



## Installation Instructions

# 3518-7065

## 2 or 4 Pipe Fan Coil Thermostat, 3 Speed

Auto Changeover  
18-30 VAC  
Hardwired



- 2-pipe systems
- 4-pipe systems
- Pipe sensor compatible
- Configurable
- Large display with backlight
- Selectable Fahrenheit or Celsius
- Relay outputs (minimum voltage drop in thermostat)
- Remote sensor compatible

## Installation Guide

### SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and require specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on this equipment, refer to the literature and on the tags, stickers, and labels that are attached to the equipment.

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TECHNOLOGIES

The thermostat is for 18-30 VAC applications only; do not use on voltages over 30 VAC.

Use this thermostat only as described in this manual.

## Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The two types of advisories are defined as follows:

**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**NOTICE** indicates a situation that could result in equipment or property damage only accidents.

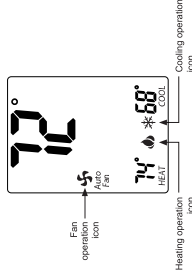
## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

## Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. Technicians who handle refrigerants must be properly trained and certified in the United States (US EPA Section 608). Trane sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

## Icon Descriptions



## Specifications

Electrical rating: 18-30 VAC, 2 amp maximum per output

Temperature control range: 45°F to 90°F (7°C to 32°C)

Accuracy: ± 1°F (± 0.5°C)

Timing: Backlight Operation: 10 seconds

Terminations: R, C, W1, Y1, GH, GM, GL, PS, RS, SC

## Package Contents/Tools Required

Package includes: 3518-7065 thermostat on base, thermostat cover, screws and wall anchors, Installation guide.

Tools required for installation: Drill with 3/16" bit, hammer, screwdriver

## WARNING

**Proper Field Wiring and Grounding Required!**  
Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

## WARNING

**Personal Protective Equipment Required!**  
Installing/servicing this unit could result in exposures to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

## WARNING

**Follow EHS Policies!**  
Failure to follow instructions below could result in death or serious injury.  
All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.  
Non-Trane personnel should always follow local regulations.

## WARNING

**Hazardous Service Procedures!**  
Failure to follow all precautions in this manual and on the tags, stickers, and labels could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures. Use proper safety practices. Only qualified personnel are necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

## To Remove Existing Thermostat

1. Turn off power to the heating and cooling system by removing the fuse or switching the appropriate circuit breaker off.
2. Remove cover of old thermostat. This should expose the wires.
3. Label the existing wires with the enclosed wire labels before removing wires.
4. After labeling wires, remove wires from wire terminals or remove wire nuts.
5. Remove existing thermostat base from wall.
6. Refer to the following section for instructions on how to install this thermostat.

## To Install Thermostat

**NOTICE:** Thermostat installation must conform to local and national building and electrical codes and ordinances.

**NOTICE:** The thermostat should be fast above the floor. Do not mount the thermostat on an outside wall, in direct sunlight, behind a door, or in an area affected by a vent or door.

1. Turn off power by removing the fuse or switching the appropriate circuit breaker off.
2. To remove cover, remove screw and pull gently at the seam at the top.
3. Set thermostat away from working area.
4. Align thermostat base with junction box mounting holes and feed the control wires through hole.
5. Use supplied screws to mount thermostat base to junction box.
6. Connect wiring harness.

7. Snap thermostat to base that is mounted on the wall. Release with screw.
8. Turn on power to the system at the main service panel.
9. Test thermostat operation as described in "Testing the Thermostat".

## Configuration Mode

The configuration mode is used to set the thermostat to match your heating/cooling system. To configure the thermostat, perform the following steps:

1. Verify the thermostat is in the OFF mode. Press the SYS button until off mode displays.
  2. Press the CONFIG button for 5 seconds while the thermostat is in OFF mode. Press the up or down button to change settings within each screen.
- Press the CONFIG button to advance to the next screen.
- Note:** Pressing the SYS button will return you to the previous screen.
- To exit configuration mode, press the CONFIG switch for 5 seconds.



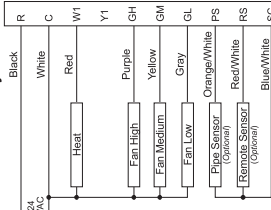
## Configuration Mode Settings

### 1-System

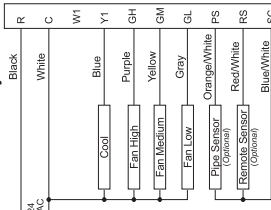
- Select the type of operation you require.
1. Heat Only is for a system with only heating.
  2. Cool Only is for a system with only cooling.
  3. 2-Pipe Manual Changeover is for a 2-pipe system that handles both heating and cooling. The user selects whether the system will be set to heating or set to cooling.
  4. 2-Pipe Seasonal Changeover is for a 2-pipe system that handles both heating and cooling. The thermostat automatically switches whether the system will be set to heat or set to cool based on the pipe sensor temperature. (Default)
  5. 2-Pipe Manual Changeover with Auxiliary is for a 2-pipe system that handles both heating and cooling. The user selects whether the system will be set to heat or set to cool. If set to heat and the pipe sensor indicates there is not heat, the auxiliary output will be turned on.
  6. 4-Pipe Manual Changeover is for a 4-pipe system. The user selects whether the system will be set to heat, cool or off.
  7. 4-Pipe Auto Changeover is for a 4-pipe system. The user selects whether the system will be set to heat, cool, heat & cool or off.

## Wiring Diagrams

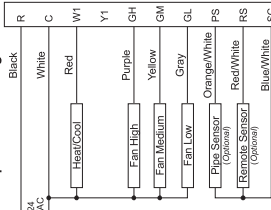
### System 1 Heat Only



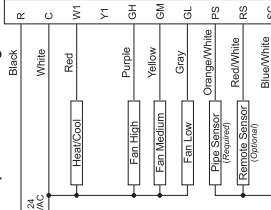
### System 2 Cool Only



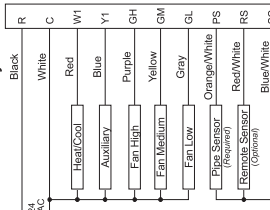
### System 3 2-Pipe Manual Changeover



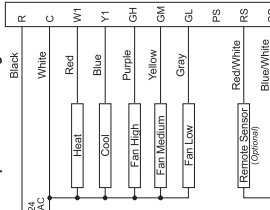
### System 4 2-Pipe Seasonal Changeover



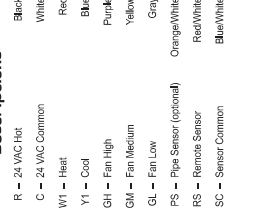
### System 5 2-Pipe Manual Changeover with Auxiliary



### System 6 4-Pipe Manual Changeover



### System 7 4-Pipe Auto Changeover



## Wire Designators Descriptions

- R - 24 VAC Hot
- C - 24 VAC Common
- W1 - Heat
- Y1 - Cool
- GH - Fan High
- GM - Fan Medium
- GL - Fan Low
- PS - Pipe Sensor (optional)
- RS - Remote Sensor
- SC - Sweetest Common

## 16 – Temperature Scale

This thermostat can function in Fahrenheit and Celsius.  
 F = Fahrenheit (Default)  
 C = Celsius

## 3 – Valve Type

This thermostat operates with Normally Open or Normally Closed valves. Select the correct valve type for your system.  
 no = Normally Open (Default)  
 nc = Normally Closed

## 4 – Temperature Sensor

Select the type of room temperature sensor you are using.  
 o = Onboard temperature sensor (34.8-20.65 default)  
 r = Remote temperature sensor (35.18-8.789 default)

## 5 – N/A

## 6 – Pipe Sensor (VIN) (for 2 pipe system only)

Select whether you are using a pipe sensor to monitor the pipe temperature.  
 n = No Pipe Sensor Connected  
 y = Pipe Sensor Connected (Default)

## 7 – Pipe Sensor Cooling

Pipe temperature below this setting is considered to be cooling. If pipe sensor temperature is turned off, selected temperature for more than the Pipe Sensor Delay. Time the coil valve will be changed setting between 50°F and 65°F (10.0°C and 18.5°C) **Default:** 0:0

## 8 – Pipe Sensor Heating

Pipe temperature above this setting is considered to be heating. If pipe sensor temperature is below this selected temperature for more than the Pipe Sensor Delay. Time the heat valve will be turned off. **Default:** 0:0

## 9 – Pipe Sensor Delay Time

This is the time that the valve will be open to verify the pipe temperature before the valve is turned off. This gives time for circulation through the system. **Default:** 5

## 10 – 1st-Stage Differential

Differential is the number of degrees between the set point temperature and the turn on temperature.  
 Changes setting between 41°F and 46°F (5.0°C and 4.5°C) **Default:** 41°F

## 11 – Dead Band

Dead band is the minimum number of degrees allowed between heat set point and cool set point in auto change operation.  
 Select setting between 2°F and 9°F (1°C and 4.5°C) **Default:** 4°F

## 12 – Minimum Set Point Cooling (Lower Limit)

The minimum cooling set point can be limited so the cooling cannot be set too low.  
 Adjust setting between 45°F and 50°F (7.0°C and 32.0°C) **Default:** 45°F

## 13 – Maximum Set Point Heating (Upper Limit)

The maximum heating set point can be limited so the heating cannot be set too high.  
 Adjust setting between 45°F and 50°F (7.0°C and 32.0°C) **Default:** 50°F

## 14 – Temperature Calibration

The room temperature can be offset to display a different temperature. Example: 70°F room temperature with -2 setting displays 68°F.  
 Adjust setting between -9°F and 9°F (-4.5°C and 4.5°C) **Default:** 0°F

## 16 – Temperature Display

Select whether to display room temperature only, set point temperatures only or both.  
 S' Display set point only  
 F = Fahrenheit (Default)  
 S' Display room temperature only  
 S' Display set point and room temperature **Default:** S'

## 17 – Valve Purge

Select time to open valves during inactivity period. This feature purges the lines so water does not become stagnant and helps helps valves from sticking.  
 0' Disabled (Default)  
 \*1' 1 minute every 24 hours  
 \*3' 3 minutes every 24 hours

## Mode of Operation

The low voltage fan coil thermostat can be used for two pipe or four pipe systems. It can control heat only, cool only or heat & cool systems. A pipe sensor can be used for two pipe systems to verify the system is operating or automatically change to the correct operating mode. The thermostat is configurable for all fan coil systems. The configuration setup is used to match the thermostat to your system and turn on the features you want to utilize.  
 The thermostat can be setup for continuous fan or automatic fan. Continuous fan operates on the fan speed set point and the fan speed set point. Automatic fan operates on the fan speed set point and the room temperature. The further the room temperature is away from the set point temperature the faster the fan will operate.  
 A lock feature can be enabled so the setting can not be tampered with. A valve purge feature can be used to cycle the valve so water does not become stagnant and to stop valves from sticking.

## Button Functions

UP – Used to increase the set temperatures and to adjust configuration settings.  
 DOWN – Used to decrease the set temperatures and to adjust configuration settings.  
 SYS – Used to change from OFF, HEAT, COOL and AUTO changeover modes.

## CONFIG – Used to enter configuration and advance to the next configuration screen.

## FAN – Used to turn the fan on and off. Also used to cycle through fan speeds

## SYS then CONFIG – Held in simultaneously for 10 seconds to lock and unlock the thermostat.

## Up and Down – Pressed simultaneously to display pipe sensor temperature if pipe sensor is connected.

## Operating Modes

There are four possible operating modes. The thermostat, OFF, Cool, Heat, and Cool & Heat modes are accessed by pressing the SYS button.  
 \* Note: The modes you can access are based on your configuration.

## OFF Mode

In this mode, the thermostat will not turn on the heating or cooling devices.  
 \* Note: The fan (when configured as continuous fan) can be turned on manually in off mode by pressing the FAN button. The word FAN shows on the display and the fan icon appears when the fan operates.

## Heat Mode

In this mode, the thermostat controls the heating system. When the heat outputs, the flame icon appears on the display.  
 \* Note: The thermostat will not turn on the heating or cooling devices.

## Cool Mode

In this mode, the thermostat controls the cooling system. When the cooling outputs, the snowflake icon appears on the display.  
 \* Note: The thermostat will not turn on the heating or cooling devices.

## Heat & Cool Mode

In this mode, the thermostat can automatically turn on heat or cool as needed. AUTO appears on the display with the heat set point and cool set point.  
 \* Note: The thermostat will not turn on the heating or cooling devices.

## Fan Mode

In this mode, the user can select between continuous fan speeds of H, M, L or auto fan. When auto fan is selected, the fan speed is determined by the number of degrees the room temperature differs from the set point.

## Testing the Thermostat

Once the thermostat is configured, it should be thoroughly tested.  
 \* Note: If using pipe sensors, verify pipe sensors are within range to output. Check pipe temperature by pressing the UP and DOWN buttons simultaneously.

## Heat Test (For systems with heat)

- Press SYS button until heat mode is displayed.
- Adjust the set temperature so it is 5 degrees above the room temperature.
- Heat should come on within a few seconds.
- Adjust the set temperature 2 degrees below the room temperature and the heat should turn off. There may be a fan delay on your system.

## Cool Test (For systems with cooling)

- Press SYS (left) button until cool mode is displayed.
- Adjust set temperature so it is 5 degrees below room temperature.
- Cooling should come on within a few seconds.
- Adjust the set temperature 2 degrees above the room temperature and the cool should turn off. There may be a fan delay on your system.

## Fan Test (System off)

- Press FAN button to toggle between Fan Off, Fan Hi, Fan Med or Fan Low.

## Lockout Feature

The thermostat has a button lockout feature so the mode cannot be changed and the temperature adjustment is limited. Select the appropriate lockout from Configuration Mode Settings (Setting 13) of this guide.  
 To activate the LOCK feature:  
 1. Press the SYS button in, then press the CONFIG button in also. Hold both in for 10 seconds.  
 2. \* will display and the lockout function will be enabled.  
 To deactivate the LOCK feature, repeat steps 1 and 2 above.

## Troubleshooting

Symptom	Remedy
No display	Check for voltage at thermostat; display is blank when voltage is not present
System fan does not come on properly	Verify wiring is correct, check connections are correct frequently
Thermostat turns on and off too frequently	Adjust temperature differential (see Configuration Mode Setting 10)
Room temperature is not correct	Calibrate thermostat (see Configuration Mode Setting 14)
Displays when any button is pressed	If remote sensor is used, check connections (see Lockout Feature and Configuration Mode Setting 15)
On display instead of room temperature	Check for a bad connection if remote sensor is used (see Configuration Mode Setting 4)
Heat or Cool not coming on (No pipe sensor)	Verify wiring is correct, gently pull on each wire to verify there is a good connection, verify configuration settings (see Configuration Mode Setting 4)
Heat or Cool not coming on (Pipe sensor connected)	Check pipe sensor temperature by pressing up and down buttons in -- if out of range, outputs may not turn on (see Configuration Mode Settings 6a)



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