VRP®

Variable Refrigerant Packaged Heat Pumps

VRF PERFORMANCE AND SINGLE PACKAGE SIMPLICITY.

PRECISION INVERTER® FreshAire® AHRI CERTIFIED

FRIEDRICH
1883

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

Why compromise?

VRP® solves more design problems than complex systems like VRF and 4-pipe systems

VRP The Total HVAC Solution

BEST IN CLASS COOLING PERFORMANCE

Precision Inverter® 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 point quickly

SUPER EFFICIENT HEATING

Low-ambient heat pump operation to 0˚ F* HSPF up to 10.0

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

When equipped with optional Re-heat coil helps maintain ideal RH levels

CONDITIONED FRESH AIR

Optional FreshAire® system brings in up to 70 CFM of conditioned, MERV 8-filtered outside air on the 1 and 2-ton models, and up to 130 CFM on the 3-ton models

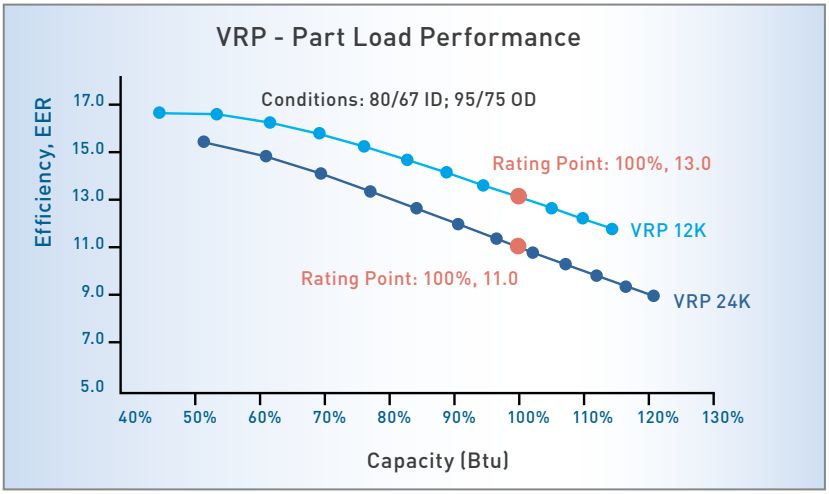
Helps building owners achieve ASHRAE 62.1 compliance for commercial buildings and 62.2 for residential buildings

Reduce cost and complexity associated with dedicated outside air systems

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

VRP® 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® compressor operates down to 40% 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

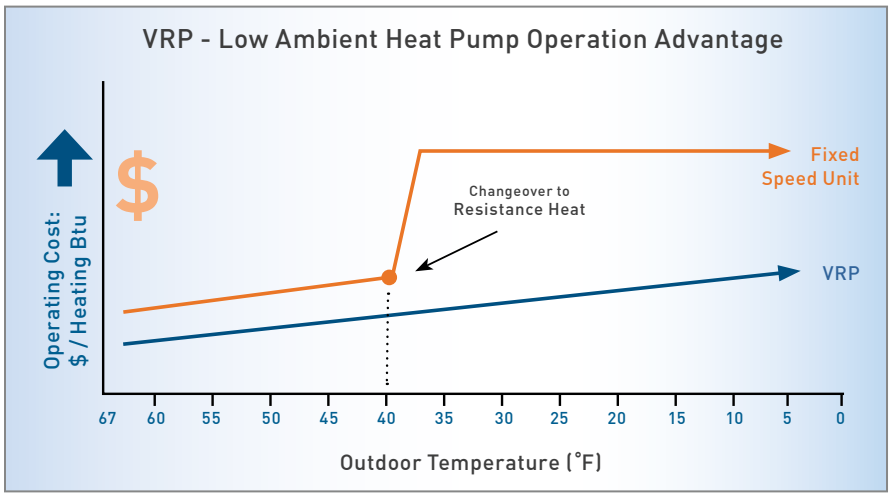
Humidity control is often a challenge for HVAC designers. Many fixed-speed systems are designed only to optimize efficiency at a single operating condition at the expense of adequate humidity control.

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® 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 dehumidification 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?

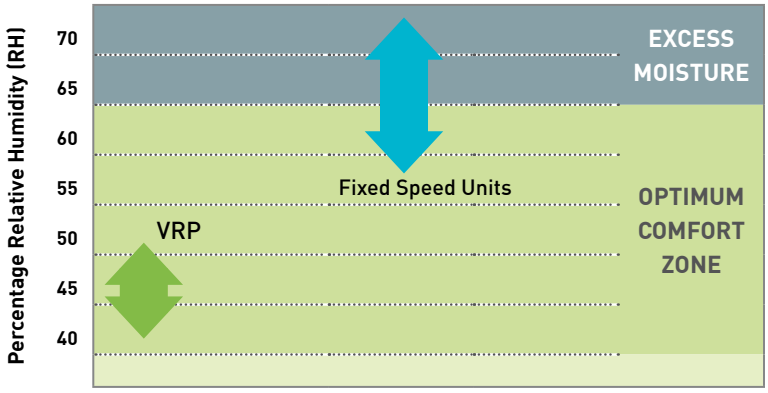
High humidity levels can do the following:

- 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: Hot gas re-heat available as non-standard option.

VRP active dehumidification system working principle

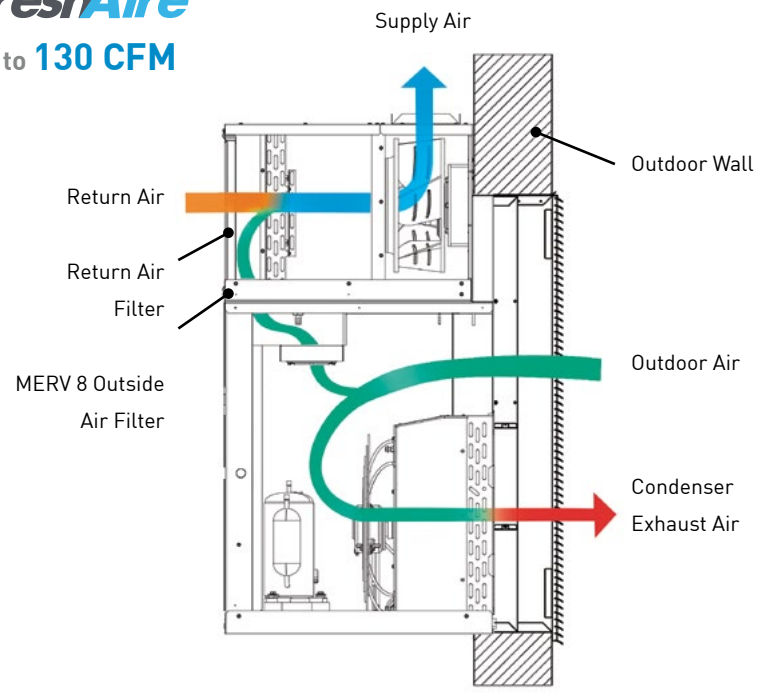
- Dehumidification operation uses Hot Gas Re-heat to extend compressor operation for additional humidity removal.
- The discharge gas from the compressor is used to "re-heat" the air that has been cooled and dehumidified by the VRP indoor coil.
- The reheat valve will energize when the sensible load 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.

VRP® is the only vertical packaged unit that effectively conditions outside air for occupied spaces

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 and 62.2 standards for IAQ.

FreshAire®

Up to **130 CFM**



VRP Advantages

CONDITIONED FRESH AIR

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

RE-HEAT COIL

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

MERV 8 FILTERS

Up to 130 CFM (adjustable down to 80 CFM) on 3-ton models and up to 70 CFM (adjustable down to 35 CFM) of fresh outdoor air on 1- and 2-ton models passes through dedicated MERV 8 filter(s).

DOWNSIZE PACKAGED ROOFTOP SYSTEMS

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

The Ideal Hospitality Solution

UPFRONT SAVINGS

The VRP's capability to bring in conditioned outside air allows the building owner or developer to save on upfront costs by reducing the duct work, fire dampers, and DOAS equipment to all of the guestrooms.

OPERATIONAL SAVINGS

The high efficiencies and low ambient heat pump capability of the VRP helps building owners realize large annual operational cost savings of up to 60% compared to standard, fixed speed equipment.

ENERGY MANAGEMENT SAVINGS

When paired with the VRPXEM(W)RT2, the building owner gains the added benefit of occupancy based operation, increasing the annual saving even more.

* Also compatible with Inncom & Telknonet

Savings and Simplicity in the Residential Market

FULL CAPACITY COVERAGE

The VRP is offered in nominal one, two, and three ton options, covering 5,400 to 36,000 BTU/h. This allows a "one-stop-shop" to cover all dwelling units at the property in the simplicity of a single package.

MONTHLY SAVINGS FOR THE TENANT

The building owners or tenants will delight in a cheaper monthly energy bill possible due to the VRP's high efficiencies, variable speed capabilities, and low-ambient heat pump capabilities.

VRP® Advantages

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.

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.

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.

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

Fast unit change-out 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.

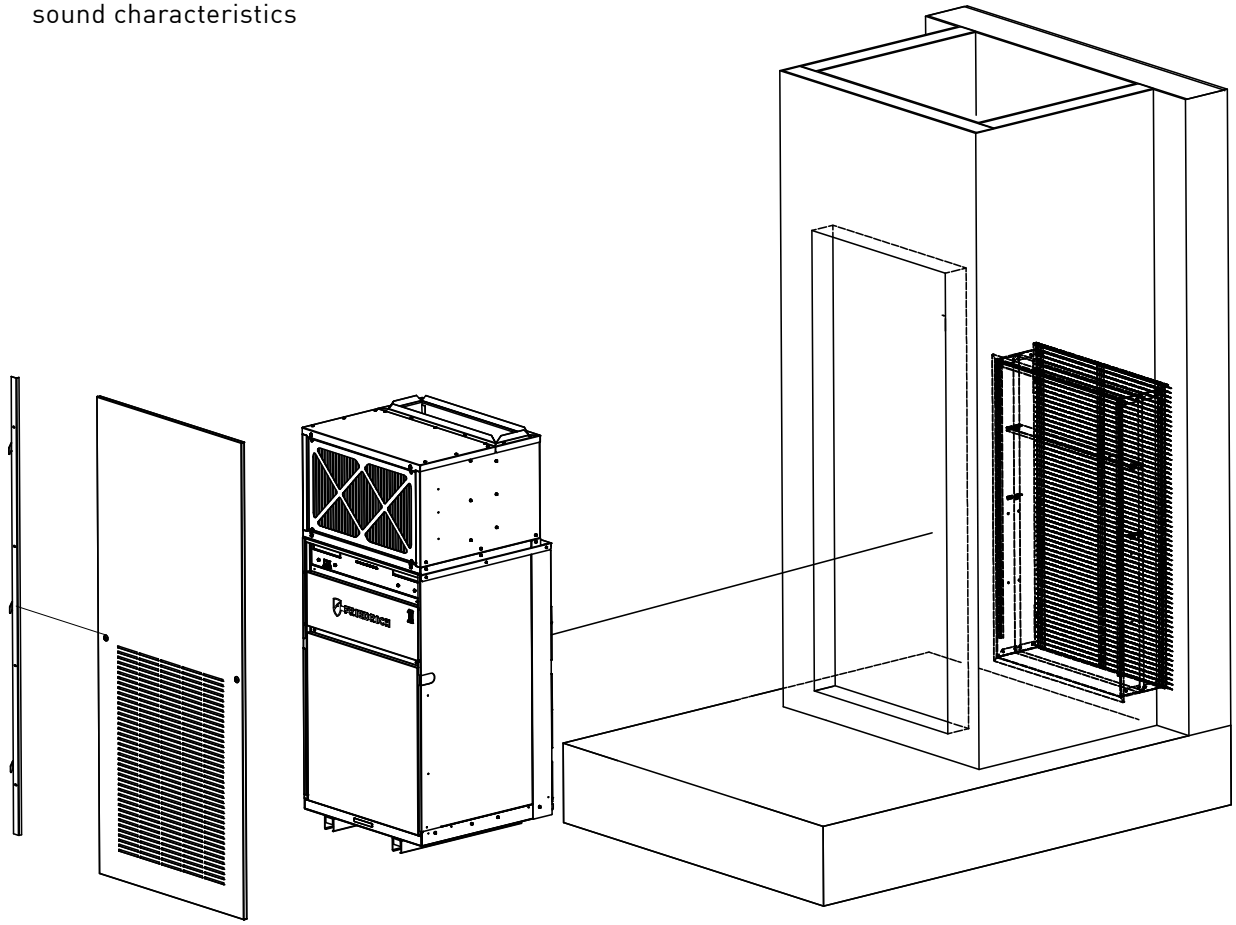
VRP® Advantages continued

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 down 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



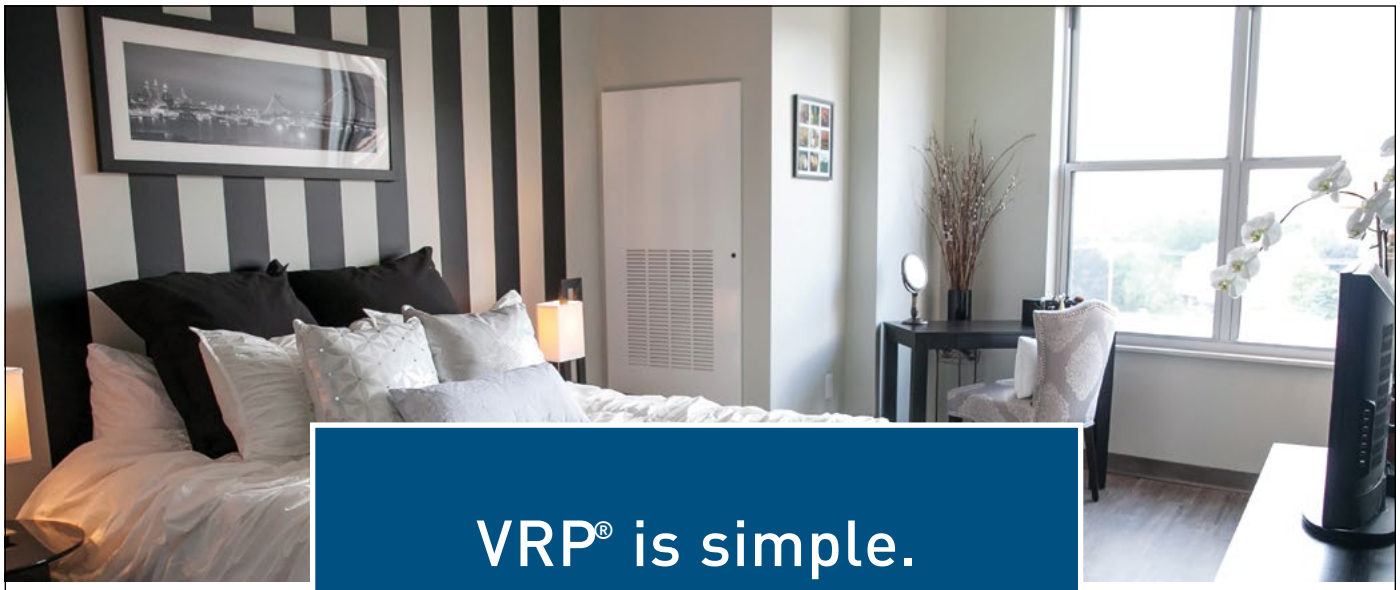
Exceptional performance, low complexity and lower cost that's the beauty of VRP®

COST / COMPLEXITY / PERFORMANCE

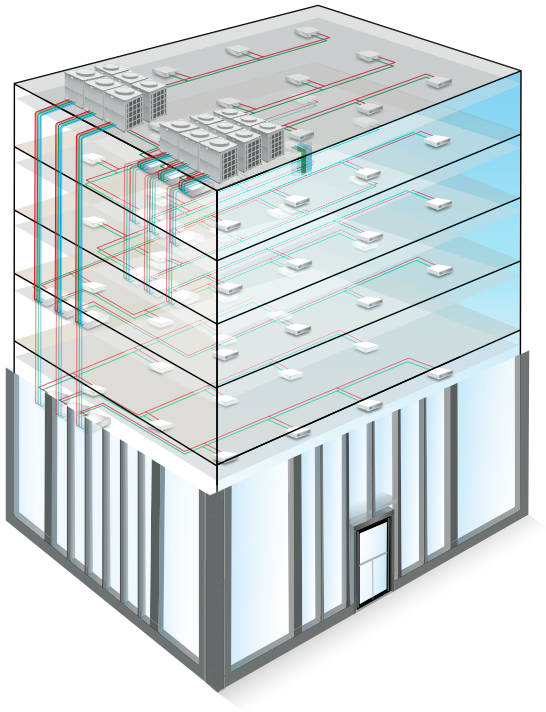
LOW (Sweet spot) HIGH

VRP®

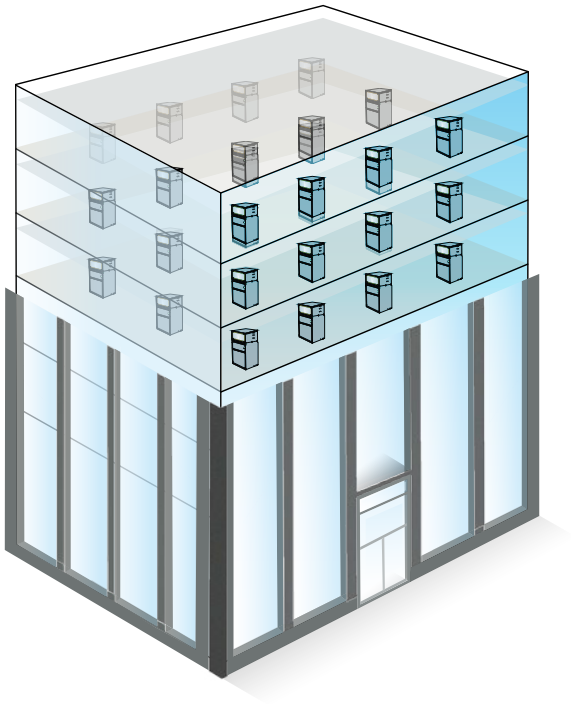
PTACs	VTACs		VRF	4-Pipe System
PROS: Economical Easy to install Easy to maintain Easy to repair Easy to replace	**PROS:** Improved sound levels More 'home-like' appearance		**PROS:** Better efficiencies Good sound levels	**PROS:** Better efficiencies More optional capabilities Good sound levels
CONS: Lower efficiencies Relatively high sound levels Obtrusive appearance 'Low end' stigma	**CONS:** Relatively low efficiencies		**CONS:** High cost of installation Complex High initial cost Safety issues	**CONS:** High cost of installation Complex High initial cost Safety issues



VRP® 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

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.

WIRED OR WIRELESS INSTALLATION

Wired or wireless connectivity with extensive configuration options.

ENERGY SAVINGS PRESETS

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

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 **VRPXEMRT2** and **VRPXEMWRT2** 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.

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.

ACCESSORIES

STANDARD WALL CONTROLLERS ***COMING SOON***

VRPXWC1

Wall controller tailored for hospitality applications. Sleek and simplified interface eliminates confusion without sacrificing a quality look.

VRPXWC1P

7-Day programmable wall controller with WiFi and phone app control capability. An excellent solution for residential applications.

VRPXWC1/P

ENERGY MANAGEMENT WALL CONTROLLER WITH OCCUPANCY SENSOR

VRPXEMRT2, VRPXEMWRT2

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

VRPXEMRT2, VRPXEMWRT2

ENERGY MANAGEMENT THERMOSTATS

VRPXEMRT2/ VRPXEMWRT2

Wired thermostat with occupancy based Energy Management

EMOCT	EMRAF	EMROS
Online connection kit.	Remote access fee.	Remote Occupancy Sensor

EMRTS	EMRDS	EMWCWP	EMRWOS
Remote Temp. Sensor	Door Switch	Wall-Plate	Wireless Occ. Sensor

WALL PLENUMS (Required)

VRPXWPA-8, VRPXWPA-14 / VRPXWPB-8, VRPXWPB-14

Two-part sleeves that telescope in and out; sits inside the exterior wall penetration.

VRPXWPA-8 **VRPXWPB-8**

-Sleeves telescope from 4"- 8"

VRPXWPA-14 **VRPXWPB-14**

-Sleeves telescope from 8"- 14"

VRPXWPA-8, VRPXWPA-14

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

CUTOUT DIMENSIONS: 28 1/8" W x 32 1/4" H

VRPXWPB-8, VRPXWPB-14

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

CUTOUT DIMENSIONS: 28 1/8" W x 42 1/4" H

RETURN AIR GRILLE/ACCESS PANELS

VPRXAP1

Hinged panel allows access to unit and return air filter (20"x25"). Can be installed to have a left or right in-swing

VPRXAPPR1

Solid hung panel with 18ga construction and sound attenuating insulation. The return air enters from the perimeter of the door for a more aesthetically pleasing look and overall sound attenuation.

DIMENSIONS: 32" W x 72" H

CUTOUT DIMENSIONS: 30" W x 69 3/4" H

SPECIFICATIONS

Model	VRP12K / VRP12R		VRP24K / VRP12R		VRP36K
Cooling Performance Data (Cooling Standards: 95°F DB/75°F WB outdoor, 80°F DB/67°F WB indoor)					
Voltage	230/208	265	230/208	265	230/208
Cooling Btu (Rated)	12,000		23,400		33,400
Cooling Btu (Min. - Max)	5400 - 16,000		14,500 - 28,000		22,000 - 36,000
Outdoor Operating Range (°F)	55 - 115		55 - 115		55 - 115
Power (W)	923		2138		2990
SEER	20.0		17.5		15.5
EER	13.0		11.0		11.0
Sensible Heat Ratio	0.71		0.7		0.76
Cooling Amps	4.3		10.0		14.2
Heat Pump Performance Data					
Voltage	230/208	265	230/208	265	230/208
Heating Btu (Rated @ 47° F)	11,400		21,000		28,500
Heating Btu (@ 17° F)	7,100		13,000		18,300
Heating Btu (Min. - Max.)	4,000 - 14,000		12,000 - 26,000		16,000 - 30,000
Heat Pump Outdoor Operating Range (°F)*	0 - 70		0 - 70		0 - 70
COP (Rated @ 47° F)	3.4		3.1		3.25
COP (@ 17° F)	2.2		2.4		2.29
HSPF	10.0		10.0		8.6
Heating Power (W)	991		1954		2570
Heating Amps	4.8	4.1	9.1	7.8	12.26

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

Model	VRP12K	VRP12R	VRP24K	VRP24R	VRP36K
Dimensions (W x D x H)	26 1/8" x 25 1/8" x 52"		26 1/8" x 25 1/8" x 62"		31 3/4" x 29 7/8" x 77 1/4"
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"		34" x 35" x 81"
Net Weight (lbs.)	215	215	255	255	330
Shipping Weight (lbs.)	276	276	316	316	357
R410A Charge (oz.)	49.8	49.8	68.3	68.3	125

One or more of the following patents may apply: 10408504, 10436457, 10488083. Additional patents pending.

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.

ULCDTP

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BRO_VRP_1-22-20 Printed in USA