AMK
Diagnostic Messages

Version: 2013/36
Part-no.: 25786
Translation of the "Original Beschreibung"

Notes on this document

Name: PDK_025786_Diagnose

Version:

Version	Change	Letter symbol
2013/36	iX V1.03 2013/18: 1115, 1454, 2365	HeF

previous version: 2013/17

Product version:

Product	Firmware Version (AMK part-no.)	Hardware Version
iC iX i3X iDT5	V1.03 2013/18 (204515)	
KW-R03 KU-R03 KW-R04	AE-R03 V3.21 2011/49 (204379)	
KW-R03P KU-R03P	AE-R03P V5.21 2011/49 (204380)	
KW-R05 KW-R06 KW-R16	AE-R05/06 V1.10 2012/51 (204395)	
AE-SF1	AE-SF1 V1.03 2013/11 (204434)	
MCE-R06 (KW-R06)	MCE V1.09 2012/42 (204237)	
KWZ (-EC)	KWZ V1.06 2010/30 (203167)	
KE, KEN, KES	KE-E03 V3.04 2013/03 (204405)	
KEx-0EU	KE-E10 V4.00 2012/17 (204105)	
IDT4	IDT V2.07 2011/35 (203697)	IDT-R1 / -R2
A5S A5D	A5 V4.10 2013/06 (204418)	
A4S A4D	A4 V4.10 2013/06 (204417)	
AS-C AS-PL15 AS-P	AS V3.16 2013/05 (204420)	
AZ	AZ V3.13 06/20 /201362)	AZ-R02
AW	AW V2.13 07/07 (201657)	AE-VE01 / -VE02

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Publisher: AMK Arnold Müller Antriebs- und Steuerungstechnik GmbH & Co. KG
Gaußstraße 37 – 39,
73230 Kirchheim/Teck
Tel: 07021/5005-0,
Fax: 07021/5005-176
E-Mail: info@amk-antriebe.de
Dr.h.c. Arnold Müller, Eberhard A.Müller, Dr. Günther Vogt
Registration court Stuttgart HRB 231283; HRA 230681

Service: Tel. no. +49/(0)7021 / 5005-191, Fax -193
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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)

Internet address: www.amk-antriebe.de

Content

1 Abbreviations

AFP	AMK field bus protocol
AIPAR	AMKASYN startup parameterizing software
AW	AMKASYN inverter
AZ	AZ computer (central drive computer)
AZ-EA24	EA24 option card (binary input/output card)
AZ-EA8	EA8 option card (binary input/output card)
AZ-MC1	NC option card
AZ-PSx	Programmable control option card
AZ-R01	AZ computer (board designation)
AZB	AZ control panel
AZSSINT	AZ system-internal interface for users such as AZ-PSx, AZ-MC1, …
BA	Operation mode
BAV	Operation mode management
DA	Digital output
DEALLOC	Memory enable
DTH	Database
DZR	Speed control
ES1, ES2	Main contactor interruption
FL	Delete error
HW	Hardware
I_M	Magnetizing current
I_{MAX}	Inverter maximum current
I_N	Nominal current
IPO	Interpolator
KE	Compact power supply Series KE/KW
KMD	Commanding
KMD-SS	Commanding interface
KU	Compact inverter
KW	Compact inverter series KE/KW
LIW	Feedback position value
LT	Logical participant
MNU	Menu on AZ control panel
MON	Monitor (AW or KU)
n	Speed
$n_{feedback}$	Feedback speed
NMT	Network management
n_N	Nominal speed
$n_{command}$	Command speed
OPT	Option slot
OWG	Optical waveguide
PEEP	Parallel EEPROM
PDO	Process data object
PS	Programmable control unit
PTC	PTC resistor
QRF	Controller enable acknowledgement
QUE	Inverter on acknowledgement
RF	Controller enable
RM	Motor with integrated frequency inverter
RPDO	Remote process data object

SBM/SBT	Group ready message
SBUS	AMK-specific protocol for serial interfaces
SDO	Service data object
SEEP	Serial EEPROM
T	Temperature or time period
t	Time
UA1	Analog command value voltage for AW analog input A1
ub_basync	Bit block for controlling the command value synchronization in the drive
UE	Inverter On
UZN	DC bus voltage pole negative
UZP	DC bus voltage pole positive
VA	Volt ampere
x_s	Position command value
ZWR	Central inverter
03h	3 hexadecimal

2 Overview

Operating faults are reported in the following ways:

- Group ready message signal (SBM, SBT) is withdrawn, no operational readiness
- Diagnostic message on the control panel
- Diagnostic message by PC program through serial interface (SBUS protocol)
- Internal diagnostic message with access possibility through e.g. AZ-PSx or AZ-MCx, AFP
- Output of bit information through binary outputs (e.g. SBM or warning bit)

Further diagnostic information can be read in different ways:

- Plain language message on the control panel after calling up the DIAGNOSTICS menu item
- Contents of the internal diagnostic stack are displayed on the control panel
- Request of the diagnostic stack by PC through serial interface (SBUS protocol)
- “Clocking out” the diagnostic code through binary outputs DA1 … DA4 by a higher-level control system (only for AZ)

System initialization, error deletion, display of messages

The following events lead to basic initialization of the converter system:

- First energization of the converter
- Error deletion on lack of group ready message
- Permanent data change with following activation of the controller enable

After each system initialization the intact converter system goes into the “Operational readiness” state. Starting from this state, all system functions can be used without restriction.
Messages with error character are displayed immediately on the control panel with the information for diagnosis. The characteristic of the drive can differ very much in this regard and one must refer to the following table for the concrete case. If the same messages with different diagnostic numbers arise, then the cause must be found in different sources. Messages with information character or warnings are not displayed automatically on the control panel. But these can be selected through the DIAGNOSTICS menu item on the control panel and can be deleted only by “Error deletion”.

“See description” or “System diagnostics” message

The drive system reports internal states which cannot be influenced parametrically by the user with a number and the above text.
If this message appears in operation, please inform the AMK service (telephone: +49 (0) 70 21/50 05 - 191) and notify the associated number and the additional information which appears on pressing the F2 key on the control panel. For further information see “Clocking out the diagnostic message”.
If parameters are referred to in this description (e.g. see ID 110), then for information refer to the AMKASYN Parameter Documentation.

“NO COMMUNICATION” message

If the physical connection between the unit and control panel is disturbed, this message is generated autonomously by the control panel (check cable or control panel).

3 Meaning of the diagnostic messages

Message classes:

- Warning message
  Warning messages do not influence the drive behaviour.
- Warning message with following reaction
  After the warning time is over (4 seconds after the warning message was generated) the drive generates e.g. an error message and withdrawal SBM.
- Error

Drive Behaviour:

- Coasting
  Drive runs down
- Braking
  Controlled braking of all drives with ramp down time according to ID 32782.

Device Behaviour:

- System run-up aborted
  The system run-up could not be finished successfully. The “system ready message” is not set. Please check the wiring and the parameter setting.
- Disconnection from the power net
  The KE stops the excitation of the main contactor. Then the main contactor opens and disconnects the KE from the power supply. Depending on the device the main contactor is integrated into the KE or connected as a external component.
- Single treatment (only for AN/AZ/AW system)
  Single treatment of the faulty drive is possible according to "ID32796 Source RF".
- Automatic error reset and switch back on
  Behaviour of central inverter; see document 'PDK_203346_ZWR'

4 Diagnostic Messages (Numeric Order)

4.1 No. 257 ... 260 Control Panel

257 System diagnostics

• SBM withdrawal			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Default in MNU
Error removal	System OFF/ON (HW reset)		

258 Leave RF active

• The controller enable was withdrawn, (e.g. RF withdrawal during inching mode of an axis)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	RF must remain absolutely set at the commanded function		

259 System diagnostics

• SBM withdrawal			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Deallocation of MNU out of function
Error removal	System OFF/ON (HW reset)		

4.2 No. 512 ... 525 Monitor

514 System diagnostics

• Check parallel EEPROM on the control board			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Timeout MON PEEP
Error removal			

515 System diagnostics

• Check parallel EEPROM on the control board			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			PEEP handshake
Error removal			

516 System diagnostics

• Check AZ(X27)-AW(X57)-BUS			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Timeout AW MON
Error removal	Is the AW module connected correctly?		

517 System diagnostics

• Check AZ(X27)-AW(X57)-BUS			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			AW-MON handshake
Error removal	Is the AW module connected correctly?		

518 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible monitor order
Error removal			

519 System diagnostics

• SEEP in the inverter cannot be addressed			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Timeout MON SEEPDRV
Error removal			

520 System diagnostics

• SEEP in the inverter cannot be addressed			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			SEEP DRV handshake
Error removal			

521 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

4.3 No. 768 ... 799 Database

770 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible state DTH
Error removal			

771 System diagnostics

• Check parallel EEPROM on the control board			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Timeout PEEP
Error removal			

772 System diagnostics

• Check parallel EEPROM on the control board			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Handshake PEEP
Error removal			

773 System diagnostics

• Inadmissible database order			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

774 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DEALLOC faulty
Error removal	System OFF/ON, (HW reset)		

775 System diagnostics

• ID not supported			
Device	KE		
• Warning: ID access faulty on read or write			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

776 System diagnostics

• It was attempted to use a parameter set which was not reserved for the inverter.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32813 ... ID32820 Parameterser assignment 1 ... 8		

777 System diagnostics

• Check parallel EEPROM on the control board			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Overflow PEEP
Error removal			

778 System diagnostics

• The attribute of the selected data block is wrong			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

779 System diagnostics

• The maximum value of the last changed parameter was exceeded			
Device	KE		
• Maximum value was exceeded Value of ID34170, 'Setpoint DC bus voltage', is higher than 720 VDC			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

780 System diagnostics

• The minimum value of the last changed parameter was not reached			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

781 System diagnostics

• It was attempted to write a list which can only be read			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

4.4 No. 1024 ... 1119 Central Computer, Hardware

1024 System diagnostics

• System fault in the control board area			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible state in AZ graph
Error removal			

1025 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Default in MNUData error in the serial EEPROM of the control board (only AZ SEEP). The checksum is checked during system initialization (configurable through ID 32901)
Error removal	Recheck parameter: • ID32901 Global service bits		

1026 System diagnostics

• Error on writing the serial EEPROM			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1027 System diagnostics

• Data error in the EPROM • The checksum is checked during system initialization			
Device	KE		
• Checksum flash memory			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1028 System diagnostics

• RAM memory error, is checked during system initialization			
Device	**Controller AS**		
• RAM memory error option module (Info: option place 1 or instance)			
Device	**KE**		
• RAM memory error			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1029 System diagnostics

• Data error in the parallel EEPROM • The checksum is checked during system initialization			
Device	**AZ**		
• Check can be switched on/off through ID 32901			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1030 System diagnostics

• Error on writing the parallel EEPROM			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1031 System diagnostics

• Control panel does not report on initialization			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	• System run-up aborted • The serial interface to the control panel is switched over automatically to SBUS protocol		
Additional Error Information (AMK Service)			
Error removal			

1032 System diagnostics

• Reception error from the serial interface 1			
Device	**AZ**		
• Overrun, parity, see AZ-R01 serial interface X77			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1033 System diagnostics

• Reception error from the serial interface 2			
Device	**AZ**		
• Overrun, parity, see AZ-R01 serial interface X77			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1034 System diagnostics

• Time level overflow			
Device	KE		
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	1	Watchdog reset
		2	Time level overflow 62,5 µs
		3	Time level overflow 250 µs
		4	Time level overflow 500 µs
		5	Time level overflow 1 ms
		6	Time level overflow 10 ms
Error removal	• External fault, system OFF/ON, (HW reset)		

1035 System diagnostics

• Faulty system initialization, possible external fault			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Timeout BAV, no acknowledgement after 60 s
Error removal	System OFF/ON, (HW reset)		

1036 System diagnostics

• Fault			
Device	KE		
Description	Program stack overflow		
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Program stack overflow
Error removal	• System OFF/ON, (HW reset)		

1037 System diagnostics

• Fault			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			System stack overflow
Error removal	System OFF/ON, (HW reset)		

1038 System diagnostics

• Fault			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			System stack underflow
Error removal	System OFF/ON, (HW reset)		

1039 System diagnostics

• Faulty memory access of the processor. Software reset is triggered. The error is displayed in the following initialization			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	System OFF/ON, (HW reset)		

1041 External Line Over Temperature

• Occurs after end of a warning time as consequence of the warning 1074 • The fan still runs on for 60 s after withdrawing the controller enable			
Device	**AZ**		
• Temperature error AZ • Occurs after end of the warning time as consequence of the 4 warnings 1073, 1074, 1075, 1076			
Description			
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

Device	**KE**		
Description			
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	0	Over-temperature braking resistor ITE intern > 1.7 V, ITE (analogue, HW)
Error removal			

• Over temperature mains filter / transformer inverter (n)	
Device	**ZWR**
Description	Over temperature mains filter -Y1 or / and transformer -T1
Class	Error
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Check mains filter -Y1 • Check transformer -T1 • Check cooling system • Check fan of mains filter • Check wiring

1042 'Mains phase fault'

• Mains failure of one or several phases (external fuse) • External fuse defective (failure >= 100 ms)	
Device	**AZ**
Description	
Class	Error
Drive Behaviour	Controlled braking
Device Behaviour	
Additional Error Information (AMK Service)	
Error removal	• E loop ES1-ES2 separated (possibly EMERGENCY OFF) • Fuse F7 or F8 defective (new mains modules) • Check terminals X1, X6, X25, X26

Device	**KE**		
Description			
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	1	Voltage before main contactor < 75 % of the line voltage (BNX1) or within 23 ms no other switching status (i.e. three-phase mains failure) (Filtered 100 ms past UE = 1)
		2	Voltage before main contactor < 75 % of the line voltage (BNX2) (Filtered 100 ms past UE = 1)
		3	Error in detection of phase-sequency
		4	Error mains frequency
		5	default
Error removal	• Check terminals X01 and X20 and external wiring		

• Phase failure inverter (n)			
Device	**ZWR**		
Description	Phase failure single-phase or multi-phase in the charging circuit		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check charging circuit fuses -F7 / -F8 • Check main fuse -F1		

1043 Line Voltage Error

• Line voltage dependent on unit[1)] outside the tolerance range			
Device	**AZ**		
• Occurs after the end of the warning time (currently 4 s) as consequence of the 2 warnings 1077, 1078			
Description			
Class	Warning message, reaction of drive after 4 seconds		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

• USV voltage > 30 v			
Device	**IDT**		
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1044 No SBM

• Occurs if a system initialization was started and no group ready message was present			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Possible causes are configuration errors or hardware errors • Evaluate and remove current error through Diagnostics • Reset system with “Delete error"		

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info1	0	Hardware Error KES module without adequate KE-E0x
Error removal			

1045 'Mains overvoltage'

• Mean value of the line voltage is above 530 V (smoothing approx. 6.4 s)			
Device	**KE**		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour	• Reset of SBM System Ready • Main contactor is de-energized		
Additional Error Information (AMK Service)			
Error removal			

• Mains overvoltage inverter (n)			
Device	**ZWR**		
Description	(Mains voltage + 10 %) > ID34270 'Net voltage'		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains voltage • Check transformer -T1 • Check main contactor -K1		

1046 'Mains undervoltage'

• Mean value of the line voltage is below 350 V (smoothing approx. 6.4 s)	
Device	**KE**
Description	
Class	Error
Drive Behaviour	• Reset SBM System Ready • Main contactor is de-energized
Device Behaviour	
Additional Error Information (AMK Service)	
Error removal	Message can be deactivated by ID32901, 'Global service bits'

• Mains undervoltage inverter (n)	
Device	**ZWR**
Description	(Mains voltage - 10%) < ID34270 'Net voltage'
Class	Error
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Check mains voltage • Check transformer -T1 • Check main contactor -K1

1047 Inhibit time for UE

• The prescribed off time (see converter) for renewed switching on of the converter was not complied with. Successful “Delete error” is possible at once, inverter on (UE = 1) only after the end of the stated time	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	

• Switching frequency for converter on (UE) is too high	
Device	**KE**
Description	Twice positive edge of UE within off time (Off time depends on DC bus capacity)
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	

• Twice ON during blocking-time inverter (n)	
Device	**ZWR**
Description	
Class	Error
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Observe at least 30 s of blocking-time before switching inverter back on

1048 UE switching frequency too high

• The permissible number of maximum 10 UE switch-on processes within 10 min. was exceeded			
Device			
Description	Since firmware KE-E03 V2.01 2002/25 the off-time is monitored. Diagnostic message 1048 does not appear any longer.		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1049 'DC bus'

• DC bus error			
Device	**KE**		
Description	The charging process for the DC bus does not run correctly		
Class			
Drive Behaviour			
Device Behaviour	RF setting aborted		
Additional Error Information (AMK Service)			
	Info1	1	1.8 s past ELS1: UZ < 60 % (UE = 1)
		2	1.5 s past ELS2: UZ < 85 % (UE = 1)
		3	3 min past UE = 0: UZ > 50 V
		4, 5	Δu/Δt too small while charging
Error Removal	• Check device • Check wiring		

• DC bus error			
Device	**KU**		
Description	• At switching-on of the DC bus, voltage U_Z is not reached within time out		
Device	**KU, KW, AZ/AW**		
Description	• $U_Z < U_{Z,threshold}$ during RF active or RF setting		
Class			
Drive Behaviour	Motor brake control becomes active immediately. The brake will close independent if the motor is stopped.		
Device Behaviour	RF withdrawal		
Additional Error Information (AMK Service)			
Error Removal	• Check parameter: • ID32837 'DC bus voltage monitoring' • Check device • Check wiring		

• Fault charging DC bus inverter (n)			
Device	**ZWR**		
Description	DC bus is not charged correctly, ΔU/Δt is too small		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check inverter -U1, replace if necessary		

1050 Phase error L1

• There is an error in the AZ power feed because of a faulty connection or fuse defect			
Device			
Description			
Class			
Drive Behaviour	Motor brake control becomes active immediately. The brake will close independent if the motor is stopped.		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Line connection L1, L2 or L3 at X01 not correct • Connection L1.2, L2.2 or L3.2 at X06 or X26 not correct • Check fuse F1, F2, F3 or F4, F5, F6		

1051 Phase error L2

• There is an error in the AZ power feed because of a faulty connection or fuse defect			
Device			
Description			
Class			
Drive Behaviour	Motor brake control becomes active immediately. The brake will close independent if the motor is stopped.		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Line connection L1, L2 or L3 at X01 not correct • Connection L1.2, L2.2 or L3.2 at X06 or X26 not correct • Check fuse F1, F2, F3 or F4, F5, F6		

1052 Phase error L3

• There is an error in the AZ power feed because of a faulty connection or fuse defect			
Device			
Description			
Class			
Drive Behaviour	Motor brake control becomes active immediately. The brake will close independent if the motor is stopped.		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Line connection L1, L2 or L3 at X01 not correct • Connection L1.2, L2.2 or L3.2 at X06 or X26 not correct • Check fuse F1, F2, F3 or F4, F5, F6		

1053 Phase sequence L1/L2

• Connections of the corresponding phases are confused at the terminals	
Device	**AZ**
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	• E loop ES1-ES2 is open • Fuse F4, F5, F6 defective • Fuse F1, F2, F3 defective • No connection at X03, fan bus • Fuse F7, F8

1054 Phase sequence L1/L3

• Connections of the corresponding phases are confused at the terminals	
Device	**AZ**
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	• E loop ES1-ES2 is open • Fuse F4, F5, F6 defective • Fuse F1, F2, F3 defective • No connection at X03, fan bus • Fuse F7, F8

1055 Phase sequence L2/L3

• Connections of the corresponding phases are confused at the terminals	
Device	**AZ**
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	• E loop ES1-ES2 is open • Fuse F4, F5, F6 defective • Fuse F1, F2, F3 defective • No connection at X03, fan bus • Fuse F7, F8

1056 'Mains phase sequence L1, L2 , L3'

• Connections of the corresponding phases are confused at the terminals	
Device	**AZ**
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	• E loop ES1-ES2 is open • Fuse F4, F5, F6 defective • Fuse F1, F2, F3 defective • No connection at X03, fan bus • Fuse F7, F8

• Voltages in front and behind the main contactor are different • Phase is missing behind main contactor	
Device	**KE**
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	

• Fault main contactor inverter (n)	
Device	**ZWR**
Description	Phase sequence at the terminals -U1.X01:L1.1/L2.1/L3.1 is faulty after main contactor ON
Class	Error
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Check main contactor -K2 • Check mains filter -Y1 • Check mains choke -L2 • Check upstream mains choke -L1 • Check wiring

1057 Fault +12 V

• Internal supply voltage +12 V is outside the permitted limit	
Device	
Description	
Class	
Drive Behaviour	Drive runs down
Device Behaviour	
Additional Error Information (AMK Service)	
Error removal	

1058 Fault -12 V

• Internal supply voltage -12 V is outside the permitted limit			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1059 'DC bus overvoltage'

• DC bus exceeds permissible maximum value. Regenerative overload • Generatoric overload			
Device			
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	• Check motor parameterization • Check connection at external braking resistor		

Device	**KE**		
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			BZO (HW) from version 206 2004/37 recognition by IUZ
Error removal			

• DC bus overvoltage inverter (n)			
Device	**ZWR**		
Description	UZ > 900 V		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check voltage of PV field		

1060 Regeneration fault

• Multiple inadmissibly high currents in the regeneration branch			
Device			
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	• Loose power terminals • Power defect, check line voltage system • Read out additional info with F2 key • The diagnostic message can only be reset by power supply OFF/ON		

Device	**KE**		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Short-circuit of the mains inverter BPH (HW) Interrupt (< 10 µs) regeneration is stopped and after min. 10 ms new start attempted
		3	Wrong state of switching pattern of IGBT (SW)
		5	Switching pattern of IGBT longer than 8 ms (SW) Regeneration is stopped and after min. 10 ms new start attempted
		9	New start of regeneration impossible Error message after 3 s
Error removal	• Error can be cleared once		

• Fault line regeneration inverter (n)	
Device	**ZWR**
Description	Inadmissible high current in the regeneration path
Class	Error
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Check inverter -U1 • Retighten terminal clamps -U1.X01:L1.1/L2.1/L3.1 if necessary

1061 Braking transistor fault

• Inadmissibly high current in the braking transistor			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	• Wrong braking resistor value		

Device	**KE**
Description	

Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Reset by RBR pulse not successful (system run-up)
		2	Short circuit braking chopper, BBR (HW) (62.5 µs)
		3	Braking transistor does not switch off (62.5 µs)
Error removal	• Error can be cleared once		

1062 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, DRV -> GRF at BAV faulty
Error removal			

1063 Encoder Signal

• Encoder monitoring has responded			
Device			
Description	• The signals of the connected encoder are not correct • Power supply of the motor will be disconnected		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, Err Sgrf, system graph
	Info 1	8	IDT-B-encoder - Timeout for the command “Enter deep low power mode” Faulty activating "sleep mode"
Error removal			

Device	**KW-R03** **IDT4**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	12	Info 12: Timeout SGRF → ACC-BUS can not be switched to “operational mode” (Master not available or BUS disturbed)
Error removal			

Device	**KW-R05, -R06, -R07** **IDT5** **KE10-VARAN**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	13	IDT-C-encoder cannot be initialised
Error removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	Wrong state S-graph
		1	Timeout 2 s checksum
		2	Wrong state checksum
		3	Timeout 2 s wait
		4	Wrong state wait
		5	Timeout 2 s Set_Bus
		6	Timeout 2 s SetIDParam
		8	Timeout 2 s SetSEEP1Param
		9	Timeout 2 s SetCountParam
		17	Error in diagnostics (subsequent error)
		18	No acknowledgement from diagnosis 1 ms task and 10 ms task after 2 s (timeout)
Error removal			

1064 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Controlled Braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, Err Rgrf, controller enable graph
Error removal	• In KW modules with internal overvoltage protection and brake device test the wiring between X133 and X19		

1065 System diagnostics

• QUE missing on RF activation			
Device			
Description			
Class			
Drive Behaviour	Motor brake control becomes active immediately. The brake will close independent if the motor is stopped		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check main contactor activation • Recheck parameter: • ID32837 DC-bus monitoring		

1066 System diagnostics

Device	**KU, KW, RM**		
• Motor energization not possible			
Device	**AZ, KE**		
• DC bus undervoltage			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, DRV -> AW module faulty, BES missing
Error removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	DC bus voltage about 13 % of max. mains voltage (62.5 µs) (Function active up to SW KER3_205_0406_200417)
		1	Comparison between DC bus voltage and ID32837, 'DC bus voltage monitoring' Probe value of DC bus voltage is filtered by PT1 (100 ms)
Error removal	Info1 = 0: Error can be cleared once		

• DC bus undervoltage inverter (n)	
Device	**ZWR**
Description	DC bus voltage about 13 % of max. mains voltage
Class	Warning
Device Behaviour	Automatic error reset and switch back on
Additional Error Information (AMK Service)	
Error Removal	• Check DC bus • Check PV field

1067 System diagnostics

• Fault DC bus			
Device	**KU**		
• BES missing in KU 14 • External DC bus choke missing			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, DRV -> AW module faulty, BES missing
Error removal			

1068 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, Timeout Err Bgrf
Error removal			

Device	**KE**		
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	Wrong state U-graph
Error removal			

1069 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Consequential error, Timeout-Err Rgrf
Error removal			

1070 System diagnostics

• FL not possible (timeout 20 s)			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1071 System diagnostics

• Brake acknowledgement does not correspond to the expected value • Plausibility monitoring ID 32773. 13=1 is active			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
			Special lift function "ID32955 Delay time"

Error removal	• Wire break Inverter / Brake
	• Brake defect
	• Recheck parameters:
	  • ID206 Drive on delay time
	  • ID207 Drive off delay time		

1072 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
			Contactor shutdown monitoring in special lift function
Error removal			

1073 Cooling Air Temperature Warning

• The air inlet temperature is more than 45 °C			
Device	**AZ**		
Description	The drive withdraws SBM and switches off after 4 s and shows message "1041 External Line Over Temperature"		
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1074 External line component temperature warning

• The temperature acquisition at the braking resistor has responded (PTC resistor > 600 ohms).			
Device			
Description	The system is transferred after 4 s into error "1041 External Line Over Temperature" after the end of the warning time		
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

Device	**KE**

Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	ITE (HW), ITE intern > 1.7 V
Error removal			

1075 Power supply unit temperature warning

• AZ switching power supply unit thermally overloaded ($T_{cooling\ circuit}$ > 70 °C) • Fan on the AZ module does not run	
Device	
Description	
Class	Warning message, reaction of the drive after 4 seconds
Drive Behaviour	
Device Behaviour	
Additional Error Information (AMK Service)	
Error removal	

1076 Feed / Regeneration Temperature Warning

• AZ module thermal overload ($T_{cooling\ circuit}$ > 70 °C) • Fan on the AZ module does not run	
Device	
Description	
Class	Warning message, reaction of the drive after 4 seconds
Drive Behaviour	
Device Behaviour	
Additional Error Information (AMK Service)	
Error removal	

1077 Line Voltage Warning

Device	
Description	The system is transferred after 4 s into error "1043 Line Voltage Error" after the end of the warning time
Class	Warning message, reaction of the drive after 4 seconds
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	

1078 Line undervoltage warning

Device			
Description	The system is transferred after 4 s into error "1043 Line Voltage Error" after the end of the warning time		
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour	SBM is withdrawn		
Additional Error Information (AMK Service)			
Error removal			

1079 System diagnostics

• All square wave encoder breakage messages are displayed only with active encoder breaking monitoring			
Device	**AZ**		
• "ID32773 Service bits": bit 0 • "ID32901 Global Service bits": bit 4			
Device	**KU, KW**		
• "ID32773 Service bits": bit 0 and bit 12 • The message is displayed only in an operation mode with activated external source of the actual position value ("ID32800 AMK main operating mode": bit 14 / 15 = 0!)			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1080 OPTION 1 cf. description

• Encoder line break analysis on option card, input 1 slot 1			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1081 OPTION 1 cf. description

• Encoder line break analysis on option card, input 2 slot 1			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1082 OPTION 1 cf. description

• Encoder line break analysis on option card, input 3 slot 1			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1083 OPTION 1 cf. description

• Encoder line break analysis on option card, input 4 slot 1			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1084 OPTION 2 cf. description

• Encoder line break analysis on option card, input 1 slot 2			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1085 OPTION 2 cf. description

• Encoder line break analysis on option card, input 2 slot 2			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1086 OPTION 2 cf. description

• Encoder line break analysis on option card, input 3 slot 2			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1087 OPTION 2 cf. description

• Encoder line break analysis on option card, input 4 slot 2			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1088 OPTION 3 cf. description

• Encoder line break analysis on option card, input 1 slot 3			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1089 OPTION 3 cf. description

• Encoder line break analysis on option card, input 2 slot 3			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1090 OPTION 3 cf. description

• Encoder line break analysis on option card, input 3 slot 3	
Device	
Description	
Class	
Drive Behaviour	Controlled braking

Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1091 OPTION 3 cf. description

• Encoder line break analysis on option card, input 4 slot 3			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1092 OPTION 4 cf. description

• Encoder line break analysis on option card, input 1 slot 4			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1093 OPTION 4 cf. description

• Encoder line break analysis on option card, input 2 slot 4			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1094 OPTION 4 cf. description

• Encoder line break analysis on option card, input 3 slot 4			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1095 OPTION 4 cf. description

• Encoder line break analysis on option card, input 4 slot 4			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1096 OPTION 1 cf description

• Short-circuit/overload of the outputs option card, slot 1 (e.g. AZ-EA8 or AZ-EA24) • Watchdog option error			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1097 OPTION 2 cf. description

• Short-circuit / overload of the outputs option card, slot 2 (e.g. AZ-EA8 or AZ-EA24) • Active option card error (HS), see ID 32901			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1098 OPTION 3 cf. description

• Short-circuit/overload of the outputs option card, slot 3 (e.g. AZ-EA8 or AZ-EA24) • Active option card error (HS), see ID 32901			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1099 OPTION 4 cf. description

• Short-circuit/overload of the outputs option card, slot 4 (e.g. AZ-EA8 or AZ-EA24) • Active option card error (HS), see ID 32901			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1100 System diagnostics

• Short-circuit / overload digital outputs	
Device	iX, iC, iDT5, iDP7
Description	
Class	Error
Drive Behaviour	Drive runs down
Device Behaviour	
Error removal	Fix short-circuit / overload

1101 'Logic voltage error'

• Internal supply voltage +/-12 V is outside the permissible limit • Undervoltage of the 24 V power supply (< 20 V)			
Device			
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

Device	**KE**		
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	Intern or extern (system run-up)
		1	Extern +24 V, BNS (HW) (62.5 µs)
		2	Intern +12 V, BVS (HW) (10 ms)
Error removal			

• Fault 24 VDC supply inverter (n)			
Device	**ZWR**		
Description	24 VDC supply of inverter (-U1.X08:1/2) < 20 V		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check 24 VDC supply -G1 • Check fuse -F12 • Check wiring		

1102 Line voltage limit

• Line overvoltage 460 V + 15% or line undervoltage 380 V - 20% present longer than 1 sec. • Undervoltage of the 24 V power supply (< 20 V)			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1103 Field bus warning

• ERROR bit comes back from the drive in AFP status • User has sent invalid command • Running command was not ended by error event (e.g. encoder fault in positioning) • User has sent permissible command at wrong time (e.g. reading database within active positioning) • The ERROR bit can be deleted by means of delete error or with every new valid AFP command			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1104 No FL with RF active

• The user attempts to delete error without withdrawing the controller enable control signal			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	For safety reasons RF must always be 0 in the case of error		

1105 Reserved

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal			

1106 System diagnostic

• Watchdog option			
Device			
Description	No communication between an option card and base system after 0,2 sec. (AMKAMAC: Info: Option slot 1 resp. Instance)		
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Option card failure		

1107 'System diagnostics: Short circuit DC bus voltage'

• Short circuit DC bus voltage			
Device	**KE**		
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	300 ms past ELS1: UZ < 10 %
Error removal	'Clear error' inadmissible, first clear cause of fault		

• Short circuit DC bus inverter			
Device	**ZWR**		
Description	Short circuit in the DC bus of the inverter -U1		
Class	Error		
Device Behaviour	Central inverter is disconnected from the mains		
Additional Error Information (AMK Service)			
Error Removal	• Replace inverter -U1		

1108 'System diagnostics: Main contactor'

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	Main contactor does not drop. The system must be shut down by the higher ranking controller.
	Error removal		'Clear error' permissible only after fault fixing
	Info 1	1	Voltage already at X01 when UE is set.
	Error removal		Check main contactor wiring
Error removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	Main contactor does not drop. 10 s after EHS off: Mains voltage > 75 % of amplitude
		1	Voltage at X01 when UE is set.
Error removal			

- Fault main contactor inverter (n)

Device	**ZWR**		
Description	see additional information		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
	Info 1	1	Main contactor does not drop out. 10 s after inverter OFF, there is still voltage at the terminals -U1.X01:L1.1/L2.1/L3.1
		2	With setting of UE, the voltage is applied to -U1.X01:L1.1/L2.1/L3.1 immediately
Error Removal	• Check main contactor -K2		

1109 System diagnostics

- Shifting of Y-point

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error removal	Error reset inadmissible, first clear cause of fault		

1110 Warning brake transistor

• Warning brake transistor			
Device	**KE**		
Description	The function of the brake transistor is not ensured any more		
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	The brake transistor does not switch on
		1	The brake transistor does not switch off After 4 s error 1061, 'Braking transistor fault', Info 1 = 3, will be generated (SBM is withdrawn and power supply is disconnected)
Error removal	• Internal KE error • Replace device		

1111 'Warning external component'

• Warning external component			
Device	**KE, KW**		
Description	Actual current values violate the I²t calculation, overload of the external elements e.g. at the line input: line filter, commutation choke etc, at the inverter e.g. motor cable The overload has reached the value according ID34196 'Treshold external component'		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			

Error removal	• Check application
	• Calculation check for dimensioning the rated power of the device
	• Recheck parameters:
	  • ID34193 Nominal current
	  • ID34194 Peak current
	  • ID34195 Peak current time
	  • ID34196 Threshold external component		

1112 'Overload error external component'

• Overload error external element line			
Device	**KE, KW**		
Description	• Is triggered after the expiration of the warning interval. • Actual current values violate the I²t calculation, overload of the external elements e.g. at the line input: line filter, commutation choke etc, at the inverter e.g. motor cable		
Class	Error		
Drive Behaviour	Inverter: controlled braking of the motor		
Device Behaviour	Supply: line separation		
Additional Error Information (AMK Service)			
	Info1	1	$I_{max} < I_n$
		2	Overload has reached 100 %

Error removal	• Check application
	• Calculation check for dimensioning the rated power of the device
	• Recheck parameters:
	  • ID34193 'Nominal current external component'
	  • ID34194 'Peak current external component'
	  • ID34195 'Peak current time external component'
	  • ID34196 'Treshold external component'		

• Overload mains filter converter (n)			
Device	**ZWR**		
Description	Overload mains filter -Y1		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains filter -Y1, replace if necessary		

1115 'Communication monitoring'

• Communication monitoring			
Device	KW-R06 iDT5 iX / i3X iC		
Description	In operation mode 'Setup', time exceeded for increasing ID33143 'Communication monitoring'		
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Reaction			
Error Removal	• Check master - slave communication • If necessary, replace wiring		

4.5 No. 1280 ... 1459 Operation Mode / Parameter Calculation

1281 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible status BAV
Error removal	Power must be switched OFF/ON after loading a parameter set from the PC into the target system		

1282 ID 32777, 111, 32769

• Standardization factor of torque-generating current, analog input			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KSQA
Error removal	Recheck parameters: • ID32777 Torque relative to 10 V at A1 • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1283 ID 111, 32769

• Standardization factor of torque-generating current, communication			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KSQK
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1284 ID 111, 32769

• Standardization factor of actual torque values			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KIQR
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1285 ID32772 wrong

• Slope standardization factor			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KPSI
Error removal	Recheck parameters: • ID32769 Magnetising current I_M • ID32770 Magnetising current I_{M1} • ID32772 Nominal velocity n_N • ID110 Inverter peak current		

1286 ID 82 or ID 83 too large

• Torque limit factor of the analog input A2			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KMGA
Error removal	Recheck parameters: • ID82 Positive torque limit • ID83 Negative torque limit		

1287 ID 32890: 1, 2, 5, 10

• Pulse multiplication			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32890 AWIW pulse multiplier		

1288 ID 110, 111, 32769

• $(I_N^2 - I_M^2) > I^2_{max}$ (inverter module maximum current, specified as ID 110)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			ISQNENN
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1289 ID 83 too small

• "ID83 Negative torque limit" too small negative value			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			ISQGRN
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1290 ID 82 too large

• "ID82 Positive torque limit" too large • Relevant parameters (ID110, ID111, ID32769) in the combination outside the permissible range			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			ISQGRP
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1291 ID 32774 faulty

• Standardized "ID32774 Rotor time constant"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KROT
Error removal			

1292 SEEP checksum

• Checksum error in the device specific serial EEPROM. The check takes place in the system initialization			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 2	1	Faulty SEEP order
		2	Checksum error in SEEP in AMK Info area ("34060 List SEEP 1)
		3	Checksum error in database (DTH) Info 3 | Number of faulty checksum (EEPROM page number)
Error removal	Check AZ-SEEP with monitor AW0 M2001C, ffffh inadmissible		

1293 Boot strap EEPROM

• The software has been replaced and is no longer address-compatible with the data of the parameter memory (e.g. EEPROM) in which all current drive and system data are filed			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• The BOOT STRAP menu item must be initialized through the control panel or the S-BUS interface • After “Boot strapping” the user parameters must be reloaded (manually or by means of PC program)		

1294 EEPROM defective

• Checksum error of parameter memory for application data • The parallel EEPROM can no longer be written or read			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• The BOOT STRAP menu item must be initialized through the control panel or the S-BUS interface • After “Boot strapping” the user parameters must be reloaded (manually or by means of PC program)		

1295 ID100 / ID101

• Speed controller integral component factor			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KIDZL

Error removal	• "ID100 Proportional gain speed control K_p" and "ID101 Integrating time speed control T_N" must be in a suitable ratio to one another
	• Recheck parameters:
	  • ID100 Proportional gain speed control K_p
	  • ID101 Integrating tim speed control T_N
	  • ID110 Inverter peak current
	  • ID111 Motor nominal current I_N
	  • ID32769 Magnetising current I_M		

1296 ID211 / ID209 / ID210

• The DZR adaptation P component slope factor could not be calculated correctly in the drive			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KPS
Error removal	Recheck parameters: • ID100 Proportional gain speed control K_p • ID110 Integrating tim speed control T_N • ID209 Lower adaption limit • ID210 Upper adaption limit • ID211 Proportional gain adaption		

1297 ID 212 / ID209 / ID210

• The DZR adaptation I component slope factor could not be calculated correctly in the drive			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KIS
Error removal	Recheck parameters: • ID100 Proportional gain speed control K_p • ID110 Integrating tim speed control T_N • ID110 Inverter peak current • ID209 Lower adaption limit • ID210 Upper adaption limit • ID211 Proportional gain adaption		

1298 ID 100 faulty

• 1 ≤ "ID100 Proportional gain speed control K_p" ≤ 32767			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KPDZL
Error removal	Recheck parameters: • ID100 Proportional gain speed control K_p • ID110 Integrating tim speed control T_N • ID111 Motor nominal current I_N • ID32769 Magnetising current I_M		

1299 ID32775: even

• An uneven pole number was entered in "ID32775 Pole number motor"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1300 Error in Temporary Parameters

• An error in the standardization calculation occurred on entry of a temporary parameter • The entered parameter ID is not part of the "ID270 Temporary parameter list"			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1301 ID32778 faulty

• 0 ≤ "ID32778 Speed relative to 10 V at A1" ≤ 100 000 rpm			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1302 System diagnostics

• Operating mode incomplete, see "ID32800 AMK main operating mode" et seq.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			BA error decoupling
Error removal	Recheck parameters: • ID32800 AMK main operating mode • ID32800 ... ID32806 AMK secondary operating mode 1 ... 6		

1303 System diagnostics

• Operating mode incomplete, see "ID32800 AMK main operating mode" et seq.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			BA error DZR
Error removal	Recheck parameters: • ID32800 AMK main operating mode • ID32800 ... ID32806 AMK secondary operating mode 1 ... 6		

1304 System diagnostics

• Operating mode incomplete, see "ID32800 AMK main operating mode" et seq.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			BA error position control
Error removal	Recheck parameters: • ID32800 AMK main operating mode • ID32800 ... ID32806 AMK secondary operating mode 1 ... 6		

1305 System diagnostics

• Operating mode incomplete, see "ID32800 AMK main operating mode" et seq.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			BA error flux cond
Error removal	Recheck parameters: • ID32800 AMK main operating mode • ID32800 ... ID32806 AMK secondary operating mode 1 ... 6		

1306 System diagnostics

• Operating mode incomplete, see "ID32800 AMK main operating mode" et seq.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Level BA errror
Error removal	Recheck parameters: • ID32800 AMK main operating mode • ID32800 ... ID32806 AMK secondary operating mode 1 ... 6		

1307 System diagnostics

• Position resolution not realizable			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			IQLAGE_WRONG
Error removal	Recheck parameters: • ID116 Resolution motor encoder • ID117 Resolution external encoder • ID118 Resolution linear encoder		

1308 System diagnostics

• Resolution of the “Speed source pulses” source not realizable			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RDB3C_AKTGEBER
Error removal	Recheck parameters: • ID116 Resolution motor encoder • ID117 Resolution external encoder • ID121 Load gear input revolution • ID122 Load gear output revolution		

1309 System diagnostics

• Speed window larger than 107372.5 rpm			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DZLFENST
Error removal			

1310 System diagnostics

• "Pole factor POLF" calculation out of tolerance • POLF = (115200 * ZP * EIN) / (GPZ * AUS) • 0010h ≤ POLF ≤ 7fffh			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32775 Pole number motor (ZP) • ID32776 Sinus encoder period (GPZ) • ID32960 Input Motor encoder gear (EIN) • ID32961 Output Motor encoder gear (AUS)		

1311 System diagnostics

• 4 GPZ calculation inconclusive			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1312 System diagnostics

• Negated direction of rotation permissible only for A and I encoders			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32773 Service bits: bit 16 = 1		

1313 ID82 or ID83 too large

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			MDGRENZ
Error removal	Recheck parameters: • ID82 Positive torque limit • ID83 Negative torque limit		

1314 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32990 NK-shift"		

1315 System diagnostics

• Resolver 0 point shift inadmissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32959 Offset resolver		

1316 ID32769/ID100 too large

• "ID32769 Magnetising current I_M" / "ID110 Inverter peak current" ratio too large			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			ISDNENN
Error removal	Recheck parameters: • ID110 Inverter peak current • ID32769 Magnetising current I_M		

1317 ID32770/ID110 too large

• "ID32770 Magnetising current I_{M1}" / "ID110 Inverter peak current" ratio too large			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			ISDNENN1
Error removal	Recheck parameters: • ID110 Inverter peak current • ID32770 Magnetising current I_{M1}		

1318 ID32774 faulty

• I component flux conduction factor			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KIFL
Error removal			

1319 System diagnostics

• Configuration of “Strobe” binary input wrong			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1320 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1321 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1322 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1323 ID32769 IM < ID111 IN

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			IROOT
Error removal	Recheck parameters: ID111 Motor nominal current I_N ID32769 Magnetising current I_M		

1324 ID32772 nN too large

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DZLNENN
Error removal	Recheck parameter: ID32772 Nominal velocity n_N		

1325 ID32772 P1 reference

• n_N too large			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DZLNENN1
Error removal	Recheck parameter: ID32772 Nominal velocity n_N		

1326 System diagnostics

• Source converter/on (UE) incorrect			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check ACC Bus • Recheck parameter: • ID32795 Source UE		

Device	**KE**		
Description	ACC configured as source of 'DC bus on' but no ACC bus is connected		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check ACC Bus • Recheck parameter: • ID32795 'Source UE'		

1327 ID104 kv factor

• $1 \leq K_V \leq 30000$			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KLAGE
Error removal	Recheck parameters: • ID104 Postion loop K_V-factor • ID115 Position feedback type • ID116 Resolution motor encoder • ID117 Resolution external encoder • ID118 Resolution linear encoder • ID121 Load gear input revolution • ID122 Load gear output revolution • ID123 Feed constant • ID32776 Sinus encoder period		

1328 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1329 ID111/ID110 > 80%

• "ID111 Motor nominal current" may be maximum 80 % of "ID110 Inverter peak current"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KSQA
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current		

1330 ID32772 > ID113

• "ID32772 Nominal velocity" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			N_NENN
Error removal	Recheck parameters: • ID113 Maximum speed • ID32772 Nominal velocity		

1331 ID209 > ID113

• "ID209 Lower adaption limit" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID209 Lower adaption limit		

1332 ID210 > ID113

• "ID210 Upper adaption limit" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KSQA
Error removal	Recheck parameters: • ID113 Maximum speed • ID209 Upper adaption limit		

1333 System diagnostics

• "ID32780 Acceleration ramp" resp. "ID32781 Deceleration ramp" are too large in reference to "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID32780 Acceleration ramp • ID32781 Deceleration ramp		

1334 ID38 > ID113

• "ID38 Positive velocity limit" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID38 Positive velocity limit • ID113 Maximum speed		

1335 |ID39| > ID113

• The absolute amount of "ID39 Negative velocity limit" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID39 Negative velocity limit • ID113 Maximum speed		

1336 ID32778 > ID113

• "ID32778 Speed relative to 10 Vat A1" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID32778 Speed relative to 10 V at A1		

1337 ID32783 > ID113

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1338 ID157 > ID113

• "ID157 Velocity window" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID157 Velocity window		

1339 ID125 > ID113

• "ID125 Velocity Threshold N_x" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID125 Velocity Threshold N_x		

1340 ID124 > ID113

• "ID124 Zero velocity window" is greater than "ID113 Maximum speed"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID113 Maximum speed • ID124 Zero velocity window		

1341 AW-Imax wrong (SEEP)

• Inverter module maximum current = 0 is inadmissible. This value was read from the serial EEPROM of the inverter, possibly there is a defect at the serial EEPROM			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1342 System diagnostics

• External error • Indicated at following system run-up • Timeout			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			PEEP Timeout
Error removal	System OFF/ON (HW reset)		

1343 System diagnostics

• Internal fault or component failure			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1344 System diagnostics

• Internal fault or component failure (AWMON)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1345 System diagnostics

• Internal fault or component failure (wrong BAV order)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1346 System diagnostics

• Internal fault or component failure (Handshake BAV/DTH)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1347 System diagnostics

• Internal fault or component failure (Handshake BAV/PEEP)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1348 System diagnostics

• Internal fault or component failure (Handshake BAV/AWMON)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			DTH Timeout see Comm. Error AZ-M881C…, AW-M200
Error removal			

1349 System diagnostics

• Internal fault or component failure			
Device	**AW**		
• Same AW numbers set at different AWs (rotary switch for AW No.)			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1350 AW not present

• Internal fault, AW/AZ communication			
Device	**AZ** **AW**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Test comm. Error cells AZ-M881C.., AW-M200
Error removal	• AW not present or does not report • AW was stated in ID32812 (active AW), but is actually not present • AW is defective • AW processor receives system reset • Check ID32812 • Check bus lines for correct contacting • An AW disturbs the entire bus • Activate AZ without Aws (pull off plug X27, ID32812 = 0) • Same AW numbers set at different Aws (rotary switch for AW No.) • Recheck parameter: • ID32812 Active drives		

1351 AW not active

• The operation mode defined for an operation mode change is not defined • The selected AW is not active.			
Device	**AZ** **AW**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Ba_wechs()
Error removal	Recheck parameter: • ID32812 Active drives		

1352 Can be changed only offline

• ID cannot be changed online			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Par_wechs(), temp. data change
Error removal			

1353 Parameter Set change wrong

• Faulty commanding in the parameter set change • Parameter set not defined ID32813			
Device			
• ID32813 … ID32820 (depending upon AW No.) AW not active			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Pars_wechs( )
Error removal	Recheck parameters: ID32800 AMK main operation mode ID32801 ... ID32805 AMK secondary operation mode 1 ... 5 ID32813 ...ID32820 Parameter set assignment 1 ... 8		

1354 Im < Im1

• "ID32769 Magnetising current I_M" < "ID32770 Magnetising current I_{M1}" at the point P1			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32769 Magnetising current I_M • ID32770 Magnetising current I_{M1}		

1355 Datum ID32785

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			RESERVE
Error removal			

1356 Datum ID32785, ID32786

• Contents of "ID32785 Message 16" inadmissible • Contents of "ID32786 Message 32" inadmissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32785 Message 16 • ID32786 Message 32		

1357 AWNR ID32787, ID32789, ID32791, ID32793

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Filter_dac()
Error removal	Recheck parameters: • ID32787 Source analogue channel 1 • ID32789 Source analogue channel 2 • ID32791 Source analogue channel 3 • ID32793 Source analogue channel 4		Check AW-No., permissible 0 ... 8

1358 Source ID32787, ID32789, ID32791; ID32793

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32787 Source analogue channel 1 • ID32789 Source analogue channel 2 • ID32791 Source analogue channel 3 • ID32793 Source analogue channel 4		

1359 ID32873, ID32968, ID32977

• Binary input port address is not permitted.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Cfg_azea( ), option place analysis, AZ-EA
Error removal	Recheck parameters: • ID32873 Input port 1 • ID32968 Input port 2 • ID32977 Input port 3		

1360 Opt.1 ID32846, ID32855, ID32864

• The output port 512 … 519 is configured several times	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32846 Output port 1 • ID32855 Output port 2 • ID32864 Output port 3

1361 Opt.2 ID32846, ID32855, ID32864

• The output port 520 … 527 is configured several times	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32846 Output port 1 • ID32855 Output port 2 • ID32864 Output port 3

1362 Opt.3 ID32846, ID32855, ID32864

• The output port 528 … 535 is configured several times	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32846 Output port 1 • ID32855 Output port 2 • ID32864 Output port 3

1363 Opt.4 ID32846, ID32855, ID32864

• The output port 536 … 543 is configured several times			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32846 Output port 1 • ID32855 Output port 2 • ID32864 Output port 3		

1364 Definition of output bits

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	25	Recheck ID32847 ... ID32872
		41	Recheck ID26, ID34029
		42	Recheck ID301, ID303, ID305, ID307
Error removal	• Check codes for binary outputs, invalid entry		

1365 AWNR output bit

• The entered AW number is inadmissible. (Bin. Outputs)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32847 ... ID32854 Output port 1, bit 0 ... bit 7 • ID32856 ... ID32863 Output port 3, bit 0 ... bit 7 • ID32865 ... ID32872 Output port 3, bit 0 ... bit 7		

1366 Definition of input bits

• The entered code is inadmissible. (Bin. Inputs) • Parameterization is not plausible: ID32948 calls a function which requires further parameter setting on binary input assignment (e.g. measuring function ID32948 = 24 hex regards BE3 ID32980 = 401 hex)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32874 ... ID32881 Input port 1, bit 0 ... 7 • ID32969 ... ID32876 Input port 2, bit 0 ... 7 • ID32978 ... ID32985 Input port 3, bit 0 ... 7 • ID32948 Message 4x32		

1367 ID32883 Opt.place 1

• The ID for option place 1 was wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1368 ID32885 Opt.place2

• The ID for option place 2 was wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1369 ID32885 Opt.place 3

• The ID for option place 3 was wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1370 ID32886 Opt.place 4

• The ID for option place 4 was wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1371 ID32799 Standard Periphery

• "ID32799 Configuration Standard periphery" was wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1372 Optional place 1 card defect

• Option card reports defect			
Device	**AS-PL**		
• Ethernet may be configured only in one instance			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Program stack overflow
Error removal	• Check Ethernet parameterization • Check serial interface parameterization		

1373 Optional place 2 card defect

• Option card reports defect			
Device	**AS-PL**		
• Ethernet may be configured only in one instance			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check Ethernet parameterization. • Check serial interface parameterization		

1374 Optional place 3 card defect

• Option card reports defect			
Device	**AS-PL**		
• Ethernet may be configured only in one instance			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check Ethernet parameterization. • Check serial interface parameterization		

1375 Optional place 4 card defect

• Option card reports defect			
Device	**AS-PL**		
• Ethernet may be configured only in one instance			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Check Ethernet parameterization. • Check serial interface parameterization		

1376 ID32882 Optional place 1

• ID32882 or ID32799 wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32799 Configuration standard periphery • ID32882 Slot assignment		

1377 ID32882 Optional place 2

• ID32882 or ID32799 wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32799 Configuration standard periphery • ID32882 Slot assignment		

1378 ID32882 Optional place 3

• ID32882 or ID32799 wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32799 Configuration standard periphery • ID32882 Slot assignment		

1379 ID32882 Optional place 4

• ID32882 or ID32799 wrongly configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32799 Configuration standard periphery • ID32882 Slot assignment		

1380 ID110, ID111, ID32769

• Wrong torque display standardization			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KM_WRONG
Error removal	Recheck parameters: • ID110 Inverter peak current • ID111 Motor nominal current • ID32769 Magnetising current I_M		

1381 LIW source calculation

Resolution of actual position value is outside the permissible range			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			LAM_WRONG
Error removal	Recheck parameters: • ID104 Position loop KV-factor • ID115 Position feedback type • ID116 Resolution motor encoder • ID117 Resolution external position feedback • ID118 Resolution linear encoder feedback • ID121 Load gear input revolution • ID122 Load gear output revolution • ID123 Feed constant • ID32776 Sinus encoder period		

1382 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	"ID32953 encoder type" defined wrongly
		7	HW revision status ≤ 1.03
Error removal			

1383 2PI value wrong

• 2π value not defined			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			PI_IQEA_WRONG
Error removal	Recheck parameters: • ID115 Position feedback type • ID116 Resolution motor encoder • ID117 Resolution external position feedback • ID118 Resolution linear encoder feedback • ID123 Feed constant • ID32776 Sinus encoder period		

1384 2PI value calculation

• 2π value cannot be calculated			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			PI_WRONG
Error removal	Recheck parameters: • ID115 Position feedback type • ID116 Resolution motor encoder • ID117 Resolution external position feedback • ID118 Resolution linear encoder feedback • ID123 Feed constant • ID32776 Sinus encoder period		

1385 ID116, ID32776 ratio

Device	**AZ/AW**		
• Resolver use: ID 32953 = 3 => ID32776 = 128 • Mandatory use of AW software ≥ 0210			
Device	**KE/KW**		
• Resolver use: ID 32953 = 8 => ID32776 = 128			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KLIW_WRONG
Error removal	Recheck parameters connected with encoder resolution corresponding to operation mode: • ID116 Resolution motor encoder • ID118 Resolution linear encoder feedback • ID32776 Sinus encoder period • ID32934 Pulse encoder period • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK second operation mode 1 ... 6		

1386 Output DA1 … DA4

• The output port 544 for DA1 … DA4 is configured several times			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32846 Output port 1 • ID32855 Output port 2 • ID32864 Output port 3		

1387 ID32846 wrong

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32846 Output port 1		

1388 ID32855 wrong

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32855 Output port 2		

1389 ID32864 wrong

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32846 Output port 3		

1390 System diagnostics

• NC/LR time not integral.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID1 NC cycle time • ID32958 Command value 1 cycle		

1391 ID32772 wrong

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32772 Nominal velocity		

1392 ID158, ID32771, ID32772

• Wrong standardization of comparative power Px			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			KPX_WRONG, PX_WRONG
Error removal	Recheck parameters: • ID158 Power threshold Px • ID32771 Nominal torque • ID32772 Nominal velocity		

1393 AW not AZ-compatible

• Software levels AW, AZ are not compatible • The AZ and AW software level is compared in the system initialization and incompatibility displayed (e.g.: AZ x1xx does not suit AW x2xx)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1394 ID32892: x times 2 to the power 16

• The numerical value in ID32892 does not correspond to an integral multiple of 2^{16}			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32892 Synchronous setpoint pulses divider		

1395 No Main Operation Mode

• This message is generated on system initialization if the main operation mode(BA) has been stated with 0, i.e. NO BA or BA NOT ACTIVATED. The main operation mode must always be assigned with a valid operation mode code. Solely the secondary operation modes may also be assigned with 0 (BA NOT ACTIVATED)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32800 AMK main operation mode		

1396 Operation mode not defined

• This message is generated on system initialization if a not defined operation mode code was entered for the basic operation mode and / or for one of the secondary operation modes			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1397 Operation mode not impl.

• This message is generated on system initialization if an operation mode code was entered for the basic operation mode and/or for one of the secondary operation modes which indeed is permissible, but is not yet supported in the existing version			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1398 Setpoint source undefined

• This message is generated on system initialization if a code for the setpoint source was entered in one of the ID32800 … 32809 which is not defined or if a setpoint source was preset which momentarily is not yet available. The code for the setpoint source is only checked if a sensible operation mode code has also been entered			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9		

1399 Setpoint Source (SQ) is Not Admissible in this Operation Mode (BA)

• This message is generated on system initialization if a code for the setpoint source has been entered in one of the ID32800 … 32809 which represents a not permissible combination in conjunction with the also entered code for the operation mode (e.g. position control with analog command value setting)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9		

1400 Option Card for Setpoint Source (SQ)

• This message is generated on system initialization if a code for a setpoint source was selected on an option card in one of the ID32800 … ID32809 but the option card is not present			
Device	**AZ**		
• Option card is not present			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9		

1401 MGQ not selected

• This message is generated on system initialization if no valid code for the source of the torque limit was stated in one of the ID32800 … 32809	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1402 Source of Torque Limit (MGQ) inadmissible for this Operation Mode (BA)

• This message is generated on system initialization if a source for the torque limit was stated in one of the ID32800 … 32809 which is inadmissible in combination with the selected operation mode	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1403 Source of Torque Limit (MGQ) not implemented

• This message is generated on system initialization if a source for the torque limit was stated in one of the ID 32800 … ID32809 which is not present in the existing system	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1404 Source of Torque Limit (MGQ) AW-analog assigned

• This message is generated on system initialization if an analog input was stated as source for the torque limit in one of the ID32800 … 32809, but this analog input is already assigned with another source	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1405 Speed Ramp (DZLRMP) function missing

• This message is generated on system initialization if a speed ramp function was stated in one of the ID32800 … ID32809 which is not implemented in the existing system	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1406 Speed Filter (DZLFLT) function missing

• This message is generated on system initialization if a speed filter function was stated in one of the ID32800 … ID32809 which is not implemented in the existing system	
Device	
Description	
Class	
Drive Behaviour	
Device Behaviour	System run-up aborted
Additional Error Information (AMK Service)	
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6 • ID32807 AMK secondary operation mode 7 • ID32808 AMK secondary operation mode 8 • ID32909 AMK secondary operation mode 9

1407 Selected Operation Mode (BA) not configured

• This message is generated on an operation mode change if the selected operation mode number was not yet configured.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1408 Change of Operation Mode (BA) not executable

• This message is generated on an operation mode change if the selected BA cannot be executed.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1409 Selected AW No. not active

• This message is generated on an operation mode change if the selected AW No. is not activated or not present.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	• Activate AW No. through "ID32812 Active drives" • Do not command a not existing inverter module		

1410 Selected Parameter Set

• Selected parameter set not defined			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1411 Type of Position Controller is Inadmissible

• The selected position controller type is momentarily not available or not permissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1412 Type of External Encoder inadmissible

• The selected type of the external encoder system is not permissible.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			

Error removal	• Diagnostic message comes only in connection with a position control selected in the operation mode parameter
	• Recheck parameters:
	  • ID32811 External position feed back source
	  • ID32800 AMK main operation mode
	  • ID32801 ... ID32806 secondary operation mode 1 ... 6		

1413 Missing option card

• A not existing command value source was defined in the operation mode parameter (e.g. missing option card, wrong slot or missing drive)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: ID32800 AMK main operation mode ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1414 Unknown AW type

• This message is reported if an AW module of unknown type was discovered in the analysis of the operation mode parameter, i.e. the AZ detects an AW the function of which is unknown to it. This error can arise if, for instance, an older AZ software version does not support new types of AW			
Device	**AW** **AZ**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1415 Wrong AW type

• The inverter does not support the stated operation mode (ID32800 ...)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1416 Change of Operation Mode inadmissible

• This message is reported if it is attempted to change the operation mode on an inverter module for parallel operation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1417 System diagnostics

• The chosen operation mode cannot be mapped			
Device	**AZ**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1418 System diagnostics

• The chosen operation mode cannot be mapped			
Device	**AW**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1419 System diagnostics

• Speed filter activated but parameterised wrongly			
Device	**AZ**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Check_dzlfilt( )
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1420 System diagnostics

• Speed ramp is activated but the ramp parameters are asymmetric or faulty			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Check_dzlrmp( )
Error removal	Recheck parameters: • ID32780 Acceleration ramp • ID32781 Deceleration ramp • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1421 System diagnostics

• "ID82 Positive torque limit" faulty			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Check_momgrp()
Error removal	Recheck parameters: • ID82 Positive torque limit • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1422 System diagnostics

• Internal lists of controller configuration do not fit the operation mode			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Init_cfglist( )
Error removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1423 Inadmissible Setpoint Source

• This warning occurs on analysis of the ID32948 Config. AZ message			
Device	**AZ**		
• Possibly AZ-IG option card not present			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID32948 Message 4x32 • ID32800 AMK main operation mode • ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1424 Inadmissible Setpoint Source

• This warning occurs on analysis of the ID32948 Config. AZ message			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID32849 Message 4x32		

1425 ID55 only 0, 5, 9

• Position polarity may be selected only pair-wise (setpoint / actual value)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID55 Closed loop polarity parameter		

1426 ID121/122 wrong

• The gear factors ID121 and ID122 cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled.)			
Device	**AZ**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID121 Load gear input revolution • ID122 Load gear output revolution		

1427 ID44 inadmissible

• An inadmissible bit combination was set in "ID44 Scaling of velocity data"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1428 ID86 inadmissible

• An inadmissible bit combination was set in "ID86 Torque data scaling"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1429 ID160 inadmissible

• An inadmissible bit combination was set in "ID160 Scaling method acceleration data" • The data reference must agree with the position data reference in "ID76 Position data scaling"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID76 Position data scaling • ID160 Scaling method acceleration data		

1430 Position scaling

• The scaling set through the position scaling parameters ID77, ID78, ID79 as well as ID121, ID122 or ID123 and the current encoder resolution cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID77 Translation position scaling factor • ID78 Translation position scaling exponent • ID79 Rotatory position resolution • ID121 Load gear input revolution • ID122 Load gear output revolution • ID123 Feed constant		

1431 Velocity scaling

• The scaling set through the velocity scaling parameters ID45, ID46 as well as ID123 cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID45 Velocity scaling factor • ID46 Velocity scaling exponent • ID123 Feed constant		

1432 Velocity scaling IPO

• The scaling set through the velocity scaling parameters ID45, ID46 as well as ID121, ID122 or ID123 cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID45 Velocity scaling factor • ID46 Velocity scaling exponent • ID121 Load gear input revolution • ID122 Load gear output revolution • ID123 Feed constant		

1433 Torque scaling

• The scaling set through the torque / force scaling parameters ID93, ID94 as well as ID123 and ID32771 cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID93 Torque scaling factor • ID94 Torque scaling exponent • ID123 Feed constant • ID32771 Nominal torque M_N		

1434 Acceleration scaling

• The scaling set through the velocity scaling parameters ID161, ID162 as well as ID121, ID122 or ID123 cannot be implemented. (The marginal conditions for the scaling factors are not fulfilled)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameters: • ID161 Acceleration scaling factor • ID162 Acceleration scaling exponent • ID121 Load gear input revolution • ID122 Load gear output revolution • ID123 Feed constant		

1435 ID76 inadmissible

• An inadmissible bit combination was set in "ID76 Position data scaling"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal	Recheck parameter: • ID76 Position data scaling		

1436 Decade switch

• Configuration decade switch inadmissible See configuration of binary input			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error removal			

1437 Configuration of Software Pulse Transmission (SIWL)

• Setpoint source in ID32964 inadmissible • Inadmissible external actual position value selected; see ID32800 et seq. • Encoder resolution is not compatible with ID32966 and ID32967			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

Device	**KW-R06**		
Description			
Class	**Warning**		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	13	The encoder frequency for the observer filter is greater than 87,5 % of the maximum value.
	Error Removal		Reduce "ID34259 Maximum scanning frequency" or increase "ID34251 Line counts" Verification is not possible until continuous operation
		19	The encoder frequency of the output encoder is greater than 87,5 % of the maximum value.
	Error Removal		• Reduce "ID34259 Maximum scanning frequency" or increase "ID34251 Line counts" Verification is not possible until continuous operation • Reduce speed • Reduce "ID34253 SIWL Factor" or increase "ID34254 SIWL Divisor

Class	Error		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	No valid encoder chosen in "ID34250 SIWL source"
		2	"ID34252 Offset Position Index" ≥ "ID34251 Line counts"
		3	"ID34251 Line counts" = 0
		4	"ID34251 Line counts" ≥ 2^{22} => More than 2^{24} increments
		5	With bus encoder no line counts are specified ("ID34255 SIWL Modulo IN" > 0)
		6	"ID34256 Filter observer" time constant is inadmissible (600 µs ≤ ID34256 ≤20 ms)
		7	"ID34259 Maximum scanning frequency" of SIWL output encoder is inadmissible (1 kHz ≤ ID34259 ≤2 MHz)
		8	"ID32953 Encoder type" is not a valid encoder type as SIWL source
		9	"ID32953 Encoder type" is inadmissible as SIWL source e.g. sensorless encoder or V/f-operation mode
	Error Removal		Recheck parameters
		14	"ID34253 SIWL Factor" is 0 or too large
		15	"ID34254 SIWL Divisor" is 0 or too large
	Error Removal		• Reduce ID34253 and ID34254 with the same factor • ID34254 ≠ 0

Class	Error		
Drive Behaviour	Controlled Braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	12	The encoder frequency for the observer filter is too large. So the sense of rotation can invert.
	Error Removal		Reduce "ID34259 Maximum scanning frequency" or increase "ID34251 Line counts" Verification is not possible until continuous operation
		18	The encoder frequency of the output encoder is too large. So the sense of rotation can invert.
	Error Removal		• Reduce "ID34259 Maximum scanning frequency" or increase "ID34251 Line counts" Verification is not possible until continuous operation • Reduce speed • Reduce "ID34253 SIWL Factor" or increase "ID34254 SIWL Divisor
		20	Deviation is too large, the following error increases Verification is not possible until continuous operation
	Error Removal		• Reduce speed • Increase ID34259 • Reduce ID34253 • Increase ID34254
		23	Within application of a bus encoder "ID34255 Modulo IN" is exceeded. An actual position value > Modulo IN + 1 is reported. Verification is not possible until continuous operation
	Error Removal		• Recheck ID34255 • Recheck modulo calculation
Error Removal	Recheck parameters in general: • ID32953 Encoder type • ID34250 SIWL source • ID34251 Line counts • ID34252 Offset Position Index • ID34253 SIWL Factor • ID34254 SIWL Divisor • ID34255 SIWL Modulo IN • ID34256 Filter Observer • ID34257 SIWL Control • ID34258 SIWL Status • ID34259 Maximum scanning frequency		

1438 Band width barrier

- Band width barrier is not configurable
- Inadmissible entry in "ID32932 Barrier frequency" or "ID32933 Band width"
- ID32933 > ID32932…

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID32932 Barrier frequency • ID32933 Band width		

1440 Data record changed

• "ID32996 Data signification" of the current data record does not agree with the serial number of the unit			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32996 Data signification		

1441 Clock synchronization

• Clock master / clock slave combination not permissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	SERCOS parameterized as clock master and ACC as clock slave
		2	SERCOS parameterized as clock master and PLC as clock slave
		3	PLC parameterized as clock master and ACC as clock slave
Error Removal			

1442 SEEP configuration

• An inadmissible value has been detected in a check of a SEEP cell			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Test overload time cell 20014, 20018 and 20024
Error Removal			

1443 Test generator

• Incorrect parameter setting for test generator			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	"ID34044 TG Configuration list" too large (actual size > 32 bytes)
		2	Faulty configuration
		3	RF can’t be activated by the test generator
		4	DC BUS enable(UE) is missing
		6	Amplitude “High” < Amplitude “Low”
		7	Unused signal destination
		8	Incorrect frequency
		9	Status “Init function”
		10	Parameters write / read error
		11	System booting could not be executed
		12	Change of operating mode could not be executed
		14	Memory error for sine table
		15	SBM System ready is missing
		16	Ramp for trapezium function could not be executed
		19	RF disable after test generator is started
Error Removal			

1444 PWM frequency

• Incorrect parameter setting for PWM frequency			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	"ID34048 PWM frequency" does not contain 4 kHz or 8 kHz
		1	4 kHz values in the device SEEP are invalid
Error Removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	ID34048 'PWM frequency' does not contain 8 kHz
Error Removal			

1445 Current controller

• Incorrect parameter setting for current			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	Kpi in Q controller not workable
		1	Kii in Q controller not workable
		3	Kpi in D controller not workable
		4	Kii in D controller not workable
		5	"ID34151 Kp current Q" = 0; "ID34152 Kp current D" ≠ 0
Gerät	**KU- / KW-R03**		
	Info 1	2	"ID34051 Kp current D" = 0; "ID34052 TN current D" ≠ 0
Error Removal	Recheck parameters: • ID34051 Kp current D • ID34052 TN current D • ID34151 Kp current Q • ID34152 TN current D		

1446 EF can not be activated

• EF monitoring is selected in "ID32901 Global service bits" but the controller card does not meet the hardware requirements			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32901 Global service bits		

1447 Motor encoder gear

• The result of the calculation (ID32776 * ID32961)/32960 must be an integer value.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID32776 Sinus encoder period • ID32960 Input motor encoder gear • ID32961 Output motor encoder gear		

1448 ID113 > ID34153

• "ID113 Maximum Speed" is higher than "ID34153 Maximum Speed Motor" which was written into the encoder data base.			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID113 Maximum speed • ID34153 Maximum speed motor		

1451 Configuration temperature sensor

• The sensor defined in ID34166 is not valid. • The user defined charcteristic according to ID34202, ID34203, ID34204 is not plausible			
Device	**KW / KWD**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	The configured sensor in ID34166 is not valid
		1	User defined charcteristic is not plausible
Error Removal	Recheck parameters: • ID34166 Temperature sensor motor • ID34203 Voltage at 25 degree • ID34204 Voltage at 75 degree • ID34205 Voltage at 125 degree		

1454 'Error initialisation angle observer'

• Error initialisation angle observer			
Device	KW-R06 iDT5 iX / i3X iC		
Description	The observer for sensorless detection of the rotor position could not be initialised		
Class	Error		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info1	1	ID34233 = 0 and ID34164 = 0
		2	ID34045 = 0, ID34046 = 0 and ID34167 = 0
Error Removal	Recheck parameters: • ID34045 'Inductance path D' • ID34046 'Inductance path Q' • ID34164 'Terminal resistance' • ID34167 'Terminal Inductance' • ID34233 'Phase resistance'		

4.6 No. 1536 ... 1559 Serial EEPROM

1537 System diagnostics

• SEEP error in the inverter • See "ID32773 Service bits", SBM withdrawal			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible SEEP order
Error Removal			

1538 System diagnostics

• Taskmaster- / taskslave combination is inadmissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Error in AWMON reading SEEP
Error Removal			

1539 SEEP 1st checksum

• Checksum of the SEEP range 1 is not correct			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible SEEP order
Error Removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info1	0	Error checksum SEEP, cell 0 - 37
Error Removal			

1540 SEEP 2nd checksum

• Checksum of the SEEP range 2 is not correct			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Inadmissible SEEP order
Error Removal			

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info1	1	Error checksum SEEP, cell 39 - 49
		2	Error checksum SEEP, cell 64 - 78
		3	Error checksum SEEP, cell 79 - 93
		4	Error checksum SEEP, cell 94 - 108
		5	Error checksum SEEP, cell 109 - 123
Error Removal			

1541 Commanded AW missing

• The commanded inverter module is not present			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

1542 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			SEEP driver error
Error Removal			

1543 System diagnostics

• The manufacturer information was not written correctly in the SEEP			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

1544 ID32953 no adjustment permissible

• If "ID32953 Encoder type" ≠ A type encoder no encoder basic adjustment is permissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

1545 System diagnostics

• Errors occurred when writing the current encoder values in the SEEP. Values were not written correctly			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

1546 System diagnostics

• Fault counter is missing			
Device	**AZ**		
• Possibly AW is not present, …			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			SEEP fault counter missing
Error Removal			

1547 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			AWMON timeout / AZSEEP driver
Error Removal			

1548 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Default in SEEP, after ½h for not initialized SEEP
Error Removal			

1549 System diagnostics

• Clock master / clock slave combination not permissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			SEEP Alloc / Dealloc timeout
Error Removal			

1550 System diagnostics

• Clock master / clock slave combination not permissible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			SEEP Alloc / Dealloc error
Error Removal			

1551 Encoder track failed

• Encoders actual position value determined internally from inputs G1N/G1I or G2N/G2I does not change over time • Occurs during encoder basic adjustment, failure of an encoder track • Signals not present at G1N, G1I, G2N or G2I			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1552 Encoder adjustment abort

• Encoder adjustment was aborted			
Device	**Controller cards** **KU-R03(P)** **KW-R03(P)** **KW-R04**		
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour	Controller enabled (RF) is withdrawn internally		
Additional Error Information (AMK Service)			
	Info 1	1	Faulty encoder type (during changing encoder position)
		2	Faulty encoder type (during encoder adjustment)
		3	RF is set or withdrawn too early (alignment)
		4	RF is withdrawn (during encoder setting)
		5	RF is set or withdrawn too early (during encoder setting)
		6	Time out 29 s is exceeded with SWK

Error Removal	• Set RF not before the function *encoder adjustment* is started
	• Reset RF not before the function *encoder adjustment* is finished
	• Recheck parameters:
	  • ID32953 'Encoder type'
	  • ID34094 'Rise time SWC'
	  • ID34099 'Delay time SWC'		

• Encoder adjustment for was aborted			
Device	**Controller cards** **KW-R06**		
Description	Encoder adjustment for setting of commutation was aborted		
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour	Controller enabled (RF) is withdrawn internally		
Additional Error Information (AMK Service)			
	Info 1	0	--
		1	RF was set before the command *encoder adjustment* was set.
		2	ID32953 'Encoder type': Encoder type or motor model not correct
		3	RF was set to zero before the function *encoder adjustment* was finished.
Error Removal	• Do not set RF before the function *encoder adjustment* is started • Do not reset RF before the function *encoder adjustment* is finished • Recheck parameter: • ID32953 'Encoder type'		

1553 Encoder adjustment timeout

• Timeout encoder adjustment			
Device	**Controller cards** **KU-R03(P)** **KW-R03(P)** **KW-R04**		
Description	After command *encoder adjustment* was started RF was not set within the timeout time		
Class	Error		
Drive Behaviour	Drive keeps standstill		
Device Behaviour	RF = 0 is kept		
Additional Error Information (AMK Service)			
	Info1	1	time out exceeded during encoder adjustment
		2	time out exceeded during rotor alignment
Error Removal	• After the command *encoder adjustment* RF must be set within 60 seconds.		

• Timeout while encoder adjustment			
Device	**Controller cards** **KW-R06**		
Description	A timeout occurred during encoder adjustment		
Class	Error		
Drive Behaviour	Drive keeps standstill		
Device Behaviour	RF = 0 is kept		
Additional Error Information (AMK Service)			
	Info1	0	--
		1	RF was not set within 10 s
		2	RF was not withdrawn within 2 min
		3	RF was not withdrawn automatically within 10 s
Error Removal	• Configure a binary input as source for RF and chose it • After the command *encoder adjustment*, RF must be set quickly • For safety RF will be withdrawn after 2 minutes if rotor is only adjusted • Recheck parameter: • ID32796 'Source RF'		

1554 ID32776 Sinus Encoder Period is faulty

Device			
Description	The number of encoder teeth is counted over one revolution of the encoder from reference pulse to reference pulse and compared with parameter "ID32776 Sinus encoder period". A difference has occurred here		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Occurs during the basic encoder adjustment • Recheck parameter: • ID32776 Sinus encoder period		

1555 Reference pulse

Device			
Description	The reference pulse could not be detected during a determined period		
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	• Occurs during the basic encoder adjustment		

1556 Reference Pulse - Encoder Input

Device			
Description	The comparator voltage, which generates the digital pulse D0 from the encoder signal S0, is determined in the process. This comparator voltage has run to the minimum or maximum value		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• One of the G0N / G0I signals (reference pulse track) is not present • Occurs during the basic encoder adjustment		

1557 Turn axis

Device			
Description	No change of the inverter's internal encoder signal counter was determined during a defined time period		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Occurs during the basic encoder adjustment		

1558 System diagnostics

• Inverter transfers faulty encoder feedback values			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Online adjustment
Error Removal			

4.7 No. 1792 ... 1849 Drive Commanding

1794 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, end position not reached
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1795 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, dxidiv factor
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1796 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, mkipstart
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1797 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, mkipstart = 8 in Ipsteuer
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1798 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, mkipstart = 1 or 2 in Ipsteuer
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1799 System diagnostics

• Interpolator			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO, mkipstart = 4 in Ipsteuer
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1800 System diagnostics

• Interpolator • Reduction ID136, ID137			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation avzgmax too large
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1801 System diagnostics

• Interpolator • Increase ID136, ID137			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation avzgmax too small
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1802 System diagnostics

• Interpolator • Increase ID136, ID137			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation amax too small
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1803 System diagnostics

• Interpolator • Check control speed			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation vmaxein or voein too large
Error Removal	Recheck parameters: • ID41 Homing velocity • ID136 Positive acceleration • ID137 Negative acceleration • ID222 Spindle position speed • ID32956 Additional acceleration value		

1804 System diagnostics

• Check final value (target value) • Operator transmit inadmissible data			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation xieneinneu-xiendein alt too large
Error Removal			

1805 System diagnostics

• Interpolator standardisation: dxifaktor with remainder ID136, ID137, ID116 ratio to one another			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation dxifaktor remainder
Error Removal	Recheck parameters: • ID116 Resolution motor encoder • ID136 Positive acceleration • ID137 Negative acceleration		

1806 System diagnostics

• Interpolator standardisation: dxifaktor = 0: increase ID136, ID137, ID116			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO standardisation dxifaktor
Error Removal	Recheck parameters: • ID116 Resolution motor encoder • ID136 Positive acceleration • ID137 Negative acceleration		

1807 System diagnostics

• Permissible time between KMD commanding and BAV operation mode management was exceeded			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Timeout KMD -> BAV
Error Removal			

1808 System diagnostics

• Operation mode management acknowledges error after commanding			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error KMD -> BAV
Error Removal			

1809 System diagnostics

• Inadmissible commanding code in KMD-SS, check interface • STOP order if IPO not active • FURTHER order, if IPO not stopped • Undefined order – Order does not correspond to START, ABORT, STOP, FURTHER, VALUE NEW			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1810 System diagnostics

• Inadmissible commanding function in KMD-SS, check interface			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1811 System diagnostics

• Inverter can no longer be addressed			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Timeout KMD -> AWMON
Error Removal			

1812 System diagnostics

• Inverter can no longer be addressed			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error KMD -> AWMON
Error Removal			

1813 KMD user error

• Inadmissible order in KMD-SS			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check interface		

1814 System diagnostics

• Inadmissible commanding operation mode selected, BA may be assigned code 0…9 according to ID32800 …32809			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			

Error Removal	• Check interface
	• Recheck parameters:
	  • ID32800 AMK main operation mode
	  • ID32801 ... ID32809 AMK secondary operation mode 1 ... 9		

1815 Controller enable missing

Commanding without RF, QRF not possible, control interrupted.			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Order must be repeated after RF activation or starting conditions must be restored (e.g. by means of abort function code)		

1816 Not homed

• Inverter is not homed, function requires a homed system			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1817 System diagnostics

• Synchronous running source in synchronous running inadmissible			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID32800 AMK main operation mode • ID32801 ... ID32805 AMK secondary operation mode 1 ... 5		

1818 System diagnostics

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Inadmissible state in KMD
Error Removal			

1819 System diagnostics

• Inverter address calculation impossible, operation mode incomplete			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: ID32800 AMK main operation mode ID32801 ... ID32806 AMK secondary operation mode 1 ... 6		

1820 System diagnostics

• Ramp down error e.g. in lifting axis function, time according to ID32954 was exceeded			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32954 Time ramp down monitor		

1821 System diagnostics

• IPO cannot perform direction change			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1822 System diagnostics

• IPO cannot be activated			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO timeout
Error Removal			

1823 System diagnostics

• IPO cannot be activated			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			IPO error
Error Removal			

1824 System diagnostics

• Inadmissible KMD code in KMD-SS, inadmissible timing check interface			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			RESERVE
Error Removal			

1825 System diagnostics

• SINCOS encoder, encoder does not report within 2 sec. through RS485-SS			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	SBM withdrawal		
Additional Error Information (AMK Service)			
Error Removal	Check encoder or cable		

1826 System diagnostics

• SINCOS encoder, checksum of the encoder acknowledgement does not agree (XOR)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	SBM withdrawal		
Additional Error Information (AMK Service)			
Error Removal	Possible causes are faults of the RS485 signal cables, or of the RS485 input		

1827 System diagnostics

• Invalid encoder type, the SINCOS encoder type is not permitted in the spindle positioning and synchronous control drive function			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32953 Encoder type		

1828 System diagnostics

• This message can occur only in connection with an abort of drive functions (or RF withdrawal during an active drive function) • The user has not set the synchronization bit “ub_basync” for external command value synchronization and has attempted an operation mode change (inadmissible!), error message and SBM withdrawal (inverter cannot be controlled, operation mode change in the operation mode change)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1829 System diagnostics

"ID55 Closed loop polarity" and "ID43 Velocity polarity" may be only positive in spindle positioning or synchronous control drive function			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID43 Velocity polarity • ID55 Closed loop polarity		

1830 System diagnostics

• "Flying saw" drive function, waiting distance (ID278) is greater than the reference value 2PI according to ID116, ID117 or ID103			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID103 Modulo value • ID116 Resolution motor encoder • ID117 Resolution external encoder • ID278 Synchronous additional angle position • ID32800 AMK main operation mode		

1831 System diagnostics

• SINCOS encoder, encoder reports error (error bit set)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	SBM withdrawal		
Additional Error Information (AMK Service)			
Error Removal	Defective encoder or faulty system		

1832 System diagnostics

• "Absolute positioning" drive function • The preset position is more than |31Bit| removed from the current position command value (inadmissible!)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1833 System diagnostics

• "Lifting axis" drive function, $\|n_{actual}\| \geq \|1.2 \times n_{limit}\|$			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check loading of the system in connection with the preset limits		

1834 System diagnostics

• SINCOS encoders: The difference of the double sampling of the absolute value in the “Homing” drive function does not lie in the position window according to ID 57.			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	SBM withdrawal		
Additional Error Information (AMK Service)			
Error Removal	• Axis in motion or system disturbed • Recheck parameter: • ID57 In position window		

1835 System diagnostics

• Special lift function • Driver commanding <-> database disturbed			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Internal interface assigned or parameterised EEPROM defective		

1836 System diagnostics

• Special Lift function • Check lift learning travel error			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check KSE, KS contacts		

1837 System diagnostics

• Special Lift function • Check invalid order input			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	KMD interface (floor input and driving order in variable 1)		

1838 System diagnostics

• Special Lift function • "ID32798 User list 1" contains invalid data			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: ID32798 User list 1		

1839 System diagnostics

• Special Lift function • The shaft contact KS contact monitoring detects an invalid contact position. The contact monitoring can be switched through "ID32798 User list 1"			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32798 User list 1		

1840 System diagnostics

• Special Lift function • Inadmissible interruption of an active lift function (SBM withdrawal, emergency stop switch, …)			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1841 System diagnostics

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			RESERVE
Error Removal			

1842 System diagnostics

• Special lift function • KS in the destination not equal to 1			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

1843 System diagnostics

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			RESERVE
Error Removal			

4.8 No. 2048 ... 2079 Logical Subscriber, S-BUS

2049 System diagnostics

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			No memory enable in PDU processing
Error Removal			

2050 System diagnostics

Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			The command code of the PDU to be evaluated is not known (LT: Logical subscriber) only PS3 software problem version PS ≤ 2.07
Error Removal			

2051 System diagnostics

• Waiting time after order to logical subscriber is exceeded			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			LT timeout
Error Removal			

2052 System diagnostics

• The ID to be edited is not contained in the database of the system			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2053 System diagnostics

• Error acknowledgement in commanding the database			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT-DTH
Error Removal			

2054 System diagnostics

• Error acknowledgement in commanding the monitor			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT-MONITOR
Error Removal			

2055 System diagnostics

• Error acknowledgement in commanding the serial EEPROM			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT-SEEP
Error Removal			

2056 System diagnostics

• Error acknowledgement in commanding the operation mode management			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT-BAV
Error Removal			

2057 System diagnostics

• Error acknowledgement in commanding the drive commanding KMD			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT-KMD
Error Removal			

2058 System diagnostics

• Error in LT → KMD commanding inverter, LT → KMD - logical subscriber at KMD-SS			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2059 System diagnostics

• Error in LT→ KMD commanding AW2			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2060 System diagnostics

• Error in LT → KMD commanding AW3			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2061 System diagnostics

• Error in LT → KMD commanding AW4			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2062 System diagnostics

• Error in LT → KMD commanding AW5			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2063 System diagnostics

• Error in LT → KMD commanding AW6			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2064 System diagnostics

• Error in LT → MD commanding AW7			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2065 System diagnostics

• Error in LT → KMD commanding AW8			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2066 System diagnostics

• Error acknowledgement in commanding a drive control			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			LT drive error
Error Removal			

2067 System diagnostics

• Error acknowledgement in commanding the diagnostics			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			LT diagnostics error
Error Removal			

2068 System diagnostics

• Error acknowledgement in commanding the display function			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT display
Error Removal			

2069 System diagnostics

• Error acknowledgement in commanding the lift function			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error LT lift
Error Removal			

2070 System diagnostics

• LT-SBUS, inverter not present			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2071 System diagnostics

• Failure in the s-bus hardware; re-boot system or check hardware			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Error during initializing of S-Bus (caused by ABK card)
		2	Error in COM port
Error Removal			

2072 System diagnostics

• S-bus software received faulty information from connected device, check sent messages			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Module received a PDU from wrong S-bus port
		2	S-bus PDU contains a unknown S-bus attribute
		3	S-bus PDU contains a unknown Sercos element number in task
		4	Drive has reported a SB_task_error
		5	S-bus PDU contains unknown S-bus command code
Error Removal			

2073 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	33	Length of ID34040 not permissible
		34	In ID34040 Time base not permissible
		35	In ID34040 Trigger position not permissible
		36	Too many values per cycle
		37	Resource error
		39	Signal code not available
		40	Command code not permissible
		41	A new configuration was transmitted during the RUN mode
		42	Read-out mode not permissible
		44	Channel number not permissible
		45	Buffer length incorrect
		46	Configuration error – a triggering of an external source (Bi t0 … 1) and source for external triggering (Bit4) were adjusted isochronal
		47	An external triggering was configured but there is no free PDO
		48	The difference between the system watches of the trigger sender and the trigger receiver is negative
		49	No free HEAP for the buffer
Error Removal	• Check scope parameters • Recheck Parameter • ID34040 OSC configuration list		

2074 System diagnostics

• Disturbance of scope function			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Allocate memory
		2	Re-allocate memory
Error Removal			

4.9 No. 2304 ... 2369 Inverter Hardware

2305 Phase U Short Circuit

Device	AW		
• As from AW 0210 replacement by message 2334			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2306 Phase V Short Circuit

Device	AW		
• As from AW 0210 replacement by message 2334			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2307 Phase W Short Circuit

• Short-circuit between 2 phases of the output terminals			
Device	AW		
• Defect in the AW. As from AW 0210 replacement by message 2334			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2308 Supply +12 V

Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2309 Supply

• Internal supply voltages of the inverter module do not have the correct value			
Device	AW AZ		
• Damaged ribbon cable, connection at the connector X27 of the AZ module or X57 of the AW module is faulty			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2310 Encoder communication

- Error in communication with encoder
- Encoder does not report/no encoder present
- Encoder cable defective or not connected
- Error in encoder database

Device			
Description			
Class	Warning		
Drive Behaviour	Drive runs down		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Error in communication:		
	Info 1	1	Timeout: No acknowledgement of the encoder
		2	CRC error: Faulty transmission of the encoder
		3	Alarm bit: The internal error bit of the encoder is set
		4	No single or multi-turn encoder recognized.

Info 2	0	ID32776 'Sine encoder period' is higher than the real solution of the single turn encoder. Check parameter ID32953 'Encoder type'
P- / Q-encoder: ID34265 'Encoder ratio'		
	1	Motor revolution or encoder revolution not equal 1
	2	No power of two
	3	Motor revolution not equal 1 on singleturn encoder

		5 Handshake: The answer of the encoder is wrong, disturbed communication, damaged encoder.
		6 Command cannot be executed by driver since encoder not yet initialized Help: Start System run-up again
		7 Motor was in motion when reading the position

Trigger	Measure
AFP command READ_SINCOS	Increase ID57 'In position window'
ID32843 'Service command' = 0x14	Increase ID57 'In position window'
ID32843 'Service command' = 0x10 / 0x11 / 0x12	Motor must stand still
ID32843 'Service command' = 0xEDA3	Increase ID34099 'Delay time SWC' ID34099 = 0: T_{Osc} = 400 ms ID34099 ≠ 0: T_{Osc}/ms period time for oscillation around zero or around point of adjustment at encoder tuning
Run-up	Motor must stand still during run-up

		8 Encoder property not compatibility, e.g. digital resolution to high, encoder type at present not possible.
		9 Signal error at the interpretation of the analog pulse (SIN, COS is not equal to the absolute pulse). Help: Check the cable of the encoder feedback.

	Error in action with encoder database:		
	Info 1	10	Identification: Reading error ID32842 'Encoder list customer', the encoder data are invalid Help: The ID32842 must be recorded with valid data.
		11	Checksum wrong: Data of ID32842 'Encoder list customer' in the encoder are wrong. Data of the were changed in the system without saving them in the encoder
		12	ID32842 'Encoder list customer' was changed without saving the data in the encoder
		13	Identification: Reading error “encoder list motor", the wrong list is invalid or the list is empty. Help: The encoder list motor must be recorded trough AMK with valid data.
		14	Checksum wrong: Data of the “Motor encoder list” in the encoder are wrong. Data of the “Motor encoder list” were changed in the system without saving them in the encoder
		15	The data of the ID No. listed in the “User encoder list” require more memory than available in the encoder
		16	The addressed memory cell may not be written
		17	Entered address does not exist
		18	The memory range in the encoder cannot be determined correctly
		19	The offset address in the encoder cannot be determined correctly
		20	ID34160 'Part number motor' is not equal with the part number motor witch is written into the encoder Help: Read the motor data from the encoder.
		33	Setpoint in ID32942 has a invalid polarity sign, referred to the motor sense of rotation ID32773, bit 16
		34	The absolute setpoint in ID32942 is over the limit of the encoder (ID116 x distinguishable revolutions of the encoder)
	Errors in access to data stock:		
	Info 1	30	Reading access:Error on reading data from DTH
		31	Writing access:Error on writing data into DTH
		32	ID wrong: ID number not available
		40	Inadmissible status
		41	Timeout encoder commanding
Error Removal			
Encoder errors of the option card KU-/KW-EN1 are distinguished from the motor encoder by Info 1 + 100			

Device	**IDT**		
Description	Messages during run-up (ID32773.23.= 1: reading the absolute position during initialisation)		
Class	see below		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	ID32773.27 = 0		
	Info 1	6	Warning Monitor of the UPS supply has triggered
		9	Error Actual position value change has been detected while no UPS was active (position reference has been lost).
	ID32773.27 = 1		
	Info 1	3	Error Info 2 | 10 | Survey of valid Flash has activated
		9	Error Faulty encoder angle was detected during system run-up

Device	**IDT**
Description	Error in combination with absolute encoder (type C)

<table>
<tr><td>Device</td><td colspan="3">IDT</td></tr>
<tr><td>Class</td><td colspan="3">see below</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td rowspan="5"></td><td rowspan="5">Info 1</td><td>3</td><td>Absolute encoder error
<table><tr><td rowspan="7">Info 2</td><td>1</td><td>Speed higher than 6000 rpm</td></tr><tr><td>2</td><td>Motor movement during the encoder power down (no battery power supply mode)</td></tr><tr><td>6</td><td>Communication error during the read access</td></tr><tr><td>7</td><td>Communication error during the write access</td></tr><tr><td>8</td><td>System SW error</td></tr><tr><td>9</td><td>Position lost because of the deep low power mode command</td></tr><tr><td>10</td><td>No valid record for position data is detected</td></tr></table></td></tr>
<tr><td>5</td><td>Error
Encoder communication error</td></tr>
<tr><td>6</td><td>Warning
Absolute encoder power off detected</td></tr>
<tr><td>8</td><td>Error
Faulty encoder firmware</td></tr>
<tr><td>9</td><td>Error
Motor movement in low power mode without USV</td></tr>
<tr><td>Error Removal</td><td colspan="3">• Encoder included in motor electric
Message incl. info 1 and info 2 to AMK service for error localisation
• If info 1 = 2, the motor can be moved to a known position and with the service command according ID32843=0X12 the encoder position can be set new.</td></tr>
</table>

2311 Encoder signal

• Motor encoder defective • Encoder cable defective or not connected • Motor is equipped with a D encoder • Possibly A encoder with defective field plates • The SINE encoder monitoring can be switched off through ID32773			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
	Info 1	1	A/I/T encoder hardware: Inadmissible level at the encoder input
		2	I/T encoder amplitude: The amplitude at the A/D converter input of an encoder track is less than 0.6 V (normal level: 2 V). Filtration: 5x within 50 ms leads to shutdown.
		3	T encoder timeout: In homing with T encoder or operation of synchronous machine with T encoder no feedback of the encoder.
		4	T encoder reception: In homing with T encoder or operation of synchronous machine with T encoder faulty transmission of the encoder.
		5	T encoder error bit: In homing with T encoder or operation of synchronous machine with T encoder the internal error bit of the encoder was set.
		6	T encoder position On operation of synchronous machine with T encoder the drive has moved on system run-up.
		7	Resolver: Amplitude of a resolver signal at the A/D converter input is less than 0.6 V (normal level: 2 V)
		12	A/I encoder amplitude: The amplitude at the A/D converter input of an encoder track is too large.
		13	Initializing ENDAT encoder
Device	AW		
	As from AW 2.11 4696 error analysis (code) through monitor cell M 7CFF. Data for T encoder also apply for S encoder		
Error Removal			
Encoder errors of the option card KU-/KW-EN1 are distinguished from the motor encoder by Info(I) + 100			

2312 Output Terminal Ground Fault

• Short-circuit between a phase of the output terminals and PE			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal	Defective motor connection cable or a defective motor		

2313 Synchronous running error

• Inadmissible 16-bit position command value input (step change) or disturbed signal paths			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Usually hardware problem, see. Com. error AZ M881C …		

2314 Master Synchronous Telegram AW

• Master synchronous telegram error on inverter			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2315 AW controller clock error

Lack of the controller clock was detected by an AW	
Device	AW AZ
Description	
Class	
Drive Behaviour	Drive runs down
Device Behaviour	Single treatment
Additional Error Information (AMK Service)	
Error Removal	• Fault on the AZ -> AW interface • Damaged ribbon cable • Connection at the connector X27 of the AZ module or X57 of the AW module is faulty

2316 Motor direction of rotation

• Direction of rotation monitoring recognizes defect on activating RF (only motor operation)			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal	Encoder tracks reversed polarity, output terminal phase sequence		

2317 External encoder direction of rotation

• Reserve, this message is not yet supported			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal	Encoder tracks reversed polarity		

2318 Control deviation

• Position control difference has exceeded the increment number defined by means of ID159 • Torque limits ID82 / ID83 too low • Check speed controller parameters ID100 / ID101 • Position control parameter ID104 not optimized • Speed limit ID38/ID39 too low • Motor too weak for this application • Inverter module too weak for this motor			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameters: • ID38 Positive velocity limit • ID39 Negative velocity limit • ID82 Positive torque limit • ID83 Negative torque limit • ID100 Proportional gain speed control KP • ID101 Integration acting time speed control TN • ID104 Position loop KV factor • ID159 Excessive Error		

2319 n > nmax

• Safety shutdown in the inverter • Actual speed was more than 1.25 * "ID113 Maximum speed”			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal	• Motor encoder faulty		

2320 EF inactive

• Output stage enabling (EF) inactive with controller enable RF active • EF check			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	Single treatment		
Additional Error Information (AMK Service)			
Error Removal			

2321 System diagnostics

• IGBT monitoring in PWM device detects overcurrent			
Device	KE/KW		
Description			

Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	I*t monitoring, 30 ms, 110% Imax IGBT
		1	Failure in Seep-list (cell 20014)
		2	The IGBT temperature is greater than allowed for this type
Error Removal	• Check drive load / motor sizing • Check overload by measuring motor torque • Reduce load (torque limit) optimize gain settings		

Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	3	Temperature model is not supported
Error Removal	• Check revision of the device (SEEP-data) • Upgrate to new revision (SEEP-data) • Disable temperatur model via ID32901 Bit9=0 (KW-R05: Error message will be inhibitted; KW-R03: Temperature model is disabled)		

2322 System diagnostics

• Inverter RAM memory error			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2323 System diagnostics

• VECON watchdog			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2324 System diagnostics

• Hardware significance in the AW SEEP invalid (M8030, 2 or 3 current measuring elements) • Furthermore differentiation of the U_Z sensors new 1/150 or old 1/200			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2325 System diagnostics

• Error (timeout 5s) current controller adjustment			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2326 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Rerserve
Error Removal			

2327 Plausibility of the External Encoder

• Plausibility monitoring between motor encoder and external positioning encoder initiated			
Device			
Description	Plausibility monitoring between motor encoder and ext. encoder detects too high slip (special software)		
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2328 System diagnostics

• Missing option card e.g. in the KU. For instance, if an AMK-A encoder is defined in "ID32953 Encoder type", then the option card AW- /KU- AG1 must also be detected			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2329 System diagnostics

• Commutation error in synchronous machine with AMK-T encoder (SINCOS absolute value encoder). Cause is a motion of the motor in system initialization			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2330 System diagnostics

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Reserve
Error Removal			

2331 System diagnostics

• Ramp down error • The actual speed value is not reduced in the 0.5 s grid. The ramp down monitoring can be switched off through ID32773			
Device	AW		
• As from AW 0210, AW ramp down error			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2332 System diagnostics

Device			
Description	Motor phase error (special software)		
Class			
Drive Behaviour	Drive runs down		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Check motor connection and motor cable		

2333 Position growth too large

• Inverter cannot process the cyclic 32-bit position setpoint growth per 500 µs (sampling time) • Wrong 32-bit input of setpoint by user • Fault of the bus system			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2334 System diagnostics

• Output terminal overcurrent			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2335 Error reference pulse

• Monitoring of reference pulse ID32773. 6=1 is active • Disturbance of reference pulse			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2336 System diagnostics

• Current setpoint at the analog input of the slave AW was too large. (Only in parallel connection of AWs)			
Device	AW		
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2337 No clock enable acknowledgement

• Clock enable is not acknowledged by the inverter • Consequential error			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2338 Magnetizing timeout

• No magnetizing possible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	• e.g. motor cables not connected on activating the controller enable • Lack of DC bus voltage		

2339 Ramp down error

• Inverter runs inconstantly (dxi/dt) to speed n=0, ramp down monitoring can be switched off through ID32773 • Motor drifts with low speed. • As from AW 0210 replacement by message 2331			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Check motor phases (U, V, W connected correctly?) • Encoder signal connections		

2340 Communication on AW

• Inverter-side communication error, fault			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2341 Communication on AZ

• AZ-side communication error, fault			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2342 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			QUITT AWMON-ERROR, RGRF
Error Removal			

2343 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			TIMEOUT BSÜ
Error Removal			

2344 Monitoring actual position

• The encoder absolute position and the internal actual position have a deviation of more than 0.5% of the encoder resolution.			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Deviation shown as 0.1% (Resolution absolute encoder)
Error Removal			

2345 'Inverter overload error'

• Current feedback values violate the I^2t calculation • 100 % overload • Previously 2349 'Inverter overload warning'			
Device	AW KU KW RM		
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
			I^2t monitoring, 30 ms, 100% I_{max} IGBT
Error Removal	• Check motor parameters • No or wrong encoder cable connected • Unstable, oscillating drive • Wrong encoder period number defined		

Device	KE		
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	0	I^2t error, I_{max} for 60 s at KE I^2t error, I_{max} for 10 s at KES
Error Removal			

• Overload inverter (n)			
Device	**ZWR**		
Description	Overload inverter -U1 (I^2t error, I_{max} for 10 s)		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check inverter -U1		

2346 'Converter temperature error'

• Temperature of the device too high • PTC resistor interruption			
Device			
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

Device	**KE**		
Description			
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	0	Temperature of cold plate -> SEEP cell 37 ITK (analogue)
Error Removal			

• Overtemperature inverter (n)			
Device	**ZWR**		
Description	Overtemperature inverter -U1 (> 75 °C)		
Class	Warning		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check cooling system		

2347 Motor temperature error

• Temperature of the motor too high • PTC resistor interruption			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2348 System diagnostics

Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
			Reserve
Error Removal			

2349 Inverter overload warning

• Device shuts down after 4 sec. with error 2345 'Inverter overload error' • Current feedback values violate the I^2t calculation			
Device	AW KU RM		
Description			
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Motor wrongly connected • No or wrong encoder cable connected • Unstable, oscillating drive • Wrong encoder period number defined		

2350 Device over temperature warning

• Device shuts down after 4 sec. With error 2346			
Device			
Description			
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	0	Temperature of cold plate -> SEEP cell 37 ITK (analogue)
Error Removal			

2351 Motor temperature warning

• Motor overtemperature warning or PTC resistor interruption			
Device	AW		
• SBM is withdrawn, drive shuts down after 4sec with error 2347			
Description			
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2352 Motor overload warning

• The thermal overload limit of the motor is reached • Shutting down the drive with error 2353 “Motor overload” after the time ID 32943 “WARNING TIME”			
Device	AZ KU		
Description			
Class	Warning message, reaction of the drive after 4 seconds		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2353 Motor overload error

• The thermal overload limit of the motor is reached			
Device	AZ KU		
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2354 Handshake brake

• Plausibility monitoring is active; ID32773. 13 = 1 • Handshake does not come within "ID207 Drive off delay time"			
Device			
Description			
Class	Warning		
Drive Behaviour	Drive is still active (QRF=1)		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Error reset is not allowed until axis is secured		

2356 Setpoint stop active

• Setpoint stop active			
Device	**KE/KW** **KU**		
Description	The limit switches configured at the binary inputs for positive (code 33909) and negative (code 33910) setpoint processing are actuated at the same time (low active)		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Check limit switch, replace if necessary • Check signal wiring, replace if necessary		

2357 Device overload warning

• Current actual values infringe the overload threshold ID32999 of the I^2t calculation • Switching off the drive with 2358 'Device overload error' at 100% overload			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Motor incorrectly connected • Check motor parameters • No or incorrect encoder channel connected • Unstable, oscillating drive • Incorrect number of encoder periods defined		

2358 Device overload error

• Current actual values infringe the I^2t calculation • 100% overload • Previously "2357 Device overload warning"			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2359 Motor overload warning

• "ID114 Overload limit motor" is reached • Switching off the drive with "2360 Motor overload error" at 100% overload			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID32920 Overload time motor		

2360 Motor overload error

• The thermal overload limit of the motor is reached • 100% overload • Previously "2359 Motor overload warning"			
Device			
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2361 EF Logic

• The selected EF monitor has responded (ID32901, bit 11)			
Device			
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	EF logic infringed, detected by controller
		1	EF logic infringed, detected by VECON
Error Removal	• Device is not EF compatible • Hardware error -> change device		

2362 Error Commutation Motor

• A fault has occurred during the evaluation of the commutation angle			
Device	KW KWZ KW-R06 iX / iC / iDT5 / iDP7		
Description			
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour	"Controller enable" (RF) is withdrawn		
Additional Error Information (AMK Service)			

	Info 1	10	Wrong calculation
		11	Wrong direction of rotation (phase sequence)
		12	Slope is too large Info2 - Actual value of the slope measured Info3 - Parameter limit value for the maximum slope
		13	Slope is too small Info2 - Actual value of the slope measured Info3 - Parameter limit value for the maximum slope
		14	Offset is too large (absolute value) Info2 - Actual value of the offset measured Info3 - Parameter limit value for the maximum offset
		15	Deviation is too large (absolute value) Info2 - Actual value of the offset measured Info3 - Parameter limit value for the maximum offset
		16	Wrong state (internal error inside the firmware - contact AMK service)
		17	Error when reading the list ID34174 'SWK monitoring'
		18	Error when updating the list ID34174 'SWK monitoring'
		20	Error occurred in alignment on homing position during SW commutation
		21	Error occurred during wake&shake commutation
Error Removal	• The wake&shake commutation was not able to evaluate a position (The motor was moved by an external torque) • Motor must be able to move freely(disconnect the load and check if the shaft can move freely) • Motor current to small (ID111 'Motor nominal current IN' , ID34095 'Final value SWC' • Wrong direction of rotation (change direction of rotation by changing 2 phases of the motor) • RF was withdrawn during the SW commutation • RF is not allowed to be withdrawn before SW commutation has finished • Check limit values in ID34174		

2365 'Error angle observer'

• Error angle observer			
Device	KW-R06 iDT5 iX / i3X iC		
Description	An error occurred during operation of the observer for sensorless detection of the rotor position		
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	1	The difference between encoder angle and observer angle exceeds ID33151.
Error Removal	• If additional message 2311 'Encoder signal': Check encoder and encoder wiring, replace if necessary • Recheck parameters: ○ ID33151 'Maximal angular deviation of encoder-sensorless' ○ ID34045 'Inductance path D' ○ ID34046 'Inductance path Q' ○ ID34164 'Terminal resistance' ○ ID34167 'Terminal Inductance' ○ ID34233 'Phase resistance'		

4.10 No. 2560 ... 2599 SERCOS / EtherCAT

2561 System diagnostics

• SERCOS			
Device			
Description	Failure of the master within communication phase 3 or 4 Master does not send any or just irregular frames of setpoint and actual values		
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check wiring		

• EtherCAT			
Device	**KW-EC1** **KWZ** **KW-R05** **A5** **iX / iC / iDT5**		
Description	EtherCAT master does not send any or just irregular frames of setpoint and actual values		
Class	Error		
Drive Behaviour	Drive runs down		
Device Behaviour	Slave will be reset to mode "Safe Operational" Controller: Setpoint values are not taken over any longer		
Additional Error Information (AMK Service)			
	Info 1	1	Failure of frame with real time data in "Operational" mode In "Operational" mode within two cycles no setpoint or actual values were written or read
		2	Failure of frame with real time data in "Operational" mode
Error Removal	Check EtherCAT wiring		

2562 System diagnostics

• MDT reception error in the Comm.phase 3 or 4			
Device			
Description			
Class			
Drive Behaviour	Controlled Braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2563 System diagnostics

• SERCOS			
Device			
Description	Invalid communication phase		
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

• EtherCAT	
Device	KW-EC1 KWZ KW-R05 A5
Description	EtherCAT AL fault The EtherCAT master has requested an invalid status.
Class	Error
Drive Behaviour	Drive runs down
Device Behaviour	Controller: Setpoints are no longer applied
Additional Error Information (AMK Service)	
Error Removal	Incorrect specification from EtherCAT master.

2564 System diagnostics

• SERCOS			
Device			
Description	Phase ramp up (sequence)		
Class	Error		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

• EtherCAT	
Device	KE-EC1 KWZ KW-R05 A5
Description	EtherCAT AL fault The EtherCAT master has specified an incorrect status sequence
Class	Error
Drive Behaviour	Drive runs down
Device Behaviour	
Additional Error Information (AMK Service)	
Error Removal	Incorrect specification from EtherCAT master.

2565 System diagnostics

• Phase switchback (not on phase 0)			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2566 System diagnostics

• Phase switchover without ready message			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2569 System diagnostics

• Memory error (allocating)			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2570 System diagnostics

• Memory error (deallocating)			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2571 System diagnostics

• Timeout during communication phases switch-over (AS-PL)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2572 System diagnostics

• SERCOS			
• AT/MDT configuration error • During KMD ID127 read error in the database			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	10	MDT too large
		11	Starting addr. (ID9) outside MDT or (ID9+data record length) > ID10
		12	Too many MDT-IDs (cycl.)
		13	Too many MDT-IDs
		14	Too many AT-IDs
		15	AT too large
		16	One of the IDs in the AT is a list parameter
		17	AT contains not configurable IDs Info 2 | ID-No.
		18	Configuration in ID24 does not fit in MDT range (too many bytes in the config. data record)
		19	One of the IDs in the MDT is a list parameter
		20	MDT contains not configurable ID Info 2 | ID-No.
		21	Too many temporary IDs
		22	Error in initialisation of temporary IDs
		23	ID7 too small (ID7 lies before the AT end)
		24	ID8 too small (ID8 lies before the MDT end)
		25	During CMD 127 error in reading database
		27	In phase 2 received value ID2 is unequal instance value
Error Removal	• Info 1 = 10 ... 22: Check the MDT or AT configuration in the master ("ID16 Configuration list AT", "ID24 Configuratin list MDT").		

<table>
<tr><td colspan="4">• EtherCAT</td></tr>
<tr><td colspan="4">• EtherCAT configuration error</td></tr>
<tr><td>Device</td><td colspan="3">KW-EC1
KWZ
KW-R05
A5</td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>5</td><td>"ID15 Telegram type parameter" ≠ 7</td></tr>
<tr><td></td><td></td><td>6</td><td>ID-No in configuration list is described incorrectly
(Internal error (AMK Service))</td></tr>
<tr><td></td><td></td><td>10</td><td>MDT too large</td></tr>
<tr><td></td><td></td><td>11</td><td>Starting addr. (ID9) outside MDT or (ID9+data record length) > ID10</td></tr>
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<tr><td></td><td></td><td>17</td><td>AT contains not configurable IDs<table><tr><td>Info 2</td><td>ID-No.</td></tr></table></td></tr>
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<tr><td></td><td></td><td>19</td><td>One of the IDs in the MDT is a list parameter</td></tr>
<tr><td></td><td></td><td>20</td><td>MDT contains not configurable ID<table><tr><td>Info 2</td><td>ID-No.</td></tr></table></td></tr>
<tr><td></td><td></td><td>21</td><td>Too many temporary IDs</td></tr>
<tr><td></td><td></td><td>22</td><td>Error in initialisation of temporary IDs</td></tr>
<tr><td></td><td colspan="2">The master has specified an inappropoiate MDT or AT configuration</td><td></td></tr>
<tr><td></td><td></td><td>27</td><td>EtherCAT register "DC Cycle Time Sync0" is not equal to "ID2 SERCOS cycle time" when device is switched on</td></tr>
<tr><td></td><td></td><td>29</td><td>EtherCAT configuration: Mailbox is faulty</td></tr>
<tr><td></td><td></td><td>30</td><td>EtherCAT configuration: Out-Sync manager is faulty</td></tr>
<tr><td></td><td></td><td>31</td><td>EtherCAT configuration: In-Sync manager is faulty</td></tr>
<tr><td></td><td></td><td>32</td><td>EtherCAT configuration: Synchronisation is faulty</td></tr>
<tr><td></td><td></td><td>79</td><td>Software error</td></tr>
<tr><td></td><td></td><td>81</td><td>Software error at AT<table><tr><td>Info 2</td><td>0</td><td>Module error</td></tr><tr><td></td><td>ID-No.</td><td>Pointer to ID not available</td></tr></table></td></tr>
<tr><td></td><td></td><td>82</td><td>Software error at MDT<table><tr><td>Info 2</td><td>0</td><td>Module error</td></tr><tr><td></td><td>ID-No.</td><td>Pointer to ID not available</td></tr></table></td></tr>
<tr><td>Error Removal</td><td colspan="3">• Info 1 = 10 ... 22:
Check the MDT or AT configuration in the master
("ID16 Configuration list AT", "ID24 Configuration list MDT").
• Info 1 = 27:
Adapt "ID1 NC cycle time" and "ID2 SERCOS cycle time"
switch off / on, restart master
(master normally adapted ID1 and ID2 during previous startup)
• Info 1 = 29 ... 32:
Check whether a correct XML device description file is used in the master
Info 1 = 30: too many output data
Info 1 = 31: too many input data</td></tr>
</table>

2573 System diagnostics

• SERCOS			
Device			
Description	Memory cell error (system error)		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	21, 22, 23, 33, 61	Software error
Error Removal	Software error => Transfer information to AMK Service		

• EtherCAT			
Device	KW-EC1 KWZ KW-R05 A5		
Description	EtherCAT memory error or special error		
Class	Error		
Drive Behaviour			
Device Behaviour	Drive runs down		
Additional Error Information (AMK Service)			
	Info 1	1	Error in memory request
		10	Module message transmission error
		21, 22, 23	EtherCAT software error
		33	EtherCAT software error
		40	ID reading error
		41	Signal address reading error
		42	EtherCAT initialisation error
		43	Device type unknown
		44	"Clear error" was not successful
		45	"Clear error" software error
		46	Error in “Real Time Data Manager” entry
		47	AT DMA transfer error
		48	MDT DMA transfer error
		50	Error during EtherCAT slave system initialisation
		61	EtherCAT software error
Error Removal	EtherCAT software error => Transfer information to AMK-Service		

2574 System diagnostics

• SERCOS			
Device			
Description	SERCOS-Asic memory test		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

• EtherCAT			
Device			
Description	Error during memory test in the EtherCAT Chip (The memory test is carried out without EtherCAT link!)		
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Replace KU-EC1, KW-EC1.		

2575 System diagnostics

• In Kx-SC2 modules: ext. 48 V power supply is not available or has been applied too late			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2576 System diagnostics

Device			
Description	Internal memory initialization During initialization error in reading database		
Class	Error		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	During initialization error in reading database
		2	Too many master instances
		3	More than one slave instance
		4	Error in writing database ("ID34150 Configuration list BC")
		5	Error in deletion "ID34142 Node list"
		6	Error in writing "ID34142 Node list"
		7	Same card addresses configured
		8	Installation synchronization function failed
		9	Installation copying function before PGT failed
		10	Installation copying function after PGT failed
		11	ID2 unequal for SC-master and SC-slave
		12	Error cause of additional initializations out of the *.ccb
Error Removal	Check bus parameterization		

• EtherCAT			
Device	KW-R05 A5		
Description	EtherCAT memory error or special error		
Class			
Drive Behaviour			
Device Behaviour	EtherCAT slave does not start		
Additional Error Information (AMK Service)			
	Info 1	13	Error initialising ETC SoE service
Device	KW-R05		
	Info 1	14	BUS type not known – ETC and VARAN are possible. SEEP value incorrect
Error Removal			

2577 System diagnostics

• Allocation of the real time control or real time status bit			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2578 System diagnostics

• Test function active message (continuous light, zero bit stream)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2579 System diagnostics

• Error on initialization of the SERCOS option card			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Error on card access
		2	Inadmissible value IRQ
		3	Inadmissible baud rate (only cards with HP Trans/Rec can transfer more than 4 Mbit)
		4	Wrong option card type, no AMK option card or option card type does not match the master/slave setting "ID34025 BUS mode"
		5	Wrong revision of the option card (CPLD version)
		6	Option card type and redundancy incompatible
Error Removal	Check installation of the option card		

2581 System diagnostics

• SERCOS master driver initialization			
Device			
Description	Option card type invalid or option card defective		
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Memory SERCON ASIC SercosDriverInit( )
		2	Version SERCON ASIC SercosDriverInit( )
		3	Reset error SERCON ASIC SercosDriverInit( )
		4	Memory SERCON ASIC SercosDriverInit( )
		10	Too many cyclic data (ScmFillMov( ))
		11	ID for cyclic telegram not available (ScmFillMov( ))
		12	Too many cyclic parameters (ScmFillMov( ))
		13	ID incorrect length (ScmFillMov( ))
		49	Driver not installed SercosDriverInit( )
		257	SERCOS-III FPGA code wrong
		258	SERCOS-III no master FPGA
		260	SERCOS-III FPGA version is not supported
		536	Invalid SERCOS cycle time (ID 2)
		1029	Error during memory allocation
Error Removal	Check bus parameterization		

2582 System diagnostics

• SERCOS master driver initialization			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Memory assignment
		2	Too many slaves
		3	Too many SERCOS rings
		4	Too many slaves
Error Removal	Check bus parameterization		

2583 System diagnostics

• SERCOS master configuration "ID34036 CCB File"			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
		1	"ID34036 CCB File" is empty
		2	No slaves in "ID34036 CCB File"
		3	Too many slaves in "ID34036 CCB File"
		4	Entry with invalid data format in "ID34036 CCB File"
		5	Invalid format of "ID34036 CCB File"
		10	Too many entries in the MDT configuration
		11	Axis in MDT master configuration does not exist
		12	Axis in MDT slave configuration does not exist
		13	Too many entries in the AT configuration
		14	Axis in AT master configuration does not exist
		15	Axis in AT slave configuration does not exist
		16	Too many entries in the broadcast configuration
		17	Axis in broadcast configuration is not broadcast axis
		18	Node address for broadcast configuration does not exist
		19	Telegram type configuration permitted only for slave
		20	Node address for telegram type configuration does not exist
		21	Configuration SERCOS control permitted only for master
		22	Node address for SERCOS control configuration does not exist
		23	Configuration SERCOS status permitted only for master
		24	Node address for SERCOS status configuration does not exist
		25	Unknown entry in CCB list ID34036
		28	Node address not in the ring
		29	Number of nodes in all ring lists is not equal to number of nodes in node list
		30	ID (element) of the Broadcast configuration not available
		31	ID (element) of the AT configuration not available Info 2 | Node address
		32	ID (element) of the MDT configuration not available Info 2 | Node address
		33	"ID34036 CCB-File" cannot be read
		34	wrong attribute
		35	"ID34054 CCB-Filename" for slave configured
		36	MDT-konfiguration of a non valid node (8000 h)
		37	AT-konfiguration of a non valid node (8000 h)
		38	Error during writing ID34054 CCB-filename
		41	XML configuration file: End tag missing
		43	XML configuration file: File has to start with start tag
		44	XML configuration file: Start tag name missing
		45	XML configuration file: End tag name missing
		47	XML configuration file: Start tag missing
		48	XML configuration file: Invalid token
		49	XML configuration file: Invalid tag
		50	XML configuration file: Empty configuration file
		52	XML configuration file: Configuration file without usable content

		53	XML configuration file: Tag name communication missing
		54	XML configuration file: Tag name ring missing
		55	XML configuration file: Attribute RingConfigurationID missing
		56	XML configuration file: Tag name RingGeneral missing
		57	XML configuration file: Tag name MasterAdress missing
		58	XML configuration file: Tag name MDTLengths missing
		59	XML configuration file: Tag name TelegrammLength missing
		60	XML configuration file: Tag name ATLength missing
		61	XML configuration file: Tag name Node missing
		62	XML configuration file: Attribute NodeAddress missing
		63	XML configuration file: Tag name SVCAT missing
		64	XML configuration file: Tag name SVCMDT missing
		65	XML configuration file: Tag name Connection missing
		66	XML configuration file: Attribute ConnectionID missing
		67	XML configuration file: Attribute tpcyc missing
		68	XML configuration file: Attribute TelegrammType missing
		69	XML configuration file: Attribute TelegrammNumber missing
		70	XML configuration file: Attribute Offset missing
		71	XML configuration file: Tag Producer missing
		72	XML configuration file: Tag PLCVariable missing
		73	XML configuration file: Attribute Length missing
		74	XML configuration file: Attribute Address missing
		75	XML configuration file: Attribute Name missing
		76	XML configuration file: Attribute Offset missing
		77	XML configuration file: Tag Consumer missing
		78	XML configuration file: Attribute RingConfigurationID missing
		79	XML configuration file: Error during writing the RingConfigurationID
		80	XML configuration file: Error during writing the cycle time (ID2)
		81	XML configuration file: Attribute sync missing for the PLC variable
		82	XML configuration file: Telegram Length cannot be divided by 4
		83	XML configuration file: Offset cannot be divided by 4
		84	XML configuration file: PLC address range exceeded
		85	XML configuration file: Too many cross-communication relations
		86	XML configuration file: Invalid length MDT
		87	XML configuration file: Invalid length AT
Error Removal	• Check bus configuration • Check SERCOS-III Master XML configuration file ("ID1204 XML-File", "ID1205 SML-File"), Info2 = instance		

2584 System diagnostics

• SERCOS master phase switchover			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Ring is open Fiberbreak Info 2 | Phase
		2	Ring is open MST late Info 2 | Phase
		3	Ring is open MST miss Info 2 | Phase
		4	Redundancy: master isolated
		5	master no clock signal
		9	Invalid telegram received P1 (AT wrong address) Info 3 | Address
		13	receive of non valid telegram P1 (AT data unequal 1) Info 3 | Address
		15	Phase change cannot be performed Info 2 | Phase
		35	Timeout Info 2 | Phase
		40	MST invalid phase information received Info 2 | Phase
		42	It is not possible to switch from phase 1 into 0
		43	no drive response P1 Info 3 | Address
		80	Timeout
		81	No participant found in phase 0
		82	Configuration file in the slave does not match the file in the master Info 2 | Address

<table>
<tr><td></td><td></td><td>522</td><td>Slave sends even though a phase exchange has been initiated<table><tr><td>Info 2</td><td>Phase</td></tr><tr><td>Info 3</td><td>Address</td></tr></table></td></tr>
<tr><td></td><td></td><td>523</td><td>Slave does send after phase exchange<table><tr><td>Info 2</td><td>Phase</td></tr><tr><td>Info 3</td><td>Address</td></tr></table></td></tr>
<tr><td></td><td></td><td>524</td><td>Timeout, no stable slave detection in master</td></tr>
<tr><td></td><td></td><td>525</td><td>Invalid ATs in phase 0</td></tr>
<tr><td></td><td></td><td>527</td><td>Ring/line in phase 0 not closed</td></tr>
<tr><td></td><td></td><td>529</td><td>No participant found in phase 0</td></tr>
<tr><td></td><td></td><td>530</td><td>A specified node is missing<table><tr><td>Info 2</td><td>Phase</td></tr><tr><td>Info 3</td><td>Address</td></tr></table></td></tr>
<tr><td></td><td></td><td>532</td><td>Ring/line in phase 0 not closed</td></tr>
<tr><td></td><td></td><td>536</td><td>Invalid SERCOS cycle time (ID2)</td></tr>
<tr><td></td><td></td><td>545</td><td>No link at output in phase 0</td></tr>
<tr><td>Error Removal</td><td colspan="3">• Check fibre optic conductors
• Check slaves</td></tr>
</table>

2585 System diagnostics

• SERCOS master time slot calculation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	6	"ID5 Minimal feedback acquisition time" from slave is not available for time slot calculation
		20	"ID3 Drive transmission reaction time" from slave is not available for time slot calculation
		25	"ID88 Recovery time receive-receive" from slave is not available for time slot calculation
		29	"ID2 SERCOS cycle time" is too short
		31	"ID90 Command value copytime" from slave is not available for time slot calculation
		44	"ID4 Transmit/receive time" from slave is not available for time slot calculation
		45	"ID96 Slave identifier (SKLN)" from slave is not available for time slot calculation
		46	"ID87 Recovery time transmit-transmit" from slave is not available for time slot calculation
		80	Timeout
		533	Invalid MDT length in configuration file
		534	Invalid AT length in configuration file
		536	Invalid "ID2 SERCOS cycle time"
		537	Invalid "ID1 NC cycle time"
		538	Internal error
		539	Internal error
		540	Internal error
		541	Internal error
		543	Too much cyclic data in SERCOS cycle
		544	Too many telegrams in SERCOS cycle
Error Removal	• Check slaves • Check SERCOS-III Master XML configuration file ("ID1204 XML File", "ID1205 XML File"), Info2 = instance		

2586 System diagnostics

• SERCOS master service channel			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Protocol error: HS_AT ! = HS_MDT + BUSY = 1 Info 3: Node address
		2	Error on initialization of service channel
		3	Router error Info 2: Error of the router Info 3: Error location
		4	Data access attribute unknown Info 3: Node address
		33	Busy Timeout Info 2: ID Info 3: Node address
		34	Handshake timeout bit Info 2: ID Info 3: Node address
		80	Timeout Info 2: ID Info 3: Node address
		81	Startup error Info 3: Node address
		9	Error service channel acc. SERCOS e.g. data transmission to long (Info 3: node address) Info 3: Node address
		> 0x1000	Error service channel acc. SERCOS e.g. data transmission to long Info 3: Node address 0x88xxerror in ROUTER from slave Info 3: Node address
		514	Service channel already assigned
Error Removal			

2587 System diagnostics

• SERCOS master incorrect data in the service channel			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Error message according to SERCOS
Error Removal			

2588 System diagnostics

• SERCOS master error in command execution			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	36	Command timeout Info 2: ID Info 3: Node address
Error Removal			

2589 System diagnostics

• SERCOS master has detected ring interruption			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Check fibre optic cable • Check slaves		

2590 System diagnostics

• SERCOS master has detected AT failure			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	xx	xx = Node address of the slave
Error Removal	Check slaves		

2591 System diagnostics

• SERCOS master software error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Contents SERCON Register 17
Error Removal			

2592 System diagnostics

• SERCOS master has detected MST failure			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check fibre optic cable		

2593 System diagnostics

• SERCOS master real time error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
			Additional driver information
Error Removal			

2594 System diagnostics

• SERCOS master software error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2595 System diagnostics

• SERCOS			
Device			
Description	Error SERCOS synchronization		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	SERCOS master synchronization timeout
		2	SERCOS synchronization lost
Error Removal			

• EtherCAT			
Device	KW-EC1 KWZ KW-R05 A5		
Description	Error EtherCAT synchronisation		
Class	Error		
Drive Behaviour			
Device Behaviour	Slave will be reset to mode "Safe Operational" Controller: Setpoints are no longer applied		
Additional Error Information (AMK Service)			
	Info 1	2	EtherCAT synchronisation not reached ○ While changing from "Safe operational" to "Operational" the synchronisation on distributed clock was not reached
		3	EtherCAT synchronisation lost ○ In the state "Operational" the state of the synchronisation in the cycle is checked and in 2 subsequent cycles “not synchronous” detected
		4	Toggle bit in control word is incorrect
Error Removal	Check settings for distributed clock in the master		

2596 System diagnostics

• SERCOS master has received the “error” acknowledgment to a command			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Command ID Info 2: Node address Info 3: Acknowledgment
Error Removal			

2597 System diagnostics

• SERCOS master has received an error message from a remote node			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Error status class 1
		2	Warning status class 2
Error Removal			

2598 System diagnostics Warning

• SERCOS has indicated a bad signal quality on the OWG receiver (excessive receive data distortion RDST) • OWG disconnection AS-FSR1			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Bad signal quality on the OWG receiver		
	Info 1	1	Master
		2	Slave
		3	Master verify ring
		4	Slave verify ring
	Disconnection OWG receiver (redundant)		
	Info 1	10	Main ring error during bootup
		11	Verify ring error during bootup
		14	Main ring error during operation Info 2 | Node (256 = master)
		15	Verify ring error during operation Info 2 | Node (256 = master)
		527	No link is detected during the bus booting time ("ID34026 BUS mode attribut")
Error Removal			

4.11 No. 2600 ... 2609 Profibus (PB)

2600 System diagnostics

• Error memory space			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

• Memory error			
Device	**AMKAMAC control units A4 / A5**		
Description	Profibus error		
Class	Error		
Drive Behaviour			
Device Behaviour	System run-up aborted: Profibus does not start		
Additional Error Information (AMK Service)			
	Info1	1	Software error - memory
		10	Software error - message sending
		20	A5: Profibus option card A-SPB missing
Error Removal	• Info1 = 20: check device • AMK service		

2601 System diagnostics

• Adapter cannot be initialized			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Module number not permitted (>3)
		2	SPC3 buffer size not possible
		3	Initialization error (e.g. module address jumper plugged in)
		4	It's not possible to read initial parameters.
		5	AFP because of an active option card not available
		6	Number of synchronous data modules is not allowed.
Error Removal			

2602 System diagnostics

• Cable is interrupted (reaction according to "ID 34027 BUS failure characteristics")			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2603 System diagnostics

• Data exchange mode is exited (e.g. after watchdog error; reaction according to "ID34027 BUS failure characteristics")			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2604 System diagnostics

• Inadmissible field bus handshake code (e.g. SERVERERROR, SERVERWARNING, …)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Input handshake
		2	Output handshake
Error Removal			

2605 System diagnostics

• PROFIBUS Initialization/ Error state			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	16	PROFIBUS Controller not in “Offline” state
		17	Node address error
		18	Input/output length error 2
Error Removal			

• PROFIBUS error bus configuration					
Device	**AMKAMAC control units A4 / A5**				
Description					
Class	Error				
Drive Behaviour					
Device Behaviour	System run-up aborted: Profibus does not start				
Additional Error Information (AMK Service)					
	Info1	17	Slave address error		
		24	Profibus configuration: wrong length		
			Info2	1	ID1204 'XML file' / P.S.2 - length too small
					Info3: Length of ID Header
				2	Master length too large
					Info3: Length Master
		35	Master configuration - Wrong I/O modules or not supported		
			Info2: I/O Module Identifier		
			Info3: I/O Module Offset in Master CFG Indication		
Error Removal	• Check bus configuration				

2606 System diagnostics

• PROFIBUS MSAC-C1 error (Master-Slave Acyclic Communication-Class1)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2607 System diagnostics

• PROFIBUS MSAC-C2 error (Master-Slave Acyclic Communication-Class2)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2608 System diagnostics

• PROFIBUS initialisation error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Buffer configuration too small
		2	Input/output data size wrongly configured ("ID34025 BUS mode"/Inst1)
		3	Wrong / not supported PROFIdrive standard telegram
		5	KW software older than 2004/52
		8	ID 2<> 0.5 ms by PROFIdrive Telegram 105
		21 - 28	ID READ error during initialization
		31 - 34	Reading error during initialization
		38	ID READ error ("ID 32840 Diagnostic List")
		41	ID WRITE error ("ID34023 BUS address paricipant")
		42	ID WRITE error ("ID32944 SYADR")
		148 - 255	Software error
Error Removal			

<table>
<tr><td colspan="4">• PROFIBUS error</td></tr>
<tr><td>Device</td><td colspan="3">AMKAMAC control units A4 / A5</td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3">System run-up aborted: Profibus does not start</td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>9</td><td>DP cycle ID2 faulty, e. g. less than 1 ms<table><tr><td>Info2</td><td>DP cycle ID2 / µs</td></tr></table></td></tr>
<tr><td></td><td></td><td>50</td><td>Number of input bytes in slave greater than number of input bytes in master<table><tr><td>Info2</td><td>Input size slave</td></tr><tr><td>Info3</td><td>Input size master</td></tr></table></td></tr>
<tr><td></td><td></td><td>51</td><td>Number of output bytes in slave greater than number of output bytes in master<table><tr><td>Info2</td><td>Output size slave</td></tr><tr><td>Info3</td><td>Output size master</td></tr></table></td></tr>
<tr><td></td><td></td><td>52</td><td>Not enough input modules in master<table><tr><td>Info2</td><td>Number of input modules in slave</td></tr><tr><td>Info3</td><td>Number of input modules in master</td></tr></table></td></tr>
<tr><td></td><td></td><td>53</td><td>Not enough output modules in master<table><tr><td>Info2</td><td>Number of output modules in slave</td></tr><tr><td>Info3</td><td>Number of output modules in master</td></tr></table></td></tr>
<tr><td></td><td></td><td>54</td><td>Input module in slave not equal to input module in master<table><tr><td>Info2</td><td>Module offset / bytes</td></tr></table></td></tr>
<tr><td></td><td></td><td>55</td><td>Output module in slave not equal to output module in Master<table><tr><td>Info2</td><td>Module offset / bytes</td></tr></table></td></tr>
<tr><td></td><td></td><td>56</td><td>Dummy input module in slave does not match input module in master<table><tr><td>Info2</td><td>Module offset / bytes</td></tr></table></td></tr>
<tr><td></td><td></td><td>57</td><td>Dummy output module in slave does not match output module in master<table><tr><td>Info2</td><td>Module offset / bytes</td></tr></table></td></tr>
<tr><td>Error Removal</td><td colspan="3">• Check bus configuration
• ID1204 'XML file'</td></tr>
</table>

2609 System diagnostics

• PROFIBUS Warning – wrong parameter initialization • Read error ID 173 • Global Control Sync Loss			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Wrong initialized "ID32799 Configuration standard peripherie"
		2	Wrong initialized "ID34026 BUS mode attribut"
		3	Wrong initialized "ID32926 AMK homing cycle parameter"
		4	Wrong initialized "ID32855 Output port 2"
		5	Wrong initialized "ID32863v Port 2 bit 7"
		6	Wrong initialized "ID32968 Input port 2"
		7	Wrong initialized "ID32973 Port 2 bit 4"
		8	Wrong initialized "ID32976 Port 2 bit 7"
		20	Global Control Sync Loss
		173	Error by reading "ID173 Marker position A"
Error Removal			

4.12 No. 2620 ... 2629 ARCNET (ARC)

2620 System diagnostics

• Subscriber not connected with network			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2621 System diagnostics

• Network error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2622 System diagnostics

• Transfer error/transmission error • Transmission process timeout			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2623 System diagnostics

• Adapter is constantly reconfigured			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check BUS connection		

2624 System diagnostics

• ID34023=0, BUS subscriber address must be unequal to 0 • ARCNET controller error • RAM test controller error			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2625 System diagnostics

• ARCNET telegram too long			
Device			
Description			
Class	Controlled braking		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2626 System diagnostics

• Node ID is already present	
Device	

Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID34023 BUS address participant		

2628 System diagnostics

• Init. state error • Error in node ID check • No adapter present • RAM memory too small for ARCNET			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

4.13 No. 2640 ... 2649 LON

2640 LON failure

• Interruption of the master → slave connection • Recognition only by heartbeat failure • Ramp down after BUS failure			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2641 LON timeout IN

• Device does not accept control block within T1 • T1 = low word after variable nvi_QhsTime • See LON network variables for more details			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2642 LON timeout OUT

• Device does not output status block within T1 • T1 = low word after variable nvi_Qhs Time • See LON network variables for more details			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2643 LON timeout appl.

• The application lasts (Q_CODE=1) longer than T2 • T2= high word after variable nvi_QhsTime • See LON network variables for more details			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2644 System diagnostics

• Device reports within 2 s in the ramp up • Handshake not with code “5678”			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2645 System diagnostics

• DPRAM writing error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

4.14 No. 2660 ... 2669 INTERBUS (IB)

2660 System diagnostics

• The required RAM memory for the system data is not present			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2661 System diagnostics

• Unknown bus mode entry in "ID34025 BUS mode"			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2663 System diagnostics

• Interbus is inactive			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Cable is defective or not connected with master		

2664 System diagnostics

• Interbus reset			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2665 System diagnostics

• At least 20 invalid data cycles detected			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

4.15 No. 2680 ... 2699 CAN

2680 System diagnostics

• CAN AFP error during initialization			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Device does not answer during initialization longer as 2 sec.
		2	AFP timeout status
		3 - 23	Error by reading ID s
Error Removal			

2681 System diagnostics

• Object Dictionary error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2682 System diagnostics

• Too much Receive PDOs and SDOs configured			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

2683 System diagnostics

• Software error (Reason could be false configuration data)			
Device			
Description			
Class	Warning		
Drive Behaviour	Controlled braking		
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

2684 System diagnostics

• Communication error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Transmit buffer full
		2	RTR to RPDO
		3	Unknown NMT command
		4	Invalid message type
		5	Exit from OPERATIONAL state
		6	CAN controller not ready to send new message
Error Removal			

2685 System diagnostics

• Communication error • Hardware synchronisation error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	CAN controller in BUSOF state, check cables
		2	Life guarding timeout, communication interrupted
		3	AMK hardware synchronisation not possible
		4	AMK hardware synchronisation lost
		5	HW synchronization wrong cycle time
		10	Basic device synchronisation signal timeout
		11	Basic device synchronisation timeout
		12	Basic device synchronisation signal lost
		13	Basic device synchronisation lost
		14	External synchronisation signal lost
		15	External synchronisation lost
		16	External synchronisation signal timeout
		17	External synchronisation timeout
		20	Error in time system (250 µs level)
Error Removal			

Device	**KE**		
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info1	1	Interruption ACC
		2	Life guarding timeout
Error Removal			

Device	**AMKAMAC control units A4 / A5**		
Description	• Communication error • Hardware synchronisation error		
Class	Error		
Drive Behaviour			
Device Behaviour	System run-up aborted: Profibus does not start		
Additional Error Information (AMK Service)			
	Info1	1	CAN controller BUS off state
		2	Life guarding time-out, communication disturbed
		3	AMK hardware synchronisation not possible
		4	AMK hardware synchronisation lost
		5	Faulty cycle time of HW synchronisation
		10	Basic device synchronisation signal time-out
		11	Basic device synchronisation time-out
		13	Basic device synchronisation lost
		14	External synchronisation signal lost
		15	External synchronisation lost
		16	External synchronisation signal time-out
		17	External synchronisation time-out
		20	Error in time system (250 µs level)
Error Removal	Info1 = 1 Info1 = 4 Info1 = 5 Info1 = 11		• Check cabling • Check configuration of hardware synchronisation ID34026 'BUS mode attribute' in all devices • Check ID 2 'SERCOS cycle time' in all devices • Check cabling and terminator • When using the AMK adaptor AP-CI4 (O778), the resistors R1 and R2 must be equipped • Check configuration of hardware synchronisation ID34026 'BUS mode attribute' in all devices. Only one sender of hardware synchronisation cycle may be active. • NMT 'OPERATIONAL' received but basic device synchronisation not finished. I. e. the switching to 'OPERATIONAL' must be delayed. On AMK CAN master devices, this can be done by means of ID34026 by activating a run-up delay.

2686 System diagnostics

• AFP error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	No HS reading AFP output data
		2	No HS writing AFP input data
		3	Both 1 and 2
Error Removal			

2687 System diagnostics

• Invalid Node address • Invalid Baud Rate			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	Hardware switch Node address invalid
		1	"ID34023 BUS address participant": Node address invalid
		2	"ID34024 BUS transmit rate": Baud Rate invalid

Error Removal	• Check participant no. at rotary coding switch
	• Recheck parameters:
	  • ID34023 BUS address participant
	  • ID34024 BUS transmit rate		

2688 System diagnostics

• "ID34025 Bus mode":AFP bit not valid • AFP Error by reading ID s			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal	Recheck parameter: • ID34025 BUS mode		

2689 System diagnostics

• Errors on configuring			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1, 2 11, 12 35, 92	Internal error
		13, 20, 81	Transmission channel busy
		82	Bus error (BUS OFF status)
		91	Client SDO missing in master object list Info 2: Subscriber address of the slave node
		93	Not successful SDO transmission
		101	Resource problem (DCF too large) Info 2: 0 save to CCB 1 Load from CCB
		102	Resource problem (memory)
		103	Faulty PDO mapping in the DCF
		112, 113	Resource problem (Heap initialization)
		114, 115	Resource problem (memory)
		116	DCF not available
		117	Error on reading DCF
		118	Invalid DCF element (incorrect index or size)
		119	Resource problem (memory)
		120	Internal error
		121 - 145	Error on reading ID
		135	Error on writing from ID 34023
		151 - 194	Error on reading ID
		211	Hardware synchronization not successful
		212	No bus node available
		218	EndOfFile mark wrong
Error Removal			

2690 System diagnostics

• Error in Slave configuration (Data size in CCF element too big)			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
			Node ID of Slave node Info 2: Index Info 3: Sub index
Error Removal			

2691 System diagnostics

Device	Devices with ACC-Bus connection		
Description	Bus overload		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
		13, 20, 43, 48 - 50, 53,65	SEND QUEUE FULL
		33, 38	Heap overflow
		45 - 47	AFP handshake failed
		57, 58	Heap overflow
		62	CAN Controller not ready to send a message
		80	Data exchange utilisation ration too high
		82	Extraction from Send Queue late
		90	Extraction from Receive Queue late
		91	Send: Too many TPDOs Receive: Sync RPDO received too late
		92	Receive: Buffer for Asynchronous Receive PDOs full
		93	Sync TPDO cant´t be sent; too many PDOs in network
		201	Receive queue full
		202	Last CAN message lost
		203	Previous CAN message lost
		210	SDO Receive channel fulll
		211	SDO Transmission channel full
		212	Too many SDO sessions started
		214	DSDO multiple started
		214	DSDO Error
Error Removal	• Info 1 = 91: Switch on hardware synchronisation in "ID34026 BUS mode attribut" Master: sender of signal Slave: receiver of signal • Check if "ID2 SERCOS cycle time" is the same cycle time for all nodes • Synchronous PDOs (with synchronous mapping variables) from external device must be received as EVENT PDO.		

2692 System diagnostics

• Software warning			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	DCF not available
		2	Oscilloscope PDO not available
		3	CAN BUS not active
		31, 36	Invalid NMT command received
		32, 37	Exit from OPERATIONAL state
		101	ID write not possible
		103	Read “ERROR FIFO” not possible
		104	Mapping conflict (copy direction)
		105	Hardware synchronization configuration error
Error Removal			

2693 System diagnostics

• Slave Node State error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Node ID of slave node
Error Removal			

2694 System diagnostics

• Slave Node Guarding error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Node ID of slave node Info 2: 1 – Timeout 2 – Toggle Bit error
Error Removal			

2695 System diagnostics

• Emergency received			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Node ID of slave node
Error Removal			

2696 System diagnostics

• DSDO Router error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Router error code
Error Removal			

2697 System diagnostics

• Mandatory slave node missing			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Node ID of slave node Info 2: 1 = Network configuration; 2 = Single node configuration
Error Removal			

2698 System diagnostics

• SDO error during network configuration			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1		Node ID of slave node Info 2: Index Info 3: Sub Index
Error Removal			

2699 System diagnostics

• System error			
Device			
Description			
Class			
Drive Behaviour	Controlled braking		
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	4	RAM-check error
		10	Watchdog or time level error
		12	User stack error
		13	System stack overflow
		14	System stack underflow
		15	Controller error
		20	Fast function overflow
		30	Initialization - Software error
		31	Initialization - error while data read
		32	Initialization - too much FCT instances
		33	Initialization - no FCT instance
		34	Initialization - error while data write "ID30 Softwareversion"
		35	Initialization - invalid bus use "ID34143 Usage port"
		36	Error while clock initialization
		37	FCT initialization – invalid CPLD version (2 FCT)
		38	FCT initialization – writing error Routing "ID32944 SYADR"
		39	FCT initialization – more than one synchronization source
Error Removal			

4.16 No. 2720 ... 2739 EtherCAT

2721 System diagnostics

• Slave defective or no longer on the bus • Cable defective • Slave leaves the “operational” status (resulting error in case of cable break)			
Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour	Controller: Switch back to status SAFE-OPERATIONAL		
Additional Error Information (AMK Service)			
	Info 1	1	Broadcast AL status not received
		2	Broadcast working counter error
		3	Slave offline Info 4: Slave address
		4	Slave offline Info 4: Slave address
		5	Slave not in “Operational” status Info 2: Status Info 4: Slave address
		10	No Ethernet link available
		20	DL status change Info 2: Current status Info 4: Previous status
		30	EtherCAT input (AMK devices X86) and EtherCAT output (AMK devices X85) mixed
Error Removal	• Check slave with the address from “Info 4” • Replace slave • Info 1 = 10: Exchange Ethernet cable • Innfo 1 = 30: Check EtherCAT cabling		

2722 System diagnostics

• Cable breakage • Error exchanging real-time data • Synchronisation error			
Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour	Controller: Switch back to status SAFE-OPERATIONAL		
Additional Error Information (AMK Service)			
	Info 1	1	Real-time telegram not received
		2	Real-time telegram working counter error Info 2: Working counter
		10	Error in synchronisation with host
Error Removal	• Check Ethernet cable and replace if necessary		

2723 System Diagnostics

• Configuration too large			
Device	**A5**		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	520	Runtime error
		550	Configuration too large
Error Removal			

2724 System diagnostics

• Error during the initialisation fir the EtherCAT option • Device for the operation of the optional component AS-FEC1 not released. The option card cannot be installed subsequently. • Configuration faulty			
Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted Controller: EtherCAT does not boot		
Additional Error Information (AMK Service)			
	Info 1	1	EtherCAT not parameterised in any instance of "ID34140 AS BUS protocol"
		2	Error while reading the bus parameters
		3	Registration at the router faulty
		4	Setting up the cyclic functions faulty
		5	Driver interface not initialised properly
		6	Device not released for the operation of the optional component AS-FEC1 (dongle code)
		7	Option not configured as master
		8	Option ACC active (Instance 1 or 5) EtherCAT and ACC-BUS can not be active both
		10	Access error to cyclic driver interface (The version of the EC driver is not compatible to the AMK library)
		11	Initialisation error
		21	Invalid task
		22	Error during bus restart
Error Removal	• Check configuration • Order controller with the AS-FEC1 option from AMK		

2725 System diagnostics

Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class			
Drive Behaviour			
Device Behaviour	Controller: Depends on additional information		
Additional Error Information (AMK Service)			
	Info 1	0	EtherCAT booting process cancelled. This error is a subsequent error to the errors 2726 or 2727
Error Removal			

2726 System diagnostics

<table>
<tr><td colspan="4">• Error in the EtherCAT master booting process</td></tr>
<tr><td>Device</td><td colspan="3">AS-PL15
AS-Cxx-1
A5</td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3"></td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3">System run-up aborted
Controller: EtherCAT does not boot</td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>1</td><td>Error while starting the master driver<table><tr><td>Info 2</td><td>1, 2, 3</td><td>Internal Error (AMK Service)</td></tr><tr><td></td><td>5</td><td>No connection to slaves</td></tr></table></td></tr>
<tr><td></td><td></td><td>2</td><td>Error during the stop of the master driver<table><tr><td>Info 2</td><td>1</td><td>No configured slave was not found<table><tr><td>Info 4</td><td>Slave network position</td></tr></table></td></tr><tr><td></td><td>2</td><td>More slaves found than configured<table><tr><td>Info 4</td><td>Slave network position</td></tr></table></td></tr><tr><td></td><td>3</td><td>Slave has wrong revision<table><tr><td>Info 3</td><td>Actual revision</td></tr><tr><td>Info 4</td><td>Slave network position</td></tr></table></td></tr></table></td></tr>
<tr><td></td><td></td><td>3</td><td>Error while activating the master function (subsequent error of 2731 process slave configuration)<table><tr><td>Info 2</td><td>Internal Error (AMK Service)</td></tr></table></td></tr>
<tr><td></td><td></td><td>4</td><td>Error reading the slave information<table><tr><td>Info 2</td><td>Internal Error (AMK Service)</td></tr></table></td></tr>
<tr><td></td><td></td><td>5</td><td>Error writing the slave addresses<table><tr><td>Info 2</td><td>1</td><td>Access error to the bus configuration</td></tr><tr><td></td><td>2</td><td>Data length of the ID is not valid<table><tr><td>Info 3</td><td>ID</td></tr><tr><td>Info 4</td><td>Slave address</td></tr></table></td></tr><tr><td></td><td>3</td><td>Write error at dictionary enries, seriation of the slaves wrong for this configuration<table><tr><td>Info 3</td><td>ID</td></tr><tr><td>Info 4</td><td>Slave address</td></tr></table></td></tr></table></td></tr>
<tr><td></td><td></td><td>6</td><td>Error writing the PDO configuration<table><tr><td>Info 2</td><td>2</td><td>“Category” information not in EEPROM of the slaves<table><tr><td>Info 4</td><td>Slave address</td></tr></table></td></tr></table></td></tr>
<tr><td></td><td></td><td>7</td><td>Error during registering the PDOs<table><tr><td>Info 2</td><td>Internal Error (AMK Service)</td></tr></table></td></tr>
<tr><td></td><td></td><td>8</td><td>Error during writing the RT data</td></tr>
<tr><td></td><td></td><td>9</td><td>Error during reading the RT data</td></tr>
<tr><td></td><td></td><td>10</td><td>Error during writing the DC configuration</td></tr>
<tr><td></td><td></td><td>11</td><td>Error DC configuration, Subsequent error of error 2730 datagram error</td></tr>
<tr><td></td><td></td><td>12</td><td>Error during switchover AL status, Subsequent error of error 2731 process slave configuration</td></tr>
</table>

<table>
<tr><td></td><td></td><td>14</td><td>Write error during PDO mapping<table>
<tr><td>Info 2</td><td>1</td><td>Slave not available</td></tr>
<tr><td></td><td>2</td><td>Slave does not support COE protocoll</td></tr>
<tr><td></td><td>3</td><td>Slave does not support PDO</td></tr>
<tr><td></td><td>4</td><td>direction of the PDO is not valid</td></tr>
<tr><td></td><td>5</td><td>error during start of the sync-manager</td></tr>
<tr><td></td><td>6</td><td>PDO already mapped</td></tr>
<tr><td></td><td>7</td><td>error during creating the PDO</td></tr>
<tr><td></td><td>8</td><td>PDO could not be copied</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>15</td><td>Command driver reset failed</td></tr>
<tr><td></td><td></td><td>16</td><td>Error while reading PDO mapping</td></tr>
<tr><td></td><td></td><td>17</td><td>Error while reading slave names</td></tr>
<tr><td></td><td></td><td>20</td><td>Driver command timeout</td></tr>
<tr><td></td><td></td><td>40, 41, 45</td><td>Error during bus start</td></tr>
<tr><td></td><td></td><td>42 - 44</td><td>Error while accessing slave parameter<table>
<tr><td>Info 2</td><td>ID-no / index</td></tr>
<tr><td>Info 4</td><td>Slave address</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>46</td><td>Error configuring cyclical data. Additional nodes are found See ID34026 instance 5 bit 5 = 1<table>
<tr><td>Info 2</td><td>1, 2, 3</td><td>Internal Error (AMK Service)</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>50</td><td>Return message while writing slave parameters</td></tr>
<tr><td></td><td></td><td>51</td><td>Return message error while reading slave parameters</td></tr>
<tr><td></td><td></td><td>203, 205, 206, 208, 209</td><td>Internal errors (AMK Service)</td></tr>
<tr><td>Error Removal</td><td colspan="3">• No EtherCAT master option card available
• No bus connection, no link
• Check optional component AS-FEC1
• Check Ethernet cable and replace if necessary</td></tr>
</table>

2727 System diagnostics

<table>
<tr><td colspan="2">• Error EtherCAT configuration</td></tr>
<tr><td>Device</td><td>AS-PL15
AS-Cxx-1
A5</td></tr>
<tr><td>Description</td><td></td></tr>
<tr><td>Class</td><td>Error</td></tr>
<tr><td>Drive Behaviour</td><td></td></tr>
<tr><td>Device Behaviour</td><td>System run-up aborted
Controller: EtherCAT booting process cancelled</td></tr>
</table>

Additional Error Information (AMK Service)			
	Info 1	1	Too much cyclic data
		2	The configured slaves are different from the existing slaves
			Info 2: 1 — A configured slave was not found Info 3: Slave with fixed address not found Info 4: Slave network position
			Info 2: 2 — More slave exist as configured Info 4: Slave network position
			Info 2: 3 — Slave has wrong revision Info 3: Current revision Info 4: Slave network position
			Info 2: 4 — Not configured slave Info 4: Slave position
			Info 2: 5 — Slave found without "category information" in EEPROM
	Info 1	2	
			Info 2: 6 — Device address already exists (twice assigned) Info 3: Slave address Info 4: Position 2nd slave
			Info 2: 7 — Slave with "vendor id" egual zero Info 4: Slave position
			Info 2: 8 — Slave found with fixed address, but not in configuration Info 3: Fixed address Info 4: Slave position
			Info 2: 9 — Link present but no slaves found, e.g., connected to switch or KW-R05 with VARAN interface
			Info 2: 10 — Error in composition of real time telegram
			Info 2: 11 — Configuration file XML format error
		3	Access to the account list ("ID34142 Node list") failed
		4	Initialisation SoE failed
		5	Error during writing the initial dictionary entries (e.g. "ID 2 SERCOS cycle time")
			Info 2: 1 — Error during access to the bus configuration
			Info 2: 2 — Invalid data length of an ID Info 3: ID Info 4: Slave address
			Info 2: 3 — Error during writing the dictionary entries, order of the slaves in configuration is invalid Subsequent error of 2728 or 2729 Info 3: ID Info 4: Slave address
		6	Error during writing the PDO dictionary entries
			Info 2: 1 — Error during access to the bus configuration
			Info 2: 3 — Error during writing the dictionary entries Subsequent error of 2728 or 2729 Info 3: ID Info 4: Slave address
		7	Timeout master synchronisation

		8	Error in PDO configuration

Info 2	1	AT is empty, has to contain at least the "ID135 Drive status word"
	2	ID135 is not the first entry in the AT
	3	MDT is empty, has to contain at least the "ID134 Master control word"
	4	ID134 is not the first entry in the MDT
	5	Data size of the PLC variable is not equal to the mapped value

		9	Error during access to the bus configuration "ID1204 XML-File", "ID1205 XML-File"

Info 2	1	Error during access to XML file
	2	Error during access to the bus configuration ID
	4	XML format error

Info 3	Internal Error (AMK Service)

		10	Addresses in configuration faulty

Info 2	1	Network position not found
		Info 3: Position
	2	Network position exists multiple times
		Info 3: Position
	3	Address invalid, > 225
		Info 3: Address
	4	Address issued multiple times
		Info 3: Address
	5	Optional device without fixed address
		Info 3: Position

		11	PDO structure in configuration with error

Info 2	1	Address does not exist
		Info 4: Address
	2	Number of entries incorrect
		Info 4: Address
	3	Structure detail incorrect
		Info 4: Address

		12	Error PDO context

Info 2	1	Internal error
	2	XML format error
	3, 4	Configuration faulty
		Info 3: Index Info 4: Address
	5	Chosen PDO selection not supported
		Info 3: Index Info 4: Address

Error Removal	• Check EtherCAT configuration • Check slave (Info 4) • Check fixed addresses in address assignment • Check order of slaves (slaves without fixed addresses) • Info 1 = 7: Check cabling Correct the EtherCAT input (AMK devices X86) and output (AMK devices X85)

2728 System diagnostics

• Error EtherCAT protocol during ID access			
Device	AS-PL15 AS-Cxx-1		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour	Controller: ID access by service channel is cancelled		
Additional Error Information (AMK Service)			
	Info 1	1	Service channel error
		3	Router reports error Info 2: Return value router
		4	Attribute of the ID in the controller unknown (current ADB file necessary)
		5	Service channel not yet ready, e.g. boot process still active
		6	Slave not found
		7	Slave not initialised
		8	Type of protocol not supported Info 2: 4 – COE is not supported 16 – SOE is not supported
		> 20	access error to driver
Error Removal	• Check PLC program (application) • Info 1 = 4: Install current ADB file • Info 1 = 5: Before ID access, check bus status using FuiGetNetStatus function block		

2729 System diagnostics

• Error EtherCAT service channel / mailbox	
Device	AS-PL15 AS-Cxx-1 A5
Description	
Class	Error
Drive Behaviour	
Device Behaviour	Controller: ID access by service channel is cancelled

Additional Error Information (AMK Service)			
	Info 1	1	Slave does not support the service channel Info 4: Slave address
		2	Data length too long for the mailbox Info 2: Length Info 4: Slave address
		3	Faulty service channel feedback Info 4: Slave address
		4	Mailbox datagram not received Info 4: Slave address
		5	Mailbox datagram working counter error Info 4: Slave address
		6	Timeout receiving mailbox Info 4: Slave address
		7, 8	Service channel invalid answer Info 2: ID Info 4: Slave address
		9	Transmission mailbox occupied Info 4: Slave address
		10	Timeout transmission mailbox Info 4: Slave address
		11 - 18	SoE Service channel invalid answer Info 2: ID Info 4: Slave address
		20	Error send mailbox
		21	Mailbox error message Info 2: Error Info 4: Slave address
		22	Internal error
		23	Mailbox error, too many requests
		24	Unknown protocol type received
		40 - 44	COE service channel error Info 2: Index Info 3: Sub index Info 4: Slave address
		45	COE emergency Info 2: Error code Info 3: Error register Info 4: Slave address
		46, 47	COE service channel error Info 2: Index Info 3: Sub index Info 4: Slave address
		102	Incorrect task
		103	Mailbox protocol initialisation
		105, 106	Incorrect address
		107 - 109	Incorrect protocol type
		111 - 150	Mailbox error
		200 - 399	Internal Error

Error Removal	• Check PLC program • Check slave with address from “I4” • Info 1 = 4 while booting: Check whether ACPI enable has been configured in BIOS Power Management

2730 System diagnostics

• Error EtherCAT datagram sending procedure, communication error			
Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour	Controller: Further behaviour depends on the subsequent error		
Additional Error Information (AMK Service)			
	Info 1	1	Datagram memory error Info 2: Size
		2	Datagram not received Info 2: Offset [1)] Info 4: Slave address
		3	Datagram working counter (WKC) error Info 2: Offset [1)] Info 3: WKC Info 4: Slave address
		4	Datagram timeout send Info 2: Offset [1)] Info 4: Slave position
		5, 6	Datagramm error Info 2: Offset [1)] Info 4: Slave address
		7	Frame timeout error
	[1)] Offset: Address in the EtherCAT slave controller		
Error Removal	• Communication error • Address in the EtherCAT slave controller not accessible or not existing		

2731 System diagnostics

• Error EtherCAT sequence slave configuration			
Device	AS-PL15 AS-Cxx-1 A5		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted Controller: EtherCAT does not boot		
Additional Error Information (AMK Service)			
	Info 1	1	Error during AL status change Info 2: AL status code (Internal error (AMK service)) Info 4: Slave address
		2	Timeout AL status change Info 4: Slave address
		3	Status error could not be deleted Info 2: AL status (Internal error (AMK service)) Info 4: Slave address
		4	Error during the slave configuration (frequent subsequent error of 2730) Info 4: Slave address
		5	Error during the configuration of the slave address Info 4: Slave address
		6	Error in the configuration DL access Info 4: Slave address
		7	Incorrect module address
		8	Constant status change in slave Info 4: Slave address
		10	Invalid status requested at status change
		11	Error at status request
Error Removal	• Configuration error in a slave (see error in a slave) • "ID32786 Message 32" in the AT configured as data type "INT". Needs to be changed to "DINT".		

2732 System diagnostics

Device	**AS-PL15** **AS-Cxx-1**		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	18	Error while writing permanent address to EEPROM Info 4: Address
Error Removal	• No slave exists at this address • The slave with this address is offline. • Error while writing		

4.17 No. 2740 ... 2749 Modbus

2741 Modbus configuration

• Error during the configuration of the MODBUS parameters			
Device	IDT		
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Slave number in "ID34023 BUS address participant" is incorrect
		2	Baud rate in "ID34028 BUS output rate" is wrong
		3	Protocol type in "ID34025 BUS mode" is unknown
		4	Number of data bits in "ID34025 BUS mode" is incorrect
Error Removal	• Inspection / correction of the ID described in the additional info		

2742 MODBUS communication

• Error with the MODBUS Communication			
Device	IDT		
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	6	Parity error
		7	Framing error
		8	Overrun error
		9	Receiving buffer full
Error Removal	• Check the correct setting of the communication parameters • Replacing the MODBUS cables • Change the connecting plug		

2743 MODBUS protocol

• Error in the MODBUS protocol			
Device	IDT		
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	5	CRC Check
		7	Wrong data length during the function “Read n words”
		8	Wrong data length during the function “Write n words”
		9	Wrong data length during the function “Read n bits”
		10	Wrong data length during the function “Write 1 bit”
		11	Wrong address during the function “Read n words”
		12	Wrong address during the function “Write n words”
		13	Wrong address during the function “Read n bits”
		14	Wrong address during the function “Write n bits”
		15	Unknown function code
Error Removal	• Check the settings of the MODBUS master		

2744 MODBUS command

• Error in the MODBUS command			
Device	IDT		
Description			
Class			
Drive Behaviour	Drive runs down		
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Unknown application mode
		3	Error detected in the control function
		4	Error detected in the status function
Error Removal	• Check the specifications of the MODBUS master		

4.18 No. 2816 ... 2819 AZ/Kx Option PS

2816 PS option

• Refer to the separate description of the corresponding option card for the analyzed error			
Device	Option PS		
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	• Check PS user program		

4.19 No. 3071 ... 3079 AZ Option SERCOS

3072 Error option SERCOS

• Refer to separate option card manual for error description			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	MST-failure in communication phase 3 or 4
		2	MDT-failure in communication phase 3 or 4
		3	Invalid communication phase
		4	Communication phase-incrementing (sequence)
		5	Communication phase-decrementing (not in phase 0)
		6	Communication phase-switching without ready message
		9	Memory error (allocated)
		10	Memory error (deallocated)
		11	No AZ-Handshake (AZR-failure?)
		12	AT/MDT configuration error (evaluation in command "ID127 Transition check phase 3")
		21	"ID 2 SERCOS Cycle time" is not 0.500
		23	"ID 2 SERCOS Cycle time" can not be divided by base time (ID 2 remanent)
		24	Main operating mode incorrectly
		26	Timeout in Interrupt: time level overflow
		27	Entry in ID 96 chained incorrectly
		28	Hardware failure AZ-SCx or 48 V-failure
Error Removal			

4.20 No. 3228 AZ Option NC

3328 NC option error

• Refer to the separate description of the corresponding option card for the analyzed error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

4.21 No. 3584 ... 3603 Special Functions

3584 'System diagnostics: Special software message'

• Fault overload protection connectbox (n)			
Device	ZWR		
Description	Overload protection tripped		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Replace overload protection -F100 in connectbox		

3585 'System diagnostics: Special software message'

• Error message Motor Controller							
Device	MCE						
Description							
Class	Error						
Drive behaviour	Drive runs down						
Device behaviour							
Additional information (Info AMK service)							
	Info1	1	Info2	3	Info3	1	Upper voltage limit < lower voltage limit
						2	P(motor) < 0
						3	P(generator) < 0
						4	Sign error of torque limit from calculation
						5	0 V > Uz > 1000 V
						6	-300 kW > motor shaft power > 300 kW
						7	Error in quadrant determination
						8	Faulty settings of voltage limitation
		2	Faulty parameterisation				
			Info2	1	I^2t de-rating settings		
		3	Error during operation				
			Info2	2	Info3	2	Invalid system status automat
						3	Monitoring output values
		4	Faulty parameterisation				
			Info2	4	Info3	1	Number of pulses = 0
		5	Error during operation				
			Info2	1	Error asynchronous data storage		
		7	Info2	1	Info3	1	ID32798-10: 'MCE operation mode' not defined
						2	ID32798-32: 'Direction forward' not defined
						3	Plausibility accelerator
						4	Parameter accelerator
		9	Error during operation				
			Info2	1	Toggle bit error		

<table>
<tr><td></td><td></td><td>10</td><td>Error during system check of the inverter<table><tr><td>Info2</td><td>1</td><td>Analogue 1</td></tr><tr><td></td><td>2</td><td>Analogue 2</td></tr><tr><td></td><td>3</td><td>BE1</td></tr><tr><td></td><td>4</td><td>BE2</td></tr><tr><td></td><td>5</td><td>BE3</td></tr><tr><td></td><td>6</td><td>Speed difference</td></tr><tr><td></td><td>7</td><td>Pulse encoder input</td></tr></table></td></tr>
<tr><td></td><td></td><td>11</td><td>Error on inactive switching off of terminal 15<table><tr><td>Info2</td><td>1</td><td>No switching off after end of 'Switch-off time'</td></tr></table></td></tr>
<tr><td>Error removal</td><td colspan="3">• Check parameterisation
• Re-start device
• Info1 = 11: Software used with MCE hardware:
Internal hardware error; please contact AMK service
Software used with KW hardware:
External hardware error; please check wiring</td></tr>
</table>

<table>
<tr><td colspan="4">• Fault monitoring power supply</td></tr>
<tr><td>Device</td><td colspan="3">ZWR</td></tr>
<tr><td>Description</td><td colspan="3">NA protection device -A3 has tripped</td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Device Behaviour</td><td colspan="3">Automatic error reset and switch back on</td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Error Removal</td><td colspan="3">• Check mains conditions
• Check configuration NA device -A3</td></tr>
</table>

3586 'System diagnostics: Special software message'

<table>
<tr><td colspan="4">• Error messages of CAN communication</td></tr>
<tr><td>Device</td><td colspan="3">MCE</td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Drive behaviour</td><td colspan="3">Drive runs down</td></tr>
<tr><td>Device behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional information (Info AMK service)</td></tr>
<tr><td></td><td>Info1</td><td>0</td><td>Memory error</td></tr>
<tr><td></td><td></td><td>1</td><td>Module command error</td></tr>
<tr><td></td><td></td><td>2</td><td>Invalid value in ID34028 'BUS output rate'</td></tr>
<tr><td></td><td></td><td>3</td><td>Invalid value in ID34024 'BUS transmit rate'</td></tr>
<tr><td></td><td></td><td>4</td><td>Error during access CAN</td></tr>
<tr><td></td><td></td><td>5</td><td>Error in message configuration (ID34036 'CCB-File')</td></tr>
<tr><td>Error removal</td><td colspan="3">• Check parameters
• Re-start device</td></tr>
</table>

<table>
<tr><td colspan="4">• Fault BUS</td></tr>
<tr><td>Device</td><td colspan="3">ZWR</td></tr>
<tr><td>Description</td><td colspan="3">Fieldbus interruption</td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Device Behaviour</td><td colspan="3">Automatic error reset and switch back on</td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Error Removal</td><td colspan="3">• Check bus wiring
• Check inverter -U1
• Check control unit -A1</td></tr>
</table>

3587 'System diagnostics: Special software message'

• Error during operation			
Device	MCE		
Description			
Class	Error		
Drive behaviour	Drive runs down		
Device behaviour			
Additional information (Info AMK service)			
	Info1	0	Failure of setpoint message
		1	Checksum error
		2	Error in message counter
		3	Implausible signals (during inverted transmission)
		4	Unknown message received
		5	Message with wrong length received
		6	Error on transmission, possibly CAN not connected
Error removal	• Re-start device • AMK service		

• Temperature cabinet too high			
Device	ZWR		
Description	Overtemperature in cabinet		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check cooling / fan in cabinet • Check fuse -F11 • Check thermostat -S1		

3588 'System diagnostics: Special software message'

• Frequency too low			
Device	ZWR		
Description	Mains frequency out of configured frequency range		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains frequency • Check configured values		

3589 'System diagnostics: Special software message'

• Frequency too high			
Device	ZWR		
Description	Mains frequency out of configured frequency range		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains frequency • Check configured values		

3590 'System diagnostics: Special software message'

• Voltage too low			
Device	ZWR		
Description	Mains voltage out of configured voltage range		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains voltage • Check configured values		

3591 'System diagnostics: Special software message'

• Voltage too high			
Device	ZWR		
Description	Mains voltage out of configured voltage range		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains voltage • Check configured values		

3592 'System diagnostics: Special software message'

• Fault voltage (switch on)			
Device	ZWR		
Description	Mains voltage below configured switch-on voltage		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains voltage • Check configured values		

3593 'System diagnostics: Special software message'

• Fault frequency (switch on)			
Device	ZWR		
Description	Mains frequency exceeds configured switch-on frequency		
Class	Error		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check mains frequency • Check configured values		

3594 'System diagnostics: Special software message'

• Warning string monitoring connectbox (n) string (m)			
Device	ZWR		
Description	String current below configured permissible deviation		
Class	Warning		
Device Behaviour	Automatic error reset and switch back on		
Additional Error Information (AMK Service)			
Error Removal	• Check string • Check configured values		

3595 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3596 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3597 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3598 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3599 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3600 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3601 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3602 'System diagnostics: Special software message'

• See special descriptions corresponding to special software documentation			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3603 'System diagnostics: AFP-PLC error'

• There is a program error in the KU control program (AFP-PLC) (user program is filed in "ID32798 User list 1")			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	AFP handshake timeout
		2	Wrong AFP command block
		3	Not allowed command
		4	Inadmissible state
		5	Loop number too high
		6	Loop end without loop start
		7	Jump to invalid block No. (>41)
		8	Invalid mark
		9	Inadmissible parameter in the RF macro
Error Removal			

4.22 No. 3605 ... 3610 Safety Functions

3605 Safety - Invalid Parameterisation

• Invalid parameterisation	
Device	KW-R07 / -R17 safety module
Description	An invalid parameterisation was detected during the evaluation of the safety parameters, e.g. invalid values
Class	Error
Drive behaviour	The drive remains torque-free
Device behaviour	The safety monitoring does not switch to the operational state, i.e. the safety functions cannot be put into operation

3605	Info1	7	Encoder error, sine encoder evaluation, monitoring channel 1

Info2		
	1	Prm6 'Sine encoder period' Specification for the sine encoder period too small (Prm6 < 16)
	2	Prm6 'Sine encoder period' Specification for the sine encoder period too large (Prm6 > 32768)

Error rectification	• Parameter to be checked: • Prm6: 'Sine encoder period' • Generate a correct parameter set and load on the target device

3605	Info1	16	Error message for the safety inputs, monitoring channel 1

Info2		
	1	Dynamic sampling impulse duration is too small
	3	Dynamic sampling impulse duration is too large

Info3		
	1	Input 1
	2	Input 2
	3	Input 3

Error rectification	• Parameter to be checked:
	  • Prm71: 'SE1.1 dynamic sampling impulse duration'
	  • Prm73: 'SE1.2 dynamic sampling impulse duration'
	  • Prm77: 'SE2.1 dynamic sampling impulse duration'
	  • Prm79: 'SE2.2 dynamic sampling impulse duration'
	  • Prm83: 'SE3.1 dynamic sampling impulse duration'
	  • Prm85: 'SE3.2 dynamic sampling impulse duration'
	• Generate a correct parameter set and load on the target device

3605	Info1	17	Error message for the safety inputs, monitoring channel 2

Info2		
	1	Dynamic sampling impulse duration is too small
	3	Dynamic sampling impulse duration is too large

Info3		
	1	Input 1
	2	Input 2
	3	Input 3

Error rectification	• Parameter to be checked:
	  • Prm71: 'SE1.1 dynamic sampling impulse duration'
	  • Prm73: 'SE1.2 dynamic sampling impulse duration'
	  • Prm77: 'SE2.1 dynamic sampling impulse duration'
	  • Prm79: 'SE2.2 dynamic sampling impulse duration'
	  • Prm83: 'SE3.1 dynamic sampling impulse duration'
	  • Prm85: 'SE3.2 dynamic sampling impulse duration'
	• Generate a correct parameter set and load on the target device

<table>
<tr><td>3605</td><td>Info1</td><td>18</td><td>Error message for the safety inputs,
monitoring channel 1
<table>
<tr><td>Info2</td><td>2</td><td>Dynamic sampling period is too large</td></tr>
<tr><td></td><td>3</td><td>Dynamic sampling period is too small</td></tr>
<tr><td></td><td>5</td><td>Ratio between dynamic sampling period and impulse duration is too small</td></tr>
</table>
<table>
<tr><td>Info3</td><td>1</td><td>Input 1</td></tr>
<tr><td></td><td>2</td><td>Input 2</td></tr>
<tr><td></td><td>3</td><td>Input 3</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm71: 'SE1.1 dynamic sampling impulse duration'
• Prm72: 'SE1.1 dynamic sampling period'
• Prm77: 'SE2.1 dynamic sampling impulse duration'
• Prm78: 'SE2.1 dynamic sampling period'
• Prm83: 'SE3.1 dynamic sampling impulse duration'
• Prm84: 'SE3.1 dynamic sampling period'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>19</td><td>Error message for the safety inputs,
monitoring channel 2
<table>
<tr><td>Info2</td><td>2</td><td>Dynamic sampling period is too large</td></tr>
<tr><td></td><td>3</td><td>Dynamic sampling period is too small</td></tr>
<tr><td></td><td>5</td><td>Ratio between dynamic sampling period and impulse duration is too small</td></tr>
<tr><td></td><td>6</td><td>Invalid value of input level</td></tr>
</table>
<table>
<tr><td>Info3</td><td>1</td><td>Input 1</td></tr>
<tr><td></td><td>2</td><td>Input 2</td></tr>
<tr><td></td><td>3</td><td>Input 3</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm70: 'SE1 input level'
• Prm71: 'SE1.1 dynamic sampling impulse duration'
• Prm72: 'SE1.1 dynamic sampling period'
• Prm76: 'SE2 input level'
• Prm77: 'SE2.1 dynamic sampling impulse duration'
• Prm78: 'SE2.1 dynamic sampling period'
• Prm82: 'SE3 input level'
• Prm83: 'SE3.1 dynamic sampling impulse duration'
• Prm84: 'SE3.1 dynamic sampling period'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

3605	Info1	20	Error message for safety input selection, monitoring channel 1

Info2		
	1	Prm17 'SE3 emergency stop function': invalid value
	2	Prm15 'SE1 safety function': invalid value
	3	Prm16 'SE2 safety function': invalid value
	4	Prm15 'SE1 safety function' and Prm17 'SE3 emergency stop function' same value
	5	Prm16 'SE2 safety function' and Prm17 'SE3 emergency stop function' same value
	6	Prm15 'SE1 safety function' and Prm16 'SE2 safety function' same value

Error rectification

- Parameter to be checked:
  - Prm15: 'SE1 safety function'
  - Prm16: 'SE2 safety function'
  - Prm17: 'SE3 emergency stop function'

3605	Info1	22	Error message for safety input selection, monitoring channel 2

Info2		
	1	Prm17 'SE3 emergency stop function': invalid value
	2	Prm15 'SE1 safety function': invalid value
	3	Prm16 'SE2 safety function': invalid value
	4	Prm15 'SE1 safety function' and Prm17 'SE3 emergency stop function' same value
	5	Prm16 'SE2 safety function' and Prm17 'SE3 emergency stop function' same value
	6	Prm15 'SE1 safety function' and Prm16 'SE2 safety function' same value
	16	Prm70 'SE1 input level': invalid value
	17	Prm76 'SE2 input level': invalid value
	18	Prm82 'SE3 input level': invalid value

Error rectification

- Parameter to be checked:
  - Prm15: 'SE1 safety function'
  - Prm16: 'SE2 safety function'
  - Prm17: 'SE3 emergency stop function'
  - Prm70 'SE1 input level'
  - Prm76 'SE2 input level'
  - Prm82 'SE3 input level'

3605	Info1	23	Error message for safety output selection, monitoring channel 1

Info2		
	2	Prm7 'Commanding' and Prm8 'Output control': Invalid parameters Prm7 and Prm8
	3	Prm7 'Commanding': Invalid parameter Prm7
	4	Prm8 'Output control': Invalid parameter Prm8

Error rectification

- Parameter to be checked:
  - Prm7: 'Commanding'
  - Prm8: 'Output control'

<table>
<tr><td>3605</td><td>Info1</td><td>24</td><td>Error message for safety output selection,
monitoring channel 2
<table><tr><td rowspan="3">Info2</td><td>2</td><td>Prm7 'Commanding' and Prm8 'Output control':
Invalid parameters Prm7 and Prm8</td></tr><tr><td>3</td><td>Prm7 'Commanding':
Invalid parameter Prm7</td></tr><tr><td>4</td><td>Prm8 'Output control':
Invalid parameter Prm8</td></tr></table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm7: 'Commanding'
• Prm8: 'Output control'</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>25</td><td>Error messages of the dynamic sampling of the safety outputs, monitoring channel 1
<table>
<tr><td rowspan="8">Info2</td><td>1</td><td>Dynamic sampling period A1 exceeds maximum</td></tr>
<tr><td>2</td><td>Dynamic sampling period A1 drops below minimum</td></tr>
<tr><td>3</td><td>Dynamic sampling impulse duration A1 exceeds maximum</td></tr>
<tr><td>4</td><td>Dynamic sampling impulse duration A1 drops below minimum</td></tr>
<tr><td>5</td><td>Dynamic sampling impulse duration A1 does not fit the 125 µs pattern</td></tr>
<tr><td>6</td><td>Dynamic sampling period < 10 x Dynamic sampling impulse duration</td></tr>
<tr><td>7</td><td>Prm87 'SA1 dynamic sampling':
Invalid parameter Prm87</td></tr>
</table>
<table>
<tr><td rowspan="8">Info2</td><td>10</td><td>Dynamic sampling period A2 exceeds maximum</td></tr>
<tr><td>11</td><td>Dynamic sampling period A2 drops below minimum</td></tr>
<tr><td>12</td><td>Dynamic sampling impulse duration A2 exceeds maximum</td></tr>
<tr><td>13</td><td>Dynamic sampling impulse duration A2 drops below minimum</td></tr>
<tr><td>14</td><td>Dynamic sampling impulse duration A2 does not fit the 125 µs pattern</td></tr>
<tr><td>15</td><td>Dynamic sampling period < 10 x Dynamic sampling impulse duration</td></tr>
<tr><td>17</td><td>Prm93 'SA2 dynamic sampling':
Invalid parameter Prm93</td></tr>
</table>
<table>
<tr><td rowspan="6">Info2</td><td>20</td><td>Dynamic sampling period Dyn exceeds maximum</td></tr>
<tr><td>21</td><td>Dynamic sampling period Dyn drops below minimum</td></tr>
<tr><td>22</td><td>Dynamic sampling impulse duration Dyn exceeds maximum</td></tr>
<tr><td>23</td><td>Dynamic sampling impulse duration Dyn drops below minimum</td></tr>
<tr><td>24</td><td>Dynamic sampling impulse duration Dyn does not fit the 125 µs pattern</td></tr>
<tr><td>25</td><td>Dynamic sampling period < 10 x Dynamic sampling impulse duration</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">

Parameter to be checked:

Prm87: 'SA1 dynamic sampling'
Prm88: 'SA1.1 dynamic sampling impulse duration'
Prm89: 'SA1.1 dynamic sampling period'
Prm90: 'SA1.2 dynamic sampling impulse duration'
Prm91: 'SA1.2 dynamic sampling period'
Prm93: 'SA2 dynamic sampling'
Prm94: 'SA2.1 dynamic sampling impulse duration'
Prm95: 'SA2.1 dynamic sampling period'
Prm96: 'SA2.2 dynamic sampling impulse duration'
Prm97: 'SA2.2 dynamic sampling period'
Prm99: 'SDYN1 dynamic sampling impulse duration'
Prm100: 'SDYN1 dynamic sampling period'
Prm101: 'SDYN2 dynamic sampling impulse duration'
Prm102: 'SDYN2 dynamic sampling period'

Generate a correct parameter set and load on the target device
AMK service

</td></tr>
</table>

3605	Info1	26	Error messages of the dynamic sampling of the safety outputs, monitoring channel 2

Info2	1	Dynamic sampling period A1 exceeds maximum
	2	Dynamic sampling period A1 drops below minimum
	3	Dynamic sampling impulse duration A1 exceeds maximum
	4	Dynamic sampling impulse duration A1 drops below minimum
	5	Dynamic sampling impulse duration A1 does not fit the 125 µs pattern
	6	Dynamic sampling period < 10 x Dynamic sampling impulse duration
	7	Prm87 'SA1 dynamic sampling': Invalid parameter Prm87
	8	Prm92 'SA1 output level': Invalid parameter Prm92

Info2	10	Dynamic sampling period A2 exceeds maximum
	11	Dynamic sampling period A2 drops below minimum
	12	Dynamic sampling impulse duration A2 exceeds maximum
	13	Dynamic sampling impulse duration A2 drops below minimum
	14	Dynamic sampling impulse duration A2 does not fit the 125 µs pattern
	15	Dynamic sampling period < 10 x Dynamic sampling impulse duration
	17	Prm93 'SA2 dynamic sampling': Invalid parameter Prm93
	18	Prm98 'SA2 output level': Invalid parameter Prm98

Info2	20	Dynamic sampling period Dyn exceeds maximum
	21	Dynamic sampling period Dyn drops below minimum
	22	Dynamic sampling impulse duration Dyn exceeds maximum
	23	Dynamic sampling impulse duration Dyn drops below minimum
	24	Dynamic sampling impulse duration Dyn does not fit the 125 µs pattern
	25	Dynamic sampling period < 10 x Dynamic sampling impulse duration
	28	Prm104 'SA1.2 output type': Invalid parameter Prm104

Error rectification	• Parameter to be checked:
	  • Prm87: 'SA1 dynamic sampling'
	  • Prm88: 'SA1.1 dynamic sampling impulse duration'
	  • Prm89: 'SA1.1 dynamic sampling period'
	  • Prm90: 'SA1.2 dynamic sampling impulse duration'
	  • Prm91: 'SA1.2 dynamic sampling period'
	  • Prm92: 'SA1 output level'
	  • Prm93: 'SA2 dynamic sampling'
	  • Prm94: 'SA2.1 dynamic sampling impulse duration'
	  • Prm95: 'SA2.1 dynamic sampling period'
	  • Prm96: 'SA2.2 dynamic sampling impulse duration'
	  • Prm97: 'SA2.2 dynamic sampling period'
	  • Prm98: 'SA2 output level'
	  • Prm99: 'SDYN1 dynamic sampling impulse duration'
	  • Prm100: 'SDYN1 dynamic sampling period'
	  • Prm101: 'SDYN2 dynamic sampling impulse duration'
	  • Prm102: 'SDYN2 dynamic sampling period'
	  • Prm104: 'SA1.2 output type'
	• Generate a correct parameter set and load on the target device
	• AMK service

3605	Info1	38	Error message of 'Safe encoder monitoring (SEM)', monitoring channel 1
			Info2 = 1: Prm9 'Transition time in case of standstill' Prm9 > 60000 min Info2 = 2: Prm10 'Reaction time in case of standstill' Prm10 > 60000 min

Error rectification	• Parameter to be checked:
	  • Prm9: 'Transition time in case of standstill'
	  • Prm10: 'Reaction time in case of standstill'		

3605	Info1	39	Error message of 'Safe encoder monitoring (SEM)', monitoring channel 2
			Info2 = 1: Prm9 'Transition time in case of standstill' Prm9 > 60000 min Info2 = 2: Prm10 'Reaction time in case of standstill' Prm10 > 60000 min

Error rectification	• Parameter to be checked:
	  • Prm9: 'Transition time in case of standstill'
	  • Prm10: 'Reaction time in case of standstill'		

<table>
<tr><td>3605</td><td>Info1</td><td>101</td><td>
Error message for the stop function 'Safe stop 1 (SS1)'
Movement monitoring
<table>
<tr><td rowspan="3">Info2</td><td>0</td><td>Not to be evaluated</td></tr>
<tr><td>7</td><td>Prm21 'SS1 safe speed standstill window'
Prm21 exceeds the maximum permissible value
(Prm21 > 60000 1/min)</td></tr>
<tr><td>8</td><td>Prm21 'SS1 safe speed standstill window'
Prm21 drops below the minimum permissible value
(Prm21 < -60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td rowspan="13">Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td>2</td><td>Prm21 'SS1 safe speed standstill window':
Prm21 drops below the minimum permissible value
(Prm21 < -60000 1/min)</td></tr>
<tr><td>3</td><td>Prm21 'SS1 safe speed standstill window':
Prm21 exceeds the maximum permissible value
(Prm21 > 60000 1/min)</td></tr>
<tr><td>4</td><td>Prm21 'SS1 safe speed standstill window':
Limits of the speed standstill window have the same value
(Prm21 = 0)</td></tr>
<tr><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td>6</td><td>Prm20 'SS1 brake ramp time':
Prm20 = 0</td></tr>
<tr><td>7</td><td>Prm 67/Prm 20:
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td>10</td><td>Prm20 'SS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td>11</td><td>Prm20 'SS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td>13</td><td>Prm 67/Prm 20:
Relation of maximum speed to ramp time wrong
(only monitoring channel 2)</td></tr>
</table>
</td></tr>
<tr><td>Error rectification</td><td colspan="3">

Parameter to be checked:

Prm20: 'SS1 brake ramp time'
Prm21: 'SS1 safe speed standstill window'
Prm67: 'SMS safe maximum speed'

Generate a correct parameter set and load on the target device

</td></tr>
</table>

<table>
<tr>
<td>3605</td>
<td>Info1</td>
<td>102</td>
<td>
Error message for the stop function 'Safe stop 2 (SS2)'
Movement monitoring
<table>
<tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr>
<tr><td></td><td>1</td><td>Prm26 'SS2 safe speed standstill window'
Speed limits are identical (Prm26 = 0)</td></tr>
<tr><td></td><td>2</td><td>Prm27 'SS2 safe position standstill window'
Position limits are identical (Prm27 = 0)</td></tr>
<tr><td></td><td>7</td><td>Prm26 'SS2 safe speed standstill window'
Prm26 exceeds the maximum permissible value
(Prm26 > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm26 'SS2 safe speed standstill window'
Prm26 drops below the minimum permissible value
(Prm26 < -60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm26 'SS2 safe speed standstill window':
Prm26 drops below the minimum permissible value
(Prm21 < -60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm26 'SS2 safe speed standstill window':
Prm26 exceeds the maximum permissible value
(Prm21 > 60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm26 'SS2 safe speed standstill window':
Limits of the speed standstill window have the same value
(Prm26 = 0)</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm25 'SS2 brake ramp time':
Prm25 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm 67/Prm 25:
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm25 'SS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm25 'SS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm67/Prm25: Relation of maximum speed to ramp time wrong
(only monitoring channel 2)</td></tr>
</table>
</td>
</tr>
<tr>
<td>Error rectification</td>
<td colspan="3">

Parameter to be checked:

Prm 25: 'SS2 brake ramp time'
Prm 26: 'SS2 safe speed standstill window'
Prm 27: 'SS2 safe position standstill window'
Prm 67: 'SMS safe maximum speed'

Generate a correct parameter set and load on the target device

</td>
</tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>103</td><td>Error message for the safety function 'Safe operating stop (SOS)'
Movement monitoring
<table>
<tr><td rowspan="4">Info2</td><td>1</td><td>Prm28 'SOS safe speed standstill window'
Speed limits are identical (Prm 28 = 0)</td></tr>
<tr><td>2</td><td>Prm 29 'SOS safe position standstill window'
Position limits are identical (Prm 29 = 0)</td></tr>
<tr><td>7</td><td>Prm28 'SOS safe speed standstill window'
Prm28 exceeds the maximum permissible value
(Prm28 > 60000 1/min)</td></tr>
<tr><td>8</td><td>Prm28 'SOS safe speed standstill window'
Prm28 drops below the minimum permissible value
(Prm28 < -60000 1/min)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
  • Prm 28: 'SOS safe speed standstill window'
  • Prm 29: 'SOS safe position standstill window'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr>
<td>3605</td>
<td>Info1</td>
<td>104</td>
<td>Error message for the safety function 'Safe speed range 1 (SSR1)'
Movement monitoring
<table>
<tr><td>Info2</td><td>1</td><td>Prm33 'SSR1 safe limit speed 1';
Prm34 'SSR1 safe limit speed 2':
Speed limits are identical (Prm33 = Prm34)</td></tr>
<tr><td></td><td>7</td><td>Prm33 'SSR1 safe limit speed 1'
Prm33 exceeds the maximum permissible value
(|Prm33| > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm34 'SSR1 safe limit speed 2'
Prm34 exceeds the maximum permissible value
(|Prm34| > 60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm33 'SSR1 safe limit speed 1':
Prm33 exceeds the maximum permissible value
(|Prm33| > 60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm34 'SSR1 safe limit speed 2':
Prm34 exceeds the maximum permissible value
(|Prm34| > 60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm33 'SSR1 safe limit speed 1';
Prm34 'SSR1 safe limit speed 2':
Limits of the speed standstill window have the same value
(Prm33 = Prm34)</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm32 'SSR1 brake ramp time'
Prm32 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm67/Prm32:
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm32 'SSR1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm32 'SSR1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm67/Prm32:
Relation of maximum speed to ramp time
(only monitoring channel 2)</td></tr>
</table>
</td>
</tr>
<tr>
<td>Error rectification</td>
<td colspan="3">

Parameter to be checked:

Prm32: 'SSR1 brake ramp time'
Prm33: 'SSR1 safe limit speed 1'
Prm34: 'SSR1 safe limit speed 2'
Prm67: 'SMS safe maximum speed'

Generate a correct parameter set and load on the target device

</td>
</tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>105</td><td>Error message for the safety function 'Safe direction positive (SDIp)'
Movement monitoring
<table>
<tr><td rowspan="3">Info2</td><td>1</td><td>Prm64 'SDI safe speed standstill window';
Prm67 'SMS safe maximum speed':
Speed limits are identical (Prm67 = Prm64)</td></tr>
<tr><td>7</td><td>Prm64 'SDI safe speed standstill window':
Prm64 exceeds the maximum permissible value
(|Prm64| > 60000 1/min)</td></tr>
<tr><td>8</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(|Prm67| > 60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td rowspan="2">Info3</td><td>0</td><td>Not to be evaluated</td></tr>
<tr><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm 64: 'SDI safe speed standstill window'
• Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>106</td><td>Error message for the safety function 'Safe direction negative (SDIn)'
Movement monitoring
<table>
<tr><td rowspan="3">Info2</td><td>1</td><td>Prm64 'SDI safe speed standstill window';
Prm67 'SMS safe maximum speed':
Speed limits are identical (Prm67 = Prm64)</td></tr>
<tr><td>7</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(|Prm67| > 60000 1/min)</td></tr>
<tr><td>8</td><td>Prm64 'SDI safe speed standstill window':
Prm64 exceeds the maximum permissible value
(|Prm64| > 60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td rowspan="2">Info3</td><td>0</td><td>Not to be evaluated</td></tr>
<tr><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm 64: 'SDI safe speed standstill window'
• Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>108</td><td>Error message for the safety function 'Safe maximum speed (SMS)'
Movement monitoring
<table>
<tr><td rowspan="3">Info2</td><td>1</td><td>Prm67 'SMS safe maximum speed':
Speed limits are identical (Prm67 = 0)</td></tr>
<tr><td>7</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td>8</td><td>Prm67 'SMS safe maximum speed':
Prm67 drops below the minimum permissible value
(Prm67 < -60000 1/min)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
• Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>109</td><td>Error message for the safety function 'Safe speed range 2 (SSR2)'
Movement monitoring
<table>
<tr><td>Info2</td><td>1</td><td>Prm39 'SSR2 safe limit speed 1';
Prm40 'SSR2 safe limit speed 2':
Speed limits are identical (Prm39 = Prm40)</td></tr>
<tr><td></td><td>7</td><td>Prm39 'SSR2 safe limit speed 1':
Prm39 exceeds the maximum permissible value
(|Prm39| > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm40 'SSR2 safe limit speed 2':
Prm40 exceeds the maximum permissible value
(|Prm40| > 60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm39 'SSR2 safe limit speed 1':
Prm39 exceeds the maximum permissible value
(|Prm39| > 60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm40 'SSR2 safe limit speed 2':
Prm40 exceeds the maximum permissible value
(|Prm40| > 60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm39 'SSR2 safe limit speed 1';
Prm40 'SSR2 safe limit speed 2':
Limits of the speed standstill window have the same value
(Prm39 = Prm40)</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm38 'SSR2 brake ramp time':
Prm38 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm38 'SSR2 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm38 'SSR2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm38 'SSR2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm38 'SSR2 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to ramp time wrong (Prm67/Prm38)
(only monitoring channel 2)</td></tr>
</table>
</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
  • Prm 38: 'SSR2 brake ramp time'
  • Prm 39: 'SSR2 safe limit speed 1'
  • Prm 40: 'SSR2 safe limit speed 2'
  • Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>110</td><td>Error message for the safety function 'Safe speed range 3 (SSR3)'
Movement monitoring
<table><tr><td>Info2</td><td>1</td><td>Prm45 'SSR3 safe limit speed 1';
Prm46 'SSR3 safe limit speed 2':
Speed limits are identical (Prm45 = Prm46)</td></tr><tr><td></td><td>7</td><td>Prm45 'SSR3 safe limit speed 1':
Prm45 exceeds the maximum permissible value
(|Prm45| > 60000 1/min)</td></tr><tr><td></td><td>8</td><td>Prm46 'SSR3 safe limit speed 2':
Prm46 exceeds the maximum permissible value
(|Prm46| > 60000 1/min)</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>2</td><td>Prm45 'SSR3 safe limit speed 1':
Prm45 exceeds the maximum permissible value
(|Prm45| > 60000 1/min)</td></tr><tr><td></td><td>3</td><td>Prm46 'SSR3 safe limit speed 2':
Prm46 exceeds the maximum permissible value
(|Prm46| > 60000 1/min)</td></tr><tr><td></td><td>4</td><td>Prm45 'SSR3 safe limit speed 1';
Prm46 'SSR3 safe limit speed 2':
Prm45 = Prm46</td></tr><tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr><tr><td></td><td>6</td><td>Prm44 'SSR3 brake ramp time':
(Prm44 = 0)</td></tr><tr><td></td><td>7</td><td>Prm44 'SSR3 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr><tr><td></td><td>10</td><td>Prm44 'SSR3 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>11</td><td>Prm44 'SSR3 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>13</td><td>Prm44 'SSR3 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to ramp time wrong
(Prm67/Prm44)
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
  • Prm 44: 'SSR3 brake ramp time'
  • Prm 45: 'SSR3 safe limit speed 1'
  • Prm 46: 'SSR3 safe limit speed 2'
  • Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr>
<td>3605</td>
<td>Info1</td>
<td>111</td>
<td>Error message for the safety function 'Safe speed range 4 (SSR4)'
Movement monitoring
<table>
<tr><td>Info2</td><td>1</td><td>Prm51 'SSR4 safe limit speed 1';
Prm52 'SSR4 safe limit speed 2':
Speed limits are identical (Prm51 = Prm52)</td></tr>
<tr><td></td><td>7</td><td>Prm51 'SSR4 safe limit speed 1':
Prm51 exceeds the maximum permissible value
(|Prm51| > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm52 'SSR4 safe limit speed 2':
Prm52 exceeds the maximum permissible value
(|Prm52| > 60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm51 'SSR4 safe limit speed 1':
Prm51 exceeds the maximum permissible value
(|Prm51| > 60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm52 'SSR4 safe limit speed 2':
Prm52 exceeds the maximum permissible value
(|Prm52| > 60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm51 'SSR4 safe limit speed 1';
Prm52 'SSR4 safe limit speed 2':
Prm51 = Prm52</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm50 'SSR4 brake ramp time':
Prm50 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm50 'SSR4 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm50 'SSR4 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm50 'SSR4 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm50 'SSR4 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to ramp time wrong (Prm67/Prm50)
(only monitoring channel 2)</td></tr>
</table>
</td>
</tr>
<tr>
<td>Error rectification</td>
<td colspan="3">

Parameter to be checked:

Prm 50: 'SSR4 brake ramp time'
Prm 51: 'SSR4 safe limit speed 1'
Prm 52: 'SSR4 safe limit speed 2'
Prm 67: 'SMS safe maximum speed'

Generate a correct parameter set and load on the target device

</td>
</tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>112</td><td>Error message for the safety function 'Safely-limited speed 1 (SLS1)'
Movement monitoring
<table>
<tr><td>Info2</td><td>1</td><td>Prm57 'SLS1 safe limit speed':
Speed limits are identical (Prm51 = Prm52)</td></tr>
<tr><td></td><td>7</td><td>Prm57 'SLS1 safe limit speed':
Prm57 exceeds the maximum permissible value
(Prm57 > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm57 'SLS1 safe limit speed':
Prm57 drops below the minimum permissible value
(Prm57 < -60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm57 'SLS1 safe limit speed':
Prm57 exceeds the maximum permissible value
(Prm57 > 60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm57 'SLS1 safe limit speed':
Prm57 drops below the minimum permissible value
(Prm57 < -60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm57 'SLS1 safe limit speed':
Limits of the speed window have the same value
(Prm57 = 0)</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm56 'SLS1 brake ramp time':
Prm56 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm56 'SLS1 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm56 'SLS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm56 'SLS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm56 'SLS1 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to ramp time wrong (Prm67/Prm56)
(only monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
  • Prm 56: 'SLS1 brake ramp time'
  • Prm 57: 'SLS1 safe limit speed'
  • Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

<table>
<tr><td>3605</td><td>Info1</td><td>113</td><td>Error message for the safety function 'Safely-limited speed 2 (SLS2)'
Movement monitoring
<table>
<tr><td>Info2</td><td>1</td><td>Prm62 'SLS2 safe limit speed':
Speed limits are identical (Prm62 = 0)</td></tr>
<tr><td></td><td>7</td><td>Prm62 'SLS2 safe limit speed':
Prm62 exceeds the maximum permissible value
(Prm62 > 60000 1/min)</td></tr>
<tr><td></td><td>8</td><td>Prm62 'SLS2 safe limit speed':
Prm62 drops below the minimum permissible value
(Prm62 < -60000 1/min)</td></tr>
</table>
Ramp monitoring
<table>
<tr><td>Info3</td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr>
<tr><td></td><td>2</td><td>Prm62 'SLS2 safe limit speed':
Prm62 exceeds the maximum permissible value
(Prm62 > 60000 1/min)</td></tr>
<tr><td></td><td>3</td><td>Prm62 'SLS2 safe limit speed':
Prm62 drops below the minimum permissible value
(Prm62 < -60000 1/min)</td></tr>
<tr><td></td><td>4</td><td>Prm62 'SLS2 safe limit speed':
Limits of the speed window have the same value
(Prm62 = 0)</td></tr>
<tr><td></td><td>5</td><td>Prm67 'SMS safe maximum speed':
Prm67 exceeds the maximum permissible value
(Prm67 > 60000 1/min)</td></tr>
<tr><td></td><td>6</td><td>Prm61 'SLS2 brake ramp time':
Prm61 = 0</td></tr>
<tr><td></td><td>7</td><td>Prm61 'SLS2 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to deceleration ramp n/t too small. (Ramp too flat)
(only monitoring channel 1)</td></tr>
<tr><td></td><td>10</td><td>Prm61 'SLS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>11</td><td>Prm61 'SLS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr>
<tr><td></td><td>13</td><td>Prm61 'SLS2 brake ramp time';
Prm67 'SMS safe maximum speed':
Relation of maximum speed to ramp time wrong
(Prm 67/Prm 61)
(only monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Parameter to be checked:
  • Prm 61: 'SLS2 brake ramp time'
  • Prm 62: 'SLS2 safe limit speed'
  • Prm 67: 'SMS safe maximum speed'
• Generate a correct parameter set and load on the target device</td></tr>
</table>

3605	Info1	114	Error message for the safety function 'Safely-limited increment (SLI)' Movement monitoring

Info2	1	Prm67 'SMS safe maximum speed': Speed limits are identical (Prm67 = 0)
	2	Prm65 'SLI Safely limited position change 1'; Prm66 'SLI Safely limited position change 2' Position limits are identical (Prm65 = Prm66)
	7	Prm67 'SMS safe maximum speed': Prm67 exceeds the maximum permissible value (Prm67 > 60000 1/min)
	8	Prm67 'SMS safe maximum speed': Prm67 drops below the minimum permissible value (Prm67 < -60000 1/min)

Error rectification	• Parameter to be checked:
	  • Prm 65: 'SLI Safely limited position change 1'
	  • Prm 66: 'SLI Safely limited position change 2'
	  • Prm 67: 'SMS safe maximum speed'
	• Generate a correct parameter set and load on the target device

3606 Safety - Error During Operation

• Error in a monitoring during operation	
Device	KW-R07 / -R17 safety module
Description	A monitoring has detected a deviation from a limit value during operations
Class	Error
Drive behaviour	See 'Error reaction' towards the individual additional information Info1
Device behaviour	

Additional information (Info AMK customer service)			
3606	Info1	3	Error messages of the encoder- / resolver monitorings, monitoring channel 1

Info2	1	Circle radius of the resolver traces too small (resolver evaluation)
	2	Circle radius of the resolver traces too great (resolver evaluation)

Error reaction	• In case of an error in the encoder / resolver monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check parameterisation if correct encoder type was set • Check encoder / resolver signals and wiring

3606	Info1	4	Error messages of the encoder- / resolver monitorings, monitoring channel 2

Info2	1	Circle radius of the resolver traces too small (resolver evaluation)
	2	Circle radius of the resolver traces too great (resolver evaluation)

Error reaction	• In case of an error in the encoder / resolver monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check parameterisation if correct encoder type was set • Check encoder / resolver signals and wiring

3606	Info1	5	Error messages of the encoder- / resolver monitorings, monitoring channel 1

Info2	1	Circle radius of the sine traces too great (sine encoder detection)
	2	Circle radius of the sine traces too small (sine encoder detection)
	3	Difference of the quadrants between traces and counter value greater than 1 (sine encoder detection)

Error reaction	• In case of an error in the encoder / resolver monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check parameterisation if correct encoder type was set • Check encoder / resolver signals and wiring • AMK service

3606	Info1	6	Error messages of the encoder- / resolver monitorings, monitoring channel 2

Info2	1	Circle radius of the sine traces too great (sine encoder detection)
	2	Circle radius of the sine traces too small (sine encoder detection)
	3	Difference of the quadrants between traces and counter value greater than 1 (sine encoder detection)

Error reaction	• In case of an error in the encoder / resolver monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check parameterisation if correct encoder type was set • Check encoder / resolver signals and wiring • AMK service

3606	Info1	7	Error messages of the encoder- / resolver monitorings

Info2	3	Difference between 2 position values too great (sine encoder evaluation)

Error reaction	• In case of an error in the encoder / resolver monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check parameterisation if correct encoder type was set • Check encoder / resolver signals and wiring

3606	Info1	13	Error messages monitoring cross-communication

Info2	1	monitoring of the other monitoring channel failed
	2	Status difference between 2 monitoring channels detected => STO
	3	Status difference between 2 monitoring channels detected => SS1
	4	Status difference between 2 monitoring channels detected => SS2
	5	Status difference between monitoring channels detected
	6	Switch-off threshold position has been exceeded. Position difference between monitoring channels is too great
	7	Velocity switch-off threshold has been exceeded. Position difference between monitoring channels is too great
	8	Invalid specification of emergency stop bit

Error reaction	• In case of an error in the cross communication, 'Save torque off (STO)' follows as error reaction

Error rectification	• Info2 = 1, 2, 3, 4, 5: resulting error
	• Parameter to be checked:
	  • Info2 = 6: Prm2 'Switch-off threshold position'
	  • Info2 = 7: Prm3 'Switch-off threshold velocity'

<table>
<tr><td>3606</td><td>Info1</td><td>18</td><td>Error messages of the input monitorings,
monitoring channel 1
<table><tr><td>Info2</td><td>1</td><td>No dynamic sampling pulse detected at input</td></tr><tr><td></td><td>4</td><td>Measured dynamic sampling period is too small</td></tr></table><table><tr><td>Info3</td><td>1</td><td>Input 1</td></tr><tr><td></td><td>2</td><td>Input 2</td></tr><tr><td></td><td>3</td><td>Input 3</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the input monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check wiring of the inputs
• Check correctness of dynamic sampling
• Check parameterisation of dynamic sampling
• Hardware possibly faulty (e.g. bouncing switches) / check
• AMK service</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>19</td><td>Error messages of the input monitorings,
monitoring channel 2
<table><tr><td>Info2</td><td>1</td><td>No dynamic sampling pulse detected at input</td></tr><tr><td></td><td>4</td><td>Measured dynamic sampling period is too small</td></tr></table><table><tr><td>Info3</td><td>1</td><td>Input 1</td></tr><tr><td></td><td>2</td><td>Input 2</td></tr><tr><td></td><td>3</td><td>Input 3</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the input monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check wiring of the inputs
• Check correctness of dynamic sampling
• Check parameterisation of dynamic sampling
• Hardware possibly faulty (e.g. bouncing switches) / check
• AMK service</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>27</td><td>Error messages of the output monitorings,
monitoring channel 1
<table><tr><td>Info2</td><td>1</td><td>Value of a safety output that has been read back not equal to the specification
Internal plausibility monitoring; possibly short circuit of the outputs.</td></tr></table><table><tr><td>Info2</td><td>1</td><td>Error safety output 1:
Signal that has been read back does not match the specification</td></tr><tr><td></td><td>2</td><td>Error safety output 2:
Signal that has been read back does not match the specification</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the output monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check wiring of the outputs
• Check correctness of dynamic sampling
• Check parameterisation of dynamic sampling
• Hardware possibly faulty / check</td></tr>
</table>

3606	Info1	28	Error messages of the output monitorings, monitoring channel 2

Info2	1	Value of a safety output that has been read back not equal to the specification Internal plausibility monitoring; possibly short circuit of the outputs.

Info2	1	Error safety output 1: Signal that has been read back does not match the specification
	2	Error safety output 2: Signal that has been read back does not match the specification

Error reaction	• In case of an error in the output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check wiring of the outputs • Check correctness of dynamic sampling • Check parameterisation of dynamic sampling • Hardware possibly faulty / check

3606	Info1	38	Error messages of the 'Safe encoder monitoring (SEM)', monitoring channel 1

Info2	4	Prm10 'Reaction time in case of standstill' was exceeded

Error reaction	• In case of an error in the encoder standstill monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• See Safety manual; functional safety (203446), 'Safe Encoder Monitoring (SEM)' • Move drive • Restart device

3606	Info1	39	Error messages of the 'Safe encoder monitoring (SEM)', monitoring channel 2

Info2	4	Prm10 'Reaction time in case of standstill' was exceeded

Error reaction	• In case of an error in the encoder standstill monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• See Safety manual; functional safety (203446), 'Safe Encoder Monitoring (SEM)' • Move drive • Restart device

3606	Info1	52	Error messages of the hardware monitorings

Info2	1	Overvoltage in the 1.8 V supply voltage
	2	Undervoltage in the 1.8 V supply voltage
	3	Overvoltage in the 3.3 V supply voltage
	4	Undervoltage in the 3.3 V supply voltage
	5	Overvoltage in the 1.5 V reference voltage
	6	Undervoltage in the 1.5 V reference voltage

Error reaction	• In case of an error in the hardware monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Hardware possibly faulty -> check • AMK service

<table>
<tr><td>3606</td><td>Info1</td><td>70</td><td>Error messages of the FSoE handling
<table>
<tr><td>Info2</td><td>3</td><td>monitoring channel 1
<table>
<tr><td>Info3</td><td>1</td><td>Internal system error, pointer error</td></tr>
<tr><td></td><td>2</td><td>Internal system error, access in non-permitted area</td></tr>
<tr><td></td><td>3</td><td>Resulting error that occurs when the transmission telegram of the complementary channel differs from the own transmission telegram</td></tr>
<tr><td></td><td>4</td><td>Internal system error occurred while generating the CRC values (resulting error)</td></tr>
<tr><td></td><td>5</td><td>Faulty status in FSoE state machine</td></tr>
</table></td></tr>
<tr><td></td><td>4</td><td>monitoring channel 2
<table>
<tr><td>Info3</td><td>1</td><td>Internal system error, pointer error</td></tr>
<tr><td></td><td>2</td><td>Internal system error, access in non-permitted area</td></tr>
<tr><td></td><td>3</td><td>Resulting error that occurs when the transmission telegram of the complementary channel differs from the own transmission telegram</td></tr>
<tr><td></td><td>4</td><td>Internal system error occurred while generating the CRC values (resulting error)</td></tr>
<tr><td></td><td>5</td><td>Faulty status in FSoE state machine</td></tr>
</table></td></tr>
<tr><td>Info2</td><td>6</td><td>The FSoE Watchdog has expired, i.e. no new FSoE Frame was received within the Watchdog time
<table>
<tr><td>Info3</td><td>3</td><td>monitoring channel 1</td></tr>
<tr><td></td><td>4</td><td>monitoring channel 2</td></tr>
</table></td></tr>
</table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the FSoE monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check FSoE communication
• Info2 = 1, 2, 4, 5: AMK service
• Info2 = 3, 6: check FSoE communication and check safety configuration</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>75</td><td>Error messages of the hardware monitorings, switch-off path monitoring channel 1
<table>
<tr><td>Info2</td><td>1</td><td>Malfunction of the line driver L</td></tr>
<tr><td></td><td>2</td><td>Malfunction of the line driver H</td></tr>
<tr><td></td><td>3</td><td>Error line driver status
status of the drivers not identical</td></tr>
<tr><td></td><td>4</td><td>Error line driver control
checking short circuit control line to supply</td></tr>
<tr><td></td><td>5</td><td>Error line drivers' control
checking short circuit control line to GND</td></tr>
<tr><td></td><td>7</td><td>Error internal data handling
plausibility check of control data</td></tr>
<tr><td></td><td>8</td><td>Error internal data handling
plausibility check of test data</td></tr>
</table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the hardware monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Hardware possibly faulty -> check
• AMK service</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>76</td><td>Error messages of the hardware monitorings, switch-off path monitoring channel 2
<table><tr><td>Info2</td><td>1</td><td>Malfunction of the line driver L</td></tr><tr><td></td><td>2</td><td>Malfunction of the line driver H</td></tr><tr><td></td><td>3</td><td>Error line driver status
status of the drivers not identical</td></tr><tr><td></td><td>4</td><td>Error line driver control
checking short circuit control line to supply</td></tr><tr><td></td><td>5</td><td>Error line drivers' control
checking short circuit control line to GND</td></tr><tr><td></td><td>7</td><td>Error internal data handling
plausibility check of control data</td></tr><tr><td></td><td>8</td><td>Error internal data handling
plausibility check of test data</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the hardware monitorings, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Hardware possibly faulty -> check
• AMK service</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>101</td><td>Error message of the stop function 'Safe stop 1 (SS1)'
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual value exceeds maximum permissible value (60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm20 'SS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Standstill window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SS1 stop function, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why SS1 ramp was breached by the movement of the drive
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>102</td><td>Error message of the stop function 'Safe stop 2 (SS2)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit in standstill was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit in standstill was breached</td></tr><tr><td></td><td>5</td><td>Upper position limit in standstill was breached</td></tr><tr><td></td><td>6</td><td>Lower position limit in standstill was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm25 'SS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Standstill window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SS2 stop function, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why SS2 ramp was breached by the movement of the drive
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>103</td><td>Error message of the safety function 'Safe operating stop (SOS)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit in standstill was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit in standstill was breached</td></tr><tr><td></td><td>5</td><td>Upper position limit in standstill was breached</td></tr><tr><td></td><td>6</td><td>Lower position limit in standstill was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SOS safety function, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check by what the invalid movement of the drive was triggered</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>104</td><td>Error message of the safety function 'Safe speed range 1 (SSR1)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm32 'SSR1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SSR1 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
<tr><td>3606</td><td>Info1</td><td>105</td><td>Error message for the safety function 'Safe direction positive (SDIp)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SDIp safety function, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check by what the invalid movement of the drive was triggered</td></tr>
<tr><td>3606</td><td>Info1</td><td>106</td><td>Error message of the safety function 'Safe direction negative (SDIn)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual value exceeds maximum permissible value
(60000 1/min)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SDIn safety function, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check by what the invalid movement of the drive was triggered</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>108</td><td>Error message for the safety function 'Safe maximum speed (SMS)'
Movement monitoring
<table><tr><td>Info2</td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SMS safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>109</td><td>Error message of the safety function 'Safe speed range 2 (SSR2)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds the maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm38 'SSR2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SSR2 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>110</td><td>Error message of the safety function 'Safe speed range 3 (SSR3)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm44 'SSR3 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SSR3 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>111</td><td>Error message of the safety function 'Safe speed range 4 (SSR4)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm50 'SSR4 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SSR4 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3606</td><td>Info1</td><td>112</td><td>Error message of the safety function 'Safely-limited speed 1 (SLS1)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm56 'SLS1 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SLS1 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
<tr><td>3606</td><td>Info1</td><td>113</td><td>Error message of the safety function 'Safely-limited speed 2 (SLS2)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded
(only monitoring channel 1)</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of
(only monitoring channel 1)</td></tr><tr><td></td><td>11</td><td>Prm61 'SLS2 brake ramp time':
Current deceleration ramp deviates from the permissible range
(only monitoring channel 2)
(only monitoring channel 2)</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached
(only monitoring channel 2)</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached
(only monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of an error in the monitoring of the SLS2 safety function, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

3606	Info1	114	Error message for the safety function 'Safely-limited increment (SLI)' Movement monitoring Info2: 5 – Upper position limit of the monitoring range was breached Info2: 6 – Lower position limit of the monitoring range was breached
Error reaction	• In case of an error in the monitoring of the SLI safety function, the parameterised error reaction follows (STO, SS1 or SS2)		
Error rectification	• Check why the movement of the drive has breached the limits • Adjust parameterisation to physical conditions		

3607 Safety - Internal System Error

• Internal system error	
Device	KW-R07 / -R17 safety module
Description	Internal error of a process monitoring or a self-test
Class	Error
Drive behaviour	The drive remains torque-free
Device behaviour	The safety monitoring does not switch to the operational state, i.e. the safety functions cannot be put into operation

Additional information (Info AMK customer service)			
3607	Info1	5	Encoder error, sine encoder detection, monitoring channel 1 Info2: 4 – No stable state of the counter in the determination of the offset Info2: 5 – Default branch run through
Error reaction	• In case of an error in the encoder monitoring, 'Save torque off (STO)' follows as error reaction		
Error rectification	• AMK service		

3607	Info1	6	Encoder error, sine encoder detection, monitoring channel 2 Info2: 4 – Counter value cannot be read Info2: 5 – Default branch run through Info2: 6 – No stable state of the counter
Error reaction	• In case of an error in the encoder monitoring, 'Save torque off (STO)' follows as error reaction		
Error rectification	• AMK service		

3607	Info1	16	Error messages of the input monitorings, monitoring channel 1 Info2: 2 – Faulty input value Info3: 1 – Input 1 Info3: 2 – Input 2 Info3: 3 – Input 3
Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction		
Error rectification	• Check wiring of the inputs • Check correctness of dynamic sampling • Check parameterisation of dynamic sampling • Hardware possibly faulty / check • AMK service		

3607	Info1	17	Error messages of the input monitorings, monitoring channel 2

Info2		
	2	Faulty input value

Info3		
	1	Input 1
	2	Input 2
	3	Input 3

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check wiring of the inputs • Check correctness of dynamic sampling • Check parameterisation of dynamic sampling • Hardware possibly faulty / check • AMK service

3607	Info1	20	Error messages of the input monitorings, monitoring channel 1

Info2		
	7	Invalid specification for the allocation of the input 1 in the status
	8	Invalid specification for the allocation of the input 2 in the status
	9	Invalid specification for the allocation of the input 3 in the status
	10	Bit number for input 1 and input 2 in the status value identical
	11	Bit number for input 1 and input 3 in the status value identical
	12	Bit number for input 2 and input 3 in the status value identical
	13	Value of input 1 is too large
	14	Value of input 2 is too large
	15	Value of input 3 is too large

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check wiring of the inputs • Check correctness of dynamic sampling • Check parameterisation of dynamic sampling • Hardware possibly faulty / check • Info2 = 7 ... 12: AMK service

3607	Info1	22	Error messages of the input monitorings, monitoring channel 2

Info2	7	Invalid specification for the allocation of the input 1 in the status
	8	Invalid specification for the allocation of the input 2 in the status
	9	Invalid specification for the allocation of the input 3 in the status
	10	Bit number for input 1 and input 2 in the status value identical
	11	Bit number for input 1 and input 3 in the status value identical
	12	Bit number for input 2 and input 3 in the status value identical
	13	Value of input 1 is too large
	14	Value of input 2 is too large
	15	Value of input 3 is too large

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• Check wiring of the inputs • Check correctness of dynamic sampling • Check parameterisation of dynamic sampling • Hardware possibly faulty / check • Info2 = 7 ... 12: AMK service

3607	Info1	23	Error messages of the safety outputs monitoring channel 1

Info2	1	A safety function is reported as active although the function is not selected
	5	Internal error
	6	Internal error
	7	Internal error
	8	Internal error

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	24	Error messages of the safety outputs monitoring channel 2

Info2	1	A safety function is reported as active although the function is not selected
	5	Internal error
	6	Internal error
	7	Internal error
	8	Internal error

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	25	Error messages of the output monitorings, monitoring channel 1

Info2	26	Setpoint A1 > 1
	27	Setpoint A2 > 1
	28	Feed forward A1 > limit
	29	Feed forward A2 > limit
	30	Feed forward Dyn > limit

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	26	Error messages of the output monitorings, monitoring channel 2

Info2		
	26	Setpoint A1 > 1
	27	Setpoint A2 > 1
	28	Prm104 'SA1.2 output type' > maximum value
	29	Feed forward A2 > limit
	30	Feed forward Dyn > limit

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	27	Error messages of the output test, monitoring channel 1

Info2		
	1	

Info3		
	3	Read-back signal > 1
	4	Setpoint > 1
	5	Instance > 1
	6	Output no. > 1
	7	Test cycle > limit
	8	Signal changing without error monitoring > limit
	9	More than 4 signal changes per ms

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	28	Error messages of the output test, monitoring channel 2

Info2		
	1	

Info3		
	3	Read-back signal > 1
	4	Setpoint > 1
	5	Instance > 1
	6	Output no. > 1
	7	Test cycle > limit
	8	Signal changing without error monitoring > limit
	9	More than 4 signal changes per ms

Error reaction	• In case of an error in the input / output monitorings, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	29	Module sequence monitoring

Info2	Info3	
1		me pointer is faulty
	1	Reset
	2	Do step
2		PAU pointer is faulty
	n	Software module no.
3		Index exceeds limit
	n	Software module no.
4		Identifier is faulty
	n	Software module no.
5		Cycle time exceeds tolerance (< minimum)
	n	Time level no.
6		Cycle time exceeds tolerance (> maximum)
	n	Time level no.

Error reaction	• In case of an error in the module sequence monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• Hardware possibly faulty / check • AMK service

3607	Info1	30	Error during reading of a parameter from the safe parameter set Wrong parameter number or internal system error

Info2		
nn		Parameter arrangement, position of the faulty parameter
Info3		
	0	Read unsigned integer 16-Bit parameter from the safe parameter set
	1	Read unsigned integer 32-Bit parameter from the safe parameter set
	2	Read signed integer 16-Bit parameter from the safe parameter set
	3	Read signed integer 32-Bit parameter from the safe parameter set

Error reaction	• In case of an error while reading the parameters, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	38	Error message of 'Safe encoder monitoring (SEM)' monitoring channel 1

Info2		
5		Wrong state selected

Error reaction	• In case of an error in the safe encoder monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	39	Error message of 'Safe encoder monitoring (SEM)' monitoring channel 2

Info2		
5		Wrong state selected

Error reaction	• In case of an error in the safe encoder monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	40	Error messages communication to P1 system processor monitoring channel 1 / 2

Info2		
	1	Data length is invalid
	2	Index for list invalid
	3	State in error deletion false
	4	State in system booting false
	5	Service -> SEEP data is read

Info3		
	0	No error
	1	Reading SEEP is not possible because of system run-up
	2	Reading SEEP is not possible because of data transmission
	3	Maximum address exceeded

Error reaction	• In case of an error in the communication to the system processor, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	70	Error message FSoE handling

Info2		
	7	FSoE error while reading status
	8	FSoE error while reading process data

Error reaction	• In case of an error in the FSoE handling, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	71	Error messages clock monitoring monitoring channel 1

Info2		
	1	State monitoring
	2	Clock monitoring is faulty
	3	Faulty state

Error reaction	• In case of an error in the clock monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	72	Error messages clock monitoring monitoring channel 2

Info2		
	1	State monitoring
	2	Clock monitoring is faulty
	3	Faulty state

Error reaction	• In case of an error in the clock monitoring, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

3607	Info1	73	Error message system monitoring channel 1

Info2		
	1	FSoE stack / cross communication / clock monitoring were not activated for 3 cycles successively
	2	Life counter FSoE is activated
	3	Outputs cannot be set

Info3		
	3	Monitoring channel 1

Error reaction	• In case of a system error, 'Save torque off (STO)' follows as error reaction
Error rectification	• AMK service

<table>
<tr><td>3607</td><td>Info1</td><td>74</td><td>Error message system monitoring channel 2
<table>
<tr><td>Info2</td><td>1</td><td>FSoE stack / cross communication / clock monitoring were not activated for 3 cycles successively</td></tr>
<tr><td></td><td>2</td><td>Life counter FSoE is activated</td></tr>
<tr><td></td><td>3</td><td>Outputs cannot be set</td></tr>
<tr><td></td><td>4</td><td>Writing history is failed during data transmission</td></tr>
</table>
<table>
<tr><td>Info3</td><td>4</td><td>Monitoring channel 2</td></tr>
</table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a system error, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• AMK service</td></tr>
</table>

3607	Info1	100	Error message of the stop and safety functions		
			Info2	100	Start bit allocation > maximum value
				101	Reset bit allocation > maximum value
				102	Reset bit allocation = start bit allocation
				103	Active bit allocation > maximum value
				104	Status bit allocation > maximum value
				105	Error bit allocation > maximum value
				106	Active bit allocation = status bit allocation
				107	Active bit allocation = error bit allocation
				108	Error bit allocation = status bit allocation
				109	Wrong state selected
				114	Monitoring channel 1: SS1 Error reaction > maximum value
				115	Monitoring channel 2: SS1 Error reaction > maximum value
				116	Monitoring channel 1: SS2 Error reaction > maximum value
				117	Monitoring channel 2: SS2 Error reaction > maximum value
				118	Monitoring channel 1: Safety function Pointer not initialised
				119	Monitoring channel 1: Safety function Faulty state
				120	Monitoring channel 2: Safety function Pointer not initialised
				121	Monitoring channel 2: Safety function Faulty state
				122	Monitoring channel 1: SS1 Pointer not initialised
				123	Monitoring channel 1: SS1 Faulty state
				124	Monitoring channel 2: SS1 Pointer not initialised
				125	Monitoring channel 2: SS1 Faulty state
				126	Monitoring channel 1: SS2 Pointer not initialised
				127	Monitoring channel 1: SS2 Faulty state
				128	Monitoring channel 2: SS2 Pointer not initialised
				129	Monitoring channel 2: SS2 Faulty state

			Info3	100	Error message of stop function 'Save torque off (STO)'
				101	Error message of stop function 'Safe stop 1 (SS1)'
				102	Error message of stop function 'Safe stop 2 (SS2)'
				103	Error message of safety function 'Safe operating stop (SOS)'
				104	Error message of safety function 'Safe speed range 1 (SSR1)'
				105	Error message of safety function 'Safe direction positive (SDIp)'
				106	Error message of safety function 'Safe direction negative (SDIn)'
				108	Error message of safety function 'Safe maximum speed (SMS)'
				109	Error message of safety function 'Safe speed range 2 (SSR2)'
				110	Error message of safety function 'Safe speed range 3 (SSR3)'
				111	Error message of safety function 'Safe speed range 4 (SSR4)'
				112	Error message of safety function 'Safely-limited speed 1 (SLS1)'
				113	Error message of safety function 'Safely-limited speed 2 (SLS2)'
				114	Error message of safety function 'Safely-limited increment (SLI)'
Error reaction	• In case of an error, 'Save torque off (STO)' follows as error reaction				
Error rectification	• AMK service				

3609 Safety - Faulty Parameter Transfer

• Faulty parameter transfer	
Device	KW-R07 / -R17 safety module
Description	Parameterisation error during system booting or during parameter set transfer • During system booting, the safe parameter set is checked for validity • During parameter set transfer, the safe parameter set is checked for validity and the validation is also monitored during the transfer
Class	Error
Drive behaviour	The drive remains torque-free
Device behaviour	The safety monitoring does not switch to the operational state, i.e. the safety functions cannot be put into operation

Additional information (Info AMK customer service)					
3609	Info1	3	Error during sending of the status from monitoring channel 2 to monitoring channel 1 Status: Confirmation of the adoption of the transmitted safe parameter set is requested		
			Info2	11	Internal system error Error during sending of the status from monitoring channel 2 to monitoring channel 1
				15	Internal system error Timeout during sending of the status from monitoring channel 2 to monitoring channel 1
			Info3	58	Transfer of the safe parameter set is started (monitoring channel 2)
Error rectification	• Transmit the safe parameter set to the device once more • If the error occurs again, contact AMK service				

<table>
<tr><td>3609</td><td>Info1</td><td>5</td><td>Error during the importing of the safe parameter set into the SEEP
<table>
<tr><td>Info2</td><td>5</td><td>Internal system error:
Timeout import parameter set into the SEEP</td></tr>
<tr><td></td><td>7</td><td>Internal system error: Procedural error</td></tr>
<tr><td></td><td>8</td><td>Internal system error: Input parameter</td></tr>
</table>
<table>
<tr><td>Info3</td><td>57</td><td>Transfer of the safe parameter set is started
(monitoring channel 1)</td></tr>
<tr><td></td><td>58</td><td>Transfer of the safe parameter set is started
(monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Transmit the safe parameter set to the device once more
• If the error occurs again, contact AMK service</td></tr>
</table>

<table>
<tr><td>3609</td><td>Info1</td><td>6</td><td>The error occurs if certain functions are not completed during the transfer of the safe parameter set to the device.
<table>
<tr><td>Info2</td><td></td><td>Not to be evaluated</td></tr>
</table>
<table>
<tr><td>Info3</td><td>55</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 1)</td></tr>
<tr><td></td><td>56</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 2)</td></tr>
<tr><td></td><td>57</td><td>Transfer of the safe parameter set is started
(monitoring channel 1)</td></tr>
<tr><td></td><td>58</td><td>Transfer of the safe parameter set is started
(monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Switch the device off/on
• Possibly transmit the safe parameter set to the device once more</td></tr>
</table>

<table>
<tr><td>3609</td><td>Info1</td><td>7</td><td>Resulting error: Within a certain time, the expected status from monitoring channel 2 does not arrive
<table>
<tr><td>Info2</td><td>7</td><td>Internal system error: Procedural error</td></tr>
<tr><td></td><td>8</td><td>Internal system error: Input parameter</td></tr>
<tr><td></td><td>12</td><td>Timeout during reading of the status from monitoring channel 2</td></tr>
</table>
<table>
<tr><td>Info3</td><td>55</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 1)</td></tr>
<tr><td></td><td>57</td><td>Transfer of the safe parameter set is started
(monitoring channel 1)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Switch the device off/on
• Possibly transmit the safe parameter set to the device once more</td></tr>
</table>

<table>
<tr><td>3609</td><td>Info1</td><td>8</td><td>Internal system error
<table>
<tr><td>Info2</td><td></td><td>Not to be evaluated</td></tr>
<tr><td rowspan="9">Info3</td><td>55</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 1)</td></tr>
<tr><td>56</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 2)</td></tr>
<tr><td>57</td><td>Transfer of the safe parameter set is started
(monitoring channel 1)</td></tr>
<tr><td>58</td><td>Transfer of the safe parameter set is started
(monitoring channel 2)</td></tr>
<tr><td>59</td><td>Testing of the safe parameter set is completed during system booting
(monitoring channel 1)</td></tr>
<tr><td>60</td><td>Testing of the safe parameter set is completed during system booting
(monitoring channel 2)</td></tr>
<tr><td>61</td><td>Transfer of the safe parameter set is completed
(monitoring channel 1)</td></tr>
<tr><td>62</td><td>Transfer of the safe parameter set is completed
(monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• AMK service</td></tr>
<tr><td>3609</td><td>Info1</td><td>9</td><td>Transfer of the safe parameter set is successfully completed
<table>
<tr><td rowspan="3">Info2</td><td>0</td><td>"The transfer of the safe parameter set has been successfully completed, please restart."
(This information is always displayed when the safe parameter set has been successfully transmitted to the device!)</td></tr>
<tr><td>11</td><td>Internal system error:
Error during sending of the status from monitoring channel 2 to monitoring channel 1</td></tr>
<tr><td>15</td><td>Internal system error:
Timeout during sending of the status from monitoring channel 2 to monitoring channel 1</td></tr>
<tr><td rowspan="2">Info3</td><td>61</td><td>Transfer of the safe parameter set is completed
(monitoring channel 1)</td></tr>
<tr><td>62</td><td>Transfer of the safe parameter set is completed
(monitoring channel 2)</td></tr>
</table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Switch the device off/on
• Possibly transmit the safe parameter set to the device once more
• If an internal system error occurs, contact AMK service</td></tr>
</table>

<table>
<tr><td>3609</td><td>Info1</td><td>10</td><td>Internal system error
Error during reading of the verification number from the SEEP in monitoring channel 2
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>7</td><td>Internal system error: Procedural error</td></tr><tr><td></td><td>11</td><td>Internal system error:
Error during sending of the status from monitoring channel 2 to monitoring channel 1</td></tr><tr><td></td><td>13</td><td>Internal system error:
Reading of the check sum from the SEEP monitoring channel 2 has been completed incorrectly</td></tr><tr><td></td><td>14</td><td>Internal system error:
Timeout in the reading function of the check sum from the SEEP monitoring channel 2</td></tr><tr><td></td><td>15</td><td>Internal system error:
Timeout during sending of the status from monitoring channel 2 to monitoring channel 1</td></tr></table><table><tr><td>Info3</td><td>56</td><td>Testing of the safe parameter set is started during system booting
(monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Switch the device off/on
• Possibly transmit the safe parameter set to the device once more
• If an internal system error occurs, contact AMK service</td></tr>
<tr><td>3609</td><td>Info1</td><td>11</td><td>Internal system error
<table><tr><td>Info2</td><td>16</td><td>Secure the timeout in the check sum function in SEEP monitoring channel 2</td></tr></table><table><tr><td>Info3</td><td>58</td><td>Transfer of the safe parameter set is started
(monitoring channel 2)</td></tr></table></td></tr>
<tr><td>Error rectification</td><td colspan="3">• Switch the device off/on
• Possibly transmit the safe parameter set to the device once more
• If an internal system error occurs, contact AMK service</td></tr>
<tr><td>3609</td><td>Info1</td><td>73</td><td>Internal system error
<table><tr><td>Info2</td><td>0</td><td>During system run-up, an error in checksum 2 was detected within CRC examination
<table><tr><td>Info3</td><td>3</td><td>Monitoring channel 1</td></tr></table></td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a system internal error, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Transmit the safe parameter set to the device once more
• AMK service</td></tr>
<tr><td>3609</td><td>Info1</td><td>74</td><td>Internal system error
<table><tr><td>Info2</td><td>0</td><td>During system run-up, an error in checksum 2 was detected within CRC examination
<table><tr><td>Info3</td><td>4</td><td>Monitoring channel 2</td></tr></table></td></tr><tr><td></td><td>5</td><td>New parameter set is transmitted</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a system internal error, 'Save torque off (STO)' follows as error reaction</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Transmit the safe parameter set to the device once more
• AMK service</td></tr>
</table>

3609	Info1	128	The current parameter set is invalid

Info2	6	This version of the checked parameter set is not compatible with the device version or the safe parameter set is not available on the device
	9	Error during comparison of test sums Check sum from the current safe parameter set and check sum from the SEEP, monitoring channel 2, are different Hardware was replaced
	10	The check sum read from the SEEP, monitoring channel 2 is 0

Info3	55	Testing of the safe parameter set is started during system booting (monitoring channel 1)
	56	Testing of the safe parameter set is started during system booting (monitoring channel 2)
	57	Transfer of the safe parameter set is started (monitoring channel 1)
	58	Transfer of the safe parameter set is started (monitoring channel 2)

Error rectification	• Transmit the valid safe parameter set to the device once more

3609	Info1	131	Error during sending of the status from monitoring channel 2 to monitoring channel 1 Status: Confirmation of the adoption of the transmitted safe parameter set is requested The current parameter set is invalid

Info2	11	Internal system error Error during sending of the status from monitoring channel 2 to monitoring channel 1
	15	Internal system error Timeout during sending of the status from monitoring channel 2 to monitoring channel 1

Info3	58	Transfer of the safe parameter set is started (monitoring channel 2)

Error rectification	• Transmit the safe parameter set to the device once more • If the error occurs again, contact AMK service

3609	Info1	133	Error during the importing of the safe parameter set into the SEEP The current parameter set is invalid

Info2	5	Internal system error: Timeout import parameter set into the SEEP
	7	Internal system error: Procedural error
	8	Internal system error: Input parameter

Info3	57	Transfer of the safe parameter set is started (monitoring channel 1)
	58	Transfer of the safe parameter set is started (monitoring channel 2)

Error rectification	• Transmit the safe parameter set to the device once more • If the error occurs again, contact AMK service

3609	Info1	135	Resulting error: Within a certain time, the expected status from monitoring channel 2 does not arrive The current parameter set is invalid

Info2	7	Internal system error: Procedural error
	8	Internal system error: Input parameter
	12	Timeout during reading of the status from monitoring channel 2.

Info3	55	Testing of the safe parameter set is started during system booting (monitoring channel 1)
	57	Transfer of the safe parameter set is started (monitoring channel 1)

Error rectification	• Switch the device off/on • Possibly transmit the safe parameter set to the device once more

3609	Info1	136	Internal system error

Info2		Not to be evaluated

Info3	55	Testing of the safe parameter set is started during system booting (monitoring channel 1)
	56	Testing of the safe parameter set is started during system booting (monitoring channel 2)
	57	Transfer of the safe parameter set is started (monitoring channel 1)
	58	Transfer of the safe parameter set is started (monitoring channel 2)
	59	Testing of the safe parameter set is completed during system booting (monitoring channel 1)
	60	Testing of the safe parameter set is completed during system booting (monitoring channel 2)
	61	Transfer of the safe parameter set is completed (monitoring channel 1)
	62	Transfer of the safe parameter set is completed (monitoring channel 2)

Error rectification	• AMK service

3609	Info1	137	Transfer of the safe parameter set is successfully completed The current parameter set is invalid

Info2	0	"The transfer of the safe parameter set has been successfully completed, please restart." (This information is always displayed when the safe parameter set has been successfully transmitted to the device!)
	11	Internal system error: Error during sending of the status from monitoring channel 2 to monitoring channel 1
	15	Internal system error: Timeout during sending of the status from monitoring channel 2 to monitoring channel 1

Info3	61	Transfer of the safe parameter set is completed (monitoring channel 1)
	62	Transfer of the safe parameter set is completed (monitoring channel 2)

Error rectification	• Switch the device off/on • Possibly transmit the safe parameter set to the device once more • If an internal system error occurs, contact AMK service

3609	Info1	138	Internal system error The current parameter set is invalid
			Info2: 13 – Error in function 'Read checksum from SEEP monitoring channel 2' 14 – Timeout in function 'Read checksum from SEEP monitoring channel 2' 15 – Timeout during sending of the checksum to monitoring channel 1
			Info3: 56 – Testing of the safe parameter set is started during system booting (monitoring channel 2)
Error rectification	• Switch the device off/on • If the error occurs again, contact AMK service		

3609	Info1	139	Internal system error The current parameter set is invalid
			Info2: 0 – Not to be evaluated 16 – Timeout in function 'Secure checksum to SEEP monitoring channel 2'
			Info3: 58 – Transfer of the safe parameter set is started (monitoring channel 2)
Error rectification	• Switch the device off/on • Possibly transmit the safe parameter set to the device once more • If an internal system error occurs, contact AMK service		

3610 Safety - Warning During Operation

• Warning in a monitoring during operation	
Device	KW-R07 / -R17 safety module
Description	A monitoring has detected a deviation from a limit value during operations
Class	Warning
Drive behaviour	See error reaction towards the individual additional information Info1
Device behaviour	

3610	Info1	13	Warning message monitoring cross communication
			Info2: 3 – Status difference between 2 monitoring channels detected: SS1 4 – Status difference between 2 monitoring channels detected: SS2
			Info3: 3 – Monitoring channel 1 4 – Monitoring channel 2
Error reaction	In case of a warning in the monitoring of the cross communication, SS1 or SS2 follows		
Error rectification	• Info2 = 3, 4: resulting error		

3610	Info1	38	Warning messages of the 'Safe encoder monitoring (SEM)' Monitoring channel 1
			Info2: 3 – Warning: Prm9 'Transition time in case of standstill' was exceeded
Error reaction	• After the expiration of Prm10 'Reaction time in case of standstill' an error is generated and 'Save torque off (STO)' follows as error reaction		
Error rectification	• See 'PDK_203446_Sicherheitshandbuch_KW-R07, Safe Encoder Monitoring (SEM)' • Move device		

3610	Info1	39	Warning messages of the 'Safe encoder monitoring (SEM)' Monitoring channel 2
			Info2: 3 — Warning: Prm9 'Transition time in case of standstill' was exceeded
Error reaction	• After the expiration of Prm10 'Reaction time in case of standstill' an error is generated and 'Save torque off (STO)' follows as error reaction		
Error rectification	• See 'PDK_203446_Sicherheitshandbuch_KW-R07, Safe Encoder Monitoring (SEM)' • Move device		

3610	Info1	40	Warning message of communication to P1
			Info2: 0 — Flashing process is started
			Info3: 0 — RF is active 1 — Start identifier for flashing not found 2 — Identifier 'SPImon' not found 3 — Faulty state 10 — SEEP reading invalid if RF is active 11 — Parameter set transmission invalid if RF is active 15 — Parameter set transmission invalid if RF is active
Error reaction	• A warning of communication to P1 can be cleared		
Error rectification	• Withdraw RF • Start flash process again • AMK service		

3610	Info1	75	Warning message of the hardware monitoring, switch-off path Monitoring channel 1
			Info2: 6 — For more than 1 hour, no dynamic check of the line drivers could be carried out. Possible cause: • Power output stage enable (EF) of the device is inactive • STO is active
Error rectification	• Probably hardware defect / check • AMK service This warning message cannot be reset before a new dynamic check of the line drivers is done		

3610	Info1	76	Warning message of the hardware monitoring, switch-off path Monitoring channel 2
			Info2: 6 — For more than 1 hour, no dynamic check of the line drivers could be carried out. Possible cause: • Power output stage enable (EF) of the device is inactive • STO is active
Error rectification	• Probably hardware defect / check • AMK service This warning message cannot be reset before a new dynamic check of the line drivers is done		

<table>
<tr><td>3610</td><td>Info1</td><td>104</td><td>Warning message for the safety function 'Safe speed range 1 (SSR1)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permissible value
(60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SSR1, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>108</td><td>Warning message for the safety function 'Safe maximum speed (SMS)'
Movement monitoring
<table><tr><td>Info2</td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SMS, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>109</td><td>Warning message for the safety function 'Safe speed range 2 (SSR2)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SSR2, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>110</td><td>Warning message for the safety function 'Safe speed range 3 (SSR3)'
Movement monitoring
<table><tr><td rowspan="3">Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td rowspan="6">Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr><tr><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td>14</td><td>Permitted speed range was breached</td></tr><tr><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SSR3, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>111</td><td>Warning message for the safety function 'Safe speed range 4 (SSR4)'
Movement monitoring
<table><tr><td rowspan="3">Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td rowspan="6">Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr><tr><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td>14</td><td>Permitted speed range was breached</td></tr><tr><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SSR4, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>112</td><td>Warning message for the safety function 'Safely-limited speed 1 (SLS1)'
Movement monitoring
<table><tr><td rowspan="3">Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td rowspan="6">Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr><tr><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td>14</td><td>Permitted speed range was breached</td></tr><tr><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SLS1, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>113</td><td>Warning message for the safety function 'Safely-limited speed 2 (SLS2)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper speed limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower speed limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr><tr><td></td><td>8</td><td>Permitted speed range was exceeded</td></tr><tr><td></td><td>9</td><td>Permitted speed range was fallen short of</td></tr><tr><td></td><td>14</td><td>Permitted speed range was breached</td></tr><tr><td></td><td>15</td><td>Monitoring window following end of ramp breached</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SLS2, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

<table>
<tr><td>3610</td><td>Info1</td><td>114</td><td>Warning message for the safety function 'Safely-limited increment (SLI)'
Movement monitoring
<table><tr><td>Info2</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>3</td><td>Upper position limit of the monitoring range was breached</td></tr><tr><td></td><td>4</td><td>Lower position limit of the monitoring range was breached</td></tr></table>Ramp monitoring
<table><tr><td>Info3</td><td>0</td><td>Not to be evaluated</td></tr><tr><td></td><td>1</td><td>Actual speed value exceeds maximum permitted value (60000 1/min)</td></tr></table></td></tr>
<tr><td>Error reaction</td><td colspan="3">• In case of a warning in the monitoring of the safety function SLS2, the parameterised error reaction follows (STO, SS1 or SS2)</td></tr>
<tr><td>Error rectification</td><td colspan="3">• Check why the movement of the drive has breached the limits
• Adjust parameterisation to physical conditions</td></tr>
</table>

4.23 No. 3840 ... 3869 Operating System

3840 File access

• General data error			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	2	Wrong parameters transferred
		3	Illegal file name
		4	Floppy drive not found
		5	To many files open
		6	No more files found
		7	Wrong device identified
		8	Unknown data system
		9	Can not find file name
		10	Unknown filehandle has been transferred
		11	Device is not supported
		12	Function is not supported
		13	Error partition table
		14	Too many devices present
		15	Wrong file position stated
		16	Access not possible (access right is active)
		17	Text buffer is to small
		18	General device error
		19	Path not found
		20	FAT is defect
		21	Root directory is full
		22	Floppy drive is full
		23	Timeout
		24	Defective sector
		25	Data error (checksum)
		26	Device has been changed
		27	Sector not found
		28	Address label not found
		29	Floppy drive not ready (e.g. no disk)
		30	Floppy is write protected
		31	DMA-Overrun
		32	CRC-error
		33	Device resource-error
		34	Defective sector size
		35	No buffer available
		36	File already exists
		37	Data position out of range
		38	File is to big
Error Removal	• Check memory device		

3841 System diagnostics

• Internal communication: Error message returned from end device			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3842 System diagnostics

• Internal communication: No heap memory could be addressed.			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3843 System diagnostics

• Internal communication: Source module does not exist (not logged in?)			
Device			
Description	An access attempt came from a module unknown to the internal communications system (i.e., not logged in)		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3844 System diagnostics

• Internal communication: The addressed target does not exist			
Device			
Description	An unknown target was addressed (via routing "ID32944 SYADR").		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3845 System diagnostics

Device			
Description	A target has been accessed that is already occupied by another source module.		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3846 System diagnostics

• Internal communication: A module has logged on that already exists (number already assigned?)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

3847 System diagnostics

• Internal communication: The element code is unknown			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3848 System diagnostics

• Internal communication: Too many modules have logged in or • Internal communication: Too many paths have been opened			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
Error Removal			

3849 System diagnostics

• Internal communication: Protocol or command order is incorrect			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3850 System diagnostics

• A bus connected to the internal communication is not in standby mode (e.g., SBUS token error)			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3851 System diagnostics

• An internal communication path has been occupied by a module by writing to routing "ID32944 SYADR" and has no longer been used for a fixed period (blocking).			
Device			
Description	Timeout internal communication		
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3852 System diagnostics

• An internal communication path specified by a module is not valid or is no longer valid.			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal			

3853 System diagnostics

• Router error in module setting			
Device	AS-PL15 AS-Cxx-1		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check parameterisation		

3854 System diagnostics

• Router memory overflow of the inernal buffer			
Device	AS-PL15 AS-Cxx-1		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check parameterisatin		

3855 System diagnostics

• Router memory overflow at access to the internal database			
Device	AS-PL15 AS-Cxx-1		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
Error Removal	Check parameterisation		

3860 ADB-File access

• Access to parameter data bank ADB not possible			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	0	No adb-file found
		1	File can not be opened
		2	Read error
		3	General File interpretation error (e.g. checksum, version, …)
Error Removal	• Check ADB or transfer again		

3861 System update

• Firmware update AMKAMAC not successful (RTB-File faulty or BOOT-Device could not been generated) • Firmware update option AS-FCT1, AS-FCT2 not successful, Hex-File faulty			
Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1 - 14	Software update not successful
		30	Firmware update option AS-FCT1, AS_FCT2 not successful, Hex-File faulty
Error Removal			

• Error during system start or update				
Device	A5			
Description				
Class	Error			
Drive Behaviour				
Device Behaviour				
Additional Error Information (AMK Service)				
	Info 1	18	Timeout Problem during System Startup	
		19	Hardware Problem during System Startup	
		20	Error while flashing I/O card	
		21	Error while flashing I/O card	
			Info 2	1	Task is invalid
				2	Command from CMD file is invalid
				3	Memory problem
				4	Binary file not available for flashing
				5	Target module not available
				6	No firmware in binary file
				7	Invalid binary file
		22	Error in host synchronisation	
		30	Firmware update of option AS-FCT1, AS-FCT2 failed, hex file corrupt	
Error Removal				

3862 System diagnostics

• System exception, CPU error			
Device			
Description			
Class	Warning		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Exception in PLC-Tasks (user program)		
		16	Task monitoring failed
		17	Hardware monitoring failed
		18	Bus error
		19	Check sum error on program loading
		20	Field bus error
		21	I/O map update failed
		22	Cycle time exceeded
		23	“Online change” program too large
		26	Retain-memory to small or not available (AS-FCT1)
		27	Boot project could not be loaded, it was deleted
		39	PLC overload
		80	Invalid instruction
		81	Access infringement
		82	Privileged instruction
		83	Page error
		84	Stack overflow
		85	Invalid arrangement
		86	Invalid access code
		87	Access to protected page
		88	Double error
		89	Double error
		256	Access to uneven address
		257	Array limit exceeded
		258	Division by zero
		259	Overflow
		260	Not ignorable exception
		336	Floating point unit: General error
		337	Floating point unit: Not normalized operand
		338	Floating point unit: Division by zero
		339	Floating point unit: Inaccurate result
		340	Floating point unit: Inaccurate instruction
		341	Floating point unit: Overflow
		342	Floating point unit: Stack check failed
		343	Floating point unit: Underflow
	Exception AMKAMAC System program 65536…		
Error Removal			

3863 System diagnostics

• Router memory overflow internal buffer			
Device	AS-PL15 AS-Cxx-1		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	Timeout PGT task
		1	Time overflow copy command (e.g. to many data's configured with SERCOS)
		2	PLC controller configuration error
		3	Too many asynchronous send data per "ID 2 SERCOS cycle time"
		4	Time overflow "timer task"
		5	Time overflow EtherCAT "send task"
		6	Time overflow task "cyclic"
		7	Access to not configured input
		8	Access to not configured output
		10	System exit
		11	Battery error, all the BIOS values were received, because they are saved into a flash module. The system time will be set on 00:00:00. The system data will be set on 01.01.2001.
		12	File system error
		13	Temperature error
		14	Error in initialisation of the system library
		15	Checksum error in root file system
Error Removal	Check parameterisation		

Device	A5		
Description	Error / warning on system runtime		
Class	Warning / Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	0	time overflow PGT task in PLC
		1	time overflow copying functions (e.g., too much data in configuration)
		2	Error in PLC controller configuration
		3	Too much asynchronous transmission data per "ID2 SERCOS cycle time"
		4	Overflow of internal timer
		5	Overflow of EtherCAT transmission task (e.g., too much data in configuration)
		6	Overflow of cyclical task, system is overloaded
		7	Access to unassigned communications input data
		8	Access to unassigned communications output data
		9, 10	Internal error
		11	Battery error, battery is empty • All BIOS values are kept because they are stored in the flash module. • The date and time are returned to their default values. • Please send the device to AMK for repairs.
		12	Error checking file system for PLC program and parameters. Please send the device to AMK for repairs.
		13	Temperature error. Device was operated at an excessively high ambient temperature.
		14	Internal error
		15	Error checking Linux file system
		20	Error in runtime system P3 Info2: Information about cause of error -> AMK Service
		21	Error at activation of backlight function
Error Removal			

3864 Bus Configuration

- Testing configuration of the buses
- Test cycle time ID 2 for the buses. The values in the different instances must in each case be divisible by all smaller values
- Ethernet faultily parameterised

Device			
Description			
Class			
Drive Behaviour			
Device Behaviour	System run-up aborted		
Additional Error Information (AMK Service)			
	Info 1	1	Bus Master or slave definition invalid
		2	"ID2 SERCOS cycle time" in the different instances invalid
		3	• Ethernet double parameterized; see "ID34140 AS BUS protocol" • IP addresses invalid (see Ethernet parameterisation) • "ID34141 AS card address" invalid, wrong slot number Info 2: Ethernet instance
Error Removal			

<table>
<tr><td colspan="4">• System configuration</td></tr>
<tr><td>Device</td><td colspan="3">A5</td></tr>
<tr><td>Description</td><td colspan="3">Error in system configuration</td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>1</td><td>Bus master or slave definition invalid</td></tr>
<tr><td></td><td></td><td>2</td><td>"ID2 SERCOS cycle time" is invalid in the different instances</td></tr>
<tr><td></td><td></td><td>3</td><td>• Ethernet parameterised twice; see "ID34140 AS BUS protocol
• IP addresses invalid (see Ethernet configuration)
• "ID34141 AS card address" invalid, incorrect slot number
<table><tr><td>Info 2</td><td>Ethernet instance</td></tr></table></td></tr>
<tr><td></td><td></td><td>4</td><td>Invalid dongle code, device not enabled for this communication
<table><tr><td>Info 2</td><td>Instance</td></tr></table></td></tr>
<tr><td></td><td></td><td>6</td><td>Invalid configuration "ID32917 Time zone"</td></tr>
<tr><td></td><td></td><td>7</td><td>Internal error</td></tr>
<tr><td></td><td></td><td>8</td><td>Invalid bus type, check "ID34140 AS BUS protocol"
<table><tr><td>Info 3</td><td>Instance</td></tr></table></td></tr>
<tr><td></td><td></td><td>9</td><td>Error during bus initialisation
<table><tr><td>Info 2</td><td>1</td><td>Invalid bus type;
check "ID34140 AS BUS protocol"
<table><tr><td>Info 3</td><td>Instance</td></tr></table></td></tr><tr><td></td><td>2</td><td>Invalid bus type;
check "ID34025 BUS mode"
<table><tr><td>Info 3</td><td>Instance</td></tr></table></td></tr><tr><td></td><td>5</td><td>Bus not ready, I/O option does not exist
<table><tr><td>Info 3</td><td>Instance = 3</td></tr></table></td></tr></table></td></tr>
<tr><td>Error Removal</td><td colspan="3"></td></tr>
</table>

3865 Software version option

<table>
<tr><td colspan="4">• Software version of the active option module is not compatible with the software level of the basic system</td></tr>
<tr><td>Device</td><td colspan="3"></td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3"></td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3">System run-up aborted</td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td></td><td></td><td>Instance of the not compatible option module</td></tr>
<tr><td>Error Removal</td><td colspan="3"></td></tr>
</table>

3867 System Diagnostics

<table>
<tr><td colspan="4">• Error in updating device data record</td></tr>
<tr><td>Device</td><td colspan="3">AS-PL15
AS-Cxx-1</td></tr>
<tr><td>Description</td><td colspan="3"></td></tr>
<tr><td>Class</td><td colspan="3">Error</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>1</td><td>Update is faulty which is controlled by the configuration file
<table>
<tr><td>Info 2</td><td>2</td><td>Configuration file faulty</td></tr>
<tr><td></td><td>10</td><td>Invalid device data</td></tr>
<tr><td></td><td>11</td><td>Invalid ID selection</td></tr>
<tr><td></td><td>17</td><td>Invalid configuration for generation of the device data record</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>2</td><td>Devices can not be accessed over fieldbus</td></tr>
<tr><td></td><td></td><td>3</td><td>Timeout during update</td></tr>
<tr><td></td><td></td><td>4</td><td>Data record does not fit to device</td></tr>
<tr><td>Error Removal</td><td colspan="3">• Info 1 = 4:
Select a fitting data record
• Check configuration of fieldbus</td></tr>
</table>

<table>
<tr><td colspan="4">• Parameter Update</td></tr>
<tr><td>Device</td><td colspan="3">A5</td></tr>
<tr><td>Description</td><td colspan="3">Error in parameter update functionality</td></tr>
<tr><td>Class</td><td colspan="3">Fehler</td></tr>
<tr><td>Drive Behaviour</td><td colspan="3"></td></tr>
<tr><td>Device Behaviour</td><td colspan="3"></td></tr>
<tr><td colspan="4">Additional Error Information (AMK Service)</td></tr>
<tr><td></td><td>Info 1</td><td>1</td><td>Internal error</td></tr>
<tr><td></td><td></td><td>2</td><td>Device could not be accessed
<table>
<tr><td>Info 2</td><td>1</td><td>ASC-Bus</td></tr>
<tr><td></td><td>2</td><td>CC-Bus</td></tr>
<tr><td>Info 3</td><td colspan="2">Busadresse</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>3</td><td>Timeout communication</td></tr>
<tr><td></td><td></td><td>4</td><td>Data record does not fit to device</td></tr>
<tr><td>Error Removal</td><td colspan="3"></td></tr>
</table>

3868 System Diagnostics

• Error during initialisation of system			
Device	**A5**		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Error in module communications, source module does not exist
		2	Error in module communications, target module does not exist
		3	Packet transfer error in DPM gateway
		4	Error initialising real-time data
		5	Error initialising slave interface (P2)
		6	Error initialising master interface (P3)
		8	Error in memory allocation
		9	Error in memory allocation
		10 - 12	Internal error Info 2: Modulnummer
Error Removal			

• Error during initialisation of system			
Device	A5		
Description			
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Error Information (AMK Service)			
	Info 1	1	Error in module communications, source module does not exist
		2	Error in module communications, target module does not exist
		3	Packet transfer error in DPM gateway
		4	Error initialising real-time data
		5	Error initialising slave interface (P2)
		6	Error initialising master interface (P3)
		8, 9	Error in memory allocation
		10 - 12	Internal error Info 2: Module number
Error Removal			

3869 I/O Optional Card

• E/A Optionskarte			
Device	**A5**		
Description	Error during initialisation of system		
Class	Error		
Drive Behaviour			
Device Behaviour			
Additional Information (AMK Service)			
	Info 1	10	Incorrect check sum
		11	Incorrect SPI message ID
		12	Protocol error
		13	Error SPI real-time transmission data
		14	Error SPI real-time reception data
Error Removal			

5 AW/AZ/KU internal bit blocks

The displayed bit blocks classify the individual error causes and serve for the system-internal overview. Direct access to this information is possible only using the service monitor. The addresses of information depend upon the system configuration and the software level and are thus variable.

5.1 Bit block AZ_ERR_1

Bit	Meaning	Error codeAZ
0	Ser. EEPROM checksum error	1
1	Ser. EEPROM write error	2
2	EPROM checksum error	3
3	RAM error	4
4	Par. EEPROM checksum error	5
5	Par. EEPROM write error	6
6	AZB error	7
7	Ser. receive 1 error	8
8	Ser. receive 2 error	9
9	Watchdog reset	10
A	BAV timeout	11
B	Programm stack overflow	12
C	System stack overflow	13
D	System stack underflow	14
E	Controller error	15
F	Reserve	16

5.2 Bit block AZ_ERR_2

Bit	Meaning	Error code AZ
0	AZ temperature error	17
1	Mains fault or fuse defective	18
2	Line voltage error	19
3	No SBM	20
4	Line voltage > 460 V	21
5	Line voltage < 340 V	22
6	Blocking time for UE not ended	23
7	Switching frequency too high	24
8	DC bus charging faulty	25
9	Phase error L1	26
A	Phase error L2	27
B	Phase error L3	28
C	Phase sequence L1/L2 or fuse	29
D	Phase sequence L2/L3 or fuse	30
E	Phase sequence L1/L2/L3 or fuse	31
F	Phase sequence L1/L2/L3. -"-	32

5.3 Bit block AZ_ERR_3

Bit	Meaning	Error code AZ
0	Fault +12 V	33
1	Fault -12 V	34
2	DC bus overvoltage	35
3	Regeneration fault	36
4	Braking transistor fault	37
5	Reserve	38
6	Reserve	39
7	Reserve	40
8	Reserve	41
9	Reserve	42
A	Reserve	43
B	Reserve	44
C	Reserve	45
D	Reserve	46
E	Reserve	47
F	Reserve	48

5.4 Bit block AZ_ERR_4

Bit	Meaning	Error code AZ
0	Cooling air overtemperature	49
1	External component overtemperature	50
2	Power supply unit overtemperature	51
3	Feeding/regeneration overtemperature	52
4	Line overvoltage	53
5	Line undervoltage	54
6	Pulse input encoder fault	55
7	Encoder fault E1, OPT1	56
8	Encoder fault E2, OPT1	57
9	Encoder fault E3, OPT1	58
A	Encoder fault E4, OPT1	59
B	Encoder fault E1, OPT2	60
C	Encoder fault E2, OPT2	61
D	Encoder fault E3, OPT2	62
E	Encoder fault E4, OPT2	63
F	Encoder fault E1, OPT3	64

5.5 Bit block AW_ERR_1

Bit	Meaning	Inverter error code
0	Phase U short-circuit	1
1	Phase V short-circuit	2
2	Phase W short-circuit	3
3	Supply voltage error +12 V	4
4	Supply voltage error -12 V	5
5	Undervoltage error	6 [1)]
6	Motor encoder error	7
7	Output terminal ground fault	8
8	Synchronous running error	9
9	Master synchronous telegram error	10
A	Inverter controller clock error	11
B		12 [1)]
C	Wrong rotation direction external encoder	13 [1)]
D	Excessive control deviation	14
E	$n_{ist} > n_{max}$	15
F	Output stage enable (EF) inactive	16

5.6 Bit block SYS_ERR (SERCOS)

Bit	Meaning	Inverter error code
0	EPROM memory error (checksum)	17 [1)]
1	RAM memory error	18 [1)]
2	ASIC error	19 [1)]
3	A/D converter channel 1 defective	20 [1)]
4	2	21 [1)]
5	3	22 [1)]
6	4	23 [1)]
7	5	24 [1)]
8	6	25 [1)]
9	7	26 [1)]
A	A/D converter channel 8 defective	27 [1)]
B	Watchdog	28
C	Position growth too large	29
D	Reserve	30
E	Reserve	31
F	Current command value analog at the slave	32

[1)] is not yet evaluated

5.7 Bit block AW_STÖR

Bit	Meaning
0	No clock enable acknowledgement
1	No magnetizing possible
2	Operation mode for inverter not acknowledged
3	Communication on AW
4	Communication on AZ
5	Reserve
6	Reserve
7	Reserve
8	Awn overload
9	Awn overtemperature
A	Motor overtemperature
B	Reserve
C	Reserve
D	Reserve
E	Reserve
F	Reserve

Additional AW faults acquired by the AZ (bit blocks) are created as AW_STÖR for each drive. Only faults/warnings and ERRORs
which are acquired by time-critical programs (system graphs) are entered to make them available for diagnosis

5.8 Bit block SYS_ERR

(SERCOS interface ® - Status class 1)

Bit	Meaning
0	Nominal current exceeding (current limit integral)
1	Inverter overtemperature
2	Motor overtemperature
3	Reserve
4	Supply voltage error (+/-12 V)
5	<encoder error
6	Reserve
7	Short-circuit/output terminal ground fault
8	Reserve
9	Undervoltage error (DC bus not connected)
A	Reserve
B	Excessive control deviation
C	SERCOS interface ® communication error
D	Reserve
E	Reserve
F	Manufacturer-specific error see inverter_ERR_1 …ERR_3 or diagnostics

These messages are formed by corresponding driver programs. This bit block is a summary of the previously defined bit blocks according to the SERCOS interface® status class 1. It is formed in the central module in the case .of an error.

5.9 Real time bit block AW_MESSAGE

Bit	Meaning
0	$\lvert N_{command} - N_{feedback} \rvert < N_{window}$ ($N_{feedback} = N_{command}$), according to window ID157
1	$\lvert N_{feedback} \rvert < N_{min}$, according to window ID124
2	$\lvert N_{feedback} \rvert < n_x$, according to window ID125
3	$\lvert M_{feedback} \rvert > M_x$, according to window ID126
4	$\lvert M_{feedback} \rvert > M_{limit}$, according to ID82, ID83
5	$\lvert N_{command} \rvert > \lvert N_{limit} \rvert$, according to ID38, ID39
6	$SA < SA_{limit}$, according to window ID57
7	$\lvert P_{feedback} \rvert \geq P_x$, according to window ID158
8	Software limit switch negative, according to window ID50
9	Drive angle synchronous, according to window ID228
A	Drive position synchronous, according to window ID32952
B	$N_{feedback} \geq 0$, as from AW version AW 0210
C	Feedback value acknowledgement calibrated
D	Residual distance was deleted, according to window ID32922
E	Overcurrent message: Utilization > 50% of the overload limit
F	Software limit switch positive according to window ID49

Key:
N Speed, M Torque, P Power, X Position, SA Following error

5.10 System bit blocks

SYS_INP		SYS_OUTP	
Bit	**Bedeutung**	**Bit**	**Bedeutung**
0	FL (error deletion)	0	SBM (group ready message)
1	UE (inverter ON)	1	QUE
2	Reserve	2	Reserve
3	Reserve	3	Reserve
4	Reserve	4	Reserve
5	Reserve	5	Reserve
6	Reserve	6	PR_POS (touch probe, positive edge)
7	PR_EN (enable measuring function)	7	PR_NEG (touch probe, negative edge)
8	RF1 (controller enable AW1)	8	QRF1 (acknowledgement RF AW1)
9	RF2 (controller enable AW2)	9	QRF2 (acknowledgement RF AW2)
A	RF3 (controller enable AW3)	A	QRF3 (acknowledgement RF AW3)
B	RF4 (controller enable AW4)	B	QRF4 (acknowledgement RF AW4)
C	RF5 (controller enable AW5)	C	QRF5 (acknowledgement RF AW5)
D	RF6 (controller enable AW6)	D	QRF6 (acknowledgement RF AW6)
E	RF7 (controller enable AW7)	E	QRF7 (acknowledgement RF AW7)
F	RF8 (controller enable AW8)	F	QRF8 (acknowledgement RF AW8)

6 KE messages via LED-block

6.1 LED status display

Status and diagnostic messages are displayed via LED block in the compact supply unit KE. In KE/KW network systems additional to the LED display it is possible to read the diagnostic number via bus system.

System ready signal SBM is reset in case of an operation error. Error code is displayed via LED field H1. Activation of error reset through a L/H signal at binary input FL (error reset).

H1: LED field

LED 1, 2 und 4 green
LED 3 red

Display status

LED display	Meaning
	**"System ready"** • Boot up of compact supply unit KE without an error but not activated yet. Waiting of control command “DC bus enable ON”.
	"DC bus” UE is active. • DC bus voltage has been establish via main power on and no error occurred • Acknowledge via ”DC bus enable” QUE=1 handshake.
	“Activation of regenerative operation” ARS is active. • Regenerative operation is activated depending on DC bus voltage in KE power supply unit with regenerative function.

6.2 LED diagnostic display

After an error occurrence the power supply unit KE is reset to a safe mode and a diagnostic message is displayed. In this case the red LED is always ON.

System behavior in error case:

- Regenerative function is de-activated
- Reset of system ready signal (SBM = 0)
- Power supply unit KE is disconnected from main power line
- Discharge of DC bus voltage via external braking resistor
- Reset of QUE
- System ready signal (SBM = 1) after successful error reset

Diagnostic overview

LED Display	Meaning / Error causes
	**Power reset** • Missing supply voltage 24 VDC extern • Power-On-Reset-condition during power up • Power reset during operation (sag of power supply voltages)
	**Limit main power supply** • Voltage range at X20 greater than 530 VAC or smaller than 320 VAC for time period > 6.4 s. • At least one phase missing at X20. • At least one phase missing at X01
	**Phase sequence L1/L2/L3** • Phase sequence L1, L2, L3 at X20 does not correspond with L1.1, L2.1, L3.1 at X01. • External main contactor (connection via X20/ EH1, EH2) does not energize (wiring, fuse defect).
	**DC bus** • Restriction time for UE: The variable restriction time has not expired between two “power on” cycles. A successful error clearance is possible at once. inverter on (UE = 1) after end of restriction time. • Short circuit DC bus (wiring, IGBT defect). • Charging time of DC bus is too long (Capacitor load to big, load resistors defect) • DC bus voltage is greater than max limit of 850 VDC. (KW display this fault also)
	**Regenerative fault** • Synchronization with main power after re-boot is not possible. • Voltage frequency out of range limit 47 … 63 Hz • Current exceeds max limit.
	**Short circuit** • Short circuit brake resistor (brake resistor too small, resistor defective, cable defective, ground fault) ☞ Error only can be reset once via binary input “FL”. Main power supply has to be cycled if this error occurs again.
	**Over temperature** • Heat sink temperature or external temperature X25 (RT1, RT2), (brake resistor) exceeded. • Overload exceeded

LED Display	Meaning / Error causes
	**Fault ±12 V** • Internal power supply voltage ±12 V smaller than I10 VI. • External power supply (24 VDC) smaller than permitted limit
	**Controller** • Error checksum SEEP • Error ACC-BUS • Watchdog-monitoring • Stack-monitoring • Time level monitoring

7 Messages of AZ 05 through LED block

In the central module AZ 05 status and diagnostic messages are indicated by a LED block at the top right margin. This facilitates rough diagnosis of the system without control panel.

LED field

Operating status:
AZ 05 and AW ready

Status indication

LED display	Meaning	Status
	• System run-up	1
	• System configuration free of error	2
	• AZ 05 ready, DC bus charged	3
	• AZ 05 ready and all activated AW modules ready	4

8 Messages AZ 20 … AZ 60 through LED block

In the central modules AZ for the extended line voltage range, status and diagnostic messages concerning the regenerative braking are displayed by LED block H1. Regenerative braking is no longer controlled by the central computer AZ-R0x but by a separate µC.

In the case of operational fault of the regenerating braking the system ready message SBM is withdrawn, and the error 1060 “Regenerative braking fault” is displayed on the control panel. Error deletion is possible only by switching off the line voltage or the external supply voltage of the power supply unit.

System behavior in the case of error:

- Regenerative braking is inactivated
- The system ready message SBM is withdrawn (SBM = 0)
- Coasting of the drives (pulse barrier at AW)
- The main contactor in the AN opens, QUE is reset.
- The DC bus circuit is discharged through the internal or external braking resistor

H1: LED field

Operating status:
Regenerative braking active

Status indication

LED display	Meaning	Status
	• Regenerative braking has run up correctly but is not yet activated	1
	• Regenerative braking is active and without fault	2

Diagnosis overview

LED display	Meaning/causes of error	Status
	• Regenerative braking is active, but has switched off briefly because of overcurrent of the IGBT. The LED remains on for approx. 1 sec. and then changes to 1 or 2 if no further error occurs Possible causes:. - Faults on line voltage	3
	• Regenerative braking is active, but has detected a short-term line voltage error, IGBT continue to be switched. The LED remains on for approx. 1 sec. and then changes to 1 or 2 if no further error occurs. Possible cause: - Strongly disturbed power supply, overcurrent errors then occur generally.	4
	• Regenerative braking is in error status. Possible causes: - Faults on line voltage - Overcurrent in regenerative braking Note: This LED pattern lights up if with regenerative braking switched off a corresponding error is present	5
	• Regenerative braking is in error status. Possible causes - Line voltage not applied (for AZ with ext. power supply) - Synchronization not possible because of highly disturbed power supply	6
	• Regenerative braking is in error status. Error in system run-up. Possible causes: - No power supply at the regenerative braking logic - Defect in the regenerative braking logic	7

9 Messages through control panel, error deletion

1. In the case of error:

Error
DIAGNOSTICS NEXT

F3
F1

(DIAGNOSTICS)

xxxx	Aqq zz
abcd	

xxxx: Diagnostic No.
Aqq: Error source (AZ0,4Wn)
zz: Error counter
abcd: Diagnostic text

3. Display of further diagnostic messages which (if present) are stored in th diagnostic stack.

4. Switch off inverter on (UE) and controller enable (RF).

5. Remove cause of fault

6.

DELETE ERROR DIAGNOSTICS	SYSTEM STARTUP

Shift

F3
F1

7.

Error delection active

For some seconds then:

DELETE ERROR DIAGNOSTICS	SYSTEM STARTUP

Alternatively an error deletion can take place with inactive “Inverter on and controller enable” signals through the binary input FL at AZ X30, FL at KU X33 or through active option cards such as AZ-PSx. Error deletion always results in a partial system initialization. This lasts approx. 2 s per activated drive. Only after the end of this time and the “Group ready” message can the system be restarted.

Error deletion with active UE/RF

1. In the case of error:

Error	
DIAGNOSTICS	NEXT

F3
F1

(DIAGNOSTICS)

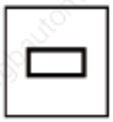
xxxx	Aqq zz
abcd	

xxxx: Diagnostic No.
Aqq: Error source (AZ0,4Wn)
zz: Error counter
abcd: Diagnostic text

3. Display of further diagnostic messages which (if present) are store diagnostic stack.

4. Switch off inverter on (UE) and controller enable (RF).

5. Remove cause of fault



6.

DELETE ERROR	SYSTEM
DIAGNOSTICS	STARTUP

7.

Shift

F3
F1

Error delection active

For some seconds then:

DELETE ERROR	SYSTEM
DIAGNOSTICS	STARTUP

Internal diagnostic information

(F2 key on “System diagnostics” message, or “See description”)

1.

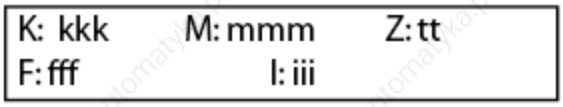
(DIAGNOSTICS)

2.

3.

Display of the internal data structure of further messages if present. Further information can be found in the “Clocking out the diagnostic message” section.

Please note all values and inform the AMK service (Tel.: +49 (0) 7021/50 05-191).



10 Non-volatile saved events

Different values are saved in non non-volatile memory. (Maximal 40 000 write cycle per memory cell).

These can be analyzed with the key pad(Main menu\System\fault statistic or operation hour counter) or with PC-Program (AIPAR, APS).

Operation hour counter is increased every hour. (Active power supply).

Following fault information can be obtained:

Content	ID-No. [1]	AZ	KE	AW	KW	KU	RM
Fault counter mains	34062/2	x	x	-	-	x	x
Fault counter brake transistor	34062/3	x	x	-	-	x	-
Fault counter Logic voltage	34062/4	x	x	x	x	x	x
Fault counter overload I^2t	34062/5	-	x	x	x	x	x
Fault counter encoder error	34062/6	-	-	x	x	x	x
Fault counter short circuit/ ground fault	34062/7	x	x	x	x	x	x
Fault counter device over-temperature	34062/8	x	x	x	x	x	x
Fault counter motor/brake resistor over-temperature	34062/9	[2]	x	[2]	x	-	x

[1] ID does not exist in AZ/AW

[2] Included in fault counter device over-temperature

11 Clocking the diagnostic message (only AZ)

The diagnosis and the data output is possible in the AZ through binary outputs DA1 … DA4.

Overview of assigned inputs/outputs

Inputs:

SC	Output status code
TS	Clock for reading the status code through DA1 … DA4

Outputs:

QSC	Acknowledgement SC
QTS	Acknowledgement TS
DA1	data output 1
DA2	data output 2
DA3	data output 3
DA4	data output 4

Functional description of the signals:

SC = 0:

The binary displays (messages) agreed with the system parameters are output cyclically at DA1 … DA4.

SC = 0 →1:

The diagnostic module prepares the diagnostic information for output at the outputs DA1 … DA4.

QSC:

Acknowledges the SC signal if the diagnostic information is present for the output at DA1 … DA4.

TS = 1:

The drive status is read nibble-sequentially (4 nibbles) with clock pulses TS. If no further error messages are present, “0” is output in each case at DA1 … DA4.

TS is without effect as long as SC = 0. With SC = 1 and TS = 1, the individual nibbles of the status information are output at the outputs DA1 … DA4. The 1st nipple is output at

DA1 … DA4 with the first TS = 0 → 1 transition, the 2nd nibble with the second TS = 0 → 1 transition etc. The values at DA1 … DA4 are valid and may be processed further by the higher-level control system if QTS = 1.

QTS:

QTS acknowledges the signal TS and indicates that the binary outputs DA1 … DA4 are valid.

DA1 … DA4:

Binary outputs for status messages (SC = 0) and diagnostic messages (SC = 1).

Structure of the diagnostic information:

Nibble 1	Nibble 2	Nibble 3	Nibble 4
Error source	Diagnostic no. low	Diagnostic no. high	Error module

12 AMK service info

The following explanations serve for additional information of the AMK service and require deeper system knowledge.

Example of clocking out error codes (only AZ)

	MSB														LSB		
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Bit
Nibble1													0	0	1	0	
Nibble 2									1	1	1	1					
Nibble 3					0	0	1	0									
Nibble 4	1	0	0	1													
Hex:	9				2				F				2				
Decimal:	2351 = Code-No.												Drive AW2				

Message: “Motor temp. warning”

	MSB														LSB		
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Bit
Nibble1													0	0	1	0	
Nibble 2									1	0	1	1					
Nibble 3					0	0	1	0									
Nibble 4	1	0	0	1													
Hex:	9				2				B				2				
Decimal:	2347 = Code-No.												Drive AW2				

Message: “Motor temp. error”

	MSB														LSB		
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Bit
Nibble1													0	0	0	0	
Nibble 2									0	0	0	0					
Nibble 3					0	0	0	0									
Nibble 4	0	0	0	0													
Hex:	0				0				0				0				

Message:
No further error message in the system. Enquiry of the status code can be interrupted by removal of “SC”.

The diagnostic message is composed of two parts. Part 1 states which AMKASYN internal error source has generated the diagnostic message, part 2 represents the diagnostic module to which an inverter reference can be produced.

List of the error sources:

AZ	0	Fault message AZ
AW1	1	Fault message AW 1
AW2	2	Fault message AW 2
AW3	3	Fault message AW 3
AW4	4	Fault message AW 4
AW5	5	Fault message AW 5
AW6	6	Fault message AW 6
AW7	7	Fault message AW 7
AW8	8	Fault message AW 8
OPT	9	Option card fault message (e.g. AZ-PSx)

List of the software diagnostic modules for forming the global error number:

DIAGNOSTICS	0	Diagnostic module fault message
CONTROL PANEL	1	Control panel software fault message
MONITOR	2	Monitor module fault message
DATA BASE	3	Data base module fault message
HARDWARE-AZ	4	Central module hardware fault message
OPERATION MODE MANAGEMENT	5	Operation mode management module fault message
SERIAL EEPROM	6	Serial EEPROM fault message
COMMANDING	7	Commanding module fault message
LOG.SUBSCRIBER	8	Logical subscriber fault message
HARDWARE-AW	9	Inverter hardware fault message
OPTION CARDS	10	Option cards fault message
SPS	11	AZ-PSx card fault message
SERCOS interface ®	12	AZ-K02 card fault message
NC	13	AZ-MCx card fault message

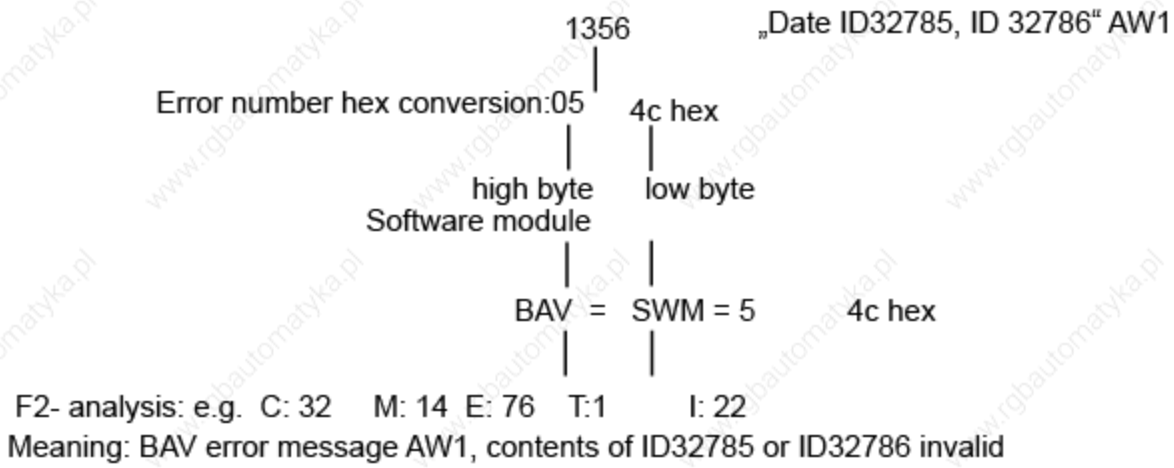
The development-internal error data structure can be read by pressing the F2 key (F2 analysis) on the control panel, this is absolutely necessary in connection with the “System diagnostics” plain language message:

C: cc	**M: mm**	**T: tt**	**E: ee**	**I: ii**
cc	Variable ub_errorclass, error class			
mm	Variable ub_modul, error module			
tt	Time at which the error occurred, order of the events			
ee	Variable ub_errornr, error number			
ii	Variable uw_info, additional information (error-reporting function)			

The error code and the error module of the development-internal error data structure is not identical with the external global diagnostic message. The diagnostic messages can be used in connection with the current version of the file DIAG_DEF.INC of the directory C:\AZMODUL\INCLUDE.

Example of calculation of control panel error number for module assignment:

Control panel display:1356"Datum ID 32785, ID 32786"AW1



picture name: ZCH_Diagnose_Berechn_bsp

Overview of diagnostic modules for internal module code with inverter No. reference

Subscriber	Int. module code (F2 analysis)	Diagnostic module SWM for calculation	
DIAGNOSTICS	0	SWM0	Diagnostics
MNU	1	SWM1	Control panel
MON	2	SWM2	Monitor
DTH	3	SWM3	Database
AZ	4	SWM4	AZ fault messages
BAV	13	SWM5	BAV not drive-specific
BAV1	14	SWM5	BAV AW1 drive-specific
BAV2	15		BAV AW2
BAV3	16		BAV AW3
BAV4	17		BAV AW4
BAV5	18		BAV AW5
BAV6	19		BAV AW6
BAV7	20		BAV AW7
BAV8	21		BAV AW8
SEEPAZ	22	**SWM6**	SEEP AZ
SEEPAW1	23		SEEP AW1
SEEPAW2	24		SEEP AW2
SEEPAW3	25		SEEP AW3
SEEPAW4	26		SEEP AW4
SEEPAW5	27		SEEP AW5
SEEPAW6	28		SEEP AW6
SEEPAW7	29		SEEP AW7
SEEPAW8	30		SEEP AW8
KMD1	31	**SWM7**	KMD AW1 Commanding interface
KMD2	32		KMD AW2
KMD3	33		KMD AW3
KMD4	34		KMD AW4
KMD5	35		KMD AW5
KMD6	36		KMD AW6
KMD7	37		KMD AW7
KMD8	38		KMD AW8
LT_ANTR	39	**SWM8**	Logical SBUS subscriber
AW1	5	**SWM9**	AW fault messages AW1
AW2	6		AW2
AW3	7		AW3
AW4	8		AW4
AW5	9		AW5
AW6	10		AW6
AW7	11		AW7
AW8	12		AW8
FSS_AZSSINT	40	**SWM10**	Option cards
SPS_MODULE	101	**SWM11**	SPS
SERCOS_MODULE	121	**SWM12**	SERCOS
NC_MODULE	131	**SWM13**	NC

13 Your opinion is important!

With our documentation we want to offer you the highest quality support in handling the AMK products.
That is why we are now working on optimising our documentation.
Your comments or suggestions are always of interest to us.
We would be grateful if you take a bit of time and answer our questions. Please return a copy of this page to us.

*e-mail: **dokumentation@amk-antriebe.de***
or
fax no.: +49 (0) 70 21 / 50 05-199

Thank you for your assistance.
Your AMK documentation team

1. How would you rate the layout of our AMK documentation?

   (1) very good (2) good (3) satisfactory (4) less than satisfactory (5) poor

2. Is the content structured well?

   (1) very good (2) good (3) moderate (4) hardly (5) not at all

3. How easy is it to understand the documentation?

   (1) very easy (2) easy (3) moderately easy (4) difficult (5) extremely difficult

4. Did you miss any topics in the documentation?

   (1) no (2) if yes, which ones:

5. How would you rate the overall service at AMK?

   (1) very good (2) good (3) satisfactory (4) less than satisfactory (5) poor

AMK Arnold Müller GmbH & Co. KG
phone : +49 (0) 70 21 / 50 05-0, fax: +49 (0) 70 21 / 50 05-199,
info@amk-antriebe.de