



SOFTWARE RELEASE NOTES

MCS-MAGNUM Version 16.10J 01/02/2015

Updates from previous versions:

New Features:

1. HVAC Firmware: Add option to LLS 2 & LLS3 (Econo) relay control. If their setpoint "Safety Time Extension" field is not zero the on/off control of solenoid valve is based on compressor speed instead of compressor FLA%.
2. HVAC Firmware: Turbocor Compressor type only-When unloading the running compressors to allow a new compressor to start - stop unloading the running compressor if the discharge pressure ratio is below the acceptable value (setpoint #215).

Bug Fixes:

1. Change to Centrifugal VFD logic to allow the VFD to start at min frequency instead of starting at 100%.
 - a. If setpoint #129 (#128) "Comp Max Speed%" time column is zero then:
 - i. -start comp and set wanted speed to value in max speed setpoint.
 - b. If setpoint #129 time column is not zero then:
 - i. -start compressor and set wanted speed to value in min speed setpoint.
2. Change to Centrifugal surge increase speed/close vane logic: Stop the surge logic if the unit wants to close the vanes due to temperature control. This will allow the compressor to close the vanes and follow the capacity control unloading. If no surge detected for 30 seconds and the capacity control state is in Vanes Closing and actual Vane position is above the Wanted Vane% plus the dead band then change the compressor state to Vanes Closing and clear the state time.
3. Change Centrifugal VFD logic to allow the capacity control to switch back to VFD unloading when in Vane Unloading: When unloading the vanes, the compressor lift goes down and the min allowable speed goes down - but the compressor is not at min speed because we already switch from VFD unloading to Vanes unloading. Allow the compressor to go back to VFD unloading and keep the vanes where they are. This will allow further energy savings.

Any questions regarding this release, contact:
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4. **Modified Centrifugal logic:** If in hi amp safety unloading condition, then 3 times the pulse time for the vanes closed. Logic needs to close the vanes quicker when unloading due to an unsafe condition to avoid tripping. Only for the following safety unloading states:
 - a. CHL_CIRCUIT_SURGE_INCR_SPEED_CLOSE_VANE
 - b. CHL_CIRCUIT_SUCTION_UNLOAD
 - c. CHL_CIRCUIT_DISC_UNLOAD
 - d. CHL_CIRCUIT_HI_AMP_UNLOAD
5. **Modified Centrifugal logic:** Change is for VFD/VANE control only. The Logic will not double the pulse time on the vane opening when far away from the wanted vanes% and if compressor FLA is above 85%. Let the compressor load up slowly, when near full load amps, doubling the pulse time can cause HI AMP trip.
6. **HVAC Firmware:** Corrected issue with VFD/Digital compressor logic (modulating fixed step) that prevents the compressor from unloading when in safety hold state and wanted % is less than the actual compressor %.
7. **HVAC Firmware:** Corrected issue with new feature add to all Turbocor compressors to stop unloading when starting the next compressor and discharge pressure ratio is good. Solution: Needed to use correct index turbo index.
8. **HVAC Firmware:** Corrected issue in turbocor logic - setpoint #215 has two decimal places - need to use disch suct ratio instead of lift evap ratio.

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