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Firmware Release Notes: Class 6 D– CANopen, Ethernet: EIP/EEC/EPN

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Moog Animatics Firmware Update Revision History

Release Date	Software Version	Changes	Dependencies
05/15/2026	6.4.2.78	Production release: 1. Fixed bug dependent on improperly connected Ethernet board.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_8.eds EtherCAT (-EEC models): LFW: FW850_524_10_0_6.nxf (4.10.0.6) SM6_0_EEC_D402P01_6v29.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.44-MOOG ANIMATICS-SMC6DEV01-20260319.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R10.eds

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Release Date	Software Version	Changes	Dependencies
04/28/2026	6.4.2.77	Production release: 1. Refactored for production release.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_8.eds EtherCAT (-EEC models): LFW: FW850_524_10_0_6.nxf (4.10.0.6) SM6_0_EEC_D402P01_6v29.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.44-MOOG ANIMATICS-SMC6DEV01-20260319.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R10.eds

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03/23/2026	6.4.2.76	Engineering release: 1. CANopen and EtherCAT added object 0x60e3 supported homing methods. 2. Changed CANopen and EtherCAT object 0x60c4:2 and 0x60c4:3 from ro to r/w to match conformance test. Updated 0x60c4:5 from ro to wo for conformance test. 3. Set 2202h & 2203h (Set PO & Shift PO) write only and not PDO mappable (to match class 5). 4. Set 220Ch & 220Dh (MFA & MFD) write only (to match class 5). 5. Fixed error being reported for Ethernet/IP when a NV parameter is written.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_8.eds EtherCAT (-EEC models): LFW: FW850_524_10_0_6.nxf (4.10.0.6) SM6_0_EEC_D402P01_6v29.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.44-MOOG ANIMATICS-SMC6DEV01-20260319.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R10.eds

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12/08/2025	6.4.2.75	Production release: 1. Refactored for production release.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_8.eds EtherCAT (-EEC models): LFW: FW850_524_10_0_6.nxf (4.10.0.6) SM6_0_EEC_D402P01_6v27.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R9.eds

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Release Date	Software Version	Changes	Dependencies
11/18/2025	6.4.2.74	Engineering release: 1. Added RETH 210 – 219, 221–224 to read IE chip specific information. 2. Added CAN and EtherCAT object 0x210a to read the I/O type configuration. In, Out or special 3. GOSUB and GOTO updates. 4. Cleared Ethernet errors when new LFW loaded. 5. Made CAN and EtherCAT object 0x2310 be TX mappable only. 6. Removed PDO mapping from object 0x605e and 0x60c4:2 for conformance. 7. Fixed watchdog issue when too many EtherCAT explicit message were received. 8. Fixed EtherCAT problem where master would stop sending syncs but we still expected syncs. 9. Fixed needing to cycle power twice after a .nxf file download. 10. Fixed GOSUB and GOTO commands not called from the user program only allowed one item before overwriting. 11. Fixed program stack pointer edge-case. 12. Fixed Wraparound status bit.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_8.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v27.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R9.eds

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08/27/2025	6.4.2.73	Engineering release: 1. CANopen object 0x2310, Modulo Position. reads PMA correctly in main modulo counter mode (ENCCTL(6,x)).	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v26.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R8.eds

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04/17/2025	6.4.2.72	Production release: 1. CANopen object 0x2310, Modulo Position. Allows reading/writing PML and reading PMA. 2. EEC xml version 26. CANopen eds version 8. 3. Fixed bug where the motor would exit synchronous mode running EtherCAT firmware.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v26.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R8.eds

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02/27/2025	6.4.2.71	Engineering release: 1. Main counter modulo features. See ENCCTL(x,y), PTP=/PTN=. 2. Added additional RENC(x) reports for the encoder. 3. Setting PML causes the modulo counter to be retained on power cycle. 4. PML defaults to RES.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v24.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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01/17/2025	6.4.2.70	Engineering release: 1. No changes for 6.4.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v24.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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01/17/2025	6.4.2.69	Engineering release: 1. RENC(32) for encoder errors. 2. EEC xml version 24. Added TwinCAT PDO Default and NC Configuration mappings. 3. Bugfix for errata item.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v24.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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01/17/2025	6.4.2.68	Production release: 1. Fixed a potential problem with Ethernet/IP introduced in 6.4.2.67.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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01/10/2025	6.4.2.67	Production release: 1. Added control voltage reading. RINA(A,11) or RINA(V,11). 2. Added RSYS command. RSYS(20) reads faults. RSYS(21) reads the hw board revision from EE. Supported over Combitronics. 3. Added support for STO. STO inputs can be read through I/O 14 and 15. 4. Removed 4 to 20 mA input.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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05/07/2024	6.4.2.66	Engineering release: 1. SD card can now import IP address/subnet mask/default gateway & station alias. 2. Scaling (like class 5) with SCALEP, SCALEV, & SCALEA. 3. SCALE commands supported over Combitronics. 4. SYSCTL(6,0/1) to disable/enable ERROR scaling.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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12/13/2023	6.4.2.65	Engineering release: 1. ENCCTL(2,<value>) command added for support of Posital encoder starting in inverted direction mode.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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Release Date	Software Version	Changes	Dependencies
10/24/2023	6.4.2.64	Engineering release: 1. Added a Motor Blink code of 12 blinks for a Homing error. 2. Added a serial command RHM_STAT to report the Homing State Value. 3. Added Ethernet/IP attribute 139 to report the Homing State Value. 4. Added CANOpen object 0x2239,1 to report the Homing State Value. 5. Improved the reporting of homing errors. 6. Homing to Hardstop methods -17, -18 improved to hold the final position without loading onto the hardstop. 7. The Homing Method EIP Position Control Supervisor attribute 122 changed to allow vendor specific methods.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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Release Date	Software Version	Changes	Dependencies
10/24/2023	6.4.2.63	Engineering release: 1. Profinet support allowing for newer nxf. Ver: 4.7.0.1. 2. EtherCAT support allowing for newer nxf. Ver: 4.9.0.2. 3. Hex literal input. i.e. a=0x1234. Requires version of SMI (3.0.0.78) with corresponding support to put these commands in a program. 4. Added network lost bit in RETH(0) as bit 18 (zero-based.) 5. USB channel doesn't allow ECHO_OFF(8) anymore. The echo function should never be turned off for USB. The echo state is always on. ECHO(8) is still allowed for legacy reasons since SMI will issue that command, but it has no effect. 6. An error is now returned when any attempt at Combitronics on encapsulated command over CANopen or Modbus. (Since these options were not supported and still aren't.) 7. Fixed USB handling where command or responses were lost. 8. Fixed non-Ethernet motor was not setting PT=PA at startup as intended. 9. Fixed non-Ethernet motor feedback fault that was being triggered at startup. 10. Fixed non-Ethernet motor low bus fault that was being triggered at startup. 11. Fixed non-Ethernet motor overcurrent fault that was being triggered at startup. 12. Fixed CANopen gearing that was not maintaining sync 'fencepost' timing correctly.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v23.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R7.eds

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09/08/2023	6.4.2.62	Engineering release: 1. Combitronics server (remote motor) modified to ensure packet responses are in the order of request. 2. Combitronics server (remote motor) modified to process all requests / commands even if responses are being held due to network traffic. This improves commands to act more immediately.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v22.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R6.eds

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Release Date	Software Version	Changes	Dependencies
08/16/2023	6.4.2.61	Production release: 1. Added cam mode support for starting cam at arbitrary place between points. MCW(table#,count,1) 2. Added cam resume function. G(9) command allows cam to pick up where it left off when MFSLEW/MFA, etc ended previously. 3. Support newer board revs with 32 volt full-scale for user input. 4. Increased analog resolution. 5. ROC function error handling improved for I/O that does not support output. 6. Range check on MCW command. 7. Error handling improved for I/O commands that handle the “W” argument like UR(W,0) 8. Various improvements to motion commands.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v22.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R6.eds

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Release Date	Software Version	Changes	Dependencies
06/05/2023	6.4.2.60	Engineering version: 1. Added SYSCTL(10,x) to select whether Combitronics is handled via Ethernet (EIP only) or CANbus. 2. Added Profinet support for EIDE() and EOFT() (function 1, arguments 88 – 91. EIDE(-1), EIDE(7), EOFT(-1), EOFT(9) respectively.) 3. Added Ethercat/CANopen support for I/O: object 0x2101 arguments 4, 5, 6 added for config output, enable special, disable special respectively. 4. Added Ethernet/IP support for I/O: Class 0x71, attribute 1 allows value 3 to disable special function on I/O line. 5. Added EtherCAT, CANopen, Modbus GOSUB R2 case -11 to -18 for EIDE(-1), EIDE(7), EOFT(-1), EOFT(9), EOBK(-1), EOBK(9), EIGN(6), EISM(6) 6. Added Virtual I/O feature. 7. Changed PT initial value set to actual position so that a single G command at startup doesn't send the motor with absolute encoder way back to start. (Which would be unexpected motion.) 8. Increased default timeout for EtherCAT to 75 milliseconds. 9. Fixed watchdog issue on bootup when there is serial traffic: exception 0x1a00. 10. Fixed watchdog issue associated with Profinet during automated testing (messages received during reboot.) 11. Fixed issue with commands: CTE/CTA/CTW causing feedback fault with the Posital encoder.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v22.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R6.eds

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11/21/2022	6.4.2.59	Engineering version: 1. Added command support for gearing from a program, including Combitronics support. Commands: IGT=/RIGT, IGM=/RIGM, IGD()	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v21.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R5.eds

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11/18/2022	6.4.2.58	Engineering version: 1. Added CANopen gearing mode. 2. Fixed issue with serial number reporting for EtherCAT 3. CANopen number of buffers increased to avoid overflow with high traffic loads. 4. Various improvements to memory handling, CAN driver, and system timing. 5. Fixed issue with follow mode saturation that was affecting versions: 6.x.2.55 – 6.x.2.57.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v21.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R5.eds

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10/11/2022	6.4.2.57	Engineering version: 1. Added SYSCTL(1,x) for MTB option on bootup. 2. Added GOSUB "R2" support in Modbus. This allows sending data values and a GOSUB call in a PLC-friendly manner. 3. Changed EtherCAT: Changed objects 1c00, 1c12, and 1c13 to be arrays for better conformance with standards. 4. Fixed problem with reporting RCAN(28) 5. Fixed reporting HM_MTHD:a 6. Fixed issue with Modbus RTU (serial) error handling. 7. Fixed Combitronics Time sync (over CANbus) had incorrect timing. i.e. command: CANCTL(14,x)	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v21.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R5.eds

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Release Date	Software Version	Changes	Dependencies
07/12/2022	6.4.2.56	Production release: 1. Fixed issue with watchdog when heavy Combitronic traffic. 2. Fixed issue with IP address change between DHCP and static address for EIP networks. This allows non-volatile IP address settings to be updated, though it may require a few steps to change setting and reboot for the NetX to take effect. 3. Added ETHCTL(99,x) for command access to EIP reset service. Fixed issue with serial port close that was not resetting buffer. This was leaving unintended data in buffer that could be a problem especially when transitioning between command and data mode.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v20.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R4.eds

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04/20/2022	6.4.2.55	Engineering version: 1. Changed action so that Class 6D high-side current sensor will cause overcurrent fault now. (Status word 0, bit 4.) 2. Added support for Combitronic Distributed Fault handling over CAN. (Various CANCTL/RCAN functions.) 3. Added timer 8: TMR(8,x) 4. Added source ratio multiplier: SRM, SRR, etc. 5. Added position error saturation: EASAT. 6. Added speed governor: SG. 7. Added ETHCTL/RETH 102 and 103 for the purpose of reporting the state of the UDP/TCP encapsulated ethernet serial connection. 8. Added CANCTL(28,x) to support group GS for PTSover CANbus. 9. Added DS2020 support to PTS command 10. Added CANCTL(21,1) to support DS2020 transform override option 11. Added CANCTL(21,2) to support PTS option to use PC 12. Fixed PTS command hanging when trace feature being used 13. Fixed PTS when only one device (no CAN network) PTS would hang 14. Fixed PTS issue with PTST 15. Fixed PTS various issues with timeout, error handling, and better handling of values that were rounding down to 0. 16. Fixed issue with Combitronics functions return error code from remote side rather than just OPERATION_FAILED 17. Fixed issues with CANopen bootup message getting duplicated or garbled 18. Changed command behavior for RERRC so it will reset to 0 (no error) when ZS, Z(2,14), Zs. 19. Added support for CANCTL(14,x) Combitronics time sync	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v20.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R4.eds

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03/02/2022	6.4.2.54	Engineering version: 1. Fixed issues with CANopen/EtherCAT object 0x2230 for homing. 2. Changed EtherCAT EDS revision to version 6v20. 3. Changed CANopen EDS version to V1R4. 4. Fixed issue with EIDE command where BRKRLS OFF mode and EIDE(-1) was causing drive to not activate. 5. Fixed issue where overcurrent fault (word 0, bit 4) was activating unintentionally. RW(0) bit 4, or RB(0,4)	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v20.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R4.eds

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01/26/2022	6.4.2.53	Engineering version: 1. Added DMX support: OCHN(DMX,1,…), COM1 (RS-485) 2. Changed PROFINET identifiers for Class 6D, associated with updated GSD XML file. 3. Added OSH(8) and O(8) to set PC/PA and not set PMA. 4. Added OSH(9) and O(9) to be able to adjust PMA independent of PA. 5. Fixed overflow issue when setting PMA with very large PML values. 6. Added OSH(10) and O(10) to be able to set CTR(0) to any value. 7. Added OSH(11) and O(11) to be able to set CTR(1) to any value. 8. Added modulo target in positive direction (PMTP=) or negative direction (PMTN=). Similar to PMT= and relates to PMA, PML. 9. Added SYSCTL(8,x) for ability to set PMA modulo counter to work relative to trajectory 1 so that trajectory 2 can be used independently as offset. 10. Added commands support for DS2020: FD=, FSAD, RFAUSTS, RFD, RFSAD. 11. Added ENCCTL(12,0) command to reload RPA counter from Posital encoder. 12. Added ANG(32) clears Posital encoder error bits.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v19.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20220114.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R3.eds

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12/21/2021	6.4.2.52	Engineering version: 1. Fixed issue with extra characters echoed occasionally in command mode (and fixed support for Echo in data mode RS232.) 2. Fixed issue with OCHN command on channel 0 as RS2. 3. Fixed issue with downloading NXF file over serial port (updating Ethernet controller firmware.)	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v19.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20190118.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R3.eds

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12/10/2021	6.4.2.51	Engineering version: 1. Fixed issue in startup position for Posital encoder. Issue was that the initial position RPA could be off by one revolution under certain cases of starting position. 2. Fixed a problem with PROFINET recovery from unplugging Ethernet cable/network. 3. Added support for EIRE Ai(0) RI(0). This is the internal encoder capturing it's single-turn zero-position. 4. Added support for internal encoder's external probe (external signal when EIRI command issued) capture with the Posital encoder. Ai(0), Aj(0), RI(0), RJ(0) 5. Added EIDE(-1) command to support bypassing drive enable input. 6. Fixed MDC current mode commutation math error. (d control loop was sticking.) 7. Fixed SD card error on bootup when no card present (no card slot on Class 6D anyway.) RW(9) bit 2, or RB(9,2) 8. Added support for SYSCTL(7,x) PID config options. 9. Fixed issue with occasional timeouts or lost CAN packets when using Combitronics on motors with EIP network option. (On Class 6D, Combitronics requests will be made to CAN only, not Ethernet.) 10. Fixed watchdog issue with ZS command. (Internal bit handling improved which may also improve other issues unknown at this time.) 11. Fixed issue with SNAME (PROFINET), memory allocation.	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v19.xml PROFINET (-EPN models): LFW: FW850_524_5_0_7.nxf (4.5.0.7) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20190118.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R3.eds

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11/22/2021	6.4.2.50	N/A - Initial release	Ethernet/IP (-EIP models): LFW: FW850_523_4_0_5.nxf (3.4.0.5) SM6_0_EIP_D16P10_V2R1_7.eds EtherCAT (-EEC models): LFW: FW850_524_3_18_0.nxf (4.3.18.0) SM6_0_EEC_D402P01_6v19.xml PROFINET (-EPN models): LFW: FW850_524_1_0_2.nxf (4.1.0.2) GSDML-V2.3-MOOG ANIMATICS-SMC6DEV01-20190118.xml CANopen (all models): LFW: N/A built-in SM6_0_CO_D402P04V1R3.eds