

RobustLine damper actuator for adjusting dampers in HVAC plants, comparable industrial plants and technical building installations

- Air damper size up to approx. 4 m<sup>2</sup>
- Torque motor 20 Nm
- Nominal voltage AC 100...240 V
- Control Open/close, 3-point
- with integrated auxiliary switch
- Optimum protection against corrosion and chemical influences, UV radiation, damp and condensation



Picture may differ from product

## Technical data

|                        |                                          |                                                                                                                                                                           |
|------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Electrical data</b> | Nominal voltage                          | AC 100...240 V                                                                                                                                                            |
|                        | Nominal voltage frequency                | 50/60 Hz                                                                                                                                                                  |
|                        | Nominal voltage range                    | AC 85...265 V                                                                                                                                                             |
|                        | Power consumption in operation           | 2.5 W                                                                                                                                                                     |
|                        | Power consumption in rest position       | 0.6 W                                                                                                                                                                     |
|                        | Power consumption for wire sizing        | 6 VA                                                                                                                                                                      |
|                        | Auxiliary switch                         | 1x SPDT, 0...100%                                                                                                                                                         |
|                        | Switching capacity auxiliary switch      | 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V                                                                                                                           |
|                        | Connection supply / control              | Cable 1 m, 3x 0.75 mm <sup>2</sup> , FRNC (halogen-free)                                                                                                                  |
|                        | Connection auxiliary switch              | Cable 1 m, 3x 0.75 mm <sup>2</sup> , FRNC (halogen-free)                                                                                                                  |
|                        | Parallel operation                       | Yes (note the performance data)                                                                                                                                           |
| <b>Functional data</b> | Torque motor                             | 20 Nm                                                                                                                                                                     |
|                        | Direction of motion motor                | selectable with switch 0 (ccw rotation) / 1 (cw rotation)                                                                                                                 |
|                        | Manual override                          | with push-button, can be locked                                                                                                                                           |
|                        | Angle of rotation                        | Max. 95°                                                                                                                                                                  |
|                        | Angle of rotation note                   | can be limited on both sides with adjustable mechanical end stops                                                                                                         |
|                        | Running time motor                       | 150 s / 90°                                                                                                                                                               |
|                        | Sound power level, motor                 | 45 dB(A)                                                                                                                                                                  |
|                        | Mechanical interface                     | Universal shaft clamp 14...20 mm                                                                                                                                          |
|                        | Position indication                      | Mechanical, pluggable                                                                                                                                                     |
| <b>Safety data</b>     | Protection class IEC/EN                  | II, reinforced insulation                                                                                                                                                 |
|                        | Protection class UL                      | II, reinforced insulation                                                                                                                                                 |
|                        | Protection class auxiliary switch IEC/EN | II, reinforced insulation                                                                                                                                                 |
|                        | Degree of protection IEC/EN              | IP66/67                                                                                                                                                                   |
|                        | Degree of protection NEMA/UL             | NEMA 4X                                                                                                                                                                   |
|                        | Housing                                  | UL Enclosure Type 4X                                                                                                                                                      |
|                        | 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                                                                                                                                      |
|                        | UL Approval                              | cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1<br>The UL marking on the actuator depends on the production site, the device is UL-compliant in any case |
|                        | Type of action                           | Type 1.B                                                                                                                                                                  |
|                        | Rated impulse voltage supply / control   | 2.5 kV                                                                                                                                                                    |
|                        | Rated impulse voltage auxiliary switch   | 2.5 kV                                                                                                                                                                    |

**Technical data**

|                    |                     |                          |
|--------------------|---------------------|--------------------------|
| <b>Safety data</b> | Pollution degree    | 4                        |
|                    | Ambient humidity    | Max. 100% RH             |
|                    | Ambient temperature | -30...50°C [-22...122°F] |
|                    | Storage temperature | -40...80°C [-40...176°F] |
|                    | Servicing           | maintenance-free         |
| <b>Weight</b>      | Weight              | 1.8 kg                   |

**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.
- Caution: Mains voltage!
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- Junction boxes must at least correspond with housing IP degree of protection!
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- 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.
- The cables must not be removed from the device installed in the interior.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section and the design, as well as the installation situation and the 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.
- The information on chemical resistance refers to laboratory tests with raw materials and finished products and to trials in the field in the areas of application indicated.
- The materials used may be subjected to external influences (temperature, pressure, constructional fixture, effect of chemical substances, etc.), which cannot be simulated in laboratory tests or field trials.
- The information regarding areas of application and resistance can therefore only serve as a guideline. In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty. The chemical or mechanical resistance of the materials used is not alone sufficient for judging the suitability of a product. Regulations pertaining to combustible liquids such as solvents etc. must be taken into account with special reference to explosion protection.
- Flexible metallic cable conduits or threaded cable conduits of equal value are to be used for UL (NEMA) Type 4X applications.
- When used under high UV loads, e.g. extreme sunlight, the use of flexible metallic or equivalent cable conduits is recommended.

**Product features**

- Fields of application** The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:
- Wood drying
  - Animal breeding
  - Food processing
  - Agriculture
  - Indoor swimming pools / bathhouses
  - Rooftop ventilation plant rooms
  - General outdoor applications
  - Alternating climate
  - Laboratories

**Product features**

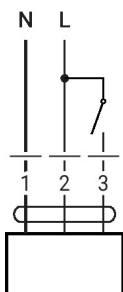
|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Resistances</b>                  | <p>Noxious gas test EN 60068-2-60 (Fraunhofer Institut ICT / DE)</p> <p>Salt fog spray test EN 60068-2-52 (Fraunhofer Institut ICT / DE)</p> <p>Ammoniac test DIN 50916-2 (Fraunhofer Institut ICT / DE)</p> <p>Climate test IEC60068-2-30 (Trikon Solutions AG / CH)</p> <p>Disinfectant (animals) (Trikon Solutions AG / CH)</p> <p>UV Test (Solar radiation at ground level) EN 60068-2-5, EN 60068-2-63 (Quinel / Zug CH)</p> |
| <b>Used materials</b>               | <p>Actuator housing polypropylene (PP)</p> <p>Cable glands / hollow shaft polyamide (PA)</p> <p>Connecting cable FRNC</p> <p>Clamp / screws in general Steel 1.4404</p> <p>Seals EPDM</p> <p>Form fit insert aluminium anodised</p>                                                                                                                                                                                               |
| <b>Simple direct mounting</b>       | Simple direct mounting on the damper shaft with a universal shaft clamp, supplied with an anti-rotation mechanism to prevent the actuator from rotating.                                                                                                                                                                                                                                                                          |
| <b>Manual override</b>              | Manual override with push-button possible (the gear train is disengaged for as long as the button is pressed or remains locked).                                                                                                                                                                                                                                                                                                  |
| <b>Adjustable angle of rotation</b> | Adjustable angle of rotation with mechanical end stops. Standard setting 0...90°. The housing cover must be removed to set the angle of rotation.                                                                                                                                                                                                                                                                                 |
| <b>High functional reliability</b>  | The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.                                                                                                                                                                                                                                                                                                              |
| <b>Flexible signalling</b>          | <p>With adjustable auxiliary switch (0...100%)</p> <p>The housing cover must be removed to set the auxiliary switch.</p>                                                                                                                                                                                                                                                                                                          |

**Electrical installation**

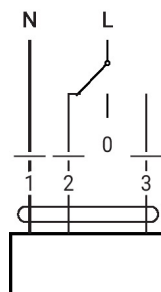
**Caution: Mains voltage!**
**Parallel connection of other actuators possible. Observe the performance data.**
**Wire colours:**

1 = blue  
 2 = brown  
 3 = white  
 S1 = violet  
 S2 = red  
 S3 = white

AC 230 V, open/close

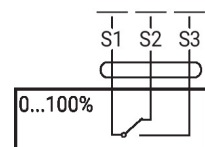


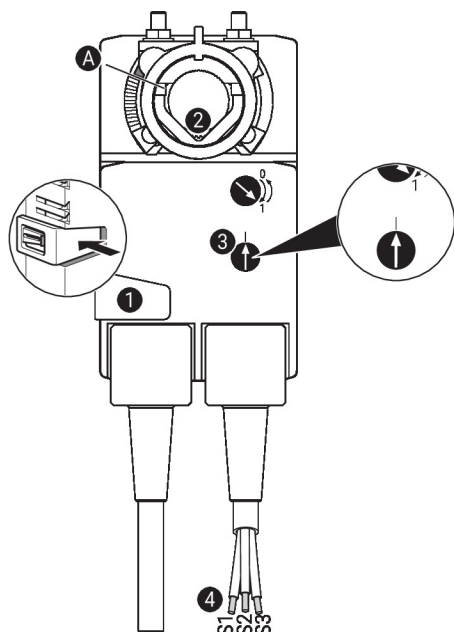
AC 230 V, 3-point



| 1 | 2 | 3 | 0 | 1 |
|---|---|---|---|---|
|   |   |   |   |   |
|   |   |   |   |   |
|   |   |   |   |   |
|   |   |   |   |   |

Auxiliary switch

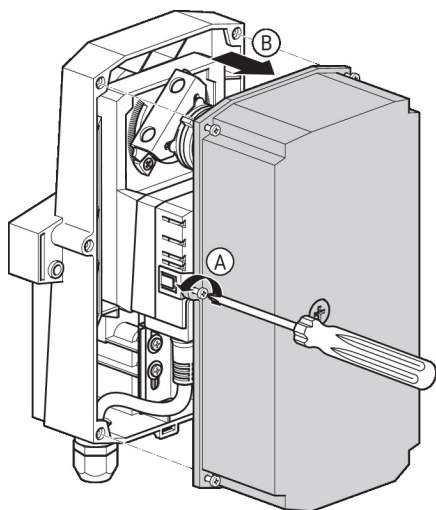


**Operating controls and indicators**

**Auxiliary switch settings**


**Note:** Perform settings on the actuator only in deenergised state.

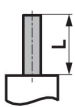
For the auxiliary switch position settings, carry out points 1 to 4 successively.

- 1 **Manual override button**  
Holding button pressed down: Gear train disengages.  
Manual override is possible.
- 2 **Shaft clamp**  
Turn until edge line A displays the desired switching position of the actuator and release button 1.
- 3 **Auxiliary switch**  
Turn rotary knob until the arrow points to the vertical line.
- 4 **Cable**  
Connect continuity tester to S1 + S2 or to S1 + S3.  
If the auxiliary switch should switch in the opposite direction, rotate the auxiliary switch by 180°.



## Dimensions

## Shaft length

|                                                                                   |         |
|-----------------------------------------------------------------------------------|---------|
|  | -       |
|  | 20...58 |

## Clamping range

|                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |
| 14...20                                                                           | 10...14                                                                           | 14...20                                                                           |

