Installation & Reference Guide
Version 1.5

MCS-THERMOSTAT

Energy Efficient and RoHS Compliant

Revision 2016-04-08
## Revision/Disclaimer Page

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Description of Changes</th>
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<tr>
<td>5-16-14</td>
<td>KLM</td>
<td>Restructured manual</td>
</tr>
<tr>
<td>5-18-14</td>
<td>JGW</td>
<td>Added Stat Pictures and reworked</td>
</tr>
<tr>
<td>12-8-14</td>
<td>DEW</td>
<td>Restructured Manual to Indesign</td>
</tr>
<tr>
<td>1-6-15</td>
<td>DEW</td>
<td>Edits made as per Mac</td>
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<tr>
<td>1-7-15</td>
<td>DEW</td>
<td>Edits per Brian, changed wiring dwg</td>
</tr>
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<td>1-8-15</td>
<td>DEW</td>
<td>Edits made as per Brian</td>
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<tr>
<td>1-12-15</td>
<td>DEW</td>
<td>Edits made as per Brian, setting menu</td>
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<td>1-16-15</td>
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<td>Edits made</td>
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<td>6-01-15</td>
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<td>6-25-26-15</td>
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<td>7-13-15</td>
<td>DEW</td>
<td>Edits made to manual</td>
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<tr>
<td>7-30-15</td>
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<td>Edits made to manual</td>
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<tr>
<td>12-2/3-15</td>
<td>DEW</td>
<td>Add run/stop feature, add new MicroMag board to wiring</td>
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<tr>
<td>01-4-16</td>
<td>DEW</td>
<td>Add instructions for firmware update</td>
</tr>
<tr>
<td>04-08-16</td>
<td>DEW</td>
<td>Add wiring and distance on installation page</td>
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</table>

The MCS 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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1. **MCS Thermostat’s Interface**

The MCS-THERMOSTAT’S interface allows the viewing of 17 different parameters and has the ability to adjust 9 settings, including cooling & heating set points, operational schedules, holiday schedules, calibration and password protection.

The primary means of cycling through the thermostat’s options, menus, and settings - press the up button or down buttons to cycle thru the options.
2. Thermostat’s Display (Display Test)

The LCD screen displays seven icons reporting operational mode, current status and alarms.

- Unit is in HEATING mode
- Unit is in COOLING mode
- Unit is in DEHUMIDIFICATION
- Indicates position of outside Air Damper
- Indicates Speed of FAN (Low, Medium, High)
- Thermostat is LOCKED
- An ALARM is ACTIVE
- Display shows current views, OCCUP (Occupied) UNOCCUP (Unoccupied) OVERRIDE
- Display shows day of week, MO, TU, WE, TH, FR, SA, SU & HD (Holiday)
- Display shows current sensor value and current Set Point
- Display shows current views, OCCUP (Occupied) UNOCCUP (Unoccupied) OVERRIDE
- Display shows current views, OCCUP (Occupied) UNOCCUP (Unoccupied) OVERRIDE
### 3. Icons Display

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Alarm" /></td>
<td>Unit has an active alarm.</td>
</tr>
<tr>
<td><img src="image" alt="Cool" /></td>
<td>Unit is in cooling mode.</td>
</tr>
<tr>
<td><img src="image" alt="Dehumidification" /></td>
<td>Unit is in dehumidification mode.</td>
</tr>
<tr>
<td><img src="image" alt="Evaporate Fan" /></td>
<td>Evaporate fan is running (speed indicator low, medium, high).</td>
</tr>
<tr>
<td><img src="image" alt="Heat" /></td>
<td>Unit is in heating mode.</td>
</tr>
<tr>
<td><img src="image" alt="Outside Air Damper Closed" /></td>
<td>Outside air damper is closed.</td>
</tr>
<tr>
<td><img src="image" alt="Outside Air Damper Open" /></td>
<td>Outside air damper is open.</td>
</tr>
<tr>
<td><img src="image" alt="Thermostat Locked" /></td>
<td>Thermostat is locked—no changes allowed without Authorization.</td>
</tr>
<tr>
<td><img src="image" alt="Up Arrow" /></td>
<td>Up arrow key.</td>
</tr>
<tr>
<td><img src="image" alt="Down Arrow" /></td>
<td>Down arrow key</td>
</tr>
<tr>
<td><img src="image" alt="Enter" /></td>
<td>Enter arrow key</td>
</tr>
<tr>
<td><img src="image" alt="Override" /></td>
<td>Override button—takes unit out of unoccupied (set point based)</td>
</tr>
<tr>
<td><img src="image" alt="Unoccupied" /></td>
<td>Unit is in unoccupied mode.</td>
</tr>
<tr>
<td><strong>Day of Week Icons</strong></td>
<td>MO-MONDAY&lt;br&gt; TU-TUESDAY&lt;br&gt; WE-WEDNESDAY&lt;br&gt; TH-THURSDAY&lt;br&gt; FR-FRIDAY&lt;br&gt; SA-SATURDAY&lt;br&gt; SU-SUNDAY</td>
</tr>
</tbody>
</table>
4. Installation

The MCS-THERMOSTAT is powered by a +5vdc supply from an MCS controller via a two wire connection that can be wired with the communication network cabling. Improper wiring or installation may damage the thermostat. Wiring must conform to local and national electrical codes.

WARNING!

Before installing the thermostat, turn off all power to the unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

NOTE: DO NOT INSTALL THE THERMOSTAT WHERE IT MAY BE AFFECTED BY AIR FROM NEARBY DUCT WORK, ELECTRONIC EQUIPMENT, ETC.

4.1. REQUIRED FOR INSTALLATION

• An MCS-THERMOSTAT with a +5 volt power supply
  • 1/4” Phillips screwdriver
  • 5/64” flathead screwdriver
  • 2 ½ pan machine screws (included)
  • 1 Wire cutter/stripper
  • 4 Wire 22 to 20 awg Shielded Cable
  • J-Box (USA or International)

4.2. MOUNTING LOCATION

• Install the MCS-THERMOSTAT on an interior wall. Exterior walls that are poorly insulated can affect the Thermostat temperature and humidity readings and may lead to wasted energy.
  • Install the MCS-THERMOSTAT away from drafts, direct sunlight or anything that would cause the temperature to be artificially high or low.
  • Install the MCS-THERMOSTAT so that it’s not blocked by doors or other obstructions.
  • The Thermostat should be mounted approximately 5’ (1.5m) above the floor.

4.3. WIRING AND DISTANCE

Use 4 wire 22 to 20 awg Shielded Cable for installation. The MCS-THERMOSTAT can be installed up to 1000 feet from the MCS CONTROLLER.
5. Installation - Mounting

5.1. **UTILIZING J-BOX**
MCS recommends you install the MCS-THERMOSTAT utilizing a J-Box. Prior to installing the MCS-THERMOSTAT, punch out the corresponding mounting holes on the MCS-THERMOSTAT housing based on the J-box you are utilizing.

5.2. **PUNCTURE SMALL HOLE**

Puncture a small hole in the grommet on the back side of the thermostat. You want the wires to be tight so no air passes through affecting the thermostat’s reading.

5.3. **OUTPUT WIRES**
Push the output wires from the MCS Controller through the rear hole of the MCS-THERMOSTAT’S mounting plate. It may be good practice to wait until the wires are in position to be attached to the MCS-THERMOSTAT before they are stripped or cut with a tool.

5.4. **SCREWS**
Using a ¼” Phillips screwdriver, insert one of ¼” machine screws into one of the mounting slots depending on the J-box you are utilizing and tighten the screw to hold the mounting wall plate into position.

Screw the second ¼” machine screw into the lower mounting slot to secure the wall plate.
6. Wiring Instructions to MicroMag (Rev. 6.0 or less)

**TURN POWER OFF TO CONTROLLER AND THERMOSTAT FIRST**

Begin wiring (not supplied) from the **MCS CONTROLLER** to the **MCS-THERMOSTAT** as seen in the wiring diagram below.

**ONE THERMOSTAT PER MCS-CONTROLLER**

- **G** (MCS)
- **W (+)**
- **R (+5)**
- **B (GND)**

**MicroMag Sensors**

- 5 Sensors available
- Power for Thermostat (can be wired to any empty sensor)

**NOTE:** Termination jumpers are used only on the first and last boards on the network

Enlarged view of Thermostat block wiring
7. Wiring Instructions to MicroMag (Rev. 6.1 or greater)

TURN POWER OFF TO CONTROLLER AND THERMOSTAT FIRST

Begin wiring (not supplied) from the MCS CONTROLLER to the MCS-THERMOSTAT as seen in the wiring diagram below.

ONE THERMOSTAT PER MCS-CONTROLLER

Enlarged view of Thermostat block wiring

NOTE: Termination jumpers are used only on the first and last boards on the network

MicroMag Sensors
5 Sensors available
(can be wired to any empty sensor)
8. Wiring Instructions to MAGNUM

TURN POWER OFF TO CONTROLLER AND THERMOSTAT FIRST

Begin wiring (not supplied) from the MCS CONTROLLER to the MCS-THERMOSTAT as seen in the wiring diagram below.

ONE THERMOSTAT PER MCS-CONTROLLER

NOTE: Termination jumpers are used only on the first and last boards on the network.
9. Thermostat Menu Screens

Use ↑ ‘UP’ ↓ ‘DOWN’ and ← ‘ENTER’ BUTTON TO MOVE BETWEEN SETTINGS

9.1. SETUP (APPEARS FIRST TIME THERMOSTAT IS TURNED ON)
   9.1.1 Net Address (Factory Set At 1)
   9.1.2 Units Degrees (F) Or (C)
   9.1.3 Auth Level Setup
   9.1.4 Sound Alarm Stat
   9.1.5 Adjust Backlight
   9.1.6 Standby Backlight
   9.1.7 Exit Setup Menu

SEE NEXT PAGE FOR DESCRIPTIONS OF MENU ITEMS AND AN EXAMPLE OF AUTHORIZATIONS LEVELS

9.2. MAIN
   9.2.1 Unit Status
   9.2.2 Config Menu
   9.2.3 Enter Password
   9.2.4 Unit (Run/Stop) *
   9.2.5 Cool Setpoint
   9.2.6 Heat Setpoint
   9.2.7 Humidity Setpoint
   9.2.8 Co2 Setpoint
   9.2.9 Show Version Number
   9.2.10 Time And Date
   9.2.11 Last Alarm
   9.2.12 Lockout Reset

* NOTE: SOME MENU OPTIONS MAY NOT SHOW ON YOUR THERMOSTAT LCD SCREEN.
THESE SELECTIONS MAY NOT BE SETUP IN THE CONFIGURATION FILE FOR YOUR CONTROLLER.

AFTER LAST SELECTION HAS BEEN MADE CLICK ON ‘MENU’ TO RETURN TO THE ‘UNIT STATUS SCREEN’

9.3. CONFIG MENU
   9.3.1 Auth Level Setup
   9.3.2 Units - F/C
   9.3.3 Modify Schedules
   9.3.4 Modify Holidays
   9.3.5 Temp Cal
   9.3.6 Humidity Cal
   9.3.7 Display Test
   9.3.8 Adjust Backlight
   9.3.9 Standby Backlight
   9.3.10 Adjust Time
   9.3.11 Adjust Date & Dow
   9.3.12 Thermostat Reset
   9.3.13 Sound Alarm Stat

CLICK ON THERMOSTAT UPDATE PRESS ENTER TO UPDATE. THE THERMOSTAT WILL REBOOT
10. SETUP (APPEARS FIRST TIME THERMOSTAT IS TURNED ON)

NOTE: THIS MENU WILL APPEAR THE FIRST TIME YOU POWER UP THE THERMOSTAT.
ADDITIONAL CHANGES CAN BE MADE USING THE CONFIG MENU AFTER THE ‘INITIAL SETUP’

SETTING UP THE THERMOSTAT FOR THE FIRST TIME
AT THIS POINT, YOU SHOULD HAVE WIRED THE THERMOSTAT TO THE MICROMAG OR MAGNUM controller.
Turn power on to the MicroMag or MAGNUM, Thermostat will power up and enter the ‘SETUP MENU’. The following items will appear in the setup menu:

10.1. NETWORK ADDRESS
The Thermostat is factory set to Network address one (1) This cannot be changed.

10.2. UNITS DEGREES
Allows the user to choose between Celsius and Fahrenheit.
Directions: Use the Up/Down arrows to move between Celsius and Fahrenheit.
Press ‘Enter’ to select the desired unit degrees and the display will confirm the change.

10.3. AUTHORIZATION LEVEL SETUP
The user will be able to see all functions of the thermostat if the controller’s configuration file is setup to allow this. Some functions of the thermostat may be turned off in the configuration file to help protect unauthorized users from making changes.
Authorization Levels- The MicroMag and MAGNUM allow several levels of password protection that have been setup in your thermostat - ‘Service’, ‘Supvr’ (Supervisor), and ‘Factory.’

The Installer can setup the Authorization Levels at this time. This will allow a user with the correct password to make changes.

OPERATION OF THE THERMOSTAT CAN BE CONTROLLED BY THESE LEVELS OF AUTHORIZATION. SEE EXAMPLE NEXT PAGE
Setup (continued)

SAMPLE TO SHOW HOW TO USE AUTHORIZATION LEVELS FOR THE THERMOSTAT

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>VIEW</th>
<th>SERVICE</th>
<th>SUPVSР</th>
<th>FACTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run/Stop Controller</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Lockout Reset</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Config Menu</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Co2 Target</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Humidity Target</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Heat Target</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Cool Target</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Humidity Calibration</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Temp Calibration</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Modify Holiday Dates</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Modify Schedule and 24 hour clock</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

AS SHOWN IN THE ‘SAMPLE’ ABOVE AUTHORIZATION LEVEL ‘VIEW’ (DEFAULT) WILL HAVE THE LOWEST LEVEL OF ACCESS TO THE THERMOSTAT WHEREAS AUTHORIZATION LEVEL ‘FACTORY’ WILL HAVE THE HIGHEST AUTHORIZATION FOR MAKING CHANGES TO THE THERMOSTAT.

YOU CAN SET UP THE AUTHORIZATION LEVEL FOR EACH SELECTION SHOWN IN THE ‘CONFIG’ MENU SO A USER WILL BE LIMITED AS TO WHAT CHANGES THEY CAN MAKE.

10.4.  SOUND ALARM STAT
Hit ‘ENTER’ - Allows the user to turn alarm on or off.

10.5.  ADJUST BACKLIGHT
Allows the user to adjust the backlight setting from 25% to 100%.

10.6.  STANDBY BACKLIGHT
Hit ‘ENTER’ - Allows user to make changes to the backlight - OFF or 25% to 100%

10.7.  EXIT SETUP MENU
Press ENTER to exit the SETUP menu, all changes made in the SETUP settings will be saved in the MCS-THERMOSTAT non volatile flash memory.

YOUR THERMOSTAT IS SETUP AND READY FOR USE.
ADDITIONAL CHANGES CAN BE MADE USING THE CONFIG MENU IF YOU ARE AUTHORIZED
11. Main Menu Settings

CLICK ON MENU TO SEE THE SCREENS BELOW
AUTHORIZATION PASSWORD LEVEL MAY BE REQUIRED

NOTE: SOME MENU SELECTIONS WILL NOT SHOW ON YOUR THERMOSTAT LCD SCREEN, IF THEY ARE NOT SETUP IN THE CONFIGURATION FILE FOR YOUR CONTROLLER.

11.1. UNIT STATUS
Hit ‘ENTER’ shows status of thermostat.

11.2. CONFIG MENU
Hit ‘ENTER’ - Allows user to enter Config Menu to make adjustment to the thermostat.

11.3. ENTER PASSWORD
Hit ‘ENTER’ - Authorization password level for the changes to the thermostat.

11.4. UNIT STATUS (RUN/STOP)
Hit ‘ENTER’ - Allows user to ‘RUN/STOP’ the unit controlling the thermostat. (This must be configured in your controller for viewing on your thermostat).

11.5. COOL SET POINT
Hit ‘ENTER’ - Allows the user to SET THE COOL SET POINT FOR THE AREA.

11.6. HEAT SET POINT
Hit ‘ENTER’ - Allows the user to SET THE HEAT SET POINT FOR THE AREA.

11.7. HUMIDITY SET POINT
Hit ‘ENTER’ - Allows the user to SET THE HUMIDITY SET POINT FOR THE AREA.

11.8. CO2 SETPOINT
Hit ‘ENTER’ - Allows the user to SET THE C02 SET POINT FOR THE AREA.

11.9. VERSION NUMBER
Hit ‘ENTER’ - Shows current version of firmware the thermostat is using.

11.10. TIME AND DATE
Hit ‘ENTER’ - Shows current time and date of unit operating thermostat.

11.11. LAST LOCKOUT ALARM
Displays abbreviations for the last three alarms on the first screen before flashing to a second screen displaying the time/date of respective alarm.
For example, in a displayed ‘LO DIS PSI’ alarm listing, the user interface would switch to a screen displaying ‘Jan 31 12:10’ as the occurrence time for the first ‘LO’ alarm before jumping back to the ‘LO PSI LO’ alarm display and switching to a screen displaying ‘Feb 2 12:10’ as the occurrence time for the second ‘PSI’ alarm.

11.12. LOCKOUT RESET
Hit ‘ENTER’ - Allows used to reset lockout if authorized.
12. Config Menu Settings

CLICK ON MENU - USE ↓ DOWN BUTTON TO SEE THE CONFIG MENU

AUTHORIZATION PASSWORD MAY BE REQUIRED

NOTE: SOME MENU SELECTIONS MAY NOT SHOW ON YOUR THERMOSTAT LCD SCREEN. THESE SELECTIONS MAY NOT BE SETUP IN THE CONFIGURATION FILE FOR YOUR CONTROLLER.

12.1. AUTH LEVEL SETUP

Authorization Levels- The thermostat allows three levels of passwords - Service, Supervisor, and Factory.

12.2. UNIT = DEGREES

Hit ‘ENTER’ - Allows the user to change between Celsius and Fahrenheit. Directions: Use the Up/Down arrows to move between Celsius and Fahrenheit. Press ‘Enter’ to select the desired unit degrees and the display will confirm the change.

12.3. MODIFY SCHEDULES

Unlike Thermostats that are used at home and in some office buildings, the MCS Thermostat ‘SCHEDULES’ control the run/stop of the controller’s cool target and heat target setting only.

Think of the Thermostat ‘SCHEDULES’ as controlling whether a building or room is ‘OCCUPIED’ or ‘UNOCCUPIED’. We can still allow the building or room to be cooled or heated, but with target setting, we can lower (or raise) the temperature depending on whether the building or room is ‘OCCUPIED’.

For example if you set ‘SCHEDULE ONE’ to start at 8:00am the thermostat will start either the cooling process or heating process of the unit based on the cooling/heating targets that you have setup in the Thermostat or configuration of the controller. Setting ‘SCHEDULE ONE’ to end at 17:00 (5:00pm) the Thermostat can change how the building or room is heated or cooled.

The advantage of the MCS Thermostat is that you can override the target settings of the UNIT’S heating, cooling and humidity from the thermostat without the going to the actual unit. See an example of setting up the schedules and holidays on the next pages.
Config Menu (continued)

12.3.1 SETTING EACH DAY OF THE WEEK

Schedule setting start with Sunday as the first day.

1. Press Menu button to ‘CONFIG MENU’, press ↩ ‘ENTER’
2. Use ↓ ‘DOWN’ to ‘MODIFY SCHEDULES’, press ↩ ‘ENTER’
3. The first schedule day will appear on the screen ‘SUN Schedule 1 start’ press ↩ ‘ENTER’ to accept this day.
4. The next screen display will show the Hour ‘BLINKING’ - enter the hour, press ↩ ‘ENTER’ to move to the minutes. After you set the minutes, press ↩ ‘ENTER’ to accept, the following screen will appear ‘Prs Enter to continue’. The information will be sent to the controller.
5. Be sure to set the ‘START and ‘END TIMES’ for each day for ‘SCHEDULE 1’ and for ‘SCHEDULE 2’ before proceeding to the next day on the Thermostat.
6. IF YOU DO NOT SEE THE ‘HOUR BLINKING’ YOU FORGOT TO PRESS ENTER FOR THE NEXT SCHEDULE DAY.

Below is a screen shot from MCS-CONNECT showing what the schedule settings look like in the configuration setup. Basically this is what you are setting up when you are setting the ‘SCHEDULES’ and HOLIDAYS’ times in the Thermostat.
12.4. **MODIFY HOLIDAYS**
These settings allow the user to adjust the thermostat’s “START and END’ times for holidays that have been setup in the configuration file or thru MCS-CONNECT. Press the Up/Down arrows and Enter buttons to make adjustments. See screen shot on previous page as an example.

12.5. **TEMP CAL**
Allows the user to make changes to the temperature setting of the Thermostat using a calibrated handheld temperature meter to check the current temperature of the area.
Directions: Use the Up/Down arrows to move between the offset range. Press ‘Enter’ to select the desired temperature offset and the display will confirm the change.

12.6. **HUMIDITY CAL**
Allows the user to make changes to the humidity setting of the Thermostat using a calibrated hand held meter to check the current humidity of the area.
Directions: Use the Up/Down arrows to move between the offset range. Press ‘Enter’ to select the desired temperature offset and the display will confirm the change.

12.7. **DISPLAY TEST**
Allows the user to test the thermostat to make sure all icons are working.

12.8. **ADJUST BACKLIGHT**
Allows the user to adjust the backlight setting from 25% to 100%.

12.9. **STANDBY BACKLIGHT**
Hit ‘ENTER’ - Allows user to make changes to the backlight - OFF or 25% to 100%

12.10. **ADJUST TIME**
Allows the user to change the displayed time from the MCS-THERMOSTAT.
Directions: Use the Up/Down arrows and Enter button to first adjust the hour per a 24-hour schedule (ex. 1:00am is 0100 and 1:00pm is 1300) and press ‘Enter’ to move on to the minutes. After adjusting the minutes, press ‘Enter’ to move on to the seconds. Press ‘Enter’ to complete the time adjustment.

12.11. **ADJUST DATE**
Allows the user to change the displayed date from the MCS-THERMOSTAT.

12.12. **THERMOSTAT RESET**
Hit ‘ENTER’ to update-‘RESTARTING THE UNIT’

12.13. **SOUND ALARM**
Hit ‘ENTER’ - Allows the user to turn alarm on or off.
13. Update Firmware on Thermostat

13.1. MCS-Thermostat firmware upload

Loading new ‘Firmware’ to the Thermostat (requires proper authorization)
Consult support@mcscontrols.com for upgrading your Thermostat firmware and acquiring the necessary TERMINAL BLOCK CABLE TO ATTACH TO THERMOSTAT.

1. REMOVE COVER FROM THERMOSTAT AND REMOVE THE WIRES FROM THE PLUS AND MINUS FOR THE COMMUNICATION OF THE THERMOSTAT.

2. CONNECT THE TERMINAL BLOCK SUPPLIED TO THE THERMOSTAT- WHITE WIRE TO PLUS(+) AND THE BLACK WIRE TO GROUND (-).

3. USING A MCS-USB-RS485 CABLE (not supplied) PLUG THE RS-485 END INTO THE SUPPLIED TERMINAL AND THE USB END INTO YOUR COMPUTER.

4. Open MCS-Connect and select Setup.

5. In the drop down menu select Communications.
6. **On the communications Setup Screen select the LOCAL Comm. COM port from your computer and then set the baud rate to 38400.** Press Save and click SERIAL to connect with the MCS-Thermostat.

7. **When MCS-Connect screen opens a red line will appear on the site info showing the Software information of the MCS-Thermostat.**

8. **While on the site info screen press ‘Load Firmware’ and select the location for the new Hex file to load the new firmware.** (supplied by MCS-SUPPORT)

9. **When the firmware finishes downloading to the thermostat:**
   1. **Remove the TERMINAL BLOCK wiring from the thermostat.**
   2. **Re-connect the MCS-Thermostat to the MCS controller.**
## 14. Troubleshoot Section

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THERMOSTAT WILL NOT TURN ON OR COMMUNICATE WITH THE CONTROLLER</strong></td>
<td>Check to make sure you have the wiring correct to the Thermostat (see wiring in beginning of this install guide). Check to see that the Thermostat and Controllers are Terminated correct. In MCS-CONNECT or Keypad, check to see if the baud rate is correct (38,400).</td>
</tr>
<tr>
<td><strong>THERMOSTAT IS IN LOCKED MODE</strong></td>
<td>MCS-THERMOSTAT remains in locked mode until the proper password is entered. Press the Menu button until you see Password - press enter, than your first password number - press enter until the correct password has been entered. LOCKED ICON SHOULD SHOW UNLOCKED. Password Code will lock back in 2 minutes.</td>
</tr>
<tr>
<td><strong>THERMOSTAT HEATING AND COOLING IS NOT CORRECT TO ROOMS CONDITIONS</strong></td>
<td>Check the Setting Menu to make sure you have the proper Unit Degrees chosen - Celsius or Fahrenheit. Reset the Temp Calibration using the Config Menu to adjust for temperature variations.</td>
</tr>
<tr>
<td><strong>THERMOSTAT ICONS TEST</strong></td>
<td>To make sure all of your Thermostats Icons are working - Press Menu to get to the Config Menu using the up/down arrows until you see Display Test - press enter - all icons should show on the screen.</td>
</tr>
<tr>
<td><strong>THERMOSTAT NOT WORKING- SHOWS UNOCCUPIED</strong></td>
<td>OVERRIDE BUTTON ON LEFT SIDE OF UNIT IS SET TO UNOCCUPIED.</td>
</tr>
<tr>
<td><strong>Max. LOCKOUTS PER DAY</strong></td>
<td>Reset Lockouts – Does require being authorized. However only a limited number of Lockouts (6) can be reset in one day without a higher authorization level.</td>
</tr>
<tr>
<td><strong>THERMOSTAT STAYS IN HEATING OR COOLING MODE AND WON’T CHANGE</strong></td>
<td>Check your Cooling and Heating Set Points - consult HVAC Technician</td>
</tr>
<tr>
<td><strong>PASSWORDS RESET</strong></td>
<td>TO DISABLE THE CURRENT PASSWORD - AT THE MENU LEVEL, PRESS MENU UNTIL YOU SEE ENTER PASSWORD. ENTER A PASSWORD THAT IS NOT USED BY THE SYSTEM TO RELOCK THE UNIT SO UNAUTHORIZED CHANGES CANNOT BE MADE.</td>
</tr>
</tbody>
</table>