Version 5.02 Software Revision Summary – as at 21/4/21

Revision	Issued Date	Changes
10	Not separately issued	Removed the sensor error test when Z_Data exceeded large value. This removed the potential for causing a spurious BIT 1 error, though this was not verified as an error mechanism. Added repeat function during resistance & inductance measurements, if an error is detected. Corrected errors in inductance measurement code.
11	9/10/19	Corrected minor errors in BIT 1 functionality. Adjusted resistance correction factor to reduce voltage sensitivity. Adjusted voltage, resistance and inductance thresholds.
12	12/10/19	Increased motor current limit slightly.
13	Mid October	Added BIT 2 functionality. Changed VOLTAGE_CONVERSION_FACTOR to improve accuracy of BIT 1 voltage measurement.
14	Not separately issued	Minor changes to BIT 2 functionality & thresholds. Adjustments to Voltage, Resistance and Inductance thresholds.
15	31/10/19	Fixed BIT 2 overflow error.
16	1/11/19	Changed BIT 2 switch byte to 0xAA (was 0x01).
17	6/11/19	Added speed monitoring to BIT 2.
18	14/11/19	Changed current limit back to power supply current (pre 5.1 revision 33).
19	14/2/19	Prevented recursive BIT 1 while BIT 2 running. Reduced loop gain to 5.1 rev 31 level.
20	26/3/20	Loop gain increased to 14/16.
21	26/3/20	Loop gain increased to 16/16.
22	26/3/20	Loop gain reduced to 15/16.
23	4/8/20	Added In Fail mode, triggered by sensor failure. Drive is disabled until the CDB sends a system reset request. Corrected PHSM functionality.
24	23/11/20	Fix sync bug by adding command to normal command tree. Reviewed/modified error codes. Always disable drive in Preoperational mode. Added new “service” mode, to facilitate BIT, Lock & calibrate functions & modify state machine to suit. Prevent return to preoperational mode from normal mode. Don’t allow modes of > 3 to be set.
25	2/12/20	Changed lower & upper voltage threshold to 23.5 and 34.5, respectively. Changed min. resistance threshold to 45. Increased BIT2 drive value to 26 decimal.
26	15/12/20	Modified code to allow OpMode to revert to PreOperational mode, with SSM message.
27	28/1/21	Corrected error in some mode transition responses
28	25/3/21	Reduced loop gain (back to revision 20 value)
29	30/3/21	Fixed bug when switching to op mode from preop mode. Made sure actual position is copied to demand.
30	7/4/21	In preoperational mode, allow SSM to update demand variable (i.e. how it used to be), even though the servo mode is now OFF.
31	14/4/21	Prevented SSM and SRM messages from modifying SlotStart, TimeOfSlot, NumberOfSlot, Position, and Average current filter variables in operational mode. Also, prevent changes in Target Position variable in preoperational mode from being actioned after switching to operational mode, until the first sync message is received.
32	14/4/21	Prevented flag registers from being modified in operational mode.

33	16/4/21	SSM_TARGET_CODE disabled in operational mode.
34	17/4/21	Fixed bug in SSM to target position variable (not sending response)
35	20/4/21	Don't turn on servo loop in operational mode until sync command is sent