

Configurable

Electr. 2-way PI-CCV Belimo Energy Valve™ fail-safe, AC/DC 24 V, BACnet/IP, BACnet MS/TP, Modbus TCP, Modbus RTU, MP-Bus, Cloud, DN 3" [], Flange, ANSI Class 125, GPM 180, 14...250°F [-10...120°C]



5-year warranty


Type Overview

| Type | ANSI Class |
|-----------------------|------------|
| EV300SU-180+AKRX24-EV | 125 |

Technical data

| | | | |
|-------------------------------|--|--|---|
| Electrical data | Nominal voltage | AC/DC 24 V | |
| | Nominal voltage frequency | 50/60 Hz | |
| | Nominal voltage range | AC 19.2...28.8 V / DC 21.6...28.8 V | |
| | Power consumption in operation | 14 W (0.5" to 2"), 16 W (2.5" to 6") | |
| | Transformer sizing | 26 VA | |
| Data bus communication | Communicative control | BACnet/IP, BACnet MS/TP Modbus TCP, Modbus RTU MP-Bus Cloud | |
| | Functional data | Valve size [mm] | 3" [80] |
| | | Operating range Y | 2...10 V |
| | | Operating range Y note | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| Input impedance | | 100 kΩ (0.1 mA), 500 Ω | |
| Operating modes optional | | VDC variable | |
| Position feedback U | | 2...10 V | |
| Position feedback U variable | | VDC variable | |
| Running Time (Motor) | | 90 s | |
| Running time fail-safe | | <35 s | |
| Noise level Motor | | 45 dB(A) | |
| Noise level, fail-safe | | 45 dB(A) | |
| Control accuracy | | ±5% | |
| Min. controllable flow | | 1% of V ^{nom} | |
| Fluid | chilled or hot water, up to 60% glycol max (open loop/steam not allowed) | | |
| Fluid temperature | 14...250°F [-10...120°C] | | |
| Close-off pressure Δps | 175 psi | | |
| Differential Pressure Range | 5...50 psi or 1...50 psi see flow reductions chart in tech doc | | |
| Flow characteristic | equal percentage or linear | | |
| Body Pressure Rating | ANSI Class 125, standard class B | | |
| GPM | 180 | | |

Technical data

| | | |
|--------------------------------|----------------------------------|---|
| Functional data | Pipe connection | Flange for use with ASME/ANSI class 125 |
| | Servicing | maintenance-free |
| | Manual override | external push button |
| Temperature measurement | Remote Temperature Sensor Length | Optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m] Standard: 32.8 ft. [10m] |
| Flow measurement | Measuring principle | Ultrasonic volumetric flow measurement |
| | Measuring accuracy flow | ±2%* |
| | Measurement repeatability | ±0.5% (Flow) |
| | Sensor technology | Ultrasonic with glycol and temperature compensation |
| Safety data | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP54 |
| | Degree of protection NEMA/UL | NEMA 1 |
| | Enclosure | UL Enclosure Type 1 |
| | Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02 CE acc. to 2014/30/EU and 2014/35/EU |
| | Quality Standard | ISO 9001 |
| | UL 2043 Compliant | Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC |
| | Ambient humidity | Max. 95% RH, non-condensing |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Storage temperature | -40...176°F [-40...80°C] |
| Materials | Valve body | Cast iron - GG 25 |
| | Flow measuring pipe | Ductile cast iron - GGG50 |
| | Stem | stainless steel |
| | Stem seal | EPDM (lubricated) |
| | Seat | PTFE |
| | Characterized disc | stainless steel |
| | O-ring | EPDM (lubricated) |
| Ball | stainless steel | |

Safety notes


- **WARNING:** This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

Product features

Application Water-side control of heating and cooling systems for AHUs and water coils.

Operation The Energy Valve is an energy metering pressure independent control valve that measures, documents and optimises water coil performance.

Flow measurement *All flow tolerances are at 68°F [20°C] & water.

Accessories

| Electrical accessories | Description | Type |
|------------------------|---|----------------|
| | Replacement flow sensor for Belimo Energy Valve™, Ultrasonic 3" 80 | M24300-EV |
| | Replacement temperature sensors for Belimo Energy Valve™, 65...150 1.5 m | EV-RT-15 |
| | Replacement temperature sensors for Belimo Energy Valve™, 65...150 10 ft [3 m] | EV-RT-30 |
| | Replacement temperature sensors for Belimo Energy Valve™, 65...150 16 ft [5 m] | EV-RT-50 |
| | Replacement temperature sensors for Belimo Energy Valve™, 65...150 10 m | EV-RT-100 |
| | Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US |
| Mechanical accessories | Description | Type |
| | Weather shield for Belimo Energy Valve™, 65...80, Ultrasonic models only | ZS-EPIV-EV-80U |

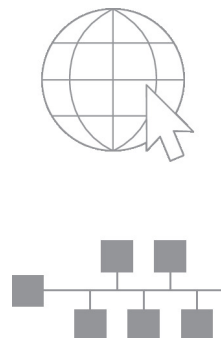
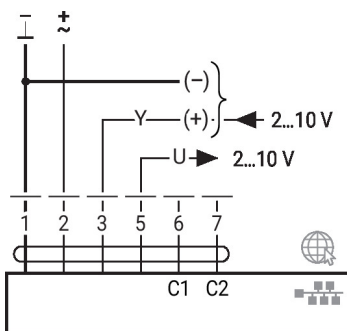
Electrical installation

Wire colors:

- 1 = black
- 2 = red
- 3 = white
- 5 = orange
- 6 = pink
- 7 = grey

INSTALLATION NOTES

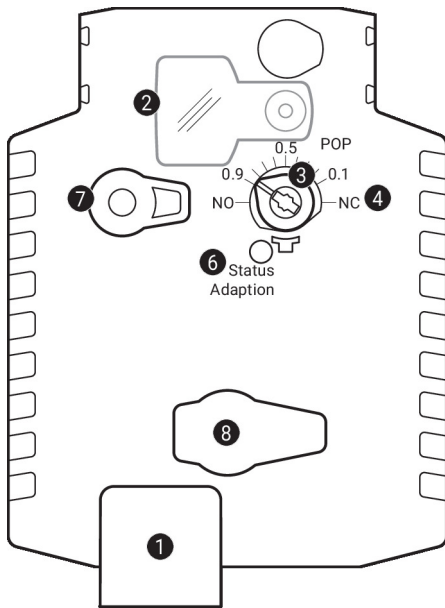
- Actuators with appliance cables are numbered.
- Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- Actuators may also be powered by DC 24 V.
- Actuators with plenum cable do not have numbers; use color codes instead.
- Meets cULus requirements without the need of an electrical ground connection.
- Warning! Live electrical components!**
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Connection of a notebook for parametrisation and manual control via RJ45.

Optional connection via RJ45 (direct connection to notebook / connection via Intranet or Internet) for access to the integrated web server

Operating controls and indicators


1 LED display green

Off: No power supply or wiring error
 On: In operation
 Flickering: Internal communication (Valve/Sensor)

2 Cover, POP button
3 POP button
4 Scale for manual adjustment
6 Push-button and LED display yellow

On: Adaptation or synchronisation process active
 Flashing: POP function active
 Off: Not in operation, pre-charging time SuperCap, fault SuperCap
 Press button: Triggers angle of rotation adaptation, followed by standard mode

7 Manual override button

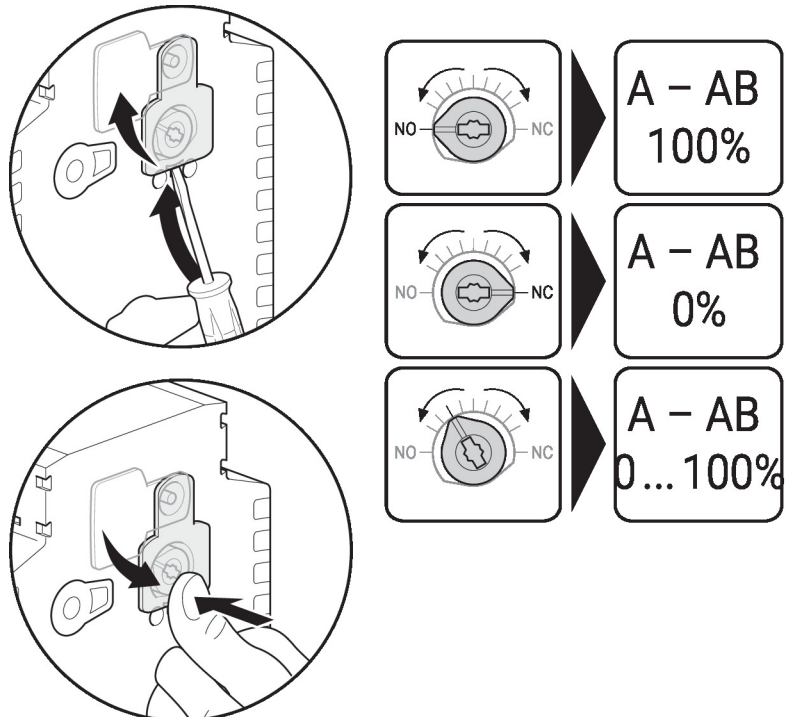
Press button: Gear train disengages, motor stops, manual override possible
 Release button: Gear train engages, followed by standard mode

8 Service plug

For connecting parametrisation and service tools

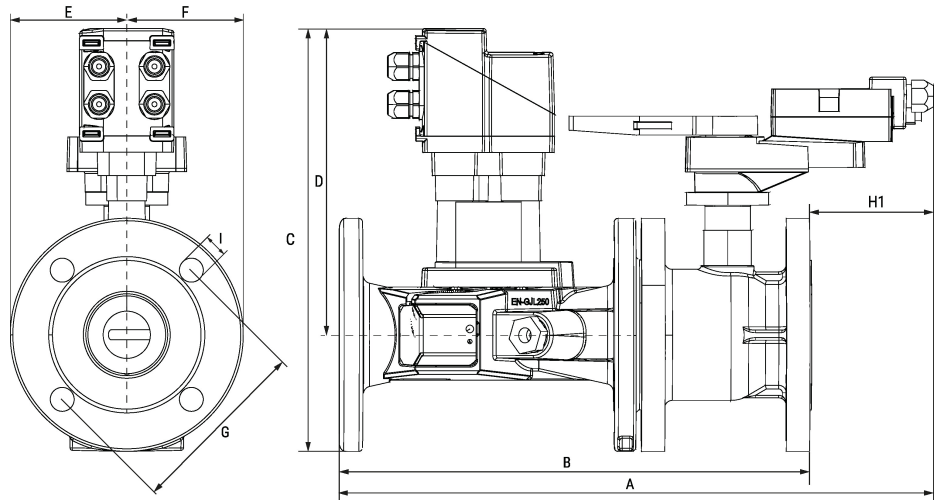
Setting fail-safe position

Setting emergency setting position (POP)



Dimensions

Dimensional drawings



Type

EV300SU-180+AKRX24-EV

Weight

77 lb [35 kg]

| A | B | C | D | E | F | G | H1 | I | Number of Bolt Holes |
|-------------|-------------|-------------|------------|------------|------------|------------|-----------|-----------|----------------------|
| 19.0" [483] | 16.9" [430] | 13.7" [347] | 9.8" [248] | 3.9" [100] | 3.9" [100] | 6.1" [154] | 2.1" [53] | 0.7" [19] | 4 |