

Customizable Non Fail-Safe multifunction technology actuator for controlling dampers in typical commercial HVAC applications.

- Torque motor 360 in-lb [40 Nm]
- Nominal voltage AC/DC 24 V
- Control MFT/programmable
- Position feedback 2...10 V
- NEMA 4X



5-year warranty

**MFT**

Technical data

<b>Electrical data</b>	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	4 W
	Power consumption in rest position	2 W
	Transformer sizing	7 VA
	Electrical Connection	Screw terminal (for 26 to 14 GA wire), 1/2" conduit connector
	Overload Protection	electronic throughout 0...95° rotation
<b>Functional data</b>	Torque motor	360 in-lb [40 Nm]
	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 PWM, On/Off and Floating point
	Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V
	Operating modes optional	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 0/1
	Manual override	external push button
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s / 90°
	Running time motor variable	45...170 s
Noise level, motor	45 dB(A)	
Position indication	Mechanical, 5...20 mm stroke	
<b>Safety data</b>	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP66
	Degree of protection NEMA/UL	NEMA 4X
	Enclosure	UL Enclosure Type 4X
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No 24-93, CE acc. to 89/336/EC
	Quality Standard	ISO 9001
	Ambient humidity	Max. 100% RH
	Ambient temperature	-22...122°F [-30...50°C]
	Ambient temperature note	-40...50°C for actuator with integrated heating
	Storage temperature	-40...176°F [-40...80°C]

<b>Safety data</b>	Servicing	maintenance-free
<b>Weight</b>	Weight	7.1 lb [3.2 kg]
<b>Materials</b>	Housing material	Polycarbonate

**Footnotes** †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3.

**Product features**

**Application** For modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. The actuator is mounted directly to a damper shaft up to 1.05" in diameter by means of its universal clamp. The default parameters for 2...10 V applications of the ..MFT actuator are assigned during manufacturing. If necessary, custom versions of the actuators can be ordered. The parameters can be changed by two means: pre-set and custom configurations from Belimo or on-site configurations using the Belimo PC-Tool software.

**Operation** The actuator is not provided with and does not require any limit switches, but is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.

The GMB24-SR-T N4 provides 95° of rotation and a visual indicator indicates position of the actuator. When reaching the damper or actuator end position, the actuator automatically stops. The gears can be manually disengaged with a button on the actuator after the cover is removed.

The GMB24-SR-T N4 actuator uses a sensorless brushless DC motor, which is controlled by an Application Specific Integrated Circuit (ASIC). The ASIC monitors and controls the actuator's rotation and provides a digital rotation sensing (DRS) function to prevent damage to the actuator in a stall condition. Power consumption is reduced in holding mode.

Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.

For low ambient temperatures, the optional supplemental (-H) Heater add-on is available.

**Typical specification** Floating point, on/off control damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to a shaft up to 1.05" diameter. Actuators shall have brushless DC motor technology and be protected from overload at all angles of rotation. Actuators shall have reversing switch and manual override on the cover. Run time shall be constant and independent of torque. Actuators shall be cULus listed, have a 5-year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

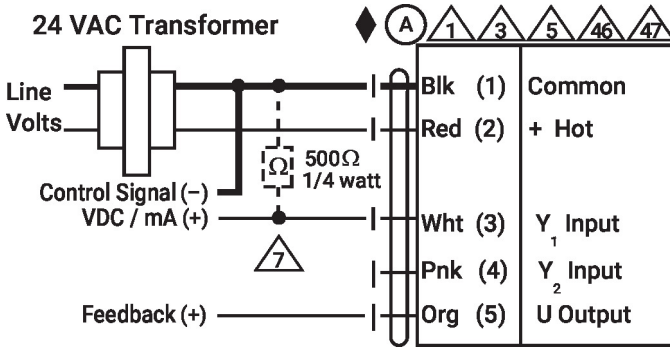
**Accessories**

Electrical accessories	Description	Type
	Gasket for cable gland (NEMA 4 models)	11097-00001
	Cable Gland (NEMA 4 models)	43442-00001
	Battery backup system, for non-spring return models	NSV24 US
	Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
	Auxiliary switch 1 x SPDT add-on	S1A
	Auxiliary switch 2 x SPDT add-on	S2A
	Positioner for wall mounting	SGA24
	Positioner for front-panel mounting	SGF24
	Cable conduit connector 1/2"	TF-CC US
	Resistor, 500 Ω, 1/4" wire resistor with 6" pigtail wires	ZG-R01
	Transformer, AC 120 V to AC 24 V, 40 VA	ZG-X40

Mechanical accessories	Description	Type
	Actuator arm for standard shaft clamp	AH-GMA
	Shaft extension 240 mm ø20 mm for damper shaft ø8...22.7 mm	AV8-25
	Ball joint suitable for damper crank arm KH8, Multipack 10 pcs.	KG8
	Standard GK/GM clamp (1/2" to 1.05").	K-GM20
	Push rod for KG10A ball joint 36" L, 3/8" diameter	SH10
	Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter).	SH8
	Wrench 0.512 in. [13 mm]	TOOL-07
	Mounting bracket for AF..	ZG-100
	Mounting bracket	ZG-101
	Dual actuator mounting bracket.	ZG-102
	Mounting bracket	ZG-103
	Mounting bracket	ZG-104
	Mounting bracket	ZG-109
	Linkage kit	ZG-110
	Damper clip for damper blade, 3.5" width.	ZG-DC1
	Damper clip for damper blade, 6" width.	ZG-DC2
	Mounting kit for linkage operation for flat installation	ZG-GMA
	Base plate extension for GM..A to GM..	Z-GMA
	Weather shield 13x8x6" [330x203x152 mm] (LxWxH)	ZS-100
	Base plate, for ZS-100	ZS-101
	Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)	ZS-150
	Explosion proof housing 16x10x6.435" [406x254x164 mm] (LxWxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified) Locations	ZS-260
	Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets	ZS-300
	Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets	ZS-300-5
	Shaft extension 1/2"	ZS-300-C1
	Shaft extension 3/4"	ZS-300-C2
	Shaft extension 1"	ZS-300-C3
Tools	Description	Type
	Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
	Connecting cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket	ZK1-GEN
	Connecting cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: free wire end for connection to MP/PP terminal	ZK2-GEN
	Connecting cable 16 ft [5 m], A+B: RJ12 6/6	ZK6-GEN
Factory add-on option only	Description	Type
	Heater, with adjustable thermostat	N4 Heater Add-on 24V (-H)

**Electrical installation**

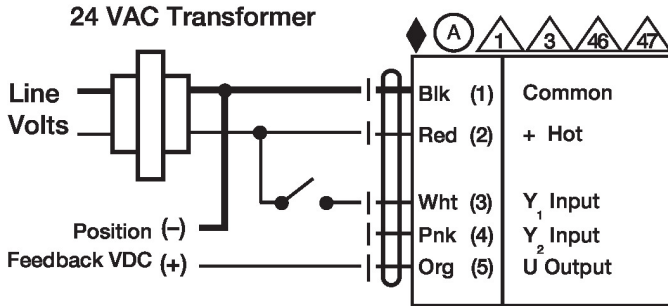
- Actuators with appliance cables are numbered.
- Provide overload protection and disconnect as required.
- Actuators may also be powered by DC 24 V.
- Only connect common to negative (-) leg of control circuits.
- A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.
- For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
- IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).



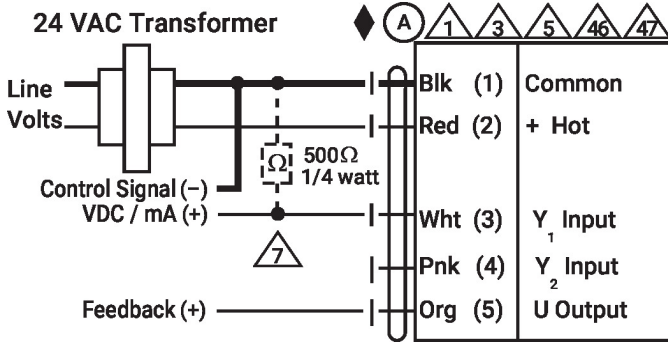
VDC/mA Control

**Wiring diagrams**

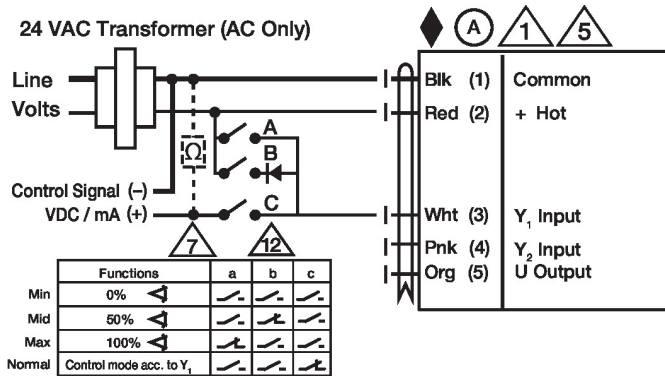
On/Off



VDC/mA Control

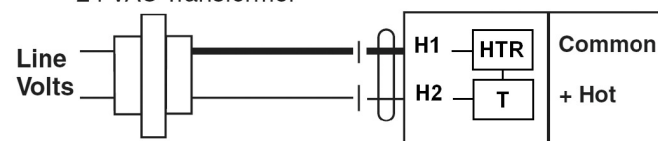


Override Control

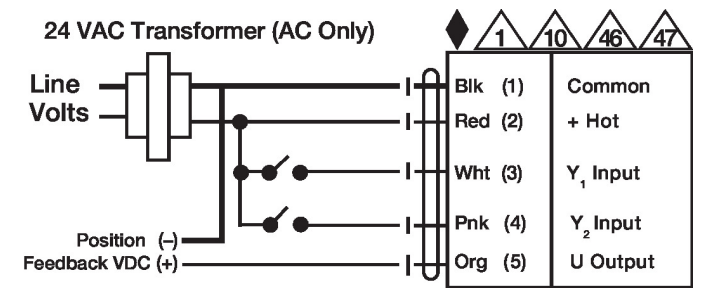


NEMA 4 Heater Option

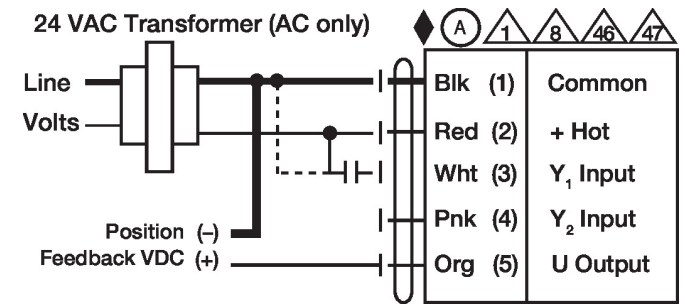
24 VAC Transformer



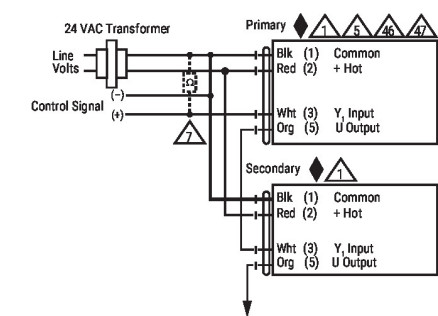
Floating Point



PWM Control



Primary - Secondary



Dimensions

