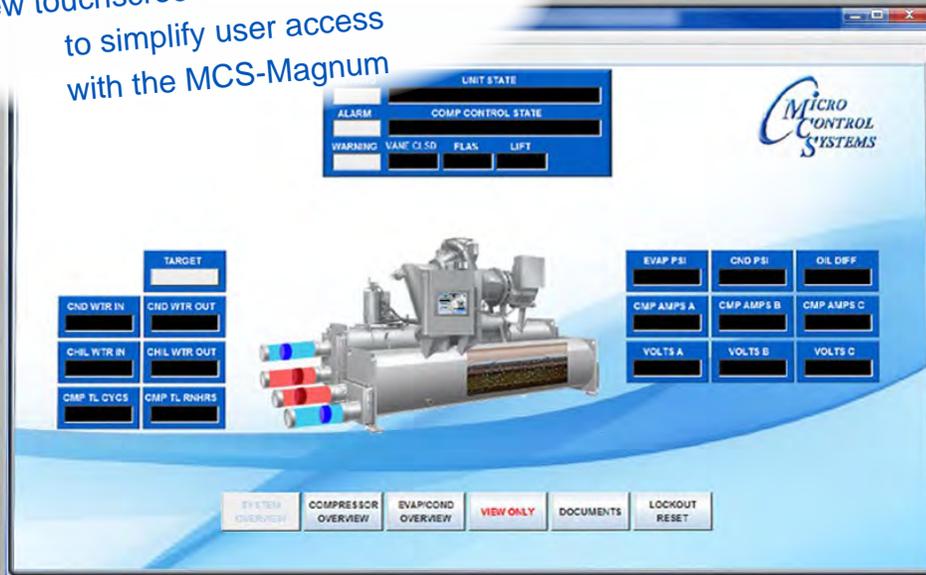


**MCS-TOUCHSCREEN**  
 new touchscreen interface designed  
 to simplify user access  
 with the MCS-Magnum

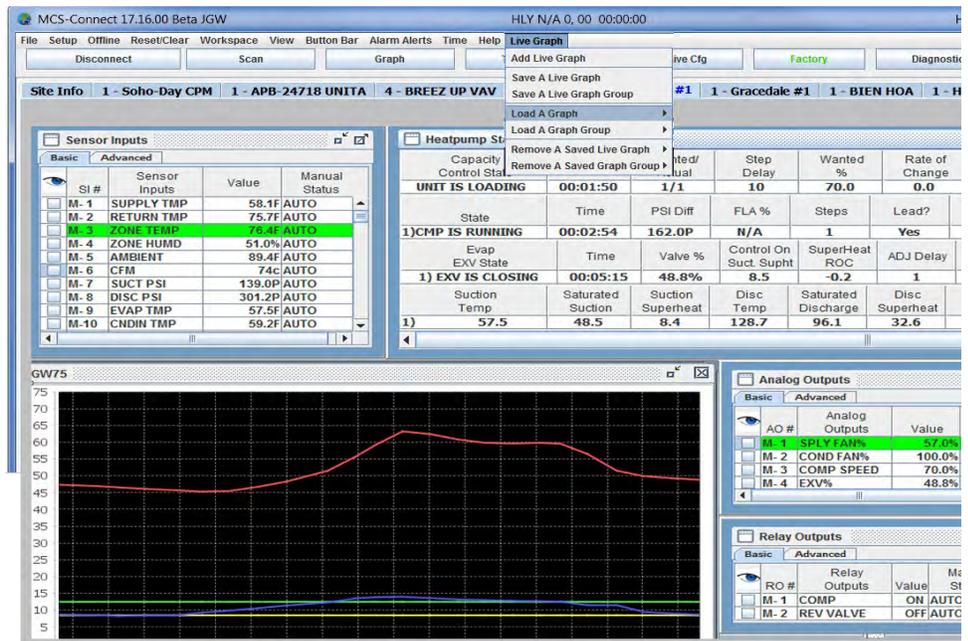


# MCS-CONNECT

## Quick Guide to Features

### Real Time Graphs using MCS-Connect 'Live Graph'

**MCS-CONNECT** software  
 is part of the  
**MCS Support System for  
 MCS-Controllers**



# PC Requirements & Product Features

**To install and run the program we suggest the following minimum system requirements:**

- PC with a Pentium2-class or higher processor
- Windows 7 or later operating system or Linux operating system
- Minimum 1GB of RAM
- Minimum 4GB Drive
- 14.4k baud modem or higher for remote communications
- 1280 x 800 pixel or higher display
- Ethernet 10/100/1000
- USB port 2.0 or higher

## MCS-CONNECT PRODUCT FEATURES

Java application runs on Windows/Linux

- Local communication @ 19200 baud
- Local Ethernet @ 10/100 MBPS
- Remote communication via phone or Internet
- Email/Test Message alarm alerts
- Auto Print to file on alarms
- Daily Scheduled Print to Files
- Temperature and PSI Conversion Wizard
- Extended History File Save
- Interactive P/T Chart
- Lookup Tables
- Hide / Show Applicable Data
- Diagnostic Save/Auto-Send
- Window/Grids auto sizing based on screen resolution
- Customizable Workspace saving allow easy recall of window position & sizing
- Algorithm control states display
- Static & dynamic graphing / trending data
- Alarm retrieval & handling - these items can be printed and saved to PC for analysis and backup
- Manual / Auto mode control
- Setpoint modification
- Schedule modification
- Multiple authorization levels for security
- Runtime / Cycle count information
- Transmit / Receive configuration in as fast as 10 seconds
- Sensor Diagnostics
- Graphic Interface Sub List
  1. Customized to application
  2. User Customizable Gauges
  3. State Based Color and Image changes
  4. Animated device—pump rotating, comp moving, fan spin, etc.
  5. Easy view and access via graphic interface

# Introduction

## Mcs-Connect Software . . .

Is part of the MCS Support System. Its purpose is to provide both local and remote communication for MCS micro controllers either by themselves or as part of a network.

MCS-CONNECT supports the following controllers:

- MCS-MAGNUM controller
- MicroMag controller
- MCS-8 controller with firmware version # (call MCS -SUPPORT)
- MCS-6 controller (limited with firmware)

MCS-CONNECT permits the user to monitor the status of the micro controller in real time and, with proper authorization, changes can be made to the system. In as fast as 10 seconds configuration files can be transmitted to or received from a MCS micro controller.

Another powerful feature of MCS-CONNECT is its ability to graph event history. Since MCS controllers automatically perform history logging, the user can select which inputs or outputs to graph and view the results either in real time or over a user selectable period of time.

MCS-CONNECT supports the SAVE of history data in the GRAPH function as a \*.txt file. This allows the user to bring the data up in MCS-CONNECT off line or in a spreadsheet program such as Microsoft Excel.

Updates for MCS-CONNECT can be downloaded directly from the MCS website under "Support", PC Software.

The program is available as Microsoft Windows based software or as Linux based software.

## About MCS Controllers

The MCS controllers are rugged microprocessor based controllers that are designed for the hostile environment of the HVAC/R industry. They are designed to provide primary control, no mechanical controls; interface with building management systems; communicate both locally and remotely.

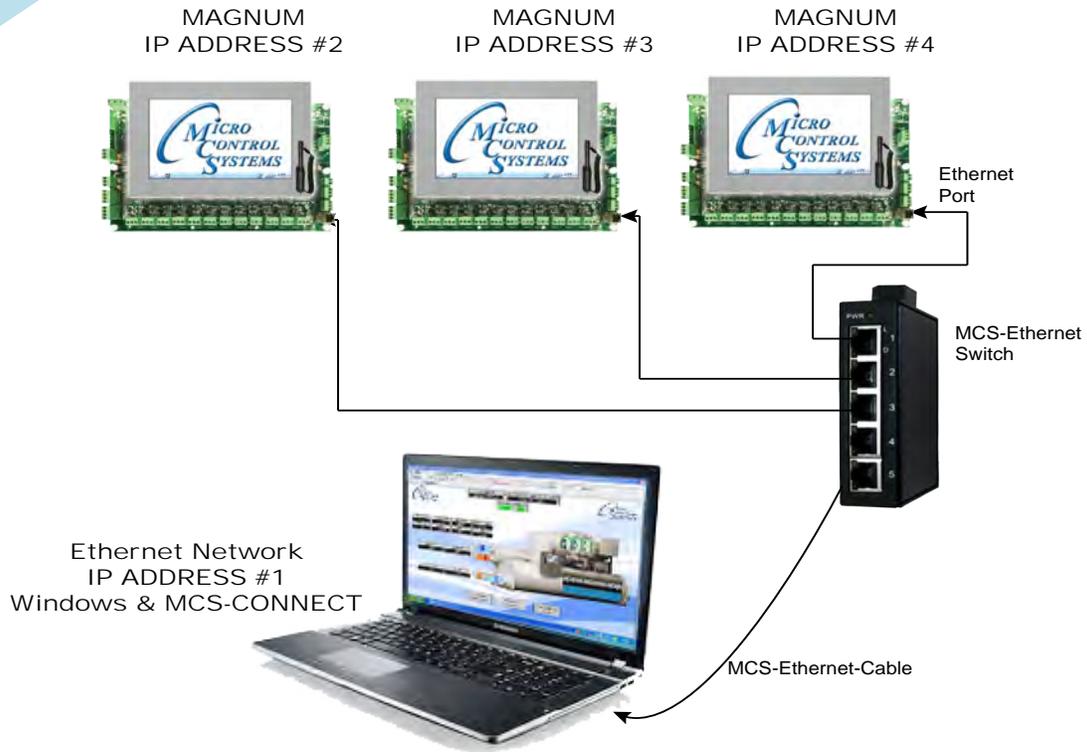
The MCS controllers provide flexibility with set points and control options that can be selected prior to commissioning a system or when the unit is live and functioning. Displays, alarms and other interfaces are accomplished in a clear and simple language that informs the user as to the status of the controller.

The MCS controllers are designed to safeguard the system that is being controlled, eliminate the need for manual intervention and to provide a simple but meaningful man-machine-interface.

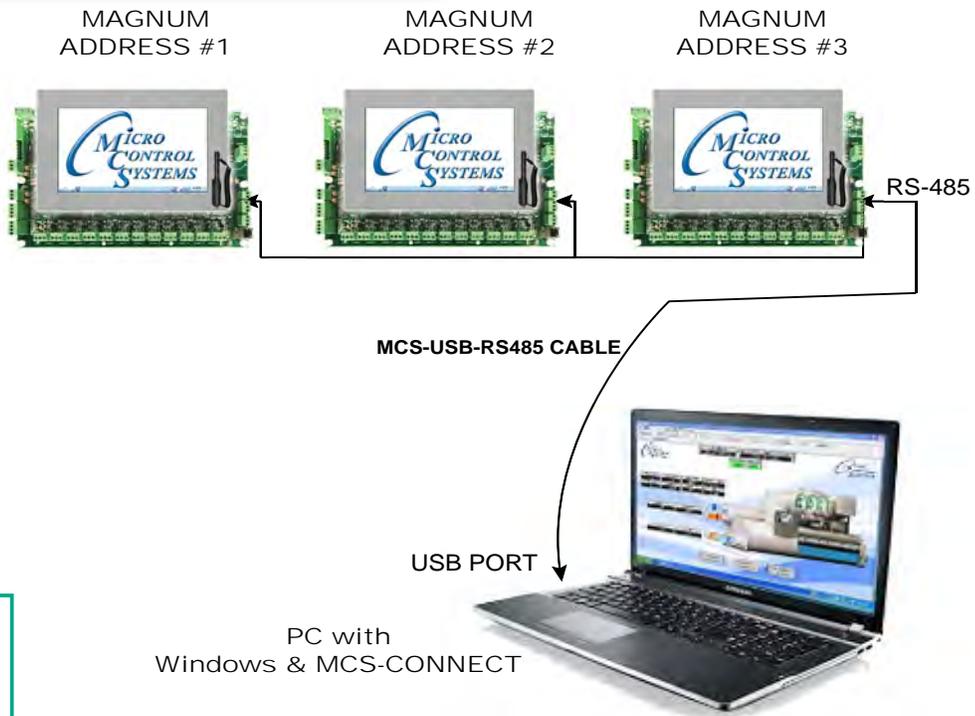


# Communication with MCS-Connect

## 'Ethernet' Network



## 'RS-485' Network



# Schedule a Diagnostic Save

This utility will schedule a Diagnostic Save at a set time each day. The Diagnostic save will perform a full History Pullback, a config pullback, a status print to file, and lockout history prints of the last 5 lockout alarms. The files will be saved to the MCS/DIAGNOSTICS directory.

From the setup menu when you first open MCS-CONNECT, click on Diagnostic Save.

Click in "Schedule Name" - add the name you want for this diagnostic report.

Schedule a Diagnostic Save

**Schedule Name**

Compressor One

**Site Information**

**Connection Type**  
Local Ethernet

**Local IP Address**  
192.168.1

**Remote Site Name**  
ADHS RemoteLog

**Auth Code**  
1234

**Summary**

This utility will schedule a Diagnostic Save. The Diagnostic save will perform a full History Pullback, a config pullback, a status print to file, and lockout history prints of the last 5 lockout alarms. The files will be saved to the MCS/DIAGNOSTICS directory. Assign the Schedule a name and fill in the Site Info to proceed. Once the setup is added to the list, select a Start time and Run the schedule. A Schedule can be saved as a XML file and loaded for reuse.

Delete Selected Setup      Add Current Setup to List

Schedule Name	Connection Type	Connection Key	Auth Code
Compressor One Diagnostic	Local Ethernet	192.168.1	1234

Current Time : 15:17:05      Start Time : 07 : 00 : 00

Run Schedule      Load a Schedule      Save Current Schedule

1. Click on 'Site Information- and choose the connection type to communicate with this compressor.
2. Add the 'Local IP Address if Local Ethernet.
3. Add the Auth Code if needed.
4. Click 'Add Current Setup to List
5. Click on 'Load a Schedule - setting the time of day you want to generate the report.
6. Save current schedule
7. Run the Schedule if you want a report right now, otherwise the report will print at the scheduled time.

# Alarms Alerts

Clicking on Alarm Alerts will bring up the screen below - The screen below shows all elements for the setup. You will need to use the vertical tool bar to scroll thru the setup screen to see all areas that will need to be filled out.

This feature allows the technician to email and or text alarm information for the controller that they are communicating with.

## Setup for Alarm Alerts Menu

Select desired Email Server for outgoing messages. Options are "MCS" and "Gmail".

The screenshot shows the 'MCS-PC Connect Communication Setup Screen' with the 'Alarm Alerts' tab selected. The 'Enter Outgoing Server Info' dialog box is open, displaying the following fields:

Server	Login	Phone Info	Primary Email	Cc Email	Alarm Type	Enabled?

Dialog Box Fields:

- Outgoing Server: Gmail
- Username: dew@gmail.com
- Password: 12345\$78

Buttons: OK, Cancel

Main Screen Buttons: Create New Setup, Edit Selected Setup, Test Selected Setup, Delete Selected Setup, Save, Cancel

Annotation: A red circle highlights the 'Alarm Alerts' tab and the 'Create New Setup' button. A red arrow points from the 'Create New Setup' button to a text box that reads: 'Click on 'CREATE NEW SETUP' to show the insert screen on right 'ENTER OUTGOING SERVER INFO'.'

## Enter the Information for 'Outgoing Server'

There are two types of accounts available - You can setup a new 'GMAIL' account or call support at MCS to establish an MCS email account.

Fill in your 'USER NAME' and 'PASSWORD'

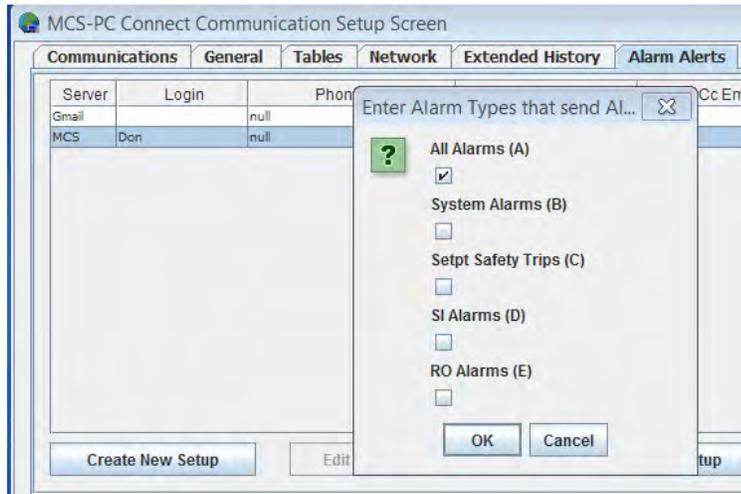
Click on 'OK' to move to next setup screen

## Enter Recipient Contact Info

Fill in the necessary information to have a text sent to your cell number and also to the email account you have setup.

Click 'OK' to proceed to next setup screen.

## Setup which Alarms you want sent

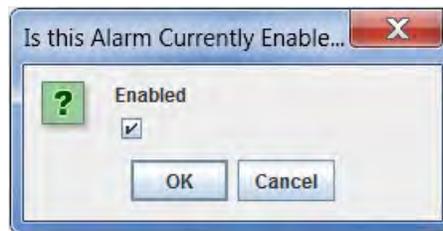


Click on 'OK' when you have completed this screen.

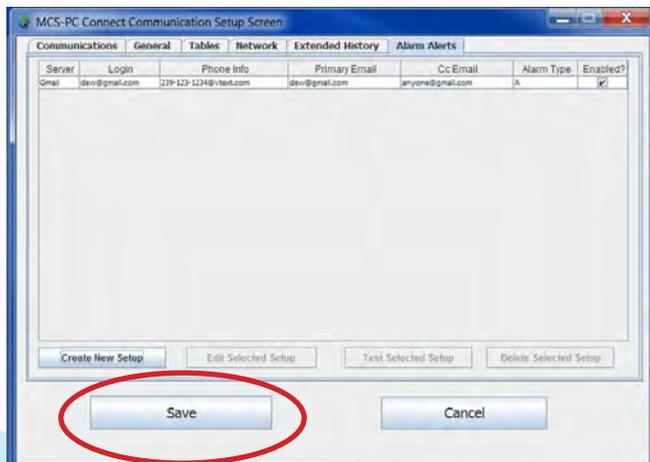
## Enable

Next Screen - Enable the completed setup.

Click 'OK'



## Save new Alarm Setup



Alarm Alert Types

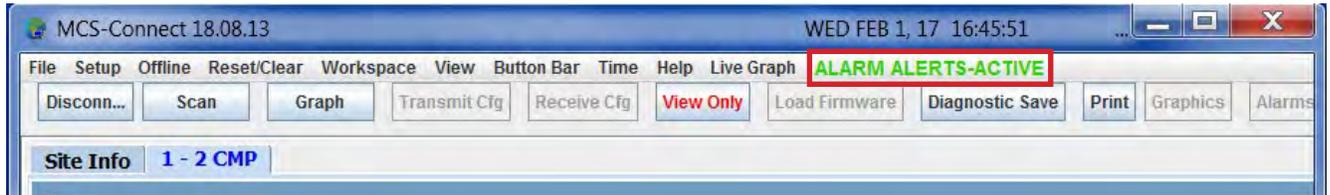
**SYSTEM ALARMS**  
**HVAC SETPOINT SAFETIES**  
**REF SETPOINT SAFETIES**

# Alarm Alerts - Active/Inactive Button

A feature has been added in MCS-CONNECT version 18.07.04 (and later) on the status screen that shows whether the **ALARM ALERTS** are 'ACTIVE' or 'INACTIVE'.

If you have enabled the 'ALARM ALERTS' in the MCS-CONNECT setup, the button will show:

'ALARM ALERTS-ACTIVE' and will be 'GREEN'.



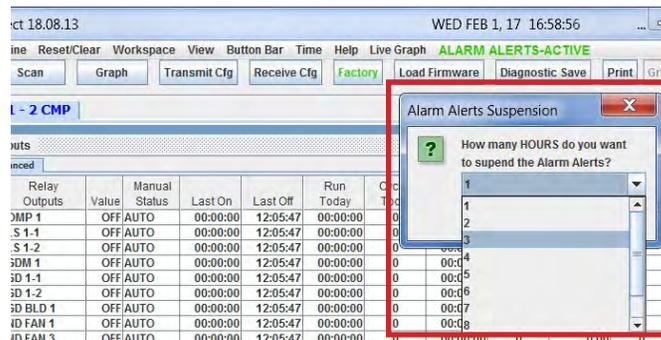
Clicking on the 'ALARM ALERTS ACTIVE BUTTON' will open the following screen:

You can choose to 'SUSPEND' the Alarm Alerts here on the status screen or **Reactivate Alarm Alerts**



if they were previously suspended without going back to the setup screen at the startup.

Clicking on 'SUSPEND ALARM ALERTS' brings up a sub menu screen allowing you to choose the amount of time you wish to suspend the **Alarm Alerts**. The time period can be from **1 hour to 8 hours**.



Once you 'SUSPEND' the 'ALARM ALERTS' and set the time you want them suspended for, the button at the top will read 'ALARM ALERTS-SUSPENDED' and turn 'RED' as shown below.

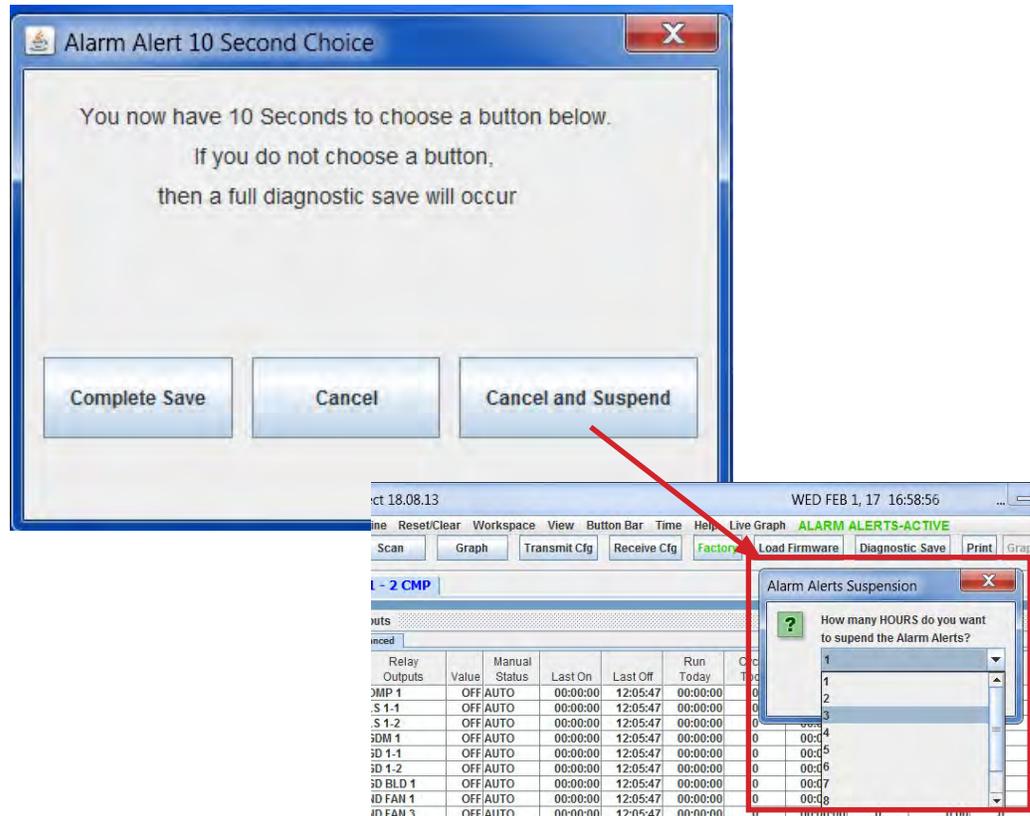


After the time has expired, the 'ALARM ALERTS' button will show 'ACTIVE' and turn 'GREEN'. The Alarm Alerts are now active again and will save a Diagnostic Save once an alarm occurs.

# Suspending 'ALARM ALERTS' after they occur

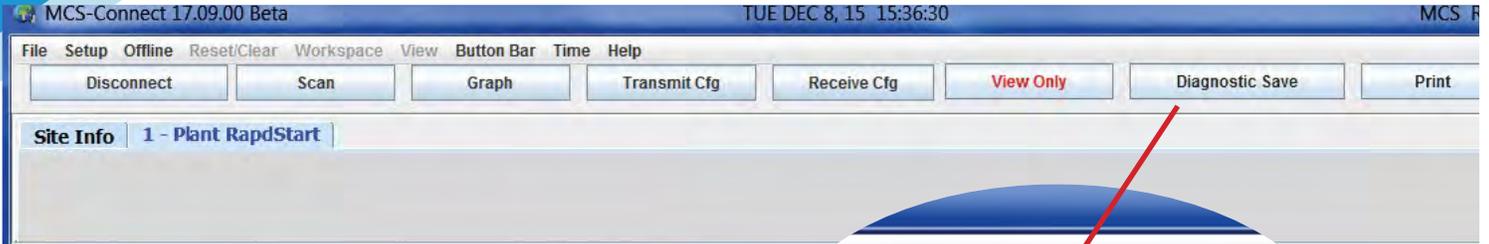
If an alarm occurs and the '**ALARM ALERTS**' is enabled, the screen below will pop up allowing you 10 seconds to **Cancel** the Diagnostic Save, **Suspend** the save or **Complete** the save:

1. **COMPLETE THE SAVE** - MCS-CONNECT will continue with the Diagnostic Save.
2. **CANCEL** - the Diagnostic Save will be canceled.
3. **CANCEL AND SUSPEND** - the Diagnostic Save will be canceled and can be suspended for a set time (one to 8 hours).

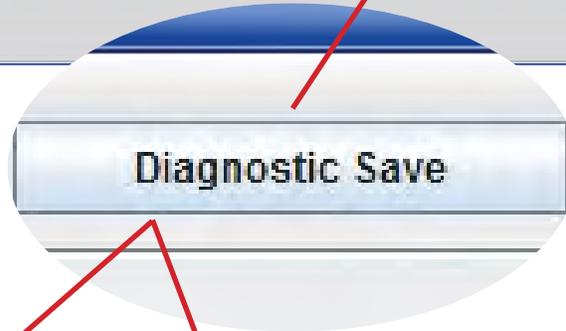


# The 'Easy Button'

## for MCS-CONNECT



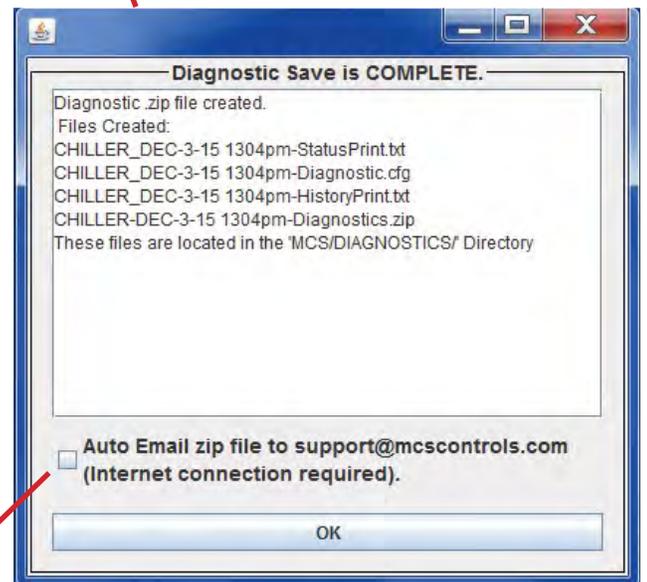
Upgrade to the latest version at:  
[www.mcscontrols.com/support/mcs-connect](http://www.mcscontrols.com/support/mcs-connect)



## **Diagnostic Save Button**

A Diagnostic save will do the following:

- Saves the Config file
- History Printout
- Last 5 Lockouts Alarm Printout
- Status Printout



Saves a Zip file to your computer and can  
Auto Email zip file to: [support@mcscontrols.com](mailto:support@mcscontrols.com)



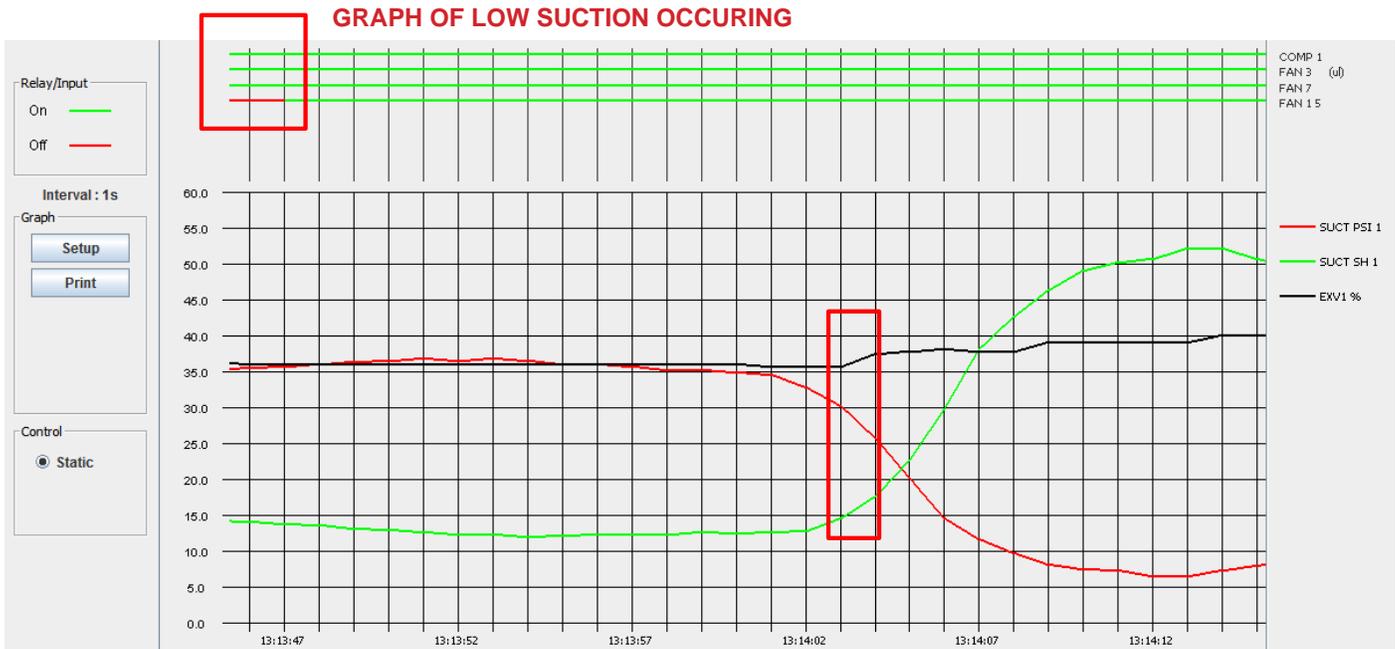
# Graph Capabilities- Static

The MCS controller captures history of the status for all RO, AO and SI points based on the setup of your configuration file. Through MCS-Config, the user is also able to setup additional "USER LOGIC" statements to capture additional internal information for plotting.

For example, you might want to capture and 'graph' information on the Unit States, Compressor States, EXV States, Number of compressors Wanted on and Actual on, Suction and Discharge Superheat, Saturated Suction and Discharge, etc. The insert on the right shows an example of setting up EXV State.

When the GRAPH button is selected, the screen below will appear. On the MCS-8 the # of samples is 144 and can be retrieved in about 1 minute. In the MAGNUM the number of samples is 1008 and will take about 3 + minutes to pull back.

Logic Statement	Operator	Value	Status
CMP1 STATE	Jser L	Exv Ctrl S-Ht	Not Used
CMP2 STATE	Jser L	Exv S-Ht Roc	Not Used
CMP WTD	Jser L	Subcooler EXV State	Not Used
CMP ACT	Jser L	Subcooler EXV Superheat	Not Used



The above screen contains the following:

The Relay Outputs and the Digital Inputs are graphed across the top of the screen with line bars. The ON/OFF status coding is indicated to the left of the line bars and the name of the set points

being graphed is on the right. The items being graphed can be changed in the SETUP screen.

The Analog Inputs are charted on the graph grid. The name of the points being graphed is to the right of the grid, note the color-coding. The slide bar on the bottom of grid is used to move the portion of the graph being displayed. The X-axis contains the time intervals, and Y-axis, contains the value range. Items being graphed can be changed in the SETUP function.

The following pages will show you how to setup for seeing and saving the Graph History for your unit.

## Graph Setup Tabs

On the left side of the Graph screen it contains the following function buttons:

### Graph Setup -

This function allows changes to be made to the graph function. A detailed description will follow on following page.

### Refresh Data -

This function will reread the history data that is being accumulated, thus providing fresh data to be graphed.

### Save History -

This function will save the current history data with sensor names as a '.Txt' formatted file.

The standard Window SAVE AS screen will appear. Specify the name of the file and where it is to be saved. The file can be read into a spreadsheet program such as EXCEL and then graphs, charts etc can be produced using the graphing capabilities of the spreadsheet program.

The Magnum supports 1008 History Samples for all inputs & outputs.

By adding the MCS-COMPACT (which uses Flash 2G cards) to the Magnum this increases the storage history up to a year+ of run data.

Print Graph- Prints the current Graph on screen.

Located at top of the Graph screen in the menu:

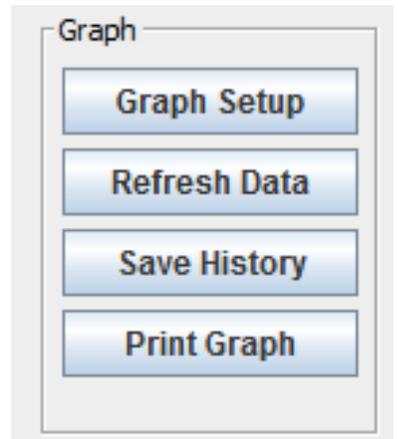
### Load a Graph file -

This function will read history data that has been previously saved.

The standard FILE OPEN screen will appear. Navigate to and select the file.

The **SAVE** and **LOAD** functions can be useful when accessing an MCS controller remotely. The site can be called, history saved, communications ended and then the saved file can be opened in MCS-CONNECT.

Graphing is a very powerful tool in researching either a situation that has occurred or in tracking a current problem.



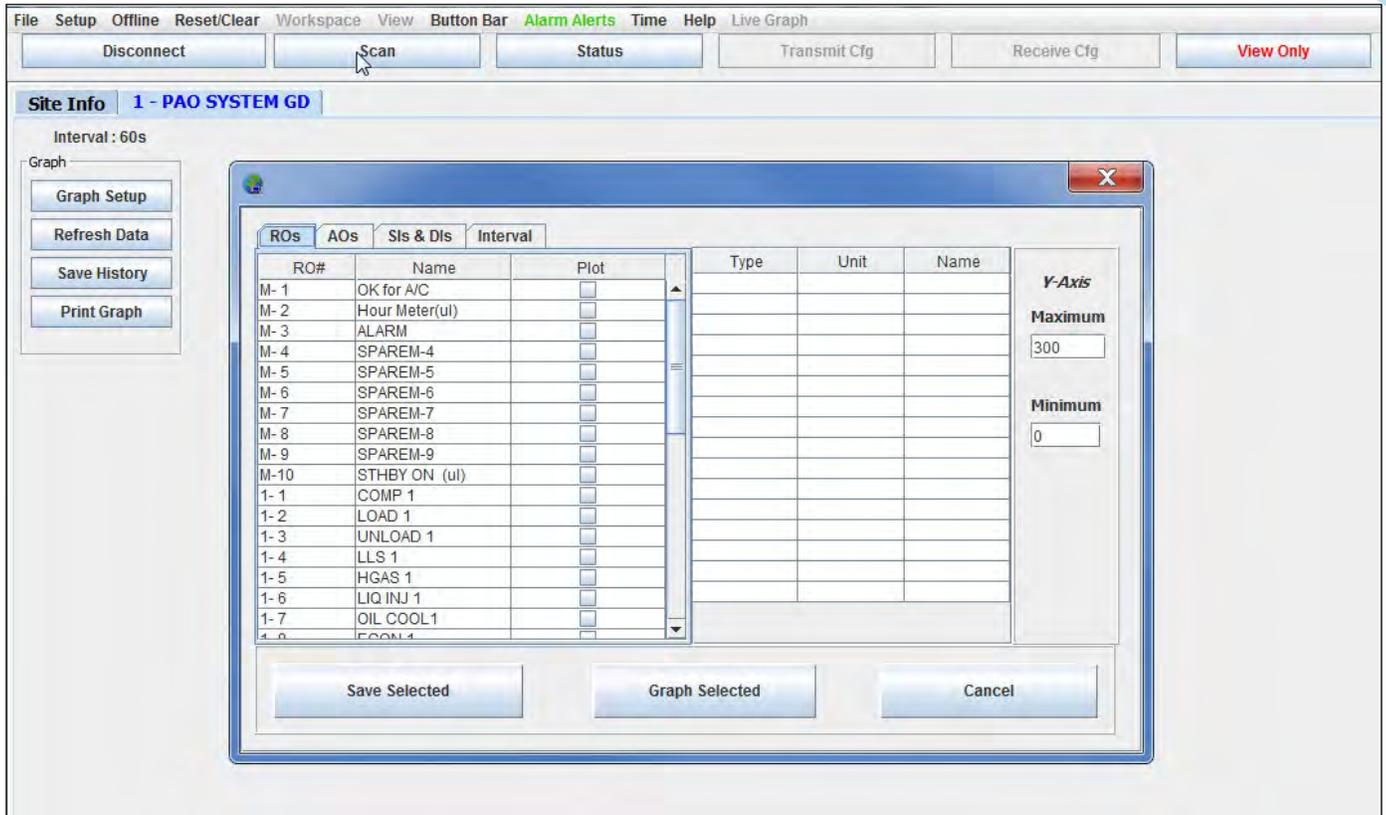
**SEE MCS-CONNECT manual on Viewing History/Graph Files Off-line**



## Setup for the Graph Screen

When the SETUP button is clicked on in the graph screen, the following screen will appear:

This screen displays in tabbed pane at top of the screen: the RELAY OUTPUTS(RO), ANALOG OUTPUT(AO), SENSOR INPUT(SI's) or DIGITAL INPUT(DI's) of all the points in this configuration file.



To add a point to the list that will be graphed, move the cursor to the check box next to the point you wish to graph, and click. The name will be added to the Points to Graph list in the right screen of the popup and a check mark will appear in the box. To remove an item from the list, click on the box to remove the check mark. The item will be removed from the Points to Graph list.

When you are finished adding the points, you can click 'Save Selected', which will save all points for the controller you are viewing. If you view another MCS controller you can setup the graph points so each time you view the MCS controller your points for the graph will be loaded for that MCS controller.

Clicking 'Graph Selected' will plot the current selections in the graph.

The Y-Axis section contains the maximum and minimum setting for the Y-axis. The axis is divided proportionally between these two points divided by the # of lines specified.

# Graph Interval

With the release of the version 18.26.11, you are now able to add the fixed values after receiving the pulled back history file, along with the points you are plotting.

Having user logic statements added to your config is no longer necessary for adding fixed values.

You can set 4 different 'fixed Vals' for setting zones when plotting different points. See screen shot below and latest manual to review the new Fixed Values.

The screenshot displays the software interface for configuring and viewing a graph. On the left, the 'OFFLINE GRAPH' panel shows 'Interval : 10s' circled in red. The main window features a 'Fixed Val' configuration dialog with the following settings:

Field	Value
Number of Points	2
Fixed Val #1	14
Fixed Val #2	10
Fixed Val #3	
Fixed Val #4	

Annotations in the image include:

- A red circle around the 'Fixed Val' tab in the configuration window.
- A red box around the 'Number of Points' dropdown and the 'Fixed Val #1' and 'Fixed Val #2' input fields.
- A callout box pointing to the 'Fixed Val' tab: "'FIXED VAL' added with version 18.26.11".
- A callout box pointing to the 'Fixed Val #1' and 'Fixed Val #2' fields: "The 'Fixed Val' now allows you to set up a zone around the point(s) you are graphing from a pulled back history file - see below".
- A red arrow pointing from the 'Fixed Val' configuration window to the 'OFFLINE GRAPH' window, which shows a plot with horizontal lines representing the fixed values.

**YOU ARE LIMITED TO A MAXIMUM OF EIGHT(8) DIGITALS AND EIGHT (8) ANALOGS ON A GRAPH**

The Interval tab enables the interval to be changed. The time is recorded in seconds. Click on the appropriate radio buttons in minutes or hours. The Seconds History Interval Box automatically updates in seconds.

(You may double click on the seconds box and put in a value as small as 2 seconds).



# Graph Capabilities- 'Live Graph'

With the release of MCS-CONNECT Version 18.26.11, the 'Live Graph' section has been upgraded to include the following:

- **GRAPHS - LEFT TO RIGHT READING** - Graphs now move from left to right as shown in the screen shot below. This makes it easier when viewing the graph to see changes aligned with the legend on the left.



- **'FIXED VAL'** - When adding a new Live Graph you now can set 'Fixed Val' for setting up zones for plotting a point. Each new Live Graph can contain 2 fixed values on the graph. These fixed values, or lines help show the movement of the plotted point (see above screen shot).

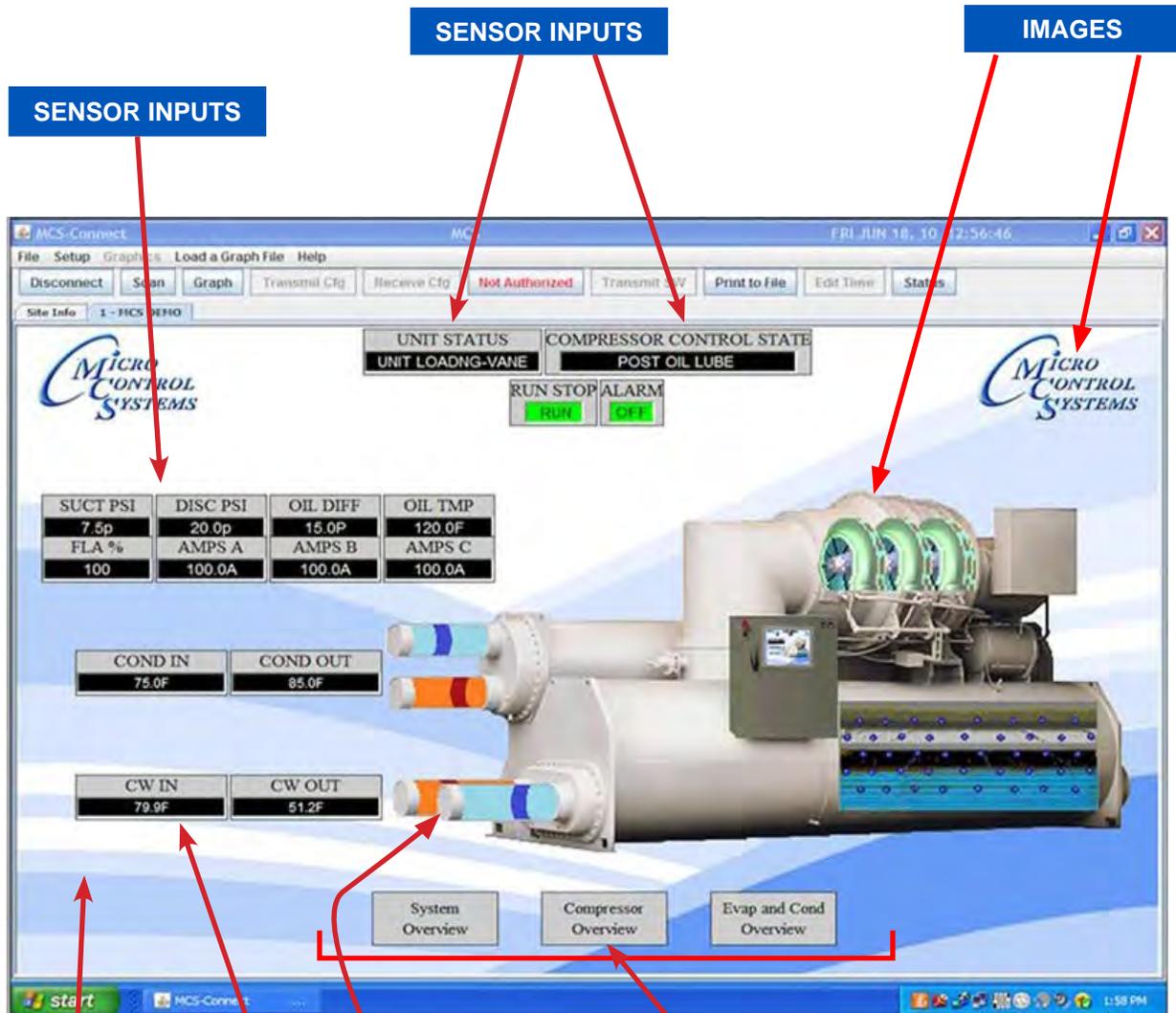
- **OVERWRITE A SAVED LIVE GRAPH** - Live Graphs now can be overwritten.
- **EDIT and RE-SAVE A LIVE GRAPH** - With this change, a technician 'can now' edit a saved Live Graph.
  1. OPEN THE LIVE GRAPH YOU WANT TO EDIT
  2. MAKE CHANGES, CLICK 'SUMMIT'
  3. ONCE THE EDIT IS CORRECT, CLICK SAVE, overwriting the Live Graph or saving as a new graph.

# MCS-GRAPHICAL INTERFACE

## Graphics

With the new Graphical Interface and MCS-Connect, you now have a better view of your controller's many functions.

Below, you will see a breakdown of a typical graphic screen including buttons, images and Input of sensors, relays.



On this graphic package, there are three different screens available, 'System Overview', 'Comp Overview', 'Evap & Cond Overview'.

# For Immediate Release

Micro Control Systems announces support for . . .

## “Field Selectable Units”

Option #1 - Ability to TEMPORARILY CHANGE UNITS DISPLAYED

Change the **Temperature** and **Pressure** readings TEMPORARILY, when viewing MCS-CONNECT with TOUCHSCREEN or on your Computer.

Change the TEMPERATURE and or PRESSURE Units TEMPORARILY

Units - Temperature  
Fahrenheit, Celsius, Kelvin or Use config units

Units - Pressure  
PSI, Bar, Kilopascals or Use config units

SI #	Sensor Inputs	Value	Monitor Status	Offset	Sensor Type
M-1	ChilWtr In	25.2C	AUTO	0 / -17.8C	MCST100
M-2	ChilWtrOut	24.8C	AUTO	0 / -17.8C	MCST100
M-3	SUCT PSI 1	-6.9B	AUTO	0 / 0.0B	MCS-200
M-4	DISC PSI 1	-6.9B	AUTO	0 / 0.0B	MCS-500

Option #2 - ABILITY TO PERMANENTLY CHANGE UNITS DISPLAYED

Choose the Temperature Unit or Pressure Unit you want as your default or 'Use Config Units' that is setup in MCS Controllers.

Communications **General** Tables Network Extended

Default Display Units

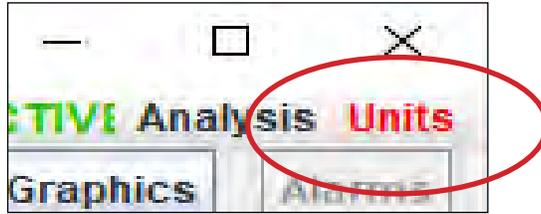
Temperature: Use Config Units (dropdown menu showing Fahrenheit, Celsius, Kelvin)

Pressure: Use Config Units (dropdown menu showing PSI, Bar, Kilopascals)

Save

Setup Defaults for viewing Units and save

## Both Option #1 and Option #2



**'UNITS' WILL DISPLAY RED** when you are connected to MCS-MAGNUM controller showing that the original configuration file is being overridden, TEMPORARILY or by Default Display Units set in General Options.

---



### **Change Configuration file for Differential Temperature**

TO TAKE ADVANTAGE OF THE **FIELD SELECTABLE UNITS** THE FIRMWARE AND CONFIGURATION MUST BE UPDATED FOR THE DIFFERENTIAL TEMPERATURES TO BE DISPLAYED CORRECTLY.

***The following Firmware and Software tools are needed for these new features:***

- MCS-CONFIG: VER 18.04.06 or higher
- MCS-CONNECT: VER 18.39.16 or higher
- MCS-MAGNUM FIRMWARE: XXXX V17.90 or higher (XXXX=HVAC, CENT, etc)

New MCS-CONNECT VER 18.39.16, MCS-CONFIG 18.04.06,  
MCS-MAGNUM FIRMWARE 17.90 or higher releases are on the MCS WEBSITE:

<https://mcscontrols.com/>

***New Feature added in new Firmware (XXXX V17.90) and MCS-CONFIG V18.04.06 and higher:***

- ***Added new option, DELTA\_TMP in drop-down menu of setpoints tab and SI screens***

**Contact your OEM or MCS for existing MCS-MAGNUMS in the field that will require a configuration update to use the new software and firmware.**

# NOTES





**Providing HVAC/R  
Solutions Worldwide**

## ***The MCS Commitment***

*The founders of Micro Control Systems Inc. have been in the manufacture of Microprocessor Controls their entire careers and have over eight decades of combined HVAC/R Microprocessor Controls experience. MCS was founded to meet the needs of the Utility and HVAC/R Industries with products based on the following design criteria:*

- ◆ **Quality & Service**
- ◆ **Cost Effectiveness**
- ◆ **Ease of Use**

*Our commitment is to provide practical solutions for the industries needs and to be both a leader and partner in the effective use of Microprocessor Controls.*

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**[www.mcsccontrols.com](http://www.mcsccontrols.com)**