A.2.2 Error Numbers of the Standard Function Block

Error evaluation

The result of the logic operation **RLO** is set if an error occurs while the standard function block is being processed. This allows you to branch to your own error evaluation routine with the conditional branch **SPB**.

Type of storage

The standard function block stores errors which have occurred in several places in the memory of the PLC as shown below:

- **a** In accumulator 1, after **every** call of the standard function block
- **b** In DW n+3 of the DB-ZU data block (if one exists)
- **c** In the job mailbox of the DB-TDOP if the error is related to a job

The following table shows the possible errors arranged according to the error number and the type of storage. Errors which apply to SINEC L2 and SINEC L2-DP are identified with an asterisk (*).

Type of storage				**Standard function block** **Possible errors and their treatment**	
DB-TDOP					
DB-ZU (if present)					
Accumulator 1					
Error number	**a**	**b**	**c**	**Error description**	**Cause/remedy**
1*	•			DB-ZU: Invalid number	The DB-ZU number transferred to accumulator 1 must be in the 10 to 255 range. The high byte of the accumulator may have been confused with the low byte.
2*	•			DB-ZU: Does not exist	The DB-ZU must be set up with a length of at least 16 words depending on the number of TD/OP devices connected.
3*	•			DB-ZU: Too short	The length of the DB-ZU data block is based on the highest TD/OP number specified, even if only one TD/OP device is connected.
4*	•			TD/OP number: Invalid	The TD/OP number transferred to accumulator 1 must be in the 1 to 16 range. The high byte of the accumulator may have been confused with the low byte.
5*	•			No startup took place.	Set the startup bit (D 64.0 in DB-TDOP) once.
6	•			Invalid CPU type	Check the type and release status of the CPU.
7*	•	•		DB-TDOP = DB-ZU	Specify another number for DB-TDOP.
10*	•			TD/OP job number: Invalid	The TD/OP device sends internal PLC jobs to the standard function block (e.g. date, time). This error means that the TD/OP device has sent an invalid job number. The release status of the function block does not match that of the firmware.

Error number	a	b	c	Error description	Cause/remedy
101*	•	•		DB-TDOP: Invalid number	A DB-TDOP number in the 10 to 255 range must be transferred to the standard function block.
102*	•	•		DB-TDOP: Does not exist	The DB-TDOP data block must be set up.
103*	•	•		DB-TDOP: Too short	The data block must be set up with the required minimum length.
105	•	•		DB-TDOP: Invalid identifier	The connected TD/OP device must store a certain identifier in data word DW 30 of the DB-TDOP data block. The DB-TDOP number configured on the TD/OP device is part of this identifier. The error message occurs when the DB-TDOP number configured on the TD/OP device does not match the TD/OP number specified in the standard function block. The error can also occur briefly immediately after a startup because the TD/OP device has not stored the identifier in the DB-TDOP yet. Ignore the error if this happens.
107*	•	•		DB-ZU number = DB-TDOP number = DB-DHB number	Rename one of the two data blocks DB-ZU or DB-TDOP (DB-DHB number is fixed).
108*	•	•		DB-DHB does not exist.	The SINEC L1 connection requires that the DB-DHB be configured as DB 56. The SINEC L2 connection requires that the DB-DHB be configured as DB 55.
109*	•	•		DB-DHB too short	The data block must be set up with a length of 15 data words (DW 0 to DW 14).
115	•	•		Life bit monitor has been triggered.	The connected TD/OP device has not inverted its life bit. Reason: There is no connection to the TD/OP device or the standard function block is called too often in one cycle. Increase the value in the DB-TD/OP.
120*	•			STBS: Invalid number	Valid flag numbers: 0 to 198
121*	•			STBR: Invalid number	Valid flag numbers: 0 to 198
122*	•			STBS = STBR	Specify another number for one of the status bytes.
150	•			CP 521 SI, CP 523 is not yet ready.	This error can occur during the startup before the CP accepts the configuration data.
151	•	•		CP 512 SI, CP 523, IM 308B: Invalid address	The address of the CP 521 SI, CP 523 or the IM 308B specified in the DB-ZU is invalid.
152	•	•		CP 521 SI, CP 523: Does not exist	Communications processor CP 521 SI, CP 523 is not installed on the PLC or the address set on the CP 521 SI, CP 523 does not match the one specified in the standard function block.
153*	•	•		Block size invalid	Valid block size: 8, 16, 32, 64, 120 or 240 bytes
154*	•	•		Wrong IM number	Modify IM number in DB-ZU.
155*	•	•		Wrong TD/OP address	TD/OP having this address not available; modify TD/OP address in DB-ZU.

Error number	a	b	c	Error description	Cause/remedy
156*	•	•		IM308C not communicating with OP.	– IM308C not ready for operation or is defective – Start address of DP window in DB–ZU not the same as in the COM configuration of IM308C.
157*	•	•		Wrong address of DP window	Start address of DP window in DB-ZU not same as in the COM configuration of IM 308C.
158*	•	•		Wrong field length	The field length in the DB-ZU is different from that of the COM configuration of the IM308C
160*	•	•		Receive mailbox type number invalid	Permissible types: 0 = DB, 1 = DX (DX only for S5-115U with CPU 945, S5-135U and S5-155U)
161*	•	•		Receive mailbox DB/DX number invalid	The DB/DX number must be in the range from 10 to 255.
162*	•	•		Receive mailbox DB/DX offset invalid	The offset must be in the range from 0 to 128 (for L2-DP: 0 to 215).
163*	•	•		Send mailbox type invalid	Permissible types: 0 = DB, 1 = DX (DX only for S5-115U with CPU 945, S5-135U and S5-155U).
164*	•	•		Send mailbox DB/DX number invalid	The DB/DX number must be in the range from 10 to 255.
165*	•	•		Send mailbox DB/DX offset invalid	The offset must be in the range from 0 to 128 (for L2-DP: 0 to 215).
166	•	•		DX2 does not exist (only for SI2 of CPU 928B).	Set up DX2.
167	•	•		Coordination bytes CBS and CBR missing	The coordination bytes must be located in the DB-TDOP (see **DX2 configuration** for SI2 of CPU 928B).
168	•	•		ASCII driver missing	The startup may not have been performed.
169	•	•		ASCII driver not enabled	The startup may not have been performed.
170*	•	•		Acknowledgment of PLC job received without a PLC job being active	The status of a job was overwritten by the user.
171	•	•		Message identifier unknown	The TD/OP sent an undefined job, or a transfer error occurred.
172	•	•		Job number invalid	The TD/OP sent a job with an unknown job number.
180	•	•		Transfer error	Undefined status of the coordination byte CBR.
181	•	•		Parity error	Compare the parities set for S5 and TD/OP, and set both to the same parity (SI2 of CPU 944 parity: even).
183	•	•		Input buffer full	The TD/OP is sending too fast for the PLC cycle. Messages are being lost. Call the function block more frequently during the cycle or optimize the TD/OP configuration.
184	•	•		Too many messages	See error no. 183.
185	•	•		Message larger than receiving mailbox	The message length is usually limited to 88 bytes by the TD/OP. The character delay time between two messages may not have been detected ==> transfer error.
186	•	•		Receive mailbox does not exist	The configured data area does not exist, or a startup was not performed after changes.

Error number	a	b	c	Error description	Cause/remedy
187	•	•		Message too long	See error no. 185.
188	•	•		Break	The connection is broken. The cable is defective or not connected.
189*	•	•	•	Receive mailbox DB/DX too short	Compare the pointer specified for the receiving mailbox (offset + length) with the data area actually present.
190*	•	•		Transfer error	Undefined status of the coordination byte CBS.
191*	•	•		Output buffer full	
192	•	•		Configuration error	Check the specifications in DB-ZU concerning the send/ receive mailbox and the character delay time.
193	•	•		Send mailbox does not exist	The configured data area does not exist or a startup was not performed after changes.
194	•	•		Message too long	The character delay time between two messages was not detected ==> transfer error.
199*	•	•	•	Send mailbox DB/DX too short	Compare the pointer specified for the send mailbox (offset + length) with the data area actually present.
200	•	•	•	Communication error in system program (only for SI2 of CPU 928B)	Check the static parameter set for SI2.
201*	•	•	•	DB-APP: Invalid number	The pointer to a PLC job contains an invalid DB number. Only DB numbers from 10 to 255 are permitted.
202*	•	•	•	DB-APP: Does not exist	The pointer to a PLC job points to a non-existent DB data block. Set up the DB data block.
203*	•	•	•	DB-APP: Too short	The pointer to a PLC job points to a DB data block. The PLC job is located either partially or completely outside the data block. Select the start address of the pointer so that the 4-word PLC job fits into the data block completely.
206	•	•	•	DX-APP: Invalid number	The pointer to a PLC job contains an invalid DX number. Only DB numbers from 10 to 255 are permitted.
207	•	•	•	DX-APP: Does not exist	The pointer to a PLC job points to a non-existent DX data block. Set up the DX data block.
208	•	•	•	DX-APP: Too short	The pointer to a PLC job points to a DX data block. The PLC job is located either partially or completely outside the data block. Select the start address of the pointer so that the 4-word PLC job fits into the data block completely.
209*	•	•	•	TIMER-APP: Address not permitted	The pointer of a TD/OP job points to a timer area. The valid start addresses are dependent on the CPU. Check the TD/OP configuration.
210*	•	•	•	COUNTER-APP: Address not permitted	The pointer of a TD/OP job points to a counter area. The valid start addresses are dependent on the CPU. Check the TD/OP configuration.
211	•	•	•	F-APP: Invalid address	The pointer to a PLC job points to the flag area. The PLC job cannot be (even partially) located in the scratch flag area. Valid start addresses are located in the range from 0 to 192.
212*	•	•	•	S-APP: Invalid address	The pointer to the PLC job points to the extended scratch flag area. Valid start addresses are dependent on the CPU and are located in the range from 0 to 4088.

Error number	a	b	c	Error description	Cause/remedy
213*	•	•	•	EB-APP: Invalid address	Valid start addresses: 0 to 126
214*	•	•	•	AB-APP: Invalid address	Valid start addresses: 0 to 126
215*	•	•	•	TD/OP device is OFFLINE	The connection to the connected TD/OP device was disrupted and PLC jobs cannot be sent at present. This error can also occur briefly immediately after a startup. Ignore the error if this happens.
216*	•	•	•	L2-DP connection cannot be set up	– I/O address area specified incorrectly in the DB-ZU – TD/OP not connected (check the BF LED on the IM 308B.)
219*	•		•	Invalid PLC job	Error with parallel connection only. The job identifier must be in the range from 30_H to 36_H.
220*	•	•	•	Number of variables greater than 31	The number of variables in an alarm or event message must not exceed 32.
221*	•	•	•	Pointer: Invalid type	The job mailbox contains an incorrect data type as pointer to a PLC job. Only data types 0 to 3 are permitted. Only data types 0 to 7 are permitted for pointers to a TD/OP job.
222*	•	•	•	Pointer: Type on DX invalid	The extended DX data blocks are only permitted with PLCs 115U with CPU 945, 135U and 155U.
223*	•	•	•	Pointer type to S flag invalid	The extended flag area is only permitted with PLCs 135U and 155U1 (PAFE no. in DR 102 of DB-TDOP).
246*	•	•	•	PAFE error	PAFE error in the CONTROL, SEND or RECEIVE data handling block
247*	•	•	•	SEND terminated with error	The send job was terminated with errors. The indicator word (ANZW1) is now available to the user in data word 101 of the interface data block DB-TDOP.
	•	•		STBS/STBR error	A send/receive job was terminated with errors (S5-95 L2 only).
248*	•	•	•	Connection status 01h:	Interface error[1)]
249*	•	•	•	Connection status 02h:	Device not available[1)]
250*	•	•	•	Connection status 03h:	Service not activated[1)]
251*	•	•	•	Connection status 10h:	Service on local SAP not activated[1)]
252*	•	•	•	Connection status 11h:	No reaction from station[1)]
253*	•	•	•	Connection status 12h:	Bus line is disconnected[1)]
254*	•	•	•	Connection status 15h:	Invalid parameter in header[1)]
255	•	•	•	TD/OP error	The connected TD/OP device has reported an error. The TD/OP error number is stored in DW m+3 of the job mailbox.

1) Error on SINEC L2 bus:
See SINEC L2 Equipment Manual for meaning of **connection status**. Only SDA services are used for the TD/OP – PLC connection.