MicroMetl

INSTALLATION INSTRUCTIONS
FOR 0689ZJ36EC

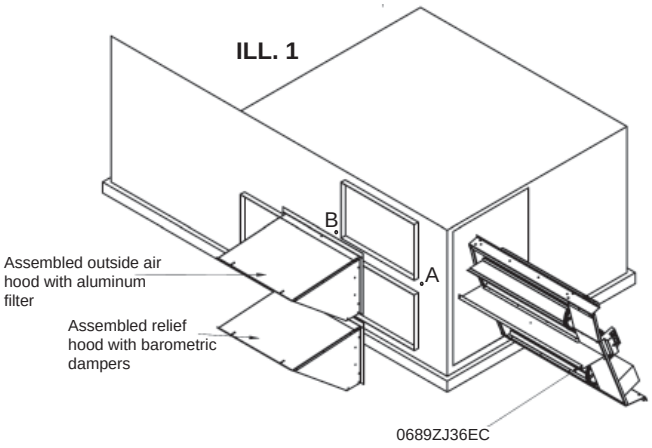
SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguishers available for all brazing operations.

ILL. 1



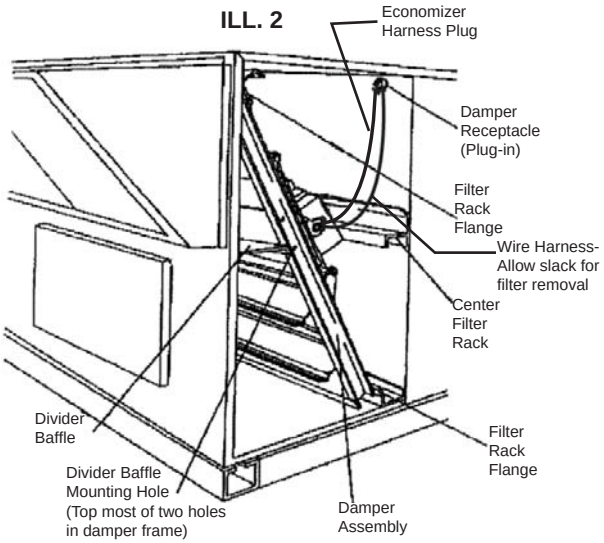
INSTALLATION INSTRUCTIONS

⚠ WARNING

TURN OFF UNIT POWER and lock out. Electrical shock, personal injury, OR DEATH could result.

1. Disconnect power to HVAC unit.
2. Remove side filter section access panel and both outdoor air opening covers from the unit. The outdoor air opening covers will not be used. Keeping the (12) sealing screws for later use.
3. Unpack MicroMetl Economizer.
4. For easier installation of Economizer, remove filters from unit. (To be installed later.)
5. Remove screws A and B from front of unit before inserting damper section. (ILL.1)
6. Insert the damper assembly into the filter section. You will need to flex downward the center divider so that the damper section will slide into place. Slide damper section onto flange of the filter rack at the top and bottom of the filter compartment.
7. Secure center divider in place by inserting screws A and B, attaching center divider to them. (See ILL. 1.)

ILL. 2



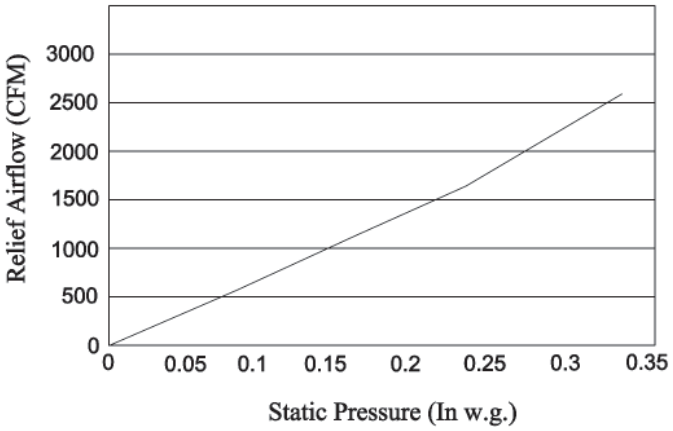
MMC *3035 N. Shadeland Ave, Suite 300 Indianapolis, IN. 46226* **MMC West** *905 Southern Way Sparks, NV. 89431*

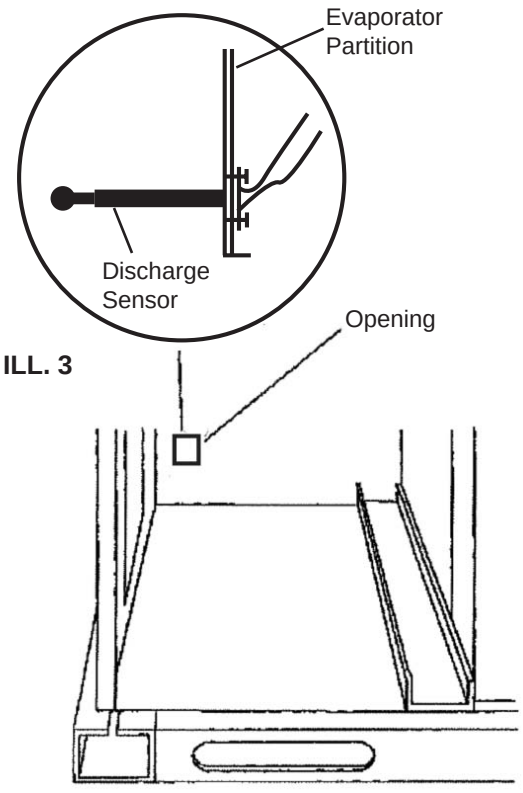
Form No. 5115-1P

8. Locate discharge sensor on center divider keeping wires in place.
9. Locate square opening in evaporator partition (ILL.3), cut away any insulation and insert discharge sensor through opening. Secure.

   NOTE: Sensor will be more easily inserted into the opening by access through the side return air duct opening (lower panel), providing there is no ductwork installed.
10. The HVAC unit has an economizer wiring plug factory installed to the back bulk head panel. Attach the economizer 9 pin plug into the HVAC plug that is attached to the units terminal board on the other end. (See ILL. 2) Make sure there is enough wire harness slack to allow filter removal and replacement.
11. With the screws removed from outdoor air opening panels (from step 2), attach outside air hood to top opening (ILL. 1). Make sure the top hood has the aluminum filter channel on bottom of hood. Secure clips on top to secure aluminum filter.
12. Install the relief hood to the lower opening. This hood will have the relief blades installed in the hood.

    NOTE: If barometric relief is desired or required for horizontal return application, mount lower relief hood on external return duct. (See ILL. 4)

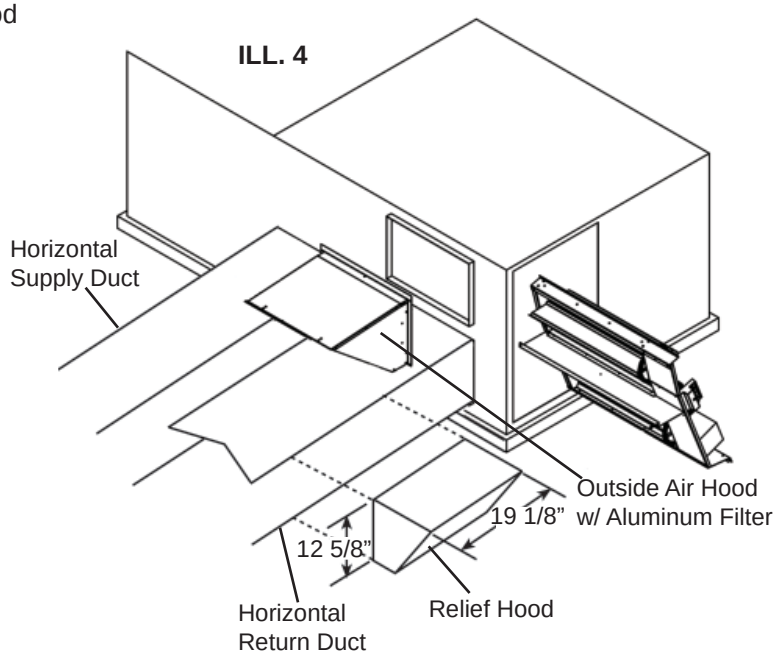




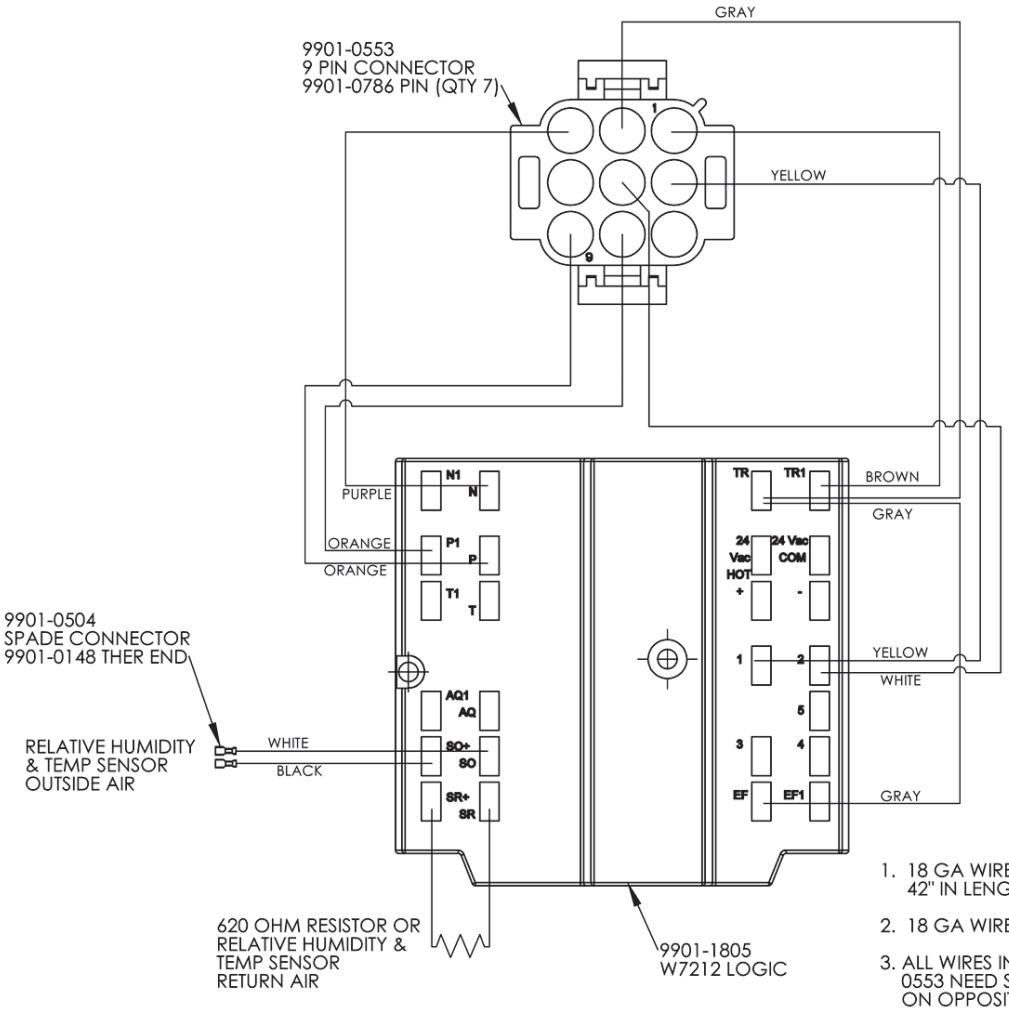
ILL. 3

Horizontal Installation

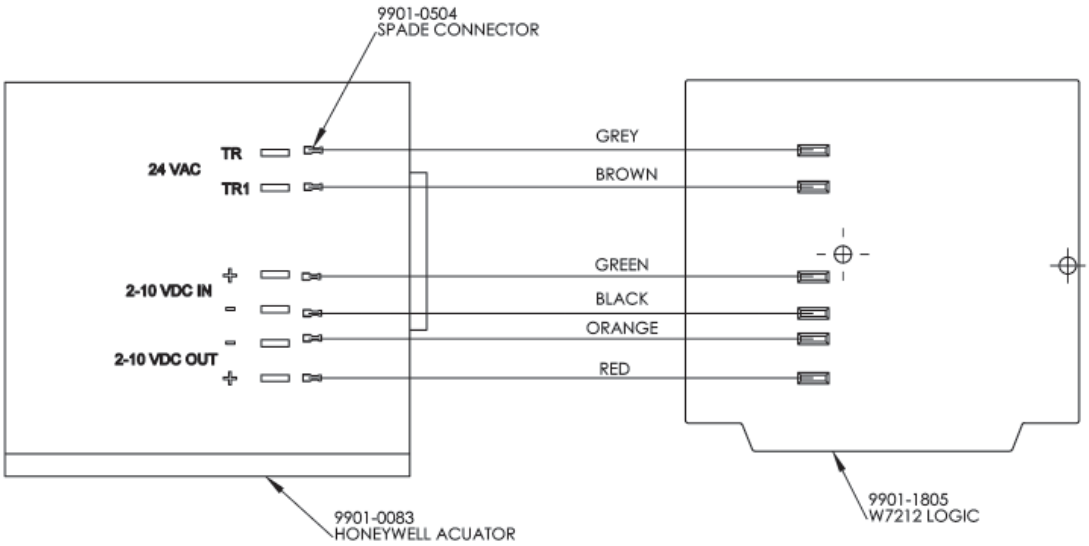
ILL. 4



WIRING DIAGRAMS



1. 18 GA WIRE FOR N, P, P1, TR, TR1, 1 AND 2 TO BE 42" IN LENGTH.
2. 18 GA WIRE FOR SO AND SO+ TO BE 35" IN LENGTH.
3. ALL WIRES INSTALLED IN 9 PIN CONNECTOR 9901-0553 NEED SPADE CONNECTOR 9901-0148 INSTALLED ON OPPOSITE END OF WIRE.

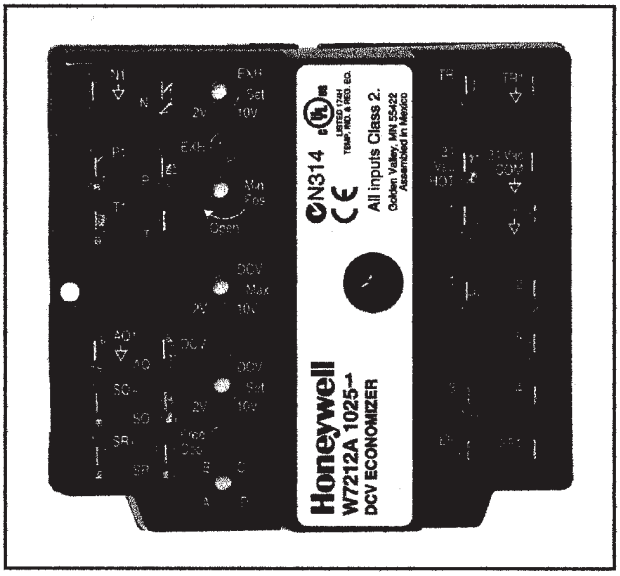


1. 18 GA WIRE TO BE 20" IN LENGTH.
2. ALL WIRES TO HAVE 9901-0503 CONNECTOR INSTALLED ON OPPOSITE END OF WIRES.

Honeywell

W7212
Economizer Logic Modules
FOR VENTILATION CONTROL

PRODUCT DATA



APPLICATION

W7212 Economizer Logic Modules are used with demand control ventilation (DCV), and solid state C7400 Enthalpy Sensors or C7650 Dry Bulb Temperature Sensors. All models proportion outdoor and return air dampers for control of free cooling in commercial HVAC equipment.

FEATURES

- **Operates from thermostat and DCV sensor to provide a totally integrated control system.**
- **Solid state control package provides accurate, reliable and stable control.**
- **Mounts on M7215 Motor or ductwork.**
- **Control can be tempered by DCV and fan cycling.**
- **The W7212 is used with Honeywell Series 72 actuators.**
- **Combines minimum and DCV maximum damper position potentiometers and compressor staging relay functions with solid state enthalpy or dry bulb changeover control.**
- **Terminals included for switching between Occupied and Unoccupied operation.**
- **Terminals included for connecting optional S963B1128 Remote Potentiometer for remote minimum damper position control.**
- **LED indicates when free cooling is available.**
- **LED indicates when module is in DCV mode.**
- **LED indicates when exhaust fan contact is closed.**

Contents

c UL us CE N314

63-2596

SPECIFICATIONS

Models: W7212A Logic Module: for use with any Honeywell 2-10 Vdc actuator; includes DCV input; adjustable exhaust fan setpoint.

NOTES:
- All models include a minimum damper position potentiometer, and setpoints for: enthalpy or dry-bulb, occupied/unoccupied control, DCV operation, and DCV maximum.
- Occupied/Unoccupied overrides minimum damper position setting when building is unoccupied: To enable the minimum damper position, 24 ±6 Vac must be applied to terminal N relative to N1 using either the supplied jumper or an external power source. (See Fig. 4.) Without power across these terminals, the damper is allowed to close fully. (Terminal N1 connects internally to TR1.)

Dimensions: See Fig. 1.

Electrical Ratings:
Input Voltage: 24 Vac ±20%; 50/60 Hz (Class 2).
Nominal Power Consumption (at 24 Vac, 60 Hz): 11.5 VA.
Relay Contact Rating at 30 Vac (maximum power from class 2 input *only*): 1.5A run, 3.5A inrush.

IMPORTANT
All inputs and outputs must be 24 Vac Class 2.

Ambient Ratings:
Temperature: -40°F to +149°F (-40°C to +65°C).
Humidity: 5 to 95 percent rh (noncondensing).

Inputs:
Enthalpy (C7400): 2-wire (18,20,22 AWG) connection.
Dry Bulb Temperature (C7650): 2-wire (18,20,22 AWG) connection.
Discharge Air (C7046): 2-wire (18,20,22 AWG) connection.
Mixed Air (C7150): 2-wire (18,20,22 AWG) connection.
DCV Sensor: 2-10 Vdc control signal; 100K ohm input impedance.

Outputs:
Actuator Signal: 2-10 Vdc.
Minimum Actuator Impedance: 1K ohm.
Exhaust Fan: Contact closure.
24 Vac Out: 25 VA maximum.

Approvals:
Underwriters Laboratories Inc.:
Flammability Rating: UL94V-5VB.
Plenum Rating: UL873.
CE.
C-tick.

Accessories:
4074EJM Bag Assembly. Consists of: Checkout jumper, 620 ohm, 1.2K ohm, 5.6K ohm, and 6.8K ohm checkout resistors.
C7046A Discharge Air Temperature Sensor.
C7150B Mixed Air Temperature Sensor.
C7400 Solid State Enthalpy Sensor.
C7650 Dry Bulb Temperature Sensor.
S963B1128 Remote Potentiometer to provide remote control of damper minimum position.
ST6008 Energy Management Timer for occupied/unoccupied control.

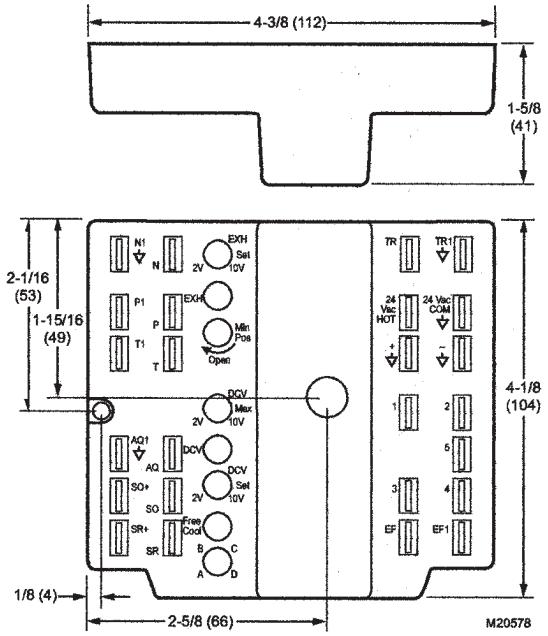


Fig. 1. W7212 dimensions in in. (mm).

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 Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Relations
   Honeywell, 1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, 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.

⚠ CAUTION

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

IMPORTANT

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

Location and Mounting

W7212 Logic Modules mount directly on an M7215 motor, a sheet metal duct or panel. When planning the installation, allow enough clearance for maintenance and service. Mount device in a location protected from rain, snow, and direct sunlight. Secure device to sheet metal using the two supplied mounting screws, see Fig. 3.

NOTE: See Fig. 5 for representative locations of connected system devices.

C7400 Enthalpy Sensor and C7650 Dry Bulb Temperature Sensor

W7212 Logic Modules accept signals from either the C7400 Enthalpy Sensor or the C7650 Dry Bulb Temperature Sensor. The wiring is the same for either sensor.

IMPORTANT

When using differential sensing, both sensors must be of the same type (enthalpy or dry bulb).

OUTDOOR AIR SENSING

1. Mount sensor in any orientation exposing it to freely circulating air while protecting it from rain, snow, and direct sunlight.
2. Connect it to the SO and SO+ terminals of the device.

RETURN AIR SENSING

1. Ensure differential enthalpy control has a second sensor in the return air duct.
2. Connect this sensor to the SR and SR+ terminals.

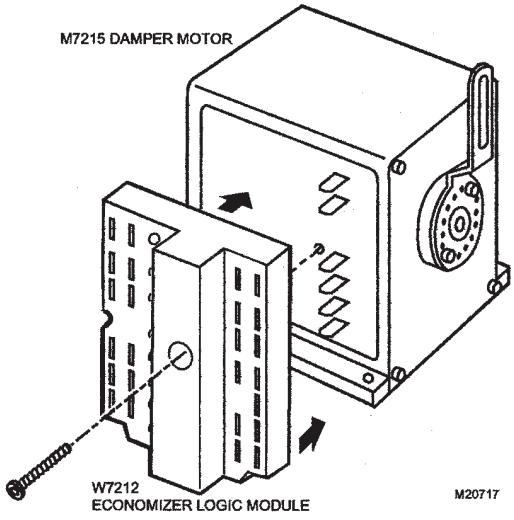


Fig. 2. Direct mounting of the W7212.

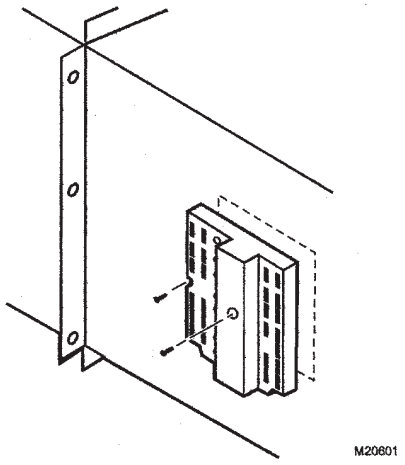


Fig. 3. Mounting the W7212 on sheet metal.

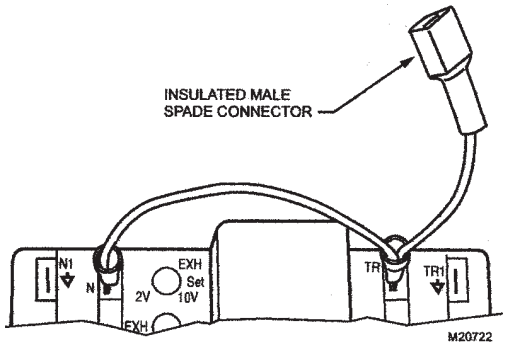


Fig. 4. Jumper required for systems without occupied/unoccupied control.

Demand Control Ventilation

The DCV can be any sensor that provides a 2-10 Vdc output. The DCV modulates the outdoor damper to provide ventilation based on occupancy. The designer determines contaminants to monitor, selects appropriate sensor, determines the sensor threshold, and adjusts the DCV potentiometer accordingly. The DCV LED lights when the DCV signal is above setpoint. Mount the sensor according to the manufacturer specifications. If not available, use the following guidelines:

1. Mount sensor in an area with unobstructed air circulation.
2. Connect it to the AQ and AQ1 terminals of the W7212 (see Wiring section for details).
3. Adjust the DCV potentiometer setpoint to correspond to DCV voltage output at the threshold.

IMPORTANT

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

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. 9 through 12 for typical wiring diagrams.*
3. *Refer to Table 1 for a list of the wiring diagrams and corresponding Figure numbers in this document.*
4. *All device inputs and outputs must be 24 Vac Class 2.*

NOTE: With the exception of terminals 1 and EF1, all connections with label designation ending in 1 (examples: TR1, T1, P1, Q1, AQ1) are ac/dc common connections.

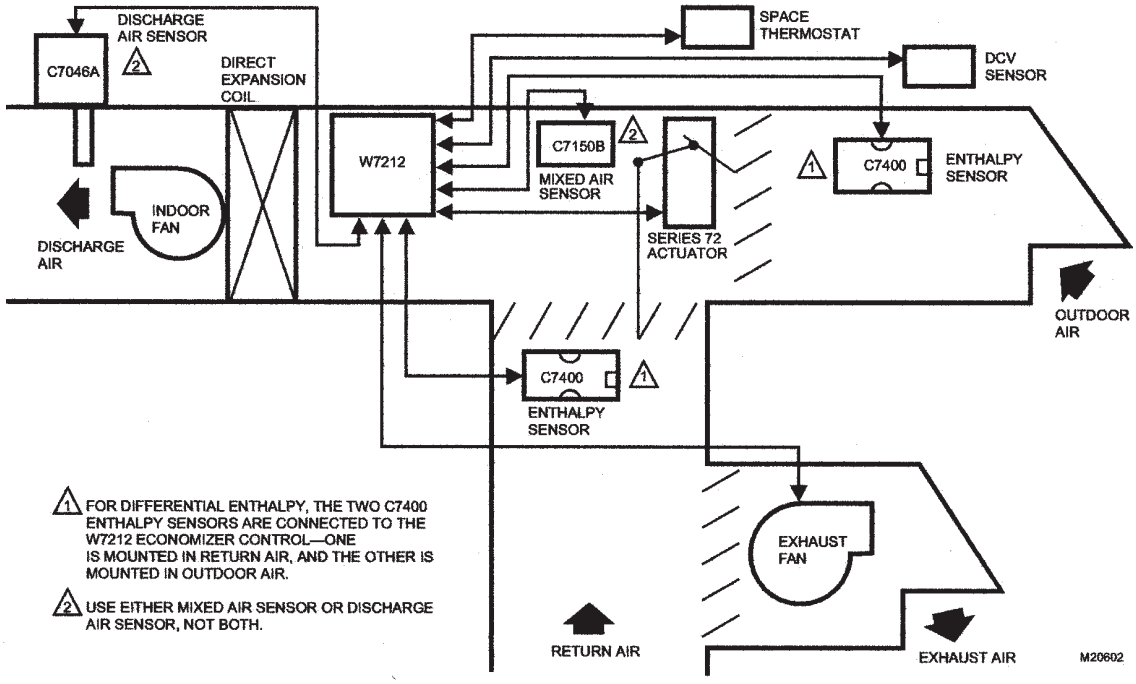


Fig. 5. Representative locations of connected Economizer system devices.

Optional Applications

Remote Minimum Position Control

Remote control of outdoor air dampers is desirable when requiring temporary additional ventilation. The addition of a S963B1128 Remote Potentiometer allows occupants to open or close the dampers beyond minimum position for modified ventilation. Connect the potentiometer as shown in Fig. 6.

IMPORTANT

The minimum position signal takes priority over the DCV maximum position signal. With DCV maximum set below the minimum, the logic module signals the actuator to maintain the minimum position.

NOTE: For additional wiring applications, refer to the Design and Application Guide for Honeywell Economizers (form 63-8594).

Table 1. Applicable Wiring Diagrams.

Actuator	Enthalpy Changeover	Figure	Comments
Honeywell Series 72	Single	10	Single-stage cooling system.
	Single or Differential	11	Two-stage cooling system.
Honeywell M7215	Single	9	Direct mount Logic Module to Motor.
n/a	n/a	6	S963 remote damper control.
Parallel Wiring			
Honeywell Series 72	Single or Differential	12	Honeywell Series 72 Modutrol Motors.

OPERATION

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

When wired as shown in Fig. 9 through 12, the logic module responds to the cooling thermostat signal. This system uses C7400 Solid State Enthalpy Changeover Sensor(s) or C7650 Dry Bulb Temperature Sensor(s). The C7400 responds to both dry bulb temperature and humidity, allowing use of outdoor air at higher temperatures for free cooling when humidity is low. The C7650 responds only to dry bulb temperature; use only in dry, arid climates.

The logic module functions as a true first stage of cooling providing maximum energy economy during the cooling cycle. It automatically locks out free cooling during heating; holding the outdoor air damper at the minimum position setting.

NOTE: When module is operating in Occupied mode, the minimum position is defined by the potentiometer. When the module is operating in Unoccupied mode, the minimum position is fully closed.

The logic module can operate as either a basic free cooling controller, or it can incorporate additional functions. Table 2 details the input/output (I/O) logic of the module.

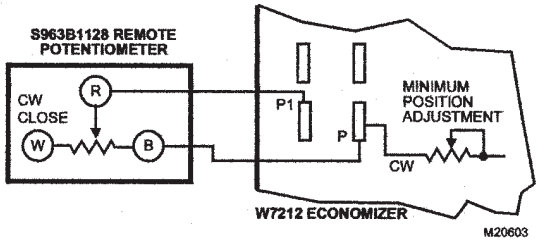


Fig. 6. S963B1128 Remote Potentiometer used with W7212 for remote damper control.

Table 2. W7212 Economizer I/O Logic.

INPUTS					OUTPUTS			
	Enthalpy[a]				Damper		Compressor	
DCV	Outdoor	Return	Y1[b]	Y2[b]	Occupied	Unoccupied	1	2
Below set (DCV LED Off)	High (Free Cooling LED Off)	Low	On	On	Minimum position	Closed	On	On
			On	Off			On	Off
	Low (Free Cooling LED On)	High	On	On	Modulating[c] (min. position to full-open)	Modulating[c] (closed to full-open)	On	Off
			On	Off			Off	Off
Above set (DCV LED On)	High (Free Cooling LED Off)	Low	On	On	Modulating[d] (min. position to DCV maximum)	Modulating[d] (closed to DCV maximum)	On	On
			On	Off			On	Off
	Low (Free Cooling LED On)	High	On	On	Modulating[e]	Modulating[f]	On	Off
			On	Off			Off	Off

[a] For single enthalpy control, the module compares outdoor enthalpy to the ABCD setpoint.

[b] If both stages of cooling are off, the system is off and the damper is at:
- Minimum position if DCV is below setpoint and system is Occupied (24 Vac across N and N1 terminals).
- Closed if DCV is below setpoint and system is Unoccupied (no voltage across N and N1 terminals).
- Modulating if DCV is above setpoint.

[c] Modulation is based on the mixed air sensor signal.

[d] Modulation is based on the DCV signal.

[e] Modulation, based on the greater of DCV and mixed air sensor signals, between minimum position and either maximum position (DCV) or fully open (mixed air signal).

[f] Modulation, based on the greater of DCV and mixed air sensor signals, between closed and either maximum position (DCV) or fully open (mixed air signal).

NOTE: DCV and Free Cooling have setpoints and LED indications.

SETTINGS AND ADJUSTMENTS

Potentiometers with screwdriver adjustment slots, located on device face, provide adjustments for several parameters (see Fig. 7 for locations on device):
— DCV setpoint.
— Minimum damper position.
— Maximum damper position.
— Enthalpy changeover.
— Exhaust setpoint.

Demand Control Ventilation Setpoint

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

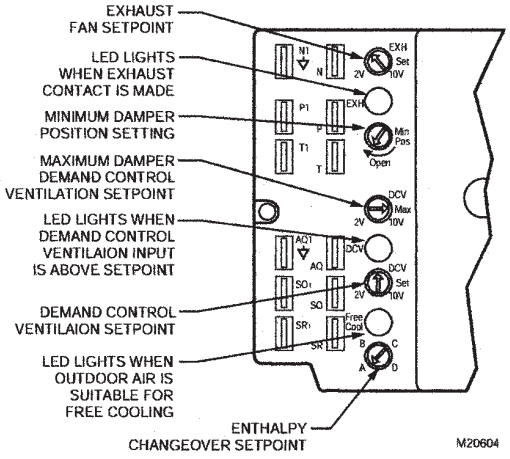


Fig. 7. Potentiometer and LED locations.

Adjusting Minimum and Maximum Positions

The minimum position potentiometer maintains the minimum outdoor air flow into the building during occupied period. 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. Setting the DCV maximum position of the damper prevents the introduction of large amounts of hot or cold air into the space.

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, it overrides the DCV maximum position potentiometer.
— If mixed air temperature drops to 45°F, the mixed air sensor overrides the DCV and closes the damper to minimum position 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, as required by local codes, to enter the building.

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. Ensure that either the factory-installed jumper is in place across terminals P and P1 or, of remote damper position is required, that it is wired according to Fig. 6 and turned fully clockwise.
4. Connect 24 Vac across terminals TR and TR1.
5. 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.

Equation 1.Formula to aid minimum position adjustment.

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

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

IMPORTANT

This procedure requires use of a quality thermometer capable of reading to 0.5°F [0.25°C].

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?

$$(0.1 \times 60°F) + (0.9 \times 75°F) = 6.0°F + 67.5°F = 73.5°F$$

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.

DCV Maximum Position Adjustment

1. Disconnect mixed air sensor from terminals T and T1 and short terminals T and T1.
2. Connect a jumper between terminals AQ and SO+.
3. Connect 24 Vac across terminals TR and TR1.
4. Adjust the potentiometer on the face of the device with a screwdriver for desired maximum position.

Enthalpy Changeover

Outdoor Enthalpy Changeover Setpoint (Single Enthalpy)

The outdoor enthalpy changeover setpoint returns the outdoor air damper to minimum position when enthalpy rises above its setpoint. Enthalpy setpoint scale markings, located in the device, are A, B, C, and D. See Fig. 8 for the corresponding control point. The factory-installed 620-ohm jumper must be in place across terminals SR and SR+.

Differential Enthalpy Changeover Setting

Differential enthalpy control uses two C7400 Enthalpy Sensors connected to one logic module. The logic module compares outdoor air to return air instead of to a setpoint as it does for single enthalpy.

NOTE: Turn the setpoint potentiometer fully clockwise to the D setting.

The logic module selects the lower enthalpy air (return or outdoor) for cooling. For example, when outdoor air has lower enthalpy than return air, the outdoor air damper opens to bring in outdoor air for free cooling.

Exhaust Setpoint

The exhaust setpoint determines when the exhaust fan runs based on damper position. When the exhaust fan call is made, the module provides a 60 ±30 second delay before exhaust fan activation. This delay allows the damper to reach the appropriate position to avoid unnecessary fan overload.

NOTE: EF and EF1 are dry contacts only. An external line voltage contactor is required to operate the exhaust fan.

Adjustable Exhaust Setpoint

These logic modules have an adjustable setpoint. This potentiometer allows the installer to set the exhaust setpoint at an actual damper position percentage open from fully closed.

CONTROL CURVE	CONTROL POINT APPROX. °F (°C) AT 50% RH
A	73 (23)
B	70 (21)
C	67 (19)
D	63 (17)

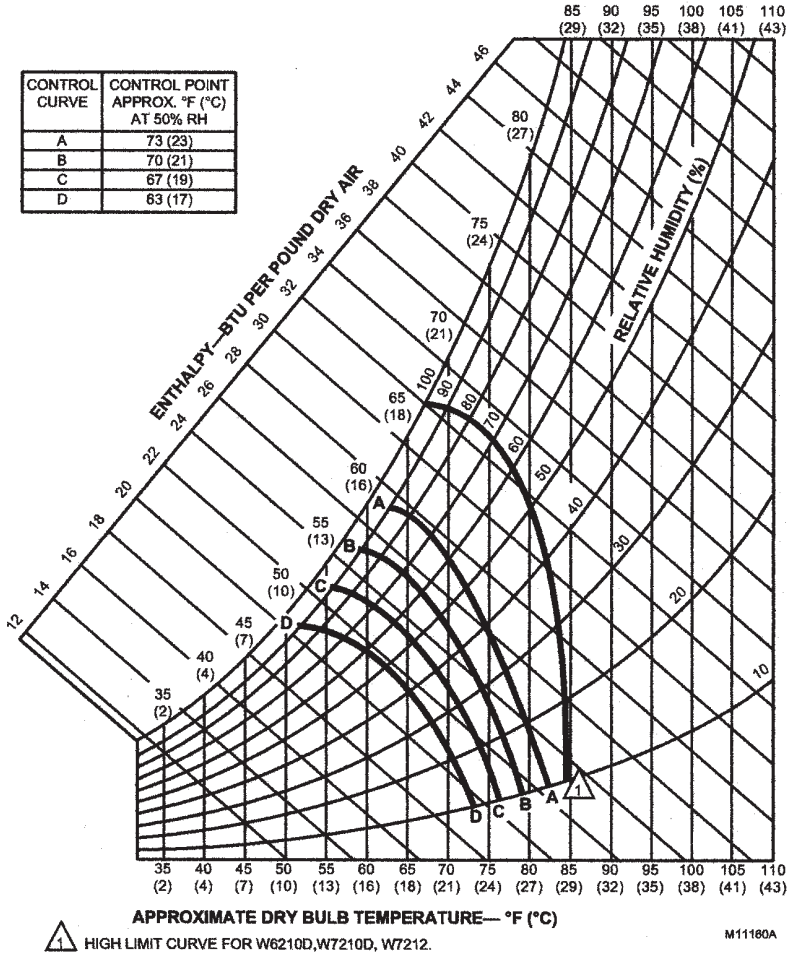
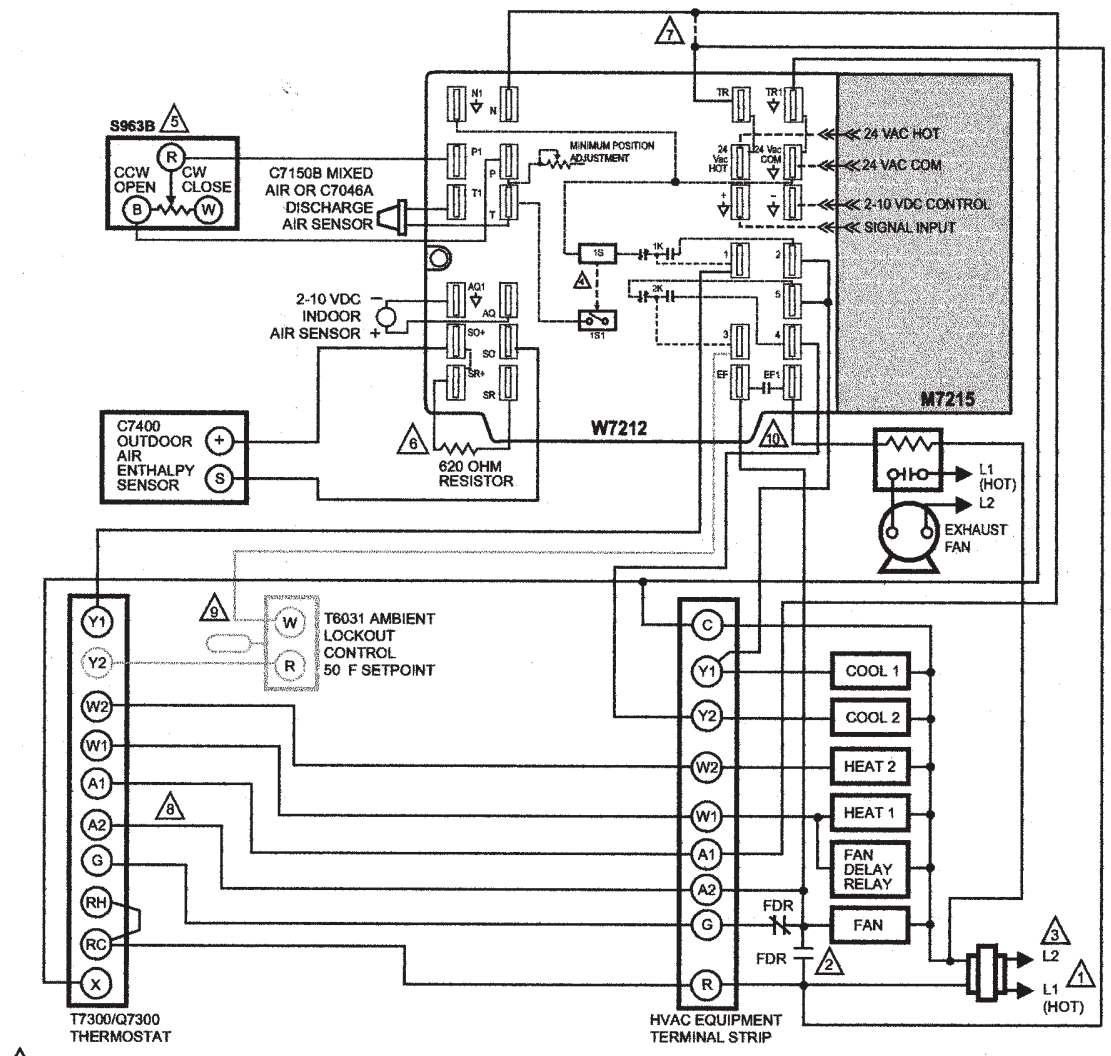


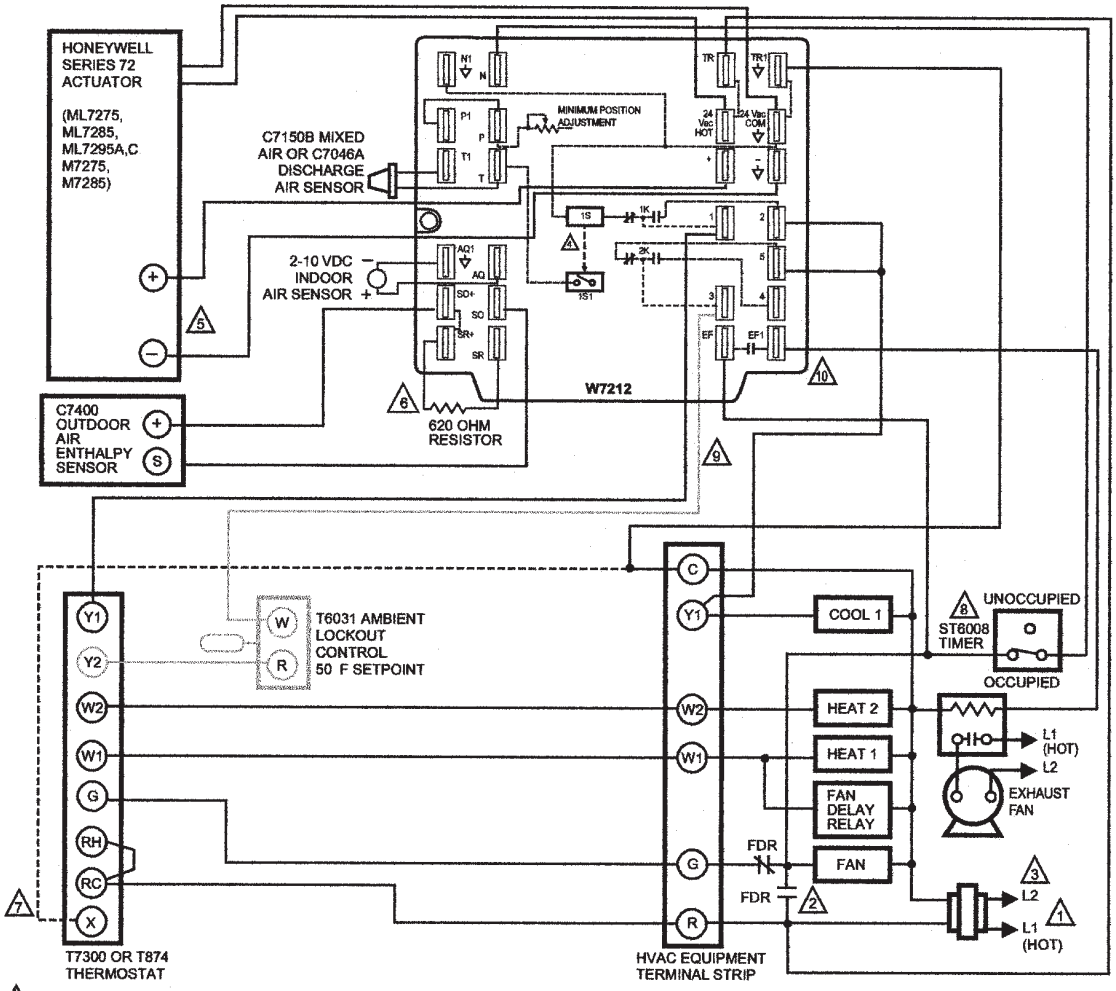
Fig. 8. W7212 performance characteristics for enthalpy changeover settings.



1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. ACTUATOR SPRING-RETURNS CLOSED WHEN FAN IS NOT RUNNING.
3. ENSURE THAT TRANSFORMER IS SIZED TO HANDLE THE EXTRA LOAD OF THE ECONOMIZER AND ACTUATOR.
4. 1S IS AN ELECTRONIC SWITCH THAT CLOSES WHEN POWERED BY A 24 VAC INPUT.
5. FOR THE ML7295A,C, USE THE 4-20mA MODEL ACTUATOR. THESE MODELS HAVE 500 OHM INPUT IMPEDENCE THAT ALLOWS THE ACTUATOR TO ACCEPT A 2-10 VDC SIGNAL.
6. FACTORY INSTALLED 620 OHM, 1 WATT, 5% RESISTOR SHOULD NOT BE REMOVED. DIFFERENTIAL ENTHALPY NOT RECOMMENDED FOR USE WITH SINGLE-STAGE COOLING SYSTEMS OR SINGLE-STAGE COOLING THERMOSTATS.
7. FACTORY INSTALLED JUMPER. REMOVE IF EXTERAL DEVICE PROVIDES OCCUPIED/UNOCCUPIED SWITCHING. WITHOUT SUCH A SWITCH, THE JUMPER IS REQUIRED FOR PROPER ECONOMIZER FUNCTIONALITY.
8. T7300 TERMINALS A1 AND A2 ARE CONNECTED WHEN THERMOSTAT IS IN THE OCCUPIED MODE.
9. FOR TWO-STAGE THERMOSTATS ONLY.
10. EF AND EF1 ARE DRY CONTACTS IN THE LOGIC MODULE.

M20716

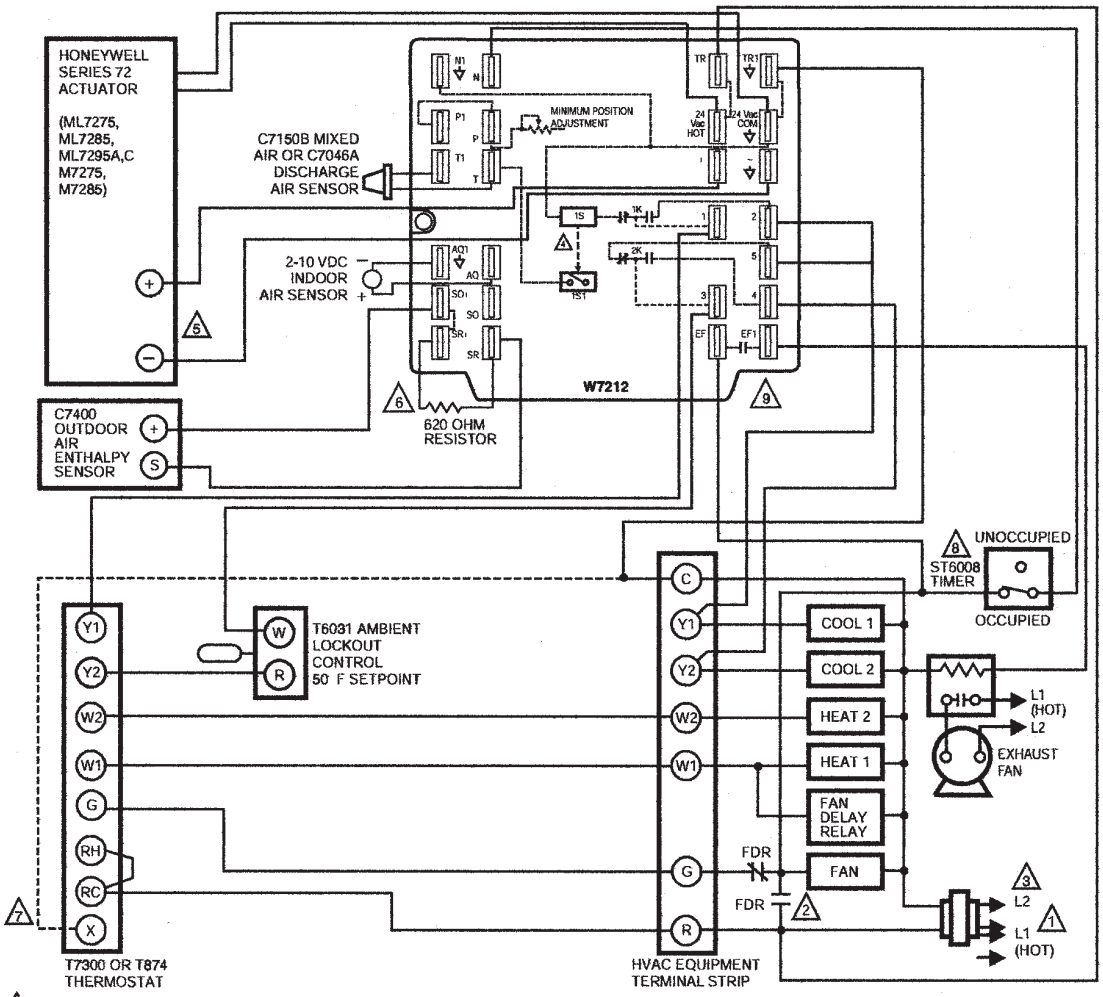
Fig. 9. W7212 used with M7215 Damper Motor.



1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. ACTUATOR SPRING-RETURNS CLOSED WHEN FAN IS NOT RUNNING.
3. ENSURE THAT TRANSFORMER IS SIZED TO HANDLE THE EXTRA LOAD OF THE ECONOMIZER AND ACTUATOR.
4. 1S IS AN ELECTRONIC SWITCH THAT CLOSES WHEN POWERED BY A 24 VAC INPUT.
5. FOR THE ML7295A,C, USE THE 4-20mA MODEL ACTUATOR. THESE MODELS HAVE 500 OHM INPUT IMPEDENCE THAT ALLOWS THE ACTUATOR TO ACCEPT A 2-10 VDC SIGNAL.
6. FACTORY INSTALLED 620 OHM, 1 WATT, 5% RESISTOR SHOULD NOT BE REMOVED. DIFFERENTIAL ENTHALPY NOT RECOMMENDED FOR USE WITH SINGLE-STAGE COOLING SYSTEMS OR SINGLE-STAGE COOLING THERMOSTATS.
7. FOR T7300 ONLY.
8. FOR T7300, USE CONTACTS A1 AND A2 INSTEAD OF THE TIMER.
9. FOR TWO-STAGE THERMOSTATS ONLY.
10. EF AND EF1 ARE DRY CONTACTS IN THE LOGIC MODULE.

M20606

Fig. 10. W7212A used in single-stage cooling system with single enthalpy changeover and Honeywell Series 72 Actuator.



1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. ACTUATOR SPRING-RETURNS CLOSED WHEN FAN IS NOT RUNNING.
3. ENSURE THAT TRANSFORMER IS SIZED TO HANDLE THE EXTRA LOAD OF THE ECONOMIZER AND ACTUATOR.
4. 1S IS AN ELECTRONIC SWITCH THAT CLOSES WHEN POWERED BY A 24 VAC INPUT.
5. FOR THE ML7295A,C, USE THE 4-20mA MODEL ACTUATOR. THESE MODELS HAVE 500 OHM INPUT IMPEDENCE THAT ALLOWS THE ACTUATOR TO ACCEPT A 2-10 VDC SIGNAL.
6. FACTORY FACTORY INSTALLED 620 OHM, 1 WATT, 5% RESISTOR SHOULD BE REMOVED ONLY WHEN A C7400 ENTHALPY SENSOR IS ADDED TO SR AND SR+ FOR DIFFERENTIAL ENTHALPY.
7. FOR T7300 ONLY.
8. FOR T7300, USE CONTACTS A1 AND A2 INSTEAD OF THE TIMER.
9. EF AND EF1 ARE DRY CONTACTS IN THE LOGIC MODULE.

Fig. 11. W7212A used in two-stage cooling system with Honeywell Series 72 Actuator.

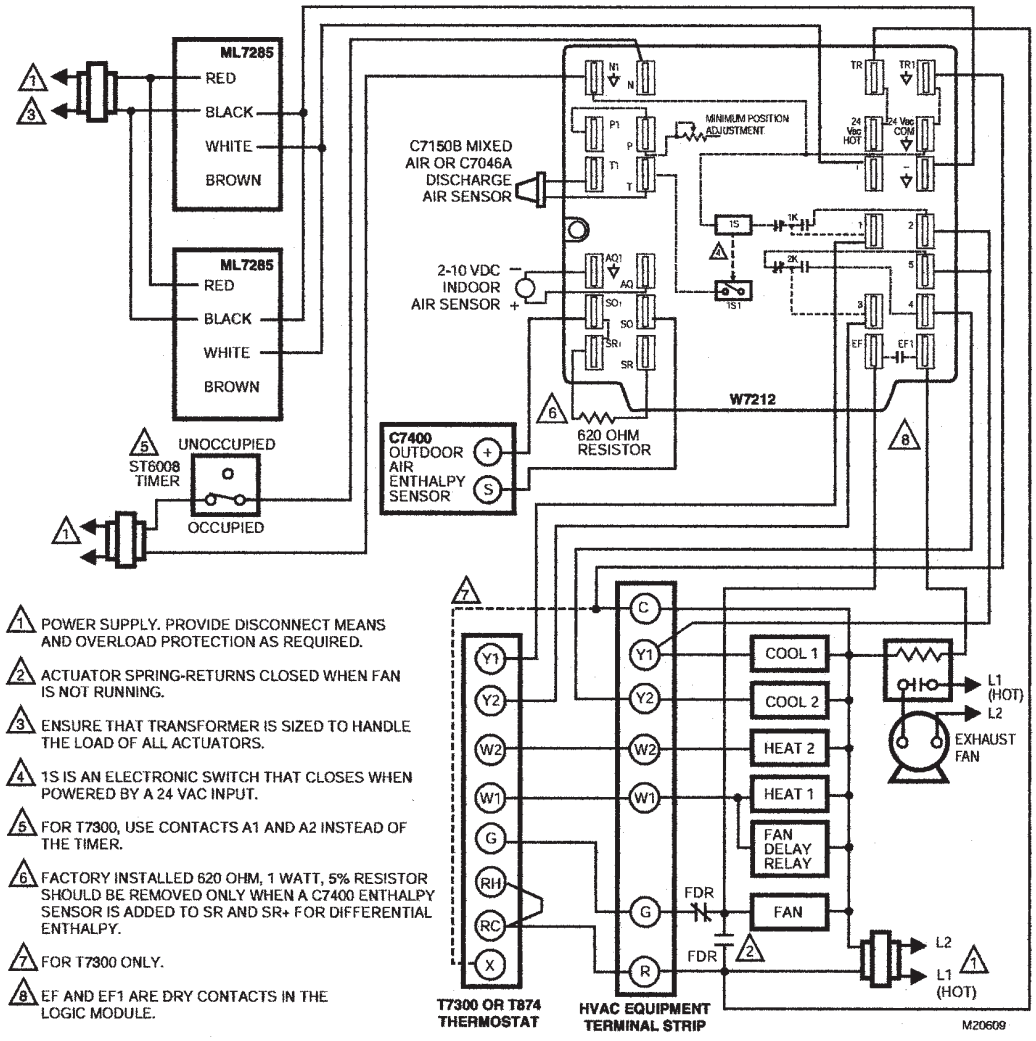


Fig. 12. W7212 controlling parallel-wired Honeywell Series 72 Modutrol Motors.

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. 13 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.

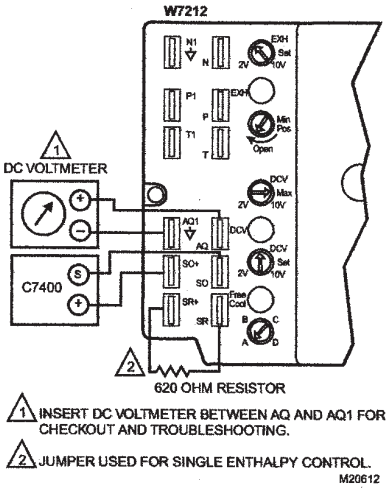


Fig. 13. Meter location for checkout and troubleshooting.

Table 3. Checkout For W7212 Economizer 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.	
	Turn minimum position potentiometer fully CCW.	
	Turn DCV maximum position potentiometer fully CW.	
	Place 6.8K ohm resistor across T and T1.	
	Jumper TR to 1.	
	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 +.	
	Set both DCV and Exhaust potentiometers fully CCW.	
	Put 620 ohm resistor across S_R and +.	
	Set enthalpy potentiometer to D.	
	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 Economizer 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 90 to 95 percent open.
	Turn Exhaust potentiometer CW until Exhaust LED turns off.	Exhaust LED turns off with potentiometer at approximately 90 percent. Actuator remains in position.
	Turn DCV potentiometer CW.	DCV LED turns off with potentiometer at approximately 9V. Actuator drives fully closed.
	Turn DCV and Exhaust potentiometers CCW until Exhaust LED turns on.	45 seconds after Exhaust LED turns on, Exhaust contacts close.
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 90 to 95 percent open.
	Turn DCV maximum position potentiometer to midpoint.	Actuator drives to between 20 and 80 percent open.
	Turn DCV maximum position potentiometer to fully CCW.	Actuator drives fully closed.
	Turn minimum position potentiometer to midpoint.	Actuator drives to between 20 and 80 percent open.
	Turn minimum position potentiometer fully CW.	Actuator drives fully open.
	Remove jumper from TR and N.	Actuator drives fully closed.
6.	MIXED AIR INPUT	
	Execute step one, Checkout Preparation.	—
	Set enthalpy potentiometer to A.	Free cool LED turns on.
	Replace 6.8K ohm resistor (across T and T1) with 5.6K ohm resistor.	Actuator drives to between 20 and 80 percent open.
	Remove 5.6K ohm resistor and jumper T to T1.	Actuator drives fully open.
	Remove jumper from T to T1 and leave open.	Actuator drives fully closed.
	Replace 6.8K ohm resistor across T and T1.	Actuator drives fully closed.