



SOFTWARE RELEASE NOTES

MCS-MAGNUM

Version 8.04L

02/04/2011

Updates from previous versions:

New Features:

1. Added a display line to the first status screen to show what mode the system is in (COOL, HEAT, or ICE). This indicator will appear above the F1 key.
2. Added 2 new sensor types for use only within User Defined, User Logic, and Setpoints: 1 and 2 decimal places with no characters attached.
3. All types of compressors that are heat pumps will now be supported with the defrost function. The following must be setup in MCS-Config to activate a defrost cycle:
 - In the General Info tab under the MAG V8 screen, the Unit Type must be set to heat pump.
 - In the Evaporator Info tab the Type of Defrost must not be 'NONE'.
 - Either or both Condenser Coil Temperature #1 or #2 must be set up in the Circuit Base screen.
 - If the reversing valve is common, it is specified in the General Info panel under the MAG V8 screen. If individual reversing valves, they must be in the compressor relay sequence, following the 3rd liquid line solenoid of each circuit.
 - Heat pump-defrost setpoints #158 - #162 must be set up. Note: The value in these setpoints will be used regardless if they are active or not.
 - o #158 "DEF TRIG TMP" – Defrost Trigger Temperature, typical value 35° F
 - o #159 "DEF TRIG DEL" – Defrost Trigger Delay, typical value 1 minute
 - o #160 "DEF REV DEL" – Defrost Reversing Valve Delay, typical value 1 minute
 - o #161 "DEF TERM TMP" – Defrost Termination Temperature, typical value 95° F
 - o #162 "DEF TERM DEL" – Defrost Termination Delay, typical value 3 minutes

The following conditions must be met to initialize a defrost cycle:

- The heat pump must be in a heating mode with the reversing valve on for a minimum time specified in setpoint #160 "DEF REV DEL".
- Either of the condenser coil temperatures must be less than setpoint #158 "DEF TRIG TMP" for the time specified in setpoint #159 "DEF TRIG DEL".

Any questions regarding this release, contact:

support@mcscontrols.com

Micro Control Systems, Inc. 5580 Enterprise Parkway Fort Myers, Florida 33905
(239)694-0089 FAX: (239)694-0031 www.mcscontrols.com

Information contained in this document has been prepared by Micro Control Systems, Inc. and is copyright © protected 2012. Copying or distributing this document is prohibited unless expressly approved by MCS.

The first step in the defrost cycle is to change the circuit states that require defrosting to “DEF PREPMP OUT”. In this state the reversing valve remains on but the following relays are turned off:

- Loader
- Fast Unloader
- 2nd LLS, Oil Equalization
- Hot Gas Bypass
- Liquid Injection
- LLS (only if a fixed step compressor)

This state is terminated when the suction pressure is less than setpoint # 61 “PMP DWN OFF”, or when the state time is greater than setpoint #62 “PMP DWN DELY”. The circuit state is changed to “DEFROST”.

In the “DEFROST” state the LLS will be turned on and the reversing valve will be turned off. This will reverse the flow of hot gas and perform the defrost function. The condenser fans will also be affected during this time and the amp’s slide adjustment will be set to 70.0% (if an infinite step compressor).

The DEFROST state will be terminated when both condenser coil temperatures, are greater than setpoint #161 “DEF TERM TMP” or the state time is greater than setpoint #162 “DEF TERM DEL”. The circuit state will be changed to “DEF PUMP DOWN”.

The action and termination in the “DEF PUMP DOWN” state is the same as “DEF PREPMP OUT”. When this state is terminated an infinite step compressor will have its state changed to “HOLD”. A fixed step compressor’s state will return to its state prior to the defrost cycle and the LLS will be turned on.

Note: If a common reversing valve is specified for multi-circuit systems with each circuit having separate condenser coil temperature sensors, conflicts when controlling the common reversing valve result when some circuits are in defrost and others are not.

Bug Fixes:

1. The KW/Tonnage screen will display on the Keypad only if a KW or Tonnage sensor is setup in MCS-Config.
2. Correction to display type of User Defined sensors when viewed through the Keypad. (Used to incorrectly say ‘Vi’).
3. Removed limits of -99.9 and 999.9 when entering manual values for sensor inputs, limits are now -3,276.8 to 3,276.7.
4. Correction to ‘SWITCHING MODES’ state timer, previously it did not reset to zero when first started. This state is used only in heat pumps when they change between heating and cooling modes.
5. For water condensers: If setpoint #49 “CND VLV START” is active, then use this as the starting position for the water valve if the valve is below this value at compressor startup.

Any questions regarding this release, contact:
support@mcscontrols.com

Micro Control Systems, Inc. 5580 Enterprise Parkway Fort Myers, Florida 33905
(239)694-0089 FAX: (239)694-0031 www.mcscontrols.com

Information contained in this document has been prepared by Micro Control Systems, Inc. and is copyright © protected 2012. Copying or distributing this document is prohibited unless expressly approved by MCS.