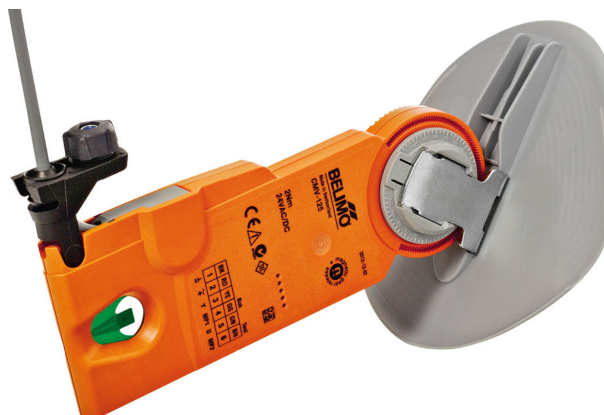Basic Non Fail-Safe multifunction technology actuator for controlling dampers in typical commercial HVAC applications.

• Torque motor 18 in-lb [2 Nm]
• Nominal voltage AC/DC 24 V
• Control modulating, communicative
• Position feedback 2...10 V

5

5-year warranty

CE • cULus • MP-Bus®

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 19.2...28.8 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	1 W
	Transformer sizing	2 VA
	Connection supply / control	cable 3 ft. [1 m], 4 x 0.34 mm²
	Electrical Connection	18 GA plenum cable, 1 m
	Overload Protection	electronic throughout full rotation
Data bus communication	Communicative control	MP-Bus
Functional data	Torque motor	18 in-lb [2 Nm]
	Pipe diameter	6" [DN 150]
	Operating range Y	2...10 V
	Input impedance	100 kΩ
	Operating modes optional	modulating
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Position feedback U variable	VDC variable
	Manual override	disengage with magnet
	Running Time (Motor)	70 s
	Noise level, motor	35 dB(A)
	Position indication	Mechanical, pluggable (with integrated magnet for gear train disengagement)
	Airtightness	Class 2 (DIN EN 1751)
Safety data	Fire behaviour group	Damper blade RF3 (CH)
	Protection class IEC/EN	III, Safety Extra-Low Voltage (SELV)
	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP00
	Degree of protection NEMA/UL	NEMA 1
	Enclosure	UL Enclosure Type 1
	EMC	CE according to 2014/30/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/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
	Type of action	Type 1

Safety data	Rated impulse voltage supply / control	0.8 kV
	Pollution degree	2
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	32...122°F [0...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	0.97 lb [0.44 kg]
Materials	Housing material	UL94-5VA

Safety notes

⚠️

- The device must not be used outside the specified field of application, especially not 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 device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- Cables must not be removed from the device.

Product features

Mode of operation

Conventional operation:

The actuator is connected with a standard control signal of 0...10 V and drives to the position defined by the control signal. The measuring voltage U serves for the electrical display of the actuator position 0.5...100% and as control signal for other actuators.

Operation on Bus:

The actuator receives its digital control signal from the higher level controller via the MP-Bus and drives to the position defined. Connection U serves as communication interface and does not supply an analogue measuring voltage.

Converter for sensors

Connection option for a sensor (active sensor or switching contact). The MP actuator serves as an analog/digital converter for the transmission of the sensor signal via MP-Bus to the higher level system.

Parametrisable actuators

The factory settings cover the most common applications. Single parameters can be modified with the Belimo Service Tools MFT-P or ZTH EU.

Application

Variable volumetric flow with a modulating reference variable, e.g. room temperature controller

direct digital control or bus system, enables demand-related, energy-saving ventilation of

individual rooms or zones. The input for the operating range Vmin ... Vmax can be adapted at the

reference controller (mode switching).

Simple direct mounting

The actuator is mounted directly on the damper shaft (ø6...12.7 mm) with a universal shaft clamp and then secured with the anti-rotation clip, to prevent it from rotating.

Manual override

Manual override with magnet possible (the gear train is disengaged as long as the magnet adheres to the magnet symbol). The magnet for gear train disengagement is integrated in the position indication.

Adjustable angle of rotation

Adjustable angle of rotation with mechanical end stops.

High functional reliability

The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

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

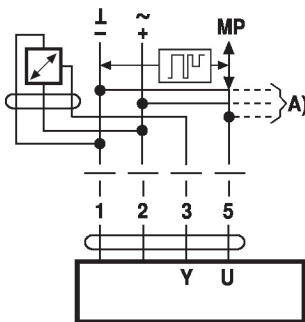|	Tools	Description	Type
		Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
		Connecting cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: free wire end for connection to MP/PP terminal	ZK2-GEN
		Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

Electrical installation

⚠️ **Supply from isolating transformer.**

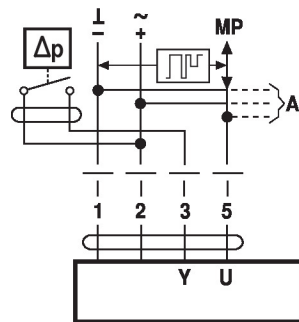**Parallel connection of other actuators possible. Observe the performance data.**

Wiring diagrams

Connection of active sensors

A) additional MP-Bus nodes (max. 8)
• Supply AC/DC 24 V
• Output signal DC 0...10 V (max. DC 0...32 V)
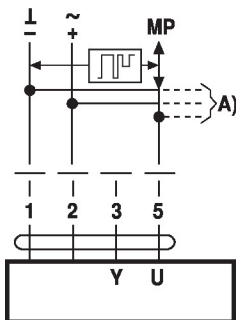• Resolution 30 mV

Connection of external switching contact

A) additional MP-Bus nodes (max. 8)
• Switching current 16 mA @ 24 V
• Start point of the operating range must be parametrised on the MP actuator as ≥ 0.5 V
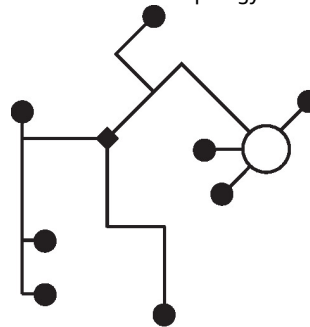
Functions

Functions when operated on MP-Bus

Connection on the MP-Bus

A) additional MP-Bus nodes (max. 8)

MP-Bus Network topology

There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).
Supply and communication in one and the same 3-wire cable
• no shielding or twisting necessary
• no terminating resistors required

Service

Tools connection The actuator can be configured by ZTH EU via terminal connection.

For extended configuration the PC tool can be connected.

Dimensions