MicroMetl

Since 1965

Economizer
ECH-SRTCB-D0
Install Guide

MicroMetl

Since 1965

Table of Contents

Topic	Page Number
General Install Instructions	1
No Controls Wiring Diagram	6

MicroMetl

Since 1965

Small Rooftop Units
Select 3 to 12.5 Tons
Accessory Ultra Low Leak
Horizontal Economizer Without Controller

Installation Instructions

SAFETY CONSIDERATIONS

Installation of this accessory can be hazardous due to system pressures, electrical components and equipment, and equipment locations (such as a roof or elevated surface). Only trained qualified installers and service technicians should install, start-up, and service this equipment.

When installing this accessory, observe precautions in the literature and on any labels attached to the equipment and all other safety precautions may apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling and installing the accessory.

It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage.

NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ CAUTION

CUT HAZARD
Failure to follow this caution may result in personal injury.
Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing roof top units.

⚠ CAUTION

Failure to follow this caution may result in personal injury and damage to the unit. Cover the duct opening as a precaution so objects cannot fall into the return duct opening. Be sure to remove the cover when installation is complete.

IMPORTANT: These economizers meet all economizer damper requirements as specified in ASHRAE 90.1, IECC and California's Title 24. Economizer must be installed square to avoid damper leakage or damper binding. Squareness tolerance is ± 1/32 inch.

IMPORTANT: Read these instructions completely before attempting to install accessory economizer.

NOTE: *ECH-SRT can't use 4" factory filter kits CRFLTTRK00(2/3/4/5/6)A00**

Read these instructions completely before attempting to install the Accessory Ultra Low Leak Economizer.

⚠ WARNING

ELECTRICAL SHOCK HAZARD
Failure to follow this warning could cause personal injury or death. Before performing service or maintenance operations on the unit, always turn off main power switch to unit and install lock(s) and lockout tag(s). Unit may have more than one power switch. Ensure electrical service to rooftop unit agrees with voltage and amperage listed on the unit rating plate.

GENERAL

The Economizer system utilizes. the latest technology available for integrating the use of free cooling with mechanical cooling

for packaged rooftop units.

The -D0D* system comes standard with an outdoor air temperature sensor. D00* includes only actuator, no sensors or controller provided.

This Economizer can be used with 1, 2, 3 or multiple speed indoor fan motor units.

The Economizer system utilizes gear-drive technology with a direct-mount spring return actuator that will close upon loss of power.

Economizer accessories require an actuator signal control. These accessories do not include a controller. The economizer actuator is operated by a signal from a field-supplied DDC controller or building manufacturer system.

Standard integrated barometric relief dampers provide natural building pressurization control. An optional power exhaust system is available for applications requiring even greater exhaust capabilities. An optional power exhaust system is available for applications requiring even greater exhaust capabilities.

Unpack and inspect economizer contents from carton. Contact MicroMetl immediately if any parts are missing or damaged

Table 1 - Package Contents

ECONOMIZER PART NUMBER	QTY	CONTENTS
ECH-SRT12CB-D0 ECH-SRT34CB-D0	1	Economizer Damper Assembly with Actuator
	1	Hood Assembly with Top and 2 Sides
	1	Hood Divider
	1	Aluminum Filter
	1	Hardware Bag (Tapped to OA damper blades)

Table 2 - Package Usage

UNIT SIZE	PART NUMBER
Small Cabinet, Footprint size: 46 3/4" x 74 3/8"	ECH-SRT12CB-D0**
Large Cabinet, Footprint size: 58 1/2" x 88 1/8"	ECH-SRT34CB-D0**

Table 3

	MicroMetl Economizer Part Number	Description
Small Cabinet	ECH-SRT12CB-D0DB-X	For use with Carrier ComfortLink. Includes Belimo MFT Actuator 500 OHM Resistor, 12 Pin plug, and dry bulb outside air sensor.
	ECH-SRT12CB-D0DB-4	For use with Carrier RTU Open, PremierLink, or System Vu. Includes Belimo MFT Actuator 500 OHM Resistor, 12 Pin plug, and dry bulb outside air sensor.
	ECH-SRT12CB-D00B	Economizer with 2-10Vdc Belimo actuator. Use with field supplied controller and sensors.
Large Cabinet	ECH-SRT34CB-D0DB-X	For use with Carrier ComfortLink. Includes Belimo MFT Actuator 500 OHM Resistor, 12 Pin plug, and dry bulb outside air sensor.
	ECH-SRT34CB-D0DB-4	For use with Carrier RTU Open, PremierLink, or System Vu. Includes Belimo MFT Actuator 500 OHM Resistor, 12 Pin plug, and dry bulb outside air sensor.
	ECH-SRT34CB-D00B	Economizer with 2-10Vdc Belimo actuator. Use with field supplied controller and sensors.

Notes:
1. All actuators are spring-return closed without power

Table 4 - Sensor Usage For ECH-SRT**CB-D0DB-X For ComfortLink

APPLICATION	OUTDOOR AIR TEMPERATURE SENSOR	RETURN AIR TEMPERATURE SENSOR	OUTDOOR AIR ENTHALPY SENSOR	RETURN AIR ENTHALPY SENSOR
Dry Bulb Temperature	Included	Included	—	—
Differential Dry Bulb Temperature	Included	Required — 33ZCT55SPT	—	—
Single Enthalpy	Included	—	Required — HH57AC077	—
Differential Enthalpy	Included	—	Required — HH57AC077	Required — HH57AC078

Note: Factory sensor part numbers shown.

Table 4A - Sensor Usage For ECH-SRT**CB-D0DB-4 For System Vu

APPLICATION	OUTDOOR AIR TEMPERATURE SENSOR	RETURN AIR TEMPERATURE SENSOR	OUTDOOR AIR ENTHALPY SENSOR	RETURN AIR ENTHALPY SENSOR
Dry Bulb Temperature	Included	Included	—	—
Differential Dry Bulb Temperature	Included	Required — CRTEMPSN001A00	—	—
Single Enthalpy	Included	—	Required — CRHUMDSN001B00	—
Differential Enthalpy	Included	—	—	Required — CRHUMDSN001B00

Note: Factory sensor part numbers shown.

Table 4B - Sensor Usage For ECH-SRT**CB-D0DB-4 For RTU Open or PremierLink

APPLICATION	OUTDOOR AIR TEMPERATURE SENSOR	RETURN AIR TEMPERATURE SENSOR	OUTDOOR AIR ENTHALPY SENSOR	RETURN AIR ENTHALPY SENSOR
Dry Bulb Temperature	Included	Included	Included	—
Differential Dry Bulb Temperature	Included	Required — CRTEMPSN001A00	—	—
Single Enthalpy	Included	—	Required — 33CSENTHSW	—
Differential Enthalpy	Included	—	—	Required — 33CSENTHSW

Note: Factory sensor part numbers shown.

INSTALLATION

Step 1: Turn off power supply(s) and install lockout tag.

Step 2: Remove the existing unit filter access panel and discard. Raise the panel and swing the bottom outward. The panel is now disengaged from the track and can be removed. See **Figure 1.** Remove the horizontal panel on unit. See **Figure 1.**

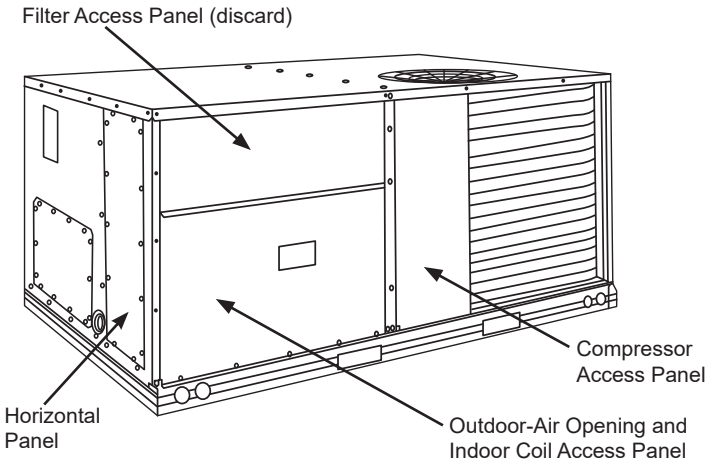


Figure 1 - Typical Access Panel Locations

Step 3: Remove the indoor coil access panel discard. See **Figure 1.**

Step 4: Place the economizer into R/A section of unit. See **Figure 2.** No fasteners are needed, economizer is sitting on R/A cover in unit.

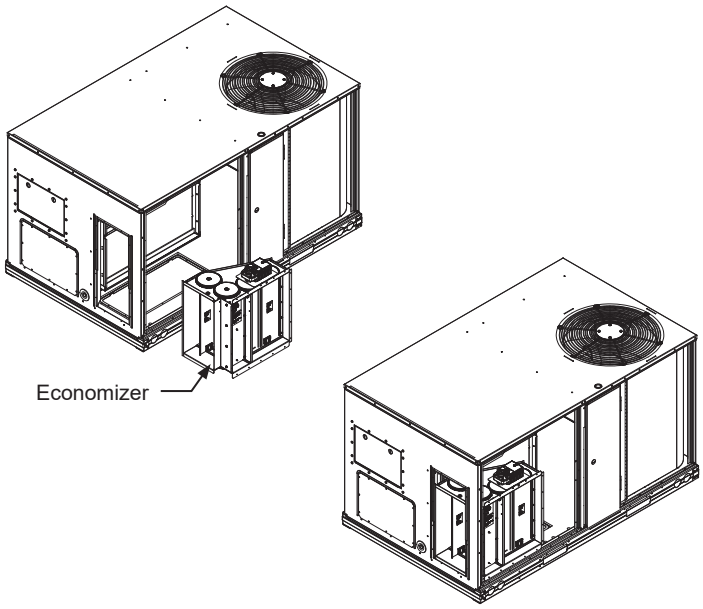


Figure 2 - Economizer Installed in R/A Section

Step 5: Remove the indoor blower access panel and the panel(s) covering the unit control box. See **Figure 3.**

Compliance — Economizers meet California Energy Commission Title 24 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls.

Economizers meet ASHRAE 90.1 damper leakage requirements and Fault Detection and Diagnostic requirements.

Economizers meet IECC damper leakage and Fault Detection and Diagnostic requirements.

Outside air, return air, and relief dampers are AMCA rated.

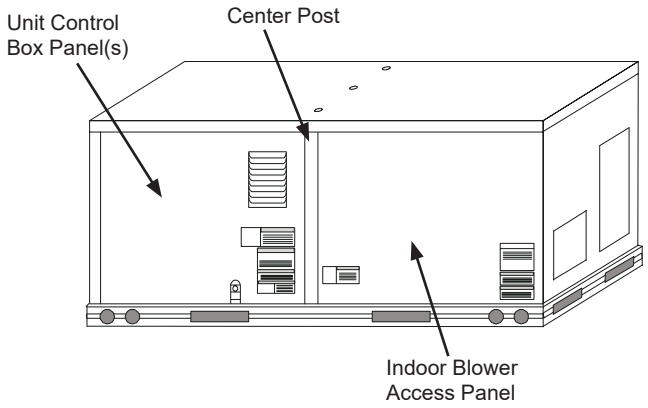


Figure 3 - Typical Indoor Fan Motor Access Panel Locations

Step 6: Attach O/A panel as shown in **Figure 4**, use sheet metal screws no longer than #10-16 5/16" – 11 needed. Economizer is still sitting on R/A cover in unit, no fasteners needed.

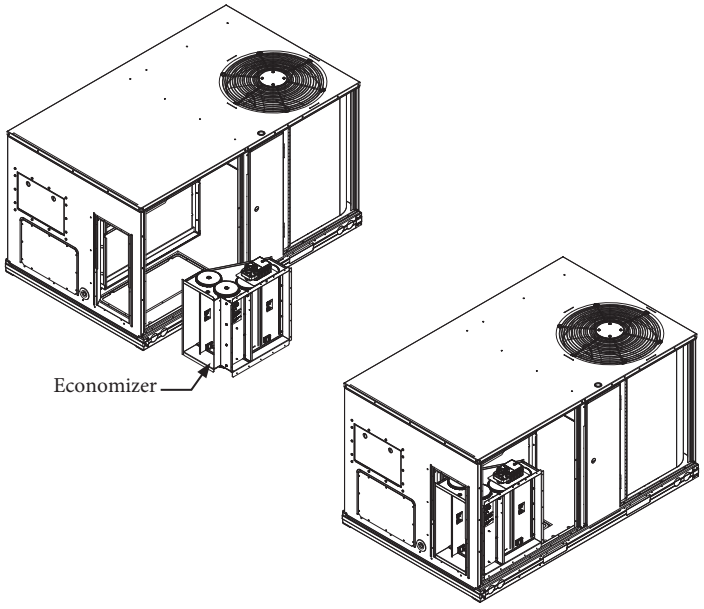


Figure 4 – Economizer Installed in R/A Section

Step 7: Lift economizer so I.D. of economizer matches I.D. of economizer cut out in panel. See **Figure 5.**

Step 8: Once aligned use #10 sheet metal screws no longer then 5/16” to attach economizer to O/A panel.

Step 9: After economizer is attached make sure return section of economizer fits snug and square in horizontal section of the RTU. See **Figure 5.**

DO NOT USE SCREWS ON R/A SECTION, THIS WILL MAKE IT DIFFICULT TO REMOVE ONCE DUCT IS INSTALLED.

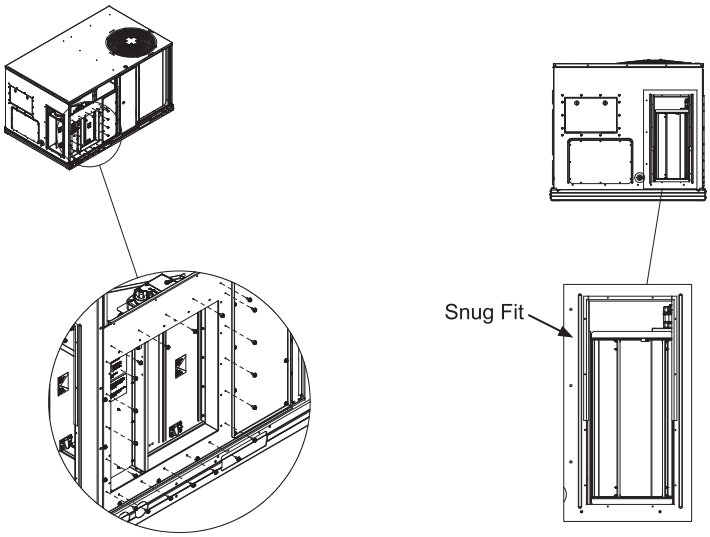


Figure 6 – Attach Economizer to O/A Panel

Step 10: If needed, attach filler panel. Slide under RTU top flange then drop down until bottom mount holes align with top holes on O/A panel. Use #10-16 5/16” sheet metal screws. See **Figure 6.**

Step 11: Attach R/A black off panel as shown in **Figure 8.** Use #10-16 5/16” sheet metal screws. Grommet must be installed before duct work is installed.

Step 12: Relief is field installed on R/A duct work. Use #10-16 5/16” sheet metal screws. Make sure its watertight.

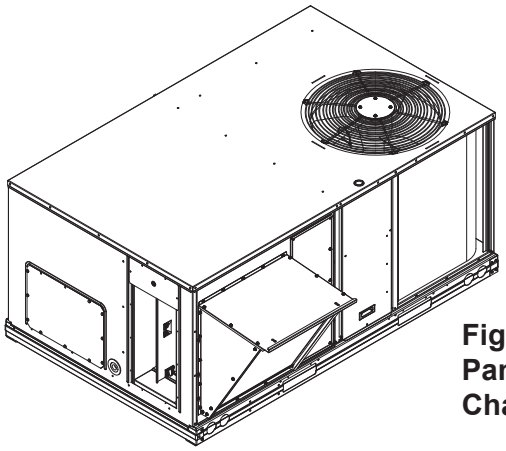


Figure 8 – Filler Panel Not Used for Chassis 1

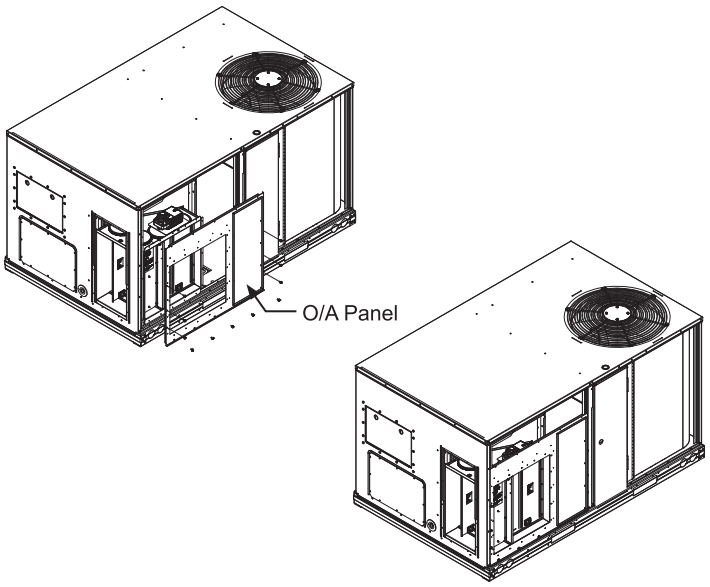


Figure 5 – Attach O/A Panel

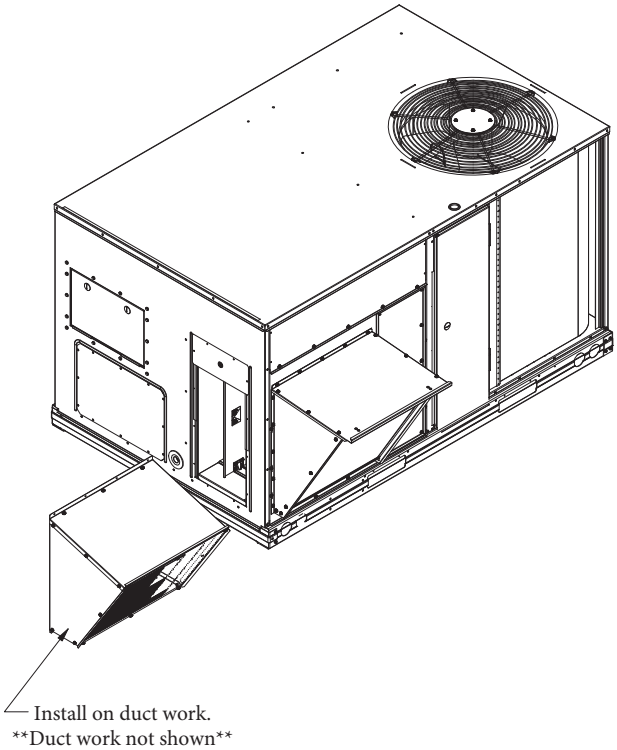
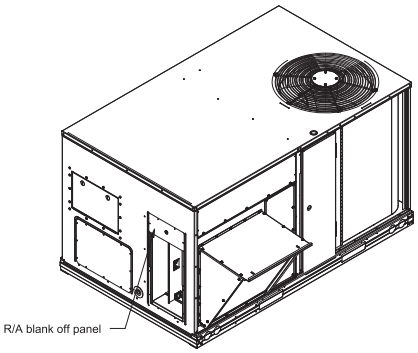


Figure 7 – Field Installed Relief Hood



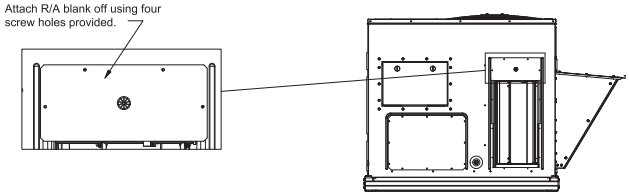


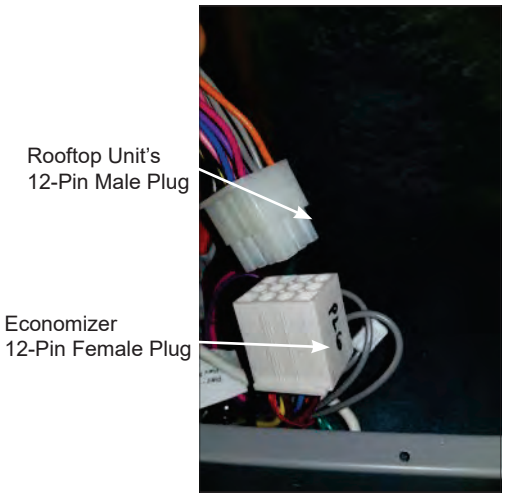
Figure 9 – Attach R/A Blank Off Panel

Step 13: Remove and save the 12-pin jumper plug from the unit economizer harness – located in the upper left corner of the unit. Insert the economizer plug into the unit wiring harness. See **Figure 10.**

Note: *The 12-pin jumper plug should be saved for future use, in the event that the economizer is ever removed. The jumper plug is not needed as long as the economizer is installed.*

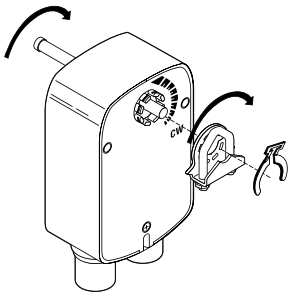
Note: *If your economizer comes with an outside air sensor. Remove filter from OA hood and screw OA sensor provided in parts bag with economizer directly through pre-punched holes located on the sensor bracket on the left of the OA hood.*

Fig. 10 - Connect Economizer Harness to Unit PL6 Economizer Harness

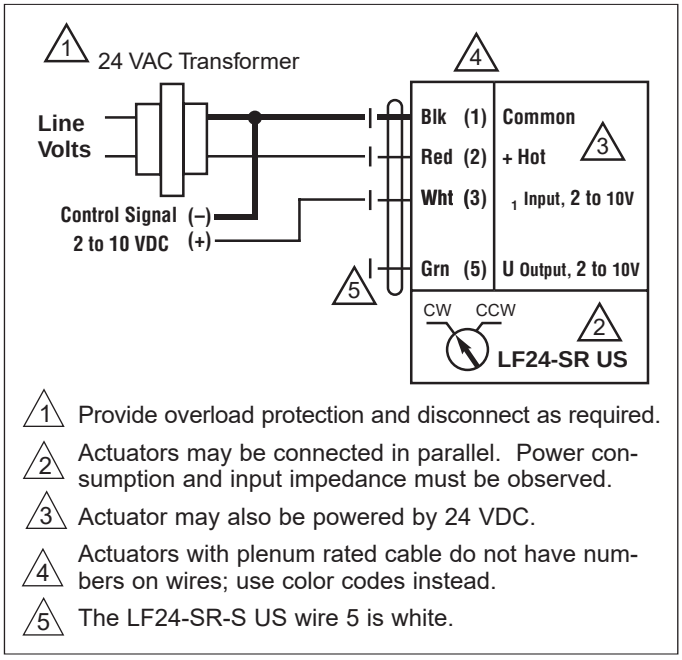


LF24-SR (-S) US

Proportional damper actuator, spring return safety, 24 V for 2 to 10 VDC, or 4 to 20 mA control signal. Output signal of 2 to 10 VDC for position indication.



Wiring diagrams



1. Provide overload protection and disconnect as required.
2. Actuators may be connected in parallel. Power consumption and input impedance must be observed.
3. Actuator may also be powered by 24 VDC.
4. Actuators with plenum rated cable do not have numbers on wires; use color codes instead.
5. The LF24-SR-S US wire 5 is white.

Direction of rotation

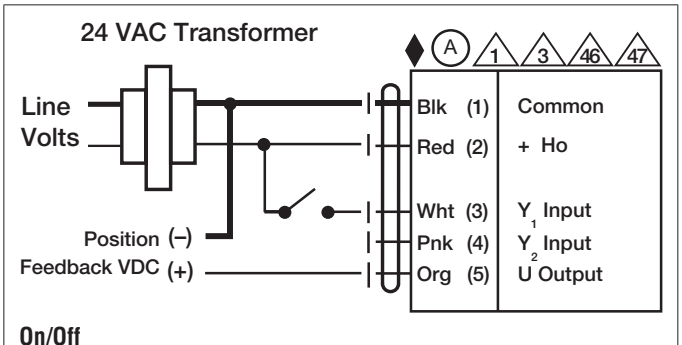
CW CCW

LF24-SR US

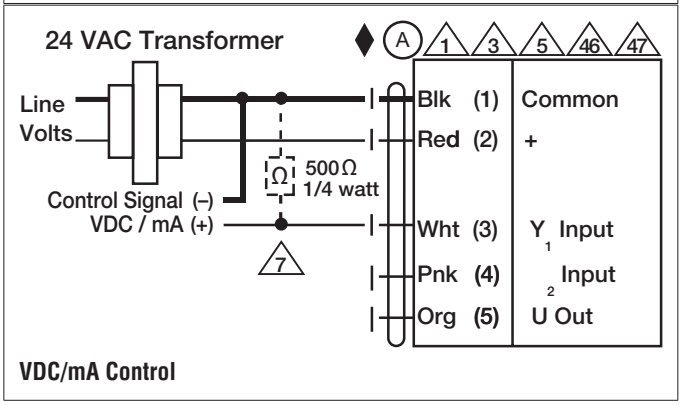
spring return reversible with cw/ccw mounting control direction selected by switch:
CW=CW with a decrease in signal
CCW=CCW with a decrease in signal

AFB24-MFT

Modulating, Spring Return, 24 V, Multi-Function Technology®



On/Off



VDC/mA Control

MicroMetl

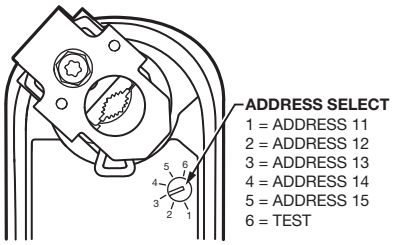
*CB-D00H/-H

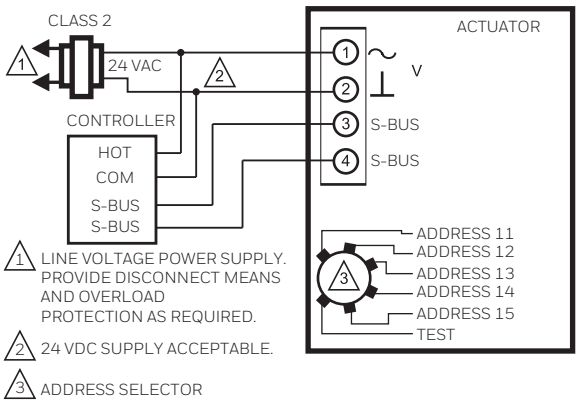
DIAMOND SYLK 27IN/LB**

MS7103, MS7503, MS3103

** Make sure the Economizer actuator settings are correct. They should be on ADDRESS 1 Set Switch to 1. **(Actuator might come in on #6 so change back to #1)**

There are 5 effective Sylk addresses that you can choose from. For example, to select Sylk address 11 move the range pot to 1.



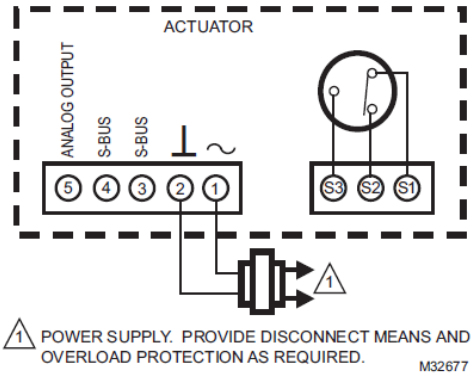


Wiring for SYLK BUS control, MS3103.

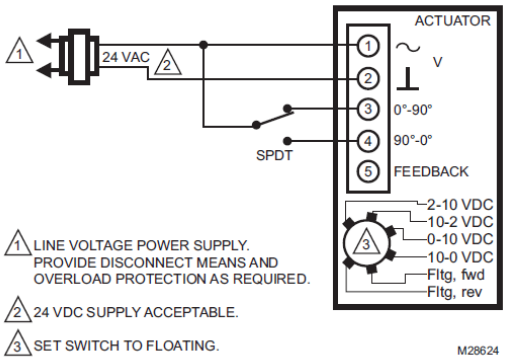
3 Nm, 5 Nm Series Spring Return Direct Coupled Actuators**

MS3103, MS3105, MS4103, MS4105, MS7403, MS7405, MS7503, MS7505, MS8103, MS8105

Terminal block details (MS31)

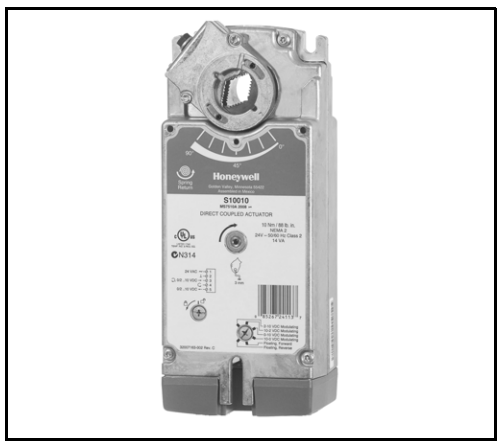


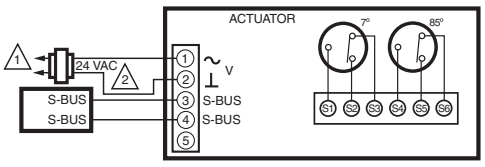
MS75/MS74 series



MSXX10, MSXX20 Series***

88 AND 175 LB-IN (10 AND 20 NM) SPRING RETURN DIRECT COUPLED ACTUATORS

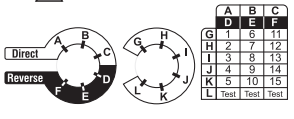




NOTES: AFTER TRANSFORMER SELV–SAFETY EXTRA LOW VOLTAGE FOR INTERNAL CIRCUIT AND MOTOR.

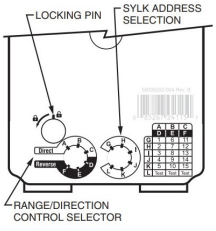
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.



M35129

Wiring for Sylk BUS, MS31 series.



*** Make sure the Economizer actuator settings are correct. They should be on "Direct" for the RANGE/DIRECTION CONTROL "C" and "G" for the SYLK ADDRESS selection.
(This is for -D00H-H)

FEATURES

- 2-10Vdc with signal inversion
- Economizer applications
- 4-20mA applications

987-105
GMA 151.1PRHEEM
GCA161.1P

Description	Label	Description	Function
Inverse Acting		**Direct-Acting**	**Input Signal Inversion**
Inverse-Acting Feedback		**Direct-Acting Feedback**	**Feedback Signal Inversion**
			Not In Use

Description	Label			Description	Function
Counterclockwise				Clockwise	Rotary angle direction
Active			0	Off	Self-adaptation to mechanical range
2-10 Vdc	2-10		0-10	0…10 Vdc	Positioning control signal 2-10 or 0-10
Offset 0-5V Span 2-30V	ADJ		0-10	0...10 Vdc	Positioning signal. Turn on or off capability to adjust offset/span.

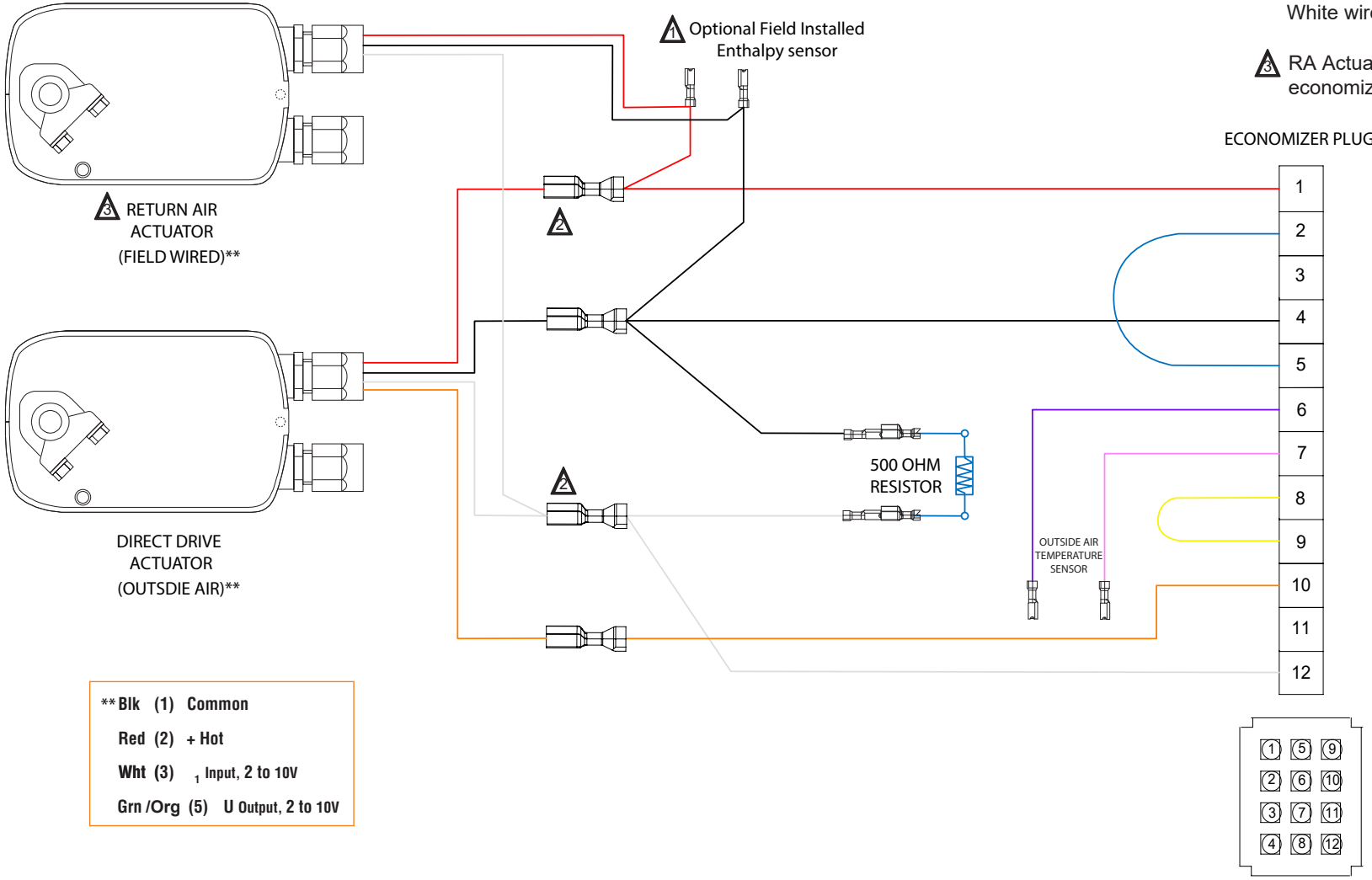
MicroMetl EC*-SRT/MRT**C*-D0DB-X/4

Since 1965

⚠1 Optional Field Installed Enthalpy sensor.
Connect Red wire to 24V and Black wire to GRND on sensor.

⚠2 Optional Field Installed CO2 Sensor 4-10mA Output
Connect **–** to Red wire and **+** to White wire.

⚠3 RA Actuator wiring only for ECE economizers.



** Blk (1) Common
Red (2) + Hot
Wht (3) ₁ Input, 2 to 10V
Grn /Org (5) U Output, 2 to 10V

NOTE: *Outside air damper will open when return is closed and vice versa.*