STÖBER

Safety module SE6 - Diagnostics

PILZ
THE SPIRIT OF SAFETY

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1 Introduction

1.1 Collaboration with STÖBER ANTRIEBSTECHNIK GmbH + Co. KG

The SE6 safety module and its documentation were developed in collaboration with STÖBER ANTRIEBSTECHNIK GmbH + Co. KG.

The manuals will be referred to as operating manual hereafter.

Consulting, service, address

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1.2 Validity of documentation

This diagnostic document is valid for the product SE6 . It is valid until new documentation is published.

STÖBER provides you with the latest document versions for downloading from its website: http://www.stoeber.en/en/download

1.3 Retaining the documentation

This documentation is intended for instruction and should be retained for future reference.

Please hand over this documentation when selling or passing on the product to a third party.

1.4 Disclaimer

This document was compiled in accordance with current standards, regulations and technical developments.

Pilz and STÖBER cannot be held liable for any damage resulting from non-adherence to the documentation or inappropriate use of the product. This particularly applies to damage caused by individual technical modifications to the project or its use and operation by non-qualified staff.

2 Safety module SE6 - Diagnostic parameters

In case of a fault you receive detailed information via the two diagnostic parameters S02 and S03, for example, about the type of fault or the corresponding cause.

You can reach the diagnostic parameters as follows:

- Via the display of the SD6 drive controller
- Via the parameter list of the DriveControlSuite DS6
- Via the SE6 error stack in the safety configurator PASmotion

2.1 Diagnostic parameters S02 and S03

The diagnostic parameters include error codes whose structure can be found in the following chapters.

2.1.1 S02 Active error code - Processor A

The parameter includes the possible error codes for processor A.

Format: AABBCCDE hex

- AA = Offset
- BB = Index
- CC = Instance with safety functions configured several times
- D = Error class
- E = Active error and processor

2.1.2 S03 Active error code - Processor B

The parameter includes the possible error codes for processor B.

Format: AABBCCDE hex

- AA = Offset
- BB = Index
- CC = Instance with safety functions configured several times
- D = Error class
- E = Active error and processor

2.2 S02/S03 – Parameter access via the display

The operator unit of the drive controller SD6 consists of a graphic display and keys.

2.2.1 Display - Overview

Fig.: Operator unit of the drive controller SD6

Key	Description
OK	Select level, parameter groups and parameters or Accept changed parameter values
Esc	Display parameters of the start display, Navigate back one level, Reject changed parameter values or Acknowledge fault
^	Select parameter within a parameter group or Change parameter values
v	
<	Select parameter values or Select character position of a parameter
>	
hand	Activate or deactivate local mode; A deactivation triggers the deletion of the release
I/0	Drive released in local mode, if parametrised
save	Power failure-safe data storage: Press key for 3 seconds

2.2.2 Menu structure and navigation

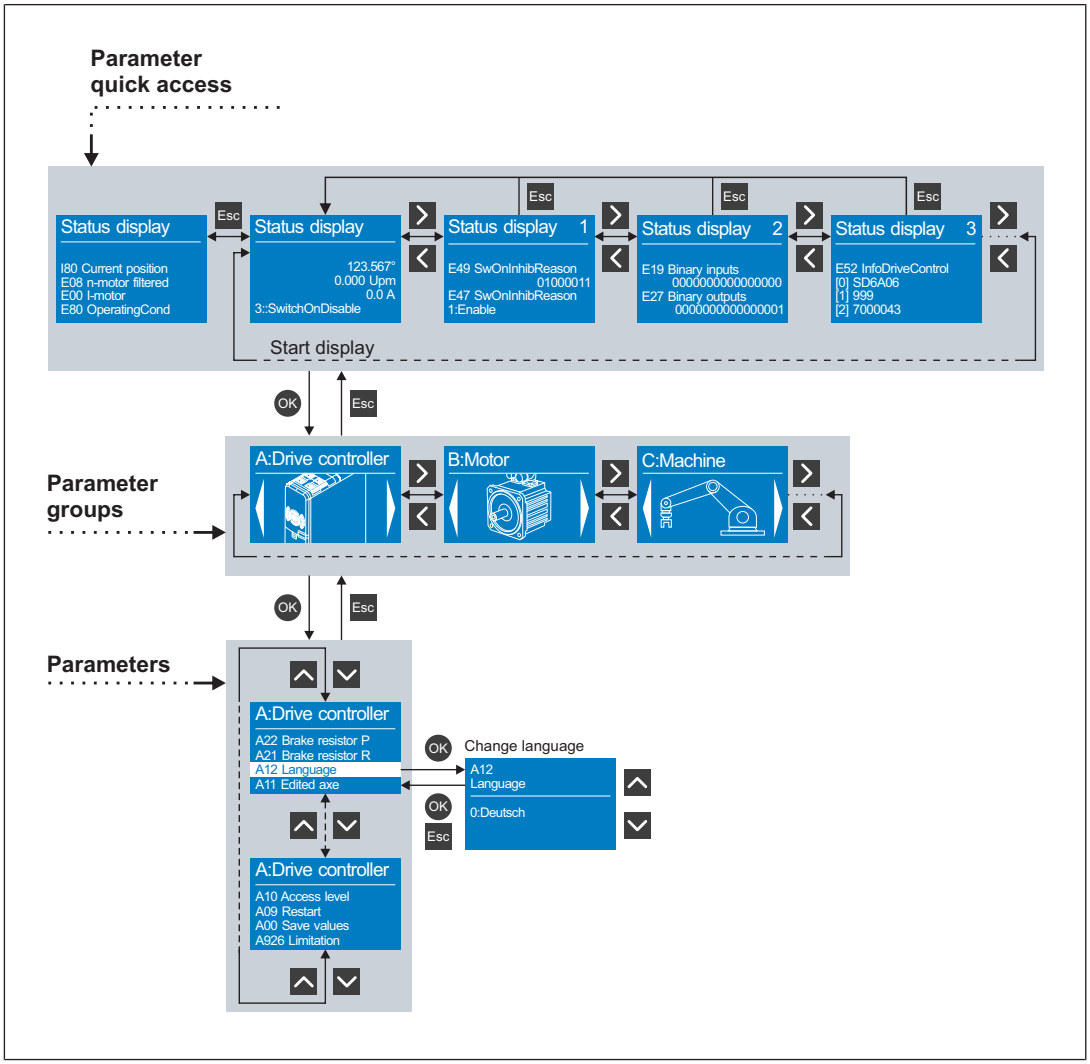

Fig.: Menu structure and navigation

Rapid access to parameters

The access to the two diagnostic parameters generally requires the access level 2.

This level consists of the start display "Status display", where the event "E50: Safety module" is always shown with the safety-relevant parameters S02 and S03 .

This event can be based on several causes that are shown in "status display 1". "Status display 2" informs about the analogue and binary inputs and outputs, "Status display 3" informs about general data of the drive controller such as type, firmware or integrated option modules.

You always navigate in this level using the right and left arrow keys. Using the upper and lower arrow keys and navigate within the current overview to see further information.

Parameter groups

Parameters are combined in groups because of their functional properties, such as "drive controller", "motor", "machine", "terminals" etc. Within this level you navigate using the left and right arrow keys: with [OK] you select one of the possible groups.

Parameter

In one parameter group you navigate using the upper and lower arrow keys; with [OK] you select one of the possible parameters. If you want to change a parameter value, use the right or left arrow key to select the relevant character position and use the upper or lower arrow key to select the new value. Click [OK] to accept changes, or reject them with [ESC].

2.3 S02/S03 – Parameter access via the DriveControlSuite DS6

To read out the diagnostic parameters S02 and S03 in the DriveControlSuite, change the relevant project and mark the relevant drive controllers.

In the project menu, click on ***Parameter list***.

Select group S: Safety > S02/S03

The error code is shown in the "Value" column in hexadecimal format.

2.4 Error diagnostics via PASmotion

To read out the diagnostic parameters in PASmotion, switch to the related drive controller.

In the parameter navigation, click ***Error stack***

The diagnostic information is shown in the table.

Error class	Time	Index	Offset	De-scrip-tion	Para-meter 1	Para-meter 2	Para-meter 3	Para-meter 4

The error stack contains the most recent messages and errors.

- Error class: Indicates the error class
- Time: Indicates the operating time
- Index: Indicates the fault index
- Offset: Indicates the offset
- Description: Error short text
- Parameter 1 ... Parameter 4: Parameter

The diagnostic document contains the following information

No.$_{(hex)}$	No.$_{(dec)}$	Error message	Remedy
AABB	AABB	Error message	Remedy

Format No.$_{(hex)}$ and No.$_{(dec)}$

- AA = Index
- BB = Offset

No.(hex)	No.(dez)	Error message	Remedy
0101	0101	SS1 - configured braking ramp monitoring limit violation	▸ Check configured position error (pos_err) for the braking ramp monitoring
0201	0201	SS2 – configured standstill monitoring limit violation	▸ Check configured standstill position window (pos_win) ▸ Avoid movement when SOS is active
0202	0202	SS2 – configured braking ramp monitoring limit violation	▸ Check configured position error (pos_err) for the braking ramp monitoring
0301	0301	SOS – configured standstill monitoring limit violation	▸ Check configured standstill position window (pos_win) ▸ Avoid movement when SOS is active
0401	0401	SLS – configured speed limit violation or tolerance range (tolerance time)	▸ Check the limit value configured for speed (v_lim) and tolerance time (tol_t1) ▸ Ensure that the current axis speed does not exceed the limit value
0402	0402	SLS – configured tolerance range limit violation (tolerance period)	▸ Check configured tolerance period (tol_t2) ▸ Ensure that the current axis speed does not exceed the tolerance time
0403	0403	SLS – configured tolerance range limit violation (tolerance window)	▸ Check configured tolerance window (tol_win) ▸ Ensure that the current axis speed does not exceed the tolerance window
0406	0406	SLI – increment limit violation	▸ Check configured values for the "lower position limit" (pos_lowerLimit) and the "upper position limit" (pos_upperLimit) input fields ▸ Ensure that the motor increment does not exceed the limit value
0408	0408	SLP – configured position range limit violation	▸ Check configured values for the "lower speed limit" (v_lowerLimit) and the "upper speed Limit" (v_upperLimit) and tolerance time (tol_t1) input fields ▸ Check absolute motor position
0501	0501	SSR – configured speed range limit violation or tolerance range (tolerance time)	▸ Check configured values for the "lower speed limit" (v_lowerLimit) and the "upper speed Limit" (v_upperLimit) and tolerance time (tol_t1) input fields ▸ Ensure that the current axis speed does not leave the defined speed range
0502	0502	SSR – configured tolerance range limit violation (tolerance period)	▸ Check configured tolerance period (tol_t2)
0503	0503	SSR – configured tolerance range limit violation (tolerance window)	▸ Check configured tolerance window (tol_win)
0601	0601	SDI – direction of motion limit violation (positive)	▸ Check motor direction of motion ▸ Ensure that you are monitoring the desired direction of motion ▸ Check configured standstill position window (pos_win)
0602	0602	SDI – direction of motion limit violation (negative)	▸ Check motor direction of motion ▸ Ensure that you are monitoring the desired direction of motion ▸ Check configured standstill position window (pos_win)
0701	0701	SBT – limit violation of standstill position BD1/BD2 (brake 1)	▸ Ensure that the brake functions properly ▸ Ensure that the test current is set correctly
0702	0702	SBT – limit violation of standstill position SBC+/- (brake 2)	▸ Ensure that the brake functions properly ▸ Ensure that the test current is set correctly
0703	0703	SBT – standstill position limit violation (e.g. wait time)	▸ Ensure that the brakes are properly wired ▸ Ensure that the brakes function properly ▸ Ensure the that drive controller switches its brake as expected
0704	0704	SBT – configured test current limit violation within a test step	▸ Ensure that the motor is wired correctly ▸ Check the drive controller settings (such as the current and speed regulation parameters)
0705	0705	SBT – faulty brake condition	▸ Ensure that the brakes are properly wired ▸ Check the SBC function and brake test settings ▸ Check the drive controller settings (such as the current and speed regulation parameters)

No.(hex)	No.(dez)	Error message	Remedy
0706	0706	SBT – brake test aborted	▸ Perform brake test again
0707	0707	SBT – brake test aborted by drive controller	▸ Perform brake test again ▸ Check the drive controller settings (such as the current and speed regulation parameters)
0708	0708	SBT – configured inspection period exceeded	▸ Check the inspection period and tolerance timePerform brake test
0709	0709	SBT – configured total time exceeded	▸ Check the brake test configuration ▸ Check the drive controller settings (such as the current and speed regulation parameters)
070A	0710	SBT – time for communicating with the drive controller exceeded	▸ Konfiguration des Bremsentests überprüfen ▸ Einstellungen des Antriebsreglers überprüfen (z. B. Parameter der Strom- und Geschwindigkeits-regelung)
070B	0711	SBT – brake test not configured	▸ Check the brake test settings for activated test steps
0801	0801	SBC – configured time in Feedback Control (FBK) exceeded	▸ Check the configured delay On (Ton)/Off (Toff) in the Feedback Control field ▸ Ensure that the brake output and the feedback signal are correctly wired
0802	0802	SBC – faulty feedback status	▸ Check the SBC safety function settings for correct type (normally open (NO)/normally closed (NC)) ▸ Ensure that the brake output and the feedback signal are correctly wired
1101	1701	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1102	1702	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1203	1703	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1201	1801	Error during plausibility check for the motor encoder by the current signal	▸ Check the reactive current injection settings ▸ Check the drive controller settings (such as the current and speed regulation parameters) ▸ Check the system for any interference frequencies (power supply, transformer, etc.) and for correct shielding ▸ Avoid external effects on the system that could lead to current spikes caused by motor control, for example ▸ Check the motor encoder for proper function
1202	1802	Error during plausibility check for the motor encoder by the current signal	▸ Check the reactive current injection settings ▸ Check the drive controller settings (such as the current and speed regulation parameters) ▸ Check the system for any interference frequencies (power supply, transformer, etc.) and for correct shielding ▸ Avoid external effects on the system that could lead to current spikes caused by motor control, for example ▸ Check the motor encoder for proper function
1203	1803	Error during the plausibility check for the motor encoder by the current signal (direction of motion)	▸ Check the drive controller settings (such as the current and speed regulation parameters) ▸ Check the settings of the motion and acceleration profiles (for any change in the direction of motion that is too fast) ▸ Check the motor encoder for proper function
1301	1901	Error during external encoder plausibility check	▸ Check external encoder settings and function
1303	1903	Error during speed plausibility check	▸ Check the safety module settings (motor, encoder, etc.) ▸ Check the motor encoder for proper function
1305	1905	Error during external encoder plausibility check	▸ Check external encoder settings and function
1306	1906	Error during speed set value plausibility check (different signs)	▸ Check the drive controller and safety module settings
1307	1907	Error during speed set value plausibility check (item too large)	▸ Check the drive controller and safety module settings
1308	1908	Error during external encoder speed plausibility check	▸ Check external encoder settings and function ▸ Check the safety module settings (motor, encoder, etc.)

No.(hex)	No.(dez)	Error message	Remedy
1309	1909	Error during external encoder absolute position plausibility check	▸ Check external encoder settings and function ▸ Check the safety module settings (motor, encoder, etc.)
130A	1910	Error during external encoder settings	▸ Check external encoder settings and function ▸ Check the drive controller and safety module settings
1401	2001	Number of motor poles does not match	▸ Check the number of motor poles in the safety module and drive controller configuration
1402	2002	Motor type does not match	▸ Check the motor type in the safety module and drive controller configuration
1403	2003	Motor brake does not match	▸ Check the safety module and drive controller brake settings
1501	2101	Faulty configuration file. Cannot open file	▸ Check safety configuration ▸ Download the configuration again
1502	2102	Faulty configuration file. Cannot open file	▸ Check safety configuration ▸ Download the configuration again
1503	2103	Faulty configuration file. Invalid file format	▸ Check safety configuration ▸ Download the configuration again
1504	2104	Faulty configuration file. Missing parameter specification	▸ Check safety configuration ▸ Download the configuration again
1505	2105	Faulty configuration file. Invalid parameter specification	▸ Check safety configuration ▸ Download the configuration again
1506	2106	Faulty configuration file. The parameter check fails.	▸ Check safety configuration ▸ Download the configuration again
1507	2107	Faulty configuration file. Invalid number of safety functions	▸ Check the safety configuration and use only the maximum indicated number of the safety function in question ▸ Download the configuration again
1508	2108	Faulty configuration file. Maximum number of safety functions exceeded	▸ Check the safety configuration and use only the maximum indicated number of safety functions ▸ Download the configuration again
1509	2109	Faulty configuration file. The parameter check fails.	▸ Check safety configuration ▸ Download the configuration again
150A	2110	Faulty configuration file. File does not exist	▸ Download configuration
150B	2111	Configuration file download timeout	▸ Check safety configuration ▸ Download the configuration again
150C	2112	Faulty configuration file. File is too large	▸ Check safety configuration ▸ Download the configuration again
150D	2113	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
150E	2114	Faulty configuration file. Module description does not exist	▸ Check module description ▸ Download the configuration again
150F	2115	Faulty configuration file. Multiple module descriptions	▸ Check module description ▸ Download the configuration again
1510	2116	Faulty configuration file. Invalid checksum	▸ Check safety configuration ▸ Download the configuration again
1511	2117	Faulty configuration file. Invalid checksum	▸ Check safety configuration ▸ Download the configuration again
1512	2118	Device exchange failed	▸ Repeat the procedure, ensuring exact observance of the operating manual
1513	2119	Device exchange timeout. User confirmation not completed in time	▸ Repeat the procedure and confirm device exchange within the time specified
1514	2120	Incorrect user entry during device exchange	▸ Repeat the procedure, ensuring exact observance of the operating manual
1515	2121	Device exchange aborted upon user confirmation	▸ Repeat the procedure and do not abort device exchange
1601	2201	A subsequent error has occurred	▸ Correct the error that occurred first
1602	2202	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1603	2203	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1607	2207	Incorrect material or serial number	▸ Perform the download again ▸ Check the material and serial numbers
160A	2210	Error while starting the safety module	▸ Restart

No.(hex)	No.(dez)	Error message	Remedy
1702	2302	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1703	2303	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1704	2304	Incorrect synchronisation with drive controller	▸ Check whether the valid, appropriate drive controller firmware is present
1705	2305	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1706	2306	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1707	2307	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1708	2308	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
170C	2312	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1901	2501	Error while writing to the memory (FLASH)	▸ Repeat the procedure
1902	2502	Error while deleting the memory (FLASH)	▸ Repeat the procedure
1903	2503	Error while writing to the memory (EEPROM)	▸ Repeat the procedure
1904	2504	Error while reading from the memory (EEPROM)	▸ Repeat the procedure
1B01	2701	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1B02	2702	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1B03	2703	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1B04	2704	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1B05	2705	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1B06	2706	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1C01	2801	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1C02	2802	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1D01	2901	Digital input error	▸ Ensure that the input is wired correctly
1D02	2902	Digital output error	▸ Ensure that there is no short circuit, short across contacts or open circuit in the output wiring. ▸ Restart
1D03	2903	Error while reading back a digital output	▸ Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
1D04	2904	SBC output error	▸ Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
1D05	2905	Error while reading back an SBC output	▸ Ensure that there is no short circuit, short across contacts or open circuit in the output wiring.
1D06	2906	Faulty supply voltage	▸ Check the safety module supply voltage
1D07	2907	Faulty supply voltage	▸ Check the safety module supply voltage
1D08	2908	Digital output supply voltage does not exist	▸ Check the supply voltage of the outputs
1D09	2909	Error while testing the digital output supply voltage	▸ Check the supply voltage of the outputs
1D0A	2910	Faulty supply voltage	▸ Check the safety module supply voltage
1D0B	2911	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1D0C	2912	Faulty supply voltage	▸ Check the safety module supply voltage
1E01	3001	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1E02	3002	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1E03	3003	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1E04	3004	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F01	3101	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F02	3102	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer

No.(hex)	No.(dez)	Error message	Remedy
1F03	3103	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F04	3104	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F05	3105	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F06	3106	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F07	3107	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
1F08	3108	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2001	3201	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2002	3202	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2003	3203	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2004	3204	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2005	3205	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2006	3206	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2007	3207	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2008	3208	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2009	3209	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200A	3210	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200B	3211	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200C	3212	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200D	3213	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200E	3214	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200F	3215	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2010	3216	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2011	3217	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2012	3218	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2013	3219	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2014	3220	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
2019	3225	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
200F	3226	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
201E	3230	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer
201F	3231	Internal error	▸ Repeat the procedure ▸ Please contact the module manufacturer

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