

The Robertshaw logo is written in a red, cursive script font. A registered trademark symbol (®) is located at the bottom right of the word.

Robertshaw®

# Thermostat Value Series RS4000, RS5000 and RS600 UNI-LINE® PRODUCT KNOWLEDGE

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The Invensys Controls logo features the word 'invensys' in a lowercase, sans-serif font with wide letter spacing. The 'i' is lowercase, while 'n', 'v', 'e', 'n', 's', 'y', and 's' are uppercase. Below it, the word 'Controls' is written in a smaller, lowercase, sans-serif font.

invensys  
Controls

# Subjects We Will Cover In This Session

- Thermostat Products and Features
- Robertshaw® Value RS456 Series
- Manufacturer Comparison
- Installation and Set-Up
- Powering Thermostat
- Pop-Up Wizard
- Password Protection
- System Test Mode
- Where to Find Information
- Q&A



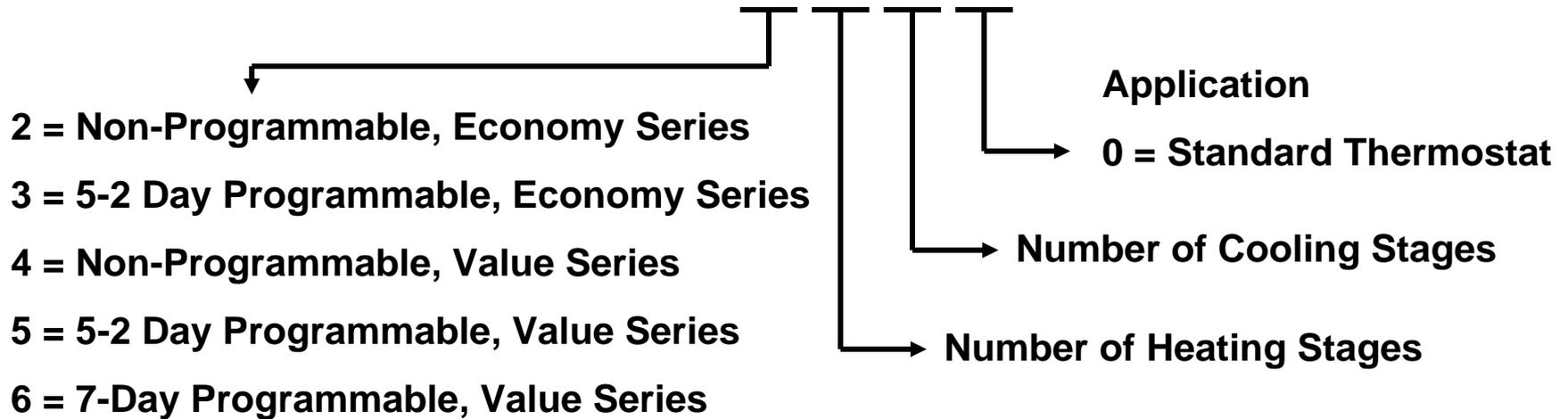
# Thermostat Series – Product Overview

- Robertshaw® i2 Deluxe Series
  - Setup Wizard
  - Time of day zoning
  - Independent remote and outdoor sensor terminals
- RS4000, RS5000, and RS6000 Value Series
  - Pop-up Configuration Wizard
  - Auto Changeover
  - Circulating Fan
- RS2000 and RS3000 Economy Series
  - Adjustable Temperature Differential
  - Worry-Free Memory Retention
  - Low Temperature Freeze Protection
  - Filter Indicator



# Nomenclature for RS Series

**RSX110**



# Robertshaw® Value Series Thermostats

- RS4000 Series; Non-programmable
  - RS4110 1 Heat / 1 Cool; Universal Application\*
  - RS4220 2 Heat / 2 Cool; Universal Application\*
  - RS4320 3 Heat / 2 Cool; Universal Application\*
- RS5000 Series; Programmable; (5-2 Day Schedule)
  - RS5110 1 Heat / 1 Cool; Universal Application\*
  - RS5220 2 Heat / 2 Cool; Universal Application\*
- RS6000 Series; Programmable (7 Day Schedule)
  - RS6110 1 Heat / 1 Cool; Universal Application\*
  - RS6220 2 Heat / 2 Cool; Universal Application\*
  - RS6320 3 Heat / 2 Cool; Universal Application\*

\* Electric, Gas, Oil, Heat Pump and Millivolt Systems

# Features: RS4000, RS5000 & RS6000 Series

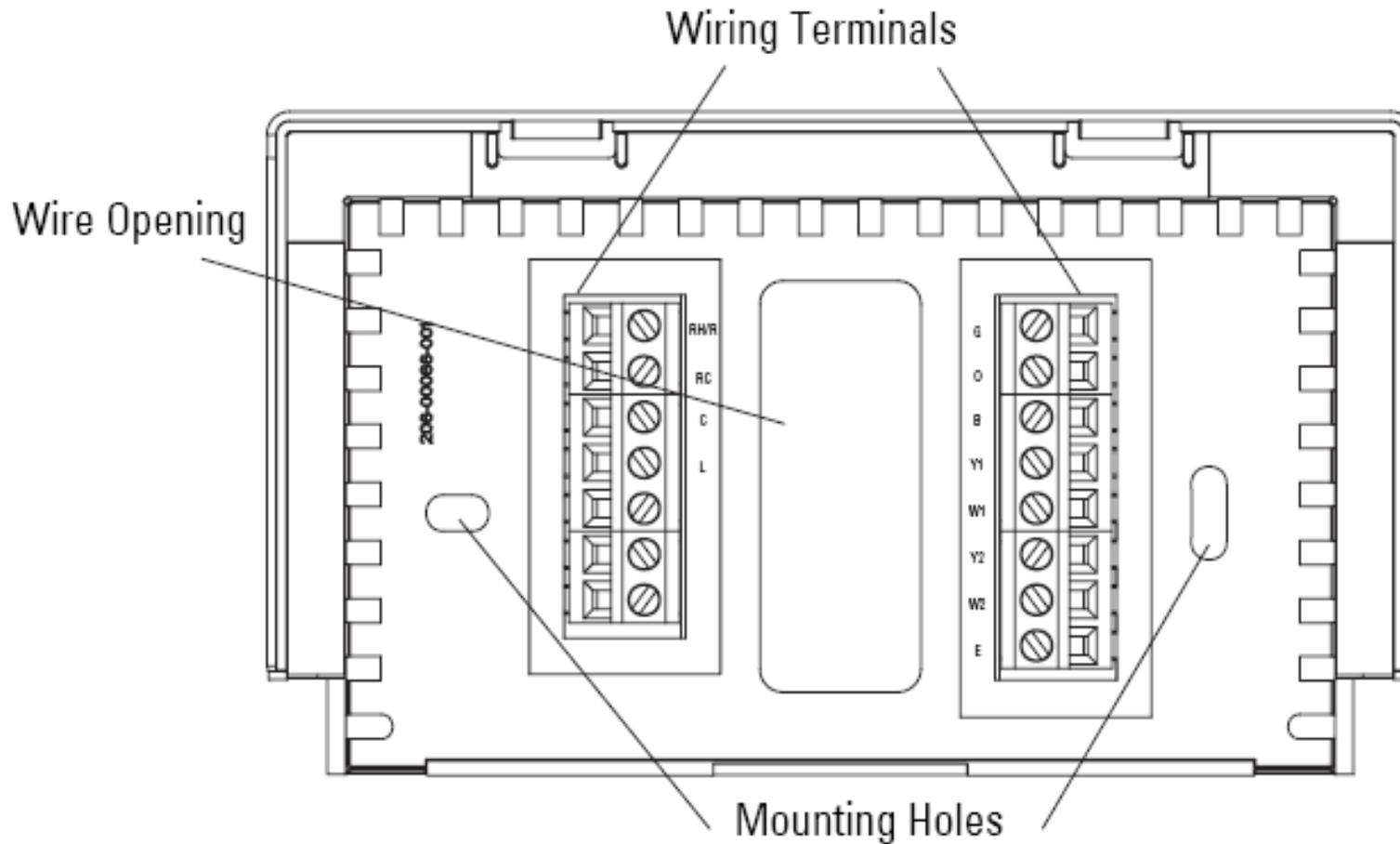
- Pop-up Wizard
- Engineered *True Blue* backlight display
- Largest Temperature Display Character Size
- Soft Touch Keys
- Set-up Test Mode
- Auto Changeover
- Circulating Fan
- Low Temperature Freeze Protection
- High Temperature Protection
- High / Low Temperature Limits
- Easy Change Battery Access
- California Title 24 Compliant
- 5 Year Limited Warranty



# RS4000, RS5000 And RS6000 Series Installation And Set-Up

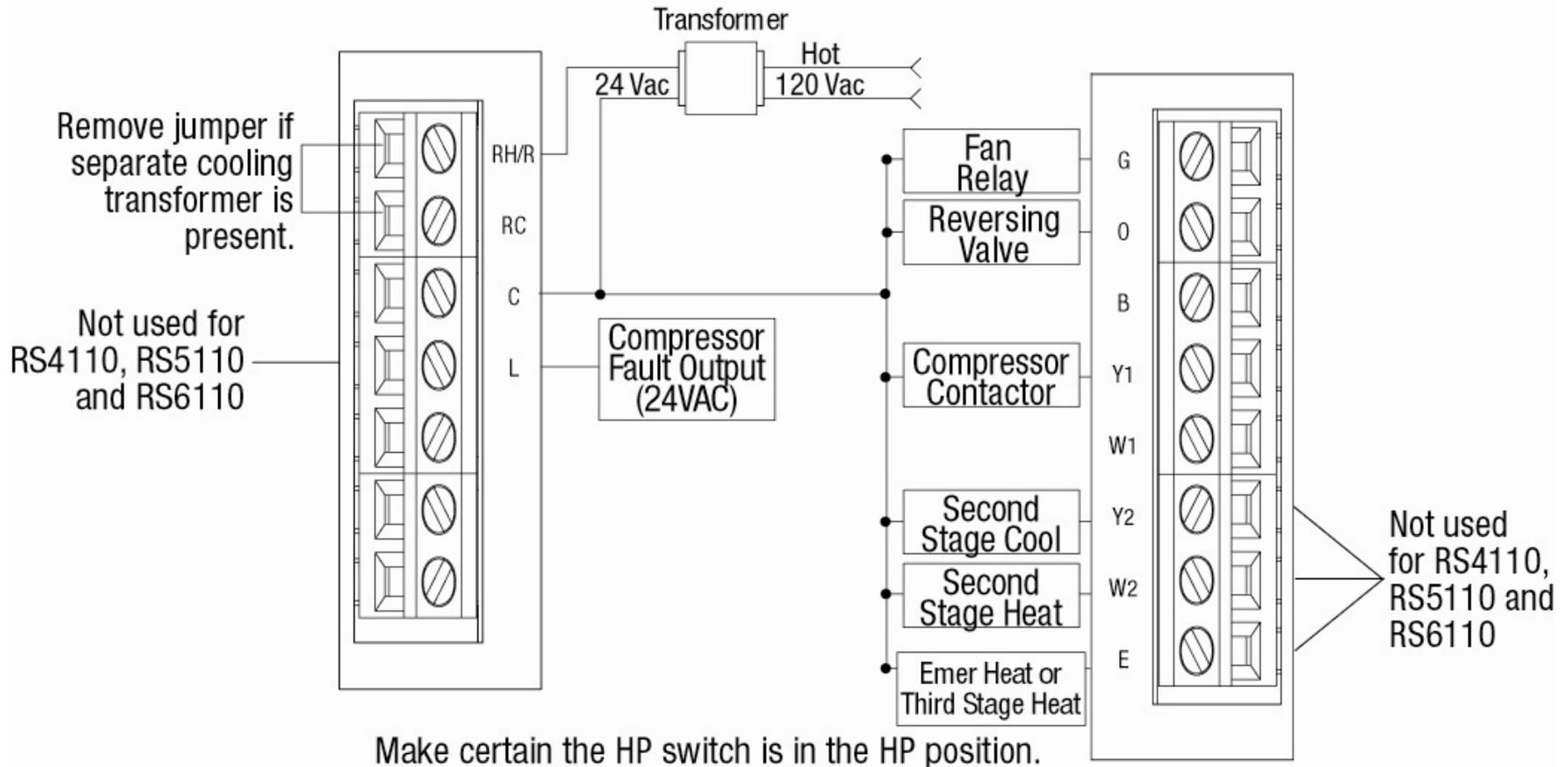


# Installation - Mounting



# Wiring Diagram Including Heat Pump Switch

## When used as Heat Pump with Cool Active Reversing Valve With Battery Backup



# Poll Question #1

G terminal (Green) connects to:

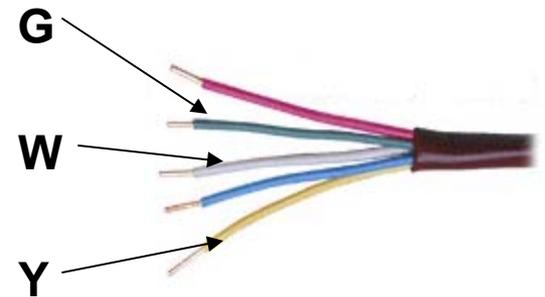
- a) Fan relay
- b) Condenser
- c) Humidifier solenoid

W terminal (White) connects to:

- a) Emergency heat
- b) First stage heating relay
- c) Fan relay

Y terminal (Yellow) connects to:

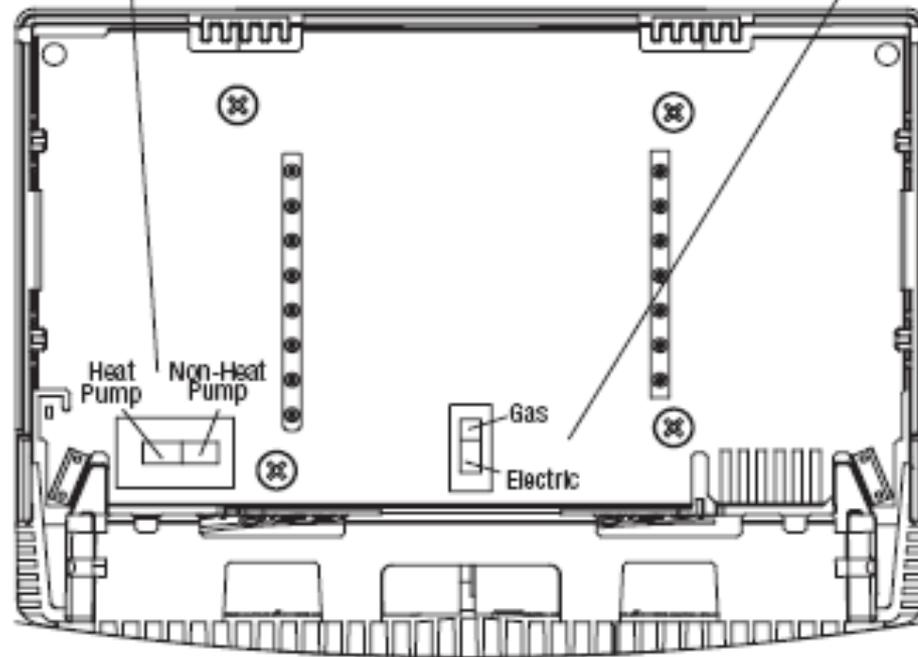
- a) Heat contact
- b) Reversing Valve
- c) Cooling contact



# Installation – Initial Set-up

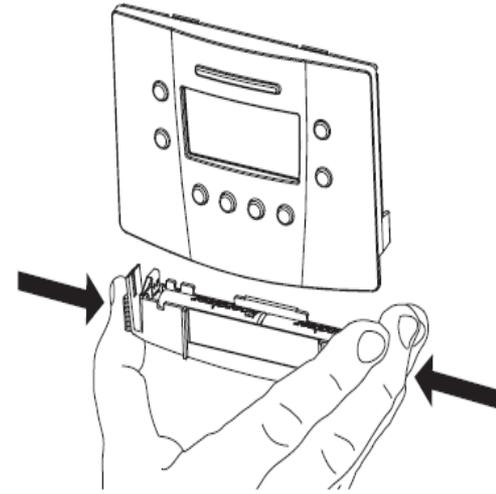
Heat Pump or Non Heat Pump

Gas or Electric



# Installation – Powering Thermostat

- Robertshaw® Value Series Thermostats may be powered by either
  - 24V AC or 2 (AA) Batteries
- Thermostats with batteries will continue to function if 24V AC fails
- Installing Batteries
  - Battery tray is a drawer in the thermostat body
  - Pinch both sides and pull tray out from bottom
  - Install two AA batteries
  - Follow polarity as shown on inside tray
  - Slide tray back into the body
- Battery Charge mode has two levels :
  - Level 1: Low battery icon. Change batteries soon.
  - Level 2: Low battery icon with flash. Change batteries immediately because the system will not operate!

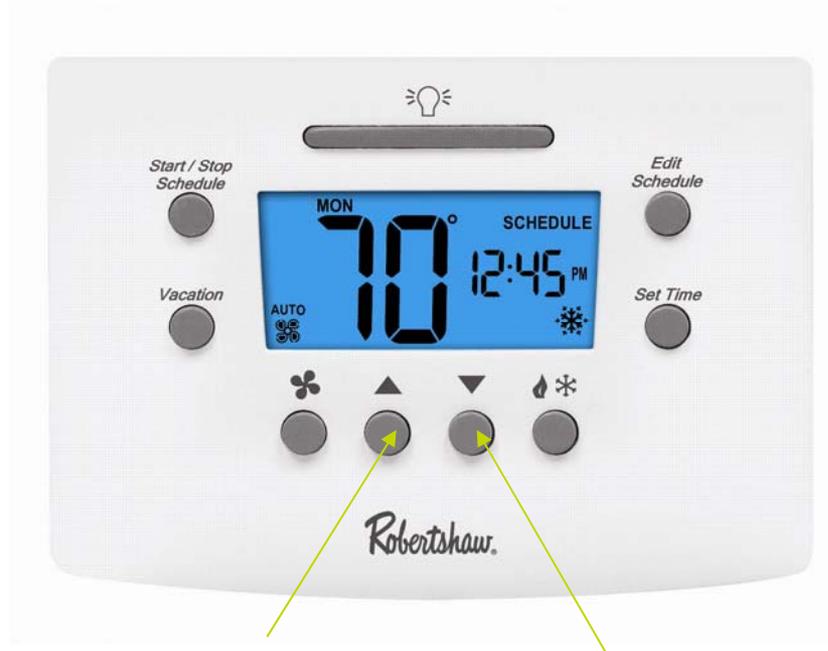


# Poll Question #2

Robertshaw® Value Series Thermostats are powered by:

- A. 24 Volts AC or AA Batteries
- B. Line Voltage or AAA Batteries
- C. Line Voltage only
- D. Batteries only

# Access to Pop-Up Wizard After Start up



- Press the UP and DOWN buttons simultaneously for 3 seconds
- Pop-Up Wizard will initiate

# Pop-Up Wizard Configuration Chart

Displayed	Choice	Default
SCAL	F° or C°	F°
CLOC	12 or 24 hour	12
LITE	1=always on, 0=off	0
DIFF	Set Differential, 0.5-3 F° or 0.5-1.5 C°	1 F°
DIF2*	Set 2 <sup>nd</sup> Stage Differential, 1-6 F° or 0.5-3 C°	2 F°
DLY2*	2 <sup>nd</sup> stage time delay, 5-40 min	20
DLY3**	3 <sup>rd</sup> stage time delay, 5-40 min	20
AUTO	Enable Auto change over, Y = Yes, N = No	Y
DEDB	Deadband in Degree's, 1 – 8 F°	3 F°
HI	Upper heating limit, 45-90 F°	90 F°
LO	Lower Cooling Limit, 45-90 F°	45 F°
VAC HEAT***	Vacation Heating Set point, 45-90 F°	60 F°
VAC COOL***	Vacation Cooling Set point, 45-90 F°	85 F°
CHECK	Filter Monitor, hours, OFF – 9900	OFF
CYCL	Compressor Short Cycle Delay, minutes, 0 – 5	5
CAL	Temperature Calibration Offset, - 3 to 3 F°	0

# Password Protection

- Press UP and HEAT/COOL buttons simultaneously
- Hold for 10 seconds
- Use the UP and DOWN to enter the desired digit
- Use the HEAT/COOL button to move to the next digit
- The password will be saved after 10 seconds
- A lock will appear in the:
  - Upper left hand corner for RS4000 series
  - Lower right hand corner for RS5000 and RS6000 series
- Default passwords are the following:
  - RS4000 is 81
  - RS5000 and RS6000 is 8115



# System Test Mode

- Press FAN and HEAT/COOL buttons simultaneously
- Hold for 10 seconds
- Press the HEAT/COOL button to turn on heat
- Only FAN, HEAT/COOL and Start/Stop buttons are active
- A second press will turn on 2<sup>nd</sup> stage of heat (on multistage models)
- Continuous pressing of HEAT/COOL button will turn on cooling
- Short Cycle protection is not enabled. May damage equipment and should only be performed by certified HVAC technicians
- Push START/STOP to exit test mode on RS5000 and RS6000 series
- Push UP or DOWN to exit test mode on RS4000 series
- 30 minute time out if you forget to place back into operation mode



# Staging Parameters

## Single Stage Models

Demand	Conventional (Non – HP)	Heat Pump (HP)
First Stage Cool	Y1 & G	Y1 & G & O
First Stage Heat	W1 & G (note, G is Off for Gas, On for Electric)	Y1 & G & B

## Multi Stage Models

Demand	Conventional (Non – HP)	Heat Pump (HP)
First Stage Cool	Y1 & G	Y1 & G & O
Second Stage Cool	Y1 & Y2 & G	Y1 & Y2 & G & O
First Stage Heat	W1 & G	Y1 & G & B
Second Stage Heat (2H/2C)	W1 & W2 & G	Y1 & W2 & G & B
Second Stage Heat (3H/2C)	W1 & W2 & G	Y1 & W2 & G & B
Third Stage Heat	n/a	Y1 & W2 & E & G & B
Emergency Heat	n/a	E & G

# Poll Question #3

What is activated when UP and DOWN buttons are pushed simultaneously for 10 seconds?

- A. Password Setup
- B. System Test Mode
- C. Pop-Up Wizard
- D. Auto changeover



# RS456 Value Series – Manufacturer Comparison

Features	Robertshaw®	Honeywell	White-Rodgers	Braeburn	Lux
Family Model or SKU	RS4000 / RS5000 RS6000	TH5000 TH6000	1F80 series	3000 5000	DMH110 / DHP2120 TX500E / HP2110
Auto Changeover	✓	✓	✗	✗	✗
Pop-Up Wizard	✓	✗	✗	✗	✗
Test Option	✓	✗	✗	✗	✗
High & Low Temp Limits	✓	✗	✗	✗	✗
Freeze & Heat Protection	✓	✗	✗	✗	✗
Universal Equipment	✓	✗	✓	✗	✗
Adjustable Compressor Short Cycle	✓	✗	✓	✗	✗
Circulating Fan	✓	✗	✗	✓	✗
Adjustable 2 <sup>nd</sup> Stage Delay	✓	✗	✗	✗	✗

# RS456 Value Series – Pros and Cons

Features	Pros for Robertshaw®	Competition
Auto Changeover	Better Comfort in Spring & Fall	More Trips to Thermostat
Pop-Up Programming Wizard	Simplifies Start-up & Installation	Requires Complicated Codes
High & Low Temp Limits	Minimizes Temperature Adjustments	Higher Energy Use
Circulating Fan	Effective Use of IAQ Equipment	Less Use of IAQ Equipment
Universal Equipment & Power	Gas, Electric, Oil, Heat Pump Battery or 24V	Requires Separate SKU's

# RS456 Value Series – Value Proposition

Features	Wholesaler / Distributor	Contractor	End-User
Auto Changeover	Less SKU's on Shelf	Less Programming	Greater Comfort
Pop-Up Wizard	Easier to Sell	Faster Programming And Start-up	Setup Right the First Time
High & Low Temperature Limits	More Features	Offers Greater Control	Minimizes Temperature Swings
Circulating Fan	Upsell Other Products	Better Use of IAQ Equipment	Comfort & Energy Savings
Universal Equipment & Power	Less Inventory to Carry	Right Product for Right Job	Flexibility on New Systems

# More Features + Less Money = Value Series



RS456 Series



# Sales Tools for the Value Series

- Sell Sheet Part Numbers: 150-2089, 150-2090, & 150-2091



RS4110  
RS4220  
RS4320

VALUE SERIES  
DIGITAL NON-PROGRAMMABLE  
THERMOSTATS



RS4110 – 1 Heat / 1 Cool  
RS4220 – Universal Control up to 2 Heat / 2 Cool  
RS4320 – Universal Control up to 3 Heat / 2 Cool



## Comfort Control Made Simple

The Robertshaw® RS4000 thermostat family is *Simply the Right Choice™* when it comes to automated temperature controls.

With the comfort, convenience, and efficiency features that homeowners and contractors want, the RS4000 family provides custom program options in value-packed thermostats for an affordable price.

- Quick connect wiring feature to save up to 15 minutes on every installation.
- Pop-up Wizard to customize thermostat settings with an instant start-up menu.
- Fully adjustable differentials to maintain optimal heating and cooling comfort year-round.

All RS4000 thermostats are fully compatible with all standard 24V AC heating and cooling systems. Additional compatibility with multi-stage gas/electric furnaces and heat pump systems are available in the RS4220 and RS4320 models.

Add in easy installation, Contractor ID option, and quality you can depend on, and you have the Robertshaw RS4000 thermostat family - *Simply the Right Choice.*

An ISO 9001 – 2000 Certified Company




RS5110  
RS5220

VALUE SERIES  
DIGITAL PROGRAMMABLE  
THERMOSTATS



5 - 2 Day Programmable  
RS5110 – 1 Heat / 1 Cool  
RS5220 – Universal Control up to 2 Heat / 2 Cool



## Features and Benefits

Universal Control up to 2 Heat / 2 Cool – RS5220 only  
Operates on both multi-stage gas/electric furnaces and heat pumps means less inventory.

**Auto Changerover**  
Switches automatically between heating and cooling for constant home comfort.

**Pop-Up Wizard**  
Launches instant installation menu to quickly enter the settings for programmed thermostat functions.

**Bigger Brighter Backlight with Nightlight Option**  
Makes viewing and setting the temperature easier any time of the day.

**Worry-Free Memory Retention**  
Maintains set point and programmed parameters, even during power outages.

**Easy Change Battery Access**  
Provides drop down removable compartment for quick battery replacement.

**Circulating Fan**  
Maintains optimal air circulation between demand cycles for improved comfort with minimal energy use.

**Low Temperature Freeze Protection**  
Turns on heat automatically when temperature goes below 41°F. Protects pipes from freezing.

**Adjustable Temperature Differential and Upstaging**  
Provides for full selection of parameters to deliver maximum comfort or energy savings.

**High and Low Setpoint Limits**  
Protects the heating and cooling systems by limiting temperature settings.

An ISO 9001 – 2000 Certified Company




RS6110  
RS6220  
RS6320

VALUE SERIES  
DIGITAL PROGRAMMABLE  
THERMOSTATS



7 Day Programmable  
RS6110 – 1 Heat / 1 Cool  
RS6220 – Universal Control up to 2 Heat / 2 Cool  
RS6320 – Universal Control up to 3 Heat / 2 Cool



## Seven Day Comfort Control Simplified

The Robertshaw® RS6000 thermostat family is *Simply the Right Choice™* when it comes to daily programmable temperature controls that can save energy and money.

With the comfort, convenience, and efficiency features that homeowners and contractors want, the RS6000 family provides EnergyStar® and California Title 24 compliant features for an affordable price.

**• Fully programmable with soft touch keys to easily set four events per day AND 7 day scheduling.**

**• Copy command that makes programming simple to set up and flexible to use.**

**• Pop-Up Wizard to customize thermostat settings with an instant start-up menu.**

The RS6000 thermostats are fully compatible with all standard 24V AC heating and cooling systems. Additional compatibility with multi-stage gas/electric furnaces and heat pump systems are available in the RS6220 and RS6320 models.

Add in easy installation, Contractor ID option, and quality you can depend on, and you have the Robertshaw RS6000 thermostat family - *Simply the Right Choice.*

## Features and Benefits

Universal Control up to 2 Heat / 2 Cool – RS6220 only  
Universal Control up to 3 Heat / 2 Cool – RS6320 only  
Operates on both multi-stage gas/electric furnaces and heat pumps means less inventory.

**Auto Changerover**  
Switches automatically between heating and cooling for constant home comfort.

**Pop-Up Wizard**  
Launches instant installation menu to quickly enter the settings for programmed thermostat functions.

**Bigger Brighter Backlight with Nightlight Option**  
Makes viewing and setting the temperature easier any time of the day.

**Worry-Free Memory Retention**  
Maintains set point and programmed parameters, even during power outages.

**Easy Change Battery Access**  
Provides drop down removable compartment for quick battery replacement.

**Circulating Fan**  
Maintains optimal air circulation between demand cycles for improved comfort with minimal energy use.

**Low Temperature Freeze Protection**  
Turns on heat automatically when temperature goes below 41°F. Protects pipes from freezing.

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Provides for full selection of parameters to deliver maximum comfort or energy savings.

**High and Low Setpoint Limits**  
Protects the heating and cooling systems by limiting temperature settings.

An ISO 9001 – 2000 Certified Company



# Choosing the Right Thermostat



- **Trusted Brand** – Dependable and reliable with a history of innovative products.
- **Universal Products** – The right product for the job. Simplifies inventory. Assured compatibility.
- **Availability** – Where you need it, when you need it.
- **Quality** – Works right the first time.
- **Contractor Friendly** – Simple set-up and programming menus. Saves time & money. Eliminates second guessing.
- **Support** – Sales and technical support for all your needs.
- **Innovative** – Leading technology for maximum performance.

# Troubleshooting Furnaces

There is NO HEAT!

## **Switch on side of furnace**

- ✓ Most furnaces will have an ON/OFF wall switch next to them

## **Fuses and/or circuit breaker**

- ✓ Make sure fuses and/or circuit breaker have been checked

## **Front furnace cover**

- ✓ Many furnaces will not operate with cover off

## **Furnace filter**

- ✓ Make sure furnace filter is clean and clear

# Troubleshooting Thermostats

There is NO HEAT!

## **Thermostat settings**

- ✓ Is thermostat in HEAT mode and calling for heat?

## **Wiring**

- ✓ Is thermostat wired properly and is jumper there?

## **Relays (if applicable)**

- ✓ Are relays clicking on a call for heat?

## **Jumping terminals**

- ✓ Does furnace cycle if the Ground and W terminals are jumped?

**NOTE:** Remember most all gas furnaces will run the inducer fan for a couple of minutes before the actual blower turns on. This inducer fan may not be heard if the furnace is in a remote location.

# Website Tools: [www.Uni-Line.com](http://www.Uni-Line.com)

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## General Information Websites for:

Robertshaw®, Paragon®, Eliwell™, Ranco®, and Publication Zone®

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[www.RobertshawTstats.com](http://www.RobertshawTstats.com)

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