

THERMOSTATS & CONTROLLERS



ECONOMIZER ZIP ECONOMIZER SERIES

DESCRIPTION

The **Belimo ZIP Economizer Series** saves energy in buildings by using cool outside air as a means of cooling the indoor space. This application can drastically reduce HVAC energy costs while also improving air quality. The **ZIP** has easy plug and play features and by adding the different modules available in the series you can conveniently control many aspects of the space including temperature and humidity as well as remote alarm indication. The **ZIP** base unit offers an extended temperature transfective LCD display, with on board help, providing information throughout the entire set up. The base unit is designed to provide most common economizer functions such as two stages of mechanical cooling, intergrated cooling, four chage over strategies for free cooling and damper position feedback. One of the unique features on the **ZIP Economizer** is the patented **ZIP** code set up function which will automatically find your location once entered to maximize energy savings for your location and also make you compliant with the local energy codes.

FEATURES

- **Plug and play self-configuring**
- **Patented zip code recognition**
- **Easy to read LCD display**
- **Alarm notification**
- **Expandable modules available**
- **Onboard help and troubleshooting**
- **TH module CE 2004/108/EC**

NEW!

BELIMO



ECON-ZIP-BASE



SPECIFICATIONS

Supply Voltage	24 VAC ±20%, 50/60Hz	Software Class	A
Accuracy		ECON-ZIP-TH	
ECON-ZIP-TH	±3% 35-65% rH @ 75°F (23.9°C) ±5% 0-34%, 66-100% rH @ 75°F (23.9°C) Response Time: Less than 45 seconds @ 40 FPM, 75°F (23.9°C) Hysterisis: Less than 2.5% rH Long Term Stability: Less than 1% rH/year	Control Pollution Degree	3
Connectors	1/4" male spade connectors	Temperature Sensor Type	NTC 10kOhm
Power Consumption Rating*	Shown on next page with full technical specifications	Humidity Sensor Type	0-10 VDC (0 to 100% RH) max load 10kOhm, Class 2 limited energy
ECON-ZIP-COM	2.5 VA (ECON-ZIP-COM), 6.5 VA (ECON-ZIP-BASE + ECON-ZIP-COM)	Accuracy	
ECON-ZIP-EM	1.5 VA (ECON-ZIP-EM), 5.5 VA (ECON-ZIP-BASE + ECON-ZIP-EM)	ECON-ZIP-TH	±3% 35-65% rH @ 75°F (23.9°C) ±5% 0-34%, 66-100% rH @ 75°F (23.9°C) Response Time: Less than 45 seconds @ 40 FPM, 75°F (23.9°C) Hysterisis: Less than 2.5% rH Long Term Stability: Less than 1% rH/year
Communication Interface		Suitable Actuators	AFB24-SR, NFB24-SR, LF24-SR, TFB24-SR
ECON-ZIP-COM	RS485 Interface, Optical Isolation max. 1k VDC (for max.1 min), Pin 4: RS485 Com Gnd, Pin 7: RS485 Com A, Pin 8: RS485 Com B	Operating Temperature	
Supported Remote Alarm		ECON-ZIP-TH Only	-40° to 140°F (-40° to 60°C)
ECON-ZIP-COM	Normal Current: 0.5A, Inrush Current: 1A	All Other Models	-40° to 158°F (-40° to 70°C)
Indoor Fan Speed Selection		Operating Humidity	
ECON-ZIP-EM	100,000 cycles @ inrush current of 3A, normal current 1.5A	ECON-ZIP-TH Only	0 to 100% RH
Exhaust Fan Selection		All Other Models	5 to 95% RH non-condensing
ECON-ZIP-EM	100,000 cycles @ inrush current of 3A, normal current 1.5A	Enclosure Rating	NEMA 1, UL94-5VA
Supported CO2 Sensor		Weight	
ECON-ZIP-EM	0-10 VDC, Sensor auto-detection	ECON-ZIP-BASE	1 lb (0.45 Kg)
Auxiliary Input -Purge Contact		All Others	0.5 lb (0.22 Kg)
ECON-ZIP-EM	On/Off - 24 VAC, 50/60HZ - Current Load min 10mA	Approvals	
Auxiliary Input -Remote Potentiometer		ECON-ZIP-TH Only	UL File #E108966, CE, 2004/108/EC "Electromagnetic compatibility (EMC)", EN60730-1, -2-9 and-2-13, RoHs UL File #E108966, CAN/CSA C22.2, No. 24-93, RoHs
ECON-ZIP-EM	2-10 VDC	All Other Models	5 years
Current Consumption		Warranty	
ECON-ZIP-TH	Max. 5mA		
Rated Impulse Voltage			
ECON-ZIP-TH	800V		

*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.

THERMOSTATS & CONTROLLERS

21

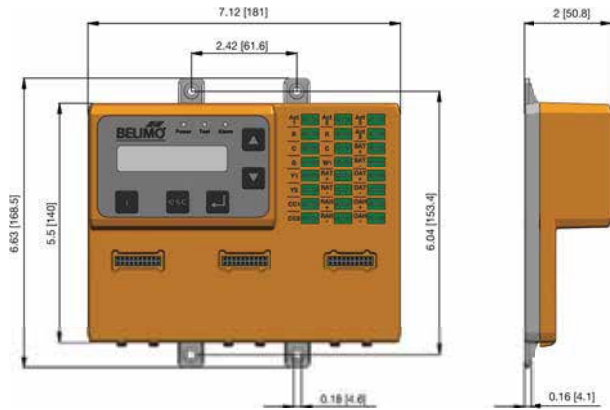
NEW!

THERMOSTATS & CONTROLLERS

70°

ECONOMIZER ZIP ECONOMIZER SERIES

DIMENSIONS - ECON-ZIP-BASE



ZIP Economizer™ Base Unit

TECHNICAL DATA - ECON-ZIP-BASE

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
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 10kOhm
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; transfective
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

I/O SPECIFICATIONS - ECON-ZIP-BASE

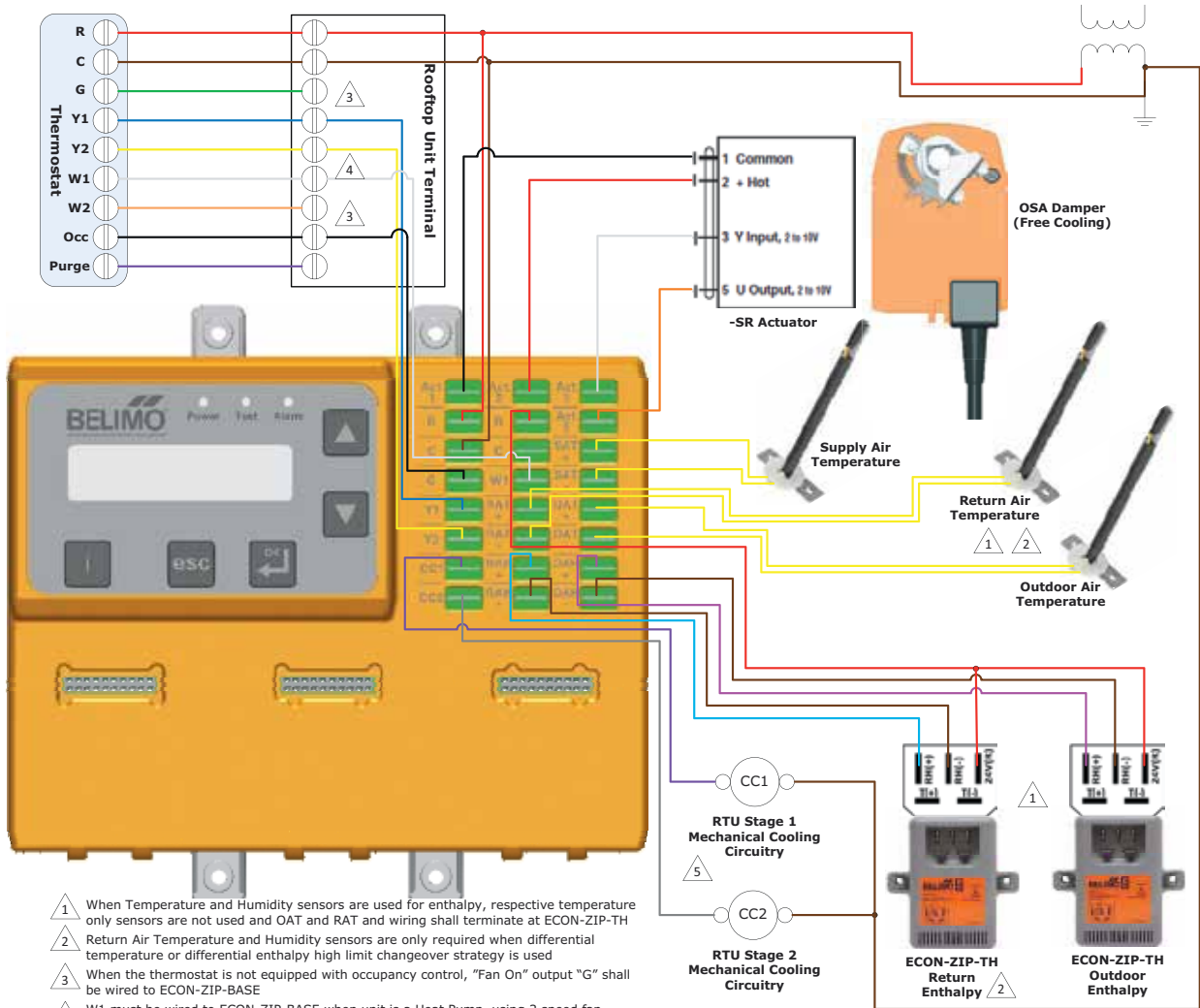
Type	Name	Description	Electrical Specification
Input	R	Supply Hot	24 VAC, ± 20%, 50/60Hz
Input	G	Fan Signal (occupied)	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	C	Supply Common	Common
Input	Y	Cooling requirement Stage 1	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	Y2	Cooling requirement Stage 2	On/Off, 24 VAC, ± 20%, 50/60Hz
Input	W	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 Ohm @ 60Hz <800 Ohm @ 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 Ohm @ 60Hz <800 Ohm @ 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 (OSA Damper)***
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 transformer 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."

*** Free Cooling Damper (Equipment Dependant)

WIRING - ECON-ZIP-BASE



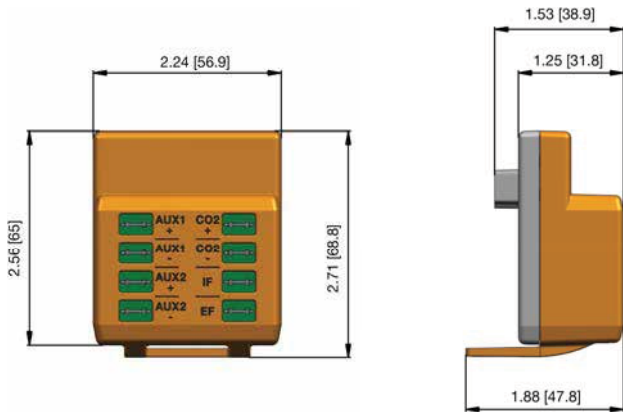
- 1 When Temperature and Humidity sensors are used for enthalpy, respective temperature only sensors are not used and OAT and RAT and wiring shall terminate at ECON-ZIP-TH
- 2 Return Air Temperature and Humidity sensors are only required when differential temperature or differential enthalpy high limit changeover strategy is used
- 3 When the thermostat is not equipped with occupancy control, "Fan On" output "G" shall be wired to ECON-ZIP-BASE
- 4 W1 must be wired to ECON-ZIP-BASE when unit is a Heat Pump, using 2 speed fan, and when it is desired to record operational hours in heating
- 5 Existing refrigeration safety devices may exist, consult RTU wiring diagram

THERMOSTATS & CONTROLLERS



ECONOMIZER ZIP ECONOMIZER SERIES

DIMENSIONS - ECON-ZIP-EM

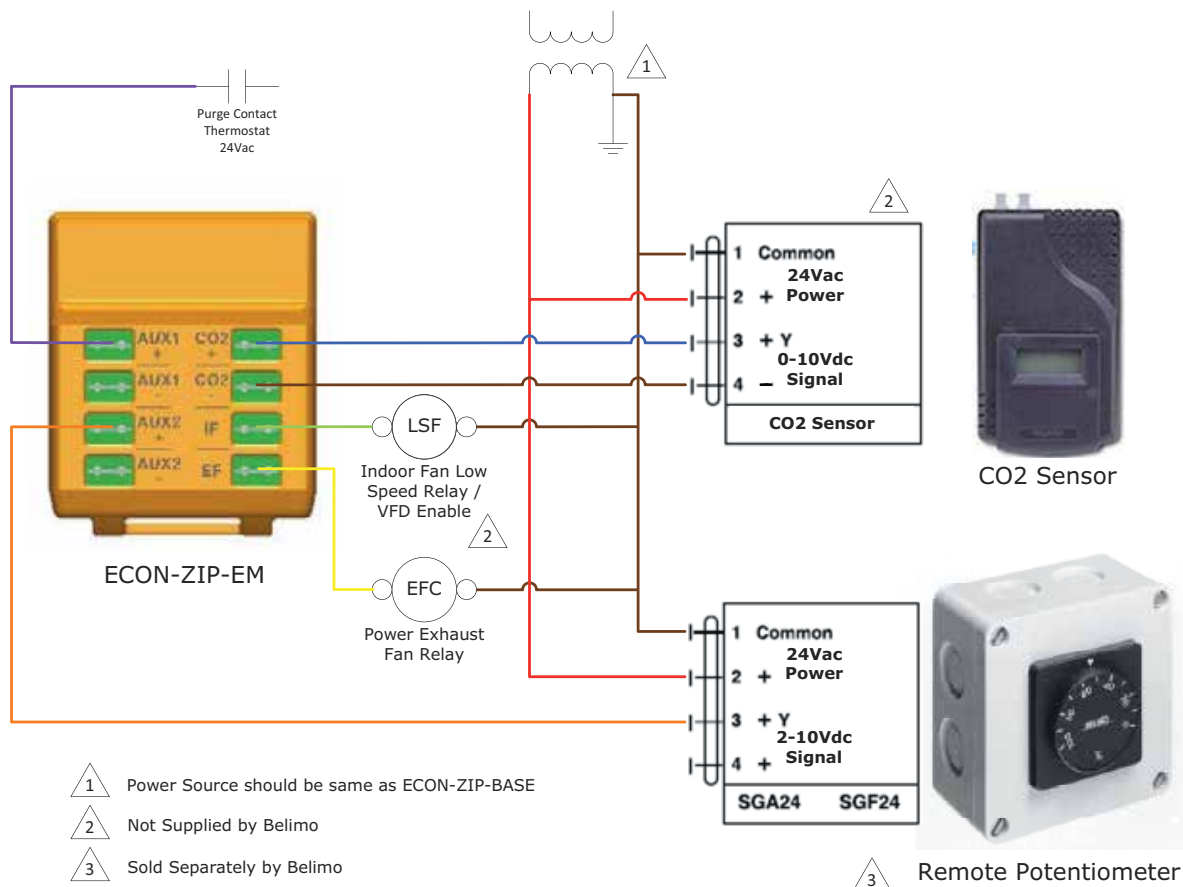


ZIP Economizer™ Communication Module

I/O SPECIFICATIONS - ECON-ZIP-EM

Type	Name	Description	Electrical Specification
Input	CO2 ±	CO2 sensor input	0-10 VDC (0-2000 ppm) 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 Ohm @ 60Hz <800 Ohm @ 50Hz
Output	EF	Exhaust fan enable	100'000 cycles @ inrush current of 3A, normal current 1.5A Impedance for Auto detection @ 24 V: <600 Ohm @ 60Hz <800 Ohm @ 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

WIRING - ECON-ZIP-EM

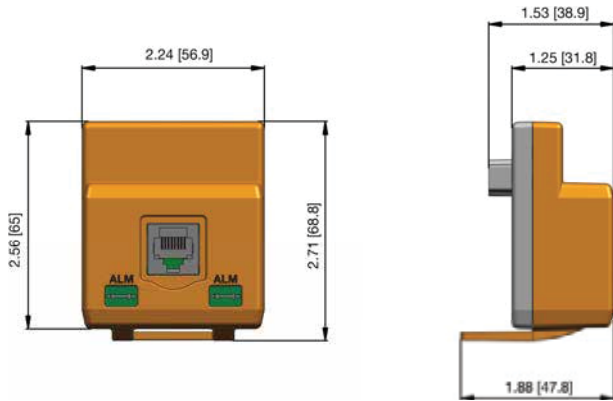


THERMOSTATS & CONTROLLERS



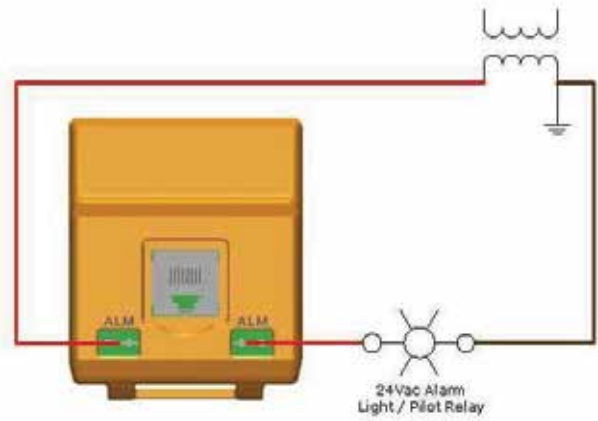
ECONOMIZER ZIP ECONOMIZER SERIES

DIMENSIONS - ECON-ZIP-COM

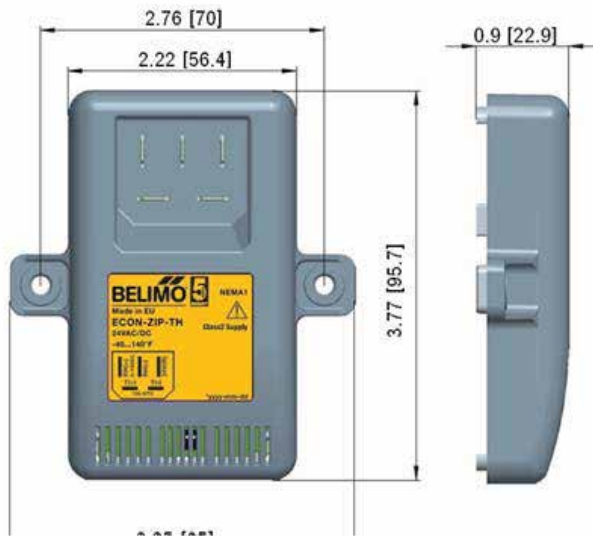


ZIP Economizer™ Communication Module

WIRING - ECON-ZIP-COM

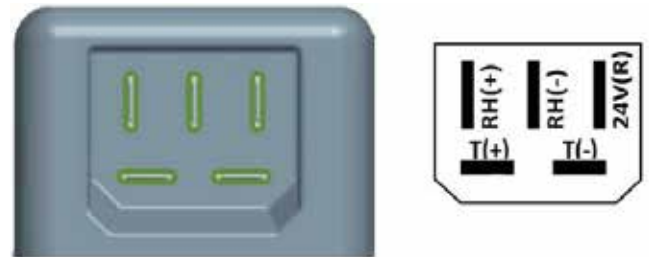


DIMENSIONS - ECON-ZIP-TH



ZIP Economizer™ Temperature & Humidity Sensor

WIRING - ECON-ZIP-TH



ORDERING INFORMATION

MODEL	DESCRIPTION
ECON-ZIP-BASE	Economizer module
ECON-ZIP-COM	Economizer communication module (plug-in)
ECON-ZIP-EM	Economizer energy module (plug-in)
ECON-ZIP-10K	Economizer temperature sensor (plug-in)
ECON-ZIP-TH	Economizer temperature and humidity sensor module (plug-in)