

## Configurable

Electr. 2-way PI-CCV Belimo Energy Valve™, AC/DC 24 V, BACnet/IP, BACnet MS/TP, Modbus TCP, Modbus RTU, MP-Bus, Cloud, DN 5"□, Flange, ANSI Class 250, GPM 495, 14...250°F [-10...120°C]



5-year warranty



## Type Overview

| Type                     | ANSI Class |
|--------------------------|------------|
| EV500SU-495-250+GRX24-EV | 250        |

## 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 | 8 W                                                                         |
|                        | Transformer sizing             | 12 VA                                                                       |
| Data bus communication | Communicative control          | BACnet/IP, BACnet MS/TP<br>Modbus TCP, Modbus RTU<br>MP-Bus<br>Cloud        |
|                        |                                |                                                                             |
|                        |                                |                                                                             |
|                        |                                |                                                                             |
|                        |                                |                                                                             |
| Functional data        | Valve size [mm]                | 5" [125]                                                                    |
|                        | 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                                                                        |
|                        | Noise level Motor              | 45 dB(A)                                                                    |
|                        | Control accuracy               | ±5%                                                                         |
|                        | Min. controllable flow         | 1% of V'nom                                                                 |
|                        | Fluid                          | chilled or hot water, up to 60% glycol max<br>(open loop/steam not allowed) |
|                        | Fluid temperature              | 14...250°F [-10...120°C]                                                    |
|                        | Close-off pressure Δps         | 310 psi                                                                     |
|                        | Differential Pressure Range    | 5...50 psi or 1...50 psi see flow reductions chart<br>in tech doc           |
|                        | Flow characteristic            | equal percentage or linear                                                  |
|                        | Body Pressure Rating           | ANSI Class 250, standard class B                                            |
|                        | GPM                            | 495                                                                         |
|                        | Pipe connection                | Flange<br>for use with ASME/ANSI class 250                                  |
|                        | Servicing                      | maintenance-free                                                            |

## Technical data

|                  |                              |                                                                                                                       |
|------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Functional data  | Manual override              | external push button                                                                                                  |
|                  | Temperature measurement      | Remote Temperature Sensor Length<br>Optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m]<br>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<br>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                       | Viton                                                                                                                 |
|                  | 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](http://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 temperature sensors for Belimo Energy Valve™, 65...150 1.5 m | EV-RT-15 |

## Accessories

| Description                                                                                                                                 | Type      |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Replacement temperature sensors for Belimo Energy Valve™, 65...150<br>10 ft [3 m]                                                           | EV-RT-30  |
| Replacement temperature sensors for Belimo Energy Valve™, 65...150<br>16 ft [5 m]                                                           | EV-RT-50  |
| Replacement temperature sensors for Belimo Energy Valve™, 65...150<br>10 m                                                                  | EV-RT-100 |
| Service tool, with ZIP-USB function, for programmable and<br>communicative Belimo actuators, VAV controller and HVAC performance<br>devices | ZTH US    |

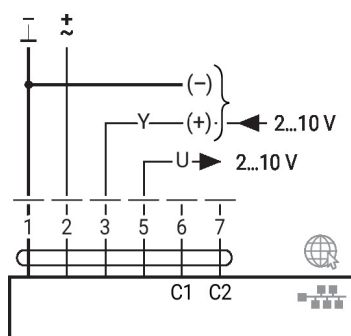
## Electrical installation

### Wire colors:

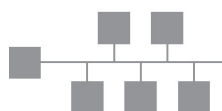
- 1 = black
- 2 = red
- 3 = white
- 5 = orange
- 6 = pink
- 7 = grey

### ✂ 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.

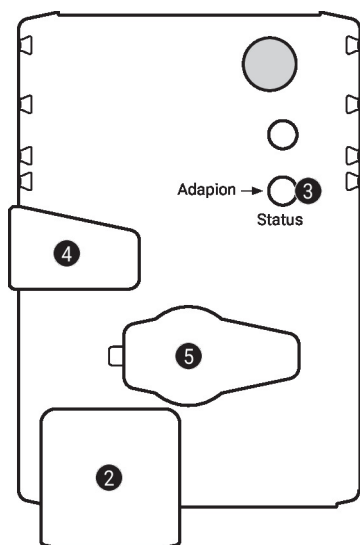


Connection of a notebook for  
parametrisation and manual  
control via RJ45.



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

## Operating controls and indicators



### 2 LED display green

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

### 3 Push-button and LED display yellow

- On: Adaptation or synchronisation process active  
Press button: Triggers angle of rotation adaptation, followed by standard mode

### 4 Manual override button

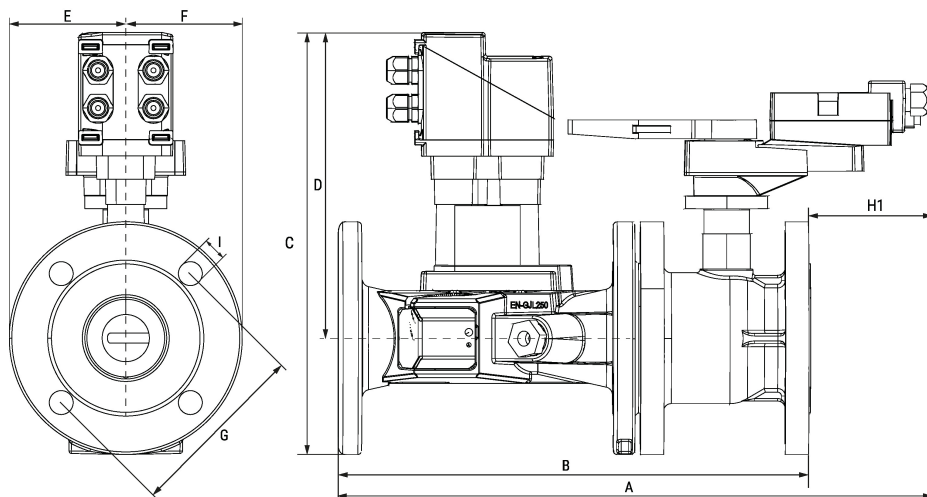
- Press button: Gear train disengages, motor stops, manual override possible  
Release button: Gear train engages, standard mode

### 5 Service plug

- For connecting parametrisation and service tools

## Dimensions

### Dimensional drawings



### Type

EV500SU-495-250+GRX24-EV

### Weight

190 lb [88 kg]

| A           | B           | C           | D           | E          | F          | G          | H1        | I         | Number of Bolt Holes |
|-------------|-------------|-------------|-------------|------------|------------|------------|-----------|-----------|----------------------|
| 25.0" [635] | 22.9" [581] | 16.0" [406] | 10.5" [267] | 5.5" [140] | 5.5" [140] | 9.3" [235] | 2.1" [53] | 0.9" [22] | 8                    |