



LEXIUM 26D/28A/28E

FW V1.78.16 Release Notes



The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not a substitute to determine the suitability or reliability of these products for specific applications of the user and must not be

used for this purpose. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliated or subsidiary companies are responsible

or liable for a misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

No part of this document may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without express written permission of Schneider Electric.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When using devices for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

©2022 Schneider Electric. All rights reserved.

Contents

1	Introduction	4
2	New Features	4
3	Known Anomalies	7
4	Solved Anomalies	8
5	Cybersecurity Notification	9

1 Introduction

This document provides information for the specific version V1.78.16 of the LXM26D/28A/28E drive firmware. You should thoroughly review this Release Note prior to installing or upgrading of this product.

Version 1.78.16 includes new features and improvements. It inherits all existing features from version 1.75.41 and 1.78.9 and merges hotfix firmware versions which support multi-turn encoder, and the new Cypress IC flash.

2 New Features

2.1 Add homing parameters P5-04/P5-05/P5-06 for LXM28E

P5-04 (Home Method)
P5-05 (Home Speed1)
P5-06 (Home Speed2)

2.2 On CAN/EC object 6502, added bit8 and bit9 to support CSV/CST in CAN-motion

2.3 Add IO-mode control to LXM28E

IO-mode control of LXM28E is added while set P3-08 to 0. (For example: when ETHERCAT bus is disconnected):

1. Reset the faults by defined input function of DI to 102
2. Enable servo by defined input function of DI to 101
3. Jog forward/backward by defined input function of DI to 137/138
4. Jog speed defined in P4-05

2.4 Add a new parameter P5-81 to select "move absolute available with or without homing"

P5-81:

Value 0: (default) move absolute with homing
Value 1: move absolute without homing

2.5 Add allow Manufacturer objects to be mapped on PDO (incl. 0x4109 & 0x410C)

0x4109: Velocity Limitation 1

P1-09: This parameter specifies the first velocity limitation.

0x410C: Torque Limitation 1

P1-12: This parameter specifies the first torque limitation in percent of nominal current.

2.6 Modify motor foldback algorithm to increase motor overload characteristics

To make old MFOLD and new MFOLD be compatible, we added a new P parameter (P2-71) to activate the new fold back algorithm. The default values are highlighted below in green. If you want to increase the overload capacity, you can set the MFOLD level by the new parameter P2-73 (1...4, default value is 1). The corresponding MFOLDT value is displayed in P2-72.

	P2-72: value BCH2 LB - LD	P2-72: value BCH2 LF - HF - LH	P2-72: value BCH2 MM - MR
P2-73: value 1 (default)	MFOLDT=450	MFOLDT=2450	MFOLDT=3400
P2-73: value 2	MFOLDT=750	MFOLDT=7700	MFOLDT=4500
P2-73: value 3	MFOLDT=980	MFOLDT=19500	MFOLDT=5640
P2-73: value 4	MFOLDT=1670	MFOLDT=27340	MFOLDT=6840

Current [%]	BCH2 LB - LD BQ 04 - 06	MFOLDT=1670		MFOLDT=980		MFOLDT=750		MFOLDT=450	
		Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]
		120	21	21	0.00	14.8	-29.52	12.7	-39.52
140	6.9	9.6	39.13	6.9	0.00	6	-13.04	4.8	-30.43
160	4	5.8	45.00	4.2	5.00	3.7	-7.50	3	-25.00
180	2.6	4	53.85	2.9	11.54	2.6	0.00	2.1	-19.23
200	1.8	2.8	55.56	2.1	16.67	1.95	8.33	1.65	-8.33
220	1.3	2.1	61.54	1.65	26.92	1.5	15.38	1.3	0.00
240	1	1.57	57.00	1.27	27.00	1.17	17.00	1.05	5.00
260	0.8	1.16	45.00	0.99	23.75	0.93	16.25	0.86	7.50
280	0.7	0.85	21.43	0.77	10.00	0.75	7.14	0.71	1.43
300	0.6	0.6	0.00	0.6	0.00	0.6	0.00	0.6	0.00

Current [%]	BCH2 LF - HF - LH BQ 08 - 10	MFOLDT=27340		MFOLDT=19500		MFOLDT=7700		MFOLDT=2450	
		Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]
		120	270	270	0.00	199.5	-26.11	93.3	-65.44
140	90	121.3	34.78	90	0.00	42.8	-52.44	21.8	-75.78
160	36	71.7	99.17	53.5	48.61	25.9	-28.06	13.7	-61.94
180	17.5	47	168.57	35.2	101.14	17.5	0.00	9.6	-45.14
200	8.4	32.1	282.14	24.3	189.29	12.5	48.81	7.2	-14.29
220	5.6	22.2	296.43	17	203.57	9.1	62.50	5.6	0.00
240	4.2	15.1	259.52	11.7	178.57	6.7	59.52	4.4	4.76
260	3.3	9.8	196.97	7.8	136.36	4.9	48.48	3.6	9.09
280	2.5	5.7	128.00	4.8	92.00	3.5	40.00	2.9	16.00
300	2.4	2.4	0.00	2.4	0.00	2.4	0.00	2.4	0.00

Current [%]	BCH2 MM - MR BQ 13 - 18	MFOLDT=6840		MFOLDT=5640		MFOLDT=4500		MFOLDT=3400	
		Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]	Overload time [s]	Deviation from MPC [%]
		120	82.5	82.5	0.00	71.7	-13.09	61.5	-25.45
140	33	37.8	14.55	33	0.00	28.5	-13.64	24.1	-26.97
160	18.6	22.9	23.12	20.1	8.06	17.5	-5.91	14.9	-19.89
180	12	15.5	29.17	13.7	14.17	12	0.00	10.3	-14.17
200	8.1	11	35.80	9.8	20.99	8.7	7.41	7.6	-6.17
220	5.7	8	40.35	7.2	26.32	6.5	14.04	5.7	0.00
240	4.2	5.9	40.48	5.4	28.57	4.9	16.67	4.4	4.76
260	3.3	4.3	30.30	4	21.21	3.7	12.12	3.4	3.03
280	2.7	3	11.11	2.9	7.41	2.8	3.70	2.7	0.00
300	2.1	2.1	0.00	2.1	0.00	2.1	0.00	2.1	0.00

2.7 Change P5-13 default value from 0 to 2

P5-13 (POSLIMMODE):

- Position Limiting Mode

This parameter activates/deactivates the software limit switches and the homing transient limits.

Value 0:

- Deactivate software limit switches.
- Activate homing transient limits.

Value 1:

- Activate software limit switches.
- Activate homing transient limits.

Value 2:

- Deactivate software limit switches.
- Deactivate homing transient limits.

Value 3:

- Activate software limit switches.
- Deactivate homing transient limits.

2.8 Change P8-71 default value to 0

P8-71 (SFILTMODE):

Value 0: Wn752 is deactivated

Value 1: Wn752 is activated

2.9 Removed “WN709” (PLL not synchronized)

2.10 Add bit 2 of P2-65 (0x204) to activate/deactivate AL560

Bit #2 (0x204) – when set to “1” inhibits the AL560.

2.11 Add bit 4 of P2-65 (0x210) to activate/deactivate AL520

Bit #4 (0x210) – when set to “1” inhibits the AL520 Target position rejected monitoring

2.12 Allowed disable “AL561” (Temperature sensor inoperative)

If HWTEMPHRESH P8-72 = 0, AL561 will be disabled

This is to allow you to disable the HW over-temperature error for special conditions, such as while environment EMI is elevated.

NOTE: You should be aware that is a potential drive damage risk if the over-temperature error is disabled under normal conditions.

2.13 Change P3-08 default to 3 (Ethercat) for LXM28E

2.14 Increased filtering of the fast digital input (DI6,DI7) value to 20000µs for 26D/28A , 16383µs for 28E

2.15 Deactivate AL009 monitoring when drive is in velocity mode

2.16 Add bit 12 of P2-68, to select the error class of AL014/AL015

Bit 12 of P2-68 (0x1000), to select the error class of AL014/AL015.

Bit 12 of P2-68 to switch Error or Alert when trigger limit switch for IO output function

0: Digital Output (0x11) WARN Warning Signal Activated = TRUE

1: Digital Output (0x07) ERROR Detected = TRUE

2.17 Modifications PDO Mapping in the XML/EDS

Modifications to the EDS/XML files for modifications to the following objects:

0x4109, 0x410A, 0x410B, 0x410C, 0x410D, 0x410E, 0x4125, 0x4137, 0x413B, 0x414E, 0x4152, 0x4155, 0x454C, 0x4800, 0x4802, 0x4803, 0x4804, 0x4805, 0x4806, 0x4807, 0x4808, 0x480B, 0x480C, 0x480D, 0x480E, 0x480F, 0x4810, 0x4811, 0x4813, 0x4814, 0x4815, 0x4816, 0x4817, 0x4818, 0x4819, 0x481A, 0x481B, 0x481, 0x481D, 0x481E, 0x481F, 0x4821, 0x4822, 0x4823, 0x4824, 0x4825, 0x4826, 0x4827, 0x4828, 0x4829, 0x482B, 0x482C, 0x4833, 0x4834, 0x4835, 0x4836, 0x4837, 0x4838, 0x4839, 0x483A, 0x483B, 0x483C, 0x483D, 0x483F, 0x4840, 0x4841, 0x4842, 0x4843, 0x4844, 0x4845, 0x4846, 0x4847, 0x4863, 0x6068, 0x606E, 0x6070, 0x607C, 0x607D:1, 0x607D:2, 0x607F, 0x6080, 0x6085, 0x6091:1, 0x6091:2, 0x6092:1, 0x6092:2, 0x6098, 0x6099:1, 0x6099:2, 0x609A, 0x60B0, 0x60C5, 0x60C6, 0x60F2

3 Known Anomalies

3.1 Auto tuning is not supported in linear control mode

Easy tuning and comfort tuning are not supported in linear control mode (P8-35=0x4001).

3.2 On line modification operation mode is not supported

3.3 Noise Behavior in CSP Mode

In CSP mode some motors, like the BCH2LD04XCA5C, may make noise if they are connected to a drive which uses a CANOPEN baud rate of less than 1M Bits.

3.4 Limitation of "Halt" in Homing Mode

Stopping and restarting a homing process with "HALT" will cause the cancellation of homing.

3.5 Behavior of the Homing Methods ZYX = 112 and ZYX = 113

In PS or CANOPEN mode homing methods ZYX=112 (method 8) and ZYX=113 (method 12), the slow velocity may be applied instead of the high velocity

3.6 LXM28A/E STO

LXM28A/E STO 24V voltage drops down to 12V, and sometimes the drive presents in that case errors AL001 & AL505.

3.7 LXM26/28 is without low frequency vibration suppression function

3.8 LXM28E I/O mode

LXM28E cannot use IO SPD function while in I/O mode. Only Enable, Jog and Reset by I/O are available.

3.9 In LMC058 controller, motor cannot run normally if 16# 6073 (Maximum Current) is added to PDO mapping

Due to 16#6073 maximum current initial value is 0 while the drive is not connected to the motor, so you should manually modify this value to the correct value if PDO mapping includes it.

3.10 LXM28: If you execute two touch probe FBs in CAN motion at the same time, TP signal is delayed 120ms

The issue is not from drive side, it is related to a SoMachine FB. The work around is to program 16#60B8 in Touch Probe Function and 16#60B9 in Touch Probe Status

3.11 In power off state, multi loader cannot up- and down-load FrmDxx.cfg with LXM28A/E

3.12 LXM28A, with multi-turn encoder motor, loses position during motor rollover after power cycle

The workaround as below:

1. Set P1-44 and P1-45 to values which will result to wanted ratio in PT or PS mode (P1-01 set to 0 or 1). For example, for values to convert to ratio of 13072: P1-44 = 10000, P1-45 = 1024. (The gear ratio must be able to be divided into an integer by 2)
2. Change drive work mode back to CAN mode. (P1-01 set to B)

3.13 Auto tuning is not supported with multi-turn encoder

3.14 P5-76 limitaton

Setting P5-76 to 1 is not supported with multi-turn encoder equipped motors.

3.15 Homing 35 limitation

If the motor always running in one direction, the Homing 35 does not clear position to 0 during rollover of maximum position (+/-2147483647 PUU).

The workaround is to use FB 'MC_Set Position' + 'SMC3_PersistPositionSingleturn'

3.16 MC_MoveAbsolute can be executed when Wn753 reported and without homing

Workaround: Do homing process or set P8-44 to 2 before executing FB 'MC_MoveAbsolute' when Wn753 occurs.

3.17 MC_MoveAbsolute can be executed without homing in CANMOTION mode

Workaround: Do homing process before FB 'MC_MoveAbsolute'

3.18 Set parameter P5-81 to 1 bit 15 of status word is still 0

Workaround: Due to this function does not operate correctly with this version of firmware, you should do the homing process before executing FB 'MC_MoveAbsolute'

3.19 MC_TorqueControl_LXM28 does not output the right signal of In torque

The torque signal of FB 'MC_TorqueControl_LXM28' is immediately activated even when actual torque value does not reach the torque command.

Workaround: Compare the value of torque command and value of actual torque to determine if it is the In torque in the application program.

3.20 LXM26D/LXM28A/LXM28E Write P8-44 to 2 by SoMove causes Modbus connection error

LXM26D/LXM28A/LXM28E Write P8-44 to 2 by SoMove cause MODBUS connection error AL020

Short term temporary measure:

P8-44 parameter is designed as read only in the new release DTM of LXM26D LXM28A/E/S in order to block manual write this parameter by SoMove

Workaround: Write P8-44 parameter value by CANOPEN/ETHERCAT or by drive HMI.

3.21 Download parameter will fail via SoMove if config parameter P5-79=1 P5-80=0 in DTM offline mode when P5-79 =0 and P5-80 =1 in the Drive.

Workaround: First, manually modify P5-80 to 0 by drive HMI, then download the backup parameter to the drive via SoMove in online mode.

4 Solved Anomalies

4.1 Incorrect moving direction in -0.1 rpm VCMD

When set -0.1 rpm velocity command in CANOPEN, Nikon BCH2 motors would rotate towards positive.

4.2 Homing 35 is not allowed with limit switch active

Homing 35 and set position is not allowed when limit switch error is triggered.

4.3 Improve Modbus response time

Improvement of Modbus communication response time. Reduced from 45ms to 8ms while Modbus Baud rate is 19200.

4.4 Velocity display difference between positive and negative direction

Velocity difference between positive & negative direction will have 0.2 RPM difference. This issue is fixed.

4.5 TQL signal output

TQL signal output would choose the minimum value between P1-12~14 value and Torque analog input value. This issue is fixed.

4.6 DISTATUS display on SoMove scope

Di status does not display on SoMove scope. This issue is fixed.

4.7 P1-55 default value for 2KW motor

P1-55 default value for 2KW motor (BCH2MM2023NA6C) changed to 3000RPM.

4.8 P1-46 auto restore

P1-46 auto restore to 4096 after recycle driver power if set P3-34 to 1 or 2. (Not able to modify P1-46). This issue is fixed.

4.9 Motor jump when change torque direction

Motor jump when change torque direction. This issue is fixed.

4.10 Actual torque is less than target value

LXM28A the actual torque is lower than the target torque, while velocity limitation less than 200rpm. This issue is fixed.

4.11 LXM28A/E with MT motor P1-01 set 0x10B then do homing problem (Actual position cannot be set to 0)

This issue is fixed.

4.12 LXM28A/E with MT motor and HD mode will drop after homing

This issue is fixed.

4.13 Analogue voltage control with brake motor in speed mode, motor will not move

Issue related to motor with brake activating Z-Clamp on limit switch – the Z-Clamp mechanism was continuously reset on limit switch due to wrong detection between brake hold and limit switch hold. A finer separation was added to differentiate between the cases.

4.14 P2-35 multiply by 10

Select P2-35 via HMI and press OK button or download parameters to drive by SoMove, the value of P2-35 will multiply by 10.

4.15 MT Homing / reference operation issue.

Modify homing / reference operation mechanism:

1. MT Homing/reference: P8-44 set to 2 (with drive active, excluding CSP mode).
2. MT Config/Reset: P8-44 Set to 3 (without drive active).

4.16 Blocking the ability to set P8-44=2 or 3 via HMI or Modbus .

LXM28S MT_ In CSP mode and Drive Enabled, P8-44 can be written with the value 2 or 3 via Drive HMI or Modbus command. Due to this operation will cause unexpected moving and AL09 (position error). So it is blocked.

4.17 4405/4404(1135/1134) reported while homing with homemode 17/18 when controlled by canOpen .

Add delay for the check if the digital input is triggered.

4.18 ZCLAMP issue

Trigger ZCLAMP DI in velocity mode, motor should be at standstill. But motor will slowly move in one direction.

Check if the limit switch is active and suppress the ZCLAMP. Meanwhile the ZCLAMP position hold will be held in position mode.

5 Cybersecurity Notification

Schneider Electric is aware of a vulnerability in its LXM2X servo drives. The LXM2X range of servo drives includes 4 servo drive models, LXM26D, LXM28A, LXM28E and LXM28S, associated with 1 servo motor ranges, BCH2 for optimum use that can adapt to demands for high performance, power, and simplicity of use in motion control applications.

To ensure you are informed of all updates, including details on affected products and remediation plans, subscribe to Schneider Electric's security notification service here:

<https://www.se.com/en/work/support/cybersecurity/security-notifications.jsp>

General Security Recommendations

We strongly recommend the following industry cybersecurity best practices.

- Locate control and safety system networks and remote devices behind firewalls and isolate them from the business network.
- Install physical controls so no unauthorized personnel can access your industrial control and safety systems, components, peripheral equipment, and networks.
- Scan all methods of mobile data exchange with the isolated network such as CDs, USB drives, etc. before use in the terminals or any node connected to these networks.
- Never allow mobile devices that have connected to any other network besides the intended network to connect to the safety or control networks without proper sanitation.
- Minimize network exposure for all control system devices and systems and ensure that they are not accessible from the Internet.
- When remote access is required, use secure methods, such as Virtual Private Networks (VPNs). Recognize that VPNs may have vulnerabilities and should be updated to the most current version available. Also, understand that VPNs are only as secure as the connected devices.

- In your hazard and risk analysis, take into account all hazards that result from access to and operation on the network/fieldbus and develop an appropriate cyber security conceptual framework.
- Verify that the hardware infrastructure and the software infrastructure into which the machine is integrated, as well as all organizational measures and rules covering access to this infrastructure, take into account the results of the hazard and risk analysis.
- Implement your cyber security framework according to the best practices and standards of IT security and cyber security, such as ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security.
- Verify the effectiveness of your IT security and cyber security systems using appropriate, proven methods.