

## 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 5"[], Flange, ANSI Class 250, GPM 495, 14...250°F [-10...120°C]



5-year warranty



## Type Overview

Type	ANSI Class
EV500SU-495-250+GKRX24-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	17 W
	Transformer sizing	29 VA
Data bus communication	Communicative control	BACnet/IP, BACnet MS/TP Modbus TCP, Modbus RTU MP-Bus 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
	Running time fail-safe	<35 s
	Noise level Motor	52 dB(A)
	Noise level, fail-safe	61 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	310 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 250, standard class B
	GPM	495

## Technical data

<b>Functional data</b>	Pipe connection	Flange for use with ASME/ANSI class 250
	Servicing	maintenance-free
	Manual override	external push button
<b>Temperature measurement</b>	Remote Temperature Sensor Length	Optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m] Standard: 32.8 ft. [10m]
<b>Flow measurement</b>	Measuring principle	Ultrasonic volumetric flow measurement
	Measuring accuracy flow	±2%*
	Measurement repeatability	±0.5% (Flow)
	Sensor technology	Ultrasonic with glycol and temperature compensation
<b>Safety data</b>	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]
<b>Materials</b>	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

<b>Application</b>	Water-side control of heating and cooling systems for AHUs and water coils.
<b>Operation</b>	The Energy Valve is an energy metering pressure independent control valve that measures, documents and optimises water coil performance.
<b>Flow measurement</b>	*All flow tolerances are at 68°F [20°C] & water.

## Accessories

Electrical accessories	Description	Type
1.5 m	Replacement temperature sensors for Belimo Energy Valve™, 65...150	EV-RT-15
10 ft [3 m]	Replacement temperature sensors for Belimo Energy Valve™, 65...150	EV-RT-30
16 ft [5 m]	Replacement temperature sensors for Belimo Energy Valve™, 65...150	EV-RT-50
10 m	Replacement temperature sensors for Belimo Energy Valve™, 65...150	EV-RT-100
	Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

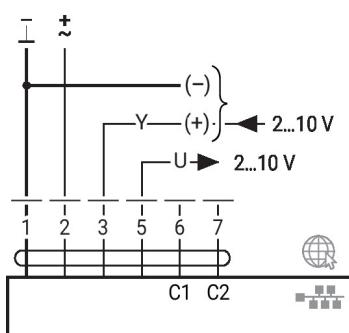
## Electrical installation

## Wire colors:

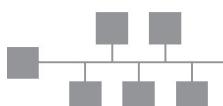
1 = black  
 2 = red  
 3 = white  
 5 = orange  
 6 = pink  
 7 = grey

 **INSTALLATION NOTES**

-  **A** Actuators with appliance cables are numbered.
-  **2** Actuators may be connected in parallel. Power consumption and input impedance must be observed.
-  **3** Actuators may also be powered by DC 24 V.
-  **18** 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.

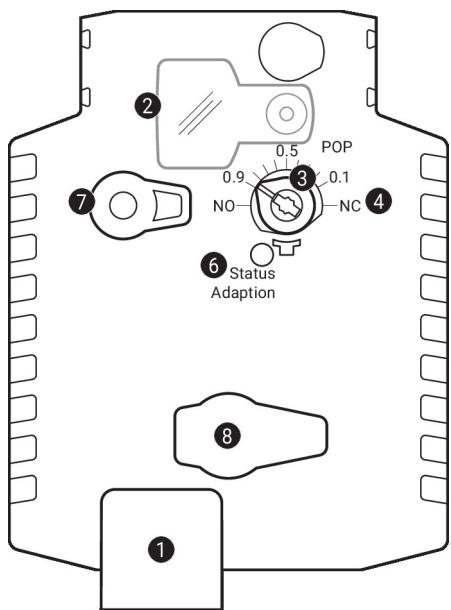


Connection of a notebook for parametrisation and manual control via RJ45.



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****5 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

**6 Manual override button**

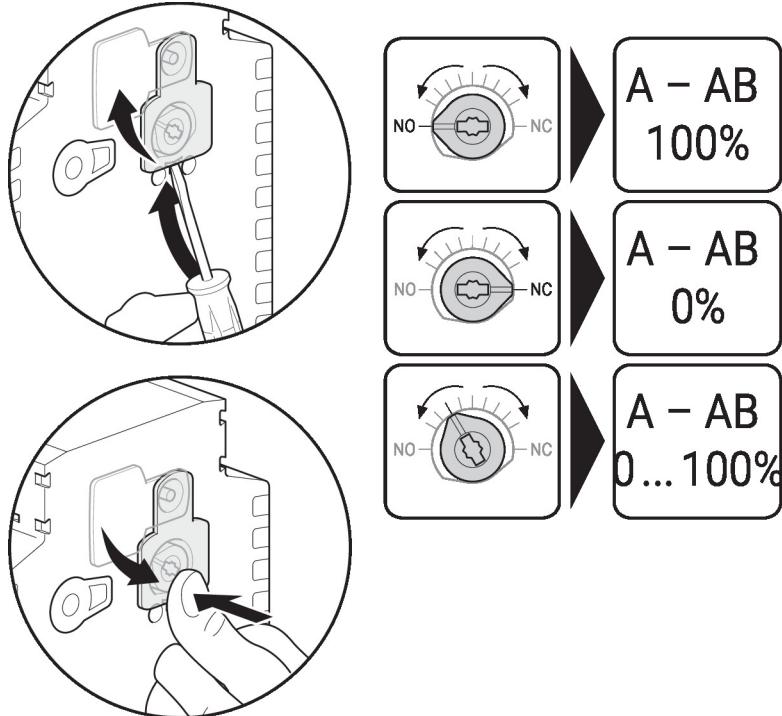
Press button: Gear train disengages, motor stops, manual override possible  
Release button: Gear train engages, followed by standard mode

**7 Service plug**

For connecting parametrisation and service tools

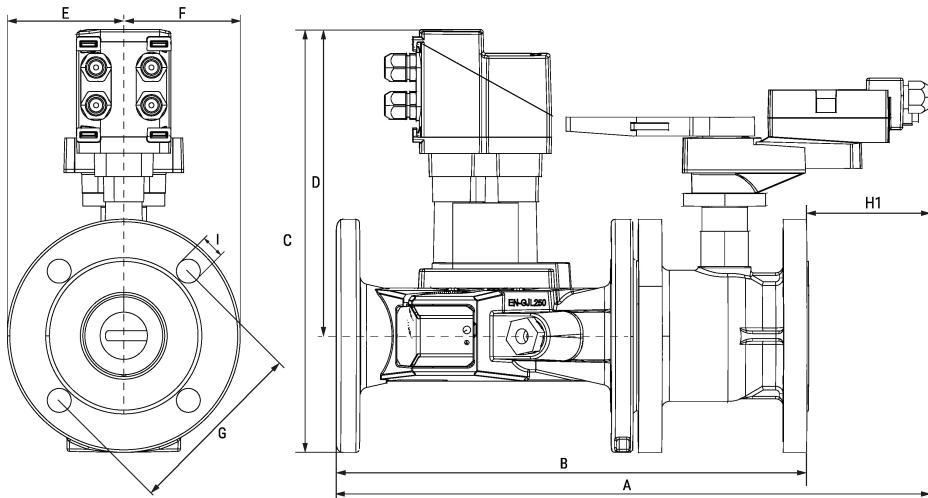
**Setting fail-safe position**

Setting emergency setting position (POP)



## Dimensions

## Dimensional drawings



## Type

EV500SU-495-250+GKRX24-EV

## Weight

200 lb [89 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