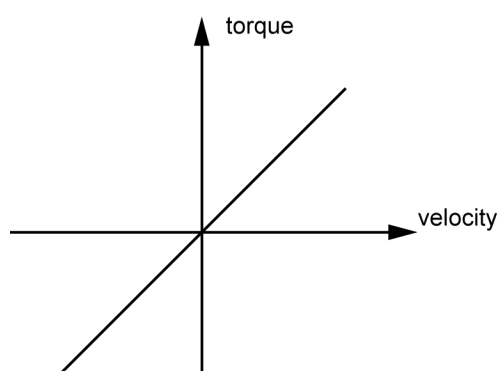
ID34221 acts in the 'load model' function and describes a constant static friction.

**ID34222 'Friction torque linear'**

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.01
Temporarily changeable:	YES	Unit:	Nm
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

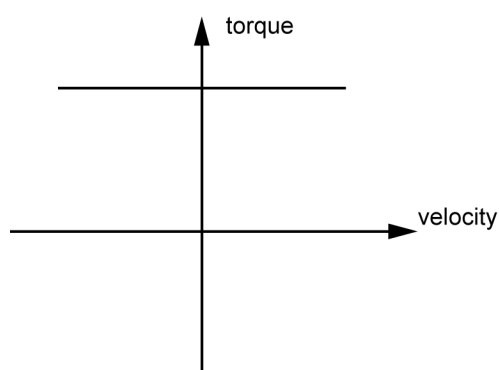
ID34222 acts in the 'load model' function and describes a fluid friction. The fluid friction occurs with two ideally-lubricated sliding surfaces and increases linearly with the speed at which the surfaces are sliding on one another.



ID34223 'Holding torque'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	YES	Unit:	Nm
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

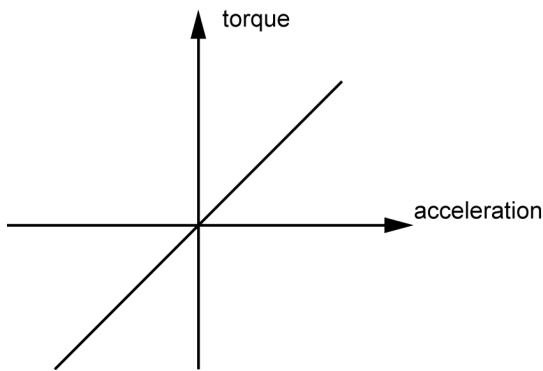
ID34223 acts in the 'load function' model and describes a constant holding torque (e.g. suspended axis).



ID34224 'Inertia'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	YES	Unit:	kgcm ²
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34224 acts in the 'load model' function and describes a moment of inertia. The moment of inertia is proportional to the acceleration.



ID34225 'Mode load model'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0x0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

ID34225 works in the 'load model' function.

Configuration ID34225 'Mode load model'

Bit no.	Condition	Meaning
0	0	The speed feedforward control values are calculated internally in the device.
	1	The speed feedforward control values are calculated externally by a controller and are written in ID37 'Added velocity command value'.
1	0	The acceleration feedforward control values are calculated internally in the device.
	1	The acceleration feedforward control values are calculated externally by a controller and are written in ID81 'Added torque command value'.
2-31	0	Reserved
	1	Reserved

ID34226 'List load model'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34227 'Bit bar'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KES / KES-xEx /		
Sphere of action:	GLOBAL	Default value:	0000 0000 0000 0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	BIN		
List:	NO		

Meaning for KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Reserved for AMK internal use!

Meaning for KES / KES-xEx /

Configuration ID34227 'Bit bar'

Bit no.	Condition	Meaning
0	0	Phasing of the PWM for the hardware sync signal = 0° (not for KE, KEN)
	1	Phasing of the PWM for the hardware sync signal = 180° (not for KE, KEN)
1-7	0	Reserved
	1	Reserved
8	0	Compact power supply as a standard device
	1	Compact power supply as a solar inverter Monitoring the discharge of the DC bus is inactive The following parameters are effective: ID34270 'Net voltage' (voltage tolerance compared to the connected supply network ± 10 %) ID34287 'Upper limit DC bus voltage' ID34288 'Lower limit DC bus voltage' ID34289 'Setpoint line current wattless' ID34290 'Upper limit line current wattless component' ID34291 'Lower limit line current wattless component' ID34292 'Upper limit line current energy component' ID34293 'Lower limit line current energy component' ID34294 'Output value DC-bus' ID34295 'Line frequency' ID34296 'Reactive power network'
9	0	MPP tracking inactive
	1	MPP tracking active: Prerequisite: Bit 8 = 1 The following parameters are effective: ID34294 'Output value DC-bus'
10-15	0	Reserved
	1	Reserved

ID34228 'Angle feed forward SL'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34229 'Sliding factor SL'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34230 'List Bus'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34231 'Pilot control voltage path Q'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34231 shows the voltage feedforward value (Q-path) in the current controller.

ID34232 'Pilot control voltage path D'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0
Access:	READING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

ID34231 shows the voltage feedforward value (D-path) in the current controller.

ID34233 'Phase resistance'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.001
Temporarily changeable:	NO	Unit:	Ohm
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

ID34233 is the strand resistance of the motor coil and works in the current controller. If no strand resistance is specified in the motor data sheet, it can be calculated from the terminal resistance R_{tt} (ID34164):

Motor coil is interconnected in the star: $R_s = 0.5 \times R_{tt}$
 Motor coil is interconnected in the triangle: $R_s = 1.5 \times R_{tt}$

ID34234 'Voltage constant Ke'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	V/(1000 U/min)
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	DEC		
List:	NO		

The 'Voltage constant Ke' is to be taken from the respective type plate or data sheet of the motor.

ID34235 'Increase motor voltage'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	1155
Access:	READING / WRITING	Scale:	0.1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	100.0 %
Signed:	NO	Max. value:	150.0 %
Format:	DEC		
List:	NO		

With ID34235, the motor voltage at the PWM output can be limited or increased from 100% - 150% so that the superimposed control has enough control reserve to ensure a stable control. If too large a value is entered in ID34235, the control behaviour will become unstable and the drive switches off with an overcurrent error.

ID34235	Meaning
100 %	The output voltage is below the DC bus voltage so as to provide enough control reserve.
115.5%	The output voltage uses the entire voltage reserve for sufficiently robust control behaviour. Peak value voltage between the phases (\hat{U}_L) = DC bus voltage (U_Z)
115.5 - 150%	The PWM is overridden, the output voltage is distorted, a stable control behaviour cannot be guaranteed and must be assessed on the application side. Overcurrent shutdowns may occur.

ID34236 'Time motor brake on'

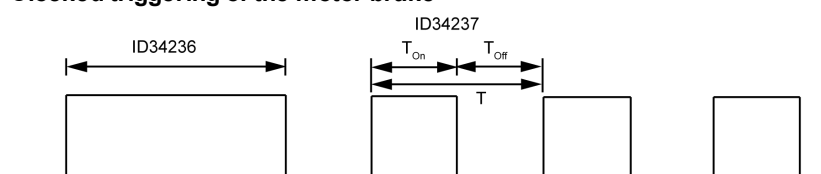
Supported hardware:	iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	0 (means 500)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0 ms
Signed:	NO	Max. value:	5000 ms
Format:	DEC		
List:	NO		

The 'Time motor brake on' determines how long the motor brake is provided with a constant 24 V DC for opening. After the 'Time motor brake on' has expired, the opened brake is supplied with a pulsed voltage. The clock ratio must be set so that the opened brake remains open. The supply for the brake with a clocked voltage reduces the power loss in the ventilated motor brake.



ID34165 'Holding torque brake' must be set > 0 so that a brake will be controlled.
See 'ID34165 'Holding torque brake' on page 270.

Clocked triggering of the motor brake





The motor brake may not be clocked if a motor fan is supplied from the same power supply.

ID34237 'Pulse duty factor motor brake'

Supported hardware: iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	0 (means 70%)
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

The 'Pulse duty factor motor brake' determines the clock ratio T_{On}/T with which the opened brake is supplied ($T = 2$ ms, not changeable)

See ID34236 'Time motor brake on' on page 292.

ID34238 'List IR filter'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34239 'V/F integrator stop'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /			
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	0 %
Signed:	NO	Max. value:	100 %
Format:	DEC		
List:	NO		

The 'V/F integrator stop' works with the function U/f operation (ID32953=0x20) and specifies a variable percentage value of the maximum current converter. If the adjustable percentage value of the maximum current converter is achieved, the speed curve is limited internally in the device, which will not be shut down with an error message (2334 'System diagnostics: Output terminal overcurrent' or 2321 'System diagnostics: IGBT monitoring'). The acceleration and deceleration times are extended by the internal limiting.

ID34239 = 0 no internal limiting

ID34239 = 100 Limiting from 100% ID110 'Converter peak current'

ID34240 'AM command list'

Supported hardware: KW-R06 / KW-R07 /

Reserved for AMK internal use! (MCE)

ID34241 'AM status list'

Supported hardware: KW-R06 / KW-R07 /

Reserved for AMK internal use! (MCE)

ID34242 'AM Status'

Supported hardware: KW-R06 / KW-R07 /


Reserved for AMK internal use! (MCE)

ID34250 'SIWL source'

Supported hardware: KW-R06 / KW-R07 /

Sphere of action:	GLOBAL	Default value:	0000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	63
Format:	HEX		
List:	NO		

Configuration ID34250 'SIWL source'

Bit no.	Condition Bit 0 (LSB)	Meaning
0-15	0x0000	SIWL switched off, pulse encoder interface is switched to an input.
	0x0010	SIWL is active as an output, pulse source is the motor encoder according to ID32953 'Encoder type'  If U/f operation is selected in ID32953, no pulses are issued by the SIWL.
	0x0020	SIWL is active as an output, the SIWL input pulses are externally specified, e.g. by a controller, via the controller writing the setpoint in ID33911 'SIWL setpoint'.

ID34251 'Line counts SIWL output'

Supported hardware: KW-R06 / KW-R07 /

Sphere of action:	GLOBAL	Default value:	2
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Pulses
Data length:	4 byte	Min. value:	2 pulses
Signed:	NO	Max. value:	268435456 pulses
Format:	DEC		
List:	NO		

ID34251 specifies the modulo value for the SIWL output pulses, i.e. the output pulses number from 0 to the value ID34251 and begin again at 0. A zero pulse is issued at the SIWL output per modulo value at the output.

ID34252 'Offset position index'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	Pulses
Data length:	4 byte	Min. value:	0 pulses
Signed:	NO	Max. value:	268435455 pulses
Format:	DEC		
List:	NO		

ID34252 displaces the position of the zero pulse in the SIWL output signal in a clockwise direction



With ID34257 'SIWL control' bit 4 = 0 -->1, ID34252 is displaced to the current actual position value. The new position value that was written in ID34252 'Offset position index' cannot be read back. ID34252 continues to show the previous value.

ID34253 'SIWL factor'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	1
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-32767
Signed:	YES	Max. value:	32767
Format:	DEC		
List:	NO		

ID34253 is the multiplier of the SIWL gear and multiplies the SIWL input signal. Negative values invert the rotational direction of the SIWL output signal.

ID34254 'SIWL divisor'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	1
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	1
Signed:	NO	Max. value:	32767
Format:	DEC		
List:	NO		

ID34254 is the divisor of the SIWL gear and divides the SIWL input signal.

ID34255 'SIWL modulo IN'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Pulses
Data length:	4 byte	Min. value:	2 pulses
Signed:	NO	Max. value:	2147483647 pulses
Format:	DEC		
List:	NO		

ID34255 determines the modulo value for the SIWL input signal if ID34250 is parameterised as 'SIWL source' = 0x20 (controller writes SIWL setpoint in ID33911).

The frequency at the SIWL input may be a maximum so that within 250 µs a maximum of half of the pulses are overrun at the SIWL input according to ID34255, otherwise the rotational direction is evaluated to be incorrect.

ID34256 'Filter observer'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	5000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	µs
Data length:	2 byte	Min. value:	600 µs
Signed:	NO	Max. value:	20000 µs
Format:	DEC		
List:	NO		

ID34256 'Filter observer' works in the SIWL function as an interpolator in order to transmit incoming signals via fieldbus and generates acceleration, velocity and position setpoints that affect the drive control. If, for example, incoming encoder signals are blocked via fieldbus, the 'Filter observer' interpolates the missing signals and starts at the next transmitted setpoint position.


Typical values: ID34256 = 1000 µs at ID2 = 1 ms


See ID33911 'SIWL setpoint' on page 227.

ID34257 'SIWL control'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	0000 0000 0000 1000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	YES	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	31
Format:	BIN		
List:	NO		

Configuration ID34257 'SIWL control'

Bit no.	Condition	Meaning
0	0	No function
	1	Edge 0 --> 1: The new values of the temporarily changeable SIWL parameters become active. Not temporarily changeable parameters first become active after mains ON or an RF change.  After the 0 --> 1 edge, this bit must be reset again (value 0).
1	0	Reserved
	1	Reserved
2	0	The SIWL output signal changes depending on the input signal from the SIWL and the SIWL parameterisation.
	1	The SIWL output signal is recorded in the current position; input and output signal are decoupled (slip = 1).
3	0	The zero pulse at the SIWL output is blocked and is not issued.
	1	The zero pulse at the SIWL output is released for issuance.

Bit no.	Condition	Meaning
4	0	No function
	1	Edge 0 --> 1: The zero pulse of the SIWL output signal is set to the current position and at the same time the current actual position value is written in ID34252 'Offset position index'.  The new position value that was written in ID34252 'Offset position index' cannot be read back. ID34252 continues to show the previous value.
5	0	The SIWL output signal is pre-initialised with 0.
	1	The SIWL output signal is pre-initialised with the input setpoint x transmission ratio (ID34253/ID34254).
6	0	Very quick control response, overshooting possible (observer with 3 poles)
	1	Quick control response without overshooting (observer with 2 poles)
5-15	0	Reserved
	1	Reserved

ID34258 'SIWL status'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	DRIVE / FORMAL	Default value:	0000 0000 0000 0000
Access:	READING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	0
Signed:	NO	Max. value:	65535
Format:	BIN		
List:	NO		

Configuration ID34258 'SIWL status'

Bit no.	Condition	Meaning
0-1	00	SIWL disabled (ID32250 'SIWL source'= 0x0000)
	01	SIWL is set up (SIWL initialisation in the device booting active)
	10	SIWL is set up (SIWL active), no additional command active in ID34257 'SIWL control' (ID34257 Bit 0 = 0)
	11	SIWL is set up (SIWL active), additional command active in ID34257 'SIWL control' (ID34257 Bit 0 = 1)
2	0	The SIWL output signal changes depending on the input signal from the SIWL and the SIWL parameterisation.
	1	The SIWL output signal is recorded in the current position; input and output signal are decoupled (slip = 1).
3	0	The zero pulse at the SIWL output is blocked and is not issued.
	1	The zero pulse at the SIWL output is released for issuance.
4	0	No function
	1	The zero pulse of the SIWL output signal was set to the current position and at the same time the new position value was written in ID34252 'Offset position index'.
5-15	0	Reserved
	1	Reserved

ID34259 'Maximum scanning frequency'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL	Default value:	2000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	kHz
Data length:	2 byte	Min. value:	1 kHz
Signed:	NO	Max. value:	2000 kHz
Format:	DEC		
List:	NO		

ID34259 limits the maximum SIWL output frequency. If the SIWL generates more pulses at the output than ID34259 permits, the pulses are stored temporarily and issued as soon as the SIWL output frequency is below the 'Maximum scanning frequency' limit. No pulses are lost.

The frequency at the SIWL output may at most be set so that within 250 µs a maximum of half of the pulses are overrun at the SIWL input, otherwise the rotational direction is evaluated to be incorrect. Smaller values can be set regardless of the application.

ID34260 'Line counts SIWL input'

Supported hardware:	KW-R06 / KW-R07 /		
Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Pulses
Data length:	4 byte	Min. value:	0 pulses
Signed:	NO	Max. value:	268435456 pulses
Format:	DEC		
List:	NO		

ID34260 sets the number of SIWL input pulses per encoder revolution if ID34250 'SIWL source' = 0x10 (motor encoder according to ID32953) is parameterised.

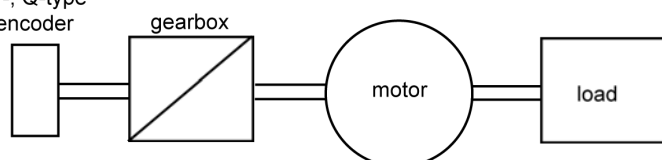
ID34265 'Encoder ratio'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 /		
Sphere of action:	DRIVE	Default value:	101
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	101
Signed:	NO	Max. value:	6401
Format:	DEC		
List:	NO		

The 'Encoder ratio' works with P and Q-encoders where an encoder gear ratio must be taken into consideration (e.g. for encoder gears or encoder belts). The value in ID34265 influences the commutation, the position and speed factors.

Arrangement

P-, Q-type encoder



The following ratios of 'motor revolutions' to 'encoder revolutions' are allowed:

Encoder ratios Motor revolutions: Encoder revolutions	Parameterisation
1:1	0101
2:1	0201
4:1	0401
8:1	0801
16:1	1601
32:1	3201
64:1	6401
1:2*)	0102
1:4*)	0104
1:8*)	0108
1:16*)	0116
1:32*)	0132
1:64*)	0164

*) Conversions are only possible for multi-turn absolute encoders (Q encoder)

ID34266 'Voltage reserve'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	30
Access:	READING / WRITING	Scale:	10
Temporarily changeable:	NO	Unit:	V
Data length:	2 byte	Min. value:	0.0 V
Signed:	NO	Max. value:	100.0 V
Format:	DEC		
List:	NO		

ID34266 works for asynchronous motors with voltage regulation (ID32953 motor model with nibble 1 = 0x6) and for field weakening synchronous motors (nibble 1 = 0x3). The voltage reserve determines from which motor voltage the field weakening begins. The field weakening begins if the motor voltage is greater than the maximum inverter output voltage minus the voltage reserve.

ID34267 'Backlight dim delay'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Seconds
Data length:	2 byte	Min. value:	0 s
Signed:	NO	Max. value:	28800 s
Format:	DEC		
List:	NO		

Waiting time after the last touch of the screen until the background lighting is dimmed.

ID34268 'Backlight brightness'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	95
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	10
Signed:	NO	Max. value:	100
Format:	DEC		
List:	NO		

Brightness of the background lighting when not dimmed [% of the maximum brightness].

ID34269 'Backlight dim value'

Supported hardware:	A4 / A5 /		
Sphere of action:	GLOBAL	Default value:	50
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	%
Data length:	2 byte	Min. value:	10
Signed:	NO	Max. value:	100
Format:	DEC		
List:	NO		

Brightness of the background lighting in the dimmed state [% of the maximum brightness].

ID34270 'Net voltage'

Supported hardware: KES, KES-xEx /

Reserved for AMK internal use!

ID34271 'Limit active power'

Supported hardware: KE(N,S) /

Reserved for AMK internal use!

ID34272 'Setpoint reactive power'

Supported hardware: KE(N,S) /

Reserved for AMK internal use!

ID34273 'Osci 1'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34274 'Osci 2'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34275 'Osci 3'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34276 'Osci 4'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34277 'Osci 5'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34278 'Osci 6'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34279 'Osci 7'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34280 'Osci 8'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

Reserved for AMK internal use!

ID34281 'Current setpoint ISQ'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Reserved for AMK internal use!

ID34282 'Current setpoint ISD'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Reserved for AMK internal use!

ID34283 'Commutation angle'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 /

Reserved for AMK internal use!

ID34284 'OSC container length'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE(N,S)-xEx / iX / iC / iDT5 / iDP7 /		
Sphere of action:	GLOBAL	Default value:	4096
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	Byte
Data length:	4 byte	Min. value:	4096 byte
Signed:	NO	Max. value:	32600 byte
Format:	DEC		
List:	NO		

The 'OSC container length' defines the available memory for the oscilloscope function in AIPEX PRO.

ID34286 'Time stop drive cmd'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	100
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0 ms
Signed:	NO	Max. value:	10000 ms
Format:	DEC		
List:	NO		

* The list length is the number of usage data elements without 4 byte head elements.

The 'Time stop drive cmd' is effective with the command ID149 'Cmd position stop'. See ID149 'Cmd position stop' on page 85.

ID34287 'Upper limit DC bus voltage'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34288 'Lower limit DC bus voltage'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34289 'Setpoint line current wattle'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34290 'Upper limit line current wattless component'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34291 'Lower limit line current wattless component'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34292 'Upper limit line current energy component'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34293 'Lower limit line current energy component'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34294 'Output value DC-bus'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34295 'Line frequency'

Supported hardware: KE(N,S)-xEx /

Sphere of action:	GLOBAL / FORMAL	Default value:	0
Access:	READING	Scale:	0.01
Temporarily changeable:	NO	Unit:	Hz
Data length:	2 byte	Min. value:	-
Signed:	YES	Max. value:	-
Format:	DEC		
List:	NO		

Display of mains frequency

ID34296 'Reactive power network'

Supported hardware: KES-xEx /

Reserved for AMK internal use!

ID34297 'Encoder type 2'

Supported hardware: KW-R06 / KW-R07 /

Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

With the parameter 'Encoder type 2', a second encoder can be configured as a actual position value encoder or as a actual speed value encoder. If the second encoder is configured as an actual position value in ID34297, evaluation does not take place in ID32800 bit 14/15. The following applies:

ID51 'Position feedback value': resolution according to ID116, no drive ratio ID121/ID122 effective

ID53 'Position feedback value 2': resolution according to ID117, drive ratio ID121/ID122 effective

in preparation:

If the second encoder is configured as an actual speed value in ID34297, the actual speed value of the second encoder is shown in ID156 'Velocity feedback value 2'. The actual speed value filter is the same for ID40 'Velocity feedback value' and ID156 'Velocity feedback value 2' (ID392 'Velocity setpoint filter').

Configuration ID34297 'Encoder type 2'

Bit no.	Condition	Meaning
0-3 (Nibble 0)	0x0	switched off
4-7 (Nibble 1)	0x0	switched off
8-11 in preparation: Speed encoder (Nibble 2)	0x0	like motor encoder
	0x1	Reserved
	0x2	T, V encoder
	0x3	Reserved
	0x4	Reserved
	0x5	Pulse encoder
	0x6	Reserved
	0x7	S, U encoder
	0x8	Resolver
	0x9	Square-wave pulse encoder
	0xA	E or F encoder
	0xB	Reserved
	0xC	P or Q encoder
	0xD - 0xF	Reserved
12-15 Position encoder (Nibble 3)	0x0	switched off
	0x1	Reserved
	0x2	T, V encoder
	0x3	Reserved
	0x4	Reserved
	0x5	Reserved
	0x6	Reserved
	0x7	S, U encoder*
	0x8	Resolver*
	0x9	Reserved
	0xA	E* or F encoder
	0xB	Reserved
	0xC	P* or Q encoder
	0xD - 0xF	Reserved

*) The actual position value of the single-turn absolute encoder is only unique within a motor revolution.

ID34298 'Torque feedback filter'

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /		
Sphere of action:	DRIVE	Default value:	0
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	ms
Data length:	2 byte	Min. value:	0 ms
Signed:	NO	Max. value:	32767 ms
Format:	DEC		
List:	NO		

The 'Torque feedback filter' filters the value that is issued in ID84 'Torque feedback value'.

ID34299 'Velocity setpoint in control'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

See ID32800 'AMK main operation mode' on page 137.

ID34300 'Velocity actual value in control'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

See ID32800 'AMK main operation mode' on page 137.

ID34301 'Torque setpoint filter input'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

See ID32800 'AMK main operation mode' on page 137.

ID34302 'Torque setpoint filter output'

Supported hardware: KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / iDP7 /

See ID32800 'AMK main operation mode' on page 137.

ID34304 'Communication input word'

Supported hardware: A4 / A5 / KW-R06 / KW-R07 /

Sphere of action:	Device-specific values	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Sphere of action: INSTANCE

Values for KW-R06 / KW-R07 /

Sphere of action: GLOBAL / FORMAL

ID34304 is the image of the input word 0 in the asynchronous communication address range (wIn0).

Additional input words in the synchronous communication address range (wIn1, wIn2, wIn3,...) are mapped in the formal parameters ID34305... Data in the asynchronous address range is not transmitted to the device cycle (PGT) in a synchronised manner.

Meaning for A4 / A5 /

The communication variables are instantiated for the instances 0 to 7.

Communication address range allocation for the instance 0

Communication address range	asynchronous		synchronous	
	Input	Output	Input	Output
WORD Name	wIn0 ... wIn255	wOut0 ... wOut255	wSyncIn0 ... wSyncIn255	wSyncOut0 ... wSyncOut255
WORD ID no.	ID34304 ... ID34559	ID34816 ... ID35071	ID34560 ... ID34815	ID35072 ... ID35327

Communication address range	asynchronous		synchronous	
Variable	Input	Output	Input	Output
DOUBLEWORD Name	dwIn0 ... dwIn127	dwOut0 ... dwOut127	dwSyncIn0 ... dwSyncIn127	dwSyncOut0 ... dwSyncOut127
DOUBLEWORD ID no.	ID35328 ... ID35455	ID35584 ... ID35711	ID35456 ... ID35583	ID35712 ... ID35839

Overview of communication ranges for all instances

Type WORD

WORD IN & OUT	asynchronous		synchronous		AMK instance
wIn, wOut wSyncIn, wSyncOut	IDs for wIn	IDs for wOut	IDs for wSyncIn	IDs for wSyncOut	SERCOS Parameter set
0 - 255	ID34304 - ID34559	ID34816 - ID35071	ID34560 - ID34815	ID35072 - ID35327	0
256 - 511					1
512 - 767					2
768 - 1023					3
1024 - 1279					4
1280 - 1535					5
1536 - 1791					6
1792 - 2047					7

Type DOUBLEWORD

DWORD IN & OUT	asynchronous		synchronous		AMK instance
dwIn, dwOut dwSyncIn, dwSyncOut	IDs for dwIn	IDs for dwOut	IDs for dwSyncIn	IDs for dwSyncOut	SERCOS Parameter set
0 - 127	ID35328 - ID35455	ID35584 - ID35711	ID35456 - ID35583	ID35712 - ID35839	0
128 - 255					1
256 - 383					2
384 - 511					3
512 - 639					4
640 - 767					5
768 - 895					6
896 - 1023					7

Meaning for KW-R06 / KW-R07 /

Communication address range allocation

Communication address range	asynchronous		synchronous ¹⁾	
Variable	Input	Output	Input	Output
WORD Name	wIn0 ... wIn127	wOut0 ... wOut127	wSyncIn0 ... wSyncIn127	wSyncOut0 ... wSyncOut127
WORD ID no.	ID34304 ... ID34431	ID34816 ... ID34943	ID34560 ... ID34687	ID35072 ... ID35199
DOUBLEWORD Name	dwIn0 ... dwIn63	dwOut0 ... dwOut63	dwSyncIn0 ... dwSyncIn63	dwSyncOut0 ... dwSyncOut63
DOUBLEWORD ID no.	ID35328 ... ID35391	ID35584 ... ID35647	ID35456 ... ID35519	ID35712 ... ID35775

1) Not supported

ID34816 'Communication output word'

Supported hardware:	A4 / A5 / KW-R06 / KW-R07 /		
Sphere of action:	Device-specific values	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	2 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Sphere of action: INSTANCE

Values for KW-R06 / KW-R07 /

Sphere of action: GLOBAL / FORMAL

ID34816 is the image of the output word 0 in the asynchronous communication address range (wOut).

Additional output words in the synchronous communication address range (wOut1, wOut2, wOut3,...) are mapped in the formal parameters ID34817... Data in the asynchronous address range is not transmitted to the device cycle (PGT) in a synchronised manner.

See ID34304 'Communication input word' on page 305.

ID35328 'Communication input double word'

Supported hardware:	A4 / A5 / KW-R06 / KW-R07 /		
Sphere of action:	Device-specific values	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Sphere of action: INSTANCE

Values for KW-R06 / KW-R07 /

Sphere of action: GLOBAL / FORMAL

ID35328 is the image of the input double word 0 in the asynchronous communication address range (dwIn0).

Additional input double words in the synchronous communication address range (dwIn1, dwIn2, dwIn3,...) are mapped in the formal parameters ID34329... Data in the asynchronous address range is not transmitted to the device cycle (PGT) in a synchronised manner.

See ID34304 'Communication input word' on page 305.

ID35584 'Communication output double word'

Supported hardware:	A4 / A5 / KW-R06 / KW-R07 /		
Sphere of action:	Device-specific values	Default value:	00000000
Access:	READING / WRITING	Scale:	1
Temporarily changeable:	NO	Unit:	-
Data length:	4 byte	Min. value:	-
Signed:	NO	Max. value:	-
Format:	HEX		
List:	NO		

Values for A4 / A5 /

Sphere of action: INSTANCE

Values for KW-R06 / KW-R07 /

Sphere of action: GLOBAL / FORMAL

ID35584 is the image of the output double word 0 in the asynchronous communication address range (dwOut0).

Additional output double words in the synchronous communication address range (dwOut1, dwOut2, dwOut3, ...) are mapped in the formal parameters ID35585... Data in the asynchronous address range is not transmitted to the device cycle (PGT) in a synchronised manner.

See ID34304 'Communication input word' on page 305.

3 Appendix

3.1 Codes for the configuration of the binary outputs

Codes for the configuration of the binary outputs

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S) / KE (N,S)- xEx /	iX / iC / iDT5 / iDP7 /
0	Function inactive	No function assigned to the binary output	■	■	■
310	Warning: Motor overload	Maximum load integral i^2t of the motor according to ID114 'Overload limit motor'	■	-	■
330	$n_{actual} = n_{target}$	$ n_{target} - n_{actual} < \text{ID157 'Velocity window'}$	■	-	■
331	$n_{actual} < n_{min}$	$ n_{actual} < \text{ID124 'Zero velocity window'}$	■	-	■
332	$n_{actual} < n_x$	$ n_{target} - n_{actual} < \text{ID125 'Velocity threshold'}$	■	-	■
333	$M_d \geq M_{dx}$	$M_{actual} \geq \text{ID126 'Torque threshold'}$	■	-	■
334	$M_{Target} \geq M_{Limit}$	$M_{Target} \geq \text{ID82 'Positive torque limit'}$ or $M_{Target} \leq \text{ID83 'Negative torque limit'}$	■	-	■
335	$n_{Target} \geq n_{Limit}$	$n_{Target} \geq \text{ID38 'Positive velocity limit'}$ or $n_{Target} \leq \text{ID39 'Negative velocity limit'}$	■	-	■
336	In Position	$ x_{target} - x_{actual} < \text{ID57 'In position window'}$	■	-	■
337	$P \geq P_x$	$P_{actual} \geq \text{ID158 'Power threshold'}$	■	-	■
400	Cam	Cam, cam signal, homing switch	■	-	■
403	Homing point known	Homing point is valid	■	-	■
409	Measured value 1 positive edge detected (MT1)	Actual position value is stored in ID130 'Probe value 1 positive edge'	■	-	■
410	Measured value 1 negative edge detected (MT1)	Actual position value is stored in ID131 'Probe value 1 negative edge'	■	-	■
411	Measured value 2 positive edge detected (MT2)	Actual position value is stored in ID132 'Probe value 2 positive edge'	■	-	■
412	Measured value 2 negative edge detected (MT2)	Actual position value is stored in ID133 'Probe value 2 negative edge'	■	-	■
33013	$X_{actual} \leq -\text{Soft end position limit switch}$	ID50 'Negative position limit' reached	■	-	■
33014	Position synchronisation	$ \text{position control difference} \leq \text{ID32952: 'At synchronous speed window'}$	■	-	■
33015	$X_{actual} \geq +\text{Soft end position limit switch}$	ID49 'Positive position limit' reached	■	-	■
33016	Warning: Converter overcurrent	Maximum load integral i^2t of the converter according to ID32999 'Overload limit inverter', diagnostic message 2357 'Device overload warning'	■	■	■
33017	Warning: excess converter temperature	Temperature of the device rear wall or value according to the temperature model is too high, diagnostic message 2350 'Device over-temperature warning'	■	■	■
33018	Warning: excess motor temperature	Value at the sensor input X12 or according to ID34166 is too high, diagnostic message 2359 'Motor overload warning'	■	-	■

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S) / KE (N,S)- xEx /	iX / iC / iDT5 / iDP7 /
33021	Warning: excess air temperature	Diagnosis 1073 'Cooling Air Temperature Warning'	■	-	■
33022	Warning: excess temperature of external components	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KE (N,S) / KE(N,S)-xEx / Power supply KE(N,S): Brake resistor iX / iC / iDT5 / iDP7 / Reserved	■	■	■
33029	System ready message (SBM)	System ready message	■	■	■
33030	Acknowledgement DC bus ON (QUE)	Acknowledgement DC bus charged	■	■	■
33031	Acknowledgement controller enable (QRF)	Acknowledgement that the drive is operating in control loop	■	-	■
33032	Controller enable (RF) set	Control input of controller enable set	■	-	■
33034	Commanding (KMD) active	Drive function is active	■	-	■
33035	Interpolator (IPO) active	Internal interpolator is active	■	-	■
33036	Homing point known	Homing point is valid	■	-	■
33040	Input bit 0 active	Acknowledgement of binary input E1 according to ID32874 'Port1 Bit0'	■	-	-
33041	Input bit 1 active	Acknowledgement of binary input E2 according to ID32875 'Port1 Bit1'	■	-	-
33042	Input bit 2 active	Acknowledgement of binary input E3 according to ID32876 'Port1 Bit2'	■	-	-
33043	Input bit 3 active	Acknowledgement of binary input E4 according to ID32877 'Port1 Bit3'	■	-	-
33044	Input bit 4 active	Acknowledgement of binary input E5 according to ID32878 'Port1 Bit4'	■	-	-
33045	Input bit 5 active	Acknowledgement of binary input E6 according to ID32879 'Port1 Bit5'	■	-	-
33046	Input bit 6 active	Acknowledgement of binary input E7 according to ID32880 'Port1 Bit6'	■	-	-
33047	Input bit 7 active	Acknowledgement of binary input E8 according to ID32881 'Port1 Bit7'	■	-	-
33048	Residual distance deleted	dx > ID32922 'Residual distance erase window'	■	-	■

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S) / KE (N,S)-xEx /	iX / iC / iDT5 / iDP7 /				
33052	Control of the motor holding brake	<p>BR = 0 holding brake closed BR = 1 holding brake opened See ID206 'Drive on delay time' on page 96. See ID207 'Drive off delay time' on page 97. Activate monitoring motor holding brake for cable breakage: ID32901 'Global service bits' bit 7 = 1. When braking with an acknowledgement signal, the monitoring of the acknowledgement bit is to be switched on via ID32773 'Service bits' bit 13 and the binary input is to be assigned with the code 33906</p> <table><tr><th colspan="2">NOTICE</th></tr><tr><td>Material Damage!</td><td>Control of the motor holding brake The parameterised brake output connected to the motor brake is monitored for cable breakage (ID32901 bit 7 = 1) and may not be connected with another load than the motor holding brake. Load currents up from 200 µA (e.g. LED status lights) are detected as real load and will be interpreted that a brake is connected correctly</td></tr></table>	NOTICE		Material Damage!	Control of the motor holding brake The parameterised brake output connected to the motor brake is monitored for cable breakage (ID32901 bit 7 = 1) and may not be connected with another load than the motor holding brake. Load currents up from 200 µA (e.g. LED status lights) are detected as real load and will be interpreted that a brake is connected correctly	■	-	■
NOTICE									
Material Damage!	Control of the motor holding brake The parameterised brake output connected to the motor brake is monitored for cable breakage (ID32901 bit 7 = 1) and may not be connected with another load than the motor holding brake. Load currents up from 200 µA (e.g. LED status lights) are detected as real load and will be interpreted that a brake is connected correctly								
33058	Parameter set 0 active	Valid from QRF message	■	-	■				
33059	Parameter set 1 active	Valid from QRF message	■	-	■				
33060	Parameter set 2 active	Valid from QRF message	■	-	■				
33061	Parameter set 3 active	Valid from QRF message	■	-	■				

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S) / KE (N,S)- xEx /	iX / iC / iDT5 / iDP7 /
33062	Main operating mode active	ID32800 'AMK main operation mode' is active	■	-	■
33063	Secondary operating mode 1 active	ID32801 'AMK secondary operation mode 1' is active	■	-	■
33064	Secondary operating mode 2 active	ID32802 'AMK secondary operation mode 2' is active	■	-	■
33065	Secondary operating mode 3 active	ID32803 'AMK secondary operation mode 3' is active	■	-	■
33066	Secondary operating mode 4 active	ID32804 'AMK secondary operation mode 4' is active	■	-	■
33067	Secondary operating mode 5 active	ID32805 'AMK secondary operation mode 5' is active	■	-	■
33068	AMK secondary operating mode 6 active	ID32806 'AMK secondary operation mode 6' is active	■	-	■
33069	AMK secondary operating mode 7 active	ID32807 'AMK digital torque control' is active	■	-	■
33070	AMK secondary operating mode 8 active	ID32808 'AMK position control' is active	■	-	■
33071	AMK secondary operating mode 9 active	ID32809 'AMK digital speed control' is active	■	-	■
33074	Collective warning active	Collective warning (all warning messages OR linked) The warning bit is generated for each warning and remains active until the error is deleted by the user.	■	■	■
33075	Fan triggering	Signal for triggering a fan at the compact power supply; the signal is switched on at 78% of the shutdown temperature. If the temperature is fallen below, the fan runs for another 1 minute. AMK service (shutdown temperature [0.1%] SEEP ID34060 Element 39) (special lift feature)	-	■ ¹⁾	-
33076	Second cycle output	The output changes cyclically between 1 second ON and 1 second OFF	■	-	■
33079	Output 24 V DC		-	-	■
33123	VBX	For the uninterruptible power supply triggering (extend mains failure display)	-	■ ¹⁾	-
33131	Stop acknowledgement for positive setpoint processing	Positive setpoint settings in position or speed control are not carried out	■	-	■
33132	Stop acknowledgement for negative setpoint processing	Negative setpoint settings in position or speed control are not carried out	■	-	■
33133	Power output stage enable control signal (EF AND EF2)	The input signal EF AND EF2 is mirrored at the binary output, which, for example, can be read by a PLC.	■	-	-
33135	Power output stage enable control signal (EF or STO)	The input signal EF or STO is mirrored at the binary output, which, for example, can be read by a PLC.	■	-	■

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S) / KE (N,S)- xEx /	iX / iC / iDT5 / iDP7 /
33136	Power output stage enable control signal (EF2)	KW-R06 / KW-R16 / KW-R07 / KW-R17 / The input signal EF2 is mirrored at the binary output, which, for example, can be read by a PLC. iX / iC / iDT5 / iDP7 / Internal generated STO signal (2nd channel)	■	-	■
33919	Warning: overload of external mains components		-	■ ¹⁾	-
33920	Warning: BRN readiness of the mains regeneration	This output is logically 1 when the regeneration in compact power supply(S) is briefly inactive due to the mains voltage or overcurrent error. The pulse duration is at least 22 ms.	-	■ ¹⁾	-

1) Not available for KE(N,S)-xEx

See ID398 'List status bits' on page 115.

3.2 Codes for the configuration of the binary inputs

Codes for the configuration of the binary inputs

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S)- xEx /	iX / iC / iDT5 / iDP7 /
0	Function inactive	No function assigned to the binary input	■	■	■
400	Homing switch (cam)	For cam see 32905	■	-	■
401	Touch probe (MT1)	Measurement signal 1 for touch probe function only at BE3 (ID32980 'Port3 Bit2')	■	-	■
402	Touch probe (MT2)	Measurement signal 2 for touch probe function only at BE2 (ID32979 'Port3 Bit1')	■	-	■
32903	DC bus ON (UE)	Charge DC bus	■	■	■
32904	Controller enable (RF)	Activate control	■	-	■
32905	Homing switch (cam)	Cam signal, e.g. for the homing cycle	■	-	■
32912	Reset "homing point known"	Clear "homing point known"	■	-	■
32913	Clear error (FL)	Existing errors in the drive are reset	■	■	■
33700	Activate main operating mode	Change operating mode to the main operating mode (ID32800)	■	-	■
33701	Activate secondary operating mode 1	Change operating mode to the auxiliary operating mode 1 (ID32801)	■	-	■

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S)- xEx /	iX / iC / iDT5 / iDP7 /
33702	Activate secondary operating mode 2	Change operating mode to the auxiliary operating mode 2 (ID32802)	■	-	■
33703	Activate secondary operating mode 3	Change operating mode to the auxiliary operating mode 3 (ID32803)	■	-	■
33704	Activate secondary operating mode 4	Change operating mode to the auxiliary operating mode 4 (ID32804)	■	-	■
33705	Activate secondary operating mode 5	Change operating mode to the auxiliary operating mode 5 (ID32805)	■	-	■
33708	Stop / cancel CMD	The drive changes to the operating mode of digital speed control with the setpoint 0 regardless of the current operating mode	■	-	■
33709	Dig. Speed control N = 0 U/min	CMD digital speed control Speed setpoint N-setpoint= 0, ramp active	■	-	■
33710	Dig. Speed control N = ID36	CMD digital speed control Speed setpoint N-setpoint ID36, ramp active	■	-	■
33711	Homing cycle	CMD homing cycle for homing point (Xi=0)	■	-	■
33721	Dig. Torque control M = 0 %Nm	CMD digital torque control Torque setpoint M-setpoint = 0	■	-	■
33722	Dig. Torque control M = ID80	CMD digital torque control Torque setpoint M-setpoint = ID80	■	-	■
33730	System booting	Complete parameter calculation for inactive controller enable. The recalculation otherwise takes place only after the mains is on, error cleared and RF is activated after changing the parameter.	■	■	-
33735	Control of the motor holding brake	0 -> 1 edge: Open brake 1 -> 0 edge: Close brak See 'ID32843 'Service command" on page 154.	-	-	■
33906	Acknowledgement signal of the motor brake (QBR)	The evaluation and monitoring of the signal must be activated via ID32773 bit 13. QBR = 1 holding brake closed QBR = 0 holding brake opened also see ID206 / ID207 (QBR is supplied by the brake)	■	-	■
33909	Stop positive setpoint processing	If the configured binary input falls to zero volts (low active), the setpoint block takes place in the position or speed control within 2 ms. If the input is set, the setpoint enable takes place within 2 ms.	■	-	■

Code	Designation	Description	KW-R06 / KW-R16 / KW-R07 / KW-R17 /	KE(N,S)- xEx /	iX / iC / iDT5 / iDP7 /
33910	Stop negative setpoint processing	If the configured binary input falls to zero volts (low active), the setpoint block takes place in the position or speed control within 2 ms. If the input is set, the setpoint enable takes place within 2 ms.	■	-	■
33917	Analogue speed control	Selection of the analogue input with the analogue speed control (ID32800 - ID32809 'AMK operation modes')	-	-	■

Glossary

A

A1	Analogue input 1	
ASCII	American Standard Code for Information Interchange	
AT	Drive telegram	From slave to master

B

BAx	Binary output on controller card (BA1, BA2, BA3)	
BEx	Binary input on controller card (BE1, BE2, BE3)	
BIN	Binary	

C

closed loop	Closed controller loop with encoder with measurement return	
CRC	Cyclic redundancy check	Checksum

D

DC	Distributed Clock (EtherCAT)	
DC bus ON	Converter on	
Default	Factory setting	
DEZ	Decimal	
DRIVE	Drive-specific parameter	Value is valid inside only one parameter set
DS402	CAN bus Draft Standard Proposal 402 Device Profile	Commanding protocol for drives
DZR	Speed control	

E

E encoder	Absolute encoder, single-turn, EnDAT 2.1 with additional sine and cosine track	
EGB	Electrostatic endangered component	
EM1, EM2	Binary probe input 1 / 2	

F

F encoder	Absolute encoder, multi-turn, EnDAT 2.1 with additional sine and cosine track	
FIPO	Fine interpolator	
FL	Command 'Clear error'	Causes a new system run-up
FORMAL	Formal parameter	
Formal parameter	Formal parameters don't have remanent values in parameter handling	
FSOE	Functional Safety over EtherCAT	
FTP	File transfer protocol	

G

GLOBAL	Global parameter; valid for all parameter sets	
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H

H encoder	Encoder with Hall sensors	Contains one sine and cosine track per rotation or per pair of poles on linear measuring systems
HEX	Hexadecimal, 0x...	
Homing point	Zero position after homing cycle	
Homing switch	Cam	

I

IDN	Identification number (ID)	
I encoder	Incremental encoder, optical encoder with sine and cosine track and zero pulse	
Instance	Parameters, depending on the fieldbus, are instantiated. For each bus, different values can be parameterised (bus depending participant address, transmission rate etc.)	Field bus interfaces and slots where field bus option cards can be installed are allocated to instances (see product documentation)
Instanced parameter	Instanced parameters contain different values for each instance. Each instance represents the copy of a field bus interface.	
IPO	Interpolator	

K

KP	Proportional gain (speed control, PID controller)
----	---

L

LR	Position control
LSB	Least Significant Bit
LWR	Logical write

M

Max. No. list element	Maximum number of list elements of a list parameter without header elements	
MDT	Master Data Telegram	From master to slave
Movement direction	With a positive setpoint value, a rightward movement when looking at the motor shaft (on the A-bearing side) results for rotary motors	
MPP	Maximum Power Point	
MPU	Measuring steps of the encoder per revolution (digital value for P and Q encoders)	
MSB	Most Significant Bit	
MST	Master synchronisation telegram	

N

NIP	Zero pulse of encoder
NK	Cam switch
NMT	Network management (CANopen)

O

Open loop	Open controller loop, no measurement return by encoder system
-----------	---

O

Operational	In state operational, data are transferred cyclically via fieldbus
OSC	Oscilloscope

P

P encoder	Absolute encoder single-turn, EnDAT 2.2 light	
PGT	Periphery basic clock Fetch cycle in the basic device to which the drive controller is synchronised	The cycle time is according to ID2 'SERCOS cycle time'.
Pre-operational	In pre-operational state, the control unit can access the bus participants via the service channel. No cyclic data is exchanged.	
PWM	Pulse width modulation	

Q

Q encoder	Absolute encoder multi-turn, EnDAT 2.2 light	
QRF	'Acknowledgement controller enable'; the drive is controlled in the activated operation mode	
QUE	'Acknowledgement DC bus on'	Shows that DC bus is loaded

R

Rated speed	Nominal speed	
R encoder	See Resolver	
Resolver	Absolute angle encoder single-turn (1 sine and cosine track per rotation)	
RF	Command 'Controller enable'; the drive is energised and will be controlled depending on the selected operation mode	Controller enable can only be set if the device is error-free (SBM = TRUE) and acknowledgement DC bus on is set (QUE = TRUE). Acknowledgement controller enable (QRF) is set.
RO	Read Only	

S

SAK	Following distance error compensation	
SBM	System ready message; shows that the device is error-free	In case of error, SBM will be reset
SEEP	Device-internal memory, serial EEPROM	
S encoder	Absolute encoder, single-turn, RS485 Hiperface with sine and cosine track	
SIWL	Software pulse transmission	
SL	Sensorless (Operation without encoder return)	
SoE	Servodrive Profile (SERCOS) over EtherCAT	Acc. to IEC 61800-7-300
SS1	Safe Stop 1	Safety function acc. to DIN EN 61800-5-2
STO	Safe torque off	Safety function acc. to DIN EN 61800-5-2
SV	Synchronous ratio	
SWC	Software commutation	
SWK	Software commutation	

T

T encoder	Absolute encoder, multi-turn, RS485 Hiperface with sine and cosine track
TR	Rotor time constant
TZK	Dead-time compensation

U

U/f operation	Voltage / frequency control open loop	
U encoder	Absolute encoder, single-turn, RS485 Hiperface with sine and cosine track	
UE	Command 'DC bus on'; control signal to load the DC bus e.g. in KE.	DC bus on can only be set if the device is error-free (SBM = TRUE). After the DC bus is loaded, the acknowledgement message QUE is set.

V

V encoder	Absolute encoder, multi-turn, RS485 Hiperface with sine and cosine track
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