

MDrive/MForce CANopen Firmware Change Summary

ver **5.48** 2011/08/18

- NMT Reset Applications will clear Locked Rotor Indicator (MDrive Hybrid Only).
- Bug: A Locked Rotor will disable the bridge. Corrected to NOT disable the bridge (MDrive Hybrid Only).
- Added Hybrid Idx2740, bit8, START_CALT (Start Calibration)(MDrive Hybrid Only).
- Locked rotor Timer Idx2710h, (ASLRTIME). Locked Rotor Timer Function can be disabled via setting timer to 0 (MDrive Hybrid Only).
- MakeUp Disabled then restored during clearing of the LeadLag Register (CLR_ERRCNT)(MDrive Hybrid Only).
- Homing to a hard limit. Methods -1, -2, -3, and -4 added.
- Added: Hybrid_Status_Byte_2741h, added status bits for Hybrid bit7=CAL_DONE bit4=ASACTIVE, bit3=ASLRTM, and bit0=Fault (MDrive Hybrid Only).
- Acceleration and Deceleration range guarded to avoid digitizing internally to 0.
- Homing and AutoSync will clear MakeUp register. (MDrive Hybrid Only).
- Hybrid State Machine Logic (MDrive Hybrid Only).
 - 1) MakeUp active logic is now a function of DSP402 State (ie. Idx6041 statusword).
 - 2) Halt will temporarily disable MakeUp
- BugFix: Quick power cycle may cause the CAN controller to not SYNCH
 - 1) Added BSE Reset to the CAN Controllers software reset.
 - 2) Multiple attempts to SYNCH, the CAN transceiver will be placed in Standby, in order to provide a long enough SYNCH gap to the units CAN controller.
- Product_code for Hybrid established as 101000 (ie SEM coding of 1010.00). (MDrive Hybrid Only).

ver **5.44** 2009/06/18 Release to Production (medium optimization compile) Check#= 0x0xB8A5

ver **5.43** 2008/08/01

- Bug: When all 3 PDOs are active, Tx PDO3 sometimes doesn't match that of PDO1 and 2. Suspect the message is lost due to CDRV_MAX_TX_BUFF_ENTRIES_LOW not large enough.
- Bug: After a RESTORE (Wr Idx1011h) followed by a PowerOn OR Reset_Application, the Default Values did not include the NodeId for the Indexes 1014h0, 1400h1, 1401h1, 1402h1, 1800h1, 1801h1, 1802h1 Added subroutine "ObdInsertNodeIdToCurrent (CbStore)" in key spots
- Enhance: PDO Communication configuration did not allow changing bits 29..0, while turning OFF the PDO (ie. Bit31 0==>1). The are Indexes 1400h1, 1401h1, 1402h1, 1800h1, 1801h1, 1802h1. If the PDO is being turned off, one can change the other bits with the same Write.
- Added: Index ucSemOptions_2504h, kSemOptions_InhibitRestoreNVM_x01 for SEM Compatibility to Disable NVM Restore Feature (SEM uses Idx3017h8) This will facility certain SEM controllers. Must be set off for Telemecanique PLC's 'Twido' and 'Mirano'
- Change: Idx1018h, Sub1 replaced IMS Vendor Id with that of Schneider Electric Was 0x0000021B changed to 0x0800005A
- Added: Encoder Capture to CaptureIn function. Control Bit added .. kCaptureInCtrl_EncoderVsPosition__x10
- Enhance: Removed some of the PDO lockouts which prevented mapping. Logic modified in two points. Mapping_Values and Mapping_Number_of_Indexes Remapping allowed as long as Node is not Operational. (kNodeStateOperational)
- Added: kSemOptions_EnableTwidoValues_x02 to Index 2504h. Inhibit Timer to TxPdo2 and Pdo3 (Idx 1801h3 and 1802h3) will default to 100ms if set to <2ms.
- Change: Idx1018h.2 Product_code per SEM Not allowed to be 0. Updated from 0 to 100000 Per SEM Bjoern Hagemann e-mail June 10, 2009. Product Code PR1000.dd -> PR1099.dd times 100 Valid range 100000 to 109999 dd = variant to product.
00 = standard. 01 = first customer specific version, etc.
- Added: ucTargetReachedSw_Defined_2008h2 assigns Target Reached Status bit to Output IO

ver **5.42** 2008/06/23 Release to Production (medium optimization compile) Check#= 0x0xB8A5

ver **5.40** 2008/03/04 Release to Production (medium optimization compile)

- ver 5.41 Bug: Upon a Reset_Application, the Bridge was disabling immediately, before the brake goes on. The bridge will re-enable, but only after it was off for about 150ms. The bridge should delay disabling, for the period indicated by usBrakeOnSignal_To_BridgeOff_TimeMs_2035h1.
- Bug: Operation Enable status was not conforming to diagram in manual. Operation Enable became active as soon as bridge was powered. Operation Enable should have been delayed the greater of the two time frames of usBridgeOn_To_BrakeOff_TimeMs_2034h1 + usBrakeOffSettleAllowTimeMs_2035h2, when Brake active OR usBridgeOn_To_Encoder_SettleTimeMs_2037h, when AutoSync active Bug: sHalt_opcode_605Dh. (Had no effect. Motor halt impemented "slow down ramp" only) Halt option default value changed from 2 to 1.
- Bug: ulQuick_stop_decel_6085h value not recognized during power up. Actual quick decel rate internally was 100,000 step/sec^2
- Added: sHalt_opcode_605Dh ... Functionality value 2=(Slow down on "Quick Stop Ramp"). For Profile_Position_Mode, Profile_Velocity_Mode, and Homing_Mode
- Added: Ability to change the motor drive PWM parameters for MForce units (Idx5004). Temporary modification of drive PWM can be made without unlocking.. Permanent modification or drive PWM can be made with usUnlockCode_5007h == 6102(d) Enhance Idx1015 was read only. It is now writeable. Functionality still to be tested.
- Enhance Flash read default address now points to checksum value for ease of tracking.

- Enhance Default value for store to NVM indexes (Idx1010) updated to reflect actual read value of 1. This only effects the EDS.
- Enhance Default value updates for PDO communication parameters. Idx1400h1 was 0x80000200 + NodeId\$ ==> 0x00000200 + NodeId\$ Idx1801h1 was 0x80000280 + NodeId\$ ==> 0xC0000280 + NodeId\$ Added: wDataSpaceAddress_5302h1, and Idx5302h2
- Bug: Homing Method 8 example3 stops on +side of Home at IndexWHome. Homing Method 9 example1 stops on -side of Home at IndexWHome. Homing Method 12 example3 stops on -side of Home at IndexWHome. Homing Method 13 example1 stops on +side of Home at IndexWHome.
- Enhance: Homing to encoder index mark. Index mark was sampled, therefore motor rotation limited to 0.5 rev/sec.
- Enhanced so that Idx mark is detected via interrupt. (ENC_INDXX)
- Enhance: The following indexes updated to _NOINT to reflect no initial default value. Idx2010h1 usAnalogIn unknown and may vary. Idx6061h0 Mode of Operation Display may not change on a reset. Idx60FDh0 Digital Inputs are determined by setup and switches. Parameters Intended for Testing and Factory and Debug Idx5001h1 Options parameters may vary amongst different units. Idx5002h1 Full serial number will vary from unit to unit. Idx5003h1 Full Part Number will vary from unit to unit. Idx5004h1 Motor PWM Parameters will vary upon motor size. Idx5001, 5002, 5003, and 5004 for subindex 2, Number of writes remaining for above IIDXPOS_BridgeSign_intern_522Dh, IIDXENC_BridgeSign_intern_5231h
- Bug: Quick Stop did not initiate if there was a quued move. Logic Motor_Halt_If_Not_Already_Stopping upgraded to issue stop targeting when MoveTargetQue is NOT empty. Quued move example = Reverse direction...As the motor slows down to reverse, the next move is quued.
- Bug: Homing method 35 (assign position without movement or switches) did not indicate a change of status.

ver **5.39** 2008/02/04 Release to Production (medium optimization compile)

- Bug: Restore command is to restore to default paramteres, not stored NVM parameters. This is near equivalent of a "Return to Factory Default" "RTFD" except that NodeId and Baud are not altered.
- Bug: Re-Transmitt logic added for TX messages that were squashed (ie.not completed) due to bus errors (noise on bus), or no Ack. "ReTx_Logic" Logic will re-transmit the last message so long it is not a Passive ANDOR BusOff error. Enhance: Tx register CCFLG will set Tx bit only if Tx bit indicates Tx is EMPTY. Odds are the Tx is empty at the time of request, but this assures the case. "if_Tx_ready"

ver **5.38** 2007/11/29 Release to Production (medium optimization compile)

- Bug: usAnalogIn_2010h1 did not function with M3001 chip. Analog input on different pin when using M3001 vs using M3000 processor chip.
- Bug: Homing did not set to -Offset when Factory Unit options set to no-encoder. (ulUnitOptions_5001h1 bit3)

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