



SOFTWARE RELEASE NOTES

MCS-MAGNUM

Version 8.06B

08/17/2011

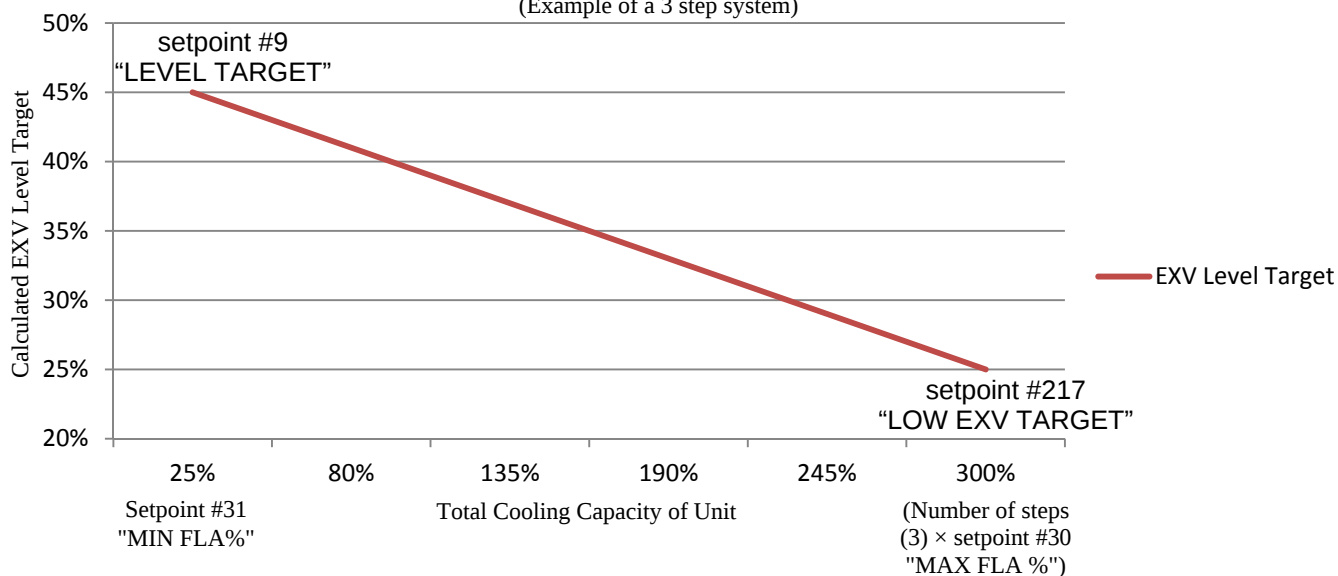
Updates from previous versions:

New Features and Bug Fixes:

1. Added 8 second delay for TurboCor unload running compressor logic when Actual RPMs < Surge RPMs + 500 (to let the running compressor stabilize before determining that it is unloaded and turning the next compressor ON).
2. Changed EXV Refrigerant Level control logic. If the EXV is controlled by Refrigerant Level and setpoint #217 is active then a new variable level target logic will be activated. As the unit capacity increases, the refrigerant level target will change according to a linear calculation between setpoint #9 "LEVEL TARGET" (will be treated as the maximum target level) and setpoint #217 "LOW EXV TARGET" (will be treated as the minimum target level). This relationship is explained in the following graph:

EXV Level Target

(Example of a 3 step system)



3. Changed TurboCor Fault sensor to act as a Digital Input when in Auto, and to treat this sensor as an Analog Input when setting a Manual value. Based on the communications from the TurboCor, MODBUS register

Any questions regarding this release, contact:

support@mcscontrols.com

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40026, the software will determine if a fault has occurred, and if so it will interpret which alarm code has been received.

4. Corrected the EXV Low Discharge Superheat adjustment. The EXV with the Low Discharge Superheat condition was adjusting the superheat target for all EXVs on the unit (if there were multiple circuits and control was based on suction superheat).
5. Added new function that allows the user to set all low and high sensor faults to their default values (-99.9 and 999.9) or enable all sensor faults to their values saved in the config file. Custom low/high sensor fault values can be setup through MCS-Config.
6. Added Factory Startup and Max Run Hour tests at start up:

Factory Authorized Startup and Run Hour Lockout

Two new features have been added to HVAC Magnum software (requires HVAC 806-B or greater)

- Factory Authorized Startup- this prevents the Magnum from running until Factory Authorization is given.
- Run Hour Lockout- At midnight if any compressor has reached a set number of run hours, the unit will be disabled until an authorized service call is performed.

These functions can only be activated or reset from the Magnum keypad, not from MCS-Connect.

MCS-Config Setup: (requires MCS-Config 8.10D or greater)

Factory Authorized Startup

In the Setup screen select the option Factory Startup Required.

Factory Startup Required	☒ Yes ☐ No
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In the authorization screen, setup a Factory Startup level code.

#	Code	Level
1	4444	Factory Startup

Run Hour Lockout

In the Setup screen select the option Run Hour Lockout Required. If enabled, then enter the number compressor run hours that must pass before the run hour lockout is triggered.

Run Hour Lockout Required	☒ Yes ☐ No	Number of Hours	100	
----------------------------------	---	------------------------	-----	---

In the authorization screen, setup a Run Hour Lockout level code.

#	Code	Level
2	5555	Run Hour Lockout

MCS Connect (requires MCS-Connect 8.10-V)

Two new chiller states have been added to MCS-Connect:

- #28 "Factory Startup"
- #29 "Maximum Run Time"

Magnum HVAC software only

Function 1: (Factory authorized startup is required)

When the password for Factory Startup is entered using the MCS-Magnum Keypad/LCD the user is allowed to activate the function to lockout the Magnum until Factory Startup authorization is given. When activated the chiller state will be FACTORY STARTUP, the Magnum will not allow the unit to run, and the only screen that will be enabled is Passwords. If the Magnum is reset the chiller state will be FACTORY STARTUP not UNIT IN

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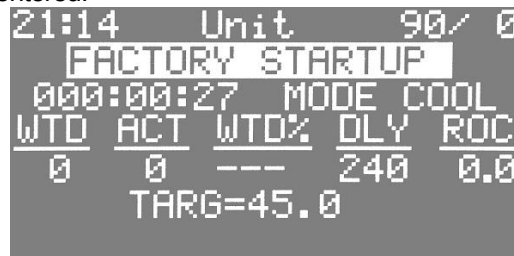
POWER UP. Once the system state is FACTORY STARTUP the system can be accessed from MCS-Connect but the system will not accept changes to Relay Output states.

When the password for Factory Startup activation is entered and the function is active, the user is allowed to deactivate it. When deactivated the chiller state will be changed to UNIT IN POWER UP and normal operations will be allowed.

To activate the Factory Startup function from the Magnum keypad, open the Password menu option and enter the Factory Startup password. The following pop-up will appear asking if you would like to activate this feature.



When active, the following heading will appear on all Status screens, showing that the unit is locked out until Factory Startup authorization is entered.



Here is what the status screen looks like through MCS-Connect:

Capacity Control State	Time	Wanted/ Actual	Step Delay	Wanted %	Rate of Change	Control On	Mode
FACTORY STARTUP	00:00:09	0/0	240	N/A	0.0	ChilWtrOut = 90.0F	COOLING
State	Time	PSI Diff	FLA %	Steps	Lead?		
1)CMP LOCKED OUT	00:00:00	100.0P	86	0	Yes		
Suction Temp	Saturated Suction	Suction Superheat	Disc Temp	Saturated Discharge	Disc Superheat	Ref Type	
1) 50.0	-99.9	149.9	180.0	97.8	82.2	R22	
Status	Alarms	SetPoints	Reset/Clear	Schedule	Service		

To deactivate the Factory Startup function, navigate back to the password screen and the following screen will appear. Select Yes to deactivate.



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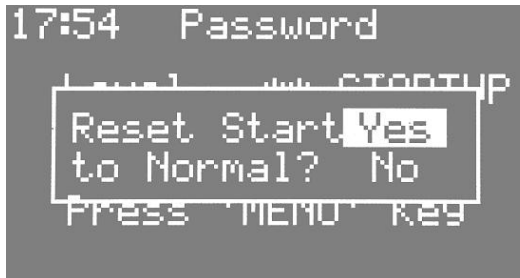
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Enter the correct password to deactivate the Factory Startup function.



Select Yes to confirm you want to deactivate this function.

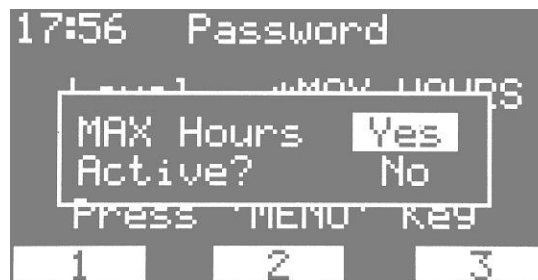


Function 2: (Compressor lockout based on run time hours)

If this option has been enabled, at midnight if any single compressor exceeds the number of run hours specified, the system will disable all compressors (circuits) and change the unit state to MAXIMUM RUN TIME. This test will only be made a midnight when new day logic is being executed. In this state the Magnum will not enable normal operations and the only screen that will be available is the Passwords. If the Magnum is reset the chiller state will be MAXIMUM RUN TIME not UNIT IN POWER UP. Once the system state is MAXIMUM RUN TIME the system can be accessed from MCS-Connect but the system will not accept changes to the Relay Output states.

When the password for Maximum Run Time is entered the user can reset the maximum number of compressor run hours. If reset is selected and chiller state is MAXIMUM RUN TIME the state will be changed to UNIT IS OFF. The maximum run hours counters for all compressors will be reset and normal processing will be allowed. If reset is selected and the chiller state is not MAXIMUM RUN TIME the state will not be changed but the maximum run hours counter will be reset.

To activate the Maximum Run Time function from the Magnum keypad, open the Password menu option and enter the Maximum Run Time password. The following pop-up will appear asking if you would like to activate this feature.



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When active, the following heading will appear on all Status screens, showing that the unit is locked out until Maximum Run Time authorization is entered.

```

21:12 Unit 90/ 0
MAXIMUM RUN TIME
000:00:43 MODE COOL
WTD ACT WTD% DLY ROC
0 0 --- 240 0.0
TARG=45.0
  
```

Here is what the status screen looks like through MCS-Connect:

Capacity Control State	Time	Wanted/ Actual	Step Delay	Wanted %	Rate of Change	Control On	Mode
MAXIMUM RUN TIME	00:00:18	0/0	240	N/A	0.0	ChilWtrOut = 90.0F	COOLING
State	Time	PSI Diff	FLA %	Steps	Lead?		
1)CMP OFF/READY	00:00:18	100.0P	0	0	Yes		
Suction Temp	Saturated Suction	Suction Superheat	Disc Temp	Saturated Discharge	Disc Superheat	Ref Type	
1) 50.0	-99.9	149.9	180.0	97.8	82.2	R22	
Status	Alarms	SetPoints	Reset/Clear	Schedule	Service		

To deactivate the Maximum Run Time function, navigate back to the password screen and the following screen will appear. Select Yes to deactivate.

```

MAXIMUM COMPRESSOR
HOUR EXCEEDED

Enter Max Hour Code? Yes No

CALL Company Name
  
```

Enter the correct password to deactivate the Maximum Run Time function.

```

17:54 Password

Enter Pin
****

Then Press '←' Key
  
```

Select Yes to confirm you want to deactivate this function.

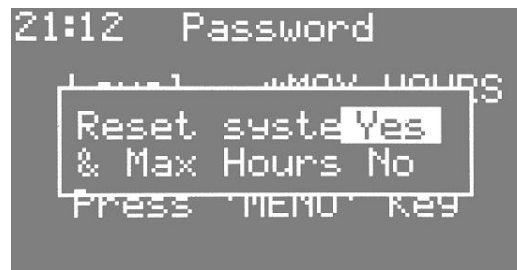
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HVAC ONLY:

7. When the unit type is Heatpump and the unit is in Heating Mode the Low Suction Heat Adjustment is only made if setpoint #157 "HP LoSuctAdj" is active.

LWC ONLY:

8. Corrected the problem in 8.06A where the wrong points were being used as heater faults.
9. Added I/O restart alarm message to LWC when communications to an I/O board are reestablished.

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