



5-year warranty



MFT

Technical data

Electrical data	Nominal voltage	AC/DC 24 V	
	Nominal voltage frequency	50/60 Hz	
	Power consumption in operation	12 W	
	Power consumption in rest position	1.5 W	
	Transformer sizing	18 VA (class 2 power source)	
	Electrical Connection	18 GA plenum cable with 1/2" conduit connector, degree of protection NEMA 2 / IP54, 3 ft [1 m] 10 ft [3 m] and 16ft [5 m]	
	Overload Protection	electronic throughout full stroke	
Functional data	Actuating force motor	22 lbf [100 N]	
	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)	
	Position feedback U	2...10 V	
	Position feedback U note	Max. 0.5 mA	
	Position feedback U variable	VDC variable	
	Direction of motion motor	reversible with switch	
	Manual override	external push button	
	Stroke	1.6...4.0" [40...100 mm]	
	Running Time (Motor)	3.5 s 100 mm	
	Noise level, motor	35 dB(A)	
Safety data	Degree of protection IEC/EN	IP54	
	Degree of protection NEMA/UL	NEMA 2 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; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC	
	Quality Standard	ISO 9001	
	Ambient temperature	-22...122°F [-30...50°C]	
	Storage temperature	-40...176°F [-40...80°C]	
	Ambient humidity	max. 95% r.H., non-condensing	
	Servicing	maintenance-free	
	Weight	Weight	1.2 lb [0.54 kg]

Materials Housing material UL94-5VA

Safety notes


- The valves should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. The G2(S) and G3(D) preferred mounting position of the valve is with the valve stem vertical above the valve body, for maximum life. However, the assemblies can be mounted with the valve stem vertical or horizontal in relation to the pipe. The actuators should never be mounted underneath the valve, as condensation can build up and result in a failure of the actuators. Do not reverse flow direction.

Product features

- Application** For proportional modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.
The default parameters for 2 to 10 VDC 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 and limit switches, but is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.
The LHQB(X) series provides 4" [100 mm] of linear stroke. The stroke of the gear rack can be adjusted on both sides in increments of 0.8" [20 mm] by means of the mechanical end stops.
When reaching the damper or actuator end position, the actuator automatically stops. The gears can be manually disengaged with a button on the actuator cover.
The LHQB(X)24-MFT-100 actuators use 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.
- Typical specification** Modulating control, electronic fail-safe damper actuators shall be electronic type with integrated linear stroking arm. Actuators must provide modulating control in response to a control input from an electronic controller or positioner. 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. A 2 to 10 VDC feedback signal shall be provided for position feedback. 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
	DC Voltage Input Rescaling Module	IRM-100
	Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	Battery backup system, for non-spring return models	NSV24 US
	Signal Simulator, Power supply AC 230 V	PS-100
	Convert Pulse Width Modulated Signal to a 2...10 V Signal for Belimo Proportional Actuators	PTA-250
	Positioner for wall mounting	SGA24
	Positioner for front-panel mounting	SGF24
	Cable Conduit Connector 1/2"	TF-CC US
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to LonWorks	UK24LON
	Gateway MP to Modbus RTU	UK24MOD
	Resistor, 500 Ω, 1/4" wire resistor with 6" pigtail wires	ZG-R01
	Resistor Kit, 50% voltage divider	ZG-R02
	Mounting plate for SGF.	ZG-SGF
	Transformer, AC 120 V to AC 24 V, 40 VA	ZG-X40
	Connection cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket	ZK1-GEN

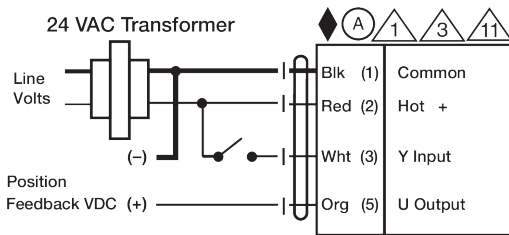
- Connection cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: free wire end for connection to MP/PP terminal ZK2-GEN
- Connection cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection ZK4-GEN
- Service Tool, with ZIP-USB function, for parametrisable and communicative Belimo actuators, VAV controller and HVAC performance devices ZTH US

Mechanical accessories

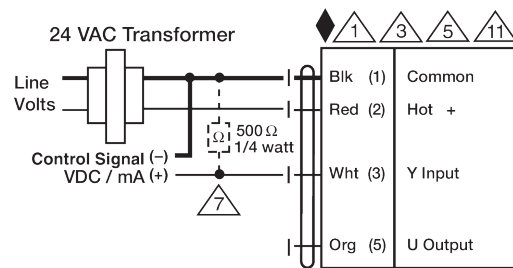
Description	Type
Ball joint suitable for damper crank arm KH8 / KH10	KG10A
Ball joint suitable for damper crank arm KH8	KG6
Ball joint suitable for damper crank arm KH8	KG8
Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter).	SH8
Rotary support, for linear actuator, for compensation of transverse forces	Z-DS1
3/8"-16 shaft clevis for AHK/AH.	Z-KSC
Bracket for AHK/AH/LH linear actuators.	ZG-119

Electrical installation

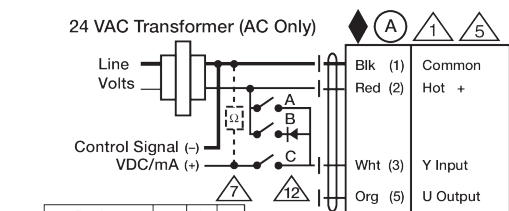
- Ⓐ Actuators with appliance cables are numbered.
- Ⓐ Provide overload protection and disconnect as required.
- Ⓐ Actuators may also be powered by 24 VDC.
- Ⓐ Only connect common to negative (-) leg of control circuits.
- Ⓐ A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- Ⓐ Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.
- Ⓐ IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).



On/Off



VDC/mA Control



Override Control

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

Dimensions

Dimensional drawings

