

Inverter Release Notes

v4.8.2

Hotfix

New Feature

- Add registers OLV and OLF for open-loop voltage and frequency; to be used during production testing only, enabled with existing modbus register 8859 is set to '1' to enable open-loop mode.

v4.8.1

Hotfix

Bug Fixes

- Add Therm4 reading to the foldback determination so that both stator temperatures are checked (instead of just Therm2 alone).

v4.8.0

Release candidate for Production v4.2, 09/26/2025

Note v4.7.0 was never officially released and was bypassed.

Bug Fixes

- Issue 1: Overcurrent at start-up occurred when performing the fan test.

- Fix 1: PWMs were not initialized after the motor came to a complete stop and the current limit in forced angle condition has been set to the start-up current instead of the maximum current.
- Issue 2: RMS current, Torque and DC bus voltage values sent from the inverter to the CIM were incorrect.
 - Fix 2: True RMS current calculation has been implemented. This is complemented with new ADC full scale current values in the Factory Settings File which have been calculated based on experimental calibration. Average DC bus voltage instead of the instantaneous DC bus voltage is sent. Torque equation is implemented using the flux value from the estimator.
- Issue 3: Input voltage and current calculations.
 - Fix 3: Input voltage and current calculations have been added as well as piece-wise polynomial equations to calculate power factor and efficiency at different speeds, based on experimental data from 10hp-1800rpm motor
- Issue 4: Foldback was implemented looking at a temperature mask register.
 - Fix 4: Foldback will be active if Foldback enable is true and either one of the two stator thermistors temperature exceeds the value set in the warning stator temperature register

v4.6.0

Bug Fixes

- Issue 1: The CIM is checking the state of the Fault output from the INV to determine a fault state.
 During a power cycle in which only the INV losses power and not the CIM, the INV is in the FAULT-DISABLED state and does not set the Fault Relay output even if a fault exists (UV fault).
 During a power loss, the INV powers off about 50mS before the CIM. If power is reestablished during this time, the fault relay will not be active.

- Fix: The code will now Set the Fault Relay Output when a fault exists in all states including the FAULT-DISABLED state.

v4.5.1

Bug Fixes

- Issue 1: The CIM is checking the state of the Fault output from the INV to determine a fault state.
During a power cycle in which only the INV losses power and not the CIM, the INV is in the FAULT-DISABLED state and does not set the Fault Relay output even if a fault exists (UV fault).
During a power loss, the INV powers off about 50mS before the CIM. If power is reestablished during this time, the fault relay will not be active.
 - Fix: The code will now Set the Fault Relay Output when a fault exists in all states including the FAULT-DISABLED state.

v4.4.116

- Fixed bug with decel rate getting divided by 3 when actually decelerating to a lower speed set point.

v4.4.114

- Changed voltage hysteresis value for iq control for quicker decel of reverse spinning motor.

v4.4.113

- Added BandwidthCoeff write with external Modbus Control. Added OL_START state back to start reverse spinning motor.

v4.4.110

- Changed the OV check limits for iq control.

v4.4.108

- Fixed issue with Accel time choice depending on CIM firmware write of AccelKrpmpps or AccelTime.

v4.4.101

- adding ability to change bandwidth with external modbus.

v4.4.97

- More improvements to reverse spinning motor states in the state machine.

v4.4.92

- Improvements to reverse spinning motor states in the state machine.

v4.4.89

- Added motor alignment state for reverse spinning motor tests. Auto reset Uart if comm to CIM is lost.

v4.4.84

- Added support for PI Delta setting for external Modbus commands.

v4.4.79

- Added registers to accept load inertia and changed value of overvoltage check level for Iq control.

v4.4.68

- Added registers to accept the Accel and Decel time directly and fixed locked rotor bug introduced with reverse spinning motor changes.

v4.4.63

- Improving the flying start code base on Vdq.

v4.4.58

- Using Vdq values to seed Ui for flying start to fix issues with spinning motors on startup.

v4.4.54

- Added states for reverse spinning motor. Trying Brake states.

v4.4.17

- Improvements to Scurve Code.

v4.4.16

- Fixed bug with motorRunningMode = AT_SPEED.

v4.4.15

- Started Adding Scurve capability.

v4.4.5

- Added motorPrevState to track the Motor state machine.