Application Note

Error 4000 with CMMB-AS and EMMB-AS

When connecting the new generation of EMMB-AS on an CMMB-AS the driver shows error 400.0 in the display which cannot be acknowledged

CMMB-AS with EMMB-AS

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1 Components/Software used

Type/Name	Version Software/Firmware	Date of manufacture
CMMB-AS-0x	CMMB-AS_20170410-0012.servo	general
CMMB-Configurator	V 1.0.0	
EMMB-AS-aa-aa-b-S30Sc	aa-aa stand for 40-01/60-02/60-04/80-07 b stand for K or is blank c stand for B or is blank	

Table 1.1: 1 Components/Software used

1.1 Affected EMMB-AS

List of possible affected EMMB-AS:

Festo Part number	Festo Name	Production date	Serial numbers
8097163	EMMB-AS-40-01-S30S	LN	YYNUKAF192******
8097164	EMMB-AS-40-01-S30SB	LN	YYBUKAF193******
8097171	EMMB-AS-60-02-S30S	LN	Y0NUKAF193******
8097172	EMMB-AS-60-02-S30SB	LN	Y0BUKAF193******
8097179	EMMB-AS-60-04-S30S	LN	Y1NUKAF193******
8097180	EMMB-AS-60-04-S30SB	LN	Y1BUKAF192******
8097187	EMMB-AS-80-07-S30S	LN	Y2NUKAF193******
8097188	EMMB-AS-80-07-S30SB	LN	Y2BUKAF193******

Where do I find ‘Production date’ and ‘Serial number’?

2 Precondition

All EMMB-AS motor have an absolute encoder with an integrated memory. The encoder memory contains the electronic nameplate of the motor for the Festo servo driver CMMB-AS / CMMT-AS which makes it easy to commission the drive system.

This electronic nameplate is defined and stored on the production side of the motor. All new EMMB-AS motors with a part number beginning with 80971*** must have this nameplate in the memory of the encoder.

This electronic nameplate is divided into two sections. One section is for the CMMB-AS driver and the second section contains the information for the CMMT-AS.

3 Behaviour in case of error

During the commissioning of a new machine with the electrical components CMMB-AS and EMMB-AS described in chapter 1 the driver will indicate the error 4000 (400.0 in display) after switch on the power supply voltage.

This error cannot be acknowledged by software or buttons.

400.0	Encoder information	1. Communication is incorrect when the encoder is initialized. 2. The encoder type is wrong, e.g. an unknown encoder is connected. 3. The data stored in the encoder is wrong. 4. The controller can't support the current encoder type.	Check and solve according to the reasons.

The root cause for this error is the non-existent nameplate for the CMMB-AS in the encoder memory.

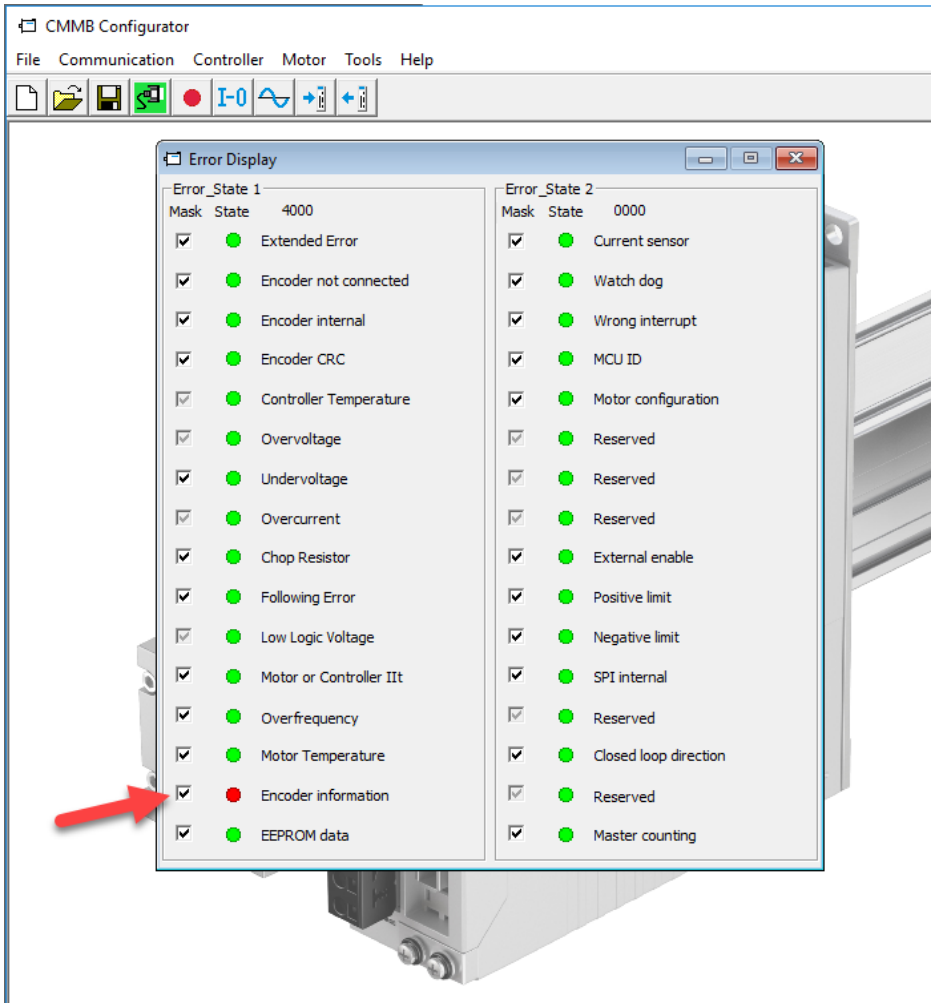
4 Workaround to fix the problem

It is not possible to write the non-existing nameplate for CMMB-AS in the encoder memory with standard components (driver / software)

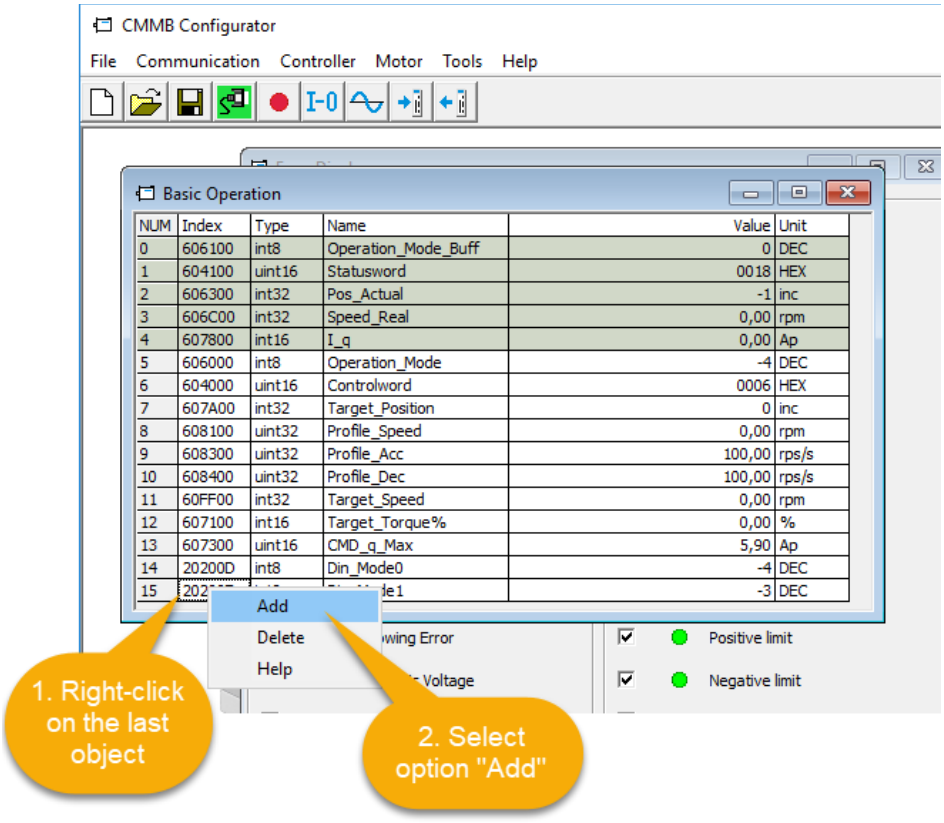
Follow the next steps to fix this problem permanently for this driver / motor combination:

1. Open the software ‘CMMB Configurator’ and establish a Connection to the affected CMMB-AS. Once the connection is established the red dot in the menu bar indicates that the CMMB have an error.

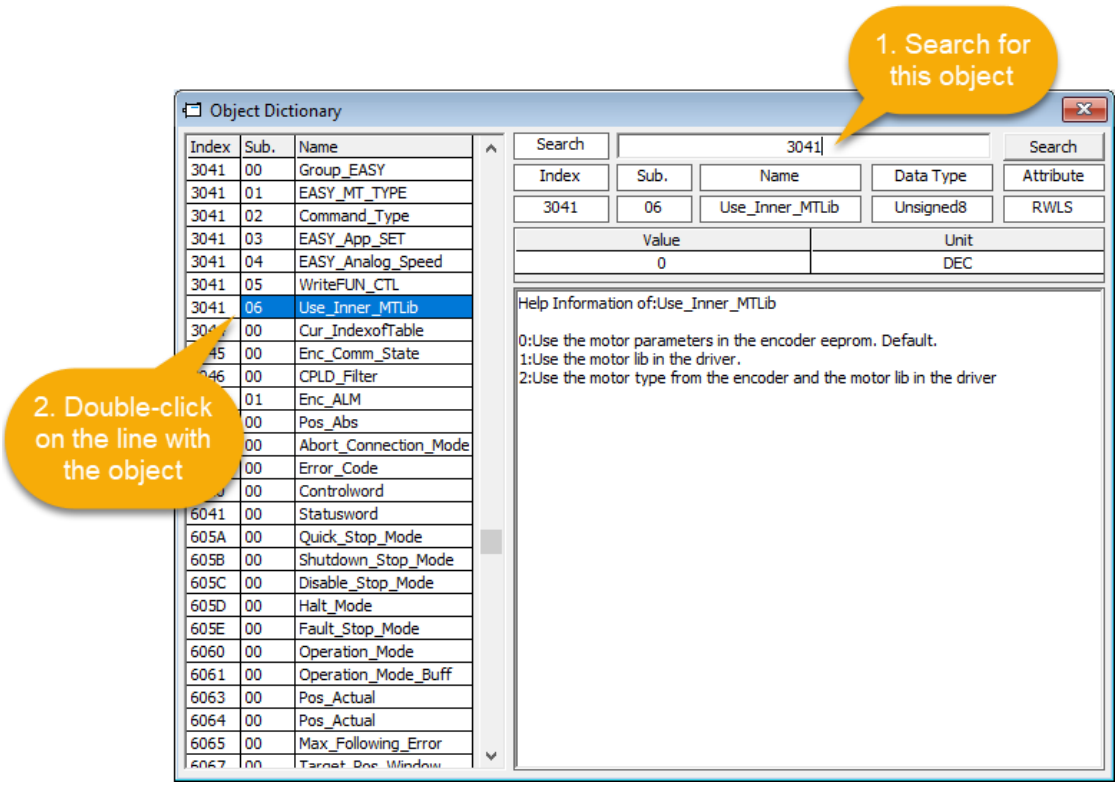
2. Optional: By clicking on the red dot button the new window shows the active error



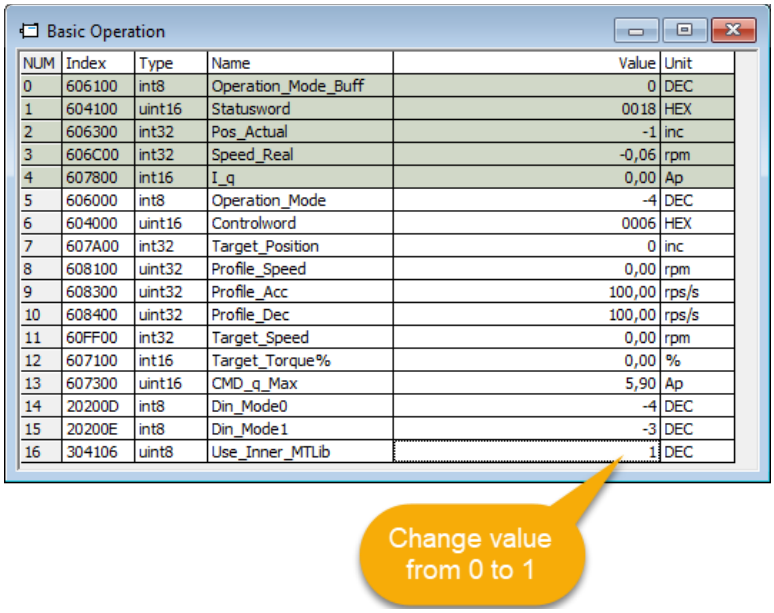
3. Open a window with CMMB objects (e.g.: ‘Basic Operation’ from menu ‘Controller’). Then right-click with your mouse on the last object in the list and select the option “Add”



4. The Object Dictionary window will open and then search for object number **3041.** Select the object 3041 Sub 06 (Use_Inner_MTLib) from the rows on the left and double-click on the object.

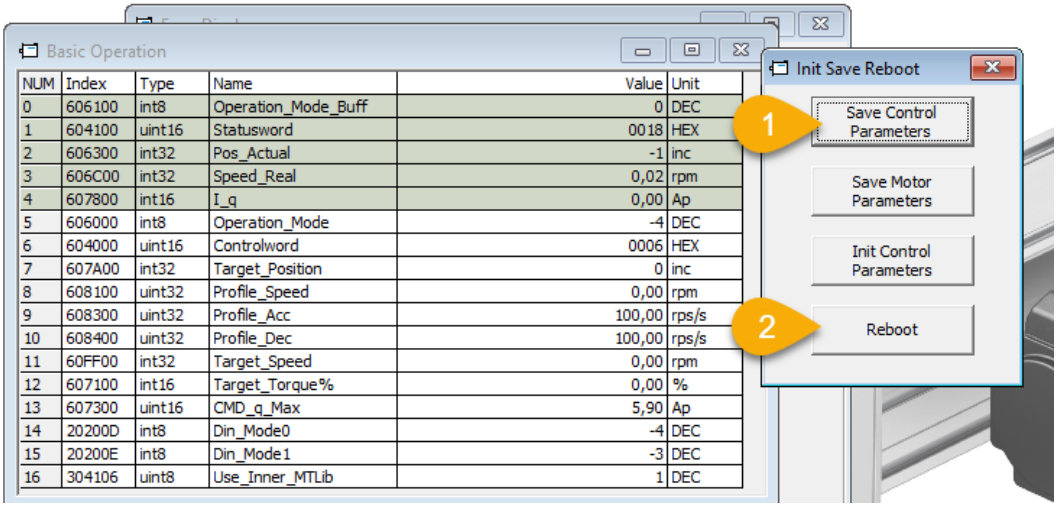


5. The selected object will now appear on bottom of the previous windows.
Now change the Default value 0 to 1.



NUM	Index	Type	Name	Value	Unit
0	606100	int8	Operation_Mode_Buff	0	DEC
1	604100	uint16	Statusword	0018	HEX
2	606300	int32	Pos_Actual	-1	inc
3	606C00	int32	Speed_Real	-0,06	rpm
4	607800	int16	I_q	0,00	Ap
5	606000	int8	Operation_Mode	-4	DEC
6	604000	uint16	Controlword	0006	HEX
7	607A00	int32	Target_Position	0	inc
8	608100	uint32	Profile_Speed	0,00	rpm
9	608300	uint32	Profile_Acc	100,00	rps/s
10	608400	uint32	Profile_Dec	100,00	rps/s
11	60FF00	int32	Target_Speed	0,00	rpm
12	607100	int16	Target_Torque%	0,00	%
13	607300	uint16	CMD_q_Max	5,90	Ap
14	20200D	int8	Din_Mode0	-4	DEC
15	20200E	int8	Din_Mode1	-3	DEC
16	304106	uint8	Use_Inner_MTLib	1	DEC

6. To store this value in the object open the ‘Init Save Reboot’ window from the ‘Controller’ menu. Press the ‘Save Control Parameters’ first which needs some seconds. While saving all buttons in the windows will become grey. After they become black again do a restart of the CMMB-AS by pressing ‘Reboot’.



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11	60FF00	int32	Target_Speed	0,00	rpm
12	607100	int16	Target_Torque%	0,00	%
13	607300	uint16	CMD_q_Max	5,90	Ap
14	20200D	int8	Din_Mode0	-4	DEC
15	20200E	int8	Din_Mode1	-3	DEC
16	304106	uint8	Use_Inner_MTLib	1	DEC

7. After the rebooting the CMMB-AS shows no error anymore.

8. Optional: Check with the buttons on the front of the CMMB-AS that EA01 (from EASY menu) have the correct motor code according to the real connected one

EA01	Motor Type	Examples of motor type, motor code and EA01 display value.

Motor code	Motor type	LED display
JY	EMMB-AS-40-01...	594A
Y0	EMMB-AS-60-02...	3059
Y1	EMMB-AS-60-04...	3159
Y2	EMMB-AS-80-07...	3259