

# VRP®

## Variable Refrigerant Packaged Heat Pumps

PRECISION  
INVERTER®

FreshAir™

VRF performance and single package simplicity, it all comes together in the Friedrich VRP

- Best in class cooling performance
- Super efficient heating
- Conditioned fresh air
- True humidity control\*

\*With optional Reheat option



**FRIEDRICH**

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THE EXPERTS IN ROOM AIR CONDITIONING



VRF performance  
and single package simplicity,  
all the pieces come together  
in Friedrich VRP®



**VRP**®

# Why compromise?

## VRP<sup>®</sup> solves more design problems than complex systems like VRF and 4-pipe systems



### BEST IN CLASS COOLING PERFORMANCE

Precision Inverter<sup>®</sup> variable speed compressors deliver efficiencies up to 20 SEER & 13.0 EER

Automatically adjusts capacity to meet specific cooling conditions

Can operate at up to 120% of rated capacity to reach set quickly

### SUPER EFFICIENT HEATING

Low-ambient heat pump operation to 0° F\*

HSPF of 10.0 and COP up to 3.4

Significant energy rebates available with huge savings over resistance heat

### TRUE HUMIDITY CONTROL

Sophisticated humidity control system with on-board sensors and humidistats

Ability to adjust motor and compressor speed enhances dehumidification

Re-heat coil maintains desired RH levels on colder days

### CONDITIONED FRESH AIR

Optional FreshAir<sup>™</sup> system brings in up to 70 CFM of conditioned, MERV 8-filtered outside air

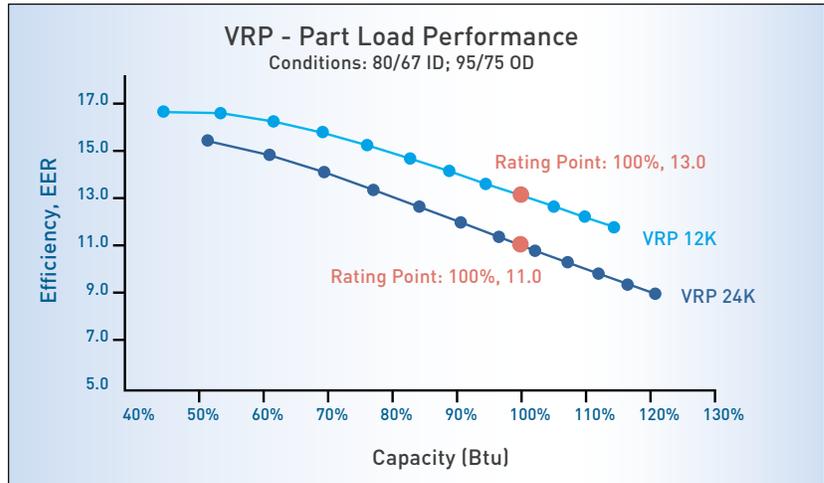
Helps in achieving ASHRAE 62.1-2013 for commercial buildings

Reduce cost and complexity associated with dedicated outside air systems

\*May experience some loss in capacity. Continuous operation is not guaranteed.

# VRP<sup>®</sup> sets a new benchmark for single package vertical units with efficiencies up to 20.0 SEER and 13.0 EER

VRP is in a class by itself, offering a real win-win for occupants and owners.



VRP's Precision Inverter<sup>®</sup> compressor operates down to 20% of rated capacity, or up to 120%, matching the unit output to the actual demand of the space for increased comfort and lower energy consumption.

## VRP provides state-of-the-art humidity control, helping to prevent conditions that promote mold and musty smells

Humidity control is often a challenge for HVAC designers. Many fixed-speed systems are designed only to optimize efficiency at a single operating condition at the expense of adequate humidity control.

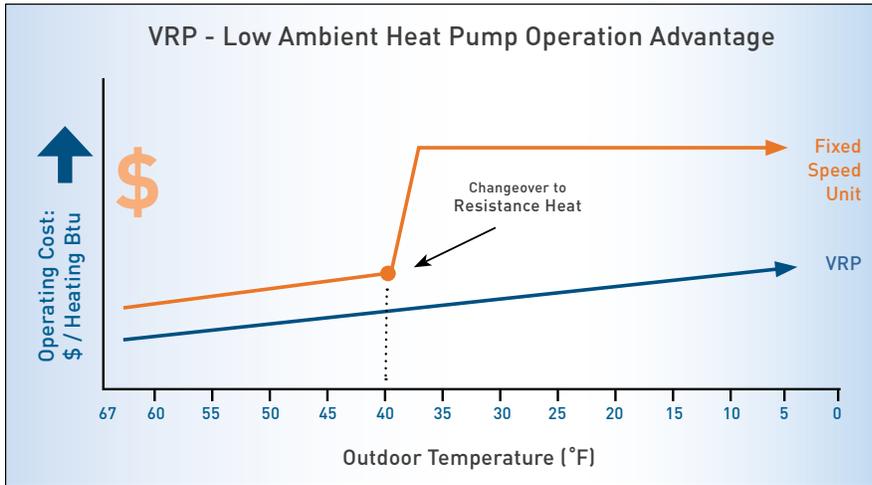
The VRP uses a sophisticated system of temperature and humidity sensors to constantly monitor the space conditions. Our proprietary algorithms use these inputs to provide optimal comfort.

In addition, the VRP can be ordered with an optional Re-heat coil to augment dehumidification and prevent over-cooling of the occupied space.



# VRP<sup>®</sup> also features exceptional low-ambient heat pump operation down to 0° F\*

Extended operation in energy-efficient heat pump mode can potentially save hundreds of dollars per year for each unit.



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## The VRP helps building owners comply with ASHRAE 62.1-2013 building code for IAQ

With VRP installations, elaborate and expensive rooftop central systems can be considerably downsized to service only the common areas of the property.

Unlike some new products which have recently entered the market, VRP utilizes the main evaporator coil and MERV 8 filters to truly condition the outside ventilation air.



## VRP® active dehumidification system for optimal thermal comfort

An integrated optimal dehumidification system optional with the Friedrich VRP.

The system is comprised of a Hot Gas Reheat Circuit and patent-pending intelligent control that is activated based on indoor relative humidity levels. VRP's variable speed capability combined with the Hot Gas Reheat System actively and efficiently removes humidity providing optimal occupant comfort and improved indoor air quality (IAQ).

### 1. Indoor/ Evaporator Coil

Return air passes over the large surface area of the cold evaporator coil to ring moisture from the air

### 2. Hot Gas Reheat Coil

That air then passes over the reheat coil that uses efficient rejected heat to temper the air back to an optimal 'space neutral' temperature



## Why care about high humidity?

High humidity levels can do the following:

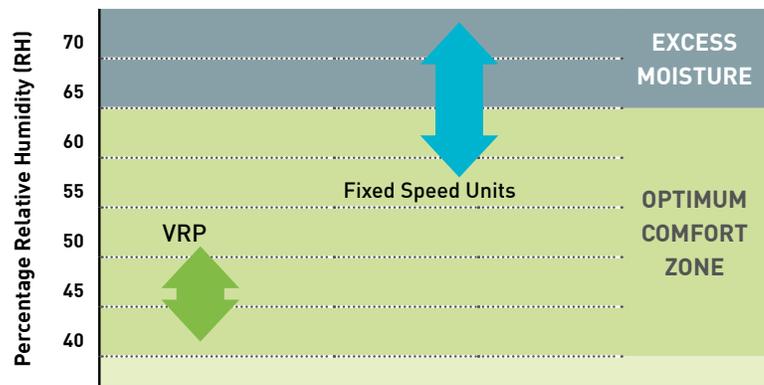
- Compromise occupant comfort
- Create a breeding ground for mold, mildew, dust mites and bacteria
- Compromise the integrity of electronics & building materials leading to more frequent renovations and repairs
- Leave the indoor space with musty unpleasant odors



## VRP® vs. CONVENTIONAL FIXED SPEED UNITS

Fixed speed units have to operate across a broad temperature range which causes large variations in humidity levels.

VRP's Precision Inverter® technology along with Hot Gas Reheat System optimizes room conditions for maximum comfort.



## VRP active dehumidification system advantages

- **INTEGRATED SOLUTION:** Built-in module for the VRP; no need for separate equipment or installation.
- **EFFICIENT DEHUMIDIFICATION:** The reheat energy is site recovered. The heat rejected from the cooling process eliminates expensive auxiliary heat from new energy.
- **CONSTANT MONITORING:** The built-in sensors constantly monitor the indoor relative humidity levels and temperature, not one or the other.
- **SMART ACTIVATION:** Preset levels to auto activate reheat functionality when additional dehumidification is required.
- **OPTIMAL COMFORT:** Moisture removal without over-cooling the space.

NOTE: Active gas reheat available as non-standard option.

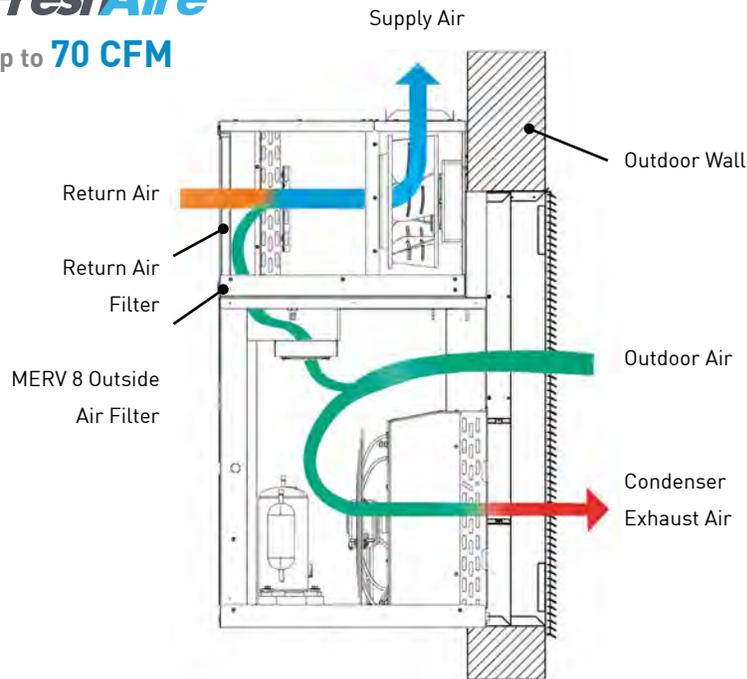
## VRP active dehumidification system working principle

- Dehumidification operation uses Hot Gas Reheat to extend compressor operation for additional humidity removal.
- The discharge gas from the compressor is used to “re-heat” the air that has been cooled and dehumidified by the VRP indoor coil.
- The reheat valve will energize when the sensible load is near satisfaction but the latent load is too high.
- During active dehumidification, if the space begins to over-cool or the latent load is satisfied the reheat valve will deenergize.

# Conditioned fresh air for occupied spaces - SOLVED

The VRP® equipped with the FreshAire™ system, is the only vertical packaged unit that effectively conditions outside air, helping buildings comply with ASHRAE 62.1-2013 standards for IAQ.

**FreshAire™**  
up to **70 CFM**



## VRP Advantages

### CONDITIONED FRESH AIR

Effectively conditioned outside air provides clean comfortable environment for occupants without compromising efficiency or performance.

### MERV 8 FILTERS

Up to 70 CFM (adjustable down to 35 CFM) of fresh outdoor air passes through dedicated MERV 8 filter(s).

### RE-HEAT COIL

VRP features an optional re-heat coil that enhances dehumidification without over cooling the occupied space.

### DOWNSIZE PACKAGED ROOFTOP SYSTEMS

Dedicated outdoor air system capacity requirements are greatly reduced to that of the common areas and hallways.

# VRP Advantages

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## **VRP ELIMINATES MANY OF THE HIGH COSTS ASSOCIATED WITH LARGE CENTRAL HVAC SYSTEMS**

Elaborate and expensive rooftop central systems can be considerably downsized to service only the common areas of the property.

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## **ONE ROOM - ONE UNIT SOLUTION VIRTUALLY ELIMINATES DOWNTIME**

VRP eliminates safety issues associated with potential refrigerant spills in guest rooms. Maintenance is simplified – VRP units are easy to diagnose, repair and replace. Spare units can be stored on site. Typical troubleshooting and operational support can be accomplished without specialized training or certifications.

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## **NO COOLING TOWERS TO MAINTAIN AND KEEP SAFE**

The development of Legionella in a dirty cooling tower is a serious concern with the potential for severe illness and financial liability. Many communities are adopting or considering strict new standards on start-ups and shutdowns, maintenance, water treatment and disinfection plans. Compliance with these standards will be time consuming and costly.

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## **ENTIRE UNITS CAN BE CHANGED OUT IN LESS TIME THAN IT TAKES TO TROUBLESHOOT MOST CENTRAL SYSTEMS**

Fast unit changeout keeps tenants and guests happy and allows the unit to be removed and repaired outside the guest room if needed. Central system failures and the need for temporary cooling can be confined to common areas, greatly reducing costs.



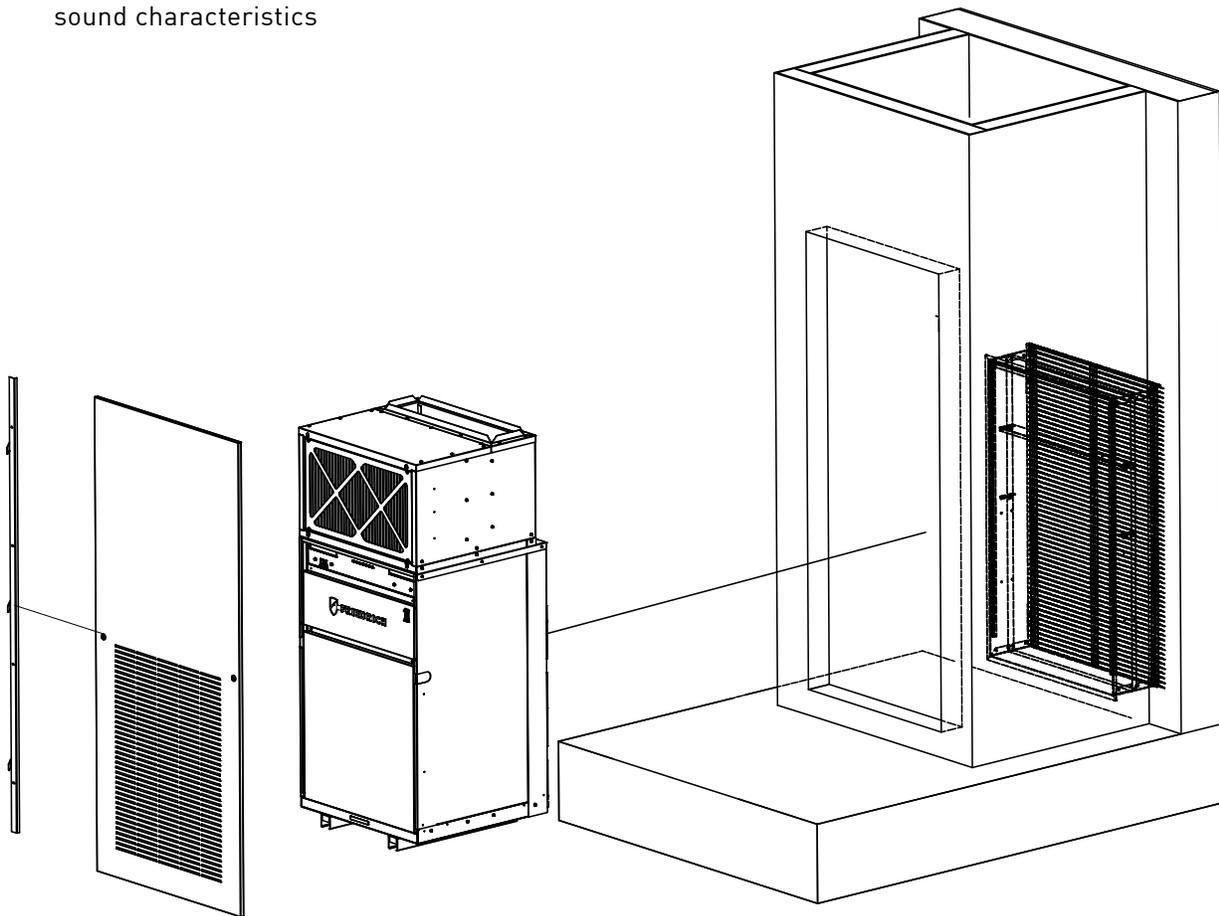
# VRP® Advantages continued

## UNITARY PACKAGE DESIGN

- Low upfront installed cost
- Ease of replacement or maintenance
- “In closet” installation provides maximum design flexibility
- No structural requirements to support rooftop systems
- No hiding fields of condensing units
- Patented telescoping plenum adapts to more installation types
- Unique free-floating chassis means no metal-to-metal contact
- Reduced noise from vibration transfer improves guest experience
- Fully insulated cabinets for improved sound characteristics

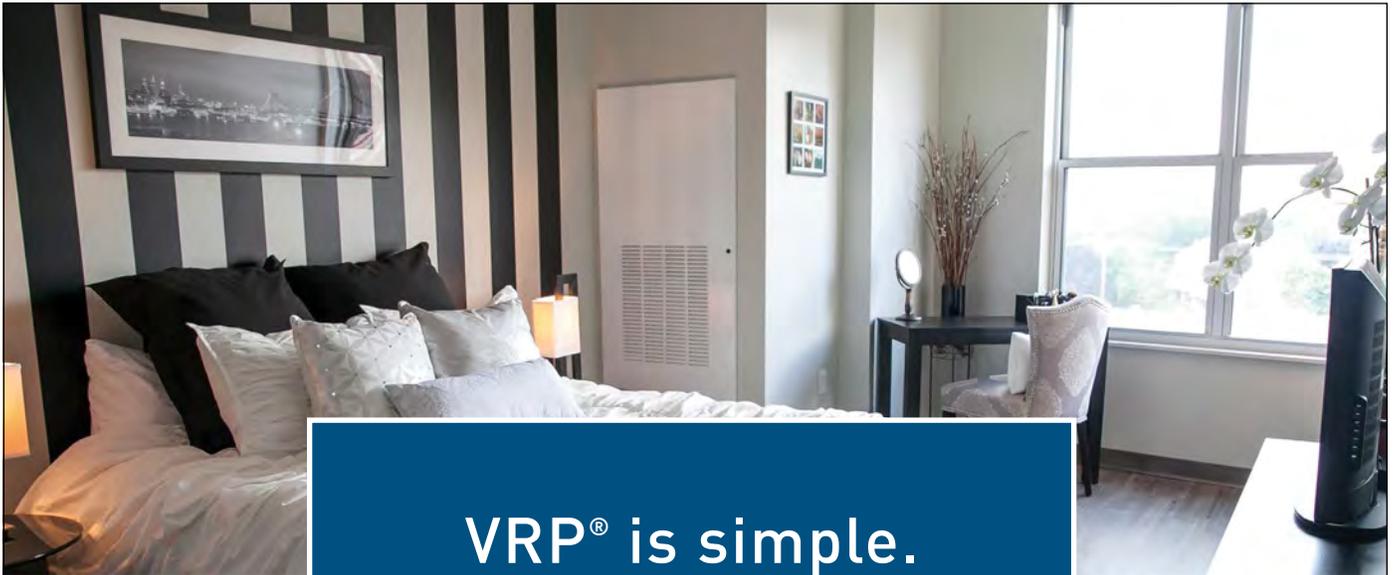
## PRECISION INVERTER® TECHNOLOGY

- Highly efficient - up to 20.0 SEER
- Low ambient operation to 0° F
- Economical to operate - Huge savings in operational costs
- Precise cooling or heating to match the required capacity
- Reaches desired temperature faster than conventional air conditioners
- Quieter operation than conventional air conditioners
- Improved guest comfort

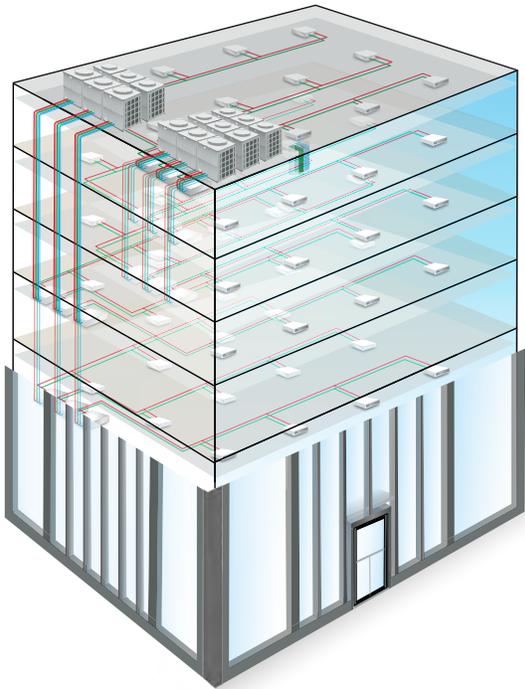


# Exceptional performance, low complexity and lower cost that's the beauty of VRP.

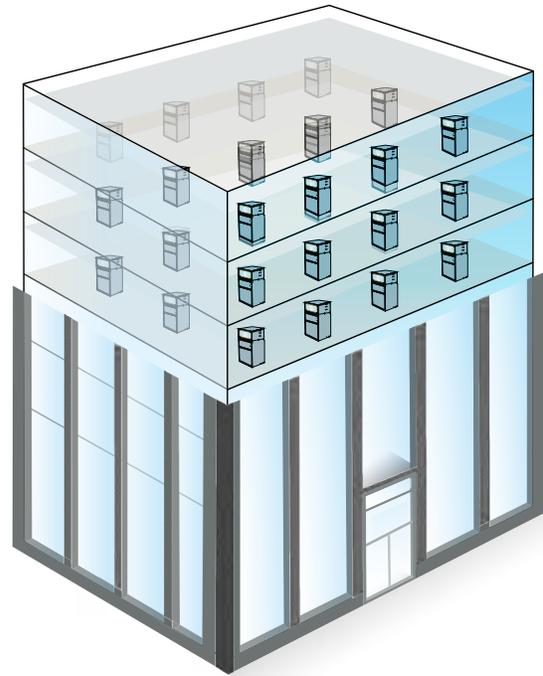
← COST / COMPLEXITY / PERFORMANCE →		(Sweet spot)		→	
LOW				HIGH	
					
<b>PTACs</b>		<b>VTACs</b>		<b>VRF</b>	
<p><b>PROS:</b></p> <ul style="list-style-type: none"> <li>Economical</li> <li>Easy to install</li> <li>Easy to maintain</li> <li>Easy to repair</li> <li>Easy to replace</li> </ul>		<p><b>PROS:</b></p> <ul style="list-style-type: none"> <li>Improved sound levels</li> <li>More 'home-like' appearance</li> </ul>		<p><b>PROS:</b></p> <ul style="list-style-type: none"> <li>Better efficiencies</li> <li>Good sound levels</li> </ul>	
<p><b>CONS:</b></p> <ul style="list-style-type: none"> <li>Lower efficiencies</li> <li>Relatively high sound levels</li> <li>Obtrusive appearance</li> <li>'Low end' stigma</li> </ul>		<p><b>CONS:</b></p> <ul style="list-style-type: none"> <li>Relatively low efficiencies</li> </ul>		<p><b>CONS:</b></p> <ul style="list-style-type: none"> <li>High cost of installation</li> <li>Complex</li> <li>High initial cost</li> <li>Safety issues</li> </ul>	
				<b>4-Pipe System</b>	
				<p><b>PROS:</b></p> <ul style="list-style-type: none"> <li>Better efficiencies</li> <li>More optional capabilities</li> <li>Good sound levels</li> </ul>	
				<p><b>CONS:</b></p> <ul style="list-style-type: none"> <li>High cost of installation</li> <li>Complex</li> <li>High initial cost</li> <li>Safety issues</li> </ul>	



VRP<sup>®</sup> is simple.  
One room. One unit.



VRF systems require fields of outdoor units and long runs of refrigerant lines. Getting make up air into each room requires complex ductwork and fire damper systems.



The VRP offers single package simplicity with the combined performance of VRF and complex make up air systems, all at a lower total installed cost.

# Save big on energy without compromising guest comfort

## Energy management controllers offer multiple options for energy management

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### REAL TIME MOTION AND THERMAL OCCUPANCY SENSOR

Integrated Occupancy Sensor uses a combination of **motion and thermal sensing technologies** for accurate occupancy detection at all times - no need to install additional devices such as door switches or sensors.

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### WIRED OR WIRELESS INSTALLATION

**Wired or wireless connectivity** with extensive configuration options.

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### ENERGY SAVINGS PRESETS

**5 distinct energy saving modes** make it easy to choose the optimal energy saving settings for any property.

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### REMOTE MANAGEMENT\*

**Web-based remote management** provides expansive solutions for remote monitoring and configuration from any computer connected to the internet.

**Built-in Wireless Networking** enables remote management without using or interfering with property's existing wireless infrastructure. True mesh networking eliminates the need for additional networking equipment such as signal repeaters or multiple data collection boxes.

Friedrich's **VRPXEMRT1** and **VRPXMWRT1** wall controllers use real-time motion and thermal occupancy detection to save energy.

When the room is unoccupied, the wall controller automatically adjusts the temperature to eliminate unnecessary heating and cooling.

**Monitor room status** and see the operation, occupancy and energy efficiency status of each room.

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### ADVANCED ENERGY SAVING FEATURES

**Fully configurable** energy saving modes maximize energy savings without compromising guest comfort.

**Temperature setback** automatically adjusts the temperature when the room is unoccupied in order to save energy.

**Temperature recovery** calculates the setback temperature so that the desired temperature can be restored within specified time.

**Setback optimization** continuously monitors temperature recovery rate in the room and adjusts setback temperature to maximize energy savings.

**Setback limits** allow maximum and minimum room temperature to be set when the room is unoccupied.

**Setpoint limits** prevent guests from setting room temperature to extreme, energy-wasting levels.

**Room status** displays operation, occupancy and energy efficiency status of each room.

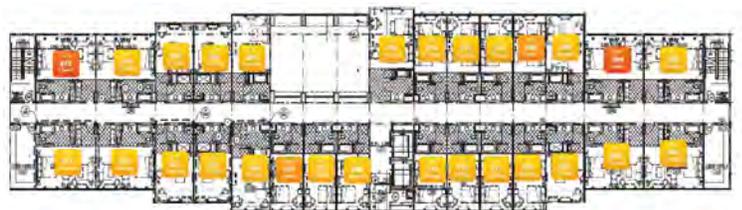
**Room detail** displays temperature and occupancy changes in a room.

**Energy reports** monitor energy use and can even evaluate the performance of energy saving features.

**Intuitive interface** makes it easy to apply different settings to different rooms.

**User management** allows configuration of custom access permissions and alert notification settings for different users.

**Built-in diagnostic tools** automatically send email alert notifications to hotel staff.



\*Requires an optional "Online Connection Kit" and a one-time license fee.

## OPTIONAL ACCESSORIES

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### STANDARD WALL CONTROLLER

VRPXWC

- Real time motion and thermal occupancy sensor
- Wired or wireless installation
- 5 energy savings presets
- Remote monitoring



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### ENERGY MANAGEMENT WALL CONTROLLER WITH OCCUPANCY SENSOR

VRPXEMRT1, VRPXEMWRT1

- Wall controller has push buttons that illuminate to indicate the power is on. Backlight on push buttons will dim to 20% of intensity after 15 seconds of inactivity.
- The high efficiency LCD display has a built-in backlight. Display dims to 20% after 15 seconds of inactivity, and after and additional 120 seconds, will turn off. Touching any button will change the display to full brightness. (Unless the Motion Sensor is activated)



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### ENERGY MANAGEMENT THERMOSTATS

VRPXEMRT1, VRPXEMRT2

- Wired thermostat has occupancy sensor.

VRPXEMWRT1, VRPXEMWRT2

- Wireless thermostat has occupancy sensor.

EMOCT

EMRAF

EMRHCF

- Online connection kit.
- Remote access fee.
- Remote humidity control fee.

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### WALL PLENUM (Required)

VPAWP1-8, VPAWP1-14

- Two-part sleeve that telescopes in and out; sits inside the exterior wall penetration.

VPAWP1-8 telescopes from 5 1/2" – 8"

VPAWP1-14 telescopes from 8" – 14"

DIMENSIONS: 24 1/8" W x 30 3/8" H

CUTOUT DIMENSIONS: 24 5/8" W x 30 7/8" H

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### RETURN AIR GRILLE/ACCESS PANEL

VPRG4/VPRG4R

- Hinged panel allows access to unit and return air filter.
- A field-supplied filter (25" x 20") should be mounted on the inside grille. Panel can be mounted with return air openings high or low on the door for optimum sound attenuation.

DIMENSIONS: 29" W x 58" H

CUTOUT DIMENSIONS: 27" W x 55 3/4" H

# SPECIFICATIONS

Model	VRP12K / VRP12R		VRP24K / VRP24R	
<b>Cooling Performance Data (Cooling Standards: 95°F DB/75°F WB outdoor, 80°F DB/67°F WB indoor)</b>				
Cooling Btu (Rated)	12,000		23,400	
Cooling Btu (Min. - Max)	4,000 - 16,000		12,000 - 28,000	
Voltage	230/208	265	230/208	265
Outdoor Operating Range (°F)	55 - 115		55 - 115	
Power (W)	923		2,138	
SEER	20.0		17.5	
EER	13.0		11.0	
Sensible Heat Ratio	0.71		0.70	
Cooling Amps	4.3		10.0	
<b>Heating Performance Data</b>				
Heating Btu (Rated @ 47° F)	11,500		21,000	
Heating Btu (Rated @ 17° F)	7,100		13,000	
Heating Btu (Min. - Max.)	4,000 - 14,000		12,000 - 26,000	
Heat Pump Outdoor Operating Range (°F)*	0 - 70		0 - 70	
COP (Rated @ 47° F)	3.4		3.1	
COP (Rated @ 17° F)	2.2		2.4	
HSPF	10.0		10.0	
Heating Power (W)	991		1,954	
Heating Amps	4.8	4.1	9.1	7.8

\*May experience some loss in capacity. Continuous operation is not guaranteed.

Model	VRP12K	VRP12R	VRP24K	VRP24R
Dimensions (W x D x H)	26 1/8" x 25 1/8" x 52"		26 1/8" x 25 1/8" x 62"	
Shipping Dimensions (W x D x H)	28 1/8" x 27 3/8" x 54 1/2"		28 1/8" x 27 3/8" x 64 1/2"	
Net Weight (lbs.)	215	215	255	255
Shipping Weight (lbs.)	276	276	316	316
R410A Charge (oz.)	49.8	49.8	68.3	68.3



## VRP, award-winning innovation

VRP has been repeatedly recognized by the HVAC industry for excellence. Awards include:

1. Gold Winner, Product of the Year for HVAC: Air movement, compressors, etc. category by voters in Consulting Specifying Engineer Magazine annual contest.
2. Silver Award Winner for Excellence in the Indoor Air Quality category by The Air Conditioning Heating & Refrigeration News (ACHR News) magazine.
3. 2017 AHR Expo Innovation Award finalist in the Indoor Air Quality category.



## Friedrich, commitment to quality since 1883

Founded in 1883, Friedrich has manufactured room air conditioners since 1952.

Friedrich is a leading manufacturer of air conditioners and other home environment products.

Constructed of the highest quality components, Friedrich products are built to exacting standards and are among the quietest, most highly featured and most energy-efficient available.

If you demand the best, it has to be a Friedrich.

