

Damper actuator for adjusting dampers in technical building installations

GM120S

- Torque motor 360 in-lb [40 Nm]
- Nominal voltage AC 100...240 V
- Control On/Off, Floating point
- Running Time (Motor) 35 s (35...150 s)
- With two integrated auxiliary switches
- 5-year warranty
- UL Listed device



Picture may differ from product

Technical data

Electrical data	Nominal voltage	AC 100...240 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	5.5 W
	Power consumption in rest position	0.5 W
	Transformer sizing	13 VA
	Auxiliary switch	2x SPST (Single Pole, Single Throw)
	Switching capacity auxiliary switch	1 mA...0.2 A, AC 30...250 V
	Switching points auxiliary switch	S1/S2: 10% / S4/S5: 90% (configurable with Belimo Assistant 2)
	Connection supply/control	cable 3 ft. [1 m] 3x 0.75 mm ² [19 AWG], halogen-free with 1/2" NPT conduit connector
	Connection auxiliary switch	cable 3 ft. [1 m] 4x 0.75 mm ² [19 AWG], halogen-free with 1/2" NPT conduit connector
	Parallel operation	See Electrical Installation or contact your local Belimo representative
Functional data	Torque motor	360 in-lb [40 Nm]
	Direction of motion motor	clockwise rotation (cw)
	Direction of motion note	selectable with Belimo Assistant 2
	Manual override	with lateral handle, can be locked
	Angle of rotation	Max. 95°
	Angle of rotation note	can be electronically limited on both sides with Belimo Assistant 2
	Running Time (Motor)	35 s / 90°
	Running time motor variable	35...150 s
	Noise level, motor	60 dB(A)
	Mechanical interface	Universal shaft clamp reversible 0.47...1.05" [12...26.7 mm]
	Position indication	Mechanical
Safety data	Protection class IEC/EN	II, reinforced insulation
	Protection class UL	II, reinforced insulation
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Housing	UL Enclosure Type 2
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14

Technical data

Safety data	UL Approval	cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1
	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
	Rated impulse voltage supply / control	2.5 kV
	Rated impulse voltage auxiliary switch	2.5 kV
	Pollution degree	3
	Environmental Conditions Operation	Class 3K23 according to IEC 60721-3-3
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-22...131°F [-30...55°C]
	Ambient temperature note	up to 140°F [60°C], max. 2 h/day
	Environmental Conditions Transport	Class 2K11 according to IEC 60721-3-2
	Environmental Conditions Storage	Class 1K21 according to IEC 60721-3-1
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	3.5 lb [1.6 kg]
Materials	Housing material	UL94-5VA

Safety notes



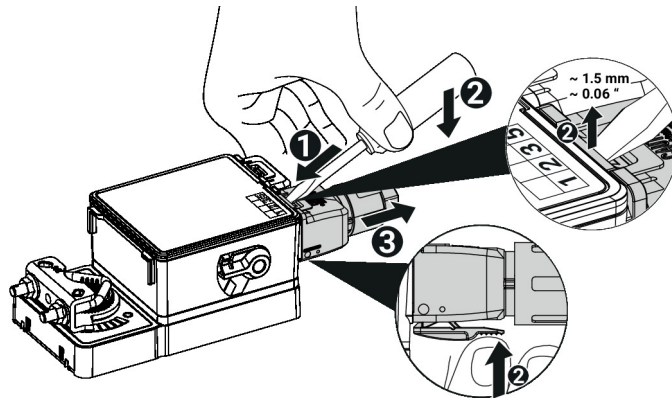
- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea) water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Caution: Line voltage!
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section and design, as well as the installation site and ventilation conditions, must be observed.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Visual status display	The device indicates its operation by means of a green LED.
Configurable Device	The factory settings cover the most common applications. Parameters can be modified wireless via NFC (Near Field Communication) using Belimo Assistant 2.
Simple direct mounting	Simple direct mounting on the damper shaft with a universal shaft clamp, supplied with an anti-rotation mechanism to prevent the actuator from rotating.
Manual override	Manual override possible with lateral handle (the gear train is disengaged for as long as the handle is actuated or remains locked). Manual override with stationary actuator is used for installation, commissioning and maintenance of the application.
Adjustable angle of rotation	Adjustable angle of rotation with electrical end stops. The setting of the control range (Min – Max) is made with Belimo Assistant 2.

Product features

- High functional reliability** The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
- Innovative motorization** The actuator uses the powerful Belimo M600 microchip in combination with the INFORM method. It provides the full starting torque from a standstill with high precision (sensorless INFORM-Drive by Prof. Schrödl).
- Flexible signaling** The actuator is equipped with two adjustable auxiliary switches (locking relay) to display the damper end positions. S1 and S2 are closed when the value is lower than the configured switching point (2...98%). S4 and S5 are closed when the value is higher than the configured switching point (2...98%).
Adjustment is done with Belimo Assistant 2.
- Connection** The cable can be plugged in and unplugged from the device.



Accessories

Tools	Description	Type
	Service tool for wired and wireless setup, on-site operation and troubleshooting.	Belimo Assistant 2
	Belimo Assistant Link Bluetooth and USB to NFC and MP-Bus converter for configurable and communicative devices	LINK.10
	Wrench 0.512 in. [13 mm]	TOOL-07
	Converter Bluetooth / NFC	ZIP-BT-NFC
Electrical accessories	Description	Type
	Connecting terminal compl. IP65 100...240 V, with 1/2" NPT conduit connector	A.EIST.15
	Cable conduit connector, 1/2" NPT	S.EISCC.10
	Connecting terminal compl. 100...240 V	S.EIST.11
	Blind plug	S.EISBP.10
	Seal 0.16... 0.3" (4...7.5 mm)	S.EISS.10
Mechanical accessories	Description	Type
	Position indicator	S.MISPI.10
	Baseplate extension for GM..A to GM..	Z-GMA
	Mounting kit for linkage operation for flat installation	ZG-GMA
	1" diameter jackshaft adaptor (11" L).	ZG-JSA-1

Electrical installation



Caution: Line voltage!

Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

The cable cross-section (mm²) must be determined on the basis of the actuator performance data (VA, W), the cable resistance, the number of actuators, and the total cable length according to electrotechnical principles. High voltage drops across the installation cables can affect the function of the actuator if, for example, the nominal voltage range (AC/DC) is not respected.

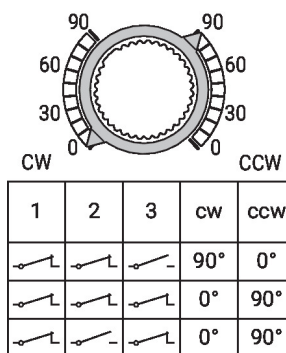
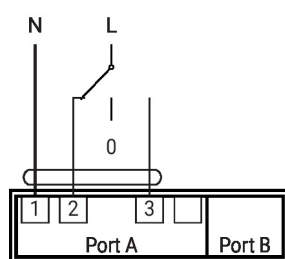
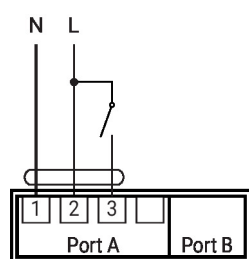
Electrical installation

Wire colors:

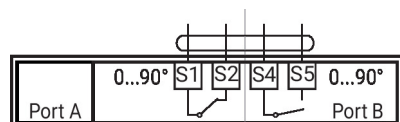
- 1 = blue
- 2 = brown
- 3 = white
- S1 = violet
- S2 = red
- S4 = orange
- S5 = pink

AC 100...240 V, on/off

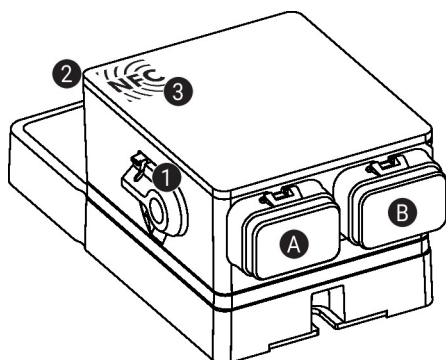
AC 100...240 V, floating point



Auxiliary switch



Operating controls and indicators



1 Manual override lever

Rotate lever counterclockwise to end position:

- Gear train disengages, manual override possible

Return lever clockwise to starting position:

- Gear train engages, followed by standard mode

2 Status display, LED green

LED on: operation OK

LED flashing: Connect device with Belimo Assistant 2 for additional information

LED off: No power supply

3 NFC interface

A Port A, see Electrical Installation

B Port B, see Electrical Installation

Service

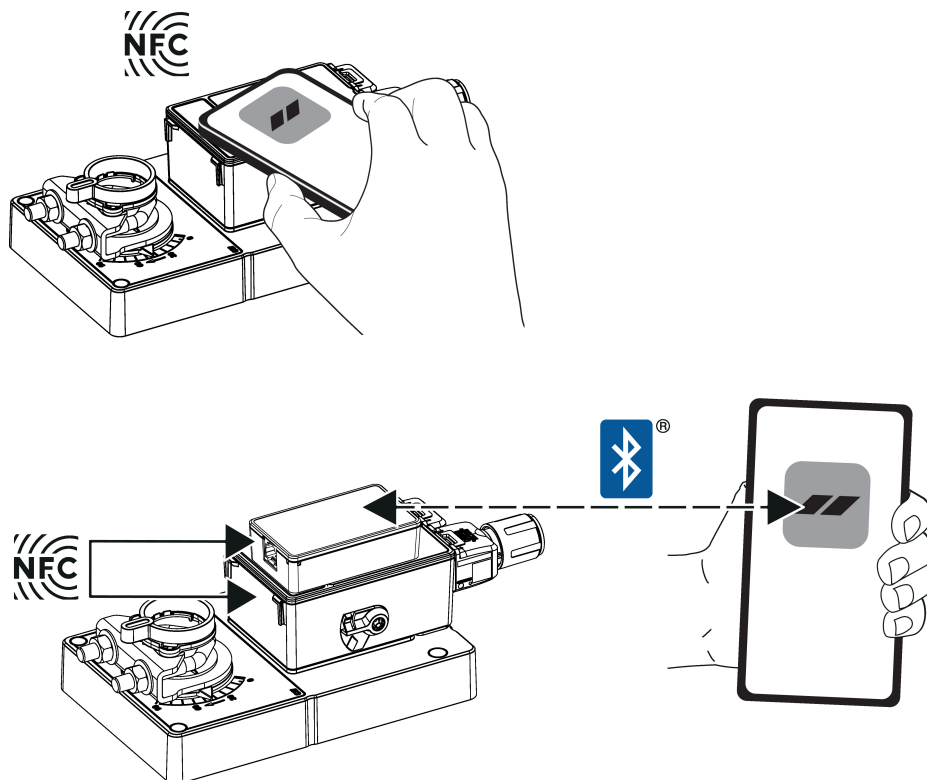
Using Belimo Assistant 2, device parameters can be modified. Belimo Assistant 2 can operate on a smartphone, tablet, or PC. The available connection options vary depending on the hardware on which Belimo Assistant 2 is installed.

For more information about Belimo Assistant 2, refer to the Quick Guide – Belimo Assistant 2.

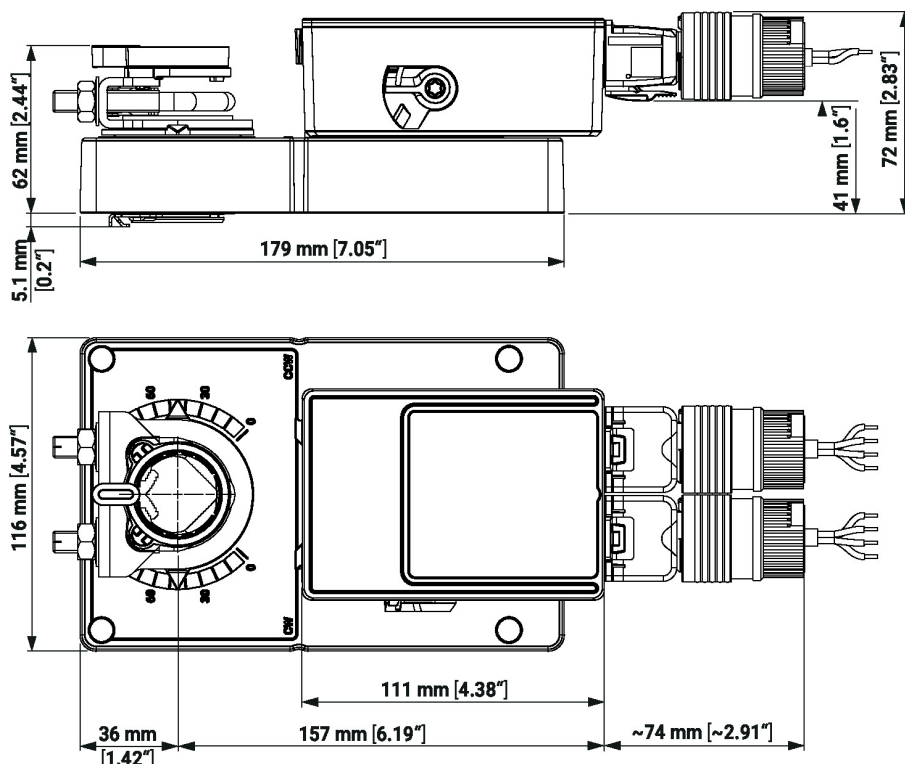
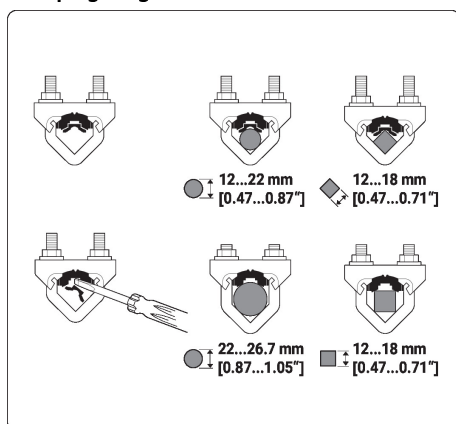
Service
Wireless connection

Belimo devices marked with the NFC logo can be accessed either directly with an NFC-capable smartphone or with a Bluetooth-capable smartphone connected to Belimo Assistant Link or ZIP-BT-NFC.

Align the NFC-capable smartphone or Belimo Assistant Link with the device's NFC logo so that both NFC antennas are superposed.


Dimensions
Stem length

	Min. 2.05" [52 mm]
	Min. 0.75" [20 mm]

Clamping range


Further documentation

- Quick Guide – Belimo Assistant 2