



Thermostat Control Overview

UNI-LINE® PRODUCT KNOWLEDGE



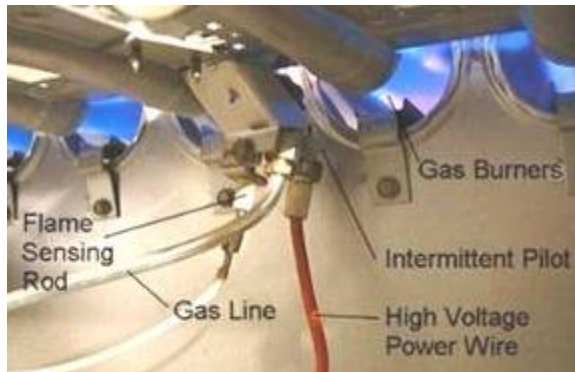
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Subjects We Will Cover In This Session

- Thermostat Products and Features
- Robertshaw® Deluxe i2 Series
- Robertshaw® Value RS456 Series
- Robertshaw® Economy RS23 Series
- Manufacturer Analysis
- Contact Information
- Where to Find Information
- Q&A

Thermostats in Heating and Cooling



- **W1** - 1st stage Heating
- **W2** - 2nd Stage Heating
- **E** - Emergency Heating
- **Y** - Heat Pump

- **Y1** - 1st stage Compressor
- **Y2** - 2nd Stage Compressor
- **G** - Fan



Thermostat Series – Product Overview

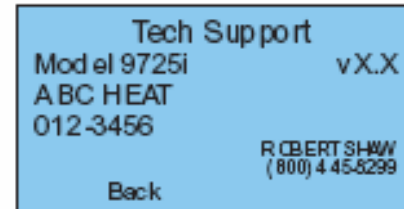
- Robertshaw® i2 Series
 - Setup Wizard
 - Time of day zoning
 - Independent remote and outdoor sensor terminals
- RS4000, RS5000, and RS6000 Series
 - Pop-up Configuration Wizard
 - Auto Changeover
 - Circulating Fan
- RS2000 and RS3000 Series
 - Adjustable Temperature Differential
 - Worry-Free Memory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



Thermostat Features for i2 Series

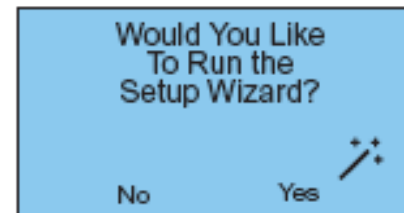
Contractor ID Feature

Set your name and phone number in the display to remind customers to call you for service.



Conversational Menus

Take the programming step by step in plain, easy to understand language.



Fully Programmable

Incorporates the most flexible programming options in one device to fit all lifestyles – 7 day, 5/2, 5/1/1, or 24 hour.

Mon To Sun Program

		HEAT	COOL
Wake	6:00 AM	70	78
Morn	8:00 AM	62	85
Eve	5:00 PM	70	78
Night	10:00 PM	62	82

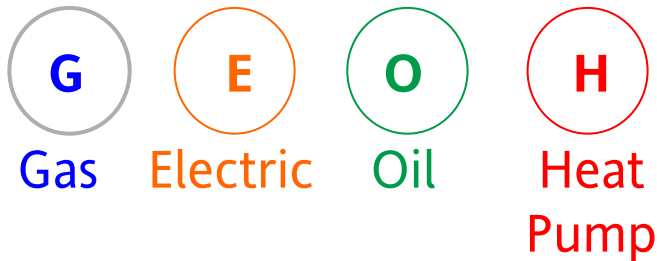
Exit Select

Worry-Free Memory Storage

Even during a power outage, the thermostat maintains setpoint and programmed parameters.

Deluxe 9800i2 Thermostat Series

Dot Matrix Display



9801i2

- 1 Heat / 1 Cool
- Menu Driven Display
- Set-up Wizard
- Humidity Control
- Temperature override
 - 10 minutes to 365 days



9825i2

- Same as above
- 3 Heat / 2 Cool



Digital Versus Dot Matrix Display



i2 Series



Deluxe i2 - Manufacturer Comparison

Features	Robertshaw®	Honeywell	White-Rodgers	Braeburn	Lux
Family Model or SKU	9700i2 / 9800i2 Series	TH8110 / TH8000 Series	1F90 Series	5300 and 5400	TX1500E / TX9100E PSPHA732 /PSP611
Menu-Driven Operation	✓	✗	✗	✗	✗
High & Low Temperature Limits	✓	✗	✗	✗	✗
True Time of Day Zoning	✓	✗	✗	✗	✗
Trilingual Display	✓	✗	✗	✗	✗
Contractor ID	✓	✗	✗	✓	✗
Actual & Set Temps Display Simultaneously	✓	✓	✓	✗	✗
Adjustable 2 nd Stage Delay	Adjustable 1-5 minutes	5 minutes only	5 minutes only	✗	✗
Humidity Control	✓	✓	✓	Yes (5400 only)	✗
Remote Indoor & Outdoor Sensors	✓	✓	✓	Yes (5400 only)	✗

Deluxe i2 - Pros and Cons

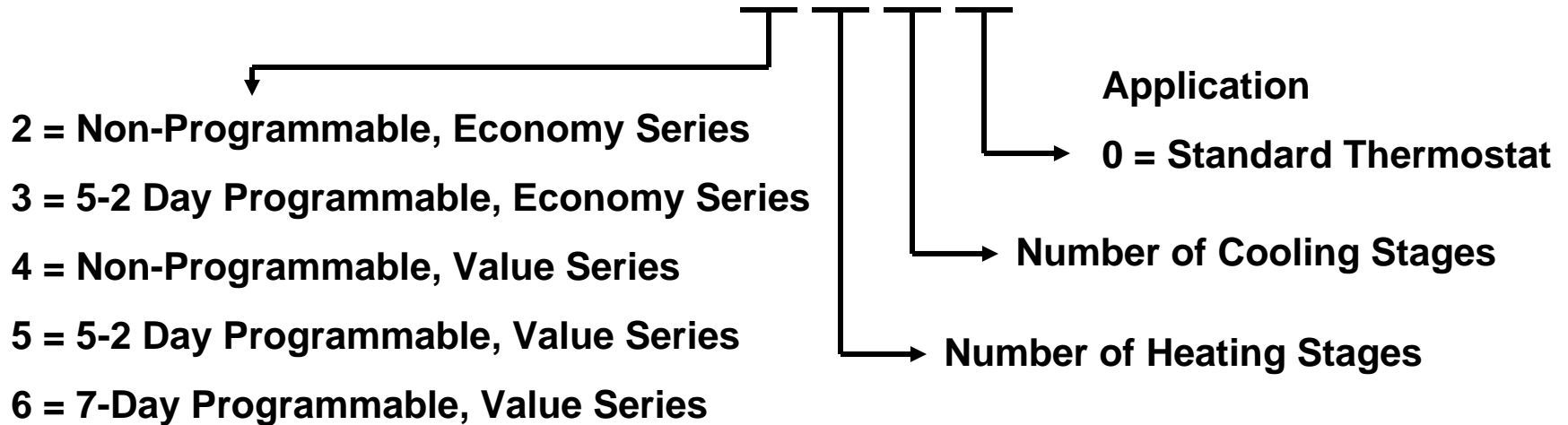
Features	Pros for Robertshaw®	Competition
Menu-Driven Operation	Dot Matrix Display uses Common Language Programming and Easy-to-Use Installation Steps	Requires Special Codes for Setup & Programming
High & Low Temperature Limits	Efficient & Effective Use of Equipment	Higher Utility Bills
True Time of Day Zoning	Effective Solution for Comfort	Spend More
Trilingual Display	Greater Client Flexibility & User Friendliness	Static Words and Less Markets
Contractor ID	Visual Reminder for Repeat Business	Longer Lead Times

Deluxe i2 - Value Proposition

Features	Wholesaler / Distributor	Contractor	End-User
Menu-Driven Operation	Easier to Sell	Easier Installation	Easier to Use & Understand
High & Low Temperature Limits	More Features	More Control	Save Energy Costs
True Time of day Zoning	Upsell Zoning	Accuracy	More Comfort
Trilingual Display	Satisfies Multilingual Clientele	Flexibility	Functional
Contractor ID	Less SKU's to Carry	Repeat Business	Convenient & Appearance

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 Of RS4000, RS5000 And RS6000 Series Thermostats

- 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



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.*

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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



Comfort Control With Energy Savings

The Robertshaw® RS5000 thermostat family is *Simply the Right Choice™* when it comes to programmable temperature controls that can save energy and money.

With the comfort, convenience, and efficiency features that homeowners and contractors want, the RS5000 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 5-2 day scheduling.
- Pop-up Wizard to customize thermostat settings with an instant start-up menu.
- Vacation setback override to reduce energy use while away from home.

The RS5000 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 is available in the RS5220 model.

Add in easy installation, Contractor ID option, and quality you can depend on, and you have the Robertshaw RS5000 thermostat family - *Simply the Right Choice.*

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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.

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.

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More Features + Less Money = Value Series



RS456 Series



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	✓	✓	x	x	x
Pop-Up Wizard	✓	x	x	x	x
Test Option	✓	x	x	x	x
High & Low Temp Limits	✓	x	x	x	x
Freeze & Heat Protection	✓	x	x	x	x
Universal Equipment	✓	x	✓	x	x
Adjustable Compressor Short Cycle	✓	x	✓	x	x
Circulating Fan	✓	x	x	✓	x
Adjustable 2 nd Stage Delay	✓	x	x	x	x

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

Robertshaw® Economy Series Thermostats

RS2000 Series; Non-programmable

- RS2110 1 Heat / 1 Cool; Universal Application*
- RS2210 2 Heat / 1Cool; Universal Application*

RS3000 Series; Programmable

- RS3110 1 Heat / 1 Cool; Universal Application*
- RS3210 2 Heat / 1Cool; Universal Application*

* Electric, Gas, Oil, Heat Pump and Millivolt (RS2110 & RS3110 only) Systems

Features Of RS2000 And RS3000 Series

- Bigger, Brighter Display with blue backlight
- Adjustable Temperature Differential
- Automatic Compressor Short Cycle Protection
- Separate "O" and "B" terminals
- Front Access Battery Compartment
- Two level Low Battery warning
- Filter Change Indicator
- Easy Access Reset
- Automatic Cut-off
- Low temperature Freeze Protection (RS2110 & RS3110)



Sales Tools For Economy Series

- Sell Sheet Part Numbers: 150-2080 & 150-2082

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RS2110/RS2210

ECONOMY SERIES
DIGITAL NON-PROGRAMMABLE THERMOSTATS

ELECTRIC GAS OIL HEAT PUMP RELIEF VALVE

RS2110 – 1 Heat / 1 Cool
RS2210 – Multi-Stage 2 Heat / 1 Cool

Features and Benefits

Multi-Stage 2 Heat / 1 Cool – RS2210 only
Operates on both multi-stage gas/electric furnaces and heat pumps to reduce inventory needed.

Bigger Brighter Backlight
Makes viewing and setting the temperature easier.
Adjustable Temperature Differential
Maintains optimal outdoor comfort.

Worry-Free Mercury Retention – RS2210 only
Maintains set point and programmed parameters, even during power outages.

Filter Monitor
Provides notice when filters need changing.

Low Temperature Freeze Protection – RS2110 only
Turns on heat automatically when temperature goes below 27°F. Protects pipes from freezing.

Automatic Compressor Short Cycle Protection
Reduces wear and tear of HVAC equipment with this system safeguard.

0 and B terminals
Provides greater system flexibility.

Zone System Compatible
Acts as a sensor within the system.

Quick Wire Terminal Block
Uses sturdy wire clamps – no wrap-around of screws for fast and easy installation.

Affordable Comfort Control

The Robertshaw® RS2000 thermostat family is Simply The Right Choice when it comes to non-programmable thermostat control. With the comfort, convenience, and efficiency features that homeowners and contractors want, the RS2000 family provides value-packed thermostats for an economical price.

- Bigger brighter backlight makes it easy to read any time of the day.
- A fully adjustable temperature differential provides increased comfort control.
- The front load battery door makes it simple to replace the batteries.

All RS2000 thermostats are fully compatible with all standard 24V AC heating and cooling systems. Additional compatibility with multi-stage and heat pump systems are available in the RS2210 model. Add in easy installation, expert technical service, and quality you can depend on, and the Robertshaw RS2000 thermostat family is Simply The Right Choice.

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RS3110 RS3210

ECONOMY SERIES
DIGITAL PROGRAMMABLE THERMOSTATS

ELECTRIC GAS OIL HEAT PUMP RELIEF VALVE

RS3110 – 1 Heat / 1 Cool
RS3210 – Multi-Stage 2 Heat / 1 Cool

Features and Benefits

6 - 2 Day Programming
Set the weekly program once with four time and temperature settings. The four set points are followed by five consecutive days. On the weekend, four different set points can be set for all day comfort.

Multi-Stage 2 Heat / 1 Cool – RS3210 only
Operates on both multi-stage gas/electric furnaces and heat pumps to reduce inventory needed.

Bigger Brighter Backlight
Makes viewing and setting the temperature easier.
Adjustable Temperature Differential
Maintains optimal outdoor comfort.

Worry-Free Mercury Retention – RS3210 only
Maintains set point and programmed parameters, even during power outages.

Filter Monitor
Provides notice when filters need changing.

Low Temperature Freeze Protection – RS3110 only
Turns on heat automatically when temperature goes below 27°F. Protects pipes from freezing.

Automatic Compressor Short Cycle Protection
Reduces wear and tear of HVAC equipment with this system safeguard.

0 and B terminals
Provides greater system flexibility.

Zone System Compatible
Acts as a sensor within the system.

Quick Wire Terminal Block
Uses sturdy wire clamps – no wrap-around of screws for fast and easy installation.

Affordable Comfort Control

The Robertshaw® RS3000 thermostat family is Simply The Right Choice when it comes to programmable thermostat control that can help reduce energy costs up to 25%.

With the comfort, convenience, and efficiency features that homeowners and contractors want, the RS3000 family provides custom program options in value-packed thermostats for an economical price.

- Single touch button controls to set weekly programs for summer and winter.
- Automated temperature settings for increased heating/cooling comfort.
- Worry-free memory retention to maintain temperature settings even during power outages.

All RS3000 thermostats are fully compatible with all standard 24V AC heating and cooling systems. The RS3210 offers additional compatibility with single and multi-stage gas/electric furnaces and heat pump systems.

Add in easy installation, expert technical service, and quality you can depend on, and you have the Robertshaw RS3000 thermostat family – Simply The Right Choice.

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When Price Matters – Economy Series

RS2000 Series



RS3000 Series



RS23 Series – Manufacturer Comparison

Features	Robertshaw®	Honeywell	White-Rodgers	Braeburn	Lux
Family Model or SKU	RS2000 / RS3000	TH1000 / TH2000 TH3000 / TH4000	1F70 Series	1000 / 2000	DMH110 / DHP2120 TX500E / HP2110
Larger Display & Characters	✓	✗	✗	✗	✗
Filter Monitor	✓	✗	✗	✓	✗
Adjustable Compressor Protection	✓	✗	✗	✗	✗
Easy Access Battery Door	✓	✗	✗	✓	✗
Adjustable 2 nd Stage Delay	✓	✗	✗	✗	✗
Freeze & Heat Protection	✓	✗	✗	✗	✗
Heat Pump Terminals for O&B	✓	✓	✗	✓	✗
Compressor Short Cycle ON/OFF	✓	Fixed	✗	Fixed	✗
2 Year Warranty	✓	No (TH2110)	1 year	✓	1 year

RS23 Economy Series – Pros and Cons

Features	Pros for Robertshaw®	Competition
Larger Display & Characters	Easier to See and Read	Smaller Characters
Filter Monitor	Convenient Reminder	No Indication to Service Equipment
Adjustable Compressor Protection	Greater Flexibility for Equipment	Longer Delays for Testing
Easy Access Battery Door	Convenient Method to Change Batteries and Power Cycle	More Difficult to Change
Adjustable 2 nd Stage Delay	Reduce Short Cycling of Furnace	Increase Risk of Short Cycle

RS23 Economy Series – Value Proposition

Features	Wholesaler / Distributor	Contractor	End-User
Larger Display & Characters	Easier to Sell	Easier to Read & Setup	Easier to read
Filter Monitor	More Features	Repeat Service Business	Cleaner Air
Adjustable Compressor Protection	More Features	Faster Commissioning of System	Faster Installation
Easy Access Battery Door	Easier to Demonstrate	Less Risk of Damage	Convenient Battery Change Method
Adjustable 2 nd Stage Delay	More Features	Faster Troubleshooting & Reduce Service Calls	Faster Installation and Equipment

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.

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.

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Telephone:

Technical Service	1-800-445-8299	Fax 1-630-260-7294
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Website:

Uni-Line® Catalog Website: www.Uni-Line.com

Cross Reference Website: www.uni-line.com/templates/xrefsearch.aspx

General Information Websites:

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

www.InvensysControls.com

www.RobertshawTstats.com

www.ToolBox.InvensysControls.com/templates/Login.aspx



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