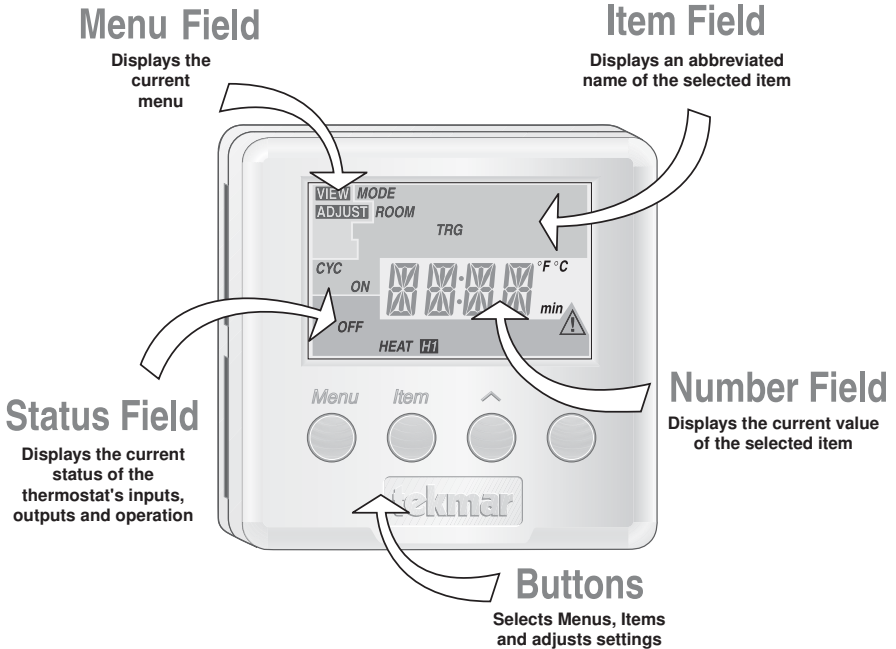


## Table of Contents

Display / Keypad Operation.....	pg 1	User Interface .....	pg 6
Display Symbols .....	pg 2	Menus .....	pg 7
General .....	pg 2	View Menu .....	pg 7
Sequence of Operation .....	pg 2	Adjust Menu .....	pg 7
Installation .....	pg 3	Error Messages .....	pg 7
Wiring Examples.....	pg 4-6	Warranty .....	pg 8

## Display / Keypad Operation

The thermostat's display has four distinct fields. These fields are the **Menu** field, the **Item** field, the **Number** field and the **Status** field. The four buttons on the face of the thermostat are used to navigate through the menus and items to view and / or adjust the desired settings.



## Display Symbols



### Warning

Displays when an error exists.



### Heat One

Displays when the heat contact is on.

## General

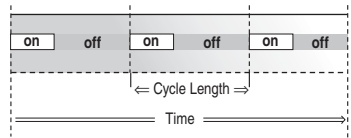
### CYCLES PER HOUR

The thermostat operation is based on cycles per hour. During each cycle that heating is required, the thermostat turns on the *Heat* relay for a calculated amount of time. This amount of time is the “ON time”. The ON time is calculated based on the requirements of the zone. If the zone requires more heating, the ON time is increased. If the zone requires less heating, the ON time is reduced.

In order to prevent short cycling of the heating relay, the thermostat ensures that the relay remains on or off for a minimum amount of time.

The 507 Thermostat has an Auto Cycle. This allows the thermostat to determine the best number of cycles per hour that balances both temperature swings and equipment cycles.

#### Cycles Per Hour



## Sequence of Operation

### MODE

#### Heat

In the heat mode, the *Heat* relay is operated to satisfy the temperature requirement of the zone.

#### Off

In the OFF mode, the *Heat* relay is not operated.

**NOTE:** If an air sensor is active in the OFF mode, a freeze protection is enabled that allows the Heat relay to be operated to keep the zone above 35°F (2°C).

## Installation

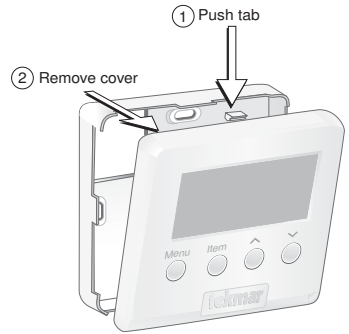
### STEP ONE — GETTING READY

Check the contents of this package. If any of the contents are missing or damaged, please contact your wholesaler or tekmar sales representative for assistance.

Type 507 Includes: • One Thermostat 507 • Data Brochure D 507 • User Brochure U 507

### STEP TWO — REMOVING THE FRONT COVER

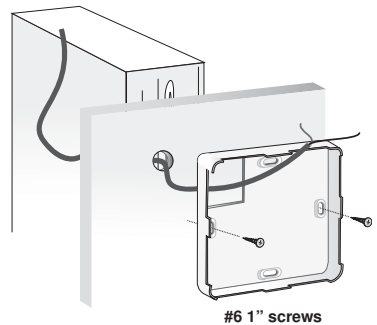
Place a screwdriver or similar object into the small slot located in the top of the thermostat. Push the screwdriver against the plastic tab and pull the top of the front cover so that it pivots around the bottom edge of the base.



### STEP THREE — MOUNTING THE BASE

The thermostat should be installed on an interior wall of the desired zone approximately 5' (1.5 m) above the floor. Do not mount the thermostat in a location that may be affected by localized heat sources or cold drafts. It may be necessary to install a draft barrier behind the thermostat to prevent air from blowing through the wiring hole and affecting the thermostat's built-in sensor.

Mount the base directly to the wall using two #6 1" screws. The screws are inserted through the mounting holes and must be securely fastened to the wall. If possible, at least one of the screws should enter a wall stud or similar surface. If the thermostat is to be mounted to a 2" x 4" electrical box, order an Adaptor Plate 007. This plate mounts to the electrical box and the thermostat mounts to the plate. Ensure that the electrical box does not provide cold air to the thermostat.



### STEP FOUR — ROUGH IN WIRING

- 18 AWG or similar wire is recommended for all 24 V (ac) wiring.
- All wires are to be stripped to 1/4" (6 mm) to ensure proper connection to the control.
- Run wires from the 24 V (ac) power to the thermostat. Use a clean power source to ensure proper operation.
- Run wires from the heating device to the thermostat.

## STEP FIVE — WIRING THE THERMOSTAT

(Refer to the examples on the following page.)

### 24 V (ac) Power

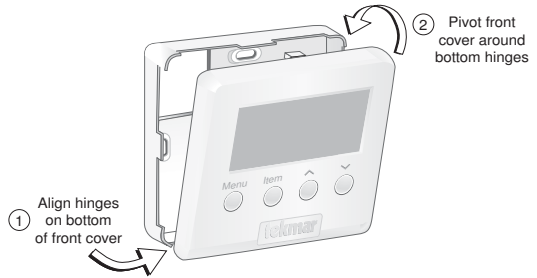
Connect the 24 V (ac) power to the *R* and *C* terminals of the thermostat. This connection provides power to the microprocessor and display of the thermostat.

### Heat Relay (*Rh - W*)

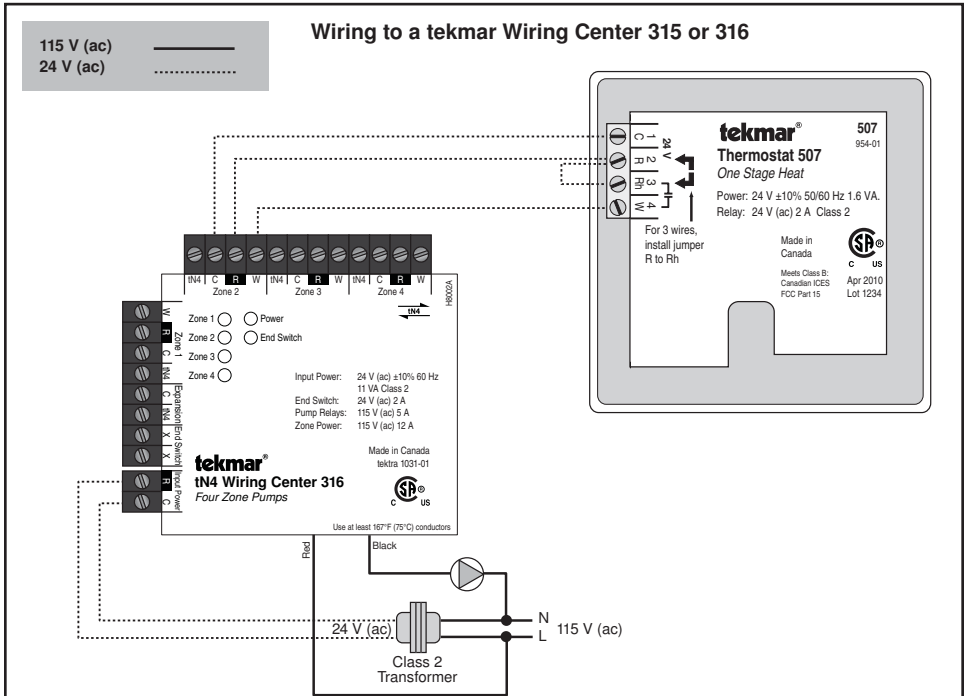
The *Heat Relay Rh - W* terminals are an isolated output. There is no power available on these terminals from the thermostat. These terminals are to be used as a switch for a 24 V (ac) circuit. This circuit can operate a low current 24 V (ac) device directly or an external relay to enable a line voltage or high current device.

## STEP SIX — INSTALLING THE FRONT COVER

Align the hinges on the bottom of the front cover with the bottom of the thermostat mounting base. Pivot the front cover around the bottom hinges and push the top against the mounting base until it snaps firmly in place.



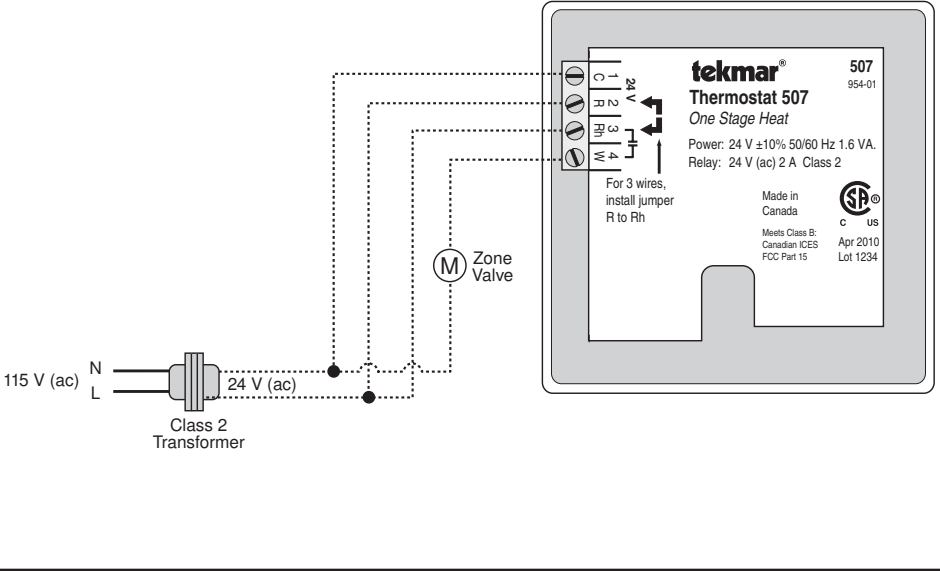
## Wiring Examples



# Wiring Examples

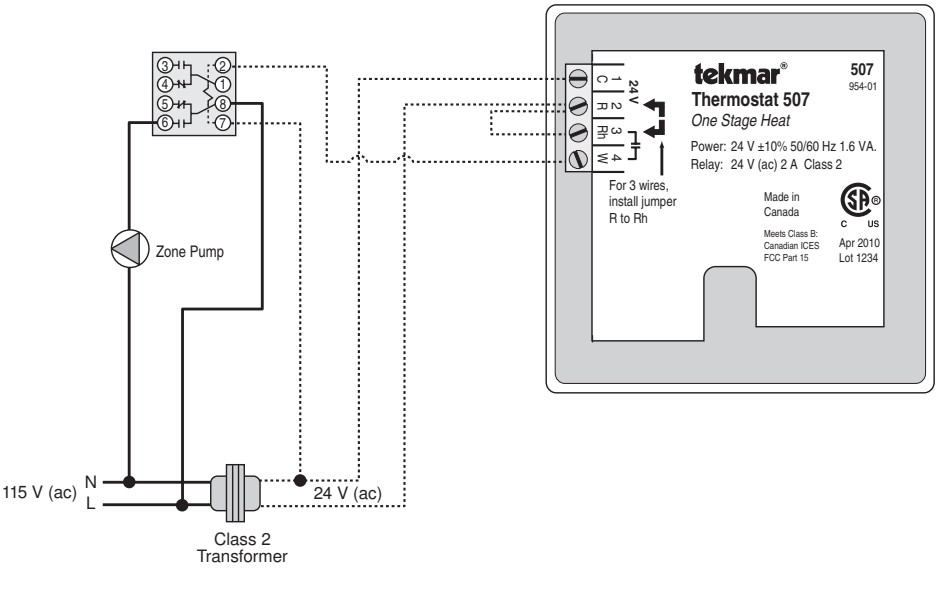
115 V (ac) ———  
 24 V (ac) ······

## Wiring to 24 V (ac) Zone Valve

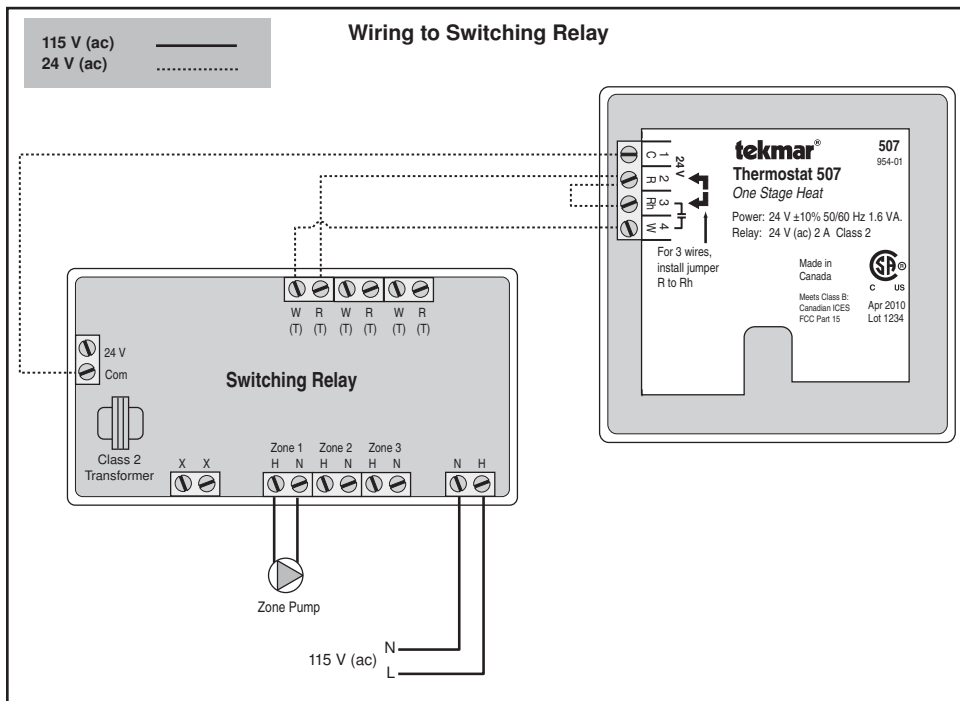


115 V (ac) ———  
 24 V (ac) ······

## Wiring to Unpowered 24 V (ac) Relay



## Wiring Examples



## User Interface

### MENU BUTTON

The menus display in the Menu Field at the left of the LCD.

Two menus are available:

- View
- Adjust

To select a menu, press and release the Menu button.

### ITEM BUTTON

In each menu, a group of items can be selected. The abbreviated name of the selected item displays in the Item field of the LCD display.

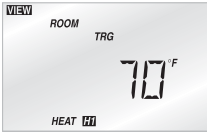
- To view the next available item, press and release the Item button.
- To view the previous item, hold down the Item button and press and release the Up button.

### ADJUSTING A SETTING

To adjust a setting:

1. Use the Menu button to select the appropriate menu.
2. Use the Item button to find the desired setting.
3. Use the Up or Down button to adjust the setting.

## View Menu



### ROOM TARGET

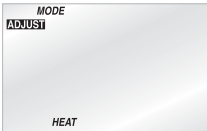
The current desired air temperature for the space as set in the Adjust Menu.



### ROOM

The current air temperature for the space.

## Adjust Menu



### MODE

Current mode of operation of the thermostat.

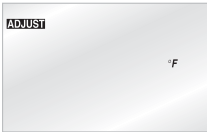
OFF, HEAT



### ROOM HEAT

Desired temperature for heating. (*Mode must be set to HEAT.*)

35 to 100°F (1.5 to 38.0°C)



### UNITS

The units of temperature used to display the items.

°F, °C

## Error Messages



### E01

The thermostat was unable to read a piece of information stored in its memory. The thermostat was required to load the factory settings. The thermostat will stop operation until all settings are checked. To clear this error, check all of the settings in the Adjust menu.



### ROOM SHORT

The thermostat's internal air sensor is short circuit. This cannot be repaired in the field. The thermostat should be replaced or returned for repair.



### ROOM OPEN

The thermostat's internal air sensor is open circuit. This cannot be repaired in the field. The thermostat should be replaced or returned for repair.

## Technical Data

### THERMOSTAT 507 *One Stage Heat*

Literature	D 507, U 507
Control	Microprocessor PI control; This is not a safety (limit) control.
Packaged weight	0.46 lb. (210 g), Enclosure J, white PVC plastic
Dimensions	2-7/8" H x 2-7/8" W x 13/16" D (73 x 73 x 21 mm)
Approvals	CSA C US, CSA 22.2 N°24 and UL 873, meets class B: ICES & FCC Part 15.
Ambient conditions	Indoor use only, -22 to 131 °F (-30 to 55 °C), < 90% RH non-condensing.
Power Supply	24 V (ac) ±10%, 50/60 Hz, 1.6 VA
Relay	24 V (ac) 2 A, Class 2

## Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.*

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and/or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and/or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, AND ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

**Product Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.



tekmar Control Systems Ltd., Canada  
tekmar Control Systems, Inc., U.S.A.  
Head Office: 5100 Silver Star Road  
Vernon, B.C. Canada V1B 3K4  
(250) 545-7749 Fax. (250) 545-0650  
Web Site: [www.tekmarcontrols.com](http://www.tekmarcontrols.com)

Product design, software and literature  
are Copyright © 2010 by:  
tekmar Control Systems Ltd. and tekmar  
Control Systems, Inc.

