Installation and Start-Up Instructions

DEALER TECHNICAL SUPPORT LINE

888-593-9988

ComfortNet™ CONTROL SYSTEM

An Exclusive Touchscreen Control Featuring Serial Communication

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Manual IO-350A
WR Part No. 37-6942E
1046

Installation and Start-Up Instructions

ComfortNet™ CONTROL SYSTEM

An Exclusive Touchscreen Control Featuring Serial Communication Model CTK01

FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL AND SYSTEM COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

CAUTION	WARNING
To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.	Thermostat installation and all components of the control system shall conform to Class II circuits per the NEC code.

ATTENTION: MERCURY NOTICE

This product does not contain mercury. However, this product may replace a product that contains mercury.

Mercury and products containing mercury must not be discarded in household trash. Do not touch any spilled mercury. Wearing non-absorbent gloves clean up any spilled mercury and place in a sealed container. For proper disposal of a product containing mercury or a sealed container of spilled mercury, place it in a suitable shipping container.

Refer to **www.white-rodgers.com** for location to send products containing mercury.

INTRODUCTION

Digitally Communicating System

A digitally communicating system consists of a premium indoor furnace or air handler, an outdoor AC condensing unit or heat pump and touchscreen control. These devices are linked together and communicate using ClimateTalk™ communications protocol. The touchscreen control is the command center of the communicating HVAC system. Benefits of the communicating system are auto-configuration of the system, the ability to share information throughout the system for enhanced diagnostics and control, and simplified wiring. This ensures simple, reliable operation and an accurate installation.

Thermostat

This thermostat is a digitally communicating touchscreen control designed for use with compatible Amana® and/or Goodman brand Air Handlers or Furnaces, and outdoor AC or Heat Pump condensing units. This thermostat supports up to 3 stages of heat, 2 stages of cooling, dual fuel applications, dehumidification, filter maintenance reminders, outdoor temperature display, and advanced menus. The various options and display areas are described below.

Goodman is not responsible for:

1. Damage or repairs required as a consequence of faulty installation or application.
2. Damage as a result of floods, fires, winds, lightning, accidents, corrosive atmosphere or other conditions beyond the control of Goodman.
3. Use of components or accessories not compatible with this control.
4. Products installed outside the United States or its territories, or Canada.
5. Normal maintenance as described in the installation and operating manual.
6. Replacement parts not supplied or designated by Goodman.
7. Damage or repairs required as a result of any improper use, maintenance, operation or servicing.
8. Failure to start due to interruption and/or inadequate electrical service.
9. Any damage caused by frozen or broken water pipes in the event of equipment failure.
10. Changes in the appearance of the unit that do not affect its performance.

This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

Installer Name _____

Installation Date _____

INDOOR EQUIPMENT	OUTDOOR EQUIPMENT
Model # _____	Model # _____
Serial # _____	Serial # _____

LIMITED WARRANTY

Model CTK01AA

This thermostat ("control") is warranted by Goodman Manufacturing Company, L.P. ("Goodman") to be free from defects in materials and workmanship under normal use and maintenance, as described below:

To the original equipment registered owner and his or her spouse ("owner") this control is warranted for a period of TEN YEARS, except as provided below. This warranty applies only if:

1) The control is installed in an owner-occupied, single family residence; and

2) The control is installed in conjunction with a new furnace or air handler containing a communicating system that is compatible with the control (a "Compatible Unit"); and

3) If the Compatible Unit is a Goodman® or Amana® brand furnace or air handler, the owner has properly registered the furnace or air handler with Goodman [at www.goodmanmfg.com] or Amana [at amana-hac.com]; but failure by California and Quebec residents to register a Goodman® or Amana® brand Compatible Unit does not diminish their warranty rights.

If the above warranty does not apply, then the control is warranted for a period of 5 YEARS.

No warranty continues after the control is removed from the location where it was originally installed.

No warranty applies to, and no warranty is offered by Goodman on, any control ordered over the Internet, by telephone or other electronic means unless the dealer selling the unit over the Internet, by telephone or other electronic means is also the installing contractor for the unit.

The warranty period begins on the date of the original installation. Where the product is installed in a newly constructed home; the date of the installation is the date the homeowner purchased the home from the builder. If that date cannot be verified, the warranty period begins three months from the month of manufacture (as indicated by the four digit date code (yyww) where "yy" indicates the year and "ww" indicates the week of manufacture located on the base plate).

As its only responsibility, and your only remedy, Goodman will, without charge, replace any control found to be defective due to workmanship or materials under normal use and maintenance. For warranty credit, the defective control must be returned to a Goodman heating and air conditioning products distributor by a state certified or licensed contractor.

This warranty does not apply to labor, freight, or any other cost associated with the service, repair or operation of the unit.

This warranty is in lieu of all other express warranties. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY. Some states and provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

GOODMAN SHALL IN NO EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO EXTRA UTILITY EXPENSES OR DAMAGES TO PROPERTY. Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

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INSTALLATION

This document provides information for installation of the touchscreen control only. Installation instructions for the furnace or air handler and outdoor AC condensing unit or heat pump are provided with each of these devices.

⚠ WARNING

This thermostat is designed exclusively for Amana/Goodman brand ComfortNET™ System equipment ONLY. This thermostat can ONLY be used with compatible Amana® brand or Goodman brand Air handlers or Furnaces, and outdoor AC or Heat Pump condensing units.

CONTROL KITS CONTENTS

This communicating control kit contains the following components:

- (1) Communicating touchscreen control with sub base
- (1) 230 VAC to 24 VAC, 40 VA transformer (B1141643)
- (2) Tyco 284041-4, 4-position plug color-coded connectors
- (1) Blue wire jumper (14")
- (1) Red wire jumper (22")
- (1) Black wire jumper (22")
- (1) Red wire jumper (14")
- (2) #10 Sheet metal screws
- (1) Instruction manual (IO-350)
- (1) Homeowner User Guide (HI-123)
- (1) Quick Start Guide (IO-722)

VALID SYSTEM CONFIGURATIONS

This control may only be used with certain system configurations. Valid system configurations for which this control can be used are:

- A communicating air handler matched with a communicating outdoor AC condensing unit
- A communicating air handler matched with a communicating outdoor heat pump unit

NOTES

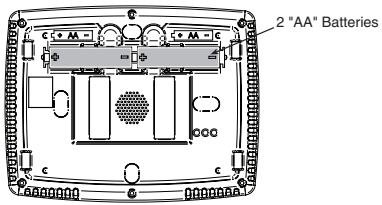
Status	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Mode (MODE)	Displays the current air handler operating mode
CFM (CFM)	Displays the airflow for the current operating mode

HEAT SET-UP (HEAT PUMP ONLY)		
Sub-menu Item	**User Modifiable Options**	**Comments**
Heat Airflow Trim (HT TRM)	-10% to +10% in 2% Increments	Selects the airflow trim amount; applies to heat pump only.
Heat ON Delay (HT ON)	5, 10, or 15 seconds (5-sec. default)	Selects the indoor blower on delay; applies to heat pump only.
Heat OFF Delay (HT OFF)	30, 50, 70, or 90 seconds (30-sec. default)	Selects the indoor blower off delay; applies to heat pump only.
Defrost Interval (DEFROST)	30, 60, 90, or 120 minutes (30-min. default)	Selects the time interval between defrost; applies to heat pump only.
Compressor Delay (CMP DLY)	0, 5, 15, or 30 seconds (5-sec. default)	Selects the compressor off time after a reversing valve shift; applies to heat pump only.

- A communicating furnace matched with a communicating outdoor AC condensing unit
- A communicating furnace matched with a communicating outdoor heat pump unit
- A communicating furnace matched with a non-communicating, single stage AC condensing unit

System configurations other than those noted above will not function or may function properly at greatly reduced performance.

BATTERY LOCATION



2 "AA" alkaline batteries are included in the control with a battery tag to prevent power drainage. The battery tag must be removed to engage the batteries. The batteries are required to maintain time during a power outage. They are also required for armchair programming.

If **"LOW BATTERY"** is displayed in the scrolling area, the batteries are low and should be replaced with fresh batteries. For best results, use premium brand alkaline batteries.

To replace batteries, set control system touch key to OFF, remove control from wall by grasping the top and bottom of the control and pulling straight away from the wall. The base will remain on the wall. Install the batteries in the rear along the top of the control. Reposition the control over the base plate and gently snap into place.

Control Installation Location

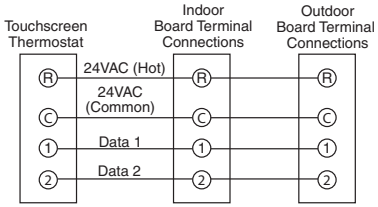
Locate the control on a vibration-free inside wall in an area having good air circulation. The control should be located approximately five feet high. The control should be located in an area such that it is not influenced by the following:

- Drafts
- Dead spots behind doors, in corners, or under cabinets
- Cold or hot air from registers
- Sunlight
- Light from fixtures or other appliance
- Radiant heat from a fireplace or other heat source
- Concealed water pipes (hot or cold)
- Unconditioned areas behind the control

NOTE: *It is recommended that multiple wires into a single terminal be twisted together prior to inserting into the plug connector. Failure to do so may result in intermittent operation.*

Wiring Requirements

Each digitally communicating device in the system requires four wire connections: 24VAC Hot (R), 24VAC Common (C), Data 1 (1), and Data 2 (2). The R and C connections provide a 24VAC power supply that can be shared between the indoor and outdoor units and the thermostat. The data 1 and data 2 connections provide the communications bus between the indoor unit, outdoor unit and thermostat. Thus, the R, C, 1, and 2 terminals must be wired consistently. See the indoor unit and outdoor unit respective installation manuals for additional wiring details.



- Indoor unit to thermostat wiring: Connect a wire between terminal "R" on the thermostat sub base and terminal "R" on the 4-position plug connector for the indoor unit. Repeat for the C, 1, and 2 terminals.
- Indoor unit to outdoor unit wiring: Connect a wire between terminal "R" on the indoor unit's 4-position plug and the terminal "R" on the outdoor unit's 4-position plug connector. Repeat for the C, 1, and 2 terminals.

Sensors

Sub-menu Item	Indication/User Modifiable Options	Comments
Outdoor Air Temperature (AIR TMP)	Displays the outdoor air temperature	Sensor may or may not be available on an air conditioner. Check air conditioner instructions for details.
Outdoor Coil Temperature (COIL TMP)	Displays the outdoor coil temperature	Required for heat pump operation.

Cool Set-up

Sub-menu Item	User Modifiable Options	Comments (applies to AC and HP models)
Cool Airflow Trim (CL TRM)	-10% to +10% in 2% Increments	Selects the airflow trim amount; applies to air conditioner only.
Cool Airflow Profile (CL PRFL)	A, B, C, or D	Selects the airflow profile; applies to air conditioner only.
Cool ON Delay (CL ON)	5, 10, 20, or 30 seconds	Selects the indoor blower on delay; applies to air conditioner only.
Cool OFF Delay (CL OFF)	30, 60, 90, or 120 seconds	Selects the indoor blower off delay; applies to air conditioner only.
Dehumidification Select (DEHUM)	ON or OFF (default is OFF)	Selecting "OFF" disables dehumidification; selecting "ON" enables dehumidification; applies to air conditioner only.

HEAT PUMP/AIR CONDITIONER USER MENUS

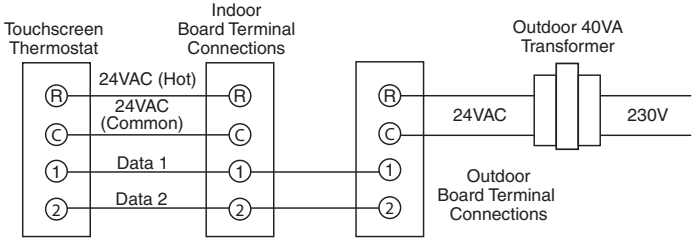
CONFIGURATION	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Number of AC Stages (CL STG)	Displays the number of air conditioning stages; applies to AC and HP.
Number of HP Stages (HT STG)	Displays the number of heat pump stages; applies to HP only.
AC Tonnage (TONS)	Displays the air conditioning tonnage; applies to AC and HP.

DIAGNOSTICS		
Sub-menu Item	**Indication/User Modifiable Options**	**Comments**
Fault 1 (FAULT #1)	Most recent AC/HP fault	For display only
Fault 2 (FAULT #2)	Next most recent AC/HP fault	For display only
Fault 3 (FAULT #3)	Next most recent AC/HP fault	For display only
Fault 4 (FAULT #4)	Next most recent AC/HP fault	For display only
Fault 5 (FAULT #5)	Next most recent AC/HP fault	For display only
Fault 6 (FAULT #6)	Least recent AC/HP fault	For display only
Clear Fault History (CLEAR)	NO or YES	Selecting "YES" clears the fault history

NOTE: *Consecutively repeated faults are shown a maximum of 3 times.*

IDENTIFICATION	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Model Number (MOD NUM)	Displays the air conditioner or heat pump model number
Serial Number (SER NUM)	Displays the air conditioner or heat pump serial number (Optional)
Software (SOFTWARE)	Displays application software revision

- Alternate indoor unit to outdoor unit wiring: In some installations, only two wires may be available for low voltage control wiring at the outdoor unit. If this is the case, use the existing low voltage control wires and connect the 1, and 2 terminals as shown in the figure below. Follow instructions below to wire the system.
  - Install the supplied 40 VA transformer in the outdoor unit using the screws provided. Align the holes in the transformer mounting bracket with the holes in the sheet metal mounting panel and secure with screws.
  - Connect one terminated end of the black 22" wire jumper to the 240VAC terminal on the transformer (or 208VAC terminal if 208VAC system). Connect the other terminated end of the wire jumper to L1 on the outdoor unit's control.
  - Connect the red 22" wire jumper to the 240VAC COM terminal on the transformer. Connect the other end of the wire jumper to L2 on the outdoor unit's control.
  - Connect the terminated end of the red 14" wire jumper to the 24VAC terminal on the transformer. Connect the other end to the "R" terminal on the included plug connector.
  - Connect the terminated end of the blue 14" wire jumper to the 24VAC COM terminal on the transformer. Connect the other end to the "C" terminal on the included plug connector.



  - Dual Fuel Systems: It is highly recommended that the supplied 40VA transformer be used in the outdoor unit. See Alternate indoor unit to outdoor unit wiring for transformer wiring instructions.
  - To maintain the UL rating on all AC and heat pump models the installing contractor is required to use the low voltage wiring provided inside the control panel when converting to the communicating control system.

QUICK INSTALLATION STEPS

- Determine location of thermostat installation.
- Mount thermostat base to wall.
- Connect wires to thermostat base.
- Remove battery tag to provide battery power to the thermostat.
- Attach thermostat to base.
- Turn on power to system.
- Set the time.
- Select thermostat operating options in the Thermostat Options Configuration Menu.
- Perform thermostat/system operation checkout.
- Program thermostat or accept factory programming.
- Touch **Run Schedule**.

INSTALLING THE THERMOSTAT

- Pull the thermostat body off the thermostat base. Forcing or prying on the thermostat will cause damage to the unit.
- Place base at installation location and mark mounting hole locations on wall using base as a template.
- Move base out of the way. Drill mounting holes.
- Attach base securely to wall using two mounting screws. Levelling is for appearance only and will not affect thermostat operation.
- Connect wires to terminal block on base.
- Push excess wire into wall and plug hole with a fire resistant material (such as fiberglass insulation) to prevent drafts from affecting thermostat operation.
- Remove battery tag to provide battery power to thermostat.
- Carefully line the thermostat up with the base and snap into place.

SET-UP		
Sub-menu Item	**User Modifiable Options**	**Comments**
Heat Airflow Trim (HT TRM)	-10% to +10% in 2% Increments	Trims the electric heating airflow by the selected amount.

STATUS	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Mode (MODE)	Displays the current air handler operating mode
CFM (CFM)	Displays the airflow for the current operating mode

DIAGNOSTICS		
Sub-menu Item	**Indication/User Modifiable Options**	**Comments**
Fault 1 (FAULT #1)	Most recent air handler fault	For display only
Fault 2 (FAULT #2)	Next most recent air handler fault	For display only
Fault 3 (FAULT #3)	Next most recent air handler fault	For display only
Fault 4 (FAULT #4)	Next most recent air handler fault	For display only
Fault 5 (FAULT #5)	Next most recent air handler fault	For display only
Fault 6 (FAULT #6)	Least recent air handler fault	For display only
Clear Fault History (CLEAR)	NO or YES	Selecting "YES" clears the fault history

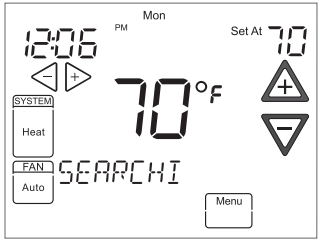
NOTE: *Consecutively repeated faults are shown a maximum of 3 times.*

Identification	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Model Number (MOD NUM)	Displays the air handler model number
Serial Number (SER NUM)	Displays the air handler serial number (Optional)
Software (SOFTWARE)	Displays application software revision

POWER UP

Turn on AC power to the system. The thermostat will automatically search for and identify the digitally communicating components installed.

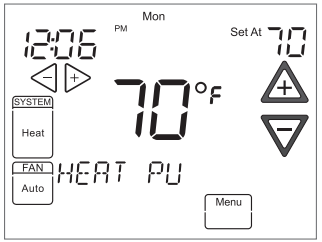
THERMOSTAT MESSAGES



While searching for system components, the thermostat will scroll the word **"SEARCHING"** in the message area to indicate that the system is looking for components (Air Handler, Furnace, Heat Pump, Air Conditioner) on the Climate Talk network. Once the components are identified, the message display will indicate the components found. Confirmation will be displayed in the message area that the equipment has been found with the message **<equipment> FOUND.**

If the thermostat continues to display the word "SEARCHING" after 2-3 minutes, this indicates that no components were found. Check the components for proper connection of the 4 wire network. If after 2-3 minutes, the message "CHECK SYSTEM" appears, this indicates that an outdoor unit was found but not an indoor unit. Check the connection of the indoor component.

AUTO-CONFIGURATION



The system will auto-configure itself once all system components have been identified. The result is that the system automatically configures all airflows, adjustments, and timings. However, the system offers additional flexibility that allows for the modification of certain auto-configured parameters. See air handler/ furnace and AC/heat pump instructions for additional information.

Check System Operation

Fan Operation

- Turn power on to the system.
- Press **Run Schedule**.
- Press **FAN** until **FAN On** is displayed. The fan should begin to operate.
- Press **FAN** until **FAN Auto** is displayed. The fan should stop operating.

Heating System

- Press **Run Schedule**.
- Press ⚠ to adjust thermostat setting above room temperature. The heating system should begin to operate.
- Press ▽ to adjust thermostat setting below room temperature. The heating system should stop operating.

Cooling System

- Press **SYSTEM** key until **Cool** is displayed.
- Press ▽ to adjust thermostat setting below room temperature. The cooling system should begin to operate.
- Press ⚠ to adjust thermostat setting above room temperature. The cooling system should stop operating.

Status	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Mode (MODE)	Displays the current furnace operating mode
CFM (CFM)	Displays the airflow for the current operating mode

Non-Comm (Applies only to a communicating furnace matched with a non-communicating AC) (See Valid System Configurations)		
Sub-menu Item	**User Modifiable Options**	**Comments**
Cool Airflow (CL CFM)	18, 24, 30, 36, 42, 48, or 60	Selects the airflow for the non-communicating 1-stage AC unit
Cool Airflow Trim (CL TRM)	-10% to +10% in 2% Increments	Selects the airflow trim amount for the non-communicating 1-stage AC unit
Cool Airflow Profile (CL PRFL)	A, B, C, or D	Selects the airflow profile for the non-communicating 1-stage AC unit
Cool ON Delay (CL ON)	5, 10, 20, or 30 seconds	Selects the indoor blower on delay for the non-communicating 1-stage AC unit
Cool OFF Delay (CL OFF)	30, 60, 90, or 120 seconds	Selects the indoor blower off delay for the non-communicating 1-stage AC unit

Air Handler User Menus

Configuration	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Electric Heat Size (HTR KW)	Displays the size, in kW, of the selected electric heaters*
Motor HP (1/2, 3/4 or 1 MTR HP)	Displays the indoor blower motor horse power
Heat ON Delay (HT ON)	Displays the electric heat indoor blower on delay
Heat OFF Delay (HT OFF)	Displays the electric heat indoor blower off delay

Note: Heater kit selection is done via dipswitches on the air handler control - not via user menu.

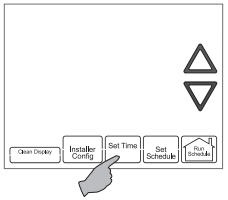
IDENTIFICATION	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Model Number (MOD NUM)	Displays the furnace model number
Serial Number (SER NUM)	Displays the furnace serial number (Optional)
Software (SOFTWARE)	Displays application software revision

SET-UP		
Sub-menu Item	**User Modifiable Options**	**Comments**
Heat Airflow Trim (HT TRM)	-10% to +10% in 2% Increments	Trims the heating airflow by the selected amount.
Heat ON Delay (HT ON)	5, 10, 15, 20, 25, or 30 seconds	Selects the indoor blower heat on delay
Heat OFF Delay (HT OFF)	30, 60, 90, 120, 150, or 180 seconds	Selects the indoor blower heat off delay
Heating Air Flow (HT ADJ)	1, 2, 3, 4	Selects the nominal heating airflow

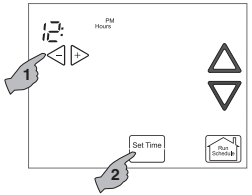
ADVANCED MENUS

SET CURRENT TIME AND DAY

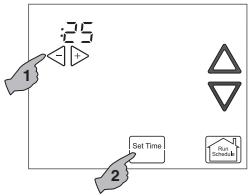
On Home Screen Display, touch the **Menu** key to display additional key choices.



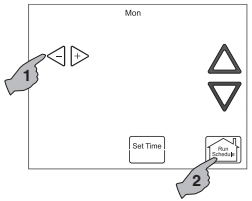
Touch **Set Time** once to display hour and AM or PM designation in clock display.



Touch either the ◁ or ▷ key until you reach the correct hour and AM or PM designation. Then touch **Set Time** again to display minutes only in clock display.



Touch and hold either the ◁ or ▷ keys until you reach the correct minutes. Then touch **Set Time** once again to display the day of the week.

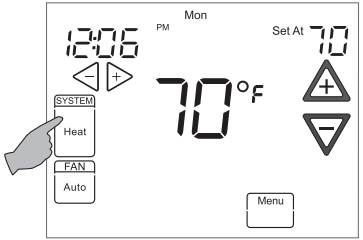


Touch either the ◁ or ▷ key until you reach the correct day.

Touch **Run Schedule** to save the Time and Day settings and return to the Home Screen Display.

SETUP

CHOOSE THE SYSTEM SETTING (COOL, OFF, HEAT, Emer, Auto)



Touch the **SYSTEM** key to select:

Heat: Thermostat controls only the heating system.

Off: Heating and Cooling systems are off.

Cool: Thermostat controls only the cooling system.

Em: Emergency setting available only when the thermostat detects a heat pump in the system

Auto: Auto Changeover is used where both heating and cooling may be required during the same day. Auto allows the thermostat to automatically select heating or cooling depending on the indoor temperature and the selected heat and cool temperatures. This thermostat will not allow you to program a conflict between Heating and Cooling set-points.

ENERGY-SAVING FACTORY PRE-PROGRAM

This touchscreen control is programmed with the energy saving settings shown in the table below for all days of the week. If this program suits your customer's needs, simply set the thermostat clock and touch the **Run Schedule** key.

Factory Pre-Programmed heating and cooling schedule for all days of the week

	Wake Up (Morning)		Leave For Work (Day)		Return Home (Evening)		Go To Bed (Night)	
Heating Program	6:00 AM	70°F	8:00 AM	62°F	5:00 PM	70°F	10:00 PM	62°F
Cooling Program	6:00 AM	75°F	8:00 AM	83°F	5:00 PM	75°F	10:00 PM	78°F

Instructions for changing the programming are in the Homeowner User Guide.

FURNACE USER MENUS

CONFIGURATION

Sub-menu Item	Indication (for Display Only; not User Modifiable)
Number of Heat Stages (HT STG)	Displays the number of furnace heating stages
Input Rate (BTU/HR)	Displays the furnace input rate in kBtu/hr
Motor HP (1/2, 3/4 or 1 MTR HP)	Displays the furnace indoor blower motor horse power

DIAGNOSTICS

Sub-menu Item	Indication/User Modifiable Options	Comments
Fault 1 (FAULT #1)	Most recent furnace fault	For display only
Fault 2 (FAULT #2)	Next most recent furnace fault	For display only
Fault 3 (FAULT #3)	Next most recent furnace fault	For display only
Fault 4 (FAULT #4)	Next most recent furnace fault	For display only
Fault 5 (FAULT #5)	Next most recent furnace fault	For display only
Fault 6 (FAULT #6)	Least recent furnace fault	For display only
Clear Fault History (CLEAR)	NO or YES	Selecting "YES" clears the fault history

NOTE: *Consecutively repeated faults are shown a maximum of 3 times.*

THERMOSTAT USER MENUS

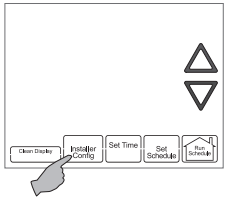
SET-UP		
Sub-menu Item	**User Modifiable Options**	**Comments**
Outdoor Temperature Display (od TEMP)	ON = OD Temp is displayed continuously bL = Alternates OD temp and time OFF = Time is displayed continuously	
Resistance Heat Disable Temperature (AUX HT LOCKOUT)	From heat pump disable temperature to 95˚F in 5˚F increments	Available only for air handler + heat pump systems. Disables electric resistance heat above the selected temperature.
Heat Pump Disabled Temperature (HP BAL PNT)	OFF or 0 to 50˚F in 5˚F increments	Available only for air handler + heat pump systems. Disables heat pump below the selected temperature.
Balance Point Temperature (df BAL PNT)	OFF or 0 to 50˚F in 5˚F increments	Available only for furnace + heat pump systems (dual fuel systems). Switches from heat pump to fossil fuel equipment (furnace) below the selected temperature.
System Test (TEST SYSTEM)	NO or YES	Starts a system test that steps the system through the available system modes of operation.

STATUS	
Sub-menu Item	**Indication (for Display Only; not User Modifiable)**
Configuration (CONFIG)	Displays the actual system configuration (1-stage, 2-stage, dual fuel, etc.)
Operational Status (STATUS)	Displays the current operating status for the thermostat

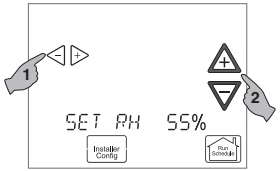
ADVANCED MENUS

THERMOSTAT SET-UP OPTIONS

The Thermostat has options that can be selected and adjusted. These options are in the Thermostat Options Configuration Menu. To enter the menu from the Home Screen Display, touch the **Menu** key to display additional key choices.



Touch and hold for 3 seconds the **Installer Config** key. This displays the first menu item as shown in the next step. Touch ◁ or ▷ to change a menu option. Touch △ to advance to the next menu item or ▽ to return to the previous menu item.

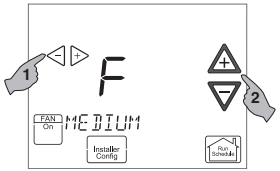


Select On Demand Dehumidification setting. Default is OFF. It can be set in the range of 40 to 94%. Above 94% is the OFF setting. Ideally, the indoor humidity should be set in the range of 40 to 60%.

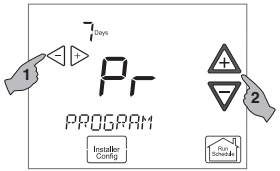
When On Demand Dehumidification is selected On, the thermostat will indicate the current humidity on the home screen. The display will show **RH** with the humidity %. If the current humidity is above the selected setting, the thermostat will send an On Demand Dehumidification request.

On Demand Dehumidification improves the comfort level in your home by reducing the humidity level. This is accomplished by slowing down the system fan speed and lengthening the run time. The humidity setting may not be reached before the call for cool has been satisfied as the system priority is to maintain the temperature in the home.

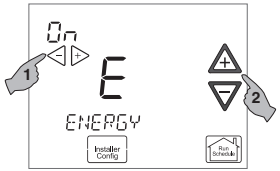
SETUP



Select Continuous FAN speed. Default fan speed is Medium. The fan speed can be set to High, Medium or Low. In High, the fan will run at 75% of the highest fan speed. In Medium, the fan speed will be 50% of the highest fan speed. In Low, the fan speed will be approximately 25% of the highest fan speed.



Select program days per week. Scrolling message will show "**PROGRAM TYPE**". Default is 7 Days to indicate 7 program days a week. It can be changed to 0 Days to indicate no programs will be run. When set for 7 Days, the thermostat will follow the factory program or the program that you entered.



Select Energy Management Recovery. Scrolling Message will show "**ENERGY MANAGEMENT RECOVERY"**. (Will not appear if Program days per week is set to 0 Days.) When selected On, the thermostat will begin heating or cooling early to have the building temperature reach the program set-point at the program period start time.

Example: The heating program is 65°F at night and 70°F at 7 AM for the Morning period. The building temperature is 65°F, a difference of 5°F. Allowing 5 minutes per °F rise, the thermostat will begin the system at 6:35 AM to reach 70°F at 7 AM.

SETUP

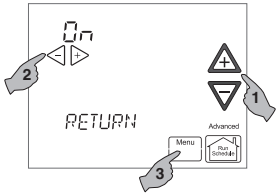
EQUIPMENT USER MENUS

Each Equipment User Menu has sub-menus to divide the information into categories. Each piece of equipment has a different set of sub-menus, with different parameters depending on the equipment. The sub-menus are showing the similar information for each piece of equipment. The sub-menus and information they provide are:

- **Configuration:** This sub-menu item provides access to information regarding the configuration of the particular piece of equipment. An example of configuration data is the number of cooling stages for an AC condensing unit.
- **Diagnostics:** This sub-menu item provides access to the fault history for the particular piece of equipment. It also provides a means to clear the fault history.
- **Identification:** This sub-menu item provides access to the model number and serial number (optional) for the particular piece of equipment.
- **Sensors:** This sub-menu item provides access to available sensor data for the particular piece of equipment. In some instances, it may also provide a means to enable or disable a particular sensor. This sub-menu may not be available for all equipment.
- **Set-up:** This sub-menu item provides access to modifiable operational parameters for the particular piece of equipment.
- **Status:** This sub-menu item provides access to the current status of a particular piece of equipment.

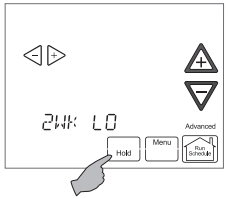
The following sections provide detailed listings of the available sub-menus for the various types of equipment that may be used with this digitally communicating thermostat. The sub-menu listing is further broken down into the various sub-menu items.

ADVANCED MENUS



Touch ⊕ or ⊖ to step through the items of the equipment sub-menu and view settings.

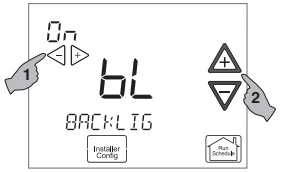
If a setting can be adjusted, the ◁ and ▷ keys will appear. Change the setting as required. Touch ⊕ or ⊖ to step to the next item. "**WORKING"** will appear and then the display will show "**DONE"** to indicate the change is accepted. If the change does not get accepted, the display will show "**FAIL"** and then change back to the Fault Screen.



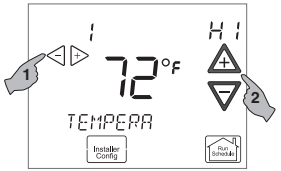
Some of the parameters being displayed on a sub-menu are long and switch between the name and the value. Touch the **Hold** key to momentarily stop the display from switching.

Touch **Menu** to step out of the equipment sub-menu parameters back to the equipment sub-menu. Each touch of **Menu** will step up one menu level back to the Thermostat Options Configuration Menu. Touch the **Run Schedule** to step out of all menus and back to the Home Screen Display.

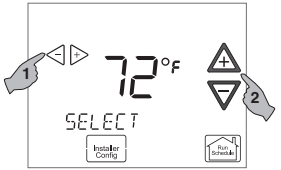
ADVANCED MENUS



Select continuous backlight. Scrolling message will show "**BACKLIGHT"**. When bL is selected On the backlight will be on continuously. Selecting bL OFF will allow the backlight to turn on momentarily when any key is touched. If thermostat is operating with battery power only, and bL is On, the backlight will turn on momentarily.

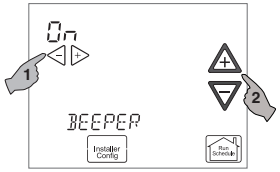


Select temperature offset. Scrolling message will show "**TEMPERATURE ADJUSTMENT"**. Default is 0 with current temperature. Adjustment can be made from 5 Lo to 5 HI to change the displayed temperature. Your thermostat was accurately calibrated at the factory, however this option allows you to change the display temperature to match your previous thermostat if you prefer.

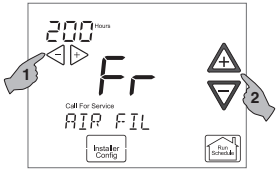


Select temperature display as Fahrenheit or Celsius. Scrolling message will show "**SELECT TEMPERATURE DISPLAY"**. This option selects the temperature display as °F or °C.

SETUP



Select beeper (audio prompt) Default is On for the beeper to indicate a touch key touch. It can be changed to OFF.



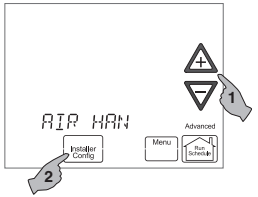
Select air filter maintenance reminder. Scrolling message will show "**AIR FILTER MAINTENANCE"**. Default is OFF. It can be changed to a setting from 25 to 1975 hours in increments of 25 hours to select the amount of time for the reminder. A setting of 225 hours is typically 3 months of run time.

When the system has run for the selected length of time, the scrolling message area will show "**CHANGE FILTER"**.

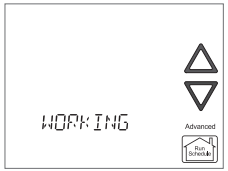
SETUP

EQUIPMENT USER MENUS

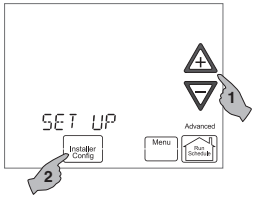
The equipment found in the system will display in the scrolling message area.



Touch ⊞ or ⊟ to step through the list of equipment connected, including thermostat.



To view the Equipment Menus information for the equipment displayed in the scrolling message area, touch **Installer Config** to enter that equipment sub-menu listing. The scrolling message area will show "**WORKING"** to indicate that the thermostat is retrieving data. Then the first equipment sub-menu name appears in the scrolling message area.



Touch ⊞ or ⊟ to step through the list of equipment sub-menus. Each piece of equipment may have different sub-menus.

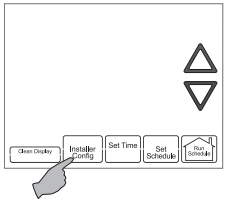
When the equipment sub-menu you want is showing in the scrolling message area, touch **Installer Config**. The scrolling message area will show "**WORKING"** and then change to the first parameter on the equipment sub-menu. Settings for the parameter will also appear on the display.

ADVANCED MENUS

The Advanced Installer Configuration Menu provides access to system configuration options, diagnostics, and identification information.

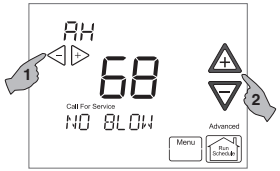
ENTERING AND NAVIGATING THE ADVANCED INSTALLER CONFIGURATION MENU/SERVICE INFORMATION

On the Home Screen Display, touch the **Menu** key to display additional key choices.



Touch and hold the **Installer Config** key for approximately 3 seconds to enter the Thermostat Options Configuration.

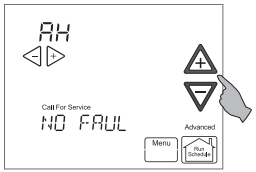
Touch and hold the Installer Config key again for approximately 3 seconds to enter the Advanced Installer Configuration menu.



FAULT STATUS

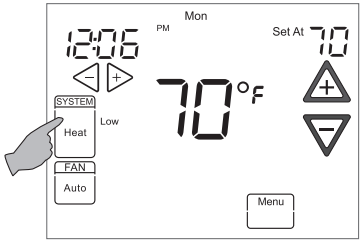
The display will change to the Fault Screen indicating any faults that may be present in the indoor or outdoor equipment. **Advanced** will appear on the right of the display to indicate the Advanced Installer Configuration Menu.

If a fault is present, the Fault Screen will show the equipment and an error code with a description of the fault. Touch ◁ or ▷ keys to view the fault status of any remaining equipment found.



If no errors are present, the scroll area will indicate **NO FAULTS**. Touch ◁ or ▷ keys to view the fault status of any remaining equipment found. Touch △ or ▽ to change the display to the Equipment User Menu.

CHOOSE THE SYSTEM SETTING



Touch the SYSTEM key to select:

Heat: Thermostat controls only the heating system.

Off: Heating and Cooling systems are off.

Cool: Thermostat controls only the cooling system.

Em: Setting is available only when the system is a heat pump. This setting controls the auxiliary heat source in a heat pump system. The auxiliary heat source may be electric strip heaters or a gas furnace (dual fuel system).

Auto: Auto Changeover is used in areas where both heating and cooling may be required on the same day. Auto allows the thermostat to automatically switch between heating and cooling operation.

AUXILIARY HEATING

When the thermostat is configured for Heat Pump mode and an outside remote sensor is installed, the thermostat can monitor the outside temperature. When the outside temperature falls below a user selectable temperature, the thermostat will energize the auxiliary heat source. Depending on the type of auxiliary heat source, the thermostat may shut down the compressor.

PROGRAMMABLE MODE

If Program days per week is set for 7 (7 days) in the Thermostat Options Configuration Menu the thermostat can follow the program entered. Press the **Run Schedule** key. The thermostat will follow the program that you entered or the factory program.

TEMPORARY PROGRAM OVERRIDE

This feature will override the program temperature setting until the next program period begins. Touch ⊕ or ⊖ keys to adjust the temperature. The display will indicate "**Temporary Hold At"** to the left of the set-point temperature. To cancel the temporary setting before the next period begins, touch **Run Schedule** to return to the program.

Example: If you turn up the heat during the Morning program, it will remain at the new temperature until the time for the next program period (Day).

PERMANENT TEMPERATURE HOLD

The Permanent Temperature Hold feature bypasses the program and allows you to adjust the temperature manually as needed. The temperature you set in HOLD will be maintained indefinitely. Touch **Run Schedule** to cancel HOLD and resume the programmed schedule.

Touch ⊕ or ⊖ keys to adjust the temperature. The **Hold** key will appear on the screen. Touch the **Hold** key to maintain the new set-point temperature. "**Hold At"** will display to the left of the temperature set-point. To cancel the permanent hold setting at any time and return to the program, touch **Run Schedule**.

Example: If you turn up the heat during the morning program and touch the **Hold** key, it will remain at the new temperature until you touch **Run Schedule** or you manually adjust to another temperature.

NON-PROGRAMMABLE MODE

If Program days per week is set for 0 Days (Non-programmable) in the Thermostat Options Configuration Menu, the thermostat will not follow any program periods. Touch the **SYSTEM** key to select **Heat** or **Cool** and use the ⊕ or ⊖ buttons to adjust the temperature to your desired setting. After selecting your desired settings you can also touch the **SYSTEM** key to select **AUTO** to allow the thermostat to automatically change between Heat and Cool. If the **SYSTEM** key is touched to select **Auto** the thermostat will change to Heat or Cool, whichever ran last. If it switches to heat but you want cool, or it changes to cool but you want heat, touch both ⊕ or ⊖ keys simultaneously to change to the other mode.

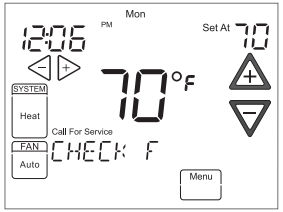
USAGE GUIDE

CHOOSE THE FAN SETTING (AUTO OR ON)

FAN Auto is the most commonly selected setting and runs the fan automatically when the heating or cooling system is on during a program period.

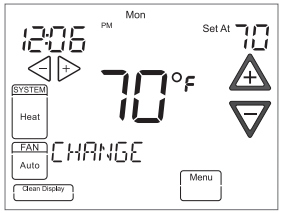
Fan On selection runs the fan continuously for increased air circulation or to allow additional air cleaning. When **FAN** is selected **On**, it will run at the speed selected in the Thermostat Options Configuration Menu.

Fan Prog - When a period that has **FAN Prog** in the program begins, the fan will turn on and stay on during the complete period. The display will show **FAN On Prog.**



CHECK SYSTEM STATUS

If the Home Screen Display indicates "**Call for Service**" and "**Check <Equipment Name>**" in the scrolling message area, there is a fault in the system. When this message is displayed, contact your heating and cooling service contractor or the installing contractor for service.



MAINTENANCE REMINDER MESSAGE

A reminder will display in the scrolling message area when it is time for accessory maintenance if selected in the Thermostat Options Configuration Menu. When a reminder appears, it can be cleared by touching the **Clean Display** key. This will also reset the timer to begin a new time period for the reminder.

Air Filter Maintenance - When the system has run for the selected length of time, the scrolling message area will show "**CHANGE FILTER**".

USAGE GUIDE