5

5-year warranty

Type overview

Type	DN
G7100S	100

## Technical data

Functional data	Valve size [mm]	4" [100]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	-20...350°F [-30...176°C]
	Body Pressure Rating	ANSI Class 125, up to 175 psi below 150°F
	Flow characteristic	linear
	Servicing	repack/rebuild kits available
	Rangeability Sv	50:1
	Flow Pattern	3-way Mixing
	Leakage rate	ANSI Class III
	Controllable flow range	stem up - open B – AB
	Cv	190
Materials	Valve body	Cast iron - ASTM A126 Class B
	Valve plug	Stainless steel
	Spindle	316 stainless steel with Heater
	Spindle seal	NLP EPDM (no lip packing)
	Seat	Stainless steel AISI 316
	Pipe connection	125 lb flanged
Suitable actuators	Non-Spring	EVB(X) RVB(X)
	Spring	(2*AFB(X))
	Electrical fail-safe	(2*GKB(X))

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
- The valve has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The valve does not contain any parts that can be replaced or repaired by the user.
- When determining the flow rate characteristic of controlled devices, the recognised directives must be observed.
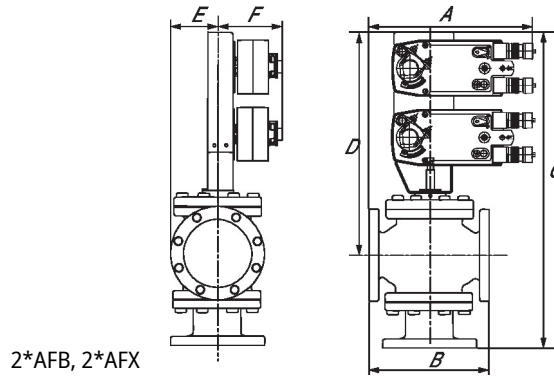
Product features

Flow/Mounting details

A — AB
B
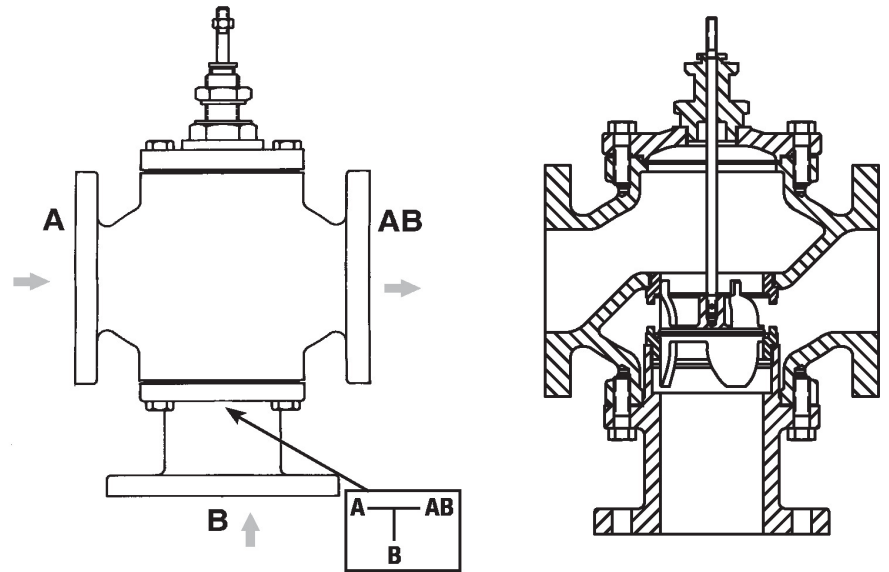
Dimensions

Type	DN
G7100S	100

EVB, EVX, RVB, RVX

A	B	C	D	E	F	Number of Bolt Holes
13.7" [349]	13.0" [330]	29.7" [754]	19.8" [502]	4.5" [114]	4.5" [114]	8

EVB, EVX, RVB, RVX

A	B	C	D	E	F	Number of Bolt Holes
13.7" [349]	13.0" [330]	29.7" [754]	19.8" [502]	4.5" [114]	4.5" [114]	8

2*AFB, 2*AFX

A	B	C	D	E	F	Number of Bolt Holes
13.7" [349]	13.0" [330]	33.2" [844]	23.4" [594]	4.5" [114]	5.3" [135]	8
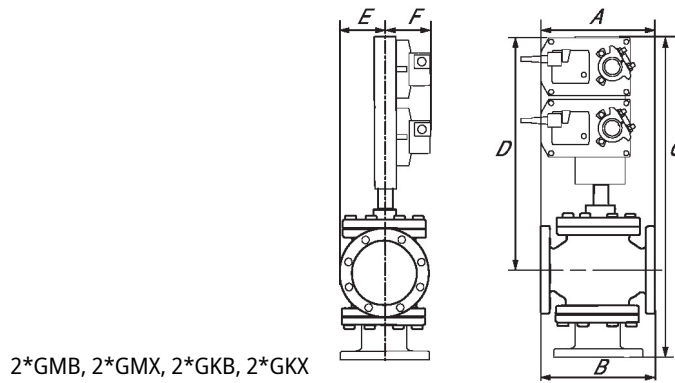
2*GMB, 2*GMX, 2*GKB, 2*GKX

A	B	C	D	E	F	Number of Bolt Holes
15.1" [383]	13.0" [330]	33.2" [844]	23.4" [594]	4.5" [114]	5.3" [135]	8

BELIMO®

Modulating, Non-Spring Return, Linear, 24 V,
Multi-Function Technology®

5

5-year warranty

LISTED
94 D5
TEMP. IND. &
REG. EQUIP.

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	6 W
	Power consumption in rest position	1.5 W
	Transformer sizing	11 VA (class 2 power source)
	Electrical Connection	18 GA plenum cable, 3 ft [1 m], with 1/2" conduit connector, degree of protection NEMA 2 / IP54
	Overload Protection	electronic throughout full stroke
	Electrical Protection	actuators are double insulated
Functional data	Actuating force motor	4500 N [1010 lbf]
	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 for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for On/Off
	Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V
	Options positioning signal	variable (VDC, on/off, floating point)
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Position feedback U variable	VDC variable
	Direction of motion motor	selectable with switch
	Manual override	5 mm hex crank (3/16" Allen), supplied
	Stroke	2" [50 mm]
	Running Time (Motor)	90 s /
	Running time motor variable	90...150 s
	Noise level, motor	65 dB(A)
	Position indication	Mechanically, with pointer
Safety data	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2
	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
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	Max. 95% RH, non-condensing
	Servicing	maintenance-free

| **Materials** | Housing material | Die cast aluminium and plastic casing |

Footnotes † Use flexible metal conduit. Push the listed conduit fitting device over the actuator's cable to butt against the enclosure. Screw in conduit connector. Jacket the actuators input wiring with listed flexible conduit. Properly terminate the conduit in a suitable junction box. Rated impulse Voltage 800V. Type of action 1. Control pollution degree 3.

Accessories

Gateways	Description	Type
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON

Electrical accessories	Description	Type
	Battery backup system, for non-spring return models	NSV24 US
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
	Auxiliary switch 2 x SPDT for NG GV Actuators	S2A-GV
	Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

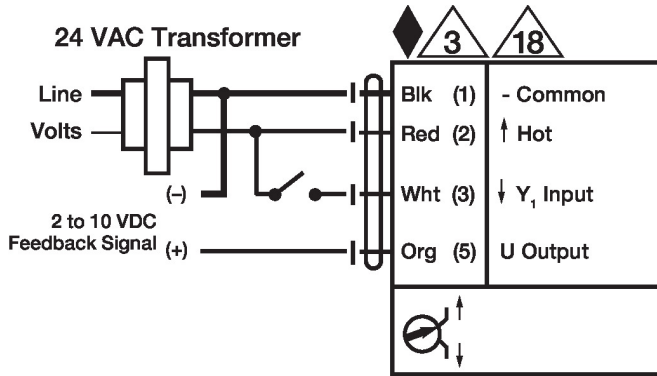| **Service tools**	Description	Type
	Connection cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection	ZK4-GEN
	Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

Electrical installation
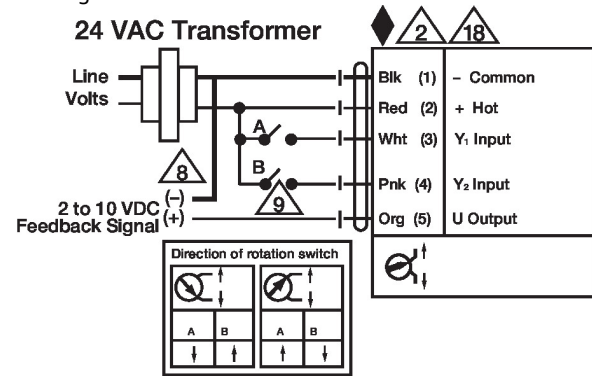
⚒ **INSTALLATION NOTES**

⚠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.

⚠7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

⚠8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.

⚠9 For triac sink the common connection from the actuator must be connected to the hot connection of the controller. Contact closures A & B also can be triacs. A & B should both be closed for the triac source and open for triac sink.

⚠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.
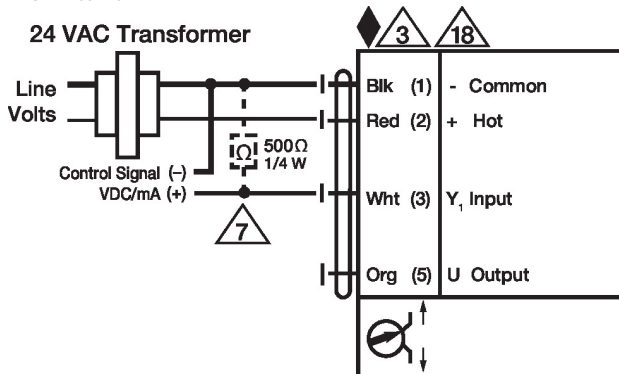
Wiring diagrams

On/Off

24 VAC Transformer

Line
Volts

(−)

2 to 10 VDC
Feedback Signal (+)

⬥ /3\ /18\

Blk	(1)	− Common
Red	(2)	↑ Hot
Wht	(3)	↓ Y₁ Input
Org	(5)	U Output

Floating Point

24 VAC Transformer

Line
Volts

2 to 10 VDC (−)
Feedback Signal (+)

/8\ /9\

A
B

⬥ /2\ /18\

Blk	(1)	− Common
Red	(2)	+ Hot
Wht	(3)	Y₁ Input
Pnk	(4)	Y₂ Input
Org	(5)	U Output

Direction of rotation switch

| | A | B | | A | B |
| | ↓ | ↑ | | ↑ | ↓ |

VDC / 4 to 20 mA

24 VAC Transformer

Line
Volts

Control Signal (−)
VDC/mA (+)

500Ω 1/4 W

/7\

⬥ /3\ /18\

Blk	(1)	− Common
Red	(2)	+ Hot
Wht	(3)	Y₁ Input
Org	(5)	U Output

Override Control Min, Mid, Max Positions

24 VAC Transformer (AC Only)

Line
Volts

Control Signal (−)
VDC/mA (+)

500 Ω 1/4 W

/7\

A
B
C

⬥ /18\

Blk	(1)	− Common
Red	(2)	+ Hot
Wht	(3)	Y₁ Input
Org	(5)	U Output

Functions		a	b	c
Min	0%			
Mid	50%			
Max	100%			
Normal	Control mode acc. to Y			