

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

- Torque motor 1400 in-lb [160 Nm]
- Nominal voltage AC 24...240 V / DC 24...125 V
- Control MFT/programmable
- Position feedback 2...10 V
- 2 x SPDT



5-year warranty



Technical data

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|-------------------------------|-------------------------------------|--|
| Electrical data | Nominal voltage | AC 24...240 V / DC 24...125 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...264 V / DC 19.2...137.5 V |
| | Power consumption in operation | 52 W |
| | Power consumption in rest position | 9 W |
| | Transformer sizing | with 24 V 54 VA / with 240 V 68 VA |
| | Auxiliary switch | 2 x SPDT, 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V (II, reinforced insulation), one set at 12.5°, one adjustable 2.5° - 92.5° |
| | Switching capacity auxiliary switch | 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V (II, reinforced insulation) |
| | Electrical Connection | Terminal blocks, (PE) Ground-Screw |
| | Overload Protection | electronic throughout 0...95° rotation |
| Data bus communication | Communicative control | BACnet MS/TP |
| Functional data | Torque motor | 1400 in-lb [160 Nm] |
| | holding torque | 50 Nm |
| | Operating range Y | 2...10 V |
| | Operating range Y note | 4...20 mA |
| | 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 |
| | 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 |
| | Setting Fail-Safe Position | 0...100%, adjustable with Belimo Assistant App (default setting 0%) |
| | Bridging time (PF) | 2 s |
| | Bridging time (PF) variable | 0...10 s |
| | Pre-charging time | 5...20 s |
| | Direction of motion motor | reversible with app |
| | Direction of motion fail-safe | reversible with app |
| | Manual override | 7 mm hex crank, supplied |
| | Angle of rotation | 95° |
| Running Time (Motor) | 35 s / 90° | |

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| Functional data | Running time motor variable | 30...120 s |
| | Running time fail-safe | <30 s |
| | Noise level, motor | 68 dB(A) |
| | Noise level, fail-safe | 62 dB(A) |
| | Position indication | integral pointer |
| Safety data | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP66/67 |
| | Degree of protection NEMA/UL | NEMA 4X |
| | Enclosure | UL Enclosure Type 4X |
| | Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU |
| | Quality Standard | ISO 9001 |
| | Ambient humidity | Max. 100% RH |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Servicing | maintenance-free |
| Weight | Weight | 14 lb [6.5 kg] |
| Materials | Housing material | die cast aluminium polycarbonate cover |

Product features

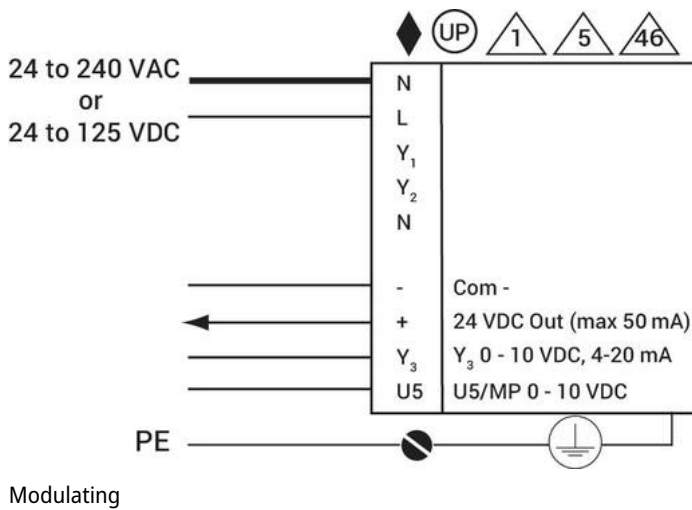
| | |
|------------------------------|---|
| Default/Configuration | Default parameters for DC 2...10 V applications of the PKBUP-MFT actuator are assigned during manufacturing. These parameters can be edited in the field via NFC and the Belimo Assistant APP. |
| Application | PKB Series damper actuators are designed to accommodate a mounting bracket and coupler or linkage for remote linkage connection. A visual position indicator shows the actuators position through-out its stroke. For outdoor applications, the installed actuator must be mounted with the actuator at or above horizontal. For indoor applications the actuator can be in any position including upside down. |
| Operation | <p>The PKB series provides 95° of rotation and a visual indicator shows the position of the damper actuator. The PKB series actuator uses a low power consumption brushless DC motor and is electronically protected against overload. A universal power supply is furnished to connect supply voltage in the range of AC 24...240 V and DC 24...125 V. Included is a smart heater with thermostat to eliminate condensation. Two auxiliary switches are provided; one set at 12.5° open and the other is field adjustable. Running time is field adjustable from 30...120 seconds by using the Near Field Communication (NFC) app and a smart phone.</p> <p>†Use 60°C/75°C copper wire size range 12-28 AWG, stranded or solid. 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 4000 V. Type of action 1. Control pollution degree 3.</p> |
| Bridging time | <p>Power failures can be bridged up to a maximum of 10 s.</p> <p>In the event of a power failure, the actuator will remain stationary in accordance with the set bridging time. If the power failure is greater than the set bridging time, the actuator will move into the selected fail-safe position.</p> <p>The bridging time set at the factory is 2 s. It can be modified on site in operation by means of the Belimo service tool MFT-P.</p> <p>Settings: The rotary knob must not be set to the "PROG FAIL-SAFE" position!</p> <p>For retroactive adjustments of the bridging time with the Belimo service tool MFT-P or with the ZTH EU adjustment and diagnostic device only the values need to be entered.</p> |
| Factory settings | Default parameters for DC 2...10 V applications of the PKBUP-MFT actuator are assigned during manufacturing. These parameters can be edited in the field via NFC and the Belimo Assistant APP. |

Accessories

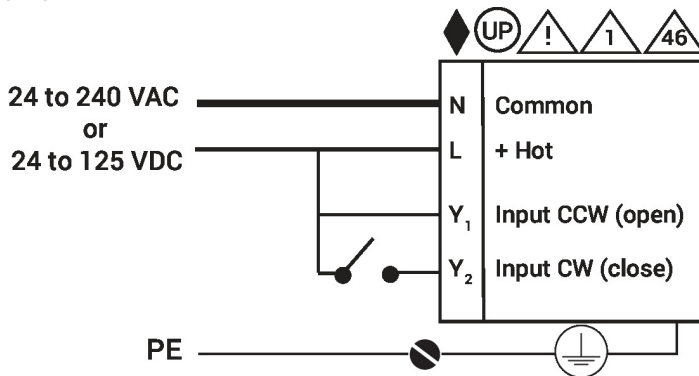
| Electrical accessories | Description | Type |
|------------------------|---|--------|
| | Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US |

Electrical installation

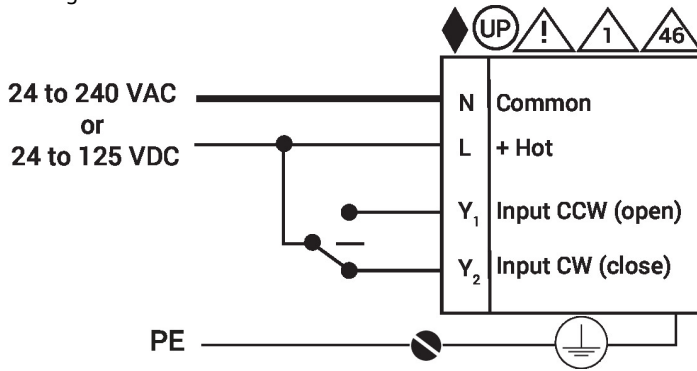
- ◆ Meets cULus requirements without the need of an electrical ground connection.
- Ⓢ UP Universal Power Supply (UP) models can be supplied with 24 V up to 240 V.
- ⚠ Disconnect power.
- ⚠ Provide overload protection and disconnect as required.
- ⚠ 4 Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.
- ⚠ 5 Only connect common to negative (-) leg of control circuits.
- ⚠ 46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- ⚠ **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.



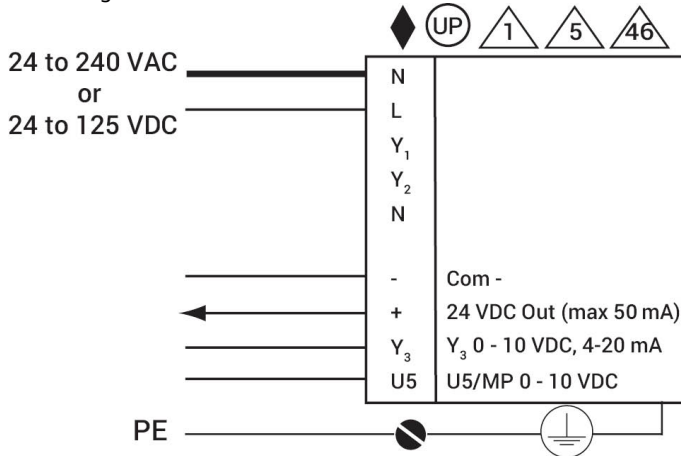
Wiring diagrams
On/Off



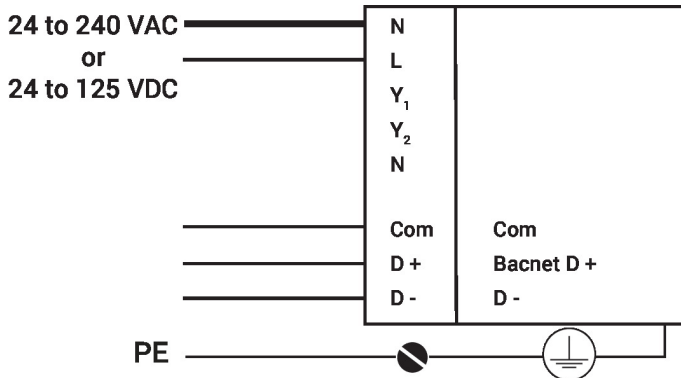
Floating Point



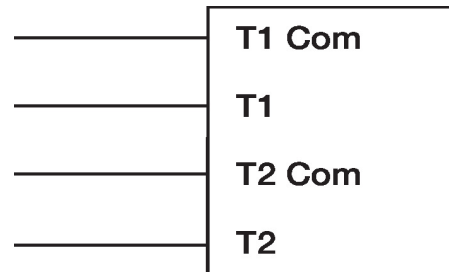
Modulating



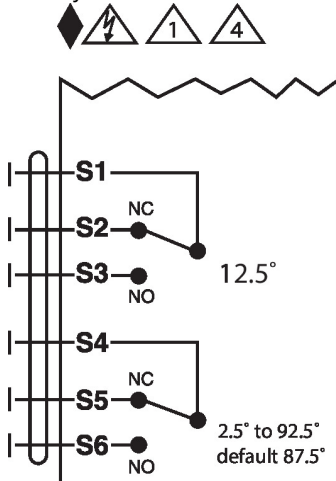
BACnet



Temperature Sensors



Auxiliary Switches



Dimensions

