

## Use for the list of errors

Error numbers with index for errors of the safety card are shown on the LED display:

Order of display	Syntax	Specification
1	F31	General error number of the amplifier for safety card errors
2	oXX	Error number of the safety card
3	iYY	Sub index for safety card error number. Gives a more detailed specification for the error number

## Function of error response

The safety card reacts to errors with different functions of error response:

Error number	Function of error response
1...31	The safety function Safe Stop 1 (SS1) is executed with highest priority. The settings for emergency stop ramp are used.
32	In case of a fatal error the motor is stopped immediately without stop ramp by safety function Safe Torque Off (STO).

## Schedule of Errors

Error-Nr.	Sub Index	Error Message	Cause	Remedy
1	1	Safety card error: SS1 monitoring braking ramp.	Tolerance range for monitoring position is exceeded.	Ensure that the value of position error for monitoring braking ramp is set correctly.
2	1	Safety card error: SS2 monitoring for standstill.	Tolerance range for standstill position is exceeded.	Ensure that the configured tolerance window for monitoring stand still position is set correctly. Prevent movement while SS2 is activated.
2	2	Safety card error: SS2 monitoring braking ramp.	Tolerance range for braking ramp is exceeded.	Ensure that the value of position error for monitoring braking ramp is set correctly.
3	1	Safety card error: SOS monitoring for standstill.	Tolerance range for standstill is exceeded.	Ensure that the configured tolerance window for monitoring standstill position is set correctly. Prevent movement while SOS is activated.
4	1	Safety card error: SLS monitoring safely limited speed.	Tolerance range for safely limited speed is exceeded.	Check the actual speed Ensure that the configured value for speed limit is set correctly. Ensure that the actual speed of the drive does not exceed the speed limit.
4	2	Safety card error: SLS fall short of tolerance range period.	Setting of tolerance period not correctly.	Ensure that the configured tolerance range period is set correctly

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4	3	Safety card error: SLS limit value of the tolerance range exceeded.	Setting of tolerance value not correctly.	Ensure that the configured tolerance range value is set correctly
5	1	Safety card error: SSR monitoring safe speed range.	Tolerance range for safe speed range is exceeded.	Check the actual speed Ensure that the configured limits for safe speed range are set correctly. Ensure that the actual speed of the drive does not exceed the configured limits.
5	2	Safety card error: SSR fall short of tolerance range period.	Setting of tolerance period not correctly.	Ensure that the configured tolerance range period is set correctly.
5	3	Safety card error: SSR value of the tolerance range exceeded.	Setting of tolerance value not correctly.	Ensure that the configured tolerance range value is set correctly.
6	1	Safety card error: SDI monitoring safe direction.	The direction of rotation is violated.	Ensure that the direction of the drive is correctly. Ensure that the monitoring is activated for the correct direction. Ensure that the configured tolerance range value for stand still is set correctly.
7	1	Safety card error: SBT monitoring the standstill position (motor brake).	The internal brake test exceeded the tolerance window for the drives standstill position.	Ensure that the motor brake works correctly. Ensure that the motor current for internal brake test is set correctly.
7	2	Safety card error: SBT monitoring standstill position (external holding brake).	The external brake test exceeded the tolerance window for the drives standstill position.	Ensure that the external brake works correctly. Ensure that the motor current for external brake test is set correctly.
7	3	Safety card error: SBT monitoring motor current / motor current on (motor brake).	Drive current is not correctly.	Check the wiring to the motor.
7	4	Safety card error: SBT monitoring motor current / motor current off (motor brake).	Motor current does not switch off.	Check the wiring to the motor.
7	5	Safety card error: SBT monitoring motor current / motor current on (external holding brake).	Drive current is not correctly.	Check the wiring to the motor.
7	6	Safety card error: SBT monitoring motor current / motor current off (external holding brake).	Motor current does not switch off.	Check the wiring to the motor.
7	7	Safety card error: SBT safety function SBC not configured.	Function SBC not configured.	Activate the device option safe brake control (SBC).
7	8	Safety card error: SBT test period expired.	Safe brake test was not performed before the expiration of the test period.	Perform the safe brake test.
7	9	Safety card error: SBT brake test aborted.	Brake test was aborted by the user	Perform the safe brake test again.
12	1	Safety card error: test input 'SS1 activate'.	Wiring of the input or input module faulty.	Check the wiring of the input.
12	2	Safety card error: test input 'SS2 activate'.		
12	3	Safety card error: test input 'SOS activate'.		
12	4	Safety card error: test input- 'SLS activate'.		
12	5	Safety card error: test input 'SSR activate'.		

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12	6	Safety card error: test input 'SDI Neg activate'.	Wiring of the input or input module faulty.	Check the wiring of the input.
12	7	Safety card error: test digital input 'SDI Pos activate'.		
12	8	Safety card error: test input 'SBT activate'.		
12	9	Safety card error: test input 'SS1 SIL3/Reset'.		
13	1	Safety card error: test output 'STO acknowledge'.	Wiring of the output or output module faulty.	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	2	Safety card error: test output 'SOS acknowledge'.		
13	3	Safety card error: test output 'SDI acknowledge'.		
13	4	Safety card error: test output 'SRA acknowledge'.		
13	5	Safety card error: test output 'SBT Acknowledge'.		
13	6	Safety card error: test output 'Ready'.		
13	7	Internal error of the safety card: system software.	Output module faulty.	Contact Kollmorgen.
13	8	Safety card error: test output 'SIL3 STO'.	Wiring of the output or output module faulty.	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	9	Internal error of the safety card: read back error.	Output module faulty.	Contact Kollmorgen.
13	10	Internal error of the safety card: transistor SBC+ unable to switch on.	Output module faulty.	Contact Kollmorgen.
13	11	Internal error of the safety card: transistor SBC- unable to switch on.	Output module faulty.	Contact Kollmorgen.
13	12	Safety card error: open circuit / transistor SBC+ unable to switch off.	Connection of external brake is faulty.	Ensure that there is no short circuit, short across contacts or open circuit in the wiring of the external brake. Check the wiring of the external brake for voltage reversal.
13	13	Safety card error: open circuit / transistor SBC- unable to switch off.		
13	14	Internal error of the safety card: safe pulse inhibitor / read back error.	STO shutdown path faulty.	Contact Kollmorgen.
13	15	Safety card error: output stage break at startup safe pulse inhibitor (STO, STO SIL3).	Wiring of output 'STO SIL3' faulty.	Check the wiring of 'STO SIL3'. Safety card S1: 'STO SIL3' (X30/19) must be connected to input 'STO2-ENABLE' (X4A/3) of the servo amplifier. Safety card S2: input 'STO2-ENABLE' (X4A/3) of the servo amplifier must be connected to +24 VDC.
13	16	Internal error of the safety card: safe pulse inhibitor output stage 1 (STO) unable to switch off.	STO shutdown path faulty.	Contact Kollmorgen.
13	17	Safety card error: safe pulse inhibitor output stage 2 (STO) SIL3 unable to switch on.	Wiring of output 'STO SIL3' faulty.	Check the wiring of output 'STO SIL3'.
13	18	Internal error of the safety card: output stage break in run (STO).	STO shutdown path faulty.	Contact Kollmorgen.

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13	19	Safety card error: output stage break in run (STO SIL3).	Wiring of output 'STO SIL3' faulty.	Check the wiring of output 'STO SIL3'.
14	1	Internal error of the safety card: reference voltage - safe clock.	Error by internal power supply (under voltage, faulty contacts).	Contact Kollmorgen.
14	2	Safety card error: Power supply digital outputs [startup test].	No voltage supply, under voltage or component defect.	Check the power supply (+24 VDC) of the safety card (X30/10, X30/21). Contact Kollmorgen.
14	3	Safety card error: Power supply digital outputs [cycle. run test].	No voltage supply, under voltage.	Check the power supply (+24 VDC) of the safety card (X30/10, X30/21).
14	4	Safety card error: power supply digital outputs [switch off test].	Power supply faulty.	Check the power supply (+24 VDC) of the safety card (X30/10, X30/21).
14	5	Internal error of the safety card: Power supply digital outputs safe clock [switch off test].	Error by internal power supply.	Contact Kollmorgen.
14	6	Internal error of the safety card: Monitoring clock for current data.	Module for current detection defect.	Contact Kollmorgen.
15	1	Internal error of the safety card: watchdog not active [startup test].	Watchdog module defect.	Contact Kollmorgen.
15	2	Internal error of the safety card: watchdog triggered to early [startup test].		
15	3	Internal error of the safety card: watchdog not triggered [startup test].		
15	4	Internal error of the safety card: watchdog not active [discharging test].		
15	5	Internal error of the safety card: watchdog not triggered [discharging test].		
16	1	Internal error of the safety card: memory test.	Memory (Flash/RAM) defect.	Contact Kollmorgen.
17	1	Internal error of the safety card: waiting for fast interrupt.	Timer module defect.	Contact Kollmorgen.
17	2	Internal error of the safety card: calling fast interrupt while interrupt already active.		
17	3	Internal error of the safety card: calling interrupt 1ms while interrupt already active.		
17	4	Internal error of the safety card: calling interrupt too early.		
17	5	Internal error of the safety card: calling interrupt too late.		
18	1	Safety card error: plausibility position (current)/ no zero crossing of current.	Insufficient quality of current signal.	Ensure that parameters for control loops of the servo amplifier are set correctly (e.g. 'MLGQ', 'GV'). Set parameter 'CSENID' of the servo amplifier to 1 (= impress of reactive current switched on). Setting for the maximum impress of reactive current with command 'CSIDMAX'.

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18	2	Safety card error: plausibility position (current)/ wrong position when zero crossing of current.	Insufficient quality of current signal.	Ensure that parameters for control loops of the servo amplifier are set correctly (e.g. 'MLGQ', 'GV'). Set parameter 'CSENIID' of the servo amplifier to 1 (= impress of reactive current switched on). Setting for the maximum impress of reactive current with command 'CSIDMAX'. Ensure that the shielding of the motor cables are correctly Check cabinet for errors by electromagnetic compatibility (EMC) (e.g. Power supply unit, transformer).
19	1	Safety card error: encoder signal (motor feedback).	Encoder feedback (motor feedback) defect.	Check the motor feedback system. Check the wiring and contacts.
19	2	Internal error of the safety card: internal position error servo drive (DPR-SSI).	Detection of the position by the servo amplifier is faulty.	Contact Kollmorgen.
19	3	Internal error of the safety card: value of velocity not plausible.	Detection of the position by the servo amplifier is faulty.	Contact Kollmorgen.
19	4	Internal error of the safety card reading SSI-position.	Transfer of position signal (SSI) faulty.	Contact Kollmorgen.
19	5	Safety card error: plausibility with external encoder.	Connection of external encoder not correctly or encoder defect.	Check the connection of the external encoder to the safety card. Check the settings for the external encoder.
19	6	Safety card error: plausibility with demand velocity, different sign.	Setting of parameters servo amplifier not correctly or error of motor function.	Check the functionality of the drive system.
19	7	Safety card error: plausibility with demand velocity, position error to big.	Setting of parameters servo amplifier not correctly or error of motor function.	Ensure that parameters for control loops of the servo amplifier are set correctly. Check setting for following error and actual following error.
20	1	Safety card error: number of Motor Poles incorrect.	Setting of parameter 'MPOLES' not correct.	Check the setting of parameter 'MPOLES'. Check the number of motor poles
20	2	Safety card error: motor type incorrect.	Setting of parameter 'MTYPE' not correct.	Check the setting for motor type (MTYPE).
21	1	Safety card error: configuration / inputs do not match.	Mismatch of inputs and configuration of safety functions.	Check the state of inputs and configuration of safety functions.
22	1	Internal error of the safety card: input state 'SS1 activate'.	Operating data of CPU A/B are different.	If error occurs again contact Kollmorgen.
22	2	Internal error of the safety card: input state 'SS2 activate'.		
22	3	Internal error of the safety card: input state 'SOS activate'.		
22	4	Internal error of the safety card: input state 'SLS activate'.		
22	5	Internal error of the safety card: input state 'SSR activate'.		
22	6	Internal error of the safety card: input state 'SDI neg activate'.		
22	7	Internal error of the safety card: input state 'SDI pos activate'.		
22	8	Internal error of the safety card: input state 'SBT activate'.		

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22	9	Internal error of the safety card: timer.	Operating data of CPU A/B are different.	If error occurs again contact Kollmorgen.
22	10	Internal error of the safety card: operation mode.		
22	11	Internal error of the safety card: status of self-test.		
22	12	Internal error of the safety card: output state 'STO acknowledge'.		
22	13	Internal error of the safety card: output state 'SOS acknowledge'.		
22	14	Internal error of the safety card: output state 'SDI acknowledge'.		
22	15	Internal error of the safety card: output state 'SRA acknowledge'.		
22	16	Internal error of the safety card: output state 'SBT acknowledge'.		
22	17	Internal error of the safety card: output state 'READY'.		
22	18	Internal error of the safety card: output state 'SBC+'.		
22	19	Internal error of the safety card: output state 'SBC-'.		
22	20	Internal error of the safety card: output state 'STO SIL3'.		
22	21	Internal error of the safety card: output state 'STO'.		
22	22	Internal error of the safety card: check sum configuration data.		
22	23	Internal error of the safety card: Input state 'SS1 SIL3/enable'.		
22	24	Internal error of the safety card: check halt.		
22	25	Internal error of the safety card: check direction of rotation.		
22	26	Internal error of the safety card: sum of velocity over 10 ms.		
22	27	Internal error of the safety card: sum of velocity over 100 ms.		
22	28	Internal error of the safety card: history of current.		
22	29	Internal error of the safety card: counter for error tolerance.		
22	30	Internal error of the safety card: tolerance position error of external encoder.		
23		Reserved		
24		Reserved		
25	1	Internal error of the safety card: writing flash.	Flash memory defect.	Contact Kollmorgen.
25	2	Internal error of the safety card: erasing flash sector.	Flash memory defect	Contact Kollmorgen
26	1	Internal error of the safety card: power on sync 1.	Timing error channel A/B.	If error occurs again contact Kollmorgen.
26	2	Internal error of the safety card: power on sync 2.		
26	3	Internal error of the safety card: startup sync 1.		

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26	4	Internal error of the safety card: startup sync 2.	Timing error channel A/B.	If error occurs again contact Kollmorgen.
26	5	Internal error of the safety card: startup sync 3.		
26	6	Internal error of the safety card: run sync 1.		
26	7	Internal error of the safety card: self test sync 1.		
26	8	Internal error of the safety card: because of storing stack data.		
26	9	Internal error of the safety card: synchronization download configuration data receiving.		
26	10	Internal error of the safety card: synchronization download configuration data end.		
27	1	Internal error of the safety card: watchdog triggered.	System error.	Contact Kollmorgen.
28	1	Safety card error: check configuration parameter.	Configuration parameters faulty.	Check configuration parameters (validity, completeness, limits).
28	2	Internal error of the safety card: wrong hardware version number while doing firmware update.	Hardware and firmware are not compatible.	Contact Kollmorgen.
28	3	Internal error of the safety card: wrong hardware version number with command CS 0.	Hardware and firmware are not compatible.	Contact Kollmorgen.
28	4	Internal error of the safety card: download configuration data: to many data.	Error at download of configuration data.	Contact Kollmorgen.
29	1	Safety card error: timeout - download configuration data.	No link up to the device.	Check connecting cable and configuration of the interface. Ensure that the interface of the PC is already not used by other software.
29	2	Safety card error: timeout - upload configuration data.	No link up to the device.	Check the connecting cable and the configuration of the interface. Ensure that the interface of the PC is already not used by other software.
29	3	Safety card error: timeout - firmware update.	No link up to the device.	Check the connecting cable and the configuration of the interface. Ensure that the interface of the PC is already not used by other software.
29	4	Safety card error: download configuration data from memory card.	Memory card not plugged in properly.	Ensure that the memory card is plugged in properly.
30	1	Safety card error: CRC calculation download configuration data.	Link up to the device is faulty or incorrect data.	Ensure that the link up to the device is correctly. If error occurs again contact Kollmorgen.
30	2	Internal error of the safety card: CRC calculation / load configuration data from flash.	Data or memory are faulty.	Contact Kollmorgen.
30	3	Internal error of the safety card: CRC calculation / firmware update.	Link up to the device is faulty or incorrect data.	Ensure that the link up to the device is correctly. If error occurs again contact Kollmorgen.
30	4	Safety card error: command CS 0: wrong string length.	Data are faulty.	Ensure that data are correctly (number of characters).

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30	5	Internal error of the safety card: command CS 0: wrong check CRC.	Data or system is faulty .	Contact Kollmorgen
31	1	Safety card error: check serial number while download configuration data.	Data are faulty.	Ensure that the serial number at the device settings corresponds with the serial number of the safety card.
31	2	Safety card error: check device version while download configuration data.	Data are faulty.	Ensure that the version number at the device settings corresponds with the version number of the safety card.
31	3	Safety card error: check device type while download configuration data.	Data are faulty.	Ensure that the device type at the device settings corresponds with the device type of the safety card.
31	4	Safety card error: check device version while startup.	Data are faulty.	Ensure that the device version of the configuration corresponds with the device version of the safety card.
31	5	Internal error of the safety card: device has no serial number.	System error.	Contact Kollmorgen.
31	6	Internal error of the safety card: check safety version (amplifier firmware) while startup.	Hardware and firmware of the safety card are not compatible.	Contact Kollmorgen.
31	7	Internal error of the safety card: check serial number while loading configuration data.	Data are faulty.	Ensure that the serial number of the configuration corresponds with the serial number of the safety card.
31	8	Internal error of the safety card: check device version while loading configuration data.	Data are faulty.	Ensure that the device version of the configuration corresponds with the device version of the safety card.
31	9	Internal error of the safety card: check device type while loading configuration data.	Data are faulty.	Ensure that the device type of the configuration corresponds with the device type of the safety card.
31	10	Internal error of the safety card: check device version while firmware update.	Hardware and firmware of the safety card are not compatible.	Contact Kollmorgen.
31	11	Internal error of the safety card: check device version while reading serial number.	Hardware and firmware of the safety card are not compatible.	Contact Kollmorgen.
32	1	Internal error of the safety card: illegal interrupt.	CPU error.	Contact Kollmorgen.
32	2	Internal error of the safety card: illegal case assignment.	Software error.	
32	3	Internal error of the safety card: checksum test (Flash) failed.	Error of the flash memory.	
32	4	Internal error of the safety card: memory test (Flash/RAM): memory error.	Error of flash or RAM memory.	
32	5	Internal error of the safety card: test RAM data.	Error of RAM memory.	
32	6	Internal error of the safety card: check parameter.	Addressing error.	
32	7	Internal error of the safety card: self test.	System error.	
32	8	Internal error of the safety card: flow control.	Software error.	