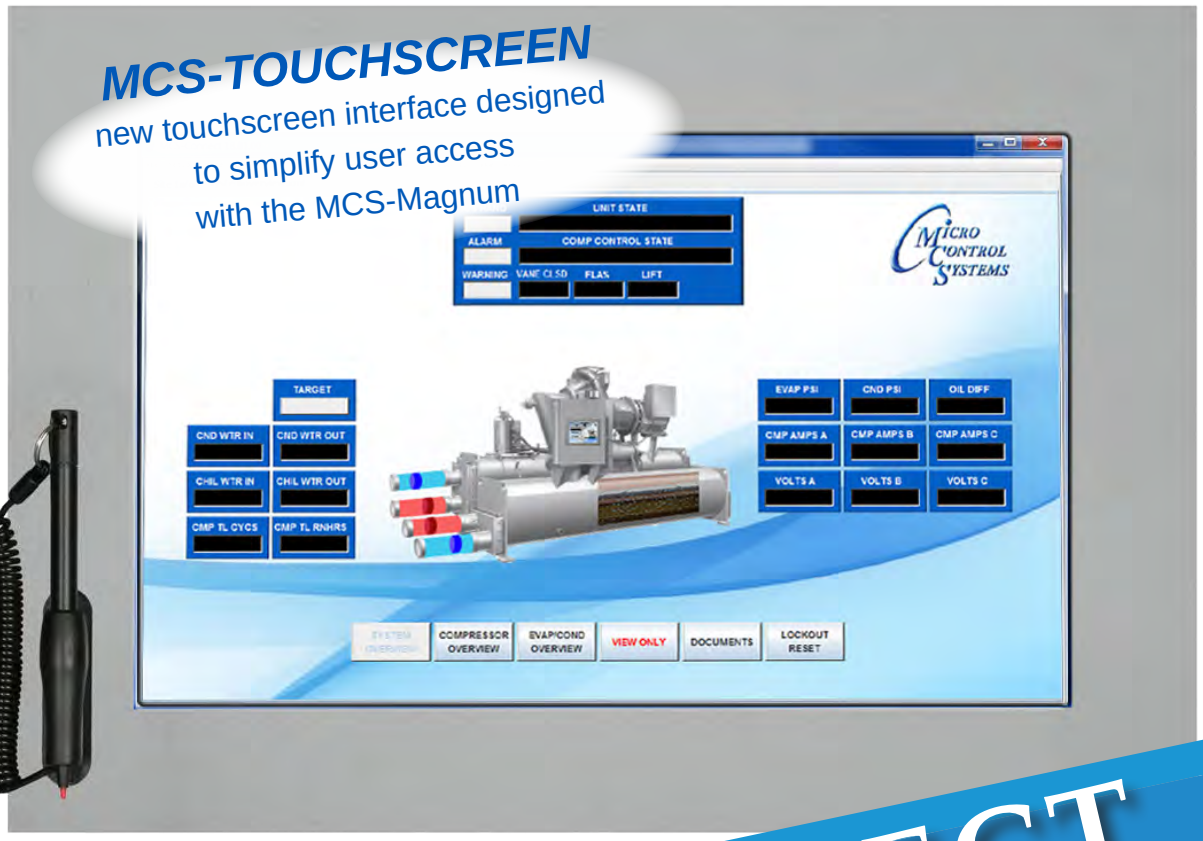
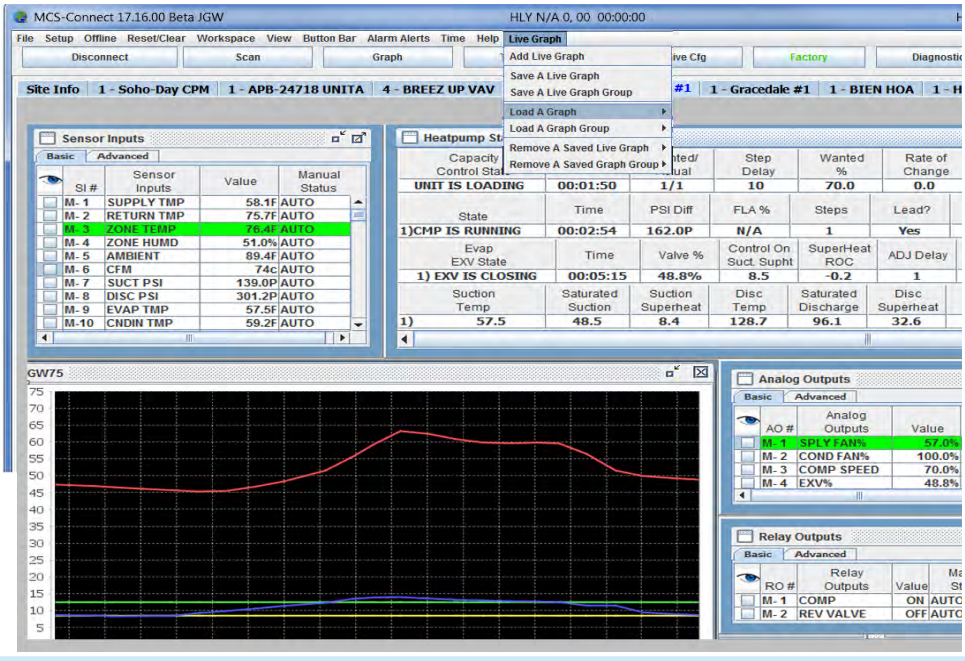


MCS-CONNECT

Quick Guide to Features

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

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



MICRO CONTROL SYSTEMS

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 #
- 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.

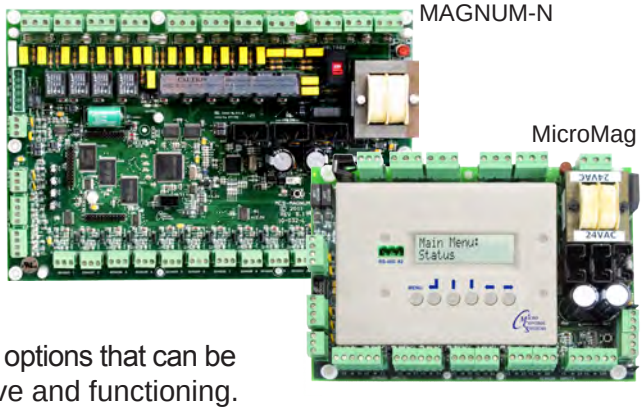
Another powerful feature of MCS-CONNECT is its ability to graph event history. Since MCS controllers automatically perform history logging, the user can select which inputs or outputs to graph and view the results either in real time or over a user selectable period of time.

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 offline 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.

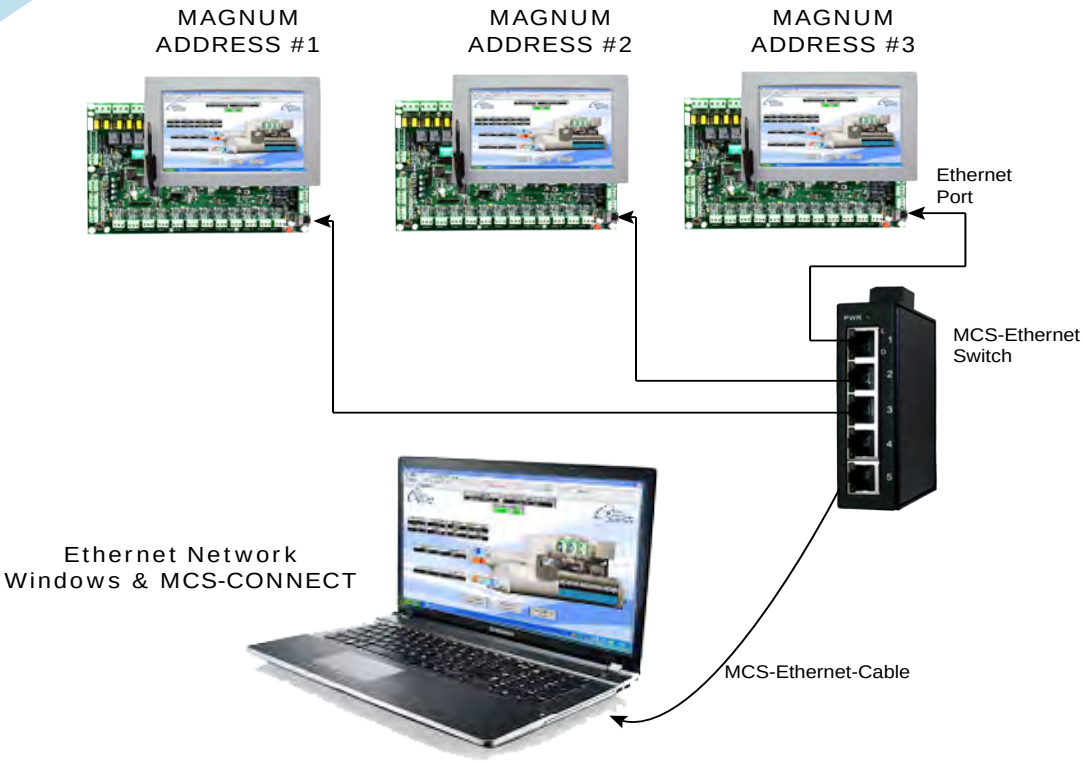
Additional information on installing and using MCS-CONNECT can be found in the latest manual found on our website at:

mcscontrols.com

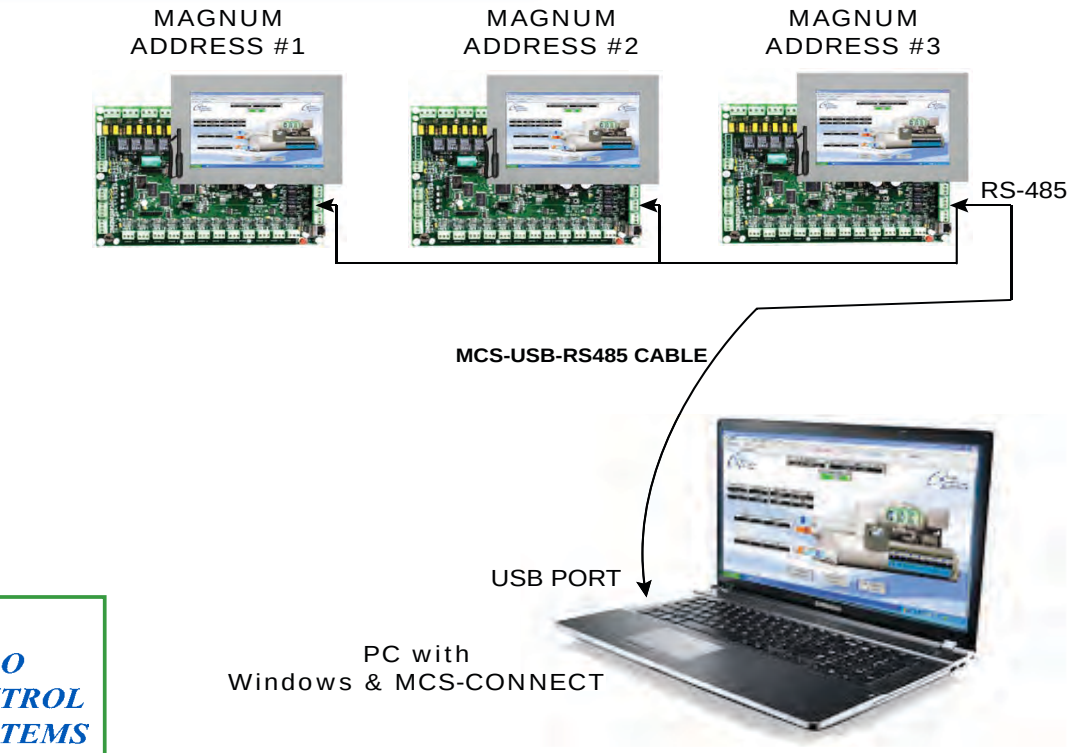
MICRO CONTROL SYSTEMS

Communication with MCS-Connect

‘Ethernet’ Network



‘RS-485’ Network



MICRO CONTROL SYSTEMS

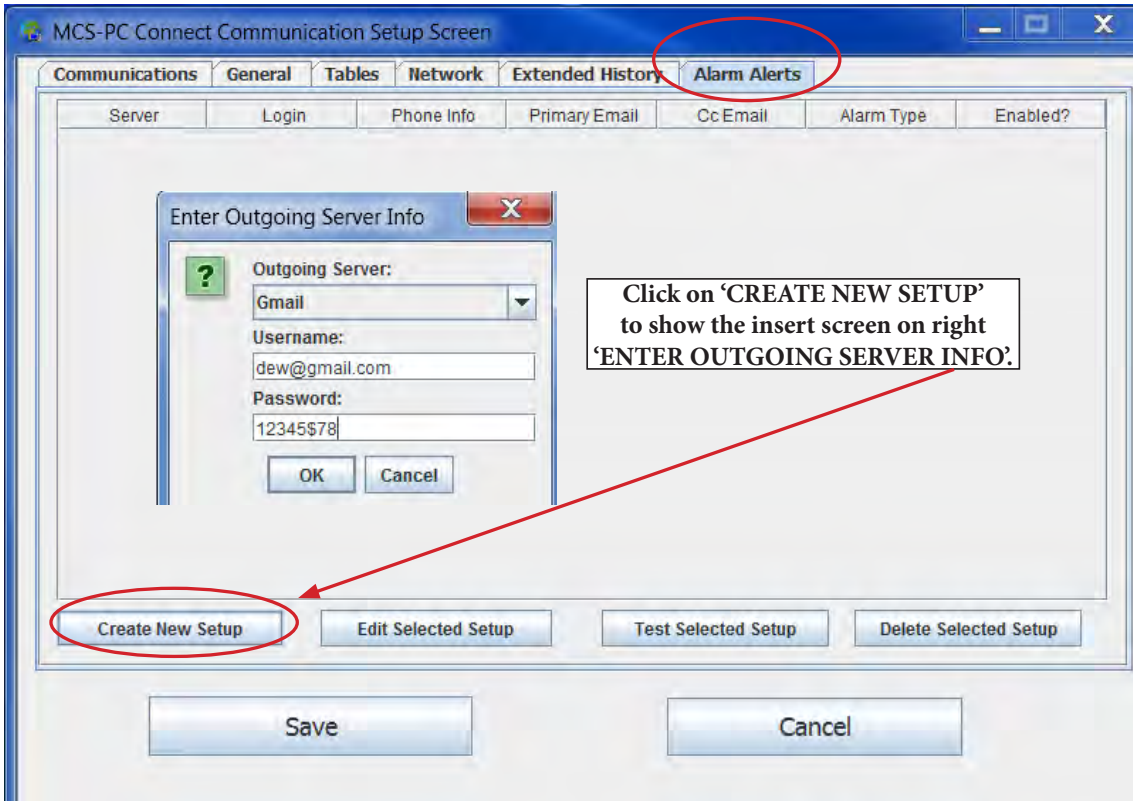
Alarms Alerts

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”.



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’

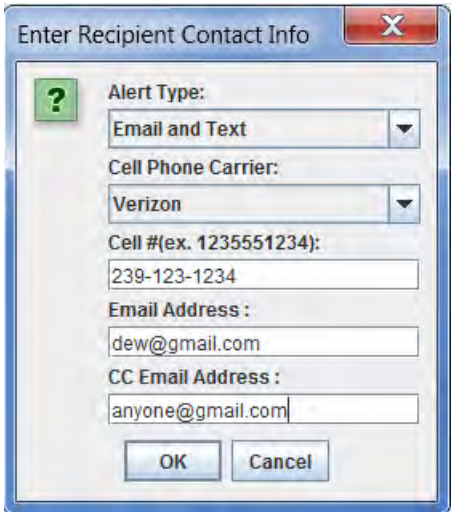
Clck on ‘OK’ to move to next setup screen

MICRO CONTROL SYSTEMS

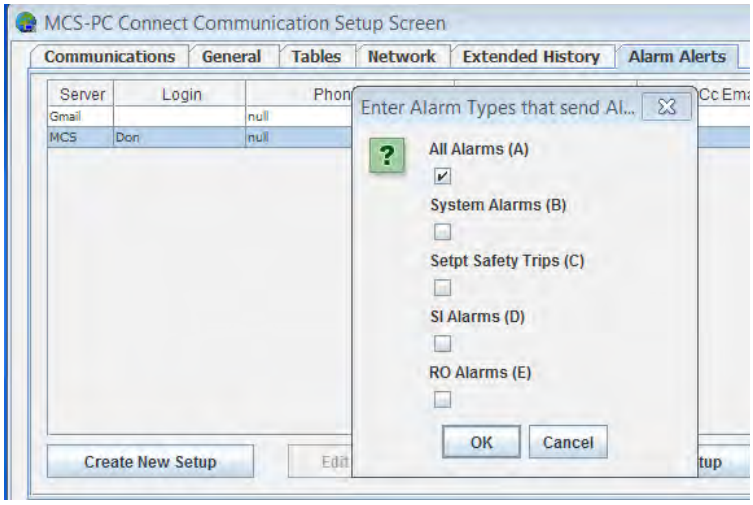
Enter Recipient Contact Info

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

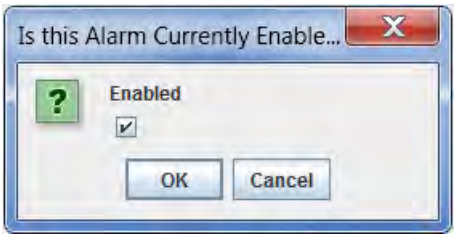


Click on ‘OK’ when you have completed this screen.

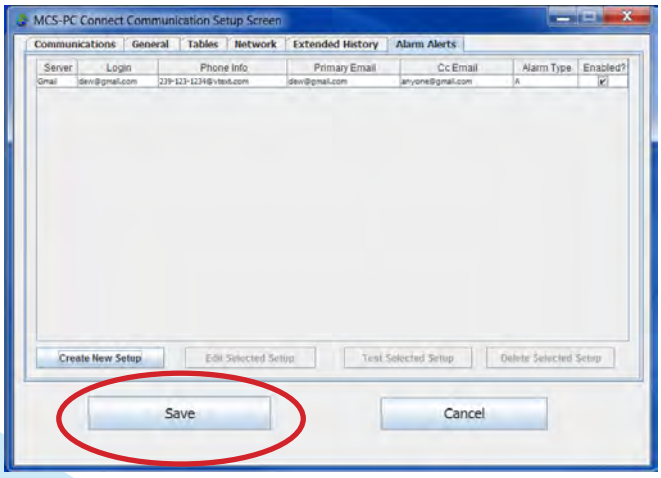
Enable

Next Screen - Enable the completed setup.

Click ‘OK’



Save new Alarm Setup



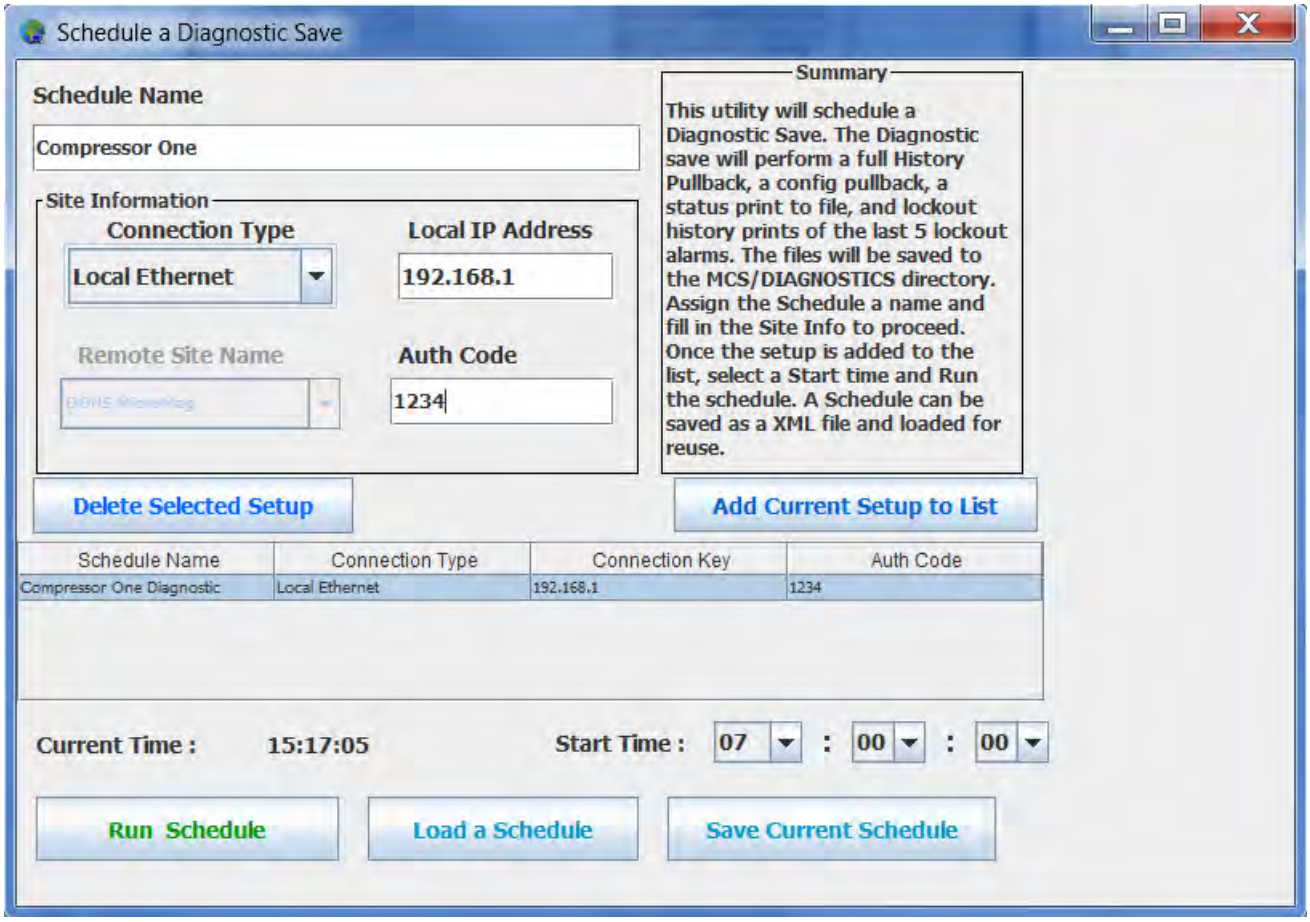
Alarm Alert Types

SYSTEM ALARMS
HVAC SETPOINT SAFETIES
REF SETPOINT SAFETIES

Diagnostic Save

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.

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

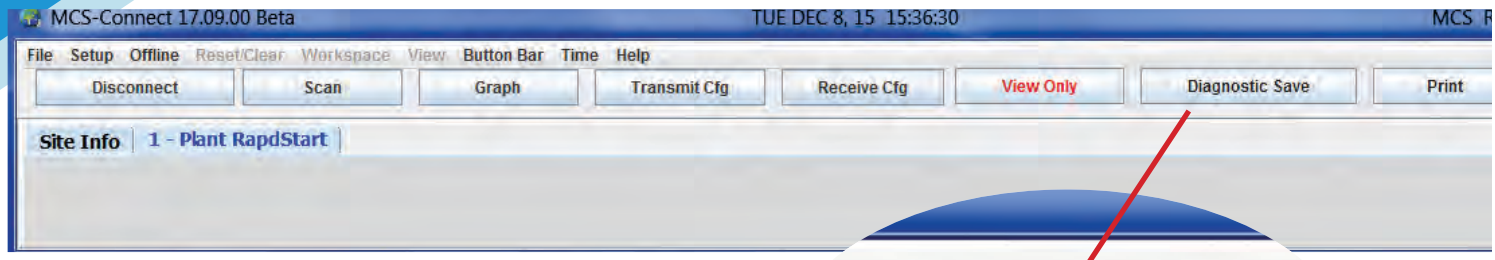


1. Click on ‘Site Information- and choose the connection type to communicate with this compressor.
2. Add the ‘Local IP Address if Locat Ethernet.
3. Add the Auth Code if needed.
4. Click ‘Add Current Setup to List
5. Click on ‘Load a Schedule - setting the time of day you want to generate the report.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

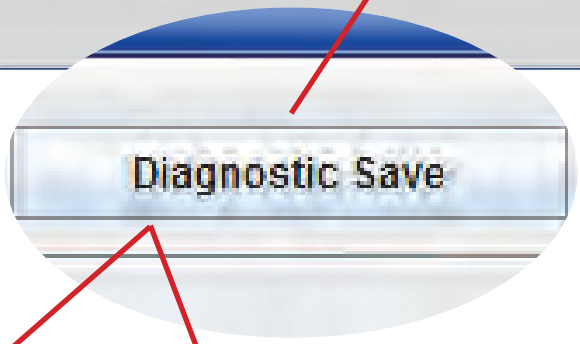
MICRO CONTROL SYSTEMS

The 'Easy Button'

for MCS-CONNECT



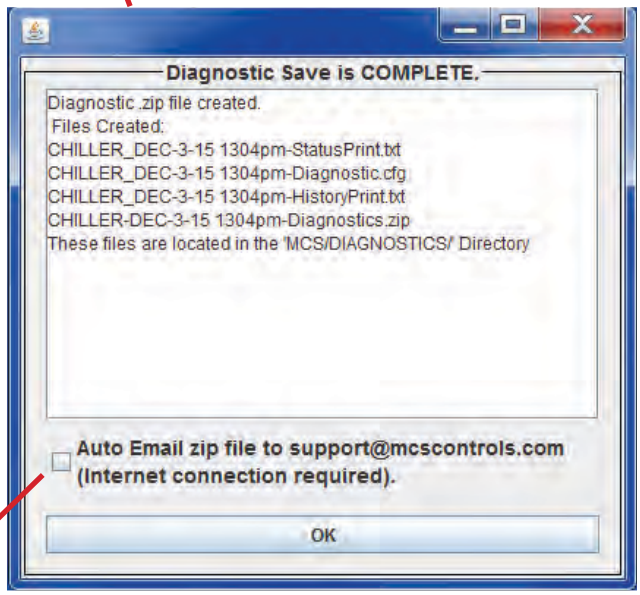
Upgrade to the latest version at:
www.mcscontrols.com/support/mcs-connect



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

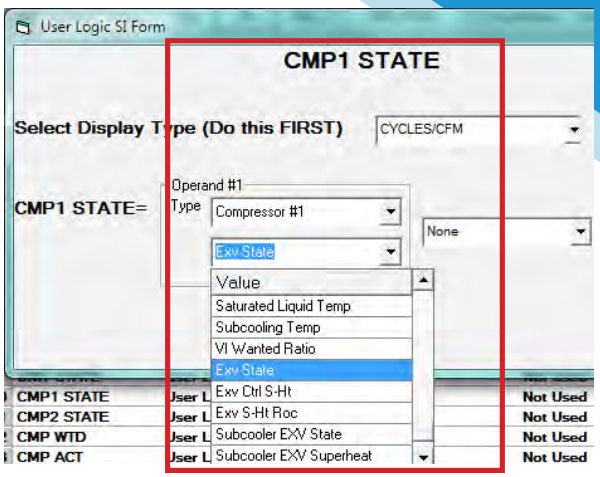
Auto Email zip file to: support@mcscontrols.com

Micro Control Systems

Graph Capabilities- Static

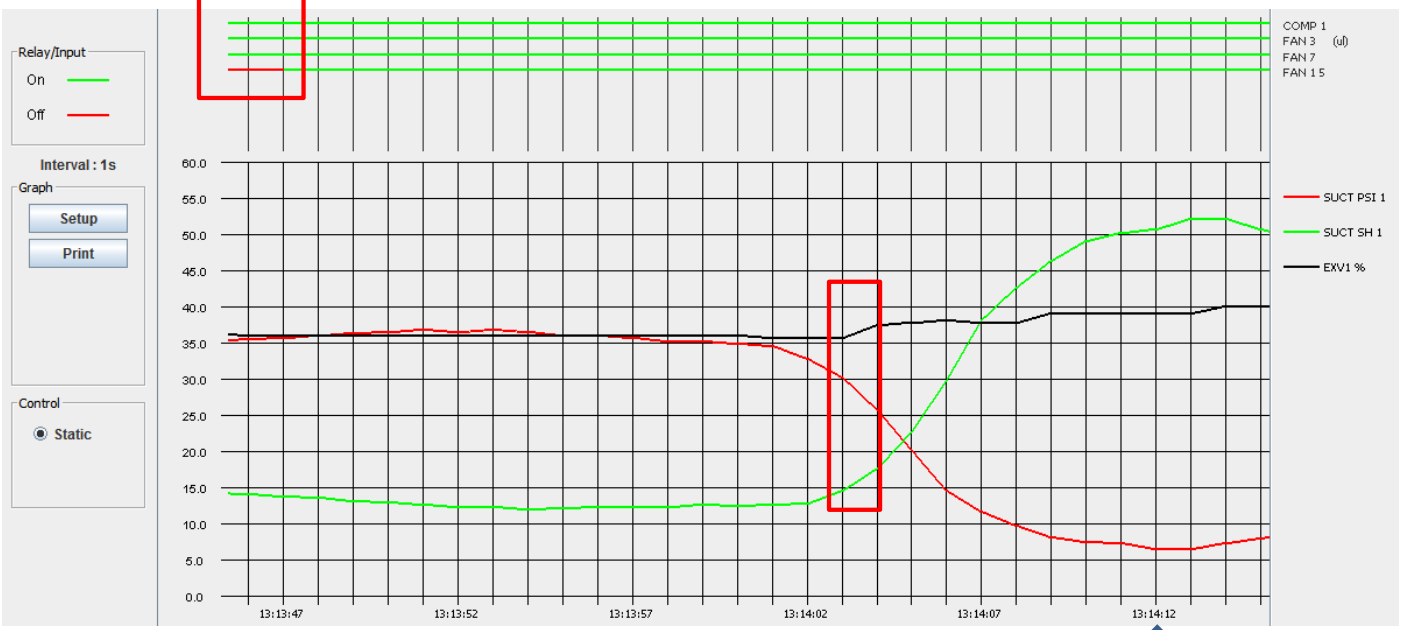
The MCS controller captures history of the status for all RO, AO and SI points based on the setup of your configuration file. Through MCS-Config, the user is also able to setup additional “USER LOGIC’ statements to capture additional internal information for plotting.

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.

GRAPH OF LOW SUCTION OCCURING



The above screen contains the following:

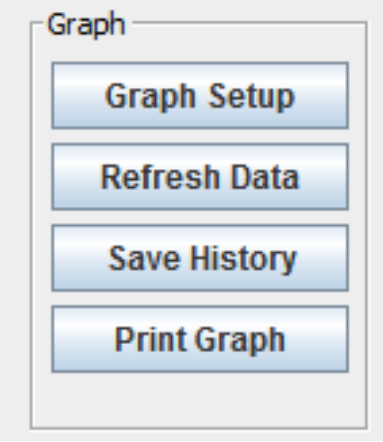
The Relay Outputs and the Digital Inputs are graphed across the top of the screen with line bars. The ON/OFF status coding is indicated to the left of the line bars and the name of the set points

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 be 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 Offline

Micro Control Systems

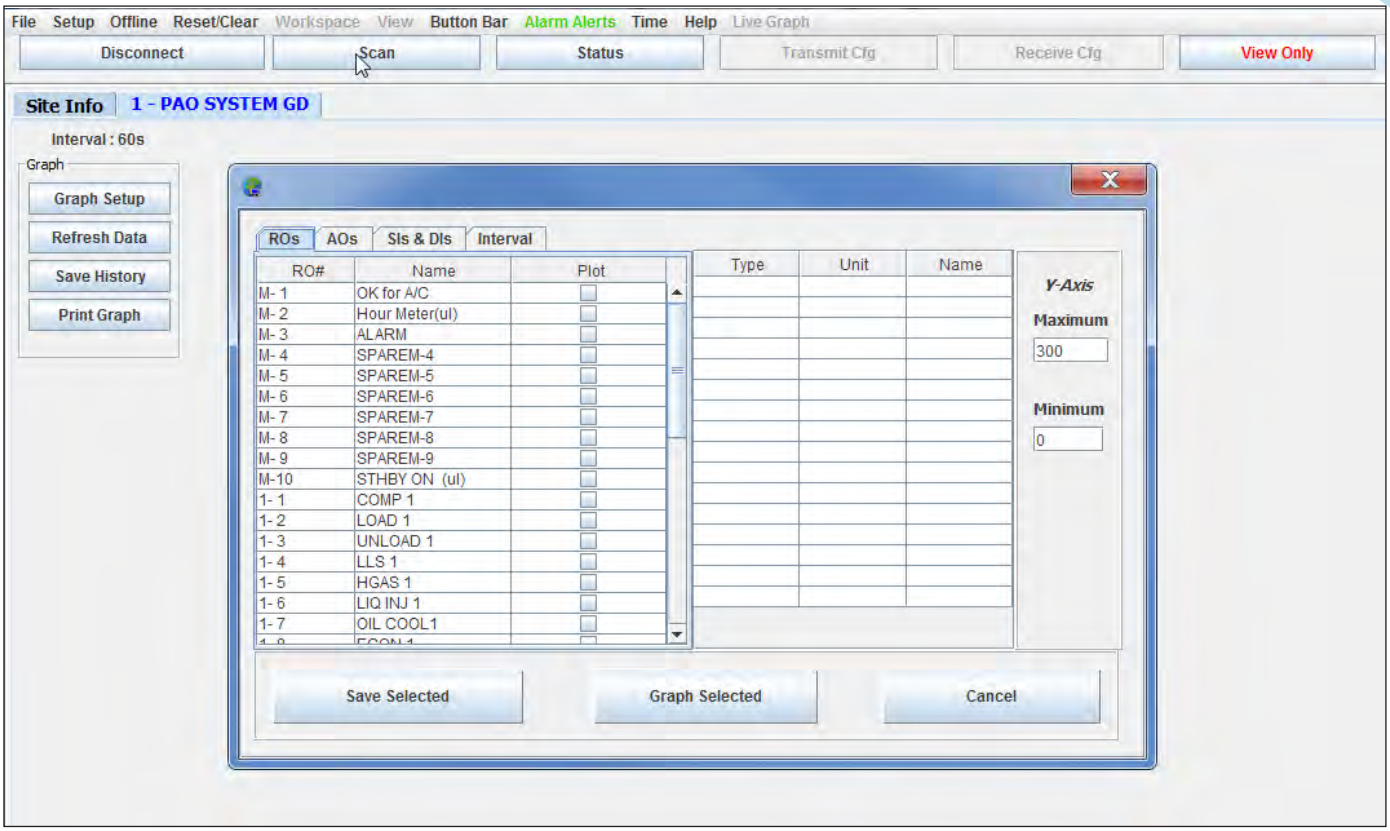
Additional information on installing and using MCS-CONNECT can be found in the latest manual found on our website at:

mcscontrols.com

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.

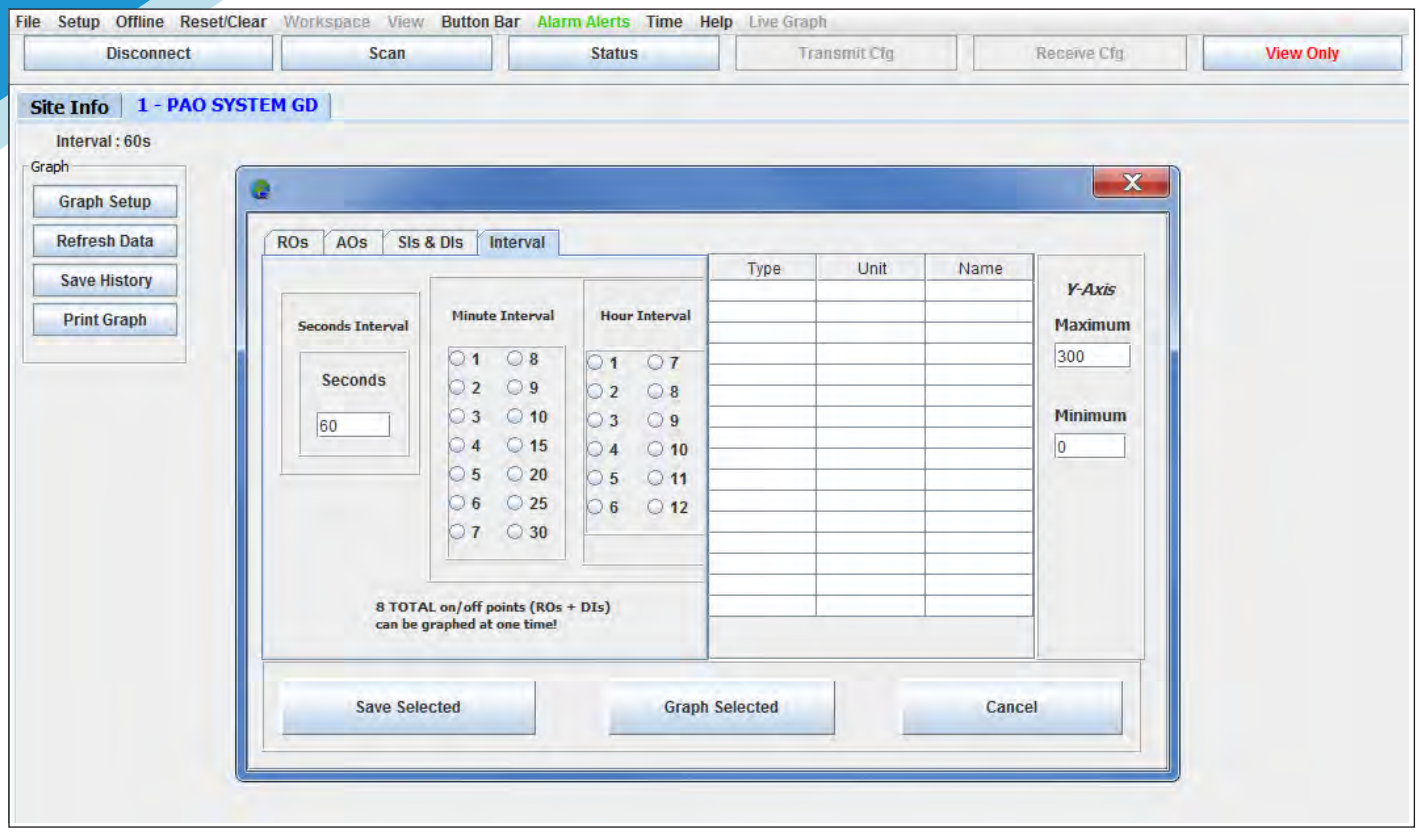
The Y-Axis section contains the maximum and minimum setting for the Y-axis. The axis is divided proportionally between these two points divided by the # of lines specified.

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

MICRO CONTROL SYSTEMS

Graph Interval

Click on Interval to see the setup for the sampling times.



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).

Save Selected- Clicking on this button will enable the current settings to be saved. If the settings are saved, they will be active when the system is again accessed.

Cancel - Clicking on this button will return control to the GRAPH screen. None of the changes that were made will be reflected on this screen. The original settings will be used.

MICRO CONTROL SYSTEMS

Graph Capabilities- 'Live Graph'

With the latest version of MCS-CONNECT (Ver. 18.00 or higher) you have the ability to create 'LIVE GRAPHS'

The user can connect to a controller, setup a **'LIVE GRAPH'** for:
'***ONE' to 'FOUR' Analog or Relay Sensors or 'ONE' or 'TWO' Digital Sensors,***
'LIVE GRAPH' will plot a **'REAL TIME' GRAPH,** and
save the different graph setups to your computer or Touchscreen.

When you connect to a controller, open a MCS-CONNECT work space,
you have the ability to load a saved **'LIVE GRAPH'** and view it **'LIVE'** in your status screen.

Setting up the 'LIVE GRAPH' is easy. The technician can setup different 'LIVE GRAPHS' to monitor different sensors, save each 'LIVE GRAPH SETUP' and than save them in a 'GROUP' file and load them into your work space each time you view the controller you are connected to.

With MCS-CONNECT, the ability to move and size different windows in your work space, makes viewing these graphs easy.

Micro Control Systems

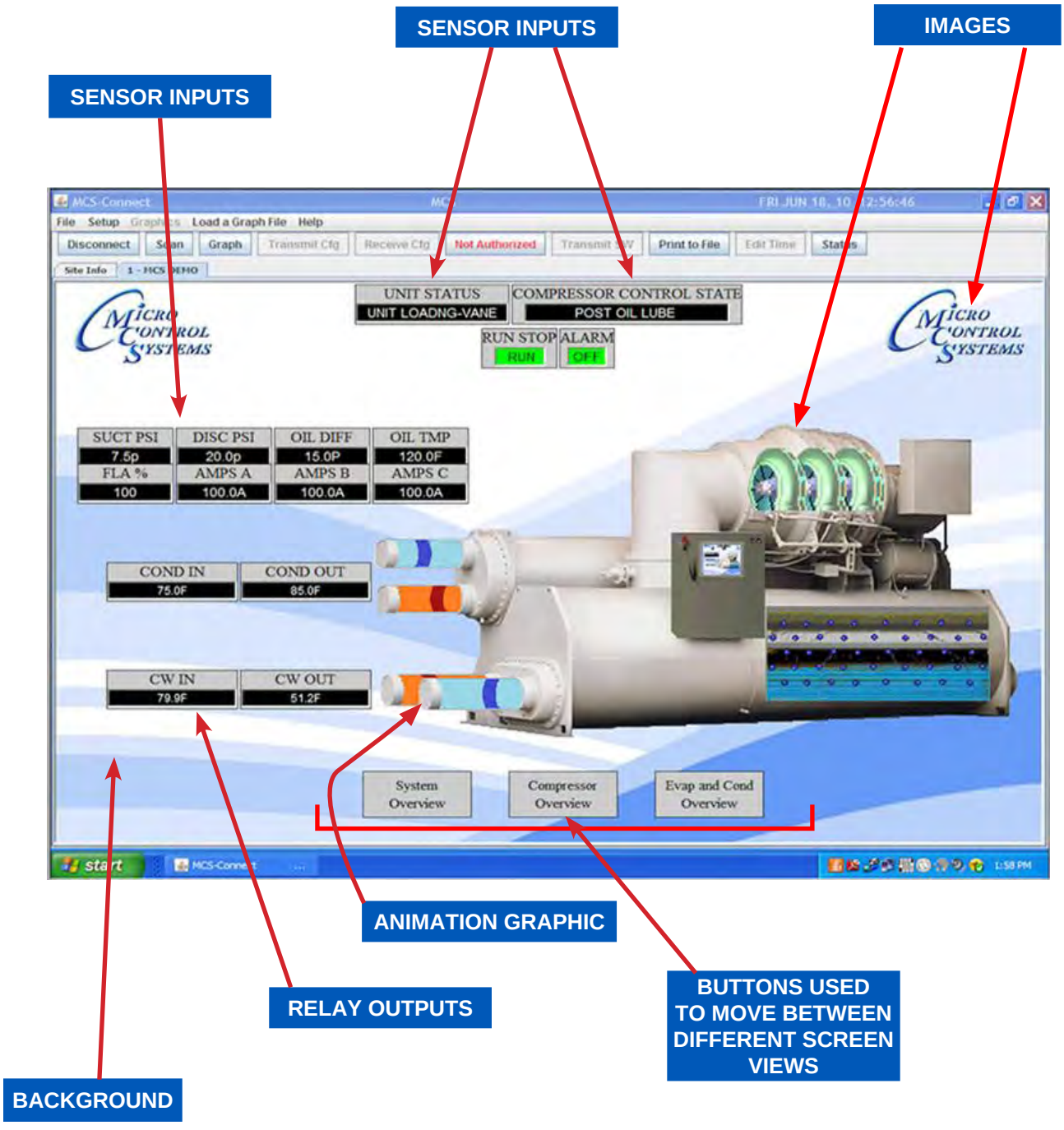
Additional information on setting up a 'Live Graph' and using MCS-CONNECT can be found in the latest manual found on our website at: mcscontrols.com

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'.

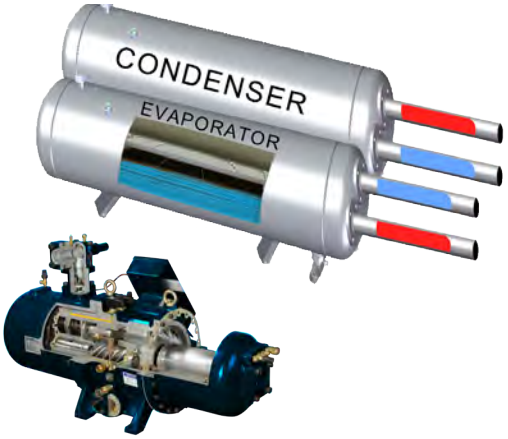
Graphics Builder

MCS builds basic graphic packages based on the compressor(s) that you will be monitoring. Optional custom graphic packages can be designed to fit your customer's needs.

BACKGROUND

The background we use is kept to a simple design which does not interfere with the buttons, images, animation and widgets used to show the status of your compressor(s).

IMAGES USED



Images used are graphics of your chillers, compressors, or created images to show the status of your sensors, relays, etc. The background screen above, shows the customer's logo.

BUTTONS

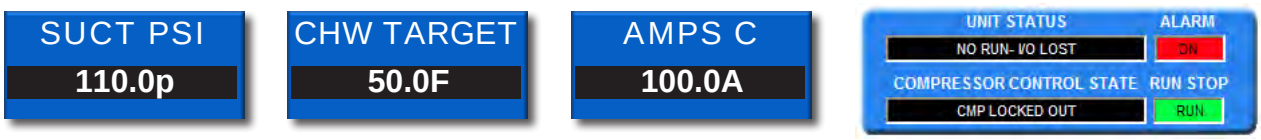
Buttons are used to show a feature as 'Stop, Start, and so forth. Examples of buttons are shown below.

System Overview

Evap & Cond Overview

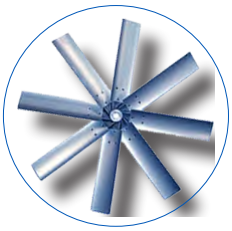
SENSOR INPUTS AND ANALOG OUTPUTS

Sensor and Analog outputs receive information from the compressors as to 'Suct PSI, Oil Diff, Amps, Targets for 'Chill water in' Chill water out'.



ANIMATION GRAPHICS

Animation is used to show motion. A fan graphic would depict whether the air handler or furnace is running or not. Fan blades on the fan graphic would spin faster depending on the amount of air flow (expressed in cubic feet per minute, or CFM) that the blower is delivering at a particular point in time.



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.

580 Enterprise Pkwy., Fort Myers, FL 33905
Office: (239) 694-0089 Fax: (239) 694-0031

www.mcscontrols.com