

Errors with S1/S2 Safety cards

Valid for S1 and S2 safety cards, version 0.1 to 1.0

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 index of the safety card
3	iYY	Error subindex corresponding to an error index. 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 index	Function of error response
1...31	The safety card performs the safety function Safe Stop 1 (SS1) with highest priority. The parameters of the emergency stop braking ramp are used to do this.
32	When a fatal error occurs, the drive is immediately switched off without braking ramp by the safety function STO (safe torque off).

Schedule of Errors

Index	Sub-index	Error Message	Cause	Remedy
1	1	Error caused by safety card: SS1 – Monitoring of braking ramp	Low tolerance value for monitoring (position error)	Check the configured tolerance for monitoring the braking ramp
2	1	Error caused by safety card: SS2 – Monitoring of standstill position	Low tolerance value for standstill monitoring	Check the tolerance window configured for standstill monitoring. Prevent movement if SS2 is active
2	2	Error caused by safety card: SS2 – Monitoring of braking ramp	Low tolerance value for monitoring.	Please contact Kollmorgen
3	1	Error caused by safety card: SOS – Monitoring of standstill position	Low tolerance value for standstill monitoring	Check the tolerance window configured for standstill monitoring. Prevent movement if SOS is active
4	1	Error caused by safety card: SLS - Monitoring of safely limited speed	High Speed value or low speed threshold.	Check the limit value configured for speed. Ensure that the current axis speed does not exceed the limit value.
4	2	Error caused by safety card: SLS – Period length below the tolerance range	Tolerance period not correct.	Adjust the period length of the tolerance range
4	3	Error caused by safety card: SLS – Limit value's tolerance range exceeded	Tolerance value not correct.	Adjust the tolerance range of the limit value
4	4	Error caused by safety card: SLI– Standstill threshold exceeded	Motor rotating or standstill threshold value not correct.	Ensure that the motor has stopped. Check standstill threshold

Index	Sub-index	Error Message	Cause	Remedy
4	5	Error caused by safety card: SLI– Monitoring of safe increment	Distance of movement incorrect.	Check positioning. Ensure that the motor increment does not exceed the limit value
4	6	Error caused by safety card: SLI- Monitoring of safely limited speed	High Speed value or low speed threshold.	Ensure that the current axis speed does not exceed the limit value. Check the limit value configured for speed
4	7	Error caused by safety card: SLI– Monitoring of standstill position	Not valid motor movement or low standstill threshold.	Check the tolerance window configured for standstill monitoring
4	8	Error caused by safety card: SLP – Monitoring of safe absolution position	Motor is outside of valid position range or position range incorrect.	Check absolute motor position. Check positioning range
4	9	Error caused by safety card: SLP - Monitoring of safely limited speed	High Speed value or low speed threshold.	Ensure that the current axis speed does not exceed the limit value. Check the limit value configured for speed
5	1	Error caused by safety card: SSR – Monitoring of speed range	High speed or low maximum or minimum value.	Check the configured maximum and minimum speed. Ensure that the current axis speed does not leave the defined speed range
5	2	Error caused by safety card: SSR – Period length below the tolerance range	Tolerance period not correct.	Adjust the period length of the tolerance range
5	3	Error caused by safety card: SSR – Limit value's tolerance range exceeded	Tolerance value not correct.	Adjust the tolerance range of the limit value
6	1	Error caused by safety card: SDI– Monitoring of direction of rotation	Motor rotates in wrong direction.	Check the direction of rotation of the axis. Ensure that the required direction of rotation is monitored. Check the tolerance window configured for standstill monitoring
6	2	Error caused by Safety Card: SDI - Monitoring rotation direction right	Motor rotates in wrong direction.	Please check the direction of the motor. Ensure that the required direction of rotation is monitored. Check the tolerance window configured for standstill monitoring.
6	3	Error caused by Safety Card: SDI - Monitoring in both directions not valid	Monitoring of both directions activated.	Please check the input states of 'SDI Neg Activate' and 'SDI PosActivate'. Ensure that monitoring of only one direction is activated.
7	1	Error caused by safety card: SBT - Monitoring of standstill position (motor brake)	Motor brake slipped	Ensure that the motor brake operates correctly. Ensure that the test current is set correctly
7	2	Error caused by safety card: SBT - Monitoring of standstill position (external brake)	External brake slipped	Ensure that the external brake operates correctly. Ensure that the test current is set correctly
7	3	Error caused by safety card: SBT – Monitoring of motor current	Motor powerless	Ensure that the motor is wired correctly
7	4	Error caused by safety card: SBT – Monitoring of motor current	Motor stays on power.	Ensure that the motor is wired correctly
		current		
7	5	Error caused by safety card: SBT - Monitoring of motor current (external brake)	Motor powerless	Ensure that the motor is wired correctly
7	6	Error caused by safety card: SBT - Monitoring of motor current (external brake)	Motor stays on power.	Ensure that the motor is wired correctly
7	7	Error caused by safety card: SBT – Safety function SBC not configured	Function 'SBC' not configured.	Activate safe brake control SBC

Index	Sub-index	Error Message	Cause	Remedy
7	8	Error caused by safety card: SBT – Test period elapsed	Safe Brake Test has not been executed in time.	Perform brake test
7	9	Error caused by safety card: SBT – Brake test aborted	Safe Brake Test has been aborted by the operator.	Perform brake test again
12	1	Error caused by safety card: Input test "SS1 Activate"	Wiring fault or input module defect	Ensure that the input is wired correctly
12	2	Error caused by safety card: Input test X30-2	Wiring fault or input module defect	Ensure that the input is wired correctly
12	3	Error caused by safety card: Input test X30-3	Wiring fault or input module defect	Ensure that the input is wired correctly
12	4	Error caused by safety card: Input test X30-4	Wiring fault or input module defect	Ensure that the input is wired correctly
12	5	Error caused by safety card: Input test X30-12	Wiring fault or input module defect	Ensure that the input is wired correctly
12	6	Error caused by safety card: Input test X30-13	Wiring fault or input module defect	Ensure that the input is wired correctly
12	7	Error caused by safety card: Input test X30-14	Wiring fault or input module defect	Ensure that the input is wired correctly
12	8	Error caused by safety card: Input test X30-15	Wiring fault or input module defect	Ensure that the input is wired correctly
12	9	Error caused by safety card: Input test "SS1 SIL3/Reset"	Wiring fault or input module defect.	Ensure that the input is wired correctly
13	1	Error caused by safety card: Output test "STO Acknowledge"	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	2	Error caused by safety card: Output test X30-6	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	3	Error caused by safety card: Output test X30-7	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	4	Error caused by safety card: Output test X30-8	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	5	Error caused by safety card: Output test X30-9	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	6	Error caused by safety card: Output test "Ready"	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	7	Internal safety card error	output module defect	Please contact Kollmorgen
13	8	Error caused by safety card: Output test "SIL3 STO"	Wiring fault or output module defect	Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	9	Internal safety card error	Output module defect.	Please contact Kollmorgen
13	10	Internal safety card error	Output module defect	Please contact Kollmorgen
13	11	Internal safety card error	Output module defect	Please contact Kollmorgen
13	12	Error caused by safety card: Output SBC+ does not switch off	External brake wiring fault.	Ensure that the motor brake is wired correctly. Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	13	Error caused by safety card: Output SBC- does not switch off	External brake wiring fault.	Ensure that the motor brake is wired correctly. Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
13	14	Internal safety card error	STO switch off unit defect.	Please contact Kollmorgen

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13	15	Error caused by safety card: Output stage was switched off during start-up (STO, STO SIL3)	Output 'STO SIL3' wiring problem.	Ensure that the "STO SIL3" connection is wired correctly
13	16	Internal safety card error	STO switch off unit defect.	Please contact Kollmorgen
13	17	Error caused by safety card: Output stage (STO SIL3) does not switch off	Output 'STO SIL3' wiring problem.	Ensure that the "STO SIL3" connection is wired correctly
13	18	Internal safety card error	STO switch off unit defect.	Please contact Kollmorgen
13	19	Error caused by safety card: STO SIL3 (safe pulse disabler) interrupted	Output 'STO SIL3' wiring problem.	Ensure that the "STO SIL3" connection is wired correctly
13	31	Internal safety card error	Output module defect.	Please contact Kollmorgen
13	32	Internal safety card error	Output module defect.	Please contact Kollmorgen
14	1	Error caused by safety card: Supply voltage 24 VDC	Problems with internal voltage supply (undervoltage, contact problems)	Check the 24 VDC supply voltage
14	2	Error caused by safety card: Supply voltage 24 VDC	Voltage supply missing, undervoltage or device defect.	Check the supply voltage to the expansion card
14	3	reserved		
14	4	Error caused by safety card: Supply voltage 24 VDC	Voltage supply fault.	Check the supply voltage to the expansion card. Contact Manufacturer.
14	5	Error caused by safety card: Supply voltage 24 VDC	Internal voltage supply defect.	Check the 24 VDC supply voltage
14	6	Internal safety card error	Current measure module defect.	Please contact Kollmorgen
15	1 to 5	Internal safety card error	Watchdog module defect.	Please contact Kollmorgen
16	1	Reserve		
17	1 to 7	Internal safety card error	Timer module defect.	Please contact Kollmorgen
18	1	Error caused by safety card: Evaluation of current signal	Quality of current data insufficient.	Ensure that the controlling parameters of servo amplifier are optimized. Please set parameter CSENID on the servo amplifier at "1" (= reactive current setting on). Please adjust optionally the maximum reactive current by changing the parameter CSIDMAX on the servo amplifier (see ASCII help).
18	2	Error caused by safety card: Evaluation of current signal	Current data failure.	Ensure that the controlling parameters of servo amplifier are optimized. Please set parameter CSENID on the servo amplifier at "1" (= reactive current setting on). Please adjust optionally the maximum reactive current by changing the parameter CSIDMAX on current setting on). Please adjust optionally the maximum reactive current by changing the parameter CSIDMAX on the servo amplifier (see ASCII help). Ensure that the shield on the motor is earthed correctly. Please check the plant for noise frequencies (power supply, transformer ...).

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19	1	reserved		
19	2	Internal safety card error	Position measuring in servo amplifier faulty.	Ensure that drive parameter ENCOUT is set to maximum value of 4096 Inc.
19	3	Internal safety card error	Position measuring in servo amplifier faulty.	Please contact Kollmorgen
19	4	Internal safety card error	Position sensing (SSI) faulty.	Please contact Kollmorgen
19	5	Error caused by safety card: Encoder signal (external encoder)	External encoder not connected correctly or encoder defect.	Ensure that the external encoder is wired correctly. Check the parameter settings on the external encoder.
19	6	Error caused by safety card: Encoder signal (sign of set value for speed)	Servo controller setup not optimized or motor failure.	Please contact Kollmorgen
19	7	Error caused by safety card: Encoder signal – drag error	Servo controller setup not optimized or motor failure.	Ensure that the control parameters on the servo amplifier are set at optimum level
19	8	Error caused by safety card: Position jump of external encoder	External encoder defect or resolution not correct.	Check the parameter settings on the external encoder. Ensure that the rotary encoder operates correctly
19	9	Error caused by safety card: Absolute position of external encoder not feasible	Mechanical mismatch of external encoder or offset value not correct.	Check installation of external encoder. Ensure that the offset between motor encoder and external encoder is set correctly
20	1	Error caused by safety card: Number of motor poles not permitted	Parameter 'MPOLES' incorrect.	Check the number of motor poles
20	2	Error caused by safety card: Motor type not permitted	Parameter 'MTYPE' incorrect.	Check the motor type
20	3	Error caused by safety card: Motor brake	Parameter 'MBRAKE' incorrect.	Check motor brake.
21	1	Error caused by safety card: Configuration data and input status do not match	Input states do not match with configured safety functions.	Check the configuration data and input signals
22	1 to 33	Internal safety card error	Operation data CPU A/B different.	Please contact Kollmorgen
22	34	Internal safety card error	State 'Ready' CPU A/B different.	Please contact Kollmorgen
22	99	Error caused by safety card: Subsequent error	Operation data CPU A/B different caused by an error on neighbour channel.	Rectify first error on adjacent channel A or B
25	1 to 2	Internal safety card error	Flash memory defect.	Please contact Kollmorgen
26	1 to 12	Internal safety card error	Timing error channel A/B.	Please contact Kollmorgen
27	1	reserved		
28	1	Internal safety card error	Configuration parameter faulty.	Please contact Kollmorgen
28	2	reserved		
28	3	reserved		
28	4	Internal safety card error	Error data transfer.	Please contact Kollmorgen
28	5	reserved		
28	6	Error caused by safety card: Unknown device type in configuration data	Configuration parameter faulty.	Check the configuration data

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28	7	Error caused by safety card: Unknown device version in configuration data	Configuration parameter faulty.	Check the configuration data
29	1	Error caused by safety card: Configuration data download	No connection to device.	Check the connection lead and connection settings
29	2	Error caused by safety card: Configuration data upload	No connection to device.	Check the connection lead and connection settings
29	3	Error caused by safety card: Firmware update	No connection to device.	Check the connection lead and connection settings
29	4	Error caused by safety card: Download of SD card aborted	Memory card is not plugged in correctly.	Ensure that the SD card is inserted correctly
30	1	Error caused by safety card: CRC calculation when downloading the configuration data	Connection failure or data fault.	Check the connection lead and connection settings
30	2	Internal safety card error: CRC calculation	Data or memory fault.	Please contact Kollmorgen
30	3	Internal safety card error: CRC calculation when updating the firmware	Connection failure or data fault.	Check the connection lead and connection settings
30	4	Error caused by safety card: Incorrect number of characters in the serial number	Data fault.	Check the serial number
30	5	Internal safety card error	Data or system fault.	Please contact Kollmorgen
30	6	Error caused by safety card: CRC alignment via configuration data	Checksum over configuration data different between CPU A/B.	Please contact Kollmorgen
31	1	Error caused by safety card: Serial number when downloading the configuration data	Data fault.	Check the serial number
31	2	Error caused by safety card: Device version when downloading the configuration data	Data fault.	Check the device version
31	3	Error caused by safety card: Device type when downloading the configuration data	Data fault.	Check the device type
31	4	Error caused by safety card: Device version on start-up	Data fault.	Check the device version
31	5	Internal safety card error	System error.	Please contact Kollmorgen
31	6	Internal safety card error	Firmware Safety Card and servo amplifier do not match.	Please contact Kollmorgen
31	7	Error caused by safety card: Serial number when downloading the configuration data	Data fault.	Check the serial number
31	8	Error caused by safety card: Device version when downloading the configuration data	Data fault.	Check the device version
31	9	Error caused by safety card: Device type when downloading the configuration data	Data fault.	Check the device type
31	10	Internal safety card error	Hardware and firmware of Safety Card do not match.	Please contact Kollmorgen

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31	11	Internal safety card error	Hardware and firmware of Safety Card do not match.	Please contact Kollmorgen
32	1	Internal safety card error	CPU error	Please contact Kollmorgen
32	2	Internal safety card error	Software error.	Please contact Kollmorgen
32	3	Internal safety card error	Error Flash memory.	Please contact Kollmorgen
32	4	Internal safety card error	Error Flash-/RAM memory.	Please contact Kollmorgen
32	5	Internal safety card error	Error RAM data memory.	Please contact Kollmorgen
32	6	Internal safety card error	Address error.	Please contact Kollmorgen
32	7 to 99	Internal safety card error	System error.	Please contact Kollmorgen