AMKASYN
Parameter description
KE(N,S)-xEx

Version: 2023/27
Part no.: 205912
Translation of the "Original Dokumentation"

AMKmotion
MEMBER OF THE ARBURG FAMILY

Imprint

Name: PDK_205912_Parameter_KE-xEx_en

Version:

Version: 2023/27	
Change	**Letter symbol**
Changes are shown in the full documentation. See document Parameter description, Part no. 203704)	LeS

Previous version: 2022/21

Product status:

Product	Firmware version (Part no.)
KE-xEx KEN-xEx KES-xEx	KE-E10 V4.05 2020/06 (207689)

Reservation: We reserve the right to modify the content of the documentation as well as the delivery options for the product.

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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"
IDxxxxx.y	xxxxx: Parameter number y: Bit number e.g. ID32773.14

Content

1 For your safety

1.1 Presenting safety messages

Any safety information is configured as follows:

⚠ SIGNAL WORD	
	**Type and source of risk** Consequence(s) of non-observance **Steps to prevent:** • ...

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 potential risk of harm and is described by a single word, if the safety information is ignored. The signal word is followed by a safety alert symbol (ISO 3864, DIN EN ISO 7010). 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 symbol	Meaning
	Generic warning!

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:** • 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'

Reserved for AMK internal use!

ID2 'SERCOS cycle time'

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 KE(N,S)-xEx /

Sphere of action:	GLOBAL
Min. value:	0.500 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.

ID11 'Status class 1-errors'

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		

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.

Construction ID11 'Status class 1-errors'

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1	0	No error
	1	Error present: The parameter 'Temperature internal' is above the threshold value specified for the device longer than four seconds (SEEP device).
2	0	Reserved
	1	Reserved
3	0	Reserved
	1	Reserved
4	0	No error
	1	Error present: Supply voltage 24 VDC error

Bit no.	Condition	Meaning
5	0	Reserved
	1	Reserved
6	0	Reserved
	1	Reserved
7	0	No error
	1	Error present: Converter overcurrent An unacceptably high converter current was detected, e.g. due to short-circuit or earth contact.
8	0	No error
	1	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	Reserved
	1	Reserved
12	0	No error
	1	Error present: Communications error
13	0	Reserved
	1	Reserved
14	0	Reserved
	1	Reserved
15	0	No error
	1	Manufacturer-specific error present: Siehe ID129 'Manufacturer status class 1' auf Seite 20.

ID12 'Status class 2-warnings'

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		

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	Reserved
	1	Reserved
1	0	no warning
	1	Warning present: ID311 'Warning overtemperature inverter' 'Temperature internal' is above the threshold value specified for the device (have SEEP data checked by AMK Service).
2	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
3-14	0	Reserved
	1	Reserved
15	0	Reserved
	1	Reserved

ID13 'Status class 3-messages'

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		

Setting or resetting a message in the 'Status class 3-messages' is shown in ID135 'Drive status word' bit 11.

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	Reserved
	1	Reserved
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
6	0	Reserved
	1	Reserved
7	0	Reserved
	1	Reserved
8-14	0	Reserved
	1	Reserved
15	0	Message inactive
	1	Manufacturer-specific message active: Siehe ID182 'Diagnosis manufacturer status' auf Seite 25.

ID15 'Telegram types parameter'

Sphere of action:	Device-specific values	**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 KE(N,S)-xEx /

Default value:	6
Sphere of action:	DRIVE

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.

ID16 'Configuration list AT'

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 KE(N,S)-xEx /

Maximum list length:	40

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'

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 KE(N,S)-xEx /

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

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'

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.

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'

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.

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 elements x 2 byte / element)
1	0	List head: Maximum list length without list head [byte]
-	-	-

ID21 'Invalid data list communication phase 2'

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 recognized 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'

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 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'

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 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'

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 KE(N,S)-xEx /

Maximum list length: 40

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^{the} parameter

z = Maximum list length

ID25 'All command data list'

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 KE(N,S)-xEx /

Maximum list length: 1

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

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]**
4		3rd command
...	...	...
13		12th parameter

ID26 'Configuration status bits'

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: 33022, 33029, 33030, 33074, 33075, 33076, 33123, 33919, 33920

ID28 'MST error counter'

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 synchronization telegrams (MST) in the communication phases 3 and 4 up to the maximal tolerated value (ID34026 instance 1) + 1. If more MST fail consecutively than parametrized in ID34026 instance 1, 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.

ID34027 has no effect to ID28.

Example 1:

ID34026 instance 1 = 0 (default)

ID28 = 1 + 1 = 2 (maximal value of fail MST consecutively)

Example 2:

ID34026 instance 1 = 10

ID28 = 10 + 1 = 11 (maximal value of fail MST consecutively)

ID29 'MDT error counter'

Reserved for AMK internal use!

ID30 'Software version'

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 KE(N,S)-xEx /

Sphere of action:	FORMAL
Max. list length:	37

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.

Instance	Controller	Software version (firmware)	Designation code
0	KE(N,S)-xEx /	Internal controller module	GGG_vvv_yyww_tttttt_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
tttttt AMK parts no.

ID95 'Diagnosis [ASCII text]'

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 KE(N,S)-xEx /

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

ID97 'Diagnostic mask status class 2'

Sphere of action: DRIVE
Access: READING / WRITING
Temporarily changeable: NO
Data length: 2 byte
Signed: NO
Format: BIN
List: NO

Default value: 0000 0000 0000 0000
Scale: 1
Unit: -
Min. value: 0
Max. value: 65535

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'

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'

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.

ID129 'Manufacturer status class 1'

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 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'

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	Reserved
	1	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	Reserved
	1	Reserved
9	0	Reserved
	1	Reserved
10-15 (MSB)	0	Reserved
	1	Reserved

ID134 'Master control word'

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

Bit no.	Condition	Meaning
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
6	0	Reserved
	1	Reserved
7	0	Reserved
	1	Reserved
11, 9, 8	000	Reserved
	001	Reserved
	010	Reserved
	011	Reserved
	100	Reserved
	101	Reserved
	110	Reserved
	111	Reserved
10	0	Reserved
	1	Reserved
12	0	Reserved
	1	Reserved
13	0	Interpolator 'Halt', operates in the operating mode 'Interpolation' after SERCOS see ID32ff or ID32800ff Bit 24 = 1
	1	Enable = 1 The enable bit must be set in order to comply with the SoE specification
14	0	1 --> 0 edge: no drive enable, instantaneous torque shutdown, independent of bit 15 DC bus ON (UE) is withdrawn internally.
	1	0 --> 1 edge: Drive enabled UE is internally enabled.
15 (MSB)	0	Reserved
	1	Reserved

ID135 'Drive status word'

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
0-2	0	Reserved
	1	Reserved
3	0	Reserved
	1	Reserved
4	0	Reserved
	1	Reserved
6	0	Reserved
	1	Reserved
7	0	Reserved
	1	Reserved
8-10	000	Reserved
	001	Reserved
	010	Reserved
	011	Reserved
	100	Reserved
	101	Reserved
	110	Reserved
	111	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	Reserved

ID143 'SERCOS interface version'

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.

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	

List element	Content	Meaning
4	e.g.: 1	
5	e.g.: .	
6	e.g.: 0	
7	e.g.: 2	
8		
9		

ID144 'Status word'

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 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.

Siehe ID16 'Configuration list AT' auf Seite 11.
Siehe ID26 'Configuration status bits' auf Seite 16.

ID181 'Diagnosis manufacturer class 2'

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 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'

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	Reserved
	1	Reserved
2	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
3	0	Reserved
	1	Reserved
4-5	0	Reserved
	1	Reserved
6	0	Reserved
	1	Reserved
7	0	No warning
	1	Fieldbus warning (ID34027 'BUS failure character' = 1)
8	0	Reserved
	1	Reserved
9-15	0	Reserved
	1	Reserved

ID182 'Diagnosis manufacturer status'

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		

Diagnostic messages are shown in ID390 'Diagnostic number'.

Configuration ID182 'Diagnosis manufacturer status'

Bit no.	Condition	Meaning
0	0	Reserved
	1	Reserved
1-6	0	Reserved
	1	Reserved
7	0	Reserved
	1	Reserved
8	0	Reserved
	1	Reserved
9	0	Reserved
	1	Reserved
10	0	Reserved
	1	Reserved
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)

ID187 'List of data AT'

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.

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.

Siehe ID16 'Configuration list AT' auf Seite 11.

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'

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.

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.

Siehe ID24 'Configuration list MDT' auf Seite 15..

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

ID192 'List backup data'

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.

ID262 'Initial program load command'

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.

ID265 'Language'

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

ID326 'Parameter checksum'

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.s ist ein Informationsbaustein

ID390 'Diagnostic number'

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

ID1019 'MAC address'

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:	HEX	**Current list length:***	-
List:	YES	**Max. list length:***	20

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

In ID1019 'MAC address' the MAC address of the device is displayed.

Configuration ID1019 'MAC address'

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		
3		
...		
20		

ID1020 'IP address'

Sphere of action:	GLOBAL	**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:***	-
List:	YES	**Max. list length:***	16

* The list length is the number of usage data elements without 2 byte head elements.

ID1020 'IP address' sets the IP address.

Configuration ID1020 'IP address'

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		
3		
...		
16		

ID1021 'Subnet mask'

Sphere of action:	GLOBAL	**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:***	-
List:	YES	**Max. list length:***	16

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

ID1021 'Subnet mask' sets the Subnet mask.

Configuration ID1021 'Subnet mask'

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		
3		
...		
16		

ID1022 'Gateway address'

Sphere of action:	GLOBAL	**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:***	-
List:	YES	**Max. list length:***	16

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

ID1022 'Gateway address' sets the Gateway address.

Configuration ID1022 'Gateway address'

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		
3		
...		
16		

ID32795 'Source UE'

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
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
8	UE automatically derived from SBM	The UE signal is automatically derived from the state of SBM.
25	UE via fieldbus AND-linked with the binary input UE	like code 5 but AND-linked with the binary input UE

Changes in ID32795 'Source UE' are first effective with the next system start-up (mains OFF / ON). The command ID33730 'System booting' is not sufficient.

ID32798 'User list 1'

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''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		

ID32821 'Password'

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.'

ID32836 'DC bus voltage'

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'

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. (Typically 385 VDC)
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.)

ID32840 'Diagnostic list'

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 KE(N,S)-xEx /

Max. list length: 560

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

ID32864 'Address output port 3'

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		

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 'Address 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

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:
   Siehe Codes for the configuration of the binary outputs auf Seite 56.
   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 'Address output port 3'	Binary output[1)]	Function assignment[2)]	Image[3)]
0	BA1	ID32865 =	ID34120 Bit 0
	BA2	ID32866 =	ID34120 Bit 1
	BA3	ID32867 =	ID34120 Bit 2

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'.

ID32865 'Port 3 Bit 0'

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 KE(N,S)-xEx /

Binary output default value:	33029 (SRM)

Siehe ID32864 'Address output port 3' auf Seite 33.

ID32866 'Port 3 Bit 1'

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 KE(N,S)-xEx /

Binary output default value:	33030 (QUE)

Siehe ID32864 'Address output port 3' auf Seite 33.

ID32867 'Port 3 Bit 2'

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 KE(N,S)-xEx /

Default value:	0

Siehe ID32864 'Address output port 3' auf Seite 33.

ID32868 'Port 3 Bit 3'

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		

Siehe ID32864 'Address output port 3' auf Seite 33.

ID32901 'Global service bits'

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 KE(N,S)-xEx /

Default value:	0000 0000 0000 0000 (LSB)

Configuration ID32901 'Global service bits'

Bit no.	Condition	Meaning
0	0	Mains monitoring ON
	1	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	Reserved
	1	Reserved
4	0	Regeneration active with signal QUE
	1	Regeneration inactive
5	0	Reserved
	1	Reserved
6	0	Reserved
	1	Reserved
7	0	Reserved
	1	A test current is generated on the output BA3 at low condition (BA3 = 0) to exclude cable breakage. Only after an edge change a fault is outputted. In high condition (BA3 = 1) the current is monitored to ≠ 0. If one of these conditions failed the error message 1100 is generated. Reserved
8	0	Reserved
	1	Reserved
9	0	DC bus is discharged via external brake resistor after SBM withdrawal
	1	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	Prerequisite: Bit 9 = 1 DC bus is not discharged, even after additional UE withdrawal
	1	Prerequisite: Bit 9 = 1 DC bus is discharged via an external brake resistor in the event of UE withdrawal
11	0	Reserved
	1	Reserved
12	0	Reserved
	1	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	Reserved
	1	Reserved
18-32	0	Reserved
	1	Reserved

ID32913 'Clear error'

Sphere of action:	GLOBAL / FORMAL	**Default value:**	0
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.

ID32938 'Customer variable 1'

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.

ID32942 'Service control'

Reserved for AMK internal use!

ID32944 'SYADR'

Reserved for AMK internal use!

ID32945 'List parameter set'

Reserved for AMK internal use!

ID32977 'Address input port 3'

Sphere of action:	GLOBAL	**Default value:**	32
Access:	READING	**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	BE1	ID32978	ID34100 Bit 0
	BE2	ID32979	ID34100 Bit 1

1) The availability of physical binary inputs depends on the hardware used.
2) Functions can be assigned to the binary inputs:
Siehe Codes for the configuration of the binary inputs auf Seite 56.
3) A controller can read the statuses of binary inputs with ID34100 'Binary input word'.

ID32978 'Port 3 Bit 0'

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 KE(N,S)-xEx /

Digital input default value:	32903 (UE)

Digital input functions of the converter can be assigned to the digital input port 3 (bit 0) and the status of the input can be evaluated via the plc. ID32977 'Address input port 3' determines which physical digital inputs the input port maps.

Siehe ID32977 'Address input port 3' auf Seite 37.

ID32979 'Port 3 Bit 1'

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 KE(N,S)-xEx /

Digital input default value:	32913 (FL)

Digital input functions of the converter can be assigned to the digital input port 3 (bit 1) and the status of the input can be evaluated via the plc. ID32977 'Address input port 3' determines which physical digital inputs the input port maps.

Siehe ID32977 'Address input port 3' auf Seite 37.

ID32988 'Delay software reset'

Sphere of action:	GLOBAL	**Default value:**	1000
Access:	READING / WRITING	**Scale:**	1
Temporarily changeable:	NO	**Unit:**	ms
Data length:	2 byte	**Min. value:**	0
Signed:	NO	**Max. value:**	65535
Format:	DEC		
List:	NO		

After a firmware update or parameter download, a software reset is executed automatically when switching from the bus status BOOT to bus status INIT.

The software reset can be delayed with ID32988 'Delay software reset'.

ID32999 'Overload limit inverter'

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.

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.

ID33101 'Display overload inverter'

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		

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%

Siehe ID32999 'Overload limit inverter' auf Seite 38.

ID33116 'Temperature internal'

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). The triggering thresholds are device-specific, are set in the SEEP at the factory and cannot be changed by the user.

If critical temperatures occur for the devices, the warning 2350 'Device temperature warning' is generated as well as the error message 2346 'Converter temperature error' after the warning time[1)] (ID32943) has expired.

1) The warning time is 4 seconds and cannot be changed by the user.

ID33123 'VBNX'

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:	BIN		
List:	NO		

Extended mains phase failure signal VBNX to trigger an UPS. (extend the display of a mains failure)

The signal VBNX is generated from the internal BNX signal. Short mains voltage failure <100 ms are displayed. Even the mains voltage failure disappears the VBNX signal is set at least for 22 ms.

ID33173 'Rated frequency'

Reserved for AMK internal use!

ID33175 'List glitch filter time'

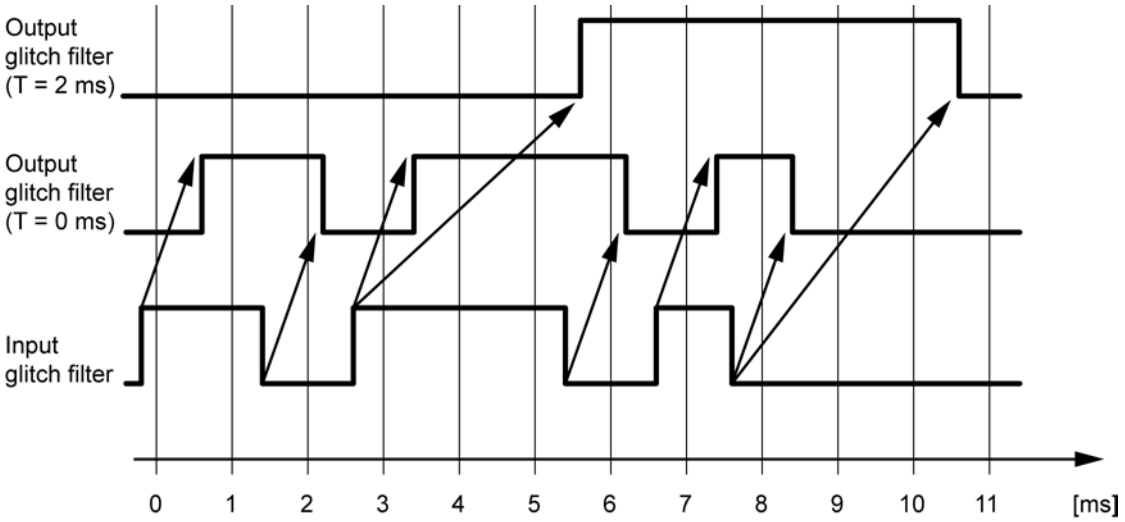
Sphere of action:	GLOBAL	**Default value:**	0
Access:	READING / WRITING	**Scale:**	1
Temporarily changeable:	YES	**Unit:**	-
Data length:	2 byte/element	**Min. value:**	-
Signed:	NO	**Max. value:**	-
Format:	DEC	**Current list length:***	-
List:	YES	**Maximum list length:***	24

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

The glitch filter filters out misstate binary signals. For each input a time can be parameterized, how long the signal state must be constant before the signal will pass the filter and can be evaluated.

Example:

If the glitch filter time is parameterized to value 2, the signal state of this input must be constant at least 2 ms, before the signal will pass the filter and can be evaluated. If the input signal changes the state e.g. for 1 ms this signal change will not pass the glitch filter.



The glitch filter effects next behind the binary input for both directions. Positive and negative edge is not differentiated. For inputs parameterized as measuring inputs (probe function) the glitch filters have no function, no diagnosis message is generated.

Configuration ID33175 'List glitch filter time'

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	Adjustable glitch filter time for each binary input: range of values: 1-100 [ms]	BI 1 Port 3, binary input device [1)]
3		BI 1 Port 3, binary input device [1)]
4		BI 1 Port 3, binary input device [1)]
5		BI 1 Port 3, binary input device [1)]
6		BI 1 Port 3, binary input device [1)]
7		Reserved
8		Reserved
9		Reserved
10		I1 port 1, binary input option [1)]
11		I2 port 1, binary input option [1)]
12		I3 port 1, binary input option [1)]
13		I4 port 1, binary input option [1)]
14		I5 port 1, binary input option [1)]
15		I6 port 1, binary input option [1)]
16		I7 port 1, binary input option [1)]
17		I8 port 1, binary input option [1)]
18		I9 port 1, binary input option [1)]
19		I10 port 1, binary input option [1)]
20		I11 port 1, binary input option [1)]
21		I12 port 1, binary input option [1)]
22		Reserved
23		Reserved
24		Reserved
25		Reserved

z = Maximum list length

1) The availability depends on the device type

ID33308 'Output mask'

Reserved for AMK internal use!

ID33730 'System booting'

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 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
0x3	Command complete
0x7	Command currently active
0xF	Command completed with error

The command is completed after the status is 0x3 or 0xF.

ID33732 'System reset'

Reserved for AMK internal use!

ID34023 'BUS address participant'

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 KE(N,S)-xEx / Default value:

Instance	Use	Interface	Default value	Meaning
0	EtherCAT slave	X85 (IN) / X86 (OUT)	0	No address assigned

ID34023 specifies the participant address in the bus system.

ID34025 'BUS mode'

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		

The 'BUS mode' defines the fieldbus-specific supported functionality.

Values for KE(N,S)-xEx /

Default value:

Instance	Use	Interface	Default value	Meaning
0	EtherCAT slave	X85 (IN) / X86 (OUT)	0000	See table 1)

1)

Bit	Value	Meaning
0	0	Reserved
	1	Reserved
1	0	Reserved
	1	Reserved
2	0	DHCP not active
	1	DHCP active
3	0	Reserved
	1	Reserved
4	0	Reserved
	1	Reserved
5-14		Reserved
15	0	Reserved
	1	Reserved

ID34026 'BUS mode attribute'

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		

ID34026 'BUS mode attribute' defines the fieldbus-specific supported functionality.
Adjustable tolerance at fail telegrams in the bus:

The monitoring of fail telegrams is complete inactive, if ID34027 'BUS failure character' instance 1 < 2 is parameterized

At fail telegram the position setpoint is interpolated further on with the last valid position increase or with the actual speed setpoint.

Configuration ID34026 'BUS mode attribute' -- instance 1 - EtherCAT slave X85 / X86

Bit no.	Condition	Meaning
0-7	0	Only 1 telegram failure (missing telegram) is tolerated before an error message is generated (default)
	1...255	Number of tolerated telegram failures (missing telegrams) before an error message is generated
8	0	Monitoring for telegram and synchronisation failure active, after 'operational' bus status is reached.
	1	Monitoring for telegram and synchronisation failure active, after QRF (for KW) / QUE (for KE) is reached
9-15	0	Reserved
	1	Reserved

Fail telegramms are counted in ID28 'MST error counter'.

ID34027 'BUS failure character'

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

The 'BUS failure character' defines the behavior of a slave bus participant in the event of a failure of the fieldbus and affects with the following diagnostic messages:

ACC Bus: 2685,2686, 2691, 2693, 2694

EtherCAT / VARAN: 2561, 2595

The following error class is displayed:

ACC:128

EtherCAT / VARAN: 2048

Tolerance at fail telegrams: Siehe ID34026 'BUS mode attribute' auf Seite 42.

Configuration ID34027 'BUS failure character'

Code	Designation	Description
0	-	No response
1	-	Warning message The system remains active, warning message is generated
2	-	Error message, SBM is withdrawn DC bus ON (UE) is withdrawn internally, error message is generated
11	-	
12	-	

1) This parameter is used by the following function:
'Drive moves into parking position'

ID34039 'OSC Control'

Reserved for AMK internal use!

ID34040 'OSC configuration list'

Reserved for AMK internal use!

ID34041 'OSC actual values'

Reserved for AMK internal use!

ID34042 'OSC data list'

Reserved for AMK internal use!

ID34048 'PWM frequency'

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.

ID34058 'Line output'

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.

Siehe 'ID34059 'Time filter line'' auf Seite 44.

ID34059 'Time filter line'

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.

Siehe 'ID34058 'Line output'' auf Seite 44.

ID34060 'List SEEP 1'

Reserved for AMK internal use!

ID34061 'List SEEP 2'

Reserved for AMK internal use!

ID34062 'Fault statistics'

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.

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
5	n	Overload i^2t
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'

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.

ID34071 'System name'

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:***	Device-specific values

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

Any name can be assigned to the device in ID34071. This may consist of a maximum of 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		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
...	...	...
z+1		Last character of the system name

z = Maximum list length

ID34088 'Event trace'

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 KE(N,S)-xEx /

Max. list length:*	1280

The 'Event trace' is organized 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

Siehe 'ID34171 'Event filter'' auf Seite 49.

ID34100 'Binary input word'

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' is the image of the binary inputs of the input port 3 (ID32977 'Address input port 3').
Siehe ID32977 'Address input port 3' auf Seite 37.

ID34117 'OSC configuration list 2'

Reserved for AMK internal use!

ID34120 'Binary output word'

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 from the output port 3 (ID32864 'Address output port 3').
Siehe ID32864 'Address output port 3' auf Seite 33.

ID34144 'Nominal voltage effective'

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'

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' zeigt den Effektivwert des Netzstroms an.

ID34146 'Memory address'

Reserved for AMK internal use!

ID34147 'Memory data'

Reserved for AMK internal use!

ID34170 'Setpoint DC bus voltage'

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:

minimum setpoint = UZK_min = $\sqrt{2} * U_{\text{external conductor}} + 25$ V

maximum setpoint = 720 V

Equation for the minimum setpoint of the DC bus: UZK_min = $\sqrt{2} * U_{\text{external conductor}} + 25$ V

for 3x 400 VAC: UZK_min 590 VDC.

for 3x 480 VAC: UZK_min 704 VDC.

Depending on ID34170, 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'

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

Siehe ID34088 'Event trace' auf Seite 46.

ID34193 'Nominal current external component'

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 ID112 'Converter nominal current'.

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'

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 ID110 'Converter peak current'.

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'

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 10s.

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.

ID34196 'Treshold external component'

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 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.

ID34197 'Display external component'

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'

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

ID34202 'Bit mask port 3'

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 'Address output port 3' = 0
ID32865 'Port 3 Bit 0' = 0 (BA1)
ID32866 'Port 3 Bit 1' = 0 (BA2)
ID32867 'Port 3 Bit 2' = 0 (BA3)
ID32868 'Port 3 Bit 3' = 0 (BA4) ...

ID34206 'Product code'

Reserved for AMK internal use!

ID34207 'DC gain KP'

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'

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'

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

ID34217 'AMK Test 1'

Reserved for AMK internal use!

ID34218 'AMK Test 2'

Reserved for AMK internal use!

ID34219 'AMK Test 3'

Reserved for AMK internal use!

ID34220 'AMK Test 4'

Reserved for AMK internal use!

ID34227 'Motion control bits'

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 KES-xEx (not for KE(N)_xEx) /

Configuration ID34227 'Motion control bits'

Bit no.	Condition	Meaning
0	0	Phasing of the PWM for the hardware sync signal = 0°
	1	Phasing of the PWM for the hardware sync signal = 180°
1-7	0	Reserved
	1	Reserved

Bit no.	Condition	Meaning
8	0	Standard device
	1	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 wattle' 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	0	inactive
	1	The solar inverter together with the controller solar meets the requirements according to "Technical Guideline TR3 for generator units" (e.g. Chapter 4.7, Fail safe behavior in the mains. Requirements: Bit 8 = 1!
11-15	0	Reserved
	1	Reserved

ID34230 'List Bus'

Reserved for AMK internal use!

ID34261 'Customer variable 2'

Sphere of action:	DRIVE	**Default value:**	0000
Access:	READING / WRITING	**Scale:**	1
Temporarily changeable:	NO	**Unit:**	-
Data length:	4 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.

ID34270 'Net voltage'

Reserved for AMK internal use!

ID34284 'OSC container length'

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.

ID34287 'Upper limit DC bus voltage'

Reserved for AMK internal use!

ID34288 'Lower limit DC bus voltage'

Reserved for AMK internal use!

ID34289 'Setpoint line current wattle'

Reserved for AMK internal use!

ID34290 'Upper limit line current wattless component'

Reserved for AMK internal use!

ID34291 'Lower limit line current wattless component'

Reserved for AMK internal use!

ID34292 'Upper limit line current energy component'

Reserved for AMK internal use!

ID34293 'Lower limit line current energy component'

Reserved for AMK internal use!

ID34294 'Output value DC-bus'

Reserved for AMK internal use!

ID34295 'Line frequency'

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'

Reserved for AMK internal use!

3 Appendix

3.1 Codes for the configuration of the binary outputs

Codes for the configuration of the binary outputs

Code	Designation	Description
0	Function inactive	No function assigned to the binary output
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 temperature warning'
33022	Warning: excess temperature of external components	Power supply KE(N,S): Brake resistor
33029	System ready message (SBM)	System ready message
33030	Acknowledgement DC bus ON (QUE)	Acknowledgement DC bus charged
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)
33076	Second cycle output	The output changes cyclically between 1 second ON and 1 second OFF
33123	VBNX	For the uninterruptible power supply triggering (extend mains failure display)
33919	'Warning: overload of external mains components'	
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.
33942	Access via plc	The output can be written by a plc controller

3.2 Codes for the configuration of the binary inputs

Codes for the configuration of the binary inputs

Code	Designation	Description
0	Function inactive	No function assigned to the binary input
32903	DC bus ON (UE)	Charge DC bus
32913	Clear error (FL)	Existing errors in the drive are reset
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.

Glossary

A

AIPEX
AMK startup and parameterizing software (PC software): Programming, parameterization, configuration, diagnosis, oscilloscope, status information

ASCII
American Standard Code for Information Interchange

AT
Drive telegram from slave to master

B

BIN
Binary (digital)

D

DRIVE
Drive-specific parameter (Value is valid inside only one parameter set)

DEZ
Decimal

DI
Digital input

DO
Digital output

Default
Factory setting

E

EF
Power output stage enable

EF2
Power output stage enable

EtherCAT
Real-time Ethernet bus

F

FL
Command (Causes a new system run-up)

FORMAL
Formal parameter

Formal parameter
Formal parameters don't have remanent values in parameter handling

Firmware
System software, loaded by AMK

G

GLOBAL
Global parameter; valid for all parameter sets

H

HEX
Hexadecimal, 0x...

I

i^2t
Integral of the squared current over time

ID
Parameter identification numbers acc. to SERCOS Standard

IGBT
Power electronic component, e. g. transistor

Instance
Parameters, depending on the fieldbus, are instanced. For each bus, different values can be parameterized (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)

K

KW
AMKASYN compact inverter

KES
AMKASYN compact power supply with sinusoidal voltage and current

KE
AMKASYN compact power supply with recovery

KP
Proportional gain (speed control, PID controller)

L

LSB
Least Significant Bit

M

MDT
Master Data Telegram from master to slave

MPP
Maximum Power Point

MSB
Most Significant Bit

MST
Master synchronization telegram

O

OSC
Oscilloscope

P

Parameter
Identification number acc. to SERCOS standard

PDK_xxxxxx_abcdefgh
Product documentation; xxxxxx - AMK part no. , abcdefgh - name

PWM
Pulse width modulation

Q

QRF
Acknowledgment controller enable; the drive is controlled in the activated operation mode

QUE
Acknowledgment DC bus on; shows that DC bus is loaded

S

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

SERCOS
Standardized digital interface for communication between controller and field bus participants.

T

Td
Differentiating time in speed control (PID controller)

Tn
Integral-action time in speed control (PID controller)

U

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.

UPS
Uninterruptible power supply

V

VBNX
Extended mains phase failure signal VBNX to trigger an UPS

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That is why we are now working on optimizing our documentation.
Your comments or suggestions are always of interest to us.
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1. How would you rate the layout of our AMKmotion documentation?

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2. Is the content structured well?

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