



# SOFTWARE RELEASE NOTES

## MCS-MAGNUM

### Version 17.23P

### 09/15/2016

#### **Updates from previous versions: 17.23J**

#### **New Features:**

1. EXV code: Added Fast EXV code improvements done by JGW.
2. Add Danfoss Alarms & Warnings sensors and alarms definitions to support Modbus communications to VLT® CDS302 and CDS303 Compressor Drive.
3. EXV Fast SSH: Include charges done by JGW
4. All firmware versions - separator the PT Charts, create separator vapor and liquid PT chart for those refrigerants that have a glide. When finding the saturated temperature in Evaporator use the vapor chart and when finding the saturated temperature in condenser use the liquid chart.
5. All Firmware Versions - Add support for new refrigerant type R421A. Add PT Charts for both vapor and liquid.
6. All Firmware Versions - Add support for new EXV control logic - FAST Disch Superheat, Fast Cond Level and Fast Evap Level. Only Fast Disch Superheat is functional now. Fast Disch Superehat works same way as Fast Suction Supereheat does, same setpoint everything, just uses discharge supereheat inplace of suction superheat.
7. All Firmware Versions - Modified the EXV dynamic Starting % logic - Only reduce the starting EXV % when the superheat is below the target and time in start start is short. Before it was just check for short time - it was not checking if the supereheat was below the target.
8. Added new MCS-Magnum V17 Heatcraft Refrigeration "HCRF" project.
9. MHRC firmware only - Add logic to turn on/keep on SV4 when switch from cooling only or heating only into cooling/heating modes. Setpoint #3 contains the delay time in seconds for how long to turn on SV4.
10. REFR Frimware only - Add support into modulating condenser fan logic to handle REFR reverse cycle defrost logic. Setup the logic for REFR only to treat the defrost as if the unit is in heating mode.

Any questions regarding this release, contact:

[support@mcscontrols.com](mailto:support@mcscontrols.com)

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11. HVAC firmware only - added support for FAST UNLOADER relay output into Recip/scroll/vfd logic. This logic looks at the config fast unloader option in the circuit based screen. If fast unloader is marked the logic adds the fast unloader relay in the normally comp relay sequence and controls the fast unloader. When the comp first start the fast unloader will turn on for 5 seconds. And when the comp shut off the fast unloader will turn on for 15 mins. This is to insure the slide is at min the next time we start.

## Bug Fixes:

1. All Firmware - Correct issue with Evap Superheat calculation (not comp suction superheat conversion) it was not check if the pressure sensor was absolute pressure and converting it to gauge. Evap Superheat is really only used on REFR firmware and so far always using gauge sensor so this problem has never been encountered in the field.
2. Revert "Bug Fix - All Firmware - Correct issue with Evap Superheat calculation (not comp suction superheat conversion) it was not check if the pressure sensor was absolute pressure and converting it to gauge. Evap Superheat is really only used on REFR firmware and so far always using gauge sensor so this problem has never been encountered in the field."
3. Restore normal defrost functions to REFR V17.
4. HVAC, CENT, & MHRC firmware only - Correct Amp Unbalance safety check. New logic averages the 3 amp reading then finds the amp reading which is the furthest away from the average and checks to see if this amp read deviates % is more than the unbalance % setpoint value (setpoint #241).
5. Correction - All Firmware versions - Correct the EXV dynamic start position % logic - lost the change to not decrease the starting % unless the superheat was below the target.
6. All Firmware Versions - Rewrote the Modulating Common, Modulating Step Common and Modulating Individual condenser logic to correct the issue with Fan Stages turning off/on when controlling sensor is above target but the ROC is less than the Max ROC- setpoint value.
7. HVAC version only - correct compiler error - missing bracket.
8. All Firmware Versions - Change dynamic EXV start position logic - only do the dynamic EXV start position logic if EXV setup for Fast Suction Superheat Control - all other EXV logic type skip the dynamic Start position adjustment logic.
9. All Firmware Versions - Corrected issue with PT Chart for R423A and R1234ez, their vacuum pressures(negative pressures) values were convert wrong and entered wrong. When converting from Inches of Mercury to PSIG we multiply by -2.036021 instead of dividing by -2.036021. Needed to divide not multiply.
10. All Firmware Versions - Correct issue with Modulating Condenser Fan logic - Modulating Step common was not working - the re-write of this function broke modulating common.

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Testing for allowing the modulating AO without any relay outputs was wrong - corrected the issue.

11. CENT User logic SI : Removed conditional compiler around Subcooler exv state and SH proportional error. These ram fields were added to CENT firmware in commit d203e2d08452e57818feb5fcf7adaf4ef3dccb04
12. 695cbf2 - 2016-09-12 cag@mcscontrols.com - REFR. testing of defrost completed
13. All Version - Moved the #define for the condenser type into CHILLDEF.H which is common file used by all firmware version and removed the #define from the individual firmware XXXdef.h files (chldef, cendef.h, etc.). No function change to the firmware.
14. All Version - Correct PT Charts - typos when enter the chart and found during testing. Also change logic and create separator table for R507. previous 507 was using 404a chart with a 2.0F adjustment. Now R507 has it own table.
15. All Firmware versions - Correct Modulating Shared condenser fan logic - when previous add this new logic made it modulating combined (comp1 & 2 share fans, 3 & 4 shared fans, etc.). We want shared fans logic, comp 1 & 2 share fans, comp 2 & 3 share fans, comp 3 & 4 share fans, etc.
16. All Firmware versions - Correct issue with modulating cond fan logic - it was not start the Analag Output at the correct staged as defined by config.

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