INSTALLATION, OPERATIONS & MAINTENANCE MANUAL

InspirAIR® FUSION Series

FOR MODELS:
RTU-5Te, RTU-7.5Te, RTU-10Te, RTU-12.5Te, RTU-15Te,
RTU-20Te, RTU-25Te

Intertek

TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION

Installer: Leave this manual for the homeowner

_____
Model

_____ _____
Installing Contractor **Telephone / Contact**

_____ _____
Serial Number **Installation Date**

REGISTER YOUR PRODUCT ONLINE AT ALDES-NA.COM

I. CAUTION

Always turn off electrical power and verify that the unit is electrically safe before performing any maintenance on the unit. This unit contains high-voltage electrical components.

This unit has moving parts. All repairs and maintenance should be performed by a qualified technician to avoid serious injuries.

II. WARNING

IMPORTANT – Read This Manual Before Installation

- Always turn **OFF** electrical power and verify that the unit is electrically safe before performing any maintenance.
- No modifications shall be made to the unit under any circumstances. The **warranty will be immediately voided**. **Do not** use this device to **exhaust steam**, flammable, or explosive gases.

- Electrical connections must be made by a **qualified electrician**.
- Airflows must comply with the **approved submittal** to ensure proper ventilation system function and **to maintain the warranty**.
- Installation must be performed in **compliance with local construction and safety codes**.
- All drawings, photos, and diagrams in this document are for **reference** only. Actual units may vary.
- ALDES reserves the right to **modify the unit and its components without prior notice**.
- When installing or servicing the equipment, **safety clothing** including **hand and eye protection** is strongly recommended.
- When installing or serving the equipment, safety clothing including hand and eye protection is strongly recomended.

This unit includes a direct expansion coil designed to be integrated as a component of a refrigeration system. The Aldes RTU unit is intended to be paired with a third-party heat pump VRF system. The VRF model from the third party must meet the technical requirements—such as thermal capacity—of the Aldes RTU units. Consult a qualified professional for proper unit pairing and HVAC system design.

The instructions and installation manual provided by the VRF manufacturer must be read carefully before beginning the installation process. If you have any questions regarding the VRF product or its installation, please refer to the VRF manufacturer.

Ensure that the technical requirements of the VRF system—or any other paired device—match those of the Aldes RTU unit. Refer to both the unit's specification sheet and the project specification documents for compatibility.

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III. WARRANTY

WHAT'S INCLUDED

ALDES products are guaranteed to be defect-free for a period of (2) years from the date of purchase.

- Labor not included.
- **EC** motors are guaranteed for (1) year.
- The furnace is guaranteed for (1) year.

WARRANTY DOES NOT APPLY IF:

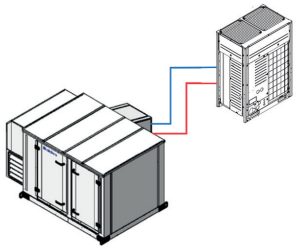
- Modifications have been made by or on behalf of the client.
- The product has been improperly installed.
- Maintenance, cleaning, and lubrication have not been performed in accordance with ALDES recommendations.

WARRANTY EXCLUSIONS:

- All installation fees and labor costs related to product repairs.
- All costs associated with loss of operations, merchandise, inventory, or equipment due to a defective ALDES product.
- All damages or defective components related to third-party VRF and it's accessories.
- All damages or defects resulting from the malfunction of third-party VRF or it's accessories.

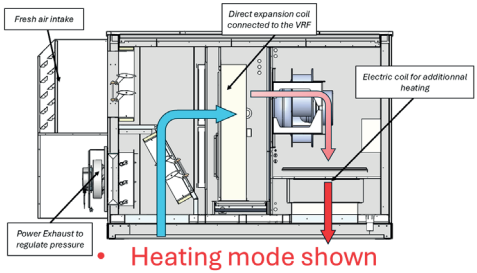
IV. GENERAL OPERATION

The Aldes RTU unit is an air handling unit that must be connected to a third-party VRF to operate properly. The selection of the VRF system to be paired with the Aldes RTU must be

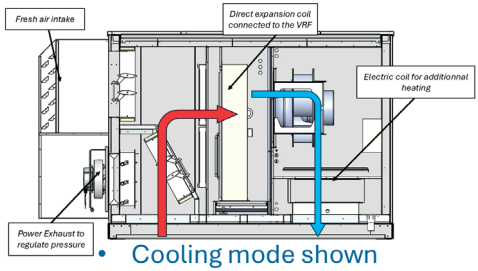


made by a professional engineer or the technical lead for your specific project. The capacity of the Aldes RTU must align with the capacity of the selected VRF system.
The following pages outline the installation steps required to ensure a compliant installation of the AHU units. For third-party VRF installation requirements and guidelines, please refer to the VRF manufacturer's installation documents.

The ALDES AHU unit recirculates air throughout the building and heats or cools it via its direct expansion coil, which is connected to the VRF. A certain amount of fresh air can be introduced into the building through the economizer section, while the power exhaust section allows air to be vented in order to balance the supply and exhaust. This setup must be properly configured by the installer. The RTU is an exterior unit intended for rooftop installation. The unit must not be installed indoor.



• Heating mode shown



• Cooling mode shown

V. PREPARING FOR INSTALLATION

UNPACKING THE UNIT

Remove the protective wrapping from the unit, including the foam protection at each corner. Take extra care to avoid scratching the painted surfaces. Dispose of all packaging materials in accordance with local regulations and/or project-specific requirements.

INSPECTING THE UNIT

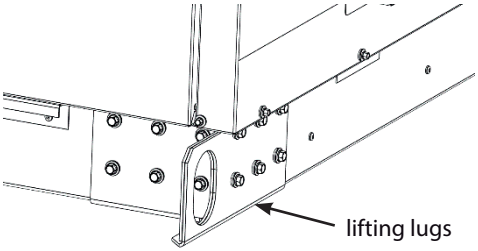
Visually inspect the unit to ensure that no sheet metal is dented or scratched. Verify that the air intake and exhaust hoods have not been damaged during transport. Check all components for any signs of damage incurred during shipping.

Warning: Do not remove the shipping attachments until the unit has been moved to its final location.

TRANSPORT METHOD

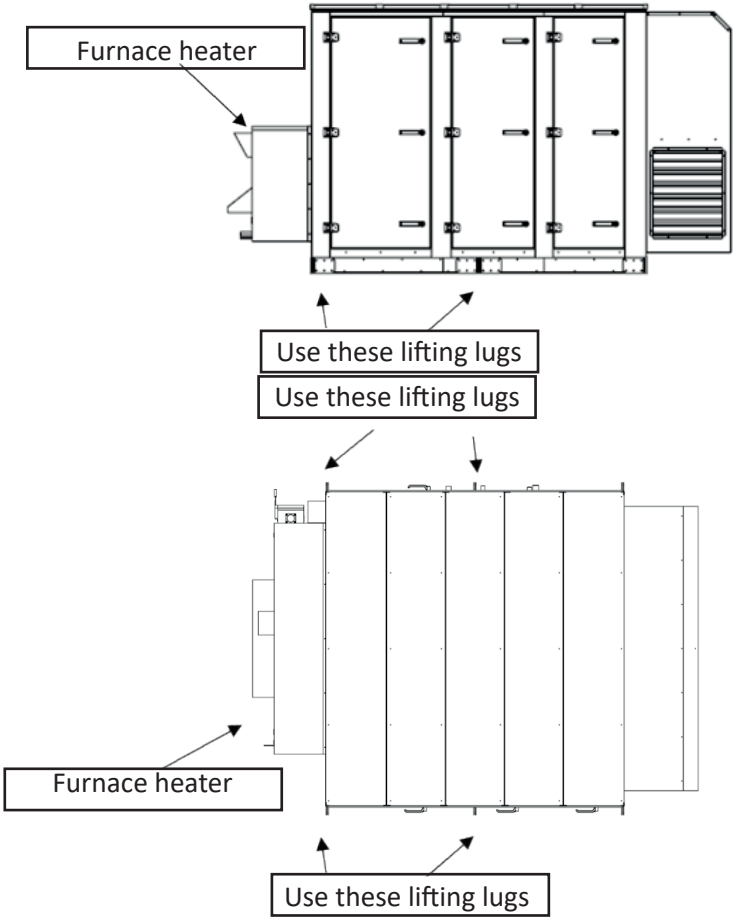
The unit is equipped with anchors designed solely for handling purposes.
Strictly follow all applicable lifting standards when handling the unit.
Always use all anchor points simultaneously during lifting or transportation.

STANDARD RTU FUSION



RTU WITH THE GAS FURNACE OPTION

The furnace provides additional weight to one side of the unit. The lifting lugs indicated on the picture below should be used for lifting the unit.

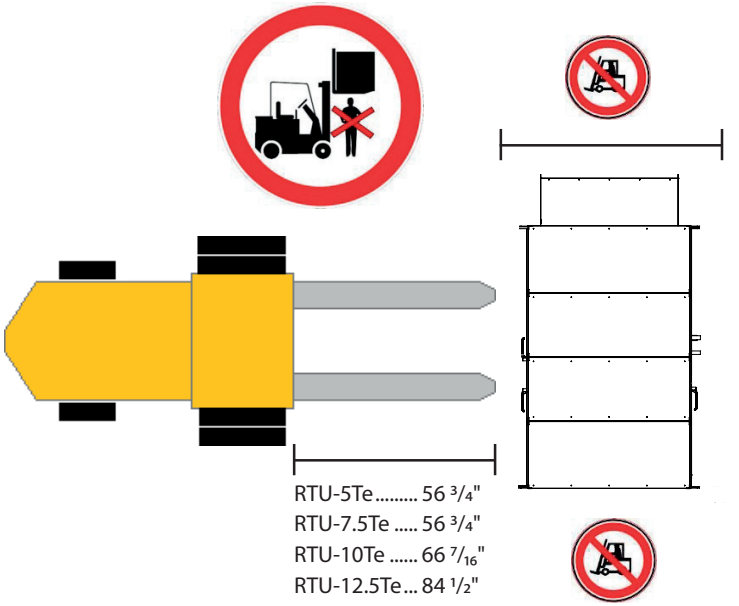


VI. DEVICE HANDLING

USING A FORKLIFT TO MOVE THE UNIT

Before using a forklift to move the unit, the following safety rules must be observed:

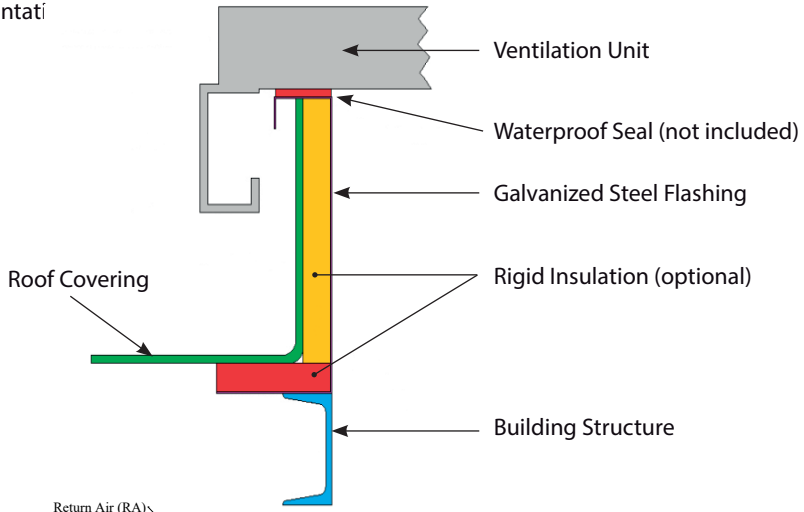
- The forklift's lifting capacity must exceed the weight of the unit.
- The unit must be lifted exactly as illustrated in the diagram below. This is the only method authorized by ALDES for moving the unit with a forklift.
- Only a qualified forklift operator is permitted to transport the unit.
- Ensure that the forklift forks are at least 6 inches longer than the width of the unit.
- For the Fusion with furnace option, the weight of the unit is more important on the furnace side. Lift closer to the furnace location and be careful while handling the equipment with a fork lift. Follow the indication on the packaging of the unit.

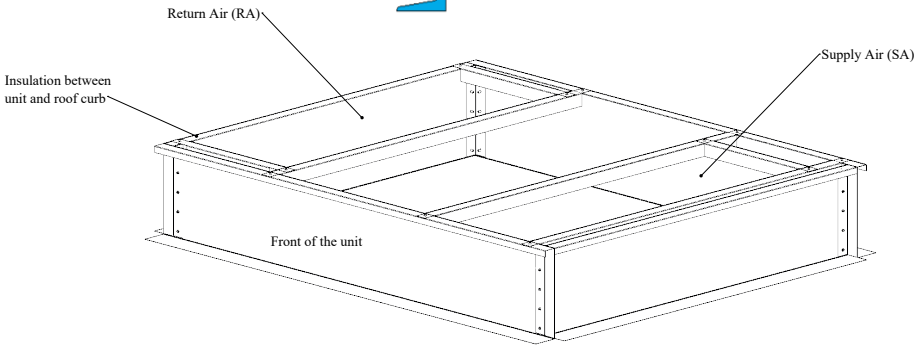


VII. INSTALLATION

ROOF CURB INSTALLATION (Outdoor Installation Only)

Install the roof curb according to the instructions provided in the accompanying documentati





DUCT WORK

The RTU unit is designed for a complete supply and return ductwork system. Ductwork is to be constructed in a manner that limits restictions and maintains suitable air velocity. Ductwork is to be sealed to the unit in a manner that will prevent leakage. Do not locate the unit or terminate the ductwork in an area that can introduce toxic, dust, or objectionable fumes/odors into the ductwork.

DANGER

This device contains high-voltage electrical components. All maintenance must be performed by a qualified technician to prevent serious injuries or death. Installation must comply with all applicable local building and safety codes.

SUPLLY AIR TEMPERATURE CONTROL

Before starting the unit, the Supply Air temperature thermistor needs to be installed in the supply duct, downstream the Aldes unit. The thermistor needs to be connected to the Distech controller located in the Aldes unit electrical panel. The typical input for this thermistor is UI13, but please refer to the electrical diagram of your specific project to confirm the location of this sensor.

The thermistor should be installed in the ventilation duct, downstream the Aldes unit, at a distance of at least 3ft from the Supply Air discharge section of the unit. The thermistor should be located in the duct where the airflow is well mixed and representative of the supply air temperature provided by the unit.

UNIT COMPONENTS

Simplified installation thanks to pre-wiring and retrofit roof curb

Direct expension coil (connected to the VRF) to maximize the high efficiency of the VRF

Frost-control strategy for optimal climate compatibility

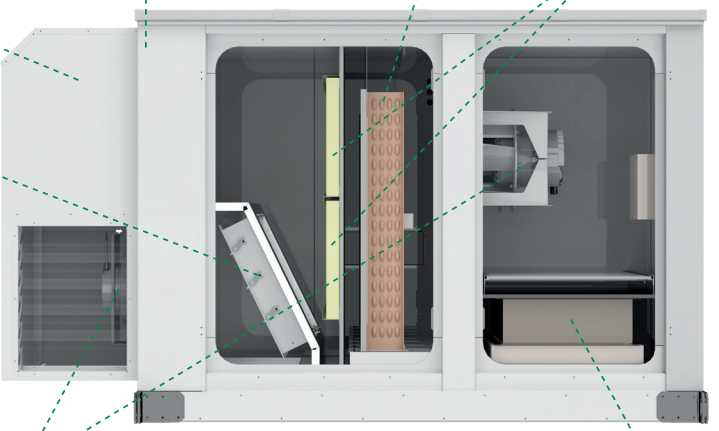
Double wall construction for a durable, high-quality product

Standard MERV 8 filter offering high-quality filtration

Economizer section for free cooling applications and energy savings

Insulated aluminium louver for a tightly sealed unit of superior quality

Easy access to the filters, motors, coils and electrical components for effortless cleaning and maintenance



EC **EC motor** offers variable speed control and reduced operating costs by maximizing system efficiency

Thermistor location : at least 3ft downstream the unit, in the ventilation duct

Auxiliary electrical heater for reliability in cold climate

DIRECT EXPENSION COIL

The liquid and suction line of the Direct expension coil must be connected to the VRF and VRF equipment in order to obtain a complete refrigeration system. Refer to the third party VRF installation manuals to connect correctly the equipments. Only brazing techniques or approved mechanical joints should be used to connect refrigerant tubing connection. Before charging the system with refrigerant, standard procedure such as pressure test, vacuum procedure and leak detection test must be performed by a qualified refrigeration technician.

- Refer to the VRF's installation manual for pipe connection instructions when installing with an AHU.
- The required refrigerant type and charge quantity will be specified by the VRF manufacturer's selection software.
- The DX coil material is copper, and standard brazing/welding methods should be performed by a qualified refrigeration technician.
- The direct expansion coil inside the ALDES unit is delivered pre-charged with 10 psi of nitrogen to prevent humidity infiltration.
- The maximum pressure test souldn't exceed the maximum pressure indicated on the evaporating coil. (Refer to the third party VRF operation manual).

VIII. ELECTRICAL CONNECTIONS

DANGER

This device contains high-voltage electrical components. All maintenance must be performed by a qualified technician to prevent serious injuries or death. Installation must comply with all applicable local building and safety codes.

HOW TO OPEN THE EXTERIOR PANEL

- Use the appropriate Allen key as shown in the image above.
- Turn the handles downward, following the direction indicated by the red arrow at the bottom of the image.

Note: Always ensure power to the unit is disconnected before opening the panel to avoid electrical hazards.

DANGER

This device contains high-voltage electrical components. All maintenance must be performed by a qualified technician to prevent serious injuries or death. Installation must comply with all applicable local building and safety codes.

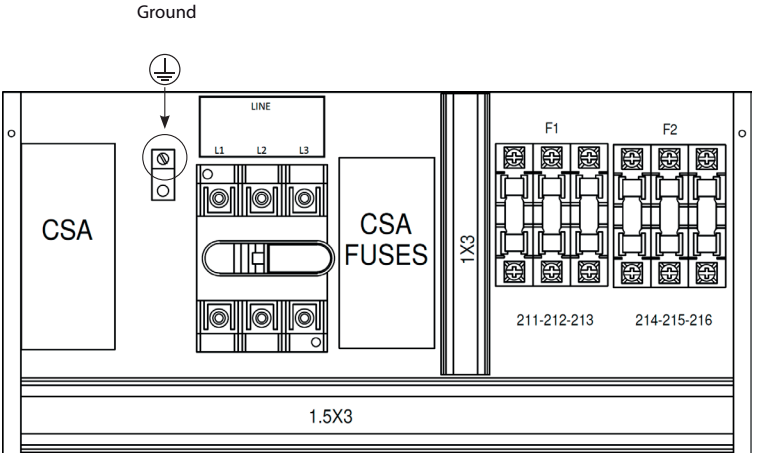
To avoid property damage, personal injury or death due to electrical shock, this unit must have an uninterrupted, unbroken electrical ground. Power supply and ground connection must be performed in accordance with the National Electrical Code (NEC)/American National Standards Institutes (ANSI)/ National Fire Protection Association (NFPA) 70 and local/states codes. For Canada installation in accordance with the Canadian Electrical Code (CSA) C22,1 must be respected.

Prior to connecting the power supply and control wiring, power must be safely de-energized and locked out in accordance with applicable safety procedures.

Connect the unit to the power grid using a disconnect switch. This connection must be performed by a certified electrician in accordance with the applicable electrical code. Also connect the Ground wire of the main power to the location indicated on the figure below.

208V / 3PH / 60Hz - 460V / 3PH / 60Hz - 575V / 3PH / 60Hz

The electrician must refer to the unit's electrical diagram to confirm the required voltage. Units must be connected only to the main voltage specified in the electrical diagram.



Note: The unit's control panel may vary. Image is for reference only.

Depending on your project, the VRF system may be powered by the Aldes RTU unit. If this is the case, it will be indicated in the project specifications and on the wiring diagram. When the VRF is powered by the Aldes RTU, its power line must be connected to the Aldes RTU power supply line (refer to the image above and electrical diagram of the specific project delivered with the RTU unit).

Control Wires: The Aldes RTU control wires are factory-connected. However, the electrical connection to the VRF must be completed on site by a licensed electrician. To properly wire the third-party VRF to the Aldes RTU, refer to the VRF installation manual. Consult the Aldes RTU electrical diagram for available inputs and outputs, as these are specified for each project. Low voltage wiring is to be copper conductors, and be a minimum of 18 AWG.

Appendix 1 outlines the typical inputs and outputs available for a VRF control connection.

For control and power supply wiring, carefuly verify that wiring will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects.

RECOMMENDATION

Before turning on your new device, inspect the condition of the ventilation ducts. Clean the ducts thoroughly prior to startup.
If building construction is still ongoing, we recommend waiting until all work is complete before starting the device. Excessive dust in the air can clog the filters and potentially damage the motors.

Make sure all diffusers are fully open before powering on the device. It is normal to notice a faint burning smell during the initial startup.

DANGER

This device contains high-voltage electrical components. All maintenance must be performed by a qualified technician to prevent serious injuries or death. Installation must comply with all applicable local building and safety codes.

- Use the electrical wiring diagram (supplied separately) as a reference to close the "Start/Stop" and "Occupancy Control" dry contacts.
- Close the main disconnect switch; the unit will start.

WARNING: From this point onward, the unit is no longer electrically safe.

- Measure the voltage at the main circuit breaker and record the values.
- This measurement must be performed by a certified electrician in compliance with the applicable electrical codes.

L1 - L2 : _____

L1 - L3:_____

L2 - L3:_____

L1 - G: _____

L2 - G: _____

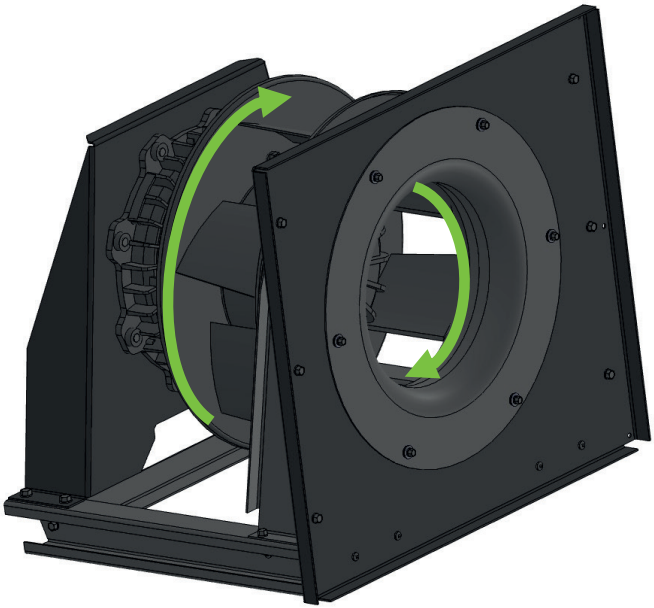
L3 - G: _____

A maximum deviation of ±5% is acceptable.

DANGER

This device contains high-voltage electrical components. All maintenance must be performed by a qualified technician to prevent serious injuries or death. Installation must comply with all applicable local building and safety codes.

- Verify that the motors are rotating in the correct direction.



DANGER

This device contains moving parts.
All repairs must be performed by a qualified technician to prevent serious injury.

CAUTION

This device should be installed and balanced by a specialized contractor in ventilation services.

WARNING

Electrical current can remain in the capacitors for up to 5 minutes after the circuits have been disconnected. The following electrical components may not be electrically safe immediately after power is cut:

- Variable Frequency Drive (VFD) for the blower motors.

IX. DIRECT EXPENSION COIL FOR A2L REFRIGERANTS APPLICATIONS

Depending on the Aldes model of units, your unit might contain a coil for A2L refrigerants application. If so, only personnel certified to service, work and/or repair units with A2L flammable refrigerants can service, work /or repair the unit.

A2L refrigerants refer to the ASHRAE category of refrigerants which are of "Low toxicity" (Class A) and mildly flammability (Class 2L). Refer to the specification sheets of the refrigerant for requirements on storage, utilization and manipulation of the refrigerants categorize A2L.

LEAK DETECTION

If your unit is equipped with a coil for A2L refrigerant applications, a leak detection sensor and a particular mitigation system program are part of the unit, in accordance with UL 60335-2-40 standards. The mitigation system program's primary function is to reduce the concentration of A2L refrigerants in the event of a leak. To achieve this, in case of a leak detection (detected by the leak detection sensor), the fan will maintain a minimum airflow in order to limit the concentration of A2L refrigerants. An alarm will also be trigger by the main controller of the unit. The alarm must be connected to your Building management system or trigger the appropriate alarm for the building, calling for the appropriate measures to execute following a leak detection. Refer to applicable standards and building codes to learn what is enforceable in your situation. To understand the alarm control logic and signal, refer to the electrical wiring diagram of the Aldes unit, and contact our Customer service department for any questions about this feature.

REFRIGERANT DISPOSAL

The refrigerant charge shall only be recovered into a cylinder labeled for use with the correct type of refrigerant. All best practices for refrigerant recovery must be followed including the use of a recovery machine designated safe for use with A2L refrigerants. Refer to your local regulations regarding the introduction and disposal of the refrigerants.

LEAK DETECTION SENSOR

The leak detection sensor for A2L refrigerants included in the Aldes unit is a SENSIRION SGD43S-M3-Sx model, which is a Refrigerant Detection System for HVACR applications based on Thermal Conductivity Measurement. The sensor is fully calibrated and compensated for maximum accuracy and ease of integration. Furthermore, the sensor has been designed to be compliant with the relevant norms for refrigerant detection sensors (UL 60335-2-40 and UL 60335-2-89). If the leak detection sensor needs to be replaced, it must be by the same model or an equivalent approved by Aldes.

The sensor contains a status light, indicating the current mode of the sensor. The following table presents the different light status and their meaning.

Status Light	Sensor Mode
Green Continuous	STARTUP. The sensor is starting up
Green Blinking	NORMAL. The sensor is in normal operation mode
Red Continuous	MITIGATE. The sensor has detected a leak
Red Blinking	FAULT. The sensor has a fault

The status light remains in red continuous mode during the leak sustain period, which is defined by a 5min preventive delay, during which the sensor detects a concentration level below the detection threshold limit. After the leak sustain period, the sensor will go back to its normal operation mode.
For additional information about the leak detection sensor, consult the specification sheet of the product.

X. GAS FURNACE OPTION

The Aldes FUSION unit can be provided with an optional indirect gas furnace heating feature.

Before installing and starting the Aldes unit, read carefully and apply the following recommendations.

Type of gas: The furnace can be provided for Natural gas or propane applications. Make sure that the gas indicated on the product and in the project documentations is the correct one. The gas type indicated on the product should be the same as the gas supplied from the building. If not, contact the manufacturer to get advices on how to convert the product performing any work on the unit (a conversion kit can be provided).

INSTALLATION SITE REQUIREMENTS

The installation of the Aldes FUSION units with the gas furnace feature must be done by a qualified installation and service agency[1]. A start-up data sheet is provided for recording operating data and the final heater adjustment. The indicated portion of the Start-up data sheet must be returned to Aldes to validate factory warranty. If the start-up data sheet can't be found, please contact Aldes for instructions. A printed version of the start-up data sheet is shipped with the unit.

The installation site must have the minimum gas pressure required to operate the furnace. (see section " Gas supply and piping below")

The installation site must have the available voltage and power supply required by the unit in order to work properly. The electrical requirements of the product are indicated on the unit rating plate. All electrical equipment must be grounded and wired in accordance with the National Electric Code (ANSI/NFPA 70) in the United States, and the Canadian Electric Code (CSA C22.1), in Canada.

[1] The installation must be performed in accordance with NFPA 54/ANSI Z223.1 National Fuel Gas Code. In Canada, installation must comply with CSA B149 and other applied standards.

The Aldes FUSION units are designed for outdoor applications only. Combustion air openings should be configured in a way to prevent water, snow and debris from entering the unit[2]. Orient the unit in a way where the air inlet and exhaust are not facing the prevailing wind direction. The unit must not be located in space where flue products can be drawn into adjacent building openings such as windows, doors and fresh air intakes. Additionnally, the combustion air inlet and flue gas outlet must be located in the same pressure zone to minimize effects of wind on the burner and heater performance.

The Aldes FUSION units are not designed for use in hazardous atmospheres containing, flammable vapors or combustible dust, chlorinated or halogenated hydrocarbons, or in applications with airborne substances containing silicone. The presence of chlorine vapors in the combustion air supply to gas fired heaters presents a substantial corrosion hazard.

In many regions, building codes are applicable in parallel to National Standards such as NFPA 54 and CSA B149, and may have some variations based on local amendments. Local code authorities should be contacted to determine applicable regulations.

When installing the Aldes FUSION unit with the furnace option, the start-up data sheet provided with the unit should be completed and kept in a safe space for future reference. The completion of this start-up data sheet is part of the warranty coverage.

A minimum clearance distance of 3 feet must be respected downsteam the Supply air section of the Aldes FUSION units for components rated less than 250F.

[2] The fresh air intake and exhaust hood of the unit, as well as the air intake and exhaust of the furnace must be maintain free of all blocking elements (including snow) at all times.

TAMPER PROOF CHECK

If you notice that the tamper proof seal on the heat furnace has been broken or is missing, do not try to install the unit. Please advice immediately your customer service representative.

LEAK TEST

A leak test of the furnace must be done before starting and operating the Aldes unit. The leak test must be done by a qualified technician.

HIGH ALTITUDE INSTALLATION

The furnace heater inputs must be de-rated to compensate for the reduced air density and oxygen content at installed elevation to provide for comparable performance and combustion characteristics to that at sea level.

For gas heat applications, the de-reate recommended by the furnace manufacturer, and by ANSI standards is 4% per 1000 ft. of elevation for installation over 2000ft.

Local codes affecting HVAC equipment and local authorities approval should be consulted (if applicable in your region).

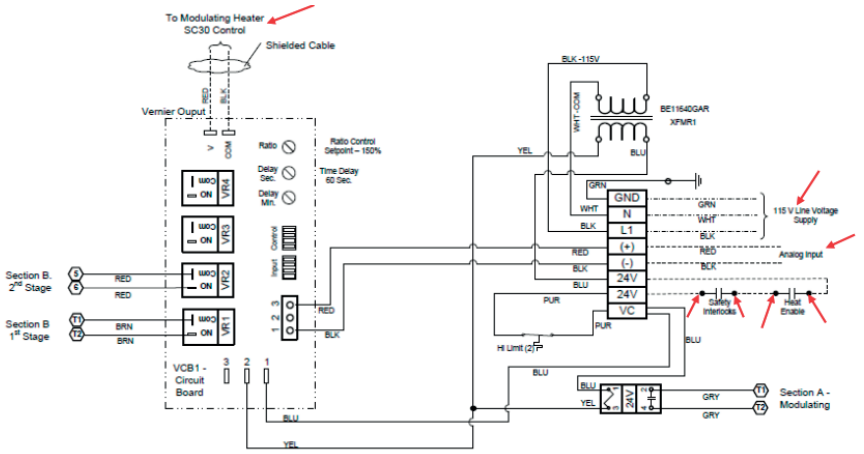
A high altitude installation situation must be mentioned when ordering the unit.

COLD CLIMATE INSTALLATION

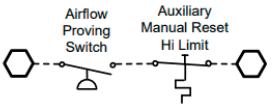
When the unit is expected to be operated at temperature around and below freezing mark, heat tape or other freeze protection suitable for condensate drain lines should be provided. Please refer to page (6) of the **Installation, Operation and Maintenance Instructions of the Duct Furnace Manual**.

OVERHEATING

In order to prevent an overheating situation with the furnace, an "Airflow Proving switch" and an "Auxiliary Manual Reset High Limit" are integrated in the Aldes FUSION units as safety components. The following electrical diagram shows how these two components are integrated in our units with a furnace heater option. For additional information on the electrical control of the units, refer to the electrical diagram provided for each project. Contact Aldes for more information or in case of any doubts on control. Modification to the control sequence or wiring of the unit must be approve by Aldes, prior to implementation.



Typical Customer External Safety Interlocks

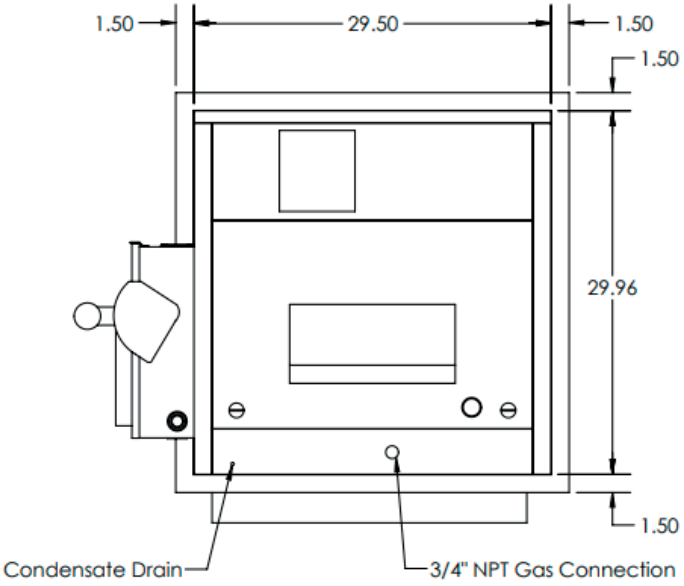


HEATER CONDENSATION

The indirect fired gas heaters will generate some condensate during modulating burner operation or when operated with a high percentage of outside air. Flue gas condensate is corrosive, and operating heater in a continuous condensing mode or accumulation of condensate can lead to premature heat exchanger failure. For heaters located downstream a cooling system, condensation in the heat exchanger is likely during cooling operation. Even though this condensate is typically benign, damage can result from accumulation. Therefore, steps must be taken to manage the disposal of condensate.

Condensate drain lines must be connected to the equipment. The condensate drain lines should be corrosion resistant. If metal tubing is used, it must have corrosion resistance at least equal to 304 S.S. Copper tubing is not suitable for flue gas condensate.

Local plumbing codes regarding disposal of flue gas condensate should be consulted as the condensate will be slightly acidic.



GAS SUPPLY AND PIPING

Installation of piping must be compliant with ANSI Z223.1 (NFPA 54) National Fuel Gas Code. In Canada, installation must be in accordance with CAN/CGA-B149.1 for Natural gas and B149.2 for propane units. Depending on your region, other local codes might be applicable. Consult local authorities if applicable.

A pipe sealant resistant to LP gases on gas supply connections must be used. Properly support gas valve with back-up wrench, during the supply pipe installation to prevent loosening valve or damage to burner assembly or manifold.

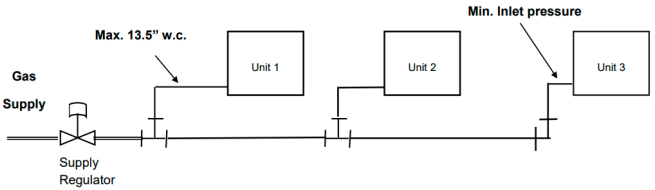
The gas supply pipe of the furnace is ¾" NPT for gas inputs up to 400MBH and 1" NPT for gas input between 401MBH and 600MBH.

The furnace integrated in the Aldes FUSION unit requires a minimum inlet gas pressure as shown below:

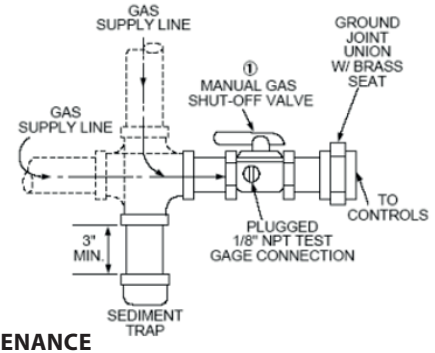
The furnace integrated in the Aldes FUSION unit requires a minimum inlet gas pressure as shown below:

	Natural Gas	Propane Gas
Minimum (50,000 to 400,000 Btuh models)	**5.0" w.c.**	**11.0" w.c.**
Minimum (401,000 and higher Btuh models)	**6.0" w.c.**	**12.0" w.c.**
Maximum Inlet	**13.5" w.c.**	**13.5" w.c.**

The gas piping and supply must be sized for the total BTU input capacity of all units (heaters) serviced by a single supply. For multiple heater installations, be sure that gas regulators servicing more than one heater have the proper pipe and internal orifice size for the total input of all heating units serviced by the regulator.



A drip leg (sediment trap) and a manual shut off valve immediately upstream of the gas control must be installed on the gas supply line (refer to the picture below). To facilitate servicing of the unit, installation of a union is recommended.



OPERATION & MAINTENANCE

Make a thoroughly annual check of the heater and burner system, performed by a reputable service organization. Verify the furnace unit to make sure that there is no leakage. A leak test should be performed by a qualified technician for Narutal gas and Propane HVAC application.

Make sure that the rate of circulating air is not reduced under the minimum specified for the unit.

TEMPERATURE RISE LIMIT

The standard Aldes Fusion units are delivered with a standard program to ensure the proper functionning of the unit. The programming must not be altered without Aldes' consent.

Within the programming is included furnace's modulating limits, ensuring that the furnace stays within the maximum and minimum temperature rise allowed by the manufacturer. For more details about programming Aldes units, contact the Aldes customer service department.

XI. OPTIONS GLOSSARY

IMPORTANT

The options listed below may not be included with your device.
Please refer to the specification sheet provided with your unit for detailed information.

DEFROST STRATEGY

Fan Defrost Cycles:

- The unit continuously monitors the outside air temperature (OAT). If the OAT drops below the programmed setpoint, the defrost cycle will activate:
- The supply air fan will reduce to minimum speed.
- The supply air damper will close and remain closed for a specified duration, depending on the OAT.

The defrost cycle is preprogrammed in the control board. Once the outside air temperature rises above the setpoint, the unit will automatically return to normal supply mode and resume normal fan speed.

UNIT FEATURES

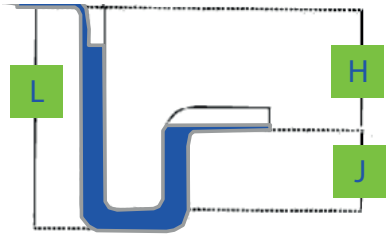
Roof Curb:

- 14 inches in height
- Available in insulated or non-insulated versions
- Constructed from 18-gauge galvanized steel

Piping Connection for Drain Pan:

- Always consult a licensed plumber for drain pan connections. A properly sized P-trap is typically required. For outdoor installations, the P-trap may be removed to prevent frozen condensation.

P-TRAP DIMENSIONS NEGATIVE PRESSION



Use the submittal sheet as a reference to calculate dimensions H, J, and L:

H = 1" for each 1" of maximum negative static pressure + 1"

J = ½ of H

L = H + J + pipe diameter + insulation thickness

XII. MAINTENANCE

CAUTION
Always disconnect electrical power before performing any maintenance.
This device contains high-voltage electrical components.

Every 3 Months:

- Inspect the condition of the filters and replace them if necessary.
- Check the condition of the ventilators and clean them if needed.

Every 12 Months:

- Clean the energy recovery cores using a vacuum.
- Vacuum the interior of the unit thoroughly.
- Clean the Mistop with a vacuum.
- Gently clean the direct expansion (DX) coil fins with a damp towel, if required.

XIII. SERVICE REQUESTS

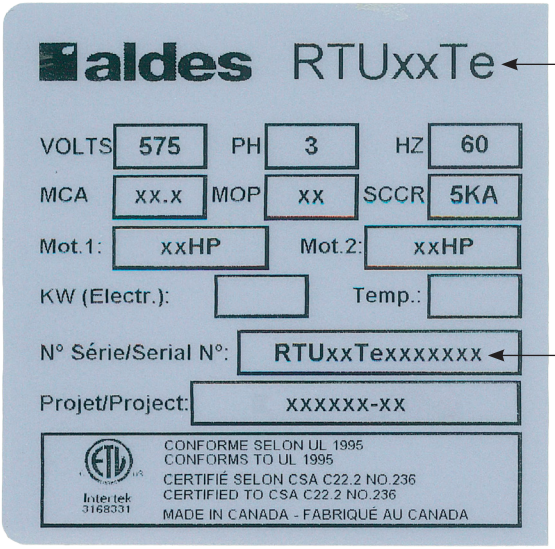
Please read before placing a service call
Before requesting service, ensure you have the following information readily available:

- Device serial number
- Model number

This information is essential to help us address your issue as quickly and accurately as possible.
You can find these details on the specification card located on your device (see photo below).

CAN: 1-800-262-0916

USA: 1-800-255-7749



XIV. APPENDIX 1

TYPICAL CONTROL POINTS (RTU UNITS)

The following indicates the typical control points on the controller of the RTU units. The programming might have been modified according to your specific project needs. ***Please refer to the Control sheet and electrical plan delivered with the unit before performing any modification to the code or control wiring.*** Programming logic, inputs and outputs may vary from what is presented below.

The control points and a basic programming are supplied by Aldes, but a professionnal HVAC technician must perform the installation and ensure that the system is working properly.

Point Index	Point Name	Display Name	Description	Point Type				Signal Type
				AI	DI	AO	DO	
				9	7	5	6	
UI1	G	G	Start contact		X			Digital
UI2	Y1	Y1	Cooling contact		X			Digital
UI3	Y2	Y2	Emergency cooling contact		X			Digital
UI4	W1	W1	Heating contact		X			Digital
UI5	W2	W2	Emergency heating contact		X			Digital
UI6	ExternalSupplyVariableSpeedControl	ExternalSupplyVariableSpeedControl	Supply Variable Speed Control	X				0-10V
UI7	ExternalExhaustVariableSpeedControl	ExternalExhaustVariableSpeedControl	Exhaust Variable Speed Control	X				0-10V
UI8	FreshAirDamperInputSignal	FreshAirDamperInputSignal	FreshAirDamper Input Signal	X				0-10V
UI9	CoolingInputSignal	CoolingInputSignal	Cooling Input Signal	X				0-10V
UI10	HeatingInputSignal	HeatingInputSignal	Heating Input Signal	X				0-10V
UI11	S10OutsideAirTemp	S10OutsideAirTemp	S10 Outside Air Temp	X				10K Type II
UI12	S21AfterDX	S21AfterDX	S21 After DX	X				10K Type II
UI13	S22SupplyTemp	S22SupplyAirTemp	S22 Supply Air Temp	X				10K Type II
UI14	S30ReturnAirTemp	S30ReturnAirTemp	S30 Return Air Temp	X				10K Type II
UI15	Supply1ECMConfirmation	Supply1ECMConfirmation	Supply motor 1 ECM Confirmation		X			Digital
UI16	Supply2ECMConfirmation	Supply2ECMConfirmation	Supply motor 2 ECM Confirmation		X			Digital

DI101	Overheat	Overheat	Coil Overheat		X			Digital
DI102	HeatPump1Fault	HeatPump1Fault	HeatPump1Fault		X			Digital
DI103	HeatPump1CompressorConfirm	HeatPump1CompressorConfirm	HeatPump1CompressorConfirm		X			Digital
DI104	HeatPump1BlowerDemand	HeatPump1BlowerDemand	HeatPump1BlowerDemand		X			Digital
DI105	HeatPump1DefrostStatus	HeatPump1DefrostStatus	HeatPump1DefrostStatus		X			Digital
DI106	HeatPump2Fault	HeatPump2Fault	HeatPump2Fault		X			Digital
DI107	HeatPump2CompressorConfirm	HeatPump2CompressorConfirm	HeatPump2CompressorConfirm		X			Digital
DI108	HeatPump2BlowerDemand	HeatPump2BlowerDemand	HeatPump2BlowerDemand		X			Digital
DI109	HeatPump2DefrostStatus	HeatPump2DefrostStatus	HeatPump2DefrostStatus		X			Digital
DI110	HeatPump3Fault	HeatPump3Fault	HeatPump3Fault		X			Digital
DI111	HeatPump3CompressorConfirm	HeatPump3CompressorConfirm	HeatPump3CompressorConfirm		X			Digital
DI112	HeatPump3BlowerDemand	HeatPump3BlowerDemand	HeatPump3BlowerDemand		X			Digital
DI113	HeatPump3DefrostStatus	HeatPump3DefrostStatus	HeatPump3DefrostStatus		X			Digital
DI114								
DI115								
DI116								

U01	SupplyBlowerOutput	SupplyBlowerOutput	Supply Blower Output				X	Digital
U02	SupplyVariableSpeedSignal	SupplyVariableSpeedSignal	Supply Variable Speed Signal			X		0-10V
U03	ExhaustVariableSpeedSignal	ExhaustVariableSpeedSignal	Exhaust Variable Speed Signal			X		0-10V
U04	SupplyModulatingDamperSignal	SupplyModulatingDamperSignal	Supply Modulating Damper Signal			X		0-10V
U05	HeatPump1Start	HeatPump1Start	HeatPump1 Start				X	Digital
U06	HeatPump2Start	HeatPump2Start	HeatPump2 Start				X	Digital
U07	HeatPump3Start	HeatPump3Start	HeatPump3 Start				X	Digital
U08	HeatPumpsSignal	HeatPumpsSignal	HeatPumps 0-10V Signal			X		0-10V
U09	PostHeatSignal	PostHeatSignal	PostHeat a-10V Signal			X		0-10V
U010	AlarmRelayOutput	AlarmRelayOutput	Alarm Relay Output				X	Digital
U011	HeatCoolSelection	HeatCoolSelection	Heat-Cool Selection				X	Digital
U012								
U013								
U014								

UI1-G: Digital signal, ON/OFF ventilation request (from third party thermostat or Building controls).

UI2-Y1: Digital signal, cooling stage 1 (from third party thermostat or Building controls).

UI3-Y2 : Digital signal, cooling stage 2 (from third party thermostat or Building controls).

UI4-W1: Digital signal, heating stage 1 (from third party thermostat or Building controls).

UI5-W2: Digital signal, heating stage 2 (from third party thermostat or Building controls).

UI6-ExternalSupplyVariableSpeedControl: Analog signal to modulate the main motorized impeller speed (from Building controls).

UI7-ExternalExhaustAnalogControl:
Scenario 1 (RTU units with power exhaust fan): Analog signal to modulate the power exhaust motorized impeller speed (from Building controls).

Scenario 2 (RTU units with relief damper): Analog signal to modulate the exhaust damper (from Building controls).

UI8-FreshAirDamperInputSignal: Analog signal to modulate the fresh air damper (from Building controls).

UI9-CoolingInputSignal:
Scenario 1 (RTU unit without auxiliary heater): Analog cooling signal to modulate the VRF (from Building controls).

**Free cooling (Economizer section) can be controlled with this input from Building Controls

Scenario 2 (RTU unit with auxilary heater): Analog signal to modulate the VRF, heating or cooling, (from Building controls).

UI10-HeatingInputSignal:
Scenario 1 (RTU unit without auxiliary heater): Analog heating signal to VRF and auxiliary heating (from Building controls).

Scenario 2 (RTU unit with auxiliary heater): Analog signal to modulate the auxiliary heating signal demand (from Building controls).

UI11-S10OutsideAirTemp: Thermistor 10k type II, monitoring the Outside Air Temperature (OAT). If the OAT is cold/warm enough to avoid cooling or heating from the VRF, the free cooling mode will be enabled. If the OAT is cooler than 50F the free cooling will start. An integrated PID control will modulate the fresh air damper accordingly.

**An Outside Air Temperature detection of -4 F on OAT will activate lock-out status from the VRF.

UI12-S21AfterDX : Thermistor 10k type II, measuring temperature downstream the DXcoil. If the Supply air setpoint value is not met, the auxiliary heating signal will activate/increase to compensate in order to reach sufficient supply air temp.

UI13 S22SupplyAirTemp : Thermistor 10k type II, measuring the actual supply air temperature (downstream both the DXcoil and the auxiliairy heating). This Supply Air temp value will be compared to the set point and the unit will react accordingly (increase or decrease the heating/cooling signal sent to the VRF or auxiliairy heating)

UI14 S30ReturnAirTemp: Thermistor 10k type II, measuring the current return air temperature to monitor the building temperature.

UI15 Supply1ECMConfirmation: Digital proof signal from the ECM first main motorized impeller. Closed contact = motor On, Opened contact = motor OFF

UI16 Supply2ECMConfirmation: Digital proof signal from the ECM second main motorized impeller. Closed contact = motor On, Opened contact = motor OFF

DI101AuxiliaryHeating: Digital signal from the auxiliary heating contact located in the unit.

DI102 HeatPump1Fault: Digital alarm signal from the first VRF. If the VRF is in alarm, the VRF locked out state is assumed and the RTU unit will manage its heating/cooling demand, ignoring the first VRF.

DI103 HeatPump1CompressorConfirm: Digital proof signal from the first VRF compressor. If the RTU unit is ordered with an interlock between the VRF and the auxiliary heater, the auxiliary heater will be disabled.

DI104 HeatPump1BlowerDemand: Digital signal to confirm that the first VRF is ready to heat/cool. A closed contact signal is used at start or to confirm the end of a defrost period. It is used to indicates a VRF lock-out if the contact is open.

DI105 HeatPump1DefrostStatus: Digital signal to confirm that the defrost mode is active for the first VRF. If the first VRF is in defrost mode, the RTU unit will activate other VRF to continue heating mode.

DI106 HeatPump2Fault: Digital alarm signal from the second VRF. If the VRF is in alarm, the VRF locked out state is assumed and the RTU unit will manage its heating/cooling demand, ignoring the second VRF.

DI107 HeatPump2CompressorConfirm: Digital proof signal from the second VRF compressor. If the RTU unit is ordered with an interlock between the VRF and the auxiliary heater, the auxiliary heater will be disabled.

DI108 HeatPump2BlowerDemand: Digital signal to confirm that the second VRF is ready to heat/cool. A closed contact signal is used at start or to confirm the end of a defrost period. It is used to indicates a VRF lock-out if the contact is open.

DI109 HeatPump2DefrostStatus: Digital signal to confirm that the defrost mode is active for the second VRF. If the second VRF is in defrost mode, the RTU unit will activate other VRF to continue heating mode.

DI110 HeatPump3Fault: Digital alarm signal from the third VRF. If the VRF is in alarm, the VRF locked out state is assumed and the RTU unit will manage its heating/cooling demand, ignoring the second VRF.

DI111 HeatPump3CompressorConfirm: Digital proof signal from the third VRF compressor. If the RTU unit is ordered with an interlock between the VRF and the auxiliary heater, the auxiliary heater will be disabled.

DI112 HeatPump3BlowerDemand: Digital signal to confirm that the third VRF is ready to heat/cool. A closed contact signal is used at start or to confirm the end of a defrost period. It is used to indicates a VRF lock-out if the contact is open.

DI113 HeatPump3DefrostStatus: Digital signal to confirm that the defrost mode is active for the third VRF. If the third VRF is in defrost mode, the RTU unit will activate other VRF to continue heating mode.

UO1 SupplyBlowerOutput: Digital signal to Start or Stop the main motorized impeller. Open contact = OFF, Close contact = ON

UO2 SupplyVariableSpeedSignal: Analog signal to control the ECM main motorized impeller speed.

UO3 ExhaustAnalogSignal:
Scenario 1 (RTU units with power exhaust fan): Analog signal to modulate the power exhaust motorized impeller speed.

UO4 SupplyModulatingDamperSignal: Analog signal to control the opening or closing of the fresh supply air damper.

UO5 HeatPump1Start: Digital signal sent to the first VRF. Open contact = OFF, Close contact = ON

UO6 HeatPump2Start: Digital signal sent to the second VRF. Open contact = OFF, Close contact = ON

UO7 HeatPump3Start: Digital signal sent to the third VRF. Open contact = OFF, Close contact = ON

UO8 HeatPumpSignal: Analog signal modulating cooling or heating command sent to the VRFs. The signal is sent to all the VRFs in parallel.

UO9 PostHeatSignal: Analog signal modulating the auxiliary heating coil (electric or other)

UO10 AlarmRelayOutput: Digital alarm signal sent to the Building Control System.

UO11 HeatCoolSelection: Digital signal confirming the heating or cooling state to the VRF. Open contact = Cooling, Close contact = heating

MAINTENANCE PERFORMED	DATE

American ALDES Ventilation Corporation
4521 19th St. Ct. E.
Suite 104
Bradenton, FL 34203
1-800-255-7749
www.ALDES-na.com

ALDES Canada
100 Rue Carter
Saint-Leonard d'Aston, QC J0C 1M0
1-800-262-0916
www.ALDES-na.com

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