The W7342 Communicating Economizer Logic Module is an economizer that incorporates Demand Control Ventilation (DCV) to provide free cooling and ventilation for occupants in a space while saving energy.

FEATURES

- Solid state control package provides accuracy, reliability and stability.
- Housed in high-impact, glass-fiber reinforced plastic case.
- Terminals included for connecting optional S963B1136 Remote Potentiometer for remote minimum damper position control.
- Communicates using a modified Modbus protocol to a proprietary OEM unit controller.
- LED indicates the status of the device input.
- Incorporates choice of A, B, C, D or E enthalpy setting.
SPECIFICATIONS

Model:
W7342: Communicating Economizer Logic Module with minimum position potentiometer, setpoints for enthalpy and DCV.

Dimensions: See Fig. 1.

Temperature Ratings:
Operating Ambient: -40 to +149 °F (-40 to +65 °C).
Shipping: -25 to +125 °F (-32 to +52 °C).

Humidity Ratings:
Noncondensing: 5 to 95% RH.
Condensing: 100% RH.

Electrical Ratings:
Input Voltage: 24 Vac ±25%; 50/60 Hz (Class 2).
Nominal Power Consumption (at 24 Vac, 60 Hz): 5 VA.
Relay Contact Rating at 30 Vac (maximum power from class 2 input only): 1.5 A run, 7.5 A inrush.

Approvals:
cUL listed.
Underwriters Laboratories Inc. listed:
  Meets UL873 plenum requirements.
  Meets UL94-5V plenum flammability requirements.
FCC Part 15 Class B.
CE.
This product complies with Title 24 Part 6 CEC standard for Residential and Non-Residential Buildings - 2005, when installed according to instructions.

Fig. 1. Dimensions of W7342 in in. (mm).

Accessories:
C7150B1046 Mixed Air Sensor, 10K ohm with mounting bracket.
C7232 Carbon Dioxide Sensor for DCV.
C7632 Carbon Dioxide Sensor for DCV.
C7400C Solid State Enthalpy Sensor for use with W7342A.
S963B1136 Remote Potentiometer to provide remote control of damper minimum position.

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:
1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care
   1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386
In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Toronto, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.
INSTALLATION

When Installing this Product...
1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

IMPORTANT
All wiring must agree with applicable codes, ordinances and regulations.

CAUTION
Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry. Disconnect power supply before installation.

Location and Mounting

Communicating Economizer Logic Modules
When planning the installation, allow enough clearance for maintenance and service. Mount the device in a location protected from rain, snow, and direct sunlight. The logic module mounts on the side of an M7215 Damper Motor or directly on a sheet metal duct or panel if used with a direct coupled actuator.

CAUTION
Equipment Damage Hazard. Mounting screws longer than 5/8 in. can damage internal motor components. When mounting the module to an M7215 use only the included #6 5/8 in. thread-forming screw.

MOUNTING DIRECTLY TO THE MOTOR
1. Mount the motor.
2. Secure the W7342 to the motor using the supplied mounting screw (See Fig. 2).

MOUNTING SEPARATE FROM THE MOTOR
Secure the device to the sheet metal using appropriate fasteners (not supplied) (see Fig. 3).

Fig. 2. Mounting Economizer Logic Module on Damper Motor.

Fig. 3. Mounting to a Duct or Panel.
OUTDOOR AIR SENSING
1. Mount enthalpy sensor in any orientation that exposes it to freely circulating air and protects it from rain, snow, and direct sunlight.
2. Connect it to the logic module.

RETURN AIR SENSING
1. For differential enthalpy mount a second sensor in the return air duct.
2. Connect it to the logic module.

Demand Control Ventilation (DCV) Sensor Input
The DCV sensor can be any CO₂ sensor that provides a 0-10 Vdc output over a range of 0 to 2000 ppm of CO₂. The DCV signal modulates the outdoor damper to provide ventilation based on occupancy. Mount the CO₂ sensor according to the manufacturer specifications. If not available, mount the sensor in an area with unobstructed air circulation.

For differential enthalpy, the two C7400 enthalpy sensors are connected to the economizer module—one is mounted in the return air duct, and the other is mounted in the outdoor air duct. Differential enthalpy control provides greater energy savings than single enthalpy control.

Use either mixed air sensor or discharge air sensor, not both.

IMPORTANT
Ensure proper polarity of sensor connections. Incorrect polarity negates the sensor signal.

The W7342 DCV economizer logic module has the ability to set DCV limit and ventilation limit. The DCV limit is set to ventilate the building contaminants and the ventilation limit is set to ventilate for the building contaminants and the building occupants. The installer sets the damper DCV limit and the ventilation limit based on the design occupancy and CFM of outdoor air requirements for the space. The damper will modulate open between the DCV limit and the ventilation limit based on input from a CO₂ sensor. The damper will not drive 100% open on a call for ventilation, but can drive 100% open on a call for cooling. If the CO₂ sensor fails the damper will drive to the ventilation limit ventilating for building contaminants and the maximum design building occupants. If the DCV limit position has not been set by the unit controller, the default setting will be 50% of the ventilation limit setting.

Fig. 4. Representative Locations of Connected W7342 Economizer System Devices.
**WIRING**

**CAUTION**
Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry. Disconnect power supply before installation.

**IMPORTANT**
1. All wiring must comply with applicable local codes, ordinances and regulations.
2. Refer to Fig. 5 for typical wiring diagrams.
3. All inputs and outputs to the device must be 24 Vac Class 2
4. Ensure proper polarity of sensor connections. Incorrect polarity negates the sensor signal.

**NOTE:** All connections with label designation ending in 1 (examples: TR1, P1) are ac/dc common connections.

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**OPERATION**

The purpose of the economizer logic modules is to use outdoor air for cooling, whenever possible, to reduce compressor operation.

The W7342, when wired as shown in Fig. 5, responds to signals from the Modbus unit controller. This system uses C7400C Solid State Enthalpy Changeover Sensor(s). The C7400C Enthalpy Sensors respond to both dry bulb temperature and humidity, allowing use of outdoor air at higher temperatures for free cooling when humidity is low.

The logic module functions as a first stage of cooling and provides maximum energy savings during the cooling cycle. The logic module automatically locks out free cooling during heating and holds the outdoor air damper at the minimum position setting.

**SETTINGS AND ADJUSTMENT**

Potentiometers with screwdriver adjustment slots, located on the face of the device, provide adjustments for several parameters (See Fig. 6 for locations on device):
- Ventilation limit position.
- Enthalpy changeover.
- DCV setpoint.
Demand Control Ventilation (DCV) Setpoint

The logic module modulates the outdoor damper to provide ventilation based on the 0-10 Vdc DCV sensor. With no cooling signal, DCV overrides the DCV limit when additional ventilation is required.

Table 1. W7342 Economizer I/O Logic.

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCV</td>
<td>Enthalpya</td>
</tr>
<tr>
<td>Below set</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>On</td>
</tr>
<tr>
<td>Above set</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>

NOTE: If DCV sensor is used, minimum position is DCV Limit. If DCV sensor is not used, minimum position is ventilation limit.

a For single enthalpy control, the module compares outdoor enthalpy to the ABCDE setpoint.

b If both stages of cooling are off, the damper is:

- At DCV limit if DCV is below setpoint.
- Modulating between DCV limit and Ventilation limit if DCV is above setpoint.

c Modulation based on mixed air sensor signal, modulating between minimum position (or DCV Limit) and 100% open.

d Modulation based on DCV signal, limited by Ventilation limit position.

e Modulation based on the greater of the DCV and mixed air sensor signals.

Adjusting Damper Position

The Ventilation limit and DCV limit maintain the minimum outdoor air flow into the building during occupied period.

NOTE: If the mixed air temperature drops to 45° F (7° C), the mixed air sensor overrides the DCV sensor and closes the damper to DCV limit position to protect the hot or chilled water coils from freezing. When the mixed air temperature rises to 48° F (9° C), control reverts to normal operation.

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

IMPORTANT

1. Adjust the ventilation limit position potentiometer to allow the amount of outdoor air, as required by local codes, to enter the building for building contaminants and the maximum building occupants.
2. This procedure requires use of a quality thermometer capable of reading to 0.5° F (0.17° C).
NOTE: Make adjustments with at least a 10° F (-12° C) temperature difference between outdoor and return air.

**Formula to aid in minimum position adjustment.**

\[(T_O \times OA) + (T_R \times RA) = TM\] or

\[(T_O - T_R) \times OA + T_R = TM\]

Where:
- \(T_O\) = Outdoor air temperature
- \(OA\) = Percent of outdoor air
- \(T_R\) = Return air temperature
- \(RA\) = Percent of return air
- \(TM\) = Resulting mixed air 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?

\[(0.1 \times 6° F) + (0.9 \times 75° F) = 6.0° F + 67.5° F = 73.5° F\] or

\[(60° F - 75° F) \times 0.1 + 75° F = -1.5 + 75° F = 73.5° F\]

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.

**NOTE:** The following sample calculation uses only Fahrenheit temperature.

**Enthalpy Changeover**

**Outdoor Enthalpy Changeover Setpoint (Single Enthalpy Changeover)**

The outdoor enthalpy changeover setpoint returns the outdoor air damper to minimum position (or DCV Limit) when enthalpy rises above its setpoint. Enthalpy setpoint scale markings, located on the device, are A, B, C, D and E. See Fig. 7 for the corresponding control point.

**Differential Enthalpy Changeover Setting**

Differential enthalpy control uses:
- W7342 uses two C7400AC Enthalpy Sensors connected to one logic module.

**NOTE:** When using the W7342 for differential enthalpy, keep the setpoint potentiometer set at D.

**Exhaust Setpoint**

The exhaust setpoint determines when the exhaust fan will run based on the damper position.

The logic module, as shipped from the factory, uses an exhaust setpoint of 25%. When the damper position is greater than 25% open (from fully closed), relay contact for the exhaust fan is closed. When the damper position is below 22% open, the relay is de-energized.
**TROUBLESHOOTING**

The status LED will be:
- on steady when economizer is operating normally.
- on and off (blinking) if the economizer senses a fault in the system, e.g., no signal from sensor, no communication from Modbus unit controller. Check unit controller for fault readout.
- off when the economizer does not have power.

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