



INSTALLATION INSTRUCTIONS

OAMANPRD3715100 0-100% Fixed Position Outside Air Package

OA2POPRD3715100BL 0-100% Selectable 2 Position Outside Air Package

OA2POPRD3715100VCO2 0-100% Selectable 2 Position CO2 Capable Outside Air Package
For York 3 -12½ Ton Units

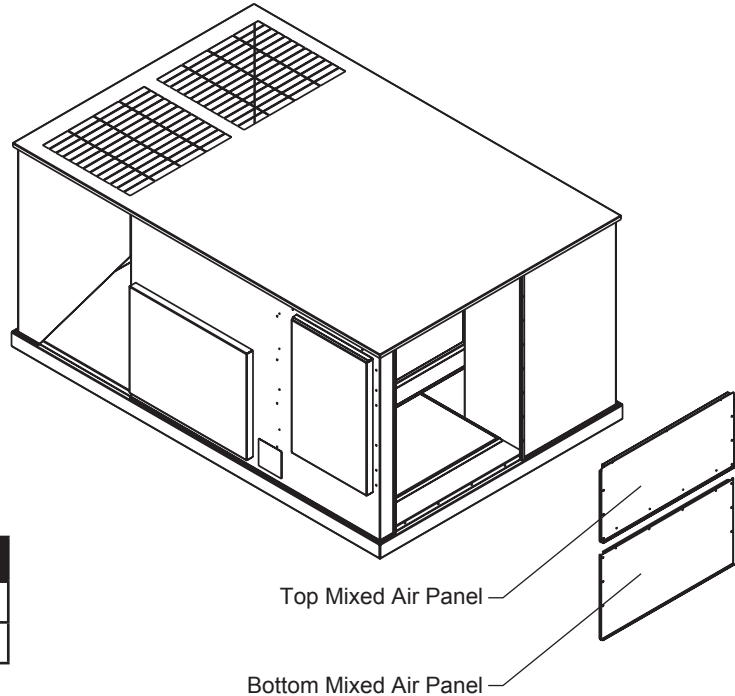
Before Starting Installation

Warning

Shut power to unit prior to any work being done. Personal injury or death could result.

Only qualified HVAC service personnel should install, troubleshoot, repair or service HVAC and related HVAC equipment.

ILL. 1



CONTENTS INCLUDED

QTY.

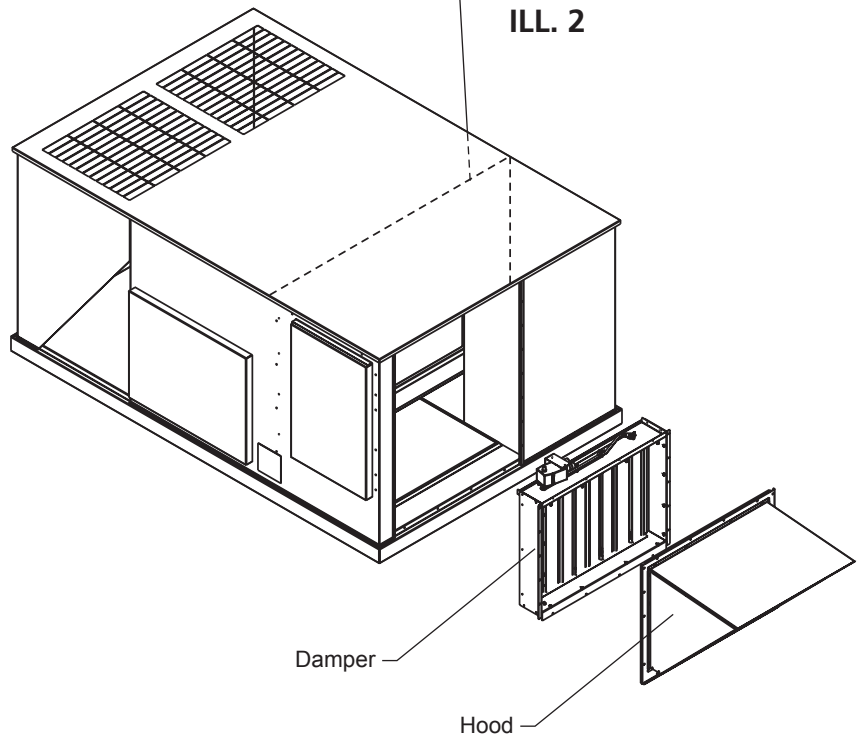
Discharge Air Sensor	1
Male Connectors For Discharge Air Sensor	2

Installation Instructions

1. Turn power off to unit being serviced or worked on.
2. Remove top and bottom mixed air compartment panels on end of unit. Save unit screws for securing outside air damper and hood. (ILL. 1)
3. Install damper and hood in lower mixed air compartment using existing unit screws. (ILL. 2)

Discharge Air Sensor
In Blower Compartment

ILL. 2



- For fixed position Model OAMANPRD3715100, set locking quadrant on damper extended shaft to desired open position.

Install existing top mixed air compartment panel using existing screws. (ILL. 1)

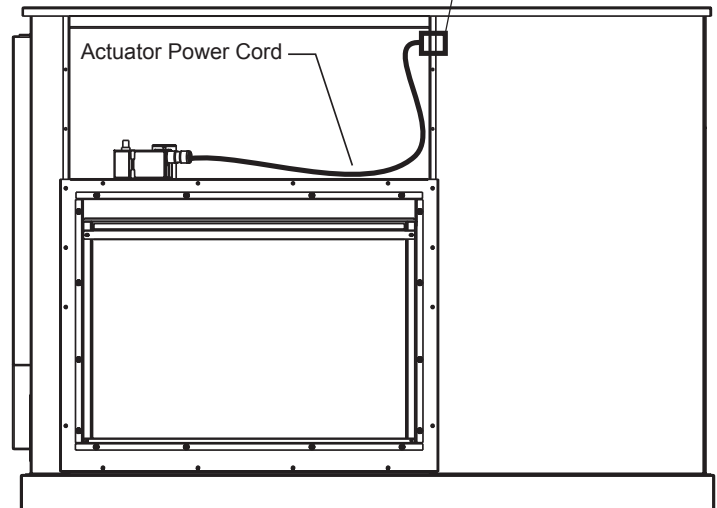
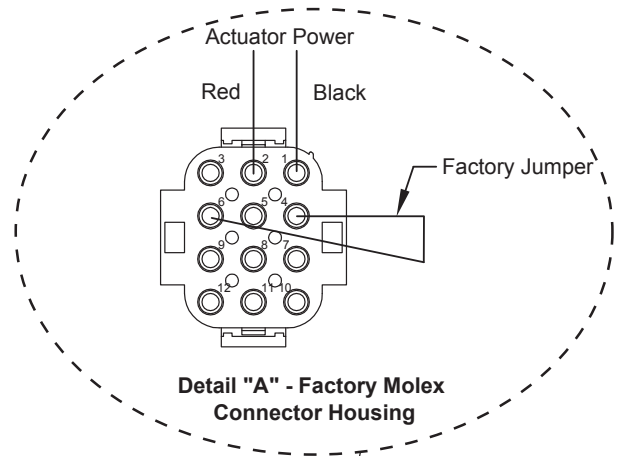
- For two position Model OA2POPRD3715100, remove factory Molex connector from unit. At end of actuator power cord are connector pins. Plug pins into Sockets #1 and #2 on back of Molex connector. (ILL. 3, Detail A) Reconnect Molex connector to unit.

As an alternative, actuator power cord can be wired directly to 24V transformer in unit electrical panel.

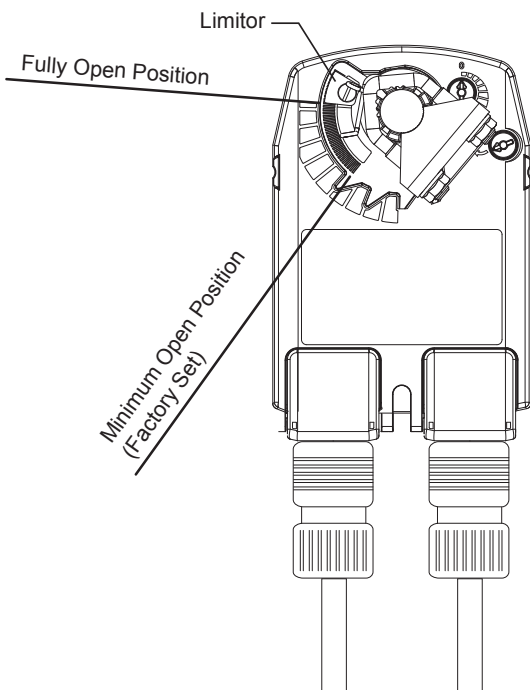
The actuator is factory set to minimum open position. To increase open position, loosen set screw on limiter of actuator (Be careful not to remove screw completely. Just loosen.). Move limiter to desired actuator open position and secure set screw. (ILL. 4)

Install existing top mixed air compartment panel using existing screws. (ILL. 1)

ILL. 3



ILL. 4 - Belimo Actuator



SETTINGS AND ADJUSTMENTS



CAUTION

Equipment Damage Hazard.
Excessive force can damage potentiometer controls.

Use a small screwdriver when adjusting enthalpy changeover and minimum damper position controls.

Potentiometers with screwdriver adjustment slots, located on device face, provide adjustments for several parameters (see Fig. 6 for locations on device):

- DCV setpoint.
- Minimum damper position.
- DCV maximum damper position.
- Enthalpy changeover.
- Exhaust setpoint.

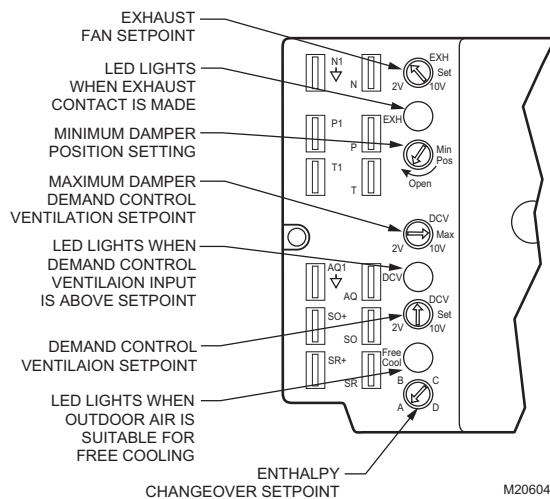


Fig. 6. Potentiometer and LED locations (W7212 shown).

Demand Control Ventilation Setpoint

The logic module modulates the outdoor damper to provide ventilation based on the 0/2-10 Vdc DCV. With no cooling signal, the DCV overrides the outdoor air damper when ventilation requires additional outdoor air.

Adjusting Minimum and Maximum Positions

The minimum position potentiometer maintains the minimum outdoor air flow into the building during the occupied period. The minimum position allows for the building effluents. The DCV maximum position potentiometer allows the installer to limit the amount of outdoor air flow into the building when the DCV overrides the mixed air sensor and allows the proper ventilation based on occupancy. Setting the DCV maximum position of the damper prevents the introduction of large amounts of hot or cold air into the space by preventing the dampers from opening 100%. Set the DCV maximum position at the maximum design occupancy.

IMPORTANT

With the DCV maximum position set below the minimum position, the minimum position overrides the maximum position (negating most DCV functions of the logic module, as the damper cannot move).

NOTES:

- When the mixed air sensor takes control based on an increased requirement for cooling, it overrides the DCV maximum position potentiometer and can drive the damper full-open.
- If the mixed air temperature drops to 45°F, the mixed air sensor overrides the DCV and fully closes the damper to protect from freezing the hot or chilled water coils. Control returns to normal once the mixed air temperature rises to 48°F.

Minimum Position Adjustment

For detailed assistance in minimum position selection reference the Economizer Application Guide (form 63-8594) Ventilation section. The following provides basic guidelines for minimum position selection and adjustment:

IMPORTANT

- Adjust the minimum position potentiometer to allow the minimum amount of outdoor air for building effluents, as required by local codes, to enter the building.
- This procedure requires use of a quality thermometer capable of reading to 0.5°F [0.25°C].

NOTE: Make minimum position adjustments with at least a 10°F [6°C] temperature difference between outdoor and return air.

1. Calculate the appropriate mixed air temperature, see Equation 1.
2. Disconnect mixed air sensor from terminals T and T1.
3. Place a jumper across terminals T and T1.
4. Ensure that either the factory-installed jumper is in place across terminals P and P1 or, if remote damper position is required, that it is wired according to Fig. 5 and turned fully clockwise.
5. Connect 24 Vac across terminals TR and TR1.
6. Carefully adjust the potentiometer on the face of the device with a small screwdriver until the mixed air temperature reaches the calculated value.

NOTE: Ensure that the sensed air is well mixed.

7. If all minimum and maximum position adjustments are complete, remove the T-T1 jumper and reconnect the mixed air sensor.

Equation 1. Formula to aid minimum position adjustment.

$$(T_O \cdot OA) + (T_R \cdot RA) = T_M$$

Where:

- T_O = Outdoor air temperature
- OA = Percent of outdoor air
- T_R = Return air temperature
- RA = Percent of return air
- T_M = Resulting mixed air temperature

NOTE: The following sample calculation uses only Fahrenheit temperature.

EXAMPLE: Assume local codes require 10% outdoor air during occupied conditions, outdoor air is 60°F and return air is 75°F. Under these conditions, what is the temperature of the mixed air?

$$(0.1 \cdot 60^\circ\text{F}) + (0.9 \cdot 75^\circ\text{F}) = 6.0^\circ\text{F} + 67.5^\circ\text{F} = 73.5^\circ\text{F}$$

Mixed air will be 73.5°F when OA is 60°F and RA is 75°F with 10 percent outdoor air entering the building.

CHECKOUT AND TROUBLESHOOTING

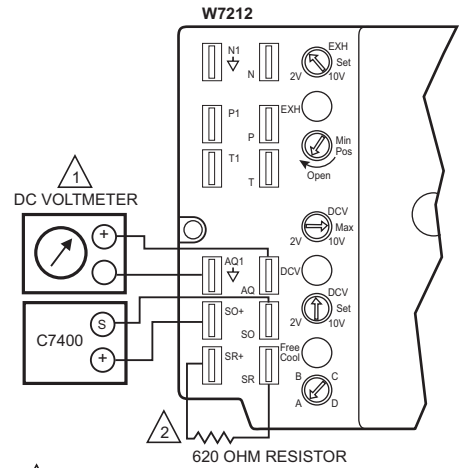
Checkout requires a 9V battery, 620 ohm, 1.2K ohm, 5.6K ohm, and 6.8K ohm resistors. Use Table 3 and Fig. 15 for checkout.



CAUTION

Equipment Damage Hazard.
Excessive force can damage potentiometer controls.

Use a small screwdriver when adjusting enthalpy changeover and minimum damper position controls.



1 INSERT DC VOLTMETER BETWEEN AQ AND AQ1 FOR CHECKOUT AND TROUBLESHOOTING.

2 JUMPER USED FOR SINGLE ENTHALPY CONTROL.
M20612

Fig. 15. Meter location for checkout and troubleshooting (W7212 shown).

Table 3. Checkout for W7212, W7213, W7214 Economizers Connected to Honeywell Actuator.

Step	Checkout Procedure	Proper Response
1.	CHECKOUT PREPARATION	
	Disconnect power at TR and TR1.	All LED are off; Exhaust Fan contacts are open.
	Disconnect devices at P and P1.	
	Jumper P to P1.	
	Place 5.6K ohm resistor across T and T1.	
	Jumper TR to 1.	
	W7212 only: Jumper TR to N.	
	If connected, remove C7400 Enthalpy Sensor from terminals S _O and +.	
	Connect 1.2K ohm 4074EJM Checkout Resistor across terminals S _O and +.	
	Put 620 ohm resistor across S _R and +.	
	Set minimum position, DCV setpoint, and Exhaust potentiometers fully CCW.	
	Turn DCV maximum position potentiometer fully CW.	
	Set enthalpy potentiometer to D.	
W7214 only: Jumper TR to O.		
Apply power (24 Vac) to terminals TR and TR1.		
2.	DIFFERENTIAL ENTHALPY	
	Execute step one, Checkout Preparation.	—
	Place 620 ohm resistor across S _O and +.	—
	Place 1.2K ohm resistor across S _R and +.	Free cool LED turns on.
	Remove 620 ohm resistor from S _O and +.	Free cool LED turns off.
3.	SINGLE ENTHALPY	
	Execute step one, Checkout Preparation.	—
	Set enthalpy potentiometer to A (fully CCW).	Free cool LED turns on.
	Set enthalpy potentiometer to D (fully CW).	Free cool LED turns off.

Table 3. Checkout for W7212, W7213, W7214 Economizers Connected to Honeywell Actuator. (Continued)

Step	Checkout Procedure	Proper Response
4.	DCV AND EXHAUST	
	Execute step one, Checkout Preparation.	—
	Ensure terminals AQ and AQ1 are open.	LED for both DCV and Exhaust should be off. Actuator drives fully closed.
	Connect 9V battery positive to AQ and negative to AQ1.	LED for both DCV and Exhaust turn on. Actuator drives to between 81 and 85 degrees open.
	Turn Exhaust potentiometer CW until Exhaust LED turns off.	Exhaust LED turns off with potentiometer approximately 90 percent CW. Actuator remains in position.
	Turn DCV setpoint potentiometer CW.	DCV LED turns off with potentiometer at approximately 9V. Actuator drives fully closed.
	Turn DCV setpoint potentiometer CCW until Exhaust LED turns on.	Exhaust contacts close 30-90 seconds after Exhaust LED turns on.
	Turn DCV setpoint potentiometer CW.	Exhaust LED turns off with potentiometer indication at approximately 9V.
5.	MINIMUM AND MAXIMUM POSITION	
	Execute step one, Checkout Preparation.	—
	Connect 9V battery positive to AQ and negative to AQ1.	DCV LED turns on. Actuator drives to between 81 and 85 degrees open.
	Turn DCV maximum position potentiometer to midpoint.	Actuator drives to between 18 and 72 degrees open.
	Turn DCV maximum position potentiometer to fully CCW.	Actuator drives fully closed.
	Turn minimum position potentiometer to midpoint.	Actuator drives to between 18 and 72 degrees open.
	Turn minimum position potentiometer fully CW.	Actuator drives fully open.
	W7212: Remove jumper from TR and N.	Actuator drives fully closed.
W7213, W7214: Jumper TR to N.		
6.	MIXED AIR INPUT	
	Execute step one, Checkout Preparation.	—
	Set enthalpy potentiometer to A.	Free cool LED turns on. Actuator drives to between 18 and 72 degrees open.
	Remove 5.6K ohm resistor and jumper from T and T1.	Actuator drives fully open.
7.	HEAT PUMP INPUT - W7213, W7214 ONLY	
	Execute step one, Checkout Preparation.	—
7.	Set enthalpy potentiometer to A.	Free cool LED turns on. Actuator drives to between 18 and 72 degrees open.
	W7213: Jumper TR to B. W7214: Remove jumper from TR and O.	Free cool LED turns off. Actuator drives fully closed.