MCS-NitroMag-15.4 QUICK START

Version 1.3



Engineered for advanced HVAC/R applications





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Introducing the latest additions to our product lineup. There are six basic versions of the MCS-NITROMAG each will need to connect to an MCS Expansion Board to complete the system.

- MCS-NITROMAG-N
- MCS-NITROMAG-15.4
- MCS-OEM- (MCS-NITROMAG and Keypad)
- MCS-NITROMAG-DOOR (MCS-NITROMAG and Keypad)
- MCS-NITROMAG-DOOR-NEMA4 (MCS-NITROMAG and Keypad)
- MCS-NITROMAG-PANEL (MCS-NITROMAG and Keypad)

MCS-NitroMag - Microprocessor @ 1.5GHz

- The MCS-NitroMag is a powerful, next-generation microprocessor-based controller engineered for advanced HVAC/R applications. At its core is a Broadcom quad-core processor running at 1.5GHz, providing the processing power necessary to handle complex operations with speed and efficiency. Designed for integration flexibility, the MCS-NitroMag interfaces seamlessly with MCS expansion and extension boards, supporting up to 144 sensor inputs (SI), 90 relay outputs (RO), and 36 analog outputs (AO), making it highly adaptable for a variety of system configurations.
- Connectivity is a standout feature of the NitroMag controller, with built-in WiFi, dual HDMI ports, Ethernet (supporting 10/100Mbps/1Gbps), two USB 2.0 ports, and two user-configurable RS485 ports that support baud rates up to 115200. These options provide robust and versatile communication capabilities for both local and remote access. The MCS-NitroMag also features a significant upgrade in memory compared to previous MCS controllers, offering 16 GB of eMMC flash storage and 2 GB of DDR3 RAM—more than double the available memory of earlier models—allowing for faster performance and increased data handling capacity.
- In terms of protocol support, the NitroMag controller functions as a Modbus RTU Master capable of supporting up to 20 Modbus devices. It also supports BACnet IP, BACnet MSTP, Modbus IP, and Modbus RTU, enabling seamless integration with building automation and control systems. This combination of processing power, connectivity, memory, and protocol compatibility makes the MCS-NitroMag an ideal solution for modern, high-performance HVAC/R control applications.

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MCS-NITROMAG-N CONTOLLER

1. About the MCS-NITROMAG-N

The MCS-NITROMAG-N is a rugged microprocessor controller designed for the harsh environment of the HVAC/R industry. It is designed to provide primary control without needing mechanical controls. It will interface locally with a null modem serial cable, remotely through an Ethernet connection, and also through building management systems. The MCS-NITROMAG-N offers a great deal of flexibility with adjustable setpoints and control options that can be set prior to activating a system or even when the unit is operational. The MCS-NITROMAG-N is designed to safeguard the system being controlled, minimize the need for manual intervention, and to provide a simple but meaningful user interface.

MCS-Connect provides both local and remote communications to the MCS-NITROMAG-N, independent of software type. Local communications can be either through an RS485 or Ethernet connection. This program displays the status of the controller, and changes can be made to the system with proper authorization.

Configuration files can be transmitted to or received from a MCS-NITROMAG-N unit. The MCS-NITROMAG-N automatically performs history logging and this program allows the data to be presented in a useful graph form. A manual created in a PDF format is available on our web site:



www.mcscontrols.com, or available in other formats upon request.

*Shown with mounting feet.

MCS-NITROMAG-15.4 INSTALLATION

The MCS-NITROMAG-15.4 is a control system cntaining a Capacitive Touchscreen, and a MCS-NITROMAG-N controller. It includes a processor, memory, eMMC Flash, and supporting power circuitry. The Broadcom quad-core processor on the MCS-NITROMAG-N delivers a blazing speed of 1.5GHz.

The MCS-NITROMAG-N controller connects with MCS Expansion boards and Extension boards, allowing for a maximum of 144 SI inputs, 90 RO outputs, and 36 AO outputs.

2. BASIC PACKAGE - MCS-NITROMAG-15.4

- 15.4 TOUCHSCREEN with NITROMAG-N controller
- 7 ft CAT 5e Crossover Patch Cord, Orange

2.1 SOFTWARE LOADED

- NITROMAG OS Current Operating System
- NITROMAG Firmaware includes MCS-CONFIG built for your system
- MCS-CONNECT Software

2.2 DOCUMENTS INCLUDED WITH SHIPMENT

Electrial Drawings

2.3 OPTIONAL EQUIPMENT

- MCS-12V-90W-B
- MCS-EXPANSION BOARDS

3. MOUNTING

- Template for mount and wiring instructions packed with shipment.
- 10 mount studs thru customers enclosure.
- Connection drawing to MCS EXPANSION BOARDS using MCS-I/O Comm Port.







4. ELECTRICAL/COMMUNICATION WIRING - MCS-NITROMAG-15.4

NOTE: ALL 12V WIRING MUST BE 18 GUAGE MINIMUM.

- Wiring shows connection to MCS-IO-BASE expansion board using MCS I/O communication at 38,400 baud.
- Power is supplied by 12v-90w (MCS-12V-90w) to MCS-NITROMAG-15.4 and MCS-IO-BASE expansion board.
- Optional MCS-ETHERNAT-SWITCH-B shown.



5. RS485 WIRING - MCS-NITROMAG-15.4



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CAPACITIVE TOUCH SITE DOCUMENTS

1.1. Documents, Spec Sheets, Drawings, etc.

Stored in the Touchscreen's flash memory you will find pdf's and documents pertaining to the building of your unit.

Each unit's configuration is different, so the 'SITE DOCUMENTS' file will pertain to that unit only.

An example of the contains of the 'SITE DOCUMENTS' folder may contain:

- 1. DRAWINGS (PDF'S) of the components used in this unit
- 2. EXAMPLE OF MANUALS (if installed in your unit)
- a. Getting Started Manual
- b. Keypad Manual
- c. Touchscreen Manual
- d. EXV Manual
- e. BMS-GATEWAY Startup Guide
- f. Additional manual may be stored here depending on the configuration of the unit

3. SPECIFICATION SHEETS

Each part installed should have a spec (data) sheet included in the 'SITE DOCUMENTS' folder

4. CONFIGURATION FILE - This is the key file in building your unit. If your config file is somehow corrupted, this is the original file used and may need to be re-installed. Call MCS-SUPPORT for help in re-installing this file to your controller.

To locate the 'SITE DOCUMENTS' folder:

- 1. Navigate to the 'MCS TOOLS folder' on your desktop
- 2. Double click on folder to open
- 3. Click on Site _Documents under Places on left.



MAIN SCREEN AND GRAPHICS

2.1. Layout of Main Screen on the Touchscreen

- 1. MCS Tools, icon
- 4. Touchscreen Software Version
- 2. On Screen Keypad icon
- 5. Time of Day (click to change)
- 3. MCS-Connect icon



2.2. COMPANY GRAPHICS

If your touchscreen came pre-installed with the 'Graphic Package', OEM's and trained Installers will be able to modify some of the displays after the initial installation using the Graphic Builder if they are authorized.

With its 1280x800 Resolution, the display is sharp and easy to read. Making use of the 'Stylus pen', and the on screen keypad adjustments are easy and lets the technician check readouts as to the status of the controller.

UNIT STATUS VANE VANE CLSO
COMP CONTROL STATE COMP CONTROL STATE COMP IS MOLDING

The Touchscreen now comes with a new Linux operating system version MCS 1.2.2 and above Calibrating software is not needed for the capacitive touchscreens shipped after February 2024.

ON SCREEN KEYPAD

3.1. KEYPAD -

On the main screen, click on Keyboard Icon as shown in screen 1.



3.2. 'ON SCREEN KEYPAD'

Screen 2 shows keyboard display. Use the stylus and keypad to enter or make adjustments.



UTILITIES FOLDERS

4.1. MCS-TOOLS folder and its sub folders

- 1. Navigate to the 'MCS TOOLS folder' on your desktop.
- 2. Double click on folder to open.

Brief descriptions of these files will be shown on the following pages in this manual.



Clicking on this icon will direct you to the 'Network Manager Backup Utility' screen. Select all or Deselect all and choose which to back up.

Plug USB drive into Touchscreen, next choose 'Backup Folder', USB DRIVE, Run Backup. Restore the files after you update your system from the backup.

4.1.2 Calibrate Touchscreen(Resistive Screen Only)

NOTE: Calibration is not necessary on the New Capacitive Touch.

In the new version of Linux software, MCS 1.02 software is provided to calibrate your **resistive touchscreen** to pin point the accuracy on the touchscreen. When you touch an area on the screen the stylus point aligns with the screen area. We will describe how to do this later in this manual under the **Resistive Touchscreen shipped prior to February, 2024**.

Alarm Alert Setups

Ethernet/Wifi Settings

Select All Deselect All
Run Backup

4.1.3 Keyboard

Clicking on this icon will open the on screen keyboard.

4.1.4 LX Terminal

LXTerminal is the LXDE version of a terminal emulator. It is used by programmers who are familiar with the Linux operating system.

4.1.5 Advanced Network Configuration

Clicking on this icon will direct you to a program which will allow you to setup your communications to the company's network and controllers.

4.1.6 **PDF** Viewer

Allows the tech to open a PDF viewer.

4.1.7 Reboot

Clicking on this icon will reboot your touchscreen.

4.1.8 Set screen timeout

Clicking on this icon allows the tech to set the amount of time that the screen will go into a screen timeout.

- 1. Click on 'Timeout Enabled' to set the time.
- 2. Click on 'Time Until Timeout' drop down arrow to show times available, choose time.
- 3. Click to 'APPLY'

/home/mcs/Desktop/M0	CS TOOLS/L	Itilities	📕 Utilities		- DX	
		Ē	Eile Edit View Bookmarks Go Tools			X
Advanced Network	Calibrate Touchscree	K n	Enable screen timeou	it U	Screen Timeout Enabled	J
Configuration			Time Until Timeout	2	15 minutes	
Set screen timeout	Task Manag	er Te	EXIT		15 minutes 1 minute 2 minutes 5 minutes 10 minutes 15 minutes	
		Eile Edit View Bookmarks	<u>G</u> o Tools <u>H</u> elp	×	20 minutes 30 minutes	,
		Enable scree	Screen Timeout E	nabled		_
		Time Until Ti	imeout 15 minutes			
		E				

4.1.9 Task Manager

Clicking on this icon that lets you manage, search, filter and terminate processes if necessary.

4.1.10 Text Editor

Text Editor is a text editing program enabling you to make changes to text files.

4.1.11 TigerVNC Viewer

TigerVNC is a high-performance, platform-neutral implementation of VNC (Virtual Network Computing), a client/server application that allows users to launch and interact with graphical applications on remote machines.

4.1.12 Time and Date

Clicking on this icon allow the tech to setup the time and date.



1. Navigate to the 'MCS TOOLS' folder on your desktop.

Double click on folder to open.

- 2. Double Click 'Time And Date' to make changes
- 3. Next screen will allow you to change time and date.
- 4. Click to save your changes.



4.1.13 Wallpaper Selector

Set up for OEM only.

SECTION- 5. CAPACITIVE TOUCH NETWORK

5.1. Setting Up Network For Communication With Your Controller

At the touchscreen main screen, click on 'MCS TOOLS' folder' as seen screen 1.



5.2. MCS TOOLS Folder



Click 'Advanced Network' as shown.

CAPACITIVE TOUCH NETWORK

MCS Network I	Manager		- D>
Ethernet	Wifi		
		Device	
	eth0		
		Mode	
(Static IP	O Dynamic IP	
	IP Address	192.xxx.xxx.xxx	
	Subnet Mask	255.255.255.0	
	Default Gateway	192.xxx.xxx.xxx	
	DNS Server		
	Save And Exit	Exit Without Saving	

5.2.1.1. Selecting a Ethernet Port

- 1. Go to the Ethernet tab.
- 2. Choose either Static IP or Dynamic IP
- 3. Setup the following to connect to the network in your location.
 - a. IP Address
 - b. Subnet Mask
 - c. Default Gateway

SECTION- 6. Update MCS-CONNECT for Capacitive Touch

NOTE: MAKE SURE YOU DOWNLOAD THE LATEST LINUX VERSION OF MCS-CONNECT FROM OUR WEBSITE AT:

http://www.mcscontrols.com/software.html

This will walk you through updating MCS-CONNECT on your Capacitive touch screen.

- 1. Format a new USB drive prior to installing this update, insert into your computer.
- 2. Go to the MCS-WEBSITE and down the latest MCS-CONNET for your touchscreen.



Please Note

Locate the Serial Number on your touchscreen board and follow the installation procedure for proper deployment.

- 3. Save the correct file to the attached USB drive on your computer.
- 4. Insert the USB drive into the back of the touchscreen.

On back of touchscreen, locate the USB PORT as shown on screen 2 and insert the USB drive with the new version of MCS-CONNECT.



The below screen will appear, click OK.

MCS USBTool		- O X
Installer to run:	MCS-Connect_18_40_12_Yocto_Installer.jar	
Graphics to copy:	None	_
Open in File Explorer		ОК

5. Click 'Next" to continue.

👫 Installation of I	MCS-Connect 18,40.12	- DX
MICRO CONTROL SYSTEMS	Welcome to the MCS-Connect Setup Wizard	
	This will install MCS-Connect 18.40.12 on your computer	
	To continue with the installation, press next. To stop the installation, press quit	
	Step 1 of 7	Quit

6. Click to accept terms of license agreement, click 'Next' to continue.



7. Select the installation path as shown.

Installation of I	MCS-Connect 18.40.12		- 🗆 X
CMICRO CONTROL SYSTEMS			
	Select an installation path:		
	opt/MCS/MCS-Connect	Brov	vse
	St <mark>ep 3 of 7</mark>	Previous Next	Quit

8. Next screen, click 'Yes' to update the current version on the touchscreen.

Installation of MCS-Co	onnect 18.40.12	- 🗆 🗙
MICRO CONTROL SYSTEMS		
😽 Warn	ing!	- DX
	It appears MCS-Connect is already installed here, would you like to update your current	version?

UPDATE MCS-CONNECT FOR CAPACITIVE TOUCH

Personal Setting	s Workspace Settings	Graph Data
Settings Found	Invalid File	Invalid File
 Keep Existing Installation Defaults 	 ○ Keep Existing ● Installation Defaults 	 Keep Existing Installation Defaults

10. Setup Shortcuts, click to check boxes for Start-Menu and shortcuts on the desktop, click next.

👬 Installation of MCS-Connect 18.40.12
CMICRO CONTROL SUSTEMS
Setup Shortcuts
 Create shortcuts in the Start-Menu Create additional shortcuts on the desktop
create shortcut for: current user
 all users Select a Program Group for the Shortcuts:
MCS Default
Step 5 of 7

11. Next screen shows progress bar.

💦 Installation of I	MCS-Connect 18.40.12	- 🗆 X
MICRO CONTROL SYSTEMS		
	Pack installation progress:	
1	[Finished]	
	Overall installation progress:	
	6 / 6	
	Step 6 of 7	Quit

12. Last screen shows installation has completed successfully.

The installation placed an 'unstaller program in /opt/MCS-CONNECT/Uninstaller.



13. Double click on the USB drive on the desktop, opens in file manager.



14. Click on 'ARROW' to eject and remove from the back of the touchscreen.



SECTION-7. MCS-Connect Communication

- 1. At the 'Desktop screen' click on the 'MCS-CONNECT shortcut'.
- 2. Click on 'Setup' at the MCS-CONNECT' screen.



- 3. Next screen is the setup screen for communicating with your controller or PC.
- 4. You can change the "Com port' and 'Baud Rate" depending on how you are communicating with your controller or computer.

11	MCS-Connect 18.40.10G	- 🗆 × MCS 1.0.2
MCS TOOLS	File Setup Offline Help	Capacitive
	Serial	
Keyboard	G Options Setup Screen	_ _
A	Communications General Tables Network Extended History Alarm Alerts LOCAL Comm. COM Port Selecton REMOTE Comm. COM Port Selecton Use the dropbon to select the appropriate Use the dropbon to select the appropriate	
MCS-	COM Port for LOCAL communications. Com COM 2 show are based on Current Available Ports. COM 2 Com 1 through Com 99 are supported. COM 2	Doubl Date
Comess		Baud Rate
	Communication Timers and Morsage Indicators Base Timer Base Timer 30 1,000 3400 256 Communication Timers and Morsage Indicators Serial Comm. 256 Communication Timers Serial Comm. 256 Communication Timers Communication Timer	19200
	Southern Delay Som Timer	<u> </u>
	500 1,250 Initialization of the Modem's Dialing Command String AT&F&C1&D2L3Q0V1X4M1S0=0S7=60	
Choose 1 TO 99	Save	S'
	Click to save	Screen 2

SECTION-8. Replacing Graphics for Capacitive Touch

- NitroMag 1.2.2 1 Capacitive ICRO **NTROL** YSTEMS 14:07 MCS TOOLS 2. When MCS TOOLS opens, Double click on the File Edit View Bookmarks Go 'GRAPHICS' on the left in the bookmarks. $\widehat{}$ /home/ DIACES Graphics **DELETE THE SUB FOLDER FOR YOUR GRAPHICS** 8.1. Magnum Hex IF YOU HAVE NOT MADE A BACKUP OF THE FILES IN CFG **GRAPHICS FOLDER - STOP** BACKUP NOW TO A FORMATTED USB STICK AND SAVE THESE BEFORE PROCEEDING TO THE NEXT STEP. Graphics 1. Delete the existing Graphic file in the graphics <u>E</u>dit <u>V</u>iew <u>B</u>ookmarks <u>G</u>o Too<u>l</u>s <u>H</u>elp File folder 😋 🔻 🔘 /opt/MCS/MCS-Connect/MCS/Graphics Ο -2. In this case the example shows 'TRANE' for Places graphics sub folder. SCREENSA ... 3. DELETE THIS SUB FOLDER ONLY, CLICK or1280x800. graphicError.xtrane WITH STYLES PEN, HOLD AND A DROPpng ml 📕 Magnum Hex DOWN MENU APPEARS, 'DRAG TO MOVE
- 1. Click on the 'MCS TOOLS' folder on the desktop.

8.1.1 NEXT STEP FOR INSTALLING THE NEW GRAPHICS FOLDER

Continue to next page.

TO TRASH'

CFG

MCS-CONNECT COMMUNICATION

- 3. Click on folder which contains your graphic file.
- 4. Copy new graphics file to a formatted USB Stick.
- 5. Plug the USB Stick with the new graphics file into the back of the touchscreen.



- 6. USB disk opens, click on small arrow for 'Graphics to copy", click okay.
- 7. File that will be copied to the 'Graphics folder in the bookmarks.

	MCS USBTool	-OX
	Installer to run:	None
	Graphics to copy:	/media/SCREENSAVER/Florida Mechanicla CVHF with Purge/trane/cvhf_purge_vfd 🤜
Op	en in File Explorer	ОК

8. On bookmarks Places, click on Graphics, Your new graphic files will be in the subfolder of the Graphics folder. Example shows file that was placed in this folder 'TRANE'.



- 9. (Generic names can be used for different chillers (Trane, Carrier, etc.)
- 10. Double click on the subfolder "Trane" to see files needed for the replaced graphics.



REPLACING GRAPHICS FOR CAPACITIVE TOUCH TESTING THE GRAPHICS

ON MCS-CONNECT SCREEN

- 1. Click on 'OFFLINE' at top
- 2. Load your chilleroverview.xml file, Enable Auto Screen Refresh
- 3. Click to open your graphics folder in the graphics folder under places
- 4. Highlight 'chilleroverview.xml', and click open
- 5. When MCS-CONNECT opens, click on the 'chilleroverview.xlm tab to open your graphics
- 6. Once you verified the graphics have been loaded, close MCS-CONNECT and re-connect to the controller and click on the graphics tab at the top right.

MCS- NitroMag WiFi Setup

MCS-NitroMag WiFi Setup



1.1. WiFi Connection

The MCS-NitroMag-N is equipped with 2.4 GHz, 5.0 GHz 802.11 b/g/n ac wireless.

A Wi-Fi antenna converts radio frequency (RF) waves, which contain packets of information, into electrical signals, or electrical signals into RF. This conversion method permits wireless devices such as routers, smartphones, laptops, and tablets to communicate wirelessly.

The board included an external antenna connection, If used it should be positioned outside an encloser or panel that is not surrounded by metal, including any ground plane.

The hotspot can be connected to your PC's Wifi to wirelessly get connected through MCS-NitroMag-N.

1.1.1 Setup for Connecting to WiFi

- 1. Click on Touchscreen MCS TOOLS on the desktop.
- 2. Next click on MCS-NETWORK CONFIGURATION.

<u>File Edit View B</u> ook	marks <u>G</u> o Too <u>l</u> s	s <u>H</u> elp											
- 0 - 0 0	🖕 💿 🔻 🕥 🏠 /home/mcs/Desktop/MCS TOOLS												
touchscreen-screenshots	MCS TOOLS	6 🖬	_										
Places 🔻					-								
16 GB Volume			3		00	U							
Graphics	Calibrate Touchscreen	Keyboard	LXTerminal	MCS Network Configuration	PDF Viewer	Reboot	Set screen timeout	Task Manager					
📕 Magnum Hex		050											
📕 CFG	3												
A PRT	Text editor	TigerVNC Viewer	Time and Date										

3. Click on the WiFi tab to setup the Access point for the WiFi.

	MCS Network	Manager	
	Ethernet	Wifi	
Dis	able WiFi	Device	on Access Point
SSID= WiFi Name, shows in 0	JUI	wian0	
on device		Mode	
		abled Client O Access Point	
	Belov	rinfo is only for access points	Enter Password
	Subnet Mask	192.168.99.1	
			Setup Default WiFi IP Address and Subnet Mask
		Save And Exit Exit Without Saving	

- 4. Click on 'ACCESS POINT'
- 5. Click on 'SSID' and enter a name for your WiFi.
- 6. Enter the defautl 'IP ADDRESS' for your new WiFi network.
- 7. Enter a 'PASSWORD'
- 8. Enter the 'SUBNET MASK', default '255.255.255.0'
- 9. Save and Exit

- 11. Open your mobile phone / computer and view the GUI connection for the MCS-NitroMag.
- 12. This works just as you'd expect it to with Laptops or smart phones.
- 13. Refresh your WiFi, your new hotspot will be ready to connect.
- 14. Click on GUI, sample 'nitromag-Touch'.

MCS.LOCAL MCS-NitroMag 14 WiFi Access point	MCS.LOCAL Connected
	DIRECT-B6-HP M428fdw U
No Internet, secured	MCS nitromag-Touch
<u>Properties</u>	MCS-GUEST Enter the network security key
Disconnect	MCSadmin22
The DIRECT-B6-HP M428fdw LJ	Enter the PIN from the router label Next Cancel
MCS-GUEST	15 (usually 8 digits)
MCS	Connect using a security key instead
DIRECT-15-HP M428fdw LJ	Next Cancel Network & Internet settings Change settings such as making a connection metered.
a	
Network & Internet settings Change estimate such as making a connection material	Mobile
15. Click on the "Connect using a se	ecurity key instead"

NOTE: THE SECURITY KEY IS THE PASSWORD YOU ENTERED IN THE WIFI ACCESS POINT

- 16. Enter the Password (default password: MCSadmin22) entered in the WiFi setup in the previous screen.
- 17. Next screen shows 'CONNECTING, VERIFYING AND CONNECTING'



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MCS-CONNECT

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 19.00.04			—		×									
File Setup Offline Help														
Serial	Local Network Connections Serial													
	Remote Network Connections													
Site Name New Site	-	Conne	Connect Remotely											
	O Dialup	○ IP (Internet)	○ IP Lantronix											

MCS-CONNECT supports the following controllers:

- MCS-NitroMag controller
- 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 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.

	MCS-CONNECT	
Image: State Stat		
Commonseties Service Lineary Lin		

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 (MCS-MAGNUM 1008 Samples) (MCS-MICROMAG 300 Samples)
- 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

1.6. Downloading from our Website

The latest versions of MCS-CONNECT can be downloaded from our website by going to: http://www.mcscontrols.com/software.html

Navigate to MCS-CONNECT and choose the Windows or Linux version of the software.

MCS-CONNECT-WINDOWS and LINUX communicates with MCS-8, MCS-MAGNUM, and MicroMag micro controllers.

1.6.1 **VIEW ONLY VERSION**

This version is available to all OEM, Contractors, Installers and their personnel for downloading to their computers or laptop.

Changes cannot be made to a system when using this version.

It is used for 'VIEW' only.

1.6.2 **•** AUTH CODE VERSION

If you are an authorized OEM, Contractor, or Installer using Mirco Control Systems, you can be authorized to download this version of the software.

Changes can be made to your system when using this version.

Contact MCS for the authorization code needed.

Please Note:

The software contained on our website is the latest official release of MCS-CONNECT for Windows and Linux versions.

We post 'BETA' versions of the software here also. This is software that is being tested in our plant and is made available for testing in the field before its general release to OEM's, Contractors and Installers.

These are full install versions and does not require previous versions to have been installed. To install the software, first download (Save) the file to your computer or flash drive.

If installing on our Touchscreens, move the installer to the touchscreen via network or flash drive. Then run it by clicking on the downloaded file and following the instructions given.



IMPORTANT!!

Prior to making any changes to your Touchscreen, read the application notes which are posted to our website on upgrading.

APP113-UPGRADING MCS-CONNECT ON TOUCHSCREEN

Prior to upgrading MCS-CONNECT make sure your firmware and Graphics are up to date Consult MCS for support

SETUP OPTIONS FOR MCS-CONNECT

1.7. Finding your Communication Ports on your PC.

MCS-CONNECT defaults to COM1 for Local communications and COM2 for Remote communications. Local communication refers to a direct connection between your PC and the Unit, whereas Remote communication refers to communication via your modem. If your PC uses a different port, use the button to select the appropriate port.

To find your PC's com port before starting setup for MCS-CONNECT:

For Microsoft Windows 7and up:

- 1. At your desktop, left click on Start.
- 2. Left click on Control Panel button.
- 3. Click on Device Manager.
- 4. Left click on Ports (COM & LPT) to see Port information.



7.1 MCS-PC-CONNECT Communication Setup

Before a serial connection can be made to an MCS controller the COM (communication) PORT must be selected. To select a COM PORT for communication, choose the Setup menu option and then choose Communication,

	MCS Connect 17.00.00 Reta				X
File	e Setup Offline Help				
	Communications	—Local Netwo	rk Connections		
	General Options	-		Ethernet	
	- Table Options				
Г	Network Options	Remote Netw	ork Connections—		
	Extended History		Conne	ct Domotoly	
	Alarm Alerts		Conne	ect Remotery	
	Schedule Diagnostic Save	🔾 Dialup	IP (Internet)	○ IP Lantronix	
		l			

Next screen shows com ports - make changes as per your computer's communication ports and save these changes.

MCS-PC Connect Communication Setup Screen	
Communications General Tables Network Extended LOCAL Comm. COM Port Selection Use the arrow keys to select the appropriate COM Port for LOCAL communications. Com 1 through Com 99 are supported.	d History Alarm Auto-Print Alarm Alerts REMOTE Comm. COM Port Selecton Use the arrow keys to select the appropriate COM Port for REMOTE communications. Com 1 through Com 99 are supported.
Communication Timers and Message Indicators Base Timer	Baud Rate • 19200 38400 57600 115200
500 v 1,000 v	Initialization of the Modem's Dialing Command String AT&F&C1&D2L3Q0V1X4M1S0=0S7=60 Cancel

1.8. PC Communication Speed & Wait Timers

Base Timer: Time is length of wait before windows activates the main program loop where the normal communications occur. (Mouse clicks also cause an interrupt to the program to handle that function.)

SOM Timer: Timer is used to perform two functions:

When the system is scanning the network for active MCS controllers, this is the wait time before that address is considered not to have an active controller. When a controller is found or this amount of time has expired the system moves to the next network address.

Once communication has been established, the system will wait this length of time for a valid start of message (SOM) from the controller in response to a message request. If none is received, the system will retry and extend this time. Three retries are attempted before an error is reported. (Note that when communicating with an MCS-8 controller you should set this value to 1000 or greater to ensure proper communication.)

EOM Timer: Once a valid SOM has been received, the system will wait this length of time to

receive a valid end of message (EOM) from the communicating controller.

1.9. PC Communication Modem - Remote

Modem Delay: Used only with remote communications. Once the PC's modem has been verified that it is active, on the COM PORT specified and the dial string has been sent to it, the system will wait this length of time for the response from the called modem. This is used only

for the first response after communications has been established the SOM and EOM timers are used. The SOM timer will be extended with remote communications.

1.10. Initialization Dial String

If you have a standard "Hayes" compatible modem, no changes are required. If not, you must locate (your modem's manual) and enter the equivalent values.

Note: Try AT&F if default string does not work.

Once you have set the modem initialization command string you should select the 'Save'

button. If you want to abandon the change you should select the 'Cancel' button.

Initialization of the Modem's Dialing Command String AT&F&C1&D2L3Q0V1X4M1S0=0S7=60

Communications can now be established.

1.10.1 Local Communication Errors

No modem detected or Comm Port initialization error - Can occur in either the

local or remote modes. The COM PORT cannot be initialized. Check the COM PORT setting to determine if the correct port, base address and IRQ has been selected. A malfunctioning COM PORT on the PC can also cause this error.

This can be checked by executing a Windows terminal program and then shorting pins 2 and 3 together on the cable. Any characters that are typed at the PC will appear on the screen of the PC if the port is functioning. The following message will be displayed:

Failed To Open Comm Port										
Please Check Comm Port Number										
ок										

COM PORT is in use - Can occur in either the local or remote modes.

COM PORT is not available, it is busy - This can occur if another MCS-CONNECT is running on the network or another program is using the requested COM PORT. When this condition occurs the above message will be displayed:

11. Getting Connected - MCS-NitroMag-15.4

	MCS TOOLS	MCS-Connect 19.00.04 - × NitroMag File Setup Offline Help Capacit Local Network Connections Ethernet	1.0.5 ive
		Remote Network Connections	
(Site Name Connect Remotely	
\mathbf{n}	MCS- Connect		
		United the contract of the con	
	📕 [LXTermi	CS-C0	09:42

Once you have completed your setup of MCS-CONNECT, click on the communications button for MCS-CONNECT program to start scanning for MCS-controllers.

1.12. SCAN FOR CONTROLLERS

MCS-CONNECT will search for up to 60 MCS controllers that could be connected on the network.

Once all of the units are displayed or when the unit you want is displayed you may select that unit from the tab at the top of the grid or double click anywhere on that row to load up the controller's status.

🌸 MCS-Connect 19.00.04-Connected on Com Port 4 at 19200 Baud Rate Scan Finished listory - Disable ALARM ALERTS-INACTIVE File Setup Offline Work ace View Button Bar Time Help Live Graph Extende Analysis Units Reset/Clear Disconnect Transmit Cfg **Receive Cfg** View Only **Diagnostic Save** Graphics Alarms Scan Graph Print Site Info 1 - VANE CAL Address HW Serial # Company Name Unit Model # Unit Serial # Installed Date Cfg Vers. Firmware Vers. Cfg Date Cfg Name (1) MICRO CONT... WSC100-BBA... STNU110800... CENT 17.95 002135 VANE CAL 10/12/2023 17 05/08/2024

You can use the horizontal or vertical arrows to scroll for more controllers tabs in the site info.

Serial Network Connection: If MCS-CONNECT does not find any MCS controllers, the Scan Finished message will be displayed in the title bar and no units will be displayed in the grid.

In the info grid MCS-CONNECT version and scanning information is displayed in the title bar.

Once in the Status Screen MCS-CONNECT version, day, date and time, plus the company name will be displayed.

If a MCS Controller has an invalid configuration, its entire row will have a RED background. Installer needs to Transmit a new configuration file to this controller before continuing with setup. The installer is authorized at 'View' level to 'Transmit Cfg' and 'Receive Cfg'.

		Author 'Grayed οι	ization Level It' Invalid Config											
Workspace View Bu	Workspace View Button Bar Help													
Scan	Graph	Transmit Cf	g Receive Cfg	View Only	Edit Time	Print	Graphics							
hiller 1 Stone 1 - II	NDELSA 1-3 CMP 1-	AC Turbocor Invalid Confi	g 1 - CUSANOS BAKERY	81 - FWC 410A 2 - SR	RD 2 - WashingtonTrust	1 - HOT ROOM 1 - AC	J 🕺 1 - RI Cnvtn. C							
HW Serial #	Cfg Name	Company Name	Unit Model #	Unit Serial #	Installed Date	Cfg Vers.	Firmware Vers							
007706	Grove Hotel	AmericanChiller	19XR Chiller #2	1797356015	04/01/2015	17	CENT 17.14-							
004611	Chiller 1 Stone	DUNHAM-BUSH	WCFX41S	E4896	03/04/2014	14	HVAC 16.10-							
000419	INDELSA	LEANO	2 ROZ 11001	HIGH SADE	02/20/2015	17	HVAC 17.14-							
006592	5 CMP	Indust. Vent.	REV CYC DEFROST		12/12/2014	14	REFR 16.10 -							
00009	AC Turbocor	AAON	LZA-120-C-0-3-J	BBCM00003	04/21/2014	17	HVAC 1711							
002193	ASY230BF 01	ZAMIL AC	ASY230BF_01	CH8J39-03(N)	03/10/2015	17	RTUM 17.14-							
012797	CUSANOS BAKERY	DUNHAM-BUSH	AUDS010-6Q	E5467	03/06/2015	17	HVAC 17 14							
001082	FWC 410A	NAPPS	FWC 20	PROTO B	02/23/2015	17	TIVAC 17.14							
004701	SRD	Anne configuratio	2 RC-15I	HVAC 08 03-E	08/00/2010	11	HVAC 08.06-							
001330	WashingtonTrust	Sno Valley	Chir 2 - 19DG		03/18/2015	17	CENT 17.14-							
000884	HOT ROOM	STI	HOT ROOM		10/02/2014	11	HVAC 09.11/							

1.13. PASSWORDS - GETTING AUTHORIZED

VIEW ONLY MCS-CONNECT SOFTWARE CANNOT BE AUTHORIZED TO A HIGHER LEVEL OEM'S, CONTRACTORS and INSTALLERS MUST DOWNLOAD THE 'AUTH CODE' VERSION OF MCS-CONNECT TO BE ABLE TO MAKE CHANGES. CONSULT MCS SUPPORT.

At any time while connected to a MCS controller the user can get authorized to a higher level by clicking on the **'View Only'** button located at the top of the screen. Higher levels of Authorization may be necessary to make changes to the controller you are connected to.

See levels below:

G MCS-Connect 17.09.00 Beta						TUE DEC 8, 15 15:36:30						MCS RS					
Fil	e Se	etup	Offline	Reset/Clear	Workspace	View	Button Bar	Time	Help				\sim				
		Disco	onnect		Scan		Graph		Transmit Cfg		Receive Cfg		View Only	[Diagnostic Save	Print	
	Site Info 1 - Plant RapdStart																

Note: The color of the Authorization button indicates what level you are authorized, and the current level of authorization. The system default is 'View' only.

YOU MUST HAVE AUTHORIZATION TO MAKE CHANGES TO THE SYSTEM HIGHER THAN VIEW. CONSULT YOUR SUPERVISOR FOR WHAT AUTHORIZATION LEVEL IS NEEDED FOR MAKING CHANGES TO THE SYSTEM.

Red	=	VIEW ONLY
Light Blue	=	USER LEVEL
Fuscia	= 1	SERVICE
Blue	=	SUPERVISOR
Green	= 1	FACTORY

When you select the Authorization button the following pop up will be displayed: Enter the 4 digit authorization code in the space provided and press the 'enter' button. The <u>Cancel</u> button will return the user to the previous screen with no changes made to the authorization level. *Note: That the code that is entered is not visually displayed*. If an invalid authorization code is entered, no message is displayed. The Authorization color and level will remain un-





NOTE: MCS-CONNECT version 19.00 and up allows for a combination code using both ALPHA and NUMERICAL passwords USING THE KEYPAD ON THE TOUCHSCREEN

- 1. Using the stylus pen, click on the Keypad on the desktop.
- 2. Click on the **'minimize'** button on the top cornor of the keypad to hide the keypad. (the keypad can be shown at the bottom of your desktop when you move the stylus over the bottom).
- 3. Double click on MCS-CONNECT icon on your desktop to open.
- 4. Click either the Ethernet or Serial tabs to scan for your controllers.
- 5. Click on the controller which you want to open.
- 6. Click on the 'VIEW ONLY' tab at the top of the menu bar. You must be authorized to make changes.
- 7. Click on the bottom of the desktop to show minimized Keypad.
- 8. Click on the Keypad to open. This will enable you to enter both 'ALPHA' and or 'NUMERICAL' passwords.
- 9. Click on 'ENTER AUTHORIZATION ONLY' on MCS-CONNECT.
- 10. With the cursor shown blinking, use the stylus to enter your combination code in MCS-CONNECT.
- 11. Click 'OK' to change authorization.

MENU BAR DESCRIPTIONS

Below is a pull down list of functions for the Menu Bar Tabs. The tabs allows the user to make fast screen changes, save custom workspaces, etc. See a description for each item below.

🔁 N	ICS-Connect 1	7.09.00 Beta			WED I	DEC 9, 15	5 09:22:28			
File	Setup	Offline	Reset/Clear	Workspace Til	View	Button Bar	Alarm Alerts	Time	Help	Live Graph
Exit	Communications	Load Offline Graph File	Reset Lockouts	Switch Workspace	Analog Outputs	🗆 Hide	Suspend Alarm Alerts	Edit Time	About MCS-Connect	Add Live Graph
	Toggle Lockout Alarms	Load Offline XML File	Reset Manuals to Auto	Save Current Workspace	Alarms Window	Show	Reactivate Alarm Alert	S	Check MCS website for updates	Save A Live Graph
Sit	e Info 🛛 1 - C	HILLER		Update Workspace	Information Window	Disconneo	ct		Documentation	¹ Save A Live Graph Group
				Delete Single Workspace	, Relay Outputs	Scan				Load A Graph
	Relay Outputs			Delete All Other Workspaces	Service Window	Graph	•		Sensor Inputs	Load A Graph Group
É	Basic Advanced			Center All Internal Frames	Schedule / Holiday Window	Transmit (Cfg		Basic Advanced	Remove A Saved Live Grap
1	R			Resolution Based Quad Frames	Setpoints	Receive C	fg Total		Sensor	Remove A Saved Graph Gro
					- Sensor Inputs	Factory				
					System Status Window	Print				
					Unit Status Window	Graphics				
					Heat Status Window					
					Boiler Status Window					
					Damper Status Window					
					Cooling Tower Window					
					Interactive P/T Chart					
					Temp and PSI Converter					
					User Logic State Tables					
					Edit Lookup Tables					
					Show Spare Rows					
					Clear RO Table Hide/Show	column				
					Clear SI Table Hide/Show	column				
					Clear AO Table Hide/Show	column				

Click on MCS-TOOLS at the main screen and click on the MCS-CONNECT Manual.pdf supplied in the 'Site Documents bookmark to see all the functions for the MENU BAR.

MCS-NitroMag-N LAYOUT

1. Components of MCS-NitroMag-N

NITROMAG OPERATION SYSTEM - REV 1.05 & up NITROMAG HVAC FIRMWARE - REV 19.00E & up



- RS-485 PORTS Each port suports up to 115200 baud rate.
- BMS NETWORK CONNECTIVITY
 BUILD IN SUPPORT Modbus RTU Master
 Protocols BACnet IP, BACnet MSTP, Modbus IP, Modbus RTU Slave (N2 coming soon) (LonTalk requires MCS-BMS-GATEWAY)
- MODBUS MASTER

BUILD IN SUPPORT - Supports up to 20 Modbus devices e.g., VFD's KW Meter, Compressors. (MCS-Modbus I/O no longer required).

MODBUS WIRING TO SLAVE / MCS-IO-BASE

MCS-NitroMag-N communicated through the MCS-I/O communication port at 38,400 baud rate. The firmware includes a MODBUS INTERFACE which enables it to act as a MODBUS MASTER using the MODBUS RTU protocol, which allows communication with the MODBUS slave for parameter access over the RS485 communication port

on the MCS-Nitromag-N.



The MCS-NitroMag-N is configured through the MCS-CONFIG firmware. The MODUS RTU MASTER supports up to 20 MODBUS decives e.g., VFD's, KW Meter, Compressors.

Using MCS-CONFIG firmware, a configutation file is created based on the slave parameters.

Each parameter is assigned a pre-programmed register number.

Those register numbers are named in the configuration file, which will display in MCS-CONNECT when viewing the controller.

The register parameters will be assigned to Sensors inputs, Relay outputs and Analog outputs to relay the information from the MODBUS slave.

The next pages shows information on how this is setup in the MCS-CONFIG file.

40

MODBUS / MCS-CONFIG SETUP

RS 485 ports Communication with MCS-NitroMag-N

MCS-CONFIG version 18.xxx.xx and up allows the programming of the RS485 ports in the setup section.

- Up to 20 MODBUS devices can be set up.
- RS 485 #1 and RS 485 #2 ports can be assigned as shown on the right.
- RS485 port #1 Protocol type can be set up as Modbus RTU Master.
- Port #2 can be set up as a MODBUS RTU slave.
- Check with the slave manufacturer to change the Baud Rate, Parity, and Stop Bits.

RS	6485 #1
Protocol Type	Modbus RTU Master 🔳
Baud Rate	38400 💌
Parity	No Parity
Stop Bits	1
Poll Delay (ms)	200 💌
Poll Timeout (ms)	500 💌
Bits Per Byte	8
RS	3485 #2
Modbus Slave Address	1
Protocol Type	Modbus RTU Slave 🖃
Baud Rate	9600 💌

1. Modbus RTU Master

BUILT IN SUPPORT

MCS-NitroMag-N Supports up to 20 Modbus devices e.g., VFD's KW, compressors.

(Modbus I/O no longer required)

Supports protocols BACnet IP, BACnet MSTP,L Modbus IP, Modbus RTU slave, Modbus RTU Master.

(Lontalk needs MCS-BMS-GATEWAY), N2 coming soon)

1.1. MODBUS SLAVES

Slaves are pre-programmed in the configuretaion file setup for your controller when shipped.

A sample configuration file is shown below and on the next page. MCS-NitroMag can be pre-rogrammed with the MODBUS write registers found in documentation supplied by the manufacturer using MCS-CONFIG software.

MODBUS Device Setup in MCS-CONFIG

Currently Editing Device Named: Test1

				Mod	bus Devices Setu	IP	
	# Device Name		Device Name	Device Address	RS485 Number	Configuration	_
►	1		Test1	1	RS485-2	Custom - Sample Slave	
	2		SPARE-2	0	Not Set	Not Used	
	3		SPARE-3	0	Not Set	Not Used	
	4		SPARE-4	0	Not Set	Not Used	
	5		SPARE-5	0	Not Set	Not Used	-

- 20 Devices can be added (drop down window)
- Device Name can be edited
- Device Address is asigned
- Rs485 port number is assigned (RS485-2 default)
- · Configuration is the Name of Slave (additional slaves can be programmed using Custom setting)

					Genera	Read/Write Modbus Master Points	
Device Lockout			#	Register Number Offset	Register Number Offset (HEX)	Register Type	Modbus Data Types
No Lockout		\mathbf{F}	1	 84	0x0054	(R-FC01) Coil Status	Single Bit
No Lockout			2	 0	0x0000	Not Set	Not Set
No Lockout			3	 0	0x0000	Not Set	Not Set
No Lockout			4	 0	0x0000	Not Set	Not Set 👻
No Lockout	-	•					►

- Register Number offset
- Register Number offset (HEX)
- Register Type (drop down window)
- Modbus data type (drop down window)

MODBUS / MCS-CONFIG SETUP

1. MODBUS DEVICE LIST

	Currer	ntly Editing Devi	ce Named: (Comp1A1000	1			Modbu	ıs De	vice L	ist						
2.	# 1 3 4 5 SE	Device Name Comp1A1000 Comp2A1000 ApmPowerMete SPARE-4 SPARE-5 ENSORS	Device Address 1 2 3 0 0	Modbus RS485 Number RS485-1 RS485-1 RS485-2 Not Set Not Set	Devices Setu YASKAWA YASKAWA POWER M Not Used Not Used	up Configuration De GA800/A1000 N GA800/A1000 N ETER APM PWR APO N N		ine 1 inform 1. Device I 2. Device / 3. RS485 / 4. Device / a. Info	natior Name Addre Port I Confi ormat	n is ad e ess Numbe iguratie tion is	lded er on se prog	for the M etup grammed	IODBUS Device into the MCS-CONFIG fi	le	Modbu Ne Ne	s Data Types ht Set ht Set ht Set ht Set	
	6-1 6-2	Name (1 to 10 char)	Display T MB RTU Re MB RTU Re	ype Manua NC/Ni to c ead Closed ead 4	Value or) (select hange) =OFF	Select Display Type DIGITAL/SW DECINOCH		5. Sensor Configu	rs Inp uratio	outs, F on De	Relay vice	and An is chose	alog Outputs will popul en.	ate when	ypes (tByte	Bitmask 8 65535	MB
F	6-3	···· Vfd KW 1	MB RTU Re	ad 1	7	KW AMPOINT		Comp1A1000		40		Dx0028	(R-FC03) Holding Registers	Signed Int16 I	High Byte	65535	1
H	6-5	···· VfdVolts 1	MB RTU Re	ad 7 ad 46	0	VOLTS-1Dec		Comp1A1000		39			(R-FC03) Holding Registers	Signed Intits i	lign Byte	60030	
	6-6	VfdDCBus 1	MB RTU Re	ad 60	0	VOLTS-ODec		Comp1A1000		50		Kawa HADK VED	Verlager Drive				
3.	RE #	Name	UTPUT	1. A p ass 2. Inf pu en	oopup so signed t ormation s are po cered.	creen will show the re o the MODBUS Devic n for Sensors Inputs, opulated after the Dev	egis ce ii Rel vice	ters (points n HEX num lay and Ana configura	s) nbers alog (ition is	Dut s		VFD VfdFault 1 Vfd Hz 1 Vfd KW 1	Heat Regin Fault (0x21) VFD Amps (0 ✓ VfdAmps 1 Hertz (0x42) VFD Voltage (1 ✓ VfdVolts 1 Ø KW (0x28) VFD DC Bus (1 ✓ VfdDCBus 1 VFD Frequency Reference (0x24) VFD Frequency Reference (0x24)	sters x27) 0x26) 0x69) Drive Status (0x	VFD Heatsink frdHsink 1 VFD Fault (frdFlt #1 VFD Mode (t lot Used 4C)	(0x69) × x81) × x2D) ×	
ŀ	#	Name	C	entrol Tune	Modbus Dis	splau Tupe Device Name	F	Analog Output	Modbus	Master Po	2		Not Used	Not Used	•		
	* 6-1 6-2	Comp 1 Hz Comp1Cmnd		AD Write AD Write	Spare Spare	Comp1A1000 Comp1A1000 Comp1A1000	Nur	sper Offset Off	0x0003 0x0002		-		Write Regis	sters Compressor Command Comp1Cmnd	ts (0x02)		
		FC	DR	MO	DB	US SLA		/ES									

MCS-CONNECT - Startup

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
- MCS-NitroMag controller
- MicroMag controller

5. Communicating with MCS-CONNECT

- 1. MCS-CONNECT must be setup for the correct network address for your buildings IP address in order to connect to your controllers.
- 2. Configuration files and Firmware software can be changed based on your authorization to make those changes.
- 3. Information for makeing changes can be found in the MCS-CONNECT latest manual located on:

www.https://mcscontrols.com/manuals.html

Scan for Controller

Once connected, click on the MCS-CONNECT program to open.Changes to the config and firmware software can be changed if you are authorized. Click on the Ethernet tab to open available controllers.

MCS-Connect 17.00R		- - - - - - - - -
File Setup Load a Graph File Help		
Serial	–Local Network	Ethernet
	- Domoto Notwor	& Connections
Site Name	-Keniole Networ	k connections
Site Name		Connect Remotely

Next screen shows MCS-CONNECT scan for controller. Click anywhere in the row to open your controller. (if there is a RED line through your controller, you need to update the config file/firmware.)



6. RS485 PORTS SETUP(service menu, MCS-CONNECT)

RS-485 Ports...... 2 @ up to 115200 baud rate

Sample Screens for setup MODBUS salve (receive Cfg file received)

- 1. RS485 #1 Setup for MCS I/O communicating -19,200 baud address #1
- 2. RS485 #2 Setup for MODBUS RTU MASTER 38,400 BAUD. Bits per Byte=8, Stop Bits= 1

BACN	ET Et	hernet	Graphics	Site Info	SI Diag.]
	RS4	485 #1			RS485 #2	2
			RS485 N	letwork		
Proto	ocol	MCS		-		
Addr	ress	1 💌			-	
Baud	l Rate	19200	-			
		DRO	PDOWN WINI		IS	
	Proto	ocol	Addre	ess	Baud Rate	e
М	ICS				38400	
М	IODBUS RT	U Slave		Ī	19200	
CI	PM		1-9	9	57600	
М	IODBUS RT	U MASTER		Ī	115200	
B	ACNET MS	TP				

BACNET Ethern	et 🛛 Graph	nics Site	Info S	SI Diag.						
RS485	#1		RS485 #2							
	RS48	5 #2 Netw	vork							
Protocol	DBUS RTU	MASTER	-							
		I	Poll Dela	y (ms)	100	-				
Baud Rate 384	100	- Pol	l Timeou	t (ms)	500	•				
			Bits	per By	te 8	-				
		Parity N	one 🔻	Stop B	its 1	•				
	ROPDOWN W		ONS							
Protocol	Baud Rate	Poll Delay (ms)	Poll Timeout (ms)	Bits per Byte	Stop Bits	Parity	_			
MCS	4800									
MODBUS RTU Slave	9600	10	100	7	1	None				
СРМ	19200	J	J. 30	or	or	Even				
MODBUS RTU MASTER	38400	1000	2000	8	2	Odd				
	57600	1000	2000	5	2	Ouu				
	115200									

7. SENSOR INPUTS

Sample - ABB MODBUS Read Sensor Inputs

9 Sensor Inputs pre-programmed into software. (receive Cfg file received)

Bas	Sensor iic A	Inputs dvanced										ť 🛛
۲	SI#	Sensor Inputs	Value	Manual Status	Filter/ Offset	Sensor Type	Last On/ MAX TDY	Last Off/ MIN TDY	Run TDY/ Avg TDY	Cycles TDY	Run YD Max YD	n N
~	1-3	HotWtr In	-999	AUTO	0/0	MB RTU R	-999	-999	-999		0	-
~	1-4	HotWtr Out	-999	AUTO	0/0	MB RTU R	-999	-999	-999		0	
~	1-5	SuctPsi 1A	-9.99	AUTO	0/0.00	MB RTU R	-9.99	-9.99	-9.99		0.00	
~	1-6	DiscPsi 1A	-9.99	AUTO	0/0.00	MB RTU R	-9.99	-9.99	-9.99		0.00	
~	1-7	SucTemp 1A	-99.9V	AUTO	0/0.0V	MB RTU R	-99.9V	-99.9V	-99.9V		0.0V	
V	1-14	DsblCkt 2B	-99.9%	AUTO	0/0.0%	MB RTU R	-99.9%	-99.9%	-99.9%		0.0%	11
V	1-15	FlowSwitch	0	AUTO	0/0	MB RTU R	0	0	0		0	
2	2-9	ChwVlvPrfA	-999	AUTO	0/0	MB RTU R	-999	-999	-999		0	
	3-4	Cmp1ARunul	OFF	AUTO	0/0	MB RTU R	00:00:00	00:00:00	00:00:00	0	00:00:2	1 🗸
				•							•	•

8. ANALOG OUTPUTS

Sample - ABB MODBUS Read Analog Outputs

3 Analog Outputs pre-programmed into software. (receive Cfg file received)

	Analog	g Outputs									_ • Ø
Ba	sic	Advanced									
•	AO #	Analog Outputs	Value	Manual Status	Туре	Max TDY	Min TDY	Avg TDY	Max YDY	Min YDY	Avg YDY
~	1-3	SrcExv%1A	0	AUTO	MB RTU Write	0.0%	0.0%	0.0%	0.0%	0.0%	0
V	2-1	HtGsVIv%1A	1	AUTO	MB RTU Write	0.1%	0.1%	0.1%	0.1%	0.1%	0
~	2-4	Cond Fan B	20.0%	AUTO	MB RTU Write	20.0%	20.0%	20.0%	20.0%	20.0%	20

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