Note - Disregard shipping and packing list and installation sections when dampers are factory-installed.

Shipping and Packing List

Package 1 of 1 contains:
1- Economizer damper assembly
1- GED (gravity exhaust/barometric relief damper) assembly - hood top covers the outdoor air opening and divider panel covers the exhaust air opening
1- Combination hood kit containing:
   1-Hood top filter bracket
   2-Hood sides
   1-Bag containing screws
1- Filter kit containing:
   1-Filter
   1-Pivot bracket
   1-Wiring diagram (20H49 only)
1- Bag assembly containing:
   #10-32 X 1/2 Thread-forming screws
   #8-32 X 1/2 Thread-forming screws (20H49 only)
   Mixed air sensor (R1)
   Mixed air sensor bracket (20H49 only)
   2-Wire ties (14D90 only)

1Already in place when economizer is factory-installed.
2GED is shipped and ordered separately for factory PEF units.
3Shipped in the return air section when economizer is factory-installed.
4Shipped in the blower section when economizer is factory-installed.
5The divider panel is shipped and ordered with the GED for factory PEF units.

Order Of Installation:
Return air cover (horizontal airflow)
Economizer
Mixed air sensor (R1)
Remove GED (horizontal airflow and PEF options)
Optional OA/RA sensors
Power exhaust fans
RA Transition (horizontal airflow)
RA duct (horizontal airflow)
Outdoor air hood
GED in lower hood (horizontal and PEF options)

CAUTION
As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

WARNING
Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, service agency, or the gas supplier

Application

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Unit Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>14D90 - 609258-09</td>
<td>KG/KC 024-090</td>
</tr>
<tr>
<td></td>
<td>KH/KD 024-074</td>
</tr>
<tr>
<td>20H49 - 609258-13</td>
<td>KG/KC 024-090</td>
</tr>
<tr>
<td></td>
<td>KH/KD 024-074</td>
</tr>
</tbody>
</table>

The K1ECON economizer is used with KG/KC/KH/KD units in downflow and horizontal air discharge applications. For horizontal air applications, use the separately shipped GEDH kit. Economizer dampers will modulate to maintain 55°F (13°C) supply air when outdoor air is suitable. The mixed air temperature sensor (R1) measures the supply air sensible temperature.

The mixed air sensor is provided in field-installed kits and installed according to these instructions. The mixed air sensor is factory-installed when the unit is equipped with an economizer.

Standard Economizer

The OA sensible control is the default economizer control. The OA thermostat, S175, is provided in this kit. See table 1 for outdoor and return air (OA and RA) sensor options. Refer to instructions provided with sensors for installation.
### TABLE 1
**STANDARD ECONOMIZERS**

<table>
<thead>
<tr>
<th>Sensors</th>
<th>Dampers modulate to maintain 55°F mixed air (R1) when:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single OA Sensible</td>
<td>OA temperature (S175) is lower than free cooling setpoint.</td>
</tr>
<tr>
<td>Single OA Enthalpy</td>
<td>OA temperature and humidity (A7) is lower than free cooling setpoint.</td>
</tr>
<tr>
<td>Differential Enthalpy - 1 in OA &amp; 1 in RA</td>
<td>OA temperature and humidity (A7) is lower than RA temperature and humidity (A62).</td>
</tr>
<tr>
<td>IAQ Sensor</td>
<td>CO₂ sensed (A63) is higher than CO₂ setpoint.</td>
</tr>
</tbody>
</table>

### High Performance (Low Leak) Economizer

The high performance economizer is equipped with a W7220 control module A6. The default OA temperature sensor or high limit sensor (RT26) is a CEC approved, California Title 24 fixed dry bulb device (provided in this kit). See table 2 for outdoor and return air (OA and RA) sensor options. Refer to manufacturer’s instructions provided for more details.

### TABLE 2
**HIGH PERFORMANCE ECONOMIZERS**

<table>
<thead>
<tr>
<th>Sensors</th>
<th>Dampers modulate to maintain 55°F mixed air (R1) when:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single OA Sensible DEFAULT - approved for CA Title24</td>
<td>OA temperature (RT26) is lower than free cooling setpoint.</td>
</tr>
<tr>
<td>Single OA Enthalpy Not approved for CA Title 24</td>
<td>OA temperature and humidity (A7) is lower than free cooling setpoint.</td>
</tr>
<tr>
<td>Differential Enthalpy - 1 in OA &amp; 1 in RA Not approved for CA Title 24</td>
<td>OA temperature and humidity (A7) is lower than RA temperature and humidity (A62).</td>
</tr>
<tr>
<td>IAQ Sensor</td>
<td>CO₂ sensed (A63) is higher than CO₂ setpoint.</td>
</tr>
</tbody>
</table>

### IAQ SENSING (A63)

An IAQ sensor is used when demand control ventilation (DCV) is specified. Damper minimum position can be set lower than traditional minimum air requirements resulting in cost savings. The IAQ sensor allows the A6 to open dampers to traditional ventilation requirements as room occupancy (CO₂) increases.

For proper operation, the IAQ sensor must provide a 2-10VDC, 100 ohm impedance signal. Connect sensor leads to AQ and AQ1 terminals on the A6 economizer control located in the filter section.

### Install Economizer - Downflow

1- Remove hood top from economizer outdoor air opening and hood divider panel from economizer exhaust air opening.
2- Open unit end panel. See figure 1.
3- High Performance Economizers Only - Install damper assembly by inserting the damper motor first. See figure 2.
4- Install damper assembly through end of unit. Fit opening in bottom of damper assembly over the return air opening. See figure 3.
**Install Mixed Air Sensor (R1)**

Standard Economizer

Sensor is factory-installed on units equipped with a factory-installed economizer.

1- Disconnect all power to unit and open filter access panel. See figure 1.

2- Locate mixed air sensor wires connected to the T/T1 terminals on the A6 economizer control.

3- Install mixed air sensor, provided in kit, on indoor coil bracket. Secure with screw as shown in figure 4.

4- Locate the plastic conduit on top of the filter rack. Route the mixed air sensor wires through the conduit to the mixed air sensor. See figure 4.

5- Connect wires to terminals on mixed air sensor. See figures 4 and 6. Sensor is not polarity sensitive.

---

High Performance Economizer

1- Disconnect all power to unit and open filter access panel. See figure 1.

2- Locate orange mixed air sensor wires marked MAT-1/MAT-2 in wire bundle. Cut wire ties to separate sensor wiring from bundle.

3- Install mixed air sensor R1, provided in kit, on supply air blower housing as shown in figure 5.

4- Locate the plastic conduit on top of the filter rack. Route the mixed air sensor harness through the conduit to the mixed air sensor. See figure 4.

5- Connect MAT harness to mixed air sensor (R1).
Wiring

1- Locate 15-pin J3 economizer jack harness hanging on left side of filter compartment. J3 is located in the same area on both standard and high performance economizers. See figure 4.

2- Disconnect P3 jumper plug from J3 and retain jumper plug for future troubleshooting. Connect 15-pin P4 economizer plug on A6 economizer control harness to J3 economizer jack. See figure 4.

3- Connect any optional sensors as shown in figure 6 or 7.

4- Bundle power exhaust wires and secure away from other components. If optional power exhaust is installed, wire according to instructions provided with power exhaust.

5- High Performance Economizers -
Affix D1 economizer wiring diagram section to inside of compressor access panel. Position diagram to the right of “C” control wiring diagram section.
FIGURE 6
Page 5

Field-Installed

SINGLE SENSING

Discard J104 harness provided in optional A7 sensor kit.

R1 MIXED AIR SENSOR (PROVIDED)

A63 IAQ SENSOR (OPTION)

HARNESSES PROVIDED IN OPTIONAL SENSOR KIT

S175 (PROVIDED) OR A7 SENSOR (OPTION)

A6 ECONOMIZER CONTROL

Discard J104 harness provided in optional A7 sensor kit.

A62 DIFFERENTIAL ENTHALPY SENSOR (OPTION)

Harnesses Provided In Optional Sensor Kit
**FIGURE 7**

**WIRE CONNECTIONS - HIGH PERFORMANCE ECONOMIZERS**

### Single and Differential Sensible Sensing

- **R1 Mixed Air Sensor (Provided)**
- **RT26 Outdoor Air Sensible Sensor (Provided)**
- **RT27 RA Differential Sensible Sensor (Option)**
- **A63 IAQ Sensor (Option)**

**Factory-Installed**

- Wiring connections for single and differential sensible sensing are shown.

### Single Enthalpy Sensing

- **R1 Mixed Air Sensor Provided**
- **A7 Outdoor Air Enthalpy Sensor (Option)**
- **A63 IAQ Sensor (Option)**

**Factory-Installed**

- Instructions for setting DIP switches and moving wiring for single enthalpy sensing are provided.

### Differential Enthalpy Sensing

- **R1 Mixed Air Sensor Provided**
- **A7 Outdoor Air Enthalpy Sensor (Option)**
- **A62 Return Air Enthalpy Sensor (Option)**
- **A63 IAQ Sensor (Option)**

**Factory-Installed**

- Instructions for setting DIP switches, moving wiring, and using optional sensor kits are included.

**Field-Installed**

- Harness provided in optional sensor kit.

---

1. Replace RT26 with A7.
2. Move wiring on A6 controller as shown. Discard harness provided in optional sensor kit.
3. Set DIP switch on A7 to appropriate setting “OA”.

Factory-Installed RT26 -

1. Two optional enthalpy sensor kits are required.
2. Move wiring on controller A6 as shown. Discard harness provided in first optional sensor kit.
3. Install second optional sensor (A62) kit using harness provided in second kit.

Factory-Installed A7 -

1. One optional enthalpy sensor kit (A62) is required. Install optional temperature & humidity sensor kit using harness provided in kit.
GED and Optional PEF

For horizontal airflow applications, a separately shipped GEDH gravity exhaust damper kit is required. Refer to instructions provided with GEDH kit.

Optional PEF

Factory-Installed PEF only - When the PEF is factory-installed, the PEF field-installed kit is packaged separately and shipped with the unit. Remove the block-off cover over the exhaust air opening before installing. In addition to a PEF kit, a GED kit is packaged separately and shipped with the unit. Both kits contain a GED seal; discard one of the GED seals.

1- Remove GED from the economizer and install in the fresh / exhaust air hood when optional power exhaust fans are installed. See figure 8.

2- Install the power exhaust fans and GED seal in the unit. See figure 9 and the power exhaust instructions. See the next section to install the outdoor/exhaust air hood. Install the GED in the lower/exhaust hood. See figure 10.

Outdoor Air Hoods - Downflow

Factory-Installed Economizers Only - The hood top and pivot bracket is installed over the unit fresh (outdoor) air opening. The hood divider panel is secured over the unit exhaust air opening. Hood sides and top filter bracket are located in the return air section. Lift hood top and divider panel and assemble hoods as described for field-installed economizers.

1- Make sure all sensors and outdoor air section accessories are installed before installing hoods.

2- Install pivot bracket as shown in figure 9.

---

**Figure 8**

**Remove GED - Downflow with PEF**

**Figure 9**

**Install Pivoting Bracket and GED Seal**

*Factory-Installed Economizers Only - 024-060 Shown*
3- Assemble hood as shown in figure 10. Slide top of hood into the ends of pivot bracket. Install top filter bracket after filter is in place.

4- Install hoods on unit.

5- Caulk ends of pivot bracket to seal watertight.

**FIGURE 10**
**Install Economizer - Horizontal**

A field fabricated return air duct transition and duct inlet must be installed in horizontal applications. The GEDH kit contains exhaust dampers and exhaust hood parts. The kit also contains the outdoor air only hood sides and bottom filter bracket. Refer to the *Install Economizer - Horizontal* section and the instructions provided in the GEDH kit. The GEDH has a lower profile than the downflow GED and is installed in the horizontal return duct.

1- Remove unit end panel. See figure 11.
2- Install the downflow return air cover in horizontal airflow applications. Secure with #10 sheet metal screws provided in kit. See figure 11.
3- Make sure the horizontal return air cover on the back side of the unit remains in place. The opening is used when an economizer is not installed. See figure 12.
4- Install the economizer and R1 mixed air sensor and connect wiring as shown in appropriately named sections of this manual.

5- Install the field-fabricated return air duct transition and duct inlet on the unit end. See figure 14. Support the transition and duct inlet as needed.
6- Install the lower (exhaust) hood on the return air duct as shown in the GEDH kit instruction.
7- Install the upper hood on the unit as shown in figure 13.

---

**FIGURE 11**

**FIGURE 12**
Economizer Control (A6) - Standard Economizer

LEDs
A steady green Free Cool LED indicates that outdoor air is suitable for free cooling. A steady green DCV LED indicates that the IAQ reading is higher than setpoint requiring more fresh air. See figure 15.

FREE COOLING SETPOINT

NOTE - The following conditions assume unit is operating during occupied time period.

Single Temperature or Enthalpy Sensing:

The economizer control (A6) setpoint may be adjusted when an enthalpy (A7) sensor is used to determine outdoor air suitability, See figure 15.

Free cooling will be enabled when outdoor air temperature or enthalpy are lower than the free cooling setpoint. The free cooling setpoint for sensible temperature sensors is 55°F. Table 3 shows the free cooling setpoints for enthalpy sensors. Use the recommended setpoint and adjust as necessary.
For example: At setting A (table 3), free cooling will be enabled when outdoor air enthalpy is lower than 73°F and 50% RH. If indoor air is too warm or humid, lower the setpoint to B. At setting B, free cooling will be enabled at 70°F and 50% RH.

**Differential Sensing:**

Two sensors can be used to compare outdoor air to return air. When outdoor air is cooler than return air, outdoor air is suitable for free cooling. Adjust the free cooling setpoint to “D” in this application.

When return air is cooler than outdoor air, the damper will modulate to the minimum position.

**TABLE 3**

**ENTHALPY FREE COOLING SETPOINTS**

<table>
<thead>
<tr>
<th>Control Setting</th>
<th>Enthalpy Setpoint At 50% RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>73°F (23°C)</td>
</tr>
<tr>
<td>B</td>
<td>70°F (21°C)</td>
</tr>
<tr>
<td>C</td>
<td>67°F (19°C)</td>
</tr>
<tr>
<td>D</td>
<td>63°F (17°C)</td>
</tr>
</tbody>
</table>

**DCV SET AND DCV MAX SETTINGS**

The DCV SET potentiometer is factory-set at approximately 50% of the potentiometer range. Using a standard 1-2000ppm CO₂ sensor, dampers will start to open when the IAQ sensor reads approximately 1000ppm. Adjust the DCV SET potentiometer to the approximate setting specified by the controls contractor. Refer to figure 15.

The DCV MAX potentiometer is factory-set at approximately 50% of the potentiometer range or 6VDC. Dampers will open approximately half way when CO₂ rises above setpoint. Adjust the DCV MAX potentiometer to the approximate setting specified by the controls contractor. Refer to figure 15.

**NOTE** - DCV Max must be set higher than economizer minimum position setting for proper demand control ventilation.

**INITIAL SETUP**

**Factory-Installed Economizer**

The A6 economizer control is pre-programmed and a limited number of parameters need to be set during the initial setup in the field. See ‘Setup and Configuration - Factory-Installed Economizer’ section.

**Field-Installed Economizer**

A default program must be modified for proper operation in each application. This is done during the initial setup procedure. See ‘Setup and Configuration - Field-Installed Economizer’ section.

**USING THE KEYPAD**

Use the keypad as follows:

- Navigate to the desired menu.
- Press the enter button (enter) to display the first item in the currently displayed menu.
- Use the ▲ and ▼ buttons to scroll to the desired parameter.
- Press the enter button (enter) to display the value of the currently displayed item.
- Press the ▲ button to increase (change) the displayed parameter value.
- Press the ▼ button to decrease (change) the displayed parameter value.
- Press the enter button (enter) to accept the displayed value and store it in non-volatile RAM.
- CHANGE STORED displays.
- Press the enter button (enter) to return to the current menu parameter.
- Press the ▲ button (MenuUp/Exit) to return to the previous menu.

aWhen values are displayed, pressing and holding the ▲ or ▼ button causes the display to automatically increment.

**Economizer Control (A6) - High Performance Economizer**

**NOTE** - The A6 economizer control will be in the “setup” mode for the first sixty minutes after powered. If a sensor for outdoor air or SBUS device (sensor, actuator) is disconnected during the set up mode, the A6 will not alarm that failure. The R1 mixed air sensor is a system “critical” sensor; if the mixed air sensor is removed during the set up mode, the A6 will alarm. After sixty minutes the A6 will change to operation mode and all components removed or failed will alarm in the operation mode.
MENU STRUCTURE
The menus in display order are:
• STATUS
• SETPOINTS
• SYSTEM SETUP
• ADVANCED SETUP
• CHECKOUT
• ALARMS

For a complete list of parameters refer to the Honeywell installation manual provided in this kit.

IMPORTANT - Menu parameters will be different depending on each configuration. For example: if a DCV (CO₂) sensor is not used, none of the DCV parameters will appear and only MIN POS will display. If a CO₂ sensor is used, the DCV SET, VENTMIN and VENTMAX will appear.

FREE COOLING SETPOINT
Single OA Sensible Sensing (Default) -
The default free cooling setpoint or high limit setpoint is 63°F. This means that the outdoor air is suitable for free cooling at 62°F and below and not suitable at 64°F and above. This setpoint is adjustable.

For California Title 24 compliance, adjust the free cooling setpoint based on:
- The climate zone where the unit is installed. See table 4.
- The setpoint requirement published by the California Energy Commission. See Section 140.4 - Prescriptive Requirements for Space Conditioning Systems of the 2013 Building Energy Efficiency Standards.

NOTE - Values in the referenced standard will supersede values listed in table 4.

TABLE 4
FREE COOLING SETPOINT - SINGLE SENSIBLE

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>Setpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 5, 11-16</td>
<td>75°F</td>
</tr>
<tr>
<td>2, 4, 10</td>
<td>73°F</td>
</tr>
<tr>
<td>6, 8, 9</td>
<td>71°F</td>
</tr>
<tr>
<td>7</td>
<td>69°F</td>
</tr>
</tbody>
</table>

To adjust the setpoint, navigate to the “SETPOINTS” menu and change the “DRYBL SET” parameter accordingly.

Single OA Enthalpy Sensing (Optional) -
The controller uses enthalpy boundary “curves” for economizing when used with an enthalpy sensor. Refer to the Honeywell installation instruction for details.

Differential Sensing (Optional) -
Two sensors can be used to compare outdoor air to return air. When outdoor air is cooler than return air, outdoor air is suitable for free cooling. When return air is cooler than outdoor air, the damper will modulate to the minimum position.

SETUP AND CONFIGURATION - FACTORY-INSTALLED ECONOMIZER
Program the following parameters into the controller. Navigate to the specific menus to make the changes required.

IMPORTANT - During setup, the economizer control is live at all times.
The setup process uses a hierarchical menu structure. Press the ▲ and ▼ arrow buttons to move forward and backward through the menus and press the ← button to select and confirm setup item changes.

1- In the SYSTEM SETUP Menu

| INSTALL (MM/DD/YY) enter installation date |
| FAN CFM ( ) enter rooftop unit indoor blower CFM |
| AUX1 OUT (NONE) enter SYS if controller is wired for remote alarm monitoring |

2- In the SETPOINTS Menu

| MIN POS ( VDC) refer to minimum position setting section for details |

SETUP AND CONFIGURATION - FIELD-INSTALLED ECONOMIZER
Program the following parameters into the controller. Navigate to the specific menus to make the changes required.

IMPORTANT - During setup, the economizer control is live at all times.
The setup process uses a hierarchical menu structure. Press the ▲ and ▼ arrow buttons to move forward and backward through the menus and press the ← button to select and confirm setup item changes.

1- In the SYSTEM SETUP Menu

| INSTALL (MM/DD/YY) enter installation date |
| EQUIPMENT (CONV) |
| AUX2 IN (HEAT W1) |
| FAN SPEED (1SPEED) |
| FAN CFM ( ) enter indoor blower (CFM) of rooftop unit |
| AUX1 OUT (NONE) change to SYS if A6 controller is wired for remote alarm monitoring |
| OCC (INPUT) |
2- In the **ADVANCED SETUP** Menu

- **MA LO SET** (45ºF)
- **FREEZE POS** (CLOSE)
- **STG3 DLY** (2HRS)
- **SD DMPR POS** (CLOSED)

3- In the **SETPOINTS** Menu

- **MA SET** (55ºF)
- **LO T LOCK** (32ºF)
- **MIN POS** VDC adjust VDC value until desired fresh air setpoint is reached.

**DEMAND CONTROL VENTILATION (DCV)**

When a 2-10VDC CO₂ sensor is wired to the controller (leads provided), the DCV SET, VENTMIN, and VENTMAX parameters will appear under “SETPOINTS” menu. Navigate to the “SETPOINTS” menu to adjust setpoints as desired. Refer to the Honeywell manual provided for more details.

**ALARM MONITORING**

The controller is equipped with a 24V output signal that can be configured for remote alarm monitoring.

In the “SYSTEM SETUP” menu change the “AUX1 OUT” setting to “SYS”. Refer to figure 17 for wiring connections provided.

**Note - Newer units are factory-wired to facilitate feedback wiring connections when a BACnet™ option is installed. Newer units can be identified by a P372 plug located near TB1 in the control box. One white and one gray wire are connected to P372. On older units, call 1-800-453-6669 for wiring assistance.**

**A6 CONTROL HIGH PERFORMANCE TERMINALS**

**SYSTEM ALARM, ERV, OR EXHAUST FAN 2 OUTPUT**

**ECONOMIZER CONTROL**

- **MAT**
- **MAT**
- **OAT**
- **OAT**
- **SBUS**
- **SBUS**
- **SBUS**
- **SBUS**
- **SBUS**
- **IAQ2-10**
- **IAQCOM**
- **IAQ24V+**
- **ACT2-10**
- **ACTCOM**
- **ACT24V+**

**FIGURE 17**

**Damper Minimum Position Setting - Both Standard and High Performance Economizers**

**NOTE** - 24 volts must be provided at unit TB1 terminals R and OC to enable economizer operation (allowing minimum fresh air). Typically a separately ordered thermostat or energy management system with an occupied/unoccupied output is connected between TB1 R and OC terminals. The thermostat will provide 24 volts to the A6 economizer control during the occupied time period to enable economizer minimum position. If a device is not used to enable the economizer, install a jumper wire between TB1 terminals R and OC to maintain minimum position continuously.

Make wire connections to TB1 terminals R and OC as shown in literature provided with thermostat or energy management system.

1- Set thermostat to occupied mode if the feature is available. Make sure jumper is in place between TB1 terminals R and OCP if using a thermostat which does not have the feature.

2- Turn on the blower using the thermostat or a jumper between TB1 terminals R and G.

3- **Standard Economizers** -
   Rotate MIN POS SET potentiometer to approximate desired fresh air percentage.

**High Performance Economizers** -
   Navigate to the “SETPOINTS” menu and select “MIN POS”. Adjust value (2-10VDC) to the approximate desired fresh air percentage.

- 3.0 VDC - 12% Open Damper
- 3.5 VDC - 18% Open Damper
- 4.0 VDC - 25% Open Damper
- 4.5 VDC - 31% Open Damper
- 5.0 VDC - 37% Open Damper
- 5.5 VDC - 43% Open Damper
- 6.0 VDC - 50% Open Damper

**NOTE** - Damper minimum position can be set lower than traditional minimum air requirements when an IAQ sensor is specified.
4- Measure outdoor air temperature. Mark the point on the bottom line of chart 1 and label the point “A” (40°F, 4°C shown).

5- Measure return air temperature. Mark that point on the top line of chart 1 and label the point “B” (74°F, 23°C shown).

6- Measure mixed air (outdoor and return air) temperature. Mark that point on the top line of chart 1 and label point “C” (70°F, 21°C shown).

7- Draw a straight line between points A and B.

8- Draw a vertical line through point C.

9- Draw a horizontal line where the two lines meet. Read the percent of fresh air intake on the side.

10- **Standard Economizers** -
If fresh air percentage is less than desired, adjust MIN POS SET potentiometer clockwise (further open). If fresh air percentage is more than desired, adjust MIN POS SET potentiometer counterclockwise (less open). Repeat steps 4 through 9 until calculation reads desired fresh air percentage.

**High Performance Economizers** -
If fresh air percentage is less than desired, use the A6 keypad to adjust “MIN POS” values higher (further open). If fresh air percentage is more than desired, adjust “MIN POS” values lower (less open). Repeat steps 4 through 9 until calculation reads desired fresh air percentage.
Standard Economizer Operation

When the outdoor air is suitable, dampers will modulate between minimum position and full open to maintain 55°F (12.8°C) supply air.

See table 5 for economizer operation when outdoor air is suitable. See table 6 for economizer operation when outdoor air is NOT suitable.

IAQ Sensor

During the occupied period, dampers will open to DCV MAX when IAQ reading is above setpoint (regardless of thermostat demand or outdoor air suitability). DCV MAX will NOT override damper full-open position. The DCV MAX setting may override damper free cooling position when occupancy is high and outdoor air temperatures are low.

NOTE - If R1 senses mixed air temperature below 45°F (7°C), dampers will move to fully closed below 48°F (9°C).

TABLE 5
ECONOMIZER OPERATION
OUTDOOR AIR IS SUITABLE FOR FREE COOLING – FREE COOL LED

<table>
<thead>
<tr>
<th>THERMOSTAT DEMAND</th>
<th>DAMPER</th>
<th>MECHANICAL COOLING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UNOCCUPIED</td>
<td>OCCUPIED¹</td>
</tr>
<tr>
<td>OF</td>
<td>Closed</td>
<td>Closed</td>
</tr>
<tr>
<td>G</td>
<td>Closed</td>
<td>Minimum</td>
</tr>
<tr>
<td>Y1</td>
<td>Modulating*</td>
<td>Modulating*</td>
</tr>
<tr>
<td>Y2</td>
<td>Modulating*</td>
<td>Modulating*</td>
</tr>
</tbody>
</table>

*IAQ sensor can open damper to DCV max.
¹Damper position when no occupied/unoccupied signal is available from building thermostat or energy management system.

TABLE 6
ECONOMIZER OPERATION
OUTDOOR AIR IS NOT SUITABLE FOR FREE COOLING – FREE COOL LED "OFF"

<table>
<thead>
<tr>
<th>THERMOSTAT DEMAND</th>
<th>DAMPER POSITION</th>
<th>MECHANICAL COOLING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UNOCCUPIED</td>
<td>OCCUPIED¹</td>
</tr>
<tr>
<td>Off</td>
<td>Closed</td>
<td>Closed</td>
</tr>
<tr>
<td>G</td>
<td>Closed</td>
<td>Minimum*</td>
</tr>
<tr>
<td>Y1</td>
<td>Closed</td>
<td>Minimum*</td>
</tr>
<tr>
<td>Y2</td>
<td>Closed</td>
<td>Minimum*</td>
</tr>
</tbody>
</table>

*IAQ sensor can open damper to DCV max.
¹Damper position when no occupied/unoccupied signal is available from building thermostat or energy management system.
High Performance Economizer Operation

OPERATION

Refer to table 7 or 8.

When the outdoor air is suitable and a thermostat demand calls for 1st stage cooling (Y1), the economizer will modulate the dampers between the minimum and fully open positions to maintain a 55°F (12.8°C) mixed air temperature. When there is an increased thermostat demand for second stage cooling (Y2), the economizer damper opens 100% and the economizer controller (A6) will bring on the compressor. The damper will stay open 100% with the compressor running simultaneously until Y2 demand is met.

NOTE – When there is a Y1 cooling demand, the economizer controller (A6) will display the mixed air temperature (R1). When there is a Y2 cooling demand and compressors are operating, the economizer controller (A6) will display the outdoor air temperature (RT26 or A7). In either case, the economizer controller (A6) will use the mixed air sensor for low temperature lock-out.

TROUBLESHOOTING, ALARMS AND CHECKOUT TESTS

Refer to the Honeywell manual provided for details.

<table>
<thead>
<tr>
<th>DCV</th>
<th>OA Good to Economize?</th>
<th>Y1-I</th>
<th>Y2-I</th>
<th>Y1-O</th>
<th>Y2-O</th>
<th>Occupied</th>
<th>Unoccupied</th>
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<tbody>
<tr>
<td>None</td>
<td>No</td>
<td>Off</td>
<td>Off</td>
<td>0-v/Off</td>
<td>0-v/Off</td>
<td>MIN POS</td>
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<td>24-v/On</td>
<td>0-v/Off</td>
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<td>24-v/On</td>
<td>24-v/On</td>
<td>MIN POS</td>
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<td>Full-Open</td>
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<td>VENTMIN</td>
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<td>0-v/Off</td>
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<td>VENTMIN to Full-Open</td>
<td>Closed to Full-Open</td>
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<td>Full-Open</td>
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