5 YEAR WARRANTY

Installation

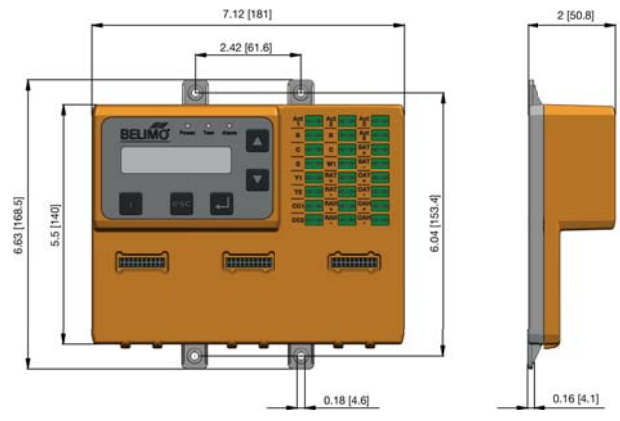
You can mount the ZIP Economizer in any orientation; it is recommended that you mount it in a position that will allow full utilization of the LCD and key pad and proper clearance for installation, servicing, wiring, and removal.

Take the overall dimensions of 6.63" [168.5] x 7.12" [181] x 2" [50.8]and mount in the interior of the RTU in a convenient location that you can access. Secure the ZIP utilizing #8 self-tapping screws (included). A minumum of two tabs need to be secured, one which is a top tab. Ideally secure all four tabs. Wire the electrical connection using ¼" female insulated spade connectors to prevent corrosion.

Technical Data

Power supply	24 VAC ± 20%, 50/60 Hz; Class 2 power source
Power consumption rating*	4 VA base control (ECON-ZIP-BASE)
	5.5 VA base control with Energy Module (ECON-ZIP-BASE + ECON-ZIP-EM)
	5 VA base control with Communication Module (ECON-ZIP-BASE + ECON-ZIP-COM)
	6.5 VA base with Energy Module and Communication Module. (ECON-ZIP-BASE + ECON-ZIP-EM + ECON-ZIP-COM)
Rated impulse voltage	330V
Connectors	1/4" male spade connectors
Environmental	RoHS, conformally coated
Software class	A
Control pollution degree	3
Temperature input signal	NTC 10 kΩ, Type II
Humidity	5 to 95% RH non-condensing
Humidity input signal	0-10 VDC; corresponds to 0 to 100%
Housing	NEMA 1
Housing material	UL94-5VA
Ambient temperature range	-40°F to +158°F (-40°C to +70°C)
Storage temperature range	-40°F to +176°F (-40°C to +80°C)
Display	2x16 character LCD; LED backlight; transflective
Display op. range**	-22°F to +176°F (-30°C to +80°C)
Agency listing	cULus acc. to UL873, CAN/CSA C22.2, No. 24-93
Energy code compliant	ASHRAE 90.1, CA Title 24, NECB

Dimensions (Inches [mm])



Input/Output Specifications

Type	Name	Description	Electrical Specification
Input	R	Supply Hot	24 VAC, ± 20%, 50/60Hz
Input	G	Fan Signal (occupied)	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	C	Supply Common	Common
Input	Y1	Cooling requirement Stage 1	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	Y2	Cooling requirement Stage 2	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	W1	Heating requirement Stage 1	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	SAT ±	Supply Air Temperature Sensor	Type: 10K NTC (Type II thermistor)
Input	OAT ±	Outdoor Air Temperature	Type: 10K NTC (Type II thermistor)
Input	OAH ±	Outdoor Air Humidity	0-10 VDC Auto Detection: Sensor present if voltage 0.5V-10V
Input	RAT ±	Return Air Temperature	Type: 10K NTC (Type II thermistor)
Input	RAH ±	Return Air Humidity	0-10 VDC Auto Detection: Sensor present if voltage 0.5V-10V
Output	CC1	Compressor 1 RTU Stage 1 Mechanical Cooling Circuitry	100'000 cycles @ inrush current of 3A, normal current 1.5A Impedance for Auto detection @ 24 V: <600 Ω @ 60Hz <800 Ω @ 50Hz
Output	CC2	Compressor 2 RTU Stage 2 Mechanical Cooling Circuitry	100'000 cycles @ inrush current of 3A, normal current 1.5A Impedance for Auto detection @ 24 V: <600 Ω @ 60Hz <800 Ω @ 50Hz
Output	Act 1	Actuator supply common	Common
Output	Act 2	Actuator supply hot	24 VAC, 50/60Hz
Output	Act 3	Actuator control output	2-10 VDC
Input	Act 5	Actuator feedback signal	2-10 VDC

* The power consumption is for the control only and does not include connected loads such as actuator, compressors, fans, and sensors. For transfomer sizing, the power consumption of these attached components must be included.

** At low temperature the display has decreased response time. Below -22°F [-30°C] it will not function.

ECON-ZIP-TH

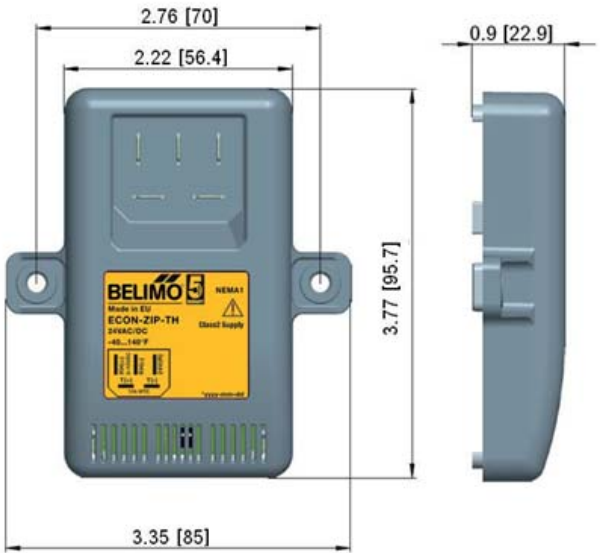
ZIP Economizer™ Temperature and Humidity Sensor

5 YEAR WARRANTY

Technical Data

Power Supply	24 VAC ± 20%, 50/60Hz, Class 2 power source
Current Consumption	Max. 5mA
Rated Impulse Voltage	800V
Connectors	1/4" male spade connectors
Environmental	RoHS conformally coated
Software Class	A
Control Pollution Degree	3
Temperature Sensor Type	NTC 10kOhm
Humidity	0 to 100% RH
Humidity Sensor Type	0-10VDC (0 to 100% RH) max load 10kOhm, Class 2 limited energy
Housing	NEMA 1
Ambient Temperature Range	-40°F to +140°F (-40°C to +60°C)
Storage Temperature Range	-40°F to +158°F (-40°C to +70°C)
Accuracy	± 3% 35-65% rH @ 75°F ± 5% 0-34%, 66-100% rH @ 75°F
Response Time	<45 seconds @ 40 FPM, 75°F
Hysterisis	<2.5% rH
Long Term Stability	<1% rH/year
Agency Listing	UL60730-1,-2-9,-2-13. UL2043 compliant, CE 2004/108/EC "Electromagnetic compatibility (EMC)", EN60730-1,-2-9 and-2-13

Dimensions (Inches [mm])



Installation

Avoid mounting in areas where acid fumes or other deteriorating vapors can disintegrate the metal parts of the module's circuit board, or in areas where escaping gas or other explosive vapors are present.

You must mount the sensor in a position that will allow for proper clearance for installation, servicing, wiring, and removal.

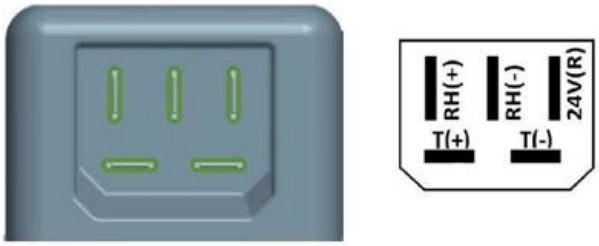
Using the dimensions as a reference, mount the Temperature and Humidity Sensor on the outside of the dampers to measure outside temperature and humidity, or inside the return air duct to measure the return temperature and humidity. If mounted outside, the sensor must be placed within hood behind the outdoor air filter. It needs to be protected from direct exposure to water (snow/rain) and direct exposure to sunlight (UV radiation).

The orientation of the sensor is critical to ensure optimal performance. (Please see figures on recommended orientation.)

Ensure installation matches an approved orientation before securing with #8 self-tapping screws (included in kit).

The electrical connection needs to be wired using appropriate insulated spade connectors, ¼"female, according to the wiring diagram.

Wiring



Input/Output Specifications

Technical Data

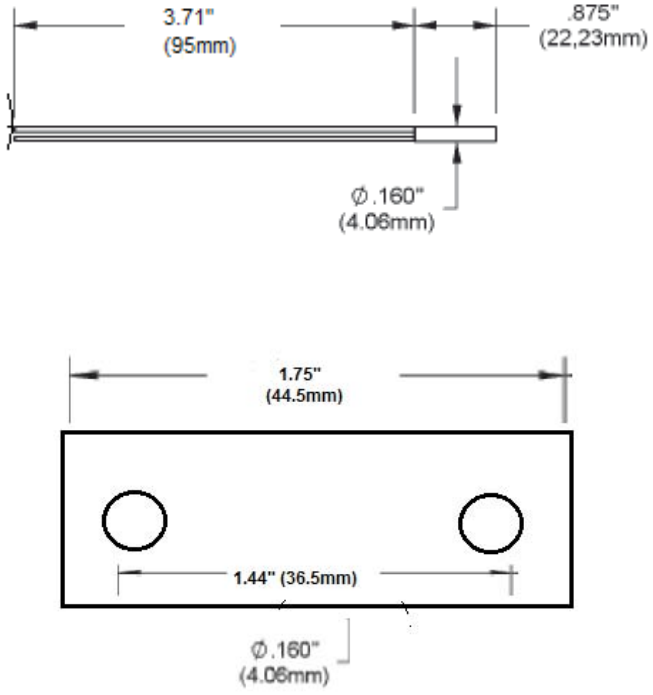
Type	Name	Description	Electrical Specification	ZIP Terminal
Input	24V	Supply Hot	24 VAC, ± 20%, 50/60Hz	Same Power Supply R
Output	T(+/-)	Temperature	Type: 10K NTC (Type II thermistor)	OAT (+/-); RAT (+/-)
Output	RH(+/-)	Relative Humidity	0-10 VDC	OAH (+/-); RAH (+/-);

5 YEAR WARRANTY

Technical Data

Temperature output signal	NTC 10k Ohm, Type II
Connectors	1/4" female spade insulated connectors, 3 ft. cable
Accuracy	± 0.36°F,(± 0.2°C)
Stability drift	less than 0.036°F/yr [0.02°C/yr]
Material	etched Teflon, plenum-rated & FEP jacketed cable; galvanized t-bracket
Ambient temperature range	-67°F to +176°F (-55°C to +80°C)

Dimensions in Inches [mm]



Installation

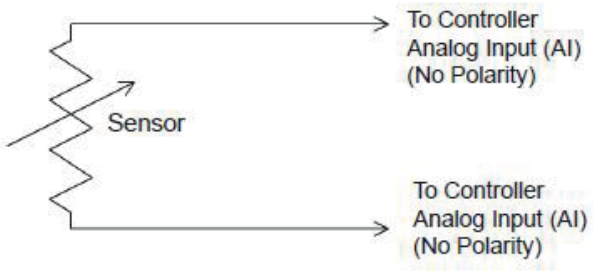
Avoid mounting in areas where acid fumes or other deteriorating vapors can attack the metal parts, or in areas where escaping gas or other explosive vapors are present.

Mount the sensor in a position that will allow for proper clearance for installation, servicing, wiring, and removal.

Using the dimensions as a reference, mount the 10K Sensor on the outside of the dampers to measure outside temperature, or inside the return air duct to measure the return temperature. If mounted outside, the sensor must be placed within hood behind the outdoor air filter. It needs to be protected from direct exposure to water (snow/rain) and direct exposure to sunlight (UV radiation).

Secure the sensor with #8 self-tapping screws (included in kit) using a size 16 or 18 drill.

Wiring Diagram



ECON-ZIP-10K

ZIP Economizer Terminal inputs
SAT (+/-)
OAT (+/-)
RAT (+/-)

ECON-ZIP-EM

ZIP Economizer™ Energy Module

5 YEAR WARRANTY

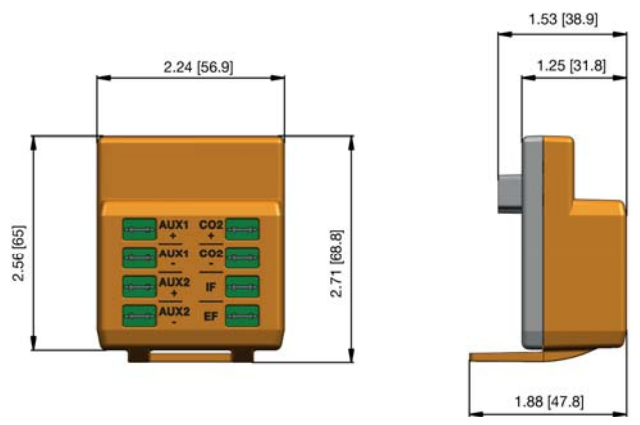
Technical Data	
Power supply	24 VAC ± 20%, 50/60Hz, class 2 power source
Power consumption rating*	1.5 VA (ECON-ZIP-EM), 5.5 VA (ECON-ZIP-BASE + ECON-ZIP-EM)
Connectors	1/4" male spade connectors
Environmental	RoHS, conformally coated
Indoor fan speed selection	100'000 cycles @ inrush current of 3A, normal current 1.5A
Exhaust fan selection	100'000 cycles @ inrush current of 3A, normal current 1.5A
Supported CO2 sensor	0-10 VDC, sensor auto-detection, 0-2000ppm
Auxiliary input - purge contact	on/off - 24 VAC, 50/60HZ - current load min 10mA
Auxiliary input - remote potentiometer	2-10VDC
Humidity	5 to 95% RH non-condensing
Housing	NEMA 1
Housing material	UL94-5VA
Ambient temperature range	-40°F to +158°F (-40°C to +70°C)
Storage temperature range	-40°F to +176°F (-40°C to +80°C)
Agency listing	cULus acc. to UL873, CAN/CSA C22.2, No. 24-93

*The power consumption is for the control only and does not include connected loads such as actuator, compressors, fans, and sensors. For transformer sizing, the power consumption of these attached components must be included.

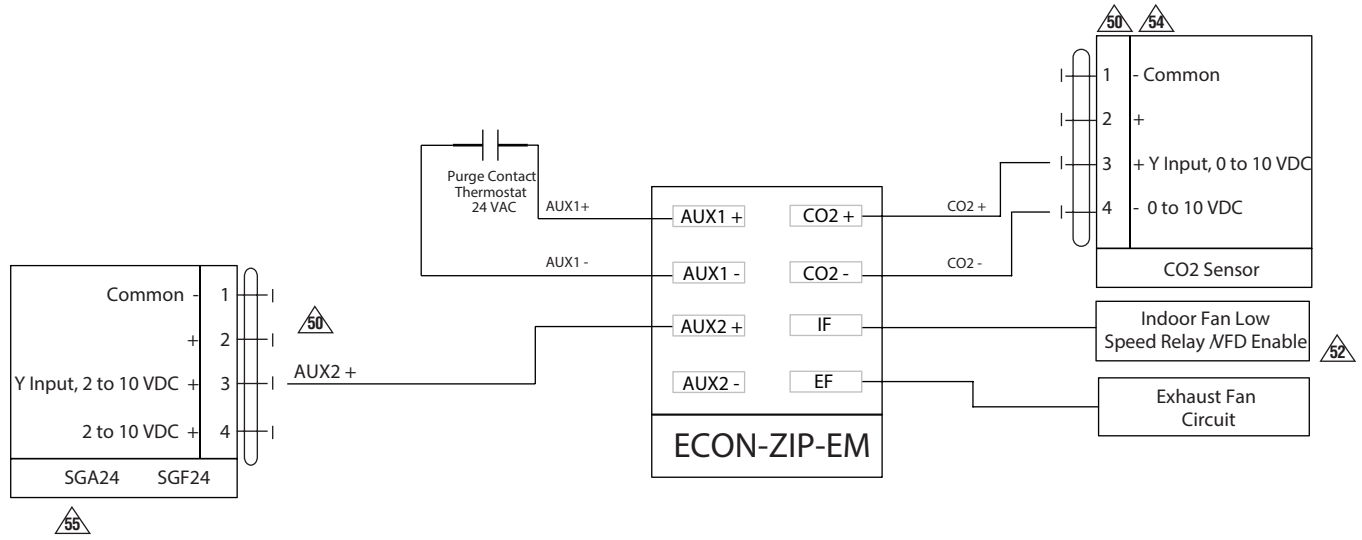
Input/Output Specifications

Type	Name	Description	Electrical Specification
Input	CO2 +/-	CO2 sensor input	0-10 VDC Sensor auto-detection
Output	IF	Indoor fan low speed enable	100'000 cycles @ inrush current of 3A, normal current 1.5A Impedance for Auto detection @24 V: <600 Ω @ 60Hz <800 Ω @ 50Hz
Output	EF	Exhaust fan enable	100'000 cycles @ inrush current of 3A, normal current 1.5A Impedance for Auto detection @ 24 V: <600 Ω @ 60Hz <800 Ω @ 50Hz
Input	AUX1 ±	Auxiliary input Purge contact input	On/Off, 24 VAC, 50/60 Hz Current load min. 10mA
Input	AUX2 ±	Auxiliary input Remote Potentiometer Input	2-10 VDC

Dimensions (Inches [mm])



Wiring Diagram



50 Power source should be the same as ECON-ZIP-BASE.

52 W1 must be wired for Heat Pump operation if conventional thermostat is used in conjunction with Defrost Board. If Thermostat and RTU use O/B control reversing valve position, O/B must be wired to W1 on ECON-ZIP-BASE.

54 Not supplied by Belimo.

55 Sold separately by Belimo